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November 19, 2009

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Attn: Mr. Adolph Everett, P.E.  
Chief, RCRA Programs Branch

Re: Contract N62470-07-D-0502  
IQC for A/E Services for Multi-Media  
Environmental Compliance Engineering Support  
Delivery Order (DO) 0002  
U.S. Naval Activity Puerto Rico (NAPR)  
EPA I.D. No. PR2170027203  
Draft Phase I of the Corrective Measures Study Investigation for SWMU 74 – Fuel Pipelines  
and Hydrant Pits

Dear Mr. Everett:

Michael Baker Jr., Inc. (Baker), on behalf of the Navy, is pleased to provide you with one hard copy and one electronic copy of the Draft Phase I of the Corrective Measures Study Investigation for SWMU 74 – Fuel Pipelines and Hydrant Pits. The hard copy of this report includes the text, tables, and figures while the appendices are provided on a separate CD within the binder due to the over 2,200 pages that make up these appendices. Additional distribution has been made as indicated below.

If you have questions regarding this submittal, please contact Mr. Mark Davidson at (843) 743-2124.

Sincerely,  
**MICHAEL BAKER JR., INC.**

Mark E. Kimes, P.E.  
Activity Coordinator

MEK/lp  
Attachments

cc: Ms. Debra Evans-Ripley, BRAC PMO SE (letter only)  
Mr. David Criswell, BRAC PMO SE (letter only)  
Mr. Mark Davidson, BRAC PMO SE (1 hard copy and 1 CD)  
Mr. Pedro Ruiz, NAPR (1 CD)  
Mr. Tim Gordon, US EPA Region II (1 hard copy and 1 CD)  
Mr. Carl Soderberg, US EPA Caribbean Office (1 hard copy and 1 CD)  
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Mr. Anthony Scacifero, TechLaw, Inc. (1 CD)



# ***DRAFT PHASE I of the CORRECTIVE MEASURES STUDY INVESTIGATION SWMU 74 – FUEL PIPELINES and HYDRANT PITS***

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***For*** NAVAL ACTIVITY PUERTO RICO  
EPA I.D. No. PR2170027203  
CEIBA, PUERTO RICO



*Prepared by:*

**Baker**

Michael Baker Jr., Inc.  
Moon Township, PA



*Prepared for:*

**Department of the Navy  
NAVFAC SOUTHEAST**  
*North Charleston, South Carolina*

Contract No. N62470-07-D-0502  
DO 0002

November 19, 2009

**IQC for A/E Services for Multi-Media Environmental Compliance  
Engineering Support**

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**DRAFT**

**PHASE I of the CORRECTIVE MEASURES STUDY INVESTIGATION  
SWMU 74 – FUEL PIPELINES and HYDRANT PITS**

**NAVAL ACTIVITY PUERTO RICO  
EPA I.D. NO. PR2170027203  
CEIBA, PUERTO RICO**

**November 19, 2009**

*Prepared for:*

**DEPARTMENT OF THE NAVY  
NAVFAC SOUTHEAST  
*North Charleston, SC***

*Under:*

**Contract No. N62470-07-D-0502  
DELIVERY ORDER 0002**

*Prepared by:*

**MICHAEL BAKER JR., INC.  
*Moon Township, Pennsylvania***

**I certify under penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that this document and its attachments were prepared either by me personally or under my direction or supervision in a manner designed to ensure that qualified and knowledgeable personnel properly gather and present the information contained therein. I further certify, based on my personal knowledge or on my inquiry of those individuals immediately responsible for obtaining the information, that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowingly and willfully submitting a materially false statement.**

**Signature:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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## LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AQUIRE	Aquatic Toxicity Information Retrieval
AST	Aboveground Storage Tank
AVGAS	Aviation Gasoline
Baker	Michael Baker Jr., Inc.
bgs	below ground surface
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CADD	Computer Aided Design and Drafting
CCME	Canadian Council of Ministers of the Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CMS	Corrective Measures Study
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
CSF	Cancer Slope Factor
DataQual	DataQual Environmental Services, LLC
DFM	Diesel Fuel Marine
DO	Delivery Order
DPT	Direct Push Technology
DRO	Diesel Range Organics
DGPS	Differential Global Positioning System
EC	Effective Concentration
Eco-SSLs	Ecological Soil Screening Levels
ECP	Environmental Condition of Property
EPA	Environmental Protection Agency
FCV	Final Chronic Values
FID	Flame Ionization Detector
ft	foot
GC/MS	Gas Chromatograph/Mass Spectrometer
GIS	Geographic Information System
GPS	Global Positioning System
GRO	Gasoline Range Organics
HSA	Hollow-Stem Auger
HQ	Hazard Quotient
ILCR	Incremental Lifetime Cancer Risk
IDW	Investigation-Derived Waste
ISCA	Interference Check Solution A
ISCAB	Interference Check Solution AB
IUR	Inhalation Unit Risk

## LIST OF ACRONYMS AND ABBREVIATIONS

(continued)

J	Estimated
JFA	JFA Geological and Environmental Scientists
kg	kilogram
LANTDIV	Atlantic Division Naval Facility Engineering Command
LLPAH	Low-Level Polynuclear Aromatic Hydrocarbon
LOAEC	Lowest Observed Adverse Effect Concentration
LOEC	Lowest Observed Effect Concentration
LOEL	Lowest Observable Effect Level
MATC	Maximum Acceptable Toxicant Concentration
MCL	Maximum Contaminant Level
MEK	Methyl Ethyl Ketone
MIBK	Methyl Isobutyl Ketone
mg/kg	Milligrams per Kilogram
MHSPE	Ministry of Housing, Spatial Planning and Environment
MOGAS	Motor Gasoline
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAD	North American Datum
NAPR	Naval Activity Puerto Rico
NAVFAC	Naval Facilities Engineering Command Atlantic Division
NAWQC	National Ambient Water Quality Criteria
NFESC	Naval Facilities Engineering Service Center
NOAA	National Oceanic and Atmospheric Administration
NOAEC	No Observed Adverse Effect Concentration
NOEC	No Observed Effect Concentration
NSRR	Naval Station Roosevelt Roads
PAH	Polynuclear Aromatic Hydrocarbons
PID	Photoionization Detector
PMO	Program Management Office
POL	Petroleum, Oil and Lubricants
PR	Puerto Rico
PREQB	Puerto Rico Environmental Quality Board
PRG	Preliminary Remediation Goals
PVC	Polyvinyl Chloride
QC	Quality Control
QA/QC	Quality Assurance/Quality Control
R	Rejected
RAGS	Risk Assessment Guidance for Superfund
RBCs	Risk Based Calculations
RCRA	Resource Conservation and Recovery Act
RfD	Reference Doses

## **LIST OF ACRONYMS AND ABBREVIATIONS**

(continued)

RfC	Reference Concentrations
RPD	Relative Percent Difference
RRF	Relative Response Factor
RTK	Real-Time Kinetic
SCV	Secondary Chronic Values
SDG	Sample Delivery Group
SE	Southeast
SL	Screening Level
SOP	Standard Operating Procedure
SPCC	Spill Prevention, Control, and Countermeasures Plan
SQUIRTs	Screening Quick Reference Tables
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TGO™	Trimble Geomatics Office
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
VP	Valve Pit

## **1.0 INTRODUCTION**

This document presents the results of Phase I of the Corrective Measures Study (CMS) Investigation conducted for Solid Waste Management Unit (SWMU) 74 (Fuel Pipelines and Hydrant Pits) at Naval Activity Puerto Rico (NAPR), Ceiba, Puerto Rico, formerly known as Naval Station Roosevelt Roads (NSRR). This report has been prepared by Michael Baker Jr., Inc. (Baker), for the Navy Base Realignment and Closure (BRAC) Program Management Office (PMO) Southeast (SE) office under contract with the Naval Facilities Engineering Command (NAVFAC), SE (Contract Number N62470-07-D-0502, Delivery Order [DO] 0002).

The United States Environmental Protection Agency (USEPA) issued a Resource Conservation and Recovery Act (RCRA) 7003 Administrative Order on Consent (Environmental Protection Agency [EPA] Docket No. RCRA-02-2007-7301) (USEPA, 2007a), which identified SWMU 74 (formerly referred to as Environmental Condition of Property (ECP) Site 20) as having documented releases of solid and/or hazardous waste and hazardous constituents. The Administrative Order required preparation of an acceptable work plan to complete site characterization and completion of a CMS to determine the final remedy for the SWMU. The Final CMS Work Plan for SWMU 74 (Baker, 2007) was approved by the USEPA on April 10, 2008. Phase I of the CMS Investigation was conducted in April through July 2008 following the approved work plan.

### **1.1 Purpose of Report**

This report has been prepared to document the findings of the April through July 2008 Phase I field work, which was implemented to identify areas with fuel related impacts in surface soil, subsurface soil and groundwater at SWMU 74.

### **1.2 Objectives**

The objectives of Phase I of the CMS investigation are to:

- Identify areas impacted by potential releases of fuel related contaminants from SWMU 74 by comparison of analytical data for surface soil, subsurface soil and groundwater to applicable environmental screening and background criteria.
- Provide recommendations for the approach to delineate the identified areas of contamination for Phase II of the CMS investigation.

### **1.3 Organization of Phase I of the CMS Investigation Report**

This Phase I of the CMS Investigation Report is organized into 11 sections. Sections 1 and 2 present the introduction and background information for SWMU 74. Section 3 provides a description of the field work activities including soil and groundwater sampling, quality assurance/quality control (QA/QC) procedures and other investigation considerations. Section 4 presents and discusses the rationale used for environmental data comparison and evaluation. Sections 5 through 9 present the results of the data evaluation for each media associated with SWMU 74. Section 10 discusses overall conclusions and recommendations and Section 11 presents the document references.

## **2.0 BACKGROUND INFORMATION**

This section discusses the history and description of NAPR and SWMU 74. This section also includes a summary of the results of previous investigations conducted at SWMU 74.

### **2.1 NAPR Description and History**

NAPR occupies over 8,800 acres on the northern side of the east coast of Puerto Rico; along Vieques Passage with Vieques Island lying to the east about ten miles off the harbor entrance (see Figure 2-1). NAPR also occupies the immediately adjacent islands of Piñeros and Cabeza de Perro, as presented on Figure 2-2. The northern entrance to NAPR is about 35 miles east along the coast road (Route 3) from San Juan. The property consists of 3,938 acres of upland (developable) property and 4,955 acres of environmentally sensitive areas including wetlands, mangrove, and wildlife habitat. The closest large town is Fajardo (population approximately 41,000), which is about five miles north of NAPR off Route 3. Ceiba (population approximately 18,000) adjoins the west boundary of NAPR (see Figure 2-1).

The facility was commissioned in 1943 as a Naval Operations Base, and re-designated as a Naval Station in 1957. Naval Station Roosevelt Roads operated as a Naval Station from 1957 until March 31, 2004. NSRR was one of the largest naval facilities in the world with more than 100 miles of paved roads, approximately 1,300 buildings, a large scale airfield (Ofstie Field), a deep water port and over 30 tenant commands. NSRR played a major role in providing communication support to the Atlantic and Caribbean areas and also served as a major training site for fleet exercises.

Section 8132 of fiscal year 2004 Defense Appropriations Act, signed into law on September 30, 2003, directed that NSRR be disestablished within six months, and that the real estate disposal/transfer be carried out in accordance with procedures contained in the BRAC Act of 1990. This legislation required that the base closure be conducted in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended by the Community Environmental Response Facilitation Act (CERFA). NSRR has undergone operational closure as of March 31, 2004 and has been designated as Naval Activity Puerto Rico. The mission of NAPR is to protect the physical assets remaining, comply with environmental regulations, and sustain the value of the property until final disposal of the property. NAPR will continue until the real estate disposal/transfer is completed.

In anticipation of operational closure of NSRR, the Naval Facilities Engineering Command, Atlantic Division (LANTDIV) prepared Phase I/Phase II ECP Reports to document the environmental condition of NSRR. The Draft Phase I Environmental Condition of Property Report dated March 31, 2004 (LANTDIV, 2004) identified new sites at NAPR based on the results of a review of records, an analysis of historic aerial photographs, physical site inspections, and interviews with persons familiar with past and current operations and activities. The new ECP sites had not been previously identified or investigated under existing environmental program areas. A Phase II ECP field investigation was performed in 2004 to conduct environmental sampling to determine if a release/disposal actually occurred at any of the Phase I ECP sites recommended for further evaluation in the Phase I ECP and, if so, whether any potential risk to human health was present (NAVFAC Atlantic, 2005). The Final ECP report recommended completion of a RCRA corrective action for ECP Site 20 (SWMU 74), which was the basis for the Corrective Measure Study and this report.

The USEPA issued a RCRA 7003 Administrative Order (Environmental Protection Agency Docket No. RCRA-02-2007-7301), which identifies SWMU 74 (formerly referred to as ECP Site

20) as having documented releases of solid and/or hazardous waste and hazardous constituents and requiring development of an acceptable work plan to complete a CMS. Following a public comment period the Administrative Order became effective on January 29, 2007.

## **2.2 SWMU 74 Description**

SWMU 74 (Fuel Pipelines and Hydrant Pits), consisting of fuel pipelines, valve pits, and hydrants, transverses across a large area of the central and eastern portions of the Base, as shown on Figure 2-2. It is estimated that approximately 60,000 feet of pipelines are present in SWMU 74, based on information provided in a fuel pipeline and tank cleaning Project Completion Report (AGVIQ-CH2M Hill, 2005). SWMU 74 does not include sediments in Ensenada Honda, as these have been designated as Area of Concern (AOC) D, or the Tow Way Fuel Farm, which has been designated as SWMU 7/8.

As shown on Figure 2-3, SWMU 74 endpoints are the deep water piers located at the Ensenada Honda and the Airfield Hydrant System. There are three piers located at the Ensenada Honda of which two were used for ship refueling and are equipped with fuel lines out over the water. The Airfield endpoint includes a line of four aircraft refueling hydrants fed by a day tank storage area equipped with pumps, valves, and a filtration system. Typically, diesel fuel marine (DFM) was piped to the piers to fuel ships and JP-5 to the Airfield to fuel planes. Although, JP-5 was also used in some military ships because of the reduced flashpoints and was considered safer during combat. DFM and JP-5 were stored in large steel above ground storage tanks or concrete cut and cover below ground (bunkered) tanks located at up to six different areas of the Base. For reference, these fuel storage areas will be discussed in chronological order of when they were put into service according to the Spill Prevention Control and Countermeasures (SPCC) Plan (Baker, 2003). However, SWMU 74 is limited to the piping and valve pits between these storage areas and not the storage areas themselves.

An original underground day tank (underground storage tank [UST] 429) of 218,000 gallons was installed to supply the immediate need of the hydrant system at the airfield. The exact date of installation of this tank is unknown, but was most likely installed in conjunction with the airfield construction in the 1940's. A new day tank was installed in 1997 and consisted of a 2.6 million gallon above ground storage tank (AST) 2436.

Tanks at the SWMU 9 Area A, B, and C areas and some of the tanks located at the Tow Way Fuel Farm are recorded as installed in 1940. SWMU 9 Area A includes two cut and cover underground tanks (USTs 212 and 213) each with a nominal capacity of 50,000 gallons. Tank 212 was used to store straight diesel and Tank 213 was used to store motor gasoline (MOGAS), originally. There is a fill stand located at SWMU 9 Area A and it is believed that the fuels stored at SWMU 9 Area A were not typically pumped through the pipeline. SWMU 9 Area B also contains two cut and cover underground tanks (USTs 214 and 215) with nominal capacity of 248,000 and 245,000 gallons, respectively. The two tanks at SWMU 9 Area B are reported to store DFM. SWMU 9 Area C includes two cut and cover underground tanks (UST 216 and 217) with nominal capacity of 247,000 and 245,000 gallons, respectively. Similar to the SWMU 9 Area B tanks, these tanks reportedly stored DFM fuel, although both the SWMU 9 Area B and Area C areas also contained JP-5 fuel over the years. The SWMU 74 investigation does not include the fuel storage tanks as they are not part of the SWMU as listed in the 7003 Administrative Order on Consent.

The Tow Way Fuel Farm, located near the piers had two cut and cover underground storage tanks installed in 1940. These tanks are identified as Tanks 82 and 83 and had nominal capacities of 2.115 and 1.157 million gallons and reportedly stored DFM. Two additional cut and cover tanks



(UST 84 and 85) were installed in 1944 at the Tow Way Fuel Farm with nominal capacities of 585,000 and 1.152 million gallons, respectively. These additional two tanks were used to store JP-5 fuel. In 1968, three additional cut and cover tanks were installed at the Tow Way Fuel Farm. Tanks 1080 and 1082 each with a nominal capacity of 1.165 million gallons reportedly were used to store DFM. Tank 1088 had a nominal capacity of 425,000 gallons and was used to store JP-5 fuel. The Tow Way Fuel Farm (SWMU 7/8) tank network is not part of the SWMU 74 investigation.

In 1955, the first cut and cover underground storage tank was installed in what is known as JP-5 Hill Tank Farm Area. This tank, identified as UST 381, had a nominal capacity of 1.180 million gallons and stored JP-5 fuel. In 1968 two additional cut and cover tanks were installed near UST 381 in the JP-5 Hill Tank Farm Area. These tanks were identified as UST 1084 and 1086, each had a nominal capacity of 1.181 million gallons, and each were used to store JP-5 fuel. In 1988, five additional above ground storage tanks, each containing a nominal capacity of 4.2 million gallons, were installed at the JP-5 Hill Tank Farm Area. These five tanks are identified as AST 2270 through 2274 and each stored JP-5 fuel. Again, the tank network at JP-5 Hill Tank Farm was not part of the SWMU 74 investigation, but borings were placed near the pipelines leading to the tanks and in between the cut and cover tanks and ASTs.

The last fuel storage area is referred to as the DFM Tank Farm Area. In 1978, two above ground storage tanks each with a nominal capacity of 4.2 million gallons were installed adjacent to the Tow Way Fuel Farm to the west. These tanks are identified as 1995 and 1996 and were used to store DFM. One additional above ground storage tank (AST 2437) was installed in 1997 in the DFM Tank Farm Area. This tank was also 4.2 million gallons in nominal capacity and used to store DFM.

As mentioned previously, SWMU 74 does not include the tanks and Tank Farm areas. However, SWMU 74 does include the piping network connecting these areas and the associated value pits (USEPA, 2007a).

### **2.3 Previous Investigations**

SWMU 74 includes the previously designated ECP Site 20. The ECP site consisted of specific portions of the JP-5 and DFM fuel pipelines, and the aircraft hydrant refueling pits.

In 1995, NAVFAC, Atlantic Division evaluated the integrity of specific portions of the base petroleum, oils, and lubricant (POL) system. This evaluation identified leaks at two locations along the JP-5 line and at selected valve pits, and indicated historic petroleum product impacts to soil at various locations throughout the tested portion of the JP-5 and DFM pipelines. No action has since been taken at these locations. In addition, interviews indicated that numerous small spills and leaks of fuel have occurred at the aircraft hydrant refueling area since it went into operation in the early 1960s.

The Phase I/II ECP investigation performed in 2004 indicated that there were no apparent areas of surficial staining or stressed vegetation in the seven areas investigated (NAVFAC Atlantic, 2005). The seven areas investigated as part of the ECP consisted of the following:

- Flat area at the Airfield north of Hangar 200, in the vicinity of valve pit (VP-2).
- Flat grassy area located south of Valley Forge Road, and just east of Forrestal Drive.
- Flat area located just south of Forrestal Drive in the southeastern portion of the site.

- A flat lying area located south of Forrestal Drive and east of SWMU 60 (ECP Site 6).
- A flat lying area located north of Forrestal Drive and east of the baseball field. This area was located adjacent to VP-8.
- Grassy area located along a power line north of SWMU 59 (ECP Site 5).
- Flat lying area located northwest of SWMU 59, along the road that intersects both Forrestal Drive and Valley Forge Road.

A total of seven soil borings were advanced near suspected leaky valves and pipeline runs. Subsurface soil samples were collected from each boring location using a Macro Core sampler in conjunction with a Geoprobe® rig with direct push technology (DPT). Subsurface soil samples were collected from two-foot intervals (i.e., 1 to 3 feet below ground surface (bgs), 3 to 5 feet bgs, etc...) down to the groundwater interface through the use of a Macro Core sampler in conjunction with a Geoprobe® rig with DPT methods. The depth of the soil borings at this site ranged from 10 feet bgs to a maximum of 22 feet bgs at 20E-SB05. All subsurface soil samples were screened in the field utilizing a flame ionization detector (FID) with the results recorded in the field logbook. The screening results were compared against background to indicate if the soil has been impacted by past operations.

Soil samples submitted to the fixed-base laboratory included seven subsurface soil samples (20E-SB01-02, 20E-SB02-02, 20E-SB03-04, 20E-SB04-04, 20E-SB05-05, 20E-SB06-05, and 20E-SB07-06), one from each boring. These samples were submitted to the fixed-base analytical laboratory for analysis of Appendix IX Volatile Organic Compounds (VOCs), Appendix IX Semivolatile Organic Compounds (SVOCs), total petroleum hydrocarbons (TPH) diesel range organics (DRO) and gasoline range organics (GRO).

A groundwater program followed the soil sampling program. Based on the FID levels observed at soil boring locations 20E-SB05 and 20E-SB06, as well as the decision tree presented in the work plan, the decision was made to install one temporary monitoring well at each of these two locations. The temporary monitoring wells were installed and groundwater samples (20E-GW05 and 20E-GW06) were collected and submitted to the fixed-base analytical laboratory for Appendix IX VOCs, SVOCs, inorganics, as well as TPH DRO and GRO. The inorganic analysis requested was for dissolved metals only.

Evidence of fuel line impacts was observed in two borings (20E-SB05 and 20E-SB06). At 20E-SB05, a strong fuel odor and staining were observed with elevated FID readings in the residual clay and bedrock, from a depth of approximately 8- to 20-feet bgs. At 20E-SB06, a slight fuel odor (with a slight FID response and no staining) was observed from a depth of approximately 10- to 11.9-feet bgs.

The VOCs and SVOCs detected are associated with fuel contamination from past and present activities at this site. Location 20E-SB05 is associated with Valve Pit No. 8. It is likely that some leakage from this valve pit has occurred. Previous investigations near this location include those conducted at Tank 1995, where the larger fuel tanks are located just to the east of 20E-SB05. At the time of the ECP investigation, monitoring wells from the Tank 1995 site, located near 20E-SB05 had not indicated any free product during the previous six months; no free product has been observed since March 2006 (Tetra Tech, 2007).

None of the organic compounds exceeded EPA Region III Residential risk based concentrations (RBCs) except dibenzo(a,h)anthracene at 20E-SB05. This was also the only location where groundwater concentrations of certain VOCs (ethylbenzene, benzene, and xylene) exceeded EPA Region III Tap Water RBCs. The concentration of ethylbenzene also exceeded its federal maximum contaminant level (MCL) and its Puerto Rico (PR) Water Quality Standard. Among inorganic compounds, arsenic, chromium, copper and vanadium exceeded their EPA Region III Residential RBCs in soil, and concentrations of copper and vanadium exceeded their EPA Region III Tap Water RBCs. Arsenic (at 20E-SB02) and copper (at 20E-SB04) also exceeded twice the average detected background concentrations established for NAPR in subsurface soil. Although the concentrations of vanadium in subsurface soil exceeded their RBCs, they did not exceed background levels. Lead in groundwater also exceeded its EPA action level and the Puerto Rico Water Quality Standard of 0.015 mg/L at one location (20E-SB05). This is also the location where the relatively higher fuel-related organic compounds were detected.

From the detections of fuel compounds and exceedence of criteria for ethylbenzene, benzene, xylene, and lead in the groundwater, it was concluded that the groundwater near 20E-SB05 has been impacted by activities occurring at this site. However, the soil at this location did not appear to be contaminated significantly above any RBCs. Nevertheless, because of the releases and the findings of the investigation, the ECP recommended further investigation under the RCRA Corrective Action Program. The recommendation in the ECP forms the basis for this CMS work plan.

## **2.4     Breakdown of SWMU 74 into Five Geographic Areas**

Since SWMU 74 covers a large area consisting of approximately 60,000 linear feet of pipeline which traverses the Base from the Airfield to the piers, this report will break the SWMU area into smaller pieces for the purposes of discussion. The breakdown will include:

- Airfield Area
- SWMU 9 Area A/B
- JP-5 Hill and DFM Area
- SWMU 9 Area C
- Fueling Piers Area.

The boundaries for these five areas are presented on Figure 2-4, Index Map of SWMU 74 Areas. The narrative, tables and figures are discussed in this manner for consistency throughout the report.

## **2.5     Physical Characteristics of the Study Area**

The physical setting of NAPR was documented in the 1984 Initial Assessment Study (IAS) (Naval Energy and Environmental Support Activity [NEESA], 1984). This information is summarized in the paragraphs that follow.

### **2.5.1    Climatology**

The climate associated with NAPR is characterized as warm and humid, with frequent showers occurring throughout the year. A major factor affecting the weather is the pattern of trade winds associated with the Bermuda High, the center of which is in the vicinity of 30° North, 30° West. The prevailing wind direction reflects the easterly trade winds. The area receives a surface flow varying between the northeast to the southeast about 75 percent of the year, and as much as 95

percent of the time in July when the easterly winds are strongest. The differential heating of the land and sea during the day tends to give a more northerly component to the flow on the northern side of the island and a more southerly component on the southern side. During the night, a land breeze causes a prevailing southeasterly flow in the north and a prevailing northeasterly flow over the southern coast. The mean annual wind velocity is 5.5 knots, with a minimum in November and a maximum in August. Gales associated with westward moving disturbances in the trade winds or hurricanes passing either north or south of the area have the highest probability of occurrence from June through October.

Uniform temperatures prevail, with small diurnal ranges as a result of insular exposure and the relatively small land areas. The warmest months are August and September, while the coolest are January and February. Mean annual maximum temperatures range from 82.0° Fahrenheit (F) in January to 88.2° F in August. The mean annual minimum temperatures vary from 64.0° F in January to 73.2° F in June. The highest maximum temperature recorded was 95.0° F, while the lowest minimum was 59.0° F. Rain usually occurs at least nine days in every month, with an average of 60 inches per year although a dry winter season occurs from December through April. About 22 thunderstorm-days occur per year, with maximum frequencies of 3 days per month from May through October.

In late summer, the mean sky cover begins a steady decrease from a monthly maximum average of 6.5-tenths coverage in September to a minimum monthly average of 4.4-tenths coverage in February. From March through August, the monthly average cloud cover increases steadily from 4.5- to 6.0 tenths coverage during the period. Over the open sea, a maximum of clouds (usually broken stratocumulus) occurs during early morning, with the skies clearing or becoming scattered with cumulus by afternoon. Completely clear or overcast skies are rare during daylight hours, while clear skies frequently occur at night.

The hurricane season is from mid-June through mid-September; maximum winds exceed 95 knots during severe hurricanes. An average of two tropical storms per year occurs in the study area, one of which usually reaches hurricane intensity.

### **2.5.2 Topography**

The regional area of NAPR consists of an interrupted, narrow coastal plain with small valleys extending from the Sierra de Luquillo range, which has been severely eroded by streams into valleys several hundreds of feet deep. Slopes of up to 60° are common.

In the immediate area of NAPR, elevations range from sea level to approximately 295 feet. Immediately to the north of the NAPR boundary, the hills rise abruptly to heights of 800 to 1,050 feet above sea level, with the tallest peak located within 2 kilometers of the NAPR boundary. There is a series of three hilly areas on NAPR, two of which separate the southern airfield area from the Port/Industrial, Housing, and Personnel Support areas. The third set of hills is in the Bundy area. These ridgelines not only separate sections of NAPR, but also dictate the degree of allowable development. The ridgeline south of the airfield provides an excellent barrier, which effectively decreases the aircraft-generated noise reaching the Unaccompanied Enlisted Personnel Housing areas to an acceptable level. Relief is low along the shoreline and lagoons and mangrove swamps are common.

### **2.5.3 Geology, Hydrology, and Hydrogeology**

The following sections present general descriptions of the geologic, hydrologic, and hydrogeologic conditions across NAPR. Specific geology and hydrogeologic information

collected during Phase I of the CMS Investigation from the five geographic areas of SWMU 74, including the Airfield Area, SMWU 9 Area A/B, JP-5 Hill and DFM Area, SMWU 9 Area C, and the Fueling Piers Area, is provided in Sections 5.3, 6.3, 7.3, 8.3 and 9.3, respectively.

#### 2.5.3.1 Regional Geology

The underlying geology of NAPR area is predominantly volcanic (composed of lava and tuff), as well as sedimentary (rocks derived from discontinuous beds of limestone). These rocks all range in age from early Cretaceous to middle Eocene. The volcanic rocks and interbedded limestone have been complexly faulted, folded, metamorphosed, and variously intruded by dioritic rocks.

This complex geological structuring occurred sometime after the deposition of the limestone during the middle Tertiary, when Puerto Rico was separated from the other major Antillean Islands by block faulting, and was arched, uplifted, and tilted to the northeast. Culebra, Vieques, and the Virgin Islands are part of the Puerto Rican block; they are separated from the main island simply because of the drowning that resulted from the tilting.

In addition to the predominant volcanic and sedimentary rock, unconsolidated alluvial and older deposits from the Quaternary period underlie the northwestern and western sectors of the base. The primary geologic formations on and near NAPR are various beach deposits, alluvium, quartz diorite and granodiorite, quartz keratophyre, the Dagua Formation, and the Figueroa Lava. The Peña Pobre fault zone traverses NAPR.

#### 2.5.3.2 Regional Hydrology

The surface waters that flow across the northeastern plain of Puerto Rico, where NAPR is located, originate on the eastern slopes of the Sierra De Luquillo Mountains. Surface runoff is channeled into various rivers and streams that eventually flow into the Caribbean Sea. The Dagua River and Quebrada Seca Stream (a tributary to Rio Dagua) collect surface waters from the hills immediately north of NAPR and, in periods of heavy rain, flooding on NAPR occurs.

The Dagua-Quebrada Seca watershed comprises an area of approximately 7.6 square miles (4,900 acres), and the river falls some 700 feet from its source to sea level. Increased development in the town of Ceiba, especially in areas adjacent to NAPR's northern boundary, has significantly increased the surface runoff reaching NAPR, causing ponding and erosion in the Boxer Drive area. Boxer Drive, for a major portion of its length, is subject to surface water flooding, as are Hangar 200 and AIMD Hangar 379 and adjacent apron areas. This condition has been alleviated by the construction of Highway Route 3 immediately outside the fence and the realignment of Boxer Drive both with attendant storm water management features.

In the low-lying shore areas, seawater flooding results from storms, wind, and abnormally high tides. The tidal ranges in the NAPR area are rather small, with a maximum spring range of less than three feet. The tides are semidiurnal and have a usual range of about one-foot in the main harbor of NAPR. The quality of surface waters is variable, reflecting the drainage area through which the water flows. Generally, surface waters have high turbidities and bio-organics (naturally occurring organics, such as decay products of vegetable and animal matter) due to the periodic heavy rains that can easily erode soils from steep slopes, exposed areas and disturbed streambeds. Water from alluvial aquifers along the coast of NAPR is of a calcium bicarbonate type, and has high concentrations of iron and manganese. The source of these minerals is unknown, but they may be derived from buried swamp or lagoon deposits.

A seawater-freshwater interface is present in the aquifers throughout the coastal areas of Puerto Rico, usually within a short distance inland of the coastline.

### 2.5.3.3 Regional Hydrogeology

Little information exists concerning the hydrogeology of NAPR. The only known potential sources of groundwater lie in lenticular beds of clay, sand and gravel, and rock fragments, which occur at a depth of less than 30 meters. No supply wells, and few monitoring wells, have been developed on site from these layers. Some wells had been developed upgradient of NAPR in Ceiba, some three kilometers from the former base headquarters, but were abandoned due to high levels of salinity. Some consistent stratigraphic trends have been observed during previous investigations conducted by Baker throughout NAPR. The site hydrogeology can be better understood in the context of NAPR regional geology. For the sake of simplicity, considering the complex geological conditions, the NAPR regional geology can be divided into three regions:

- Upland areas
- Near-shore flat lands
- Inland flat lands

The upland areas of NAPR includes the hills encompassing the Tow Way Fuel Farm and hospital areas, and the hills encompassing the area behind the Exchange, the former Atlantic Fleet Weapons Training Facility (AFWTF) Command, and Fort Bundy area. These upland areas are underlain by bedrock (predominately Gabbro) and exhibit varying degrees of weathering. Typically, the bedrock is overlain by a relatively thin residual soil (i.e., residuum). Residuum is unconsolidated soil, originating from weathered-in-place bedrock. This residuum generally consists of sand, silt, and clay.

The near-shore areas include the mangrove swamp areas as well as the shores of Ensenada Honda and Puerca Bay. The near-shore areas are typically underlain by marine sand layers (with coral and shell fragments), silt and clay layers, and occasional peat layers. In some near-shore areas, particularly by the harbor and Camp Moscrip in the southeastern portion of the base, fill material overlays the marine layers. The fill consists of rock fragments, debris (e.g., brick), sand, silt, and clay.

The inland flat land area generally encompasses the airfield and golf course areas. The inland flat land area is typically underlain by relatively thick residuum. The residuum generally consists predominately of clay. Fill material overlays the residuum, particularly the airfield, and generally consists of sand and gravel with lesser amounts of silt and clay.

### 3.0 FIELD INVESTIGATION ACTIVITIES

This section summarizes Phase I of the CMS Investigation field work, laboratory analysis, and data validation activities that were conducted. The work was conducted in accordance with the approved Final Corrective Measures Study Work Plan for SWMU 74 (Baker, 2007). The fieldwork was primarily conducted in April through June 2008; an additional round of groundwater elevation measurements was collected from the Airfield Area monitoring wells in July 2008.

The field activities conducted at SWMU 74 primarily consisted of:

- A soil boring program which included of the installation of one boring every 100 feet along the fuel pipeline runs, and two borings near the underground valve pits for a total of 317 soil borings. The borings were designated as 74SB01 through 74SB285, although not every boring was drilled and/or sampled, depending on site conditions. A total of 22 valve pits were encountered along the pipeline not including the valving and pumps associated with the Day Tank and Fueling Hydrants at the Airfield. Some of the borings adjacent to valve pits were given a “VP” designation with a unique site number. Site and sample designations are given on Table 3-1.
- Surface soil samples were collected at a rate of one sample for every ten soil borings. A total of 28 surface soil samples plus three duplicate samples were collected. The surface soil samples were submitted for laboratory analysis of Appendix IX VOCs, total metals, TPH GRO, and TPH DRO. One surface soil sample was additionally analyzed for low level polynuclear aromatic hydrocarbons (LLPAHs).
- Subsurface soil samples were collected at a rate of two samples per boring. One sample from a depth with PID detections, if found, and one above the water table, if found, not to exceed the 9 to 11 foot below ground surface (ft bgs) sample interval. In some cases, subsurface soil samples were not collected due to shallow water elevations, boring refusal, or lack of recovery after multiple attempts. A total of 535 subsurface soil samples plus 55 duplicate samples were collected from the pipeline and valve pit borings. It should be noted that some of the valve pit subsurface soil samples were collected below 10 feet bgs if photoionization detector (PID) readings indicated impact at deeper zones. The subsurface soil samples were submitted for laboratory analysis of Appendix IX VOCs, total metals, TPH GRO, and TPH DRO. Fifty four (54) subsurface soil samples were additionally analyzed for LLPAHs.
- Temporary monitoring wells were installed at 54 boring locations along the pipeline and next to the valve pits. Temporary wells were constructed with sandpacks, bentonite seals, and concreted protective casings. The only reason the wells were not designated as permanent is because protective bollards and two foot by two foot pads were not installed.
- Groundwater samples were collected from 52 groundwater monitoring wells (plus four duplicates); of these, seven were existing wells. Note that some of the newly installed monitoring wells were dry so that no groundwater sample could be collected. The groundwater samples were submitted for laboratory analysis of Appendix IX VOCs, total and dissolved metals, TPH GRO, and TPH DRO if adequate water was available. Some groundwater samples were analyzed for a limited parameter list depending on the



production of groundwater from the wells. A total of thirty groundwater samples were additionally analyzed for LLPAHs.

- Other field activities conducted in support of this investigation included utility clearance, groundwater elevation measurement, surveying, management of investigation derived wastes, and QA/QC sampling.

The environmental samples collected from the site were analyzed at a fixed-base laboratory, Test America Laboratories, Inc. and the data was validated by an independent third party, DataQual Environmental Services, LLC. A summary matrix showing the primary environmental samples collected and the analyses conducted on each sample is shown in Table 3-1. Field duplicates and matrix spike/matrix spike duplicate (MS/MSD) samples are also shown in Table 3-1. Other QA/QC samples (trip blanks, field blanks, and equipment rinsates) collected and the analyses conducted on these samples are shown in Table 3-2. The analytical parameter lists and the contract required quantitation limits are shown in Table 3-3.

Field notes containing descriptions of the site activities, field logs, soil boring and well construction records and chain-of-custody records are presented in Appendix A. Complete laboratory analytical results are presented in Appendix B. Data Validation report summaries are provided in Appendix C.

### **3.1 Surface and Subsurface Soil Sampling**

Per the approved work plan, two subsurface soil samples were collected from each boring. The only exception to this was if shallow groundwater or drilling refusal was encountered at a shallow depth thereby preventing collection of two subsurface soil samples. In general, surface soil samples were collected approximately every 1,000 feet or one surface soil sample for every ten completed borings. Soil samples were analyzed for Appendix IX VOCs and metals, TPH DRO, and TPH GRO. The work plan stated that approximately 15 percent of the samples were to be analyzed for LLPAHs; following completion of the field work it was determined that approximately 11 percent of the total number of soil samples were sampled for LLPAHs. These samples were selected based on the presence of contamination through PID measurements, visual inspection, or presence of odor, as well as by random selection.

Soil sampling locations were flagged in the field and were surveyed for horizontal location using a portable global positioning system (GPS) unit. In addition, encountered valve pit locations were surveyed for horizontal location using a portable GPS unit.

The surface soil samples were obtained from a depth of 0 to 1 foot bgs with a stainless steel spoon or using the Geoprobe® DPT sleeve. The subsurface soil samples were obtained with the 66DT Geoprobe® drill rig capable of DPT and hollow stem augering (HSA). The three DPT rigs used during the investigation were operated by JFA Geological and Environmental Scientists (JFA) and GeoEnviroTech. JFA supplied one tracked mounted 66DT Geoprobe® drill rig with augering capability for installation of monitoring wells. GeoEnviroTech supplied one track mounted 66DT Geoprobe® drill rig with augering capability and one truck mounted 5400 Geoprobe® drill rig.

Boring logs were prepared by a qualified geologist indicating, lithology, water occurrence, and miscellaneous observations. Soil samples were screened with a PID to develop a semi-quantitative profile. Soil boring logs are presented in Appendix A.

Soil samples were collected continuously from the ground surface to the water table using a 4-foot or 5-foot long Macro Core Sampler, with two subsurface soil samples being collected for fixed-base laboratory analysis. One subsurface soil sample per location was collected from a depth of any suspected volatile organic contamination, determined by the PID screening at a depth generally below the pipeline (assumed to be between 3 and 5 feet bgs). The other subsurface soil sample was collected from the depth either just above the water table, or not exceeding 11 feet bgs. Soil samples were placed directly into laboratory supplied containers and placed on ice. If four foot liners were used the borings were typically advanced to 12 feet; if five foot liners were used the boring were typically advanced to 10 feet below ground surface. The deepest sampling interval utilized was 9 to 11 feet below ground surface.

The soil boring samples were labeled consecutively (beginning with 74SB01) in a manner consistent with previous sample designations at NAPR. Extensions to the sample identification reflect the depth at which the sample was obtained. Sample identification extensions will follow the pattern shown below.

74SB01-00	SMWU 74 Sample
74 <u>S</u> B01-00	Soil Boring Sample
74SB01-0 <u>0</u>	Soil Boring Location Identifier
74SB01- <u>00</u>	0 to 1 foot bgs (surface soil) sampling interval

Subsurface soil sample intervals were designated as follows:

74SB01- <u>01</u>	1-3 feet bgs
74SB01- <u>02</u>	3-5 feet bgs
74SB01- <u>03</u>	5-7 feet bgs
74SB01- <u>04</u>	7-9 feet bgs
74SB01- <u>05</u>	9-11 feet bgs
74SB01- <u>06</u>	11-13 feet bgs
74SB01- <u>07</u>	13-15 feet bgs
74SB01- <u>08</u>	15-17 feet bgs
74SB01- <u>09</u>	17-19 feet bgs

Sampling intervals may have varied somewhat from those listed above because of variations in site conditions.

Following sample collection each borehole was backfilled with the remaining soil to the extent practicable, in order to minimize the amount of investigation-derived waste (IDW) generated. In cases where elevated PID readings and obvious visual impact was observed the soil cores were placed in a 55-gallon drum for future off site disposal as IDW. The boreholes were then filled with cement/bentonite grout.

As mentioned previously, SWMU 74 will be divided up into five areas for ease of discussion. These areas will include the Airfield, SWMU 9 Area A/B, JP-5 Hill and DFM, SWMU 9 Area C, and the Fueling Piers.

### ***Airfield Area***

Soil borings were placed, beginning at the Hydrant Refueling System, every 100 feet along the pipeline run past the Day Tank Area, then turning southeast toward the runway, past the Hanger 200 Area, and onto the fence line of the Airfield, as shown on Figure 3-1. In addition, two borings were placed adjacent to the two concrete valve pits (VP), not associated with the Day

Tank Area, located within the Airfield and identified as VP-1 and VP-2. Subsurface soil samples were collected from only one of the two borings associated with each valve pit. The soil borings along the pipeline were identified as 74SB01 through 74SB62. The only exceptions to a continual numbering of borings was 74SB03 and 74SB08 were not drilled because of taxiway concrete at the Hydrant Refueling Area and 74SB17 through 74SB21 were eliminated so as not to drill through the secondary containment of the Day Tank. Borings 74SB45, 74SB46, and 74SB47 were attempted to be drilled multiple times, but encountered refusal just below the ground surface and no samples were collected.

### ***SWMU 9 Area A/B***

Soil borings in this area start at the fence line of the airfield (location 74SB63) and follow the pipeline east along Forrestal Road to the entrance of SWMU 9 Area A/B along Manila Bay Street. The SWMU 9 Area A/B is comprised of four cut and cover tanks (Tanks 212 through 215) constructed in the 1940's and used to store aviation gasoline, diesel fuel, and marine diesel fuel. More recently these tanks stored unleaded gasoline. Soil borings are numbered sequentially from 74SB63 through 74SB124 for this area, as shown on Figure 3-2. There are a total of seven (7) valve pits that were located in this area. The valve pits are identified as VP-3, VP-11, VP-1A/9, VP-1B/9, VP-1C/9, VP-2/9, and VP-3/9. Two borings were drilled adjacent to each valve pit and wells were installed in each of these borings. Of the two borings at each valve pit, subsurface soil samples were collected only at one of the two boring locations. One boring, 74SB78, encountered shallow refusal and no soil samples were collected at this location.

### ***JP-5 Hill and DFM Area***

This area includes the JP-5 Hill and the DFM tank farms. The JP-5 Hill tank farm contains five above ground storage tanks, each with approximately 5 million gallons of capacity. This tank farm is relatively new, put into service in the early 1990s. The DFM tank farm contains two above storage tanks with approximately 4.2 million gallons of capacity each. The two tanks are referenced as Tanks 1995 and 1996. In the mid 1990's an investigation was performed at Tank 1995 to characterize petroleum hydrocarbons detected in an excavation in 1994. Tank 1995 reportedly contained JP-5 fuel historically and in 1985 leaked when a truck filling pipe ruptured. Tank 1995 is part of AOC F as defined in the RCRA Administrative Order. Soil borings for this area include 74SB125 through 74SB160, 74SB185 through 74SB187, 74SB200 through 72SB211, 74SB226 through 74SB230, and 74SB268 through 74SB285, as shown on Figure 3-3. There are nine (9) valve pits identified in this area, including VP-5, VP-7, VP-8, VP-9/JP-5 Hill, VP-10/JP-5 Hill, VP-11/JP-5 Hill, VP-10/DFM, VP-19, and VP-20. It should be noted, VP-19 and VP-20 are located within the Tow Way Fuel Farm, which was not part of the SWMU 74 investigation. The Tow Way Fuel Farm is a cut and cover tank farm and has been investigated separately as SWMU 7/8. Two borings were drilled adjacent to the valve pits and two wells installed. Subsurface soil samples were collected at one of the two borings at the valve pits. Two locations, 74SB208 and 74SB276, encountered shallow refusal and no soil samples were collected.

### ***SWMU 9 Area C***

This area includes two cut and cover tanks located east of SWMU 9 Area A/B, which historically contained aviation gas, and more recently contained unleaded gasoline, marine diesel fuel, and JP-5. These two tanks are referred to as Tanks 216 and 217. Soil borings for this area include 74SB144 through 74SB148, 74SB161 through 74SB184, and 74SB188 through 74SB197, as shown on Figure 3-4. There are four (4) valve pits associated with this area and include VP-6,

VP-6A, VP-6B, and VP-6C. Two borings were drilled adjacent to the valve pits and two wells installed. Subsurface soil samples were collected at one of the two borings at the valve pits.

### ***Fueling Piers Area***

The fueling piers area is the area along the lower end of Forrestal Road and includes the two fueling piers, as shown on Figure 3-5. The western pier is included in SWMU 7/8 associated with the Tow Way Fuel Farm. During the field investigation numerous product recovery wells were observed in this western pier area. Soil borings for the fueling piers area include 74SB212 through 74SB225 and 74SB231 through 74SB267. Two valve pits were identified as VP-24 and VP-56, both located within the SWMU 7/8 boundary. Existing wells were found surrounding these valve pits and were included in the groundwater sampling program. No additional soil borings were drilled adjacent to these two valve pits. Numerous locations encountered shallow refusal during drilling in this area, and subsequently no soil samples were collected. These locations included 74SB212, 74SB214, 74SB217, 74SB219, 74SB220, 74SB242, 74SB243, 74SB244 and 74SB257.

### **3.2 Monitoring Well Installation and Groundwater Sampling**

In general, monitoring wells were constructed of 1.5-inch ID, Schedule 40 PVC, with flush joint threads. Each well was provided with 10-foot long well screens and installed to straddle the water table; longer screen lengths were used in some wells as field conditions dictated. The well screen and bottom cap were set at the bottom of the borehole. The screen was connected to a threaded, flush-joint, riser. The annular space around the well screen was backfilled with a well-graded, fine to medium sand as the augers/Geoprobe casings were withdrawn from the borehole. The sand was extended to approximately two feet above the top of the screened interval. An approximately two-foot thick sodium bentonite seal was placed above the sand pack. The bentonite was hydrated with potable water. The annular space above the bentonite seal was backfilled with cement or cement/bentonite grout to prevent surface water from infiltrating into the screened groundwater monitoring zone. An expandable, water tight locking cap or slip-cap with a vent hole was placed at the top of the casing.

The work plan specified using a 1.5- inch (inside diameter), Schedule 40 polyvinyl chloride (PVC) riser with a ten-foot pre-packed sand filter screen and placed through the macro core casing. Because of the tight clays, there was some difficulty advancing the Geoprobe equipment to 20 feet. In addition, it was determined that it was more economical to auger with 3-1/4-inch hollow stem augers or place 1.5-inch PVC well materials down the Geoprobe casing and build the monitoring well conventionally with poured sand and bentonite, than to ship Geoprobe pre-packed well screens to the island. If a zone of high water yield was observed with flowing sand or creating a high turbidity slurry downhole, then the pre-packed well screens were used. But in most cases, the monitoring wells were installed with 1.5-inch well materials and conventional well construction practices. Each monitoring well was completed with a steel protective casing to secure the wellhead. Note that the monitoring wells are considered temporary because protective bollards and two foot by two foot pads were not installed.

Monitoring well development typically consisted of low flow pumping until water production ceased. The groundwater was sampled using a low-flow sampling technique, when practical, to the extent that actual recovery rates at each location allowed. Field parameters of pH, temperature, turbidity, conductivity, dissolved oxygen, and oxidation-reduction potential were measured. The groundwater samples were placed into appropriate laboratory supplied containers. The groundwater samples were filtered in the field for the dissolved metals analyses. The groundwater sample designations correspond to the representative soil boring location. For

example, groundwater collected from soil boring location 74SB01 will have a groundwater sample identification of 74GW01. The temporary monitoring wells will not be abandoned in this phase. Following completion of sampling and surveying, each well was secured with a padlock.

### ***Airfield Area***

Eleven groundwater samples were obtained from approximately one in ten soil boring locations in order to evaluate contamination that may have migrated downward toward the aquifer from the pipeline; this includes groundwater samples that were obtained from the two soil boring locations around two valve pits located at the Airfield. Samples were collected from the top of the water table and groundwater samples were analyzed for Appendix IX VOCs, total and dissolved metals, and TPH GRO/DRO. Some groundwater samples were additionally analyzed for polynuclear aromatic hydrocarbons (PAH), which was based on the presence of contamination through PID measurements, visual inspection, and presence of odor in the soil boring at that location, or by random selection. As shown on Figure 3-1, the monitoring wells that were installed and sampled included; 74SB05, 74SB09, 74SB22, 74SB26, 74GW34, and 74SB57 along the pipeline and 74VP1a, 74VP1b, 74VP2a, and 74VP2b near the two valve pits. One existing well 74HYD3, associated with the Hydrant Refueling Area was also sampled. An additional two existing wells were located at the Hydrant Refueling Area that were not sampled because of limited groundwater production.

### ***SWMU 9 Area A/B***

Seventeen groundwater monitoring wells were sampled in this area, including three wells along the pipeline and 14 wells adjacent to valve pits, see Figure 3-2. Samples were collected from the top of the water table and groundwater samples were analyzed for Appendix IX VOCs, total and dissolved metals, and TPH GRO/DRO. Some groundwater samples were additionally analyzed for PAH analysis which was based on the presence of contamination through PID measurements, visual inspection, and presence of odor in the soil boring at that location, or by random selection. The monitoring wells that were installed and sampled included 74SB74, 74SB84, 74VP3a, 74VP3b, 74VP11a, 74VP11b, 74VP1Aa/9, 74VP1Ab/9, 74VP1Ba/9, 74VP1Bb/9, 74VP1Ca/9, 74VP1Cb/9, 74VP2b/9, 74VP2a/9, 74VP3a/9, and 74VP3b/9 in the SWMU 9 Area A/B. In addition, one existing well, 9MW02S, was utilized as a well located along the pipeline.

### ***JP-5 Hill and DFM Area***

Twenty groundwater monitoring wells were installed in this area, including two wells along the pipeline and 18 wells adjacent to valve pits, see Figure 3-3. Some of the newly installed wells did not produce sufficient water for sample collection and were not sampled during this investigation. A total of 12 of the 20 wells were sampled. Samples were collected from the top of the water table and groundwater samples were analyzed for Appendix IX VOCs, total and dissolved metals, and TPH GRO/DRO. Some samples were additionally analyzed for PAH analysis which was based on the presence of contamination through PID measurements, visual inspection, and presence of odor in the soil boring at that location, or by random selection. The monitoring wells that were installed included 74VP05a, 74VP05b, 74VP9a/JP5, 74VP9b/JP5, 74VP10a/JP5, 74SB137, 74VP11a/JP5, 74VP11b/JP5, 74SB273, 74SB285, 74SB151, 74VP07b, 74VP08a, 74VP08b, 74VP10a/DFM, 74VP10b/DFM, 74VP19a, 74VP19b, 74VP20, and 74VP1982 in the JP-5 Hill and DFM Area. No existing wells were utilized in this area. Newly installed temporary wells that were not sampled because of limited or no water production included 74VP05b, 74VP11b/JP5, 74VP9a/JP5, 74SB137, 74VP10b/DFM, 74VP19a, 74VP11a/JP5, and 74SB285. Limited sample collection was completed at 74VP9b/JP5.

### ***SWMU 9 Area C***

Eight groundwater wells were sampled in this area, all of which were adjacent to valve pits. Of these 8 wells, 6 were newly installed and two wells were existing wells near valve pits VP-6 and VP-6B, as shown on Figure 3-4. Samples were collected from the top of the water table and groundwater samples were analyzed for Appendix IX VOCs, total and dissolved metals, and TPH GRO/DRO. Some samples were additionally analyzed for PAH analysis which was based on the presence of contamination through PID measurements, visual inspection, and presence of odor in the soil boring at that location, or by random selection. The wells that were installed included 74SB145, 74VP6Aa, 74VP6Ab, 74VP6Ba, 74VP6Ca, and 74VP6Cb in the SWMU 9 Area C. The two existing wells sampled were identified as 18GW01 and 13GW11. Two wells, 74VP6Aa and 74VP6Ab, within this area did not produce enough groundwater for sampling.

### ***Fueling Piers Area***

Six groundwater wells were sampled in this area. Three wells were existing wells near valve pits VP-24 and VP-56 located within SWMU 7/8 and identified as GW04, MW02, and UGW12. The other three temporary wells were installed along the pipeline and are identified as 74SB236, 74SB246, and 74SB256, as shown on Figure 3-5. Samples were collected from the top of the water table and groundwater samples were analyzed for Appendix IX VOCs, total and dissolved metals, and TPH GRO/DRO. Some samples were additionally analyzed for PAH analysis which was based on the presence of contamination through PID measurements, visual inspection, and presence of odor in the soil boring at that location, or by random selection.

### **3.3 Groundwater Level Measurements**

A depth to groundwater measurement was collected from each monitoring well prior to sampling. For the Airfield area, the depth to the groundwater in thirteen newly installed temporary monitoring wells was measured on July 22, 2007. In addition, groundwater elevation measurements for three existing monitoring wells and fifteen monitoring wells from SWMUs 56 and 69 were also collected. Water levels were measured from the top of PVC riser and the groundwater elevations were calculated from the surveyed elevation of the top of riser. The elevations of the tops of risers were surveyed on May 6, 2008. A groundwater contour map for the Airfield area is shown on Figure 3-6 and indicates a groundwater flow direction to the southeast. A groundwater contour map was not created for the other SWMU 74 areas because of a lack of coincident elevation measurements in the monitoring wells. Groundwater level measurements are given in the field log book and notes in Appendix A.

### **3.4 Investigation Derived Waste**

Disposable sampling tools were used for soil and groundwater sampling to the extent practicable, in order to minimize the generation of liquid IDW from decontamination. Water from decontamination of the drill rig before and after entering the site was containerized.

IDW associated with soil sampling and monitoring well installation, including soil cuttings and decontamination fluids, was collected and stored in 55-gallon drums. However, the soil cuttings from the soil boring in which no wells were installed, were placed back into the boring from which they came, unless contamination was present. As much as possible, soils last out of the hole were returned first, thereby, approximating original stratigraphy.

Two IDW samples were collected during this investigation. One composite aqueous sample was collected from drums containing decontamination fluid (from sampling equipment and drill rig),

and one composite soil sample was collected from drums containing drill cuttings. The soil IDW samples were analyzed for toxicity characteristic leaching procedure (TCLP) VOCs and metals, ignitability, reactive sulfide, reactive cyanide, and pH. The water IDW samples were analyzed for Appendix IX VOCs, total Appendix IX metals, ignitability, reactive sulfide, reactive cyanide, and pH. The drums were moved and stored at a secure location on base following the field work completion. The soil and water IDW has been removed and disposed of from the site by an approved vendor. Copies of the IDW analytical data and disposal manifest are presented in Appendix A.

### **3.5     Utility Clearance**

All proposed boring locations were first checked for the presence of subsurface utilities. A facility map showing all utilities was obtained and the boring locations verified for absence of utilities. The sampling locations were field-located using a survey-grade GPS and the absence of subsurface utilities was field verified.

### **3.6     Surveying**

Initial locations of borings were determined using a mapping grade differential GPS (DGPS) that utilizes satellite corrections from Omnistar in "real-time". Prior to entering the field, an electronic "shape file" (which included each proposed soil boring location) was obtained from the Computer Aided Design and Drafting (CADD)/Geographic Information System (GIS) at Baker and uploaded to the GPS data collector. Once in the field, the GPS unit was used to navigate to each sample location. Each sample location was flagged and numbered accordingly. Then, the borings were advanced at these locations. The coordinate system utilized for the survey was U.S. State Plane 1983, Puerto Rico/Virgin Island 5200, and the North American Datum (NAD) 1983, with units in feet.

After the monitoring wells were installed, their coordinates were more accurately surveyed using Real-Time Kinematic (RTK) GPS methods. RTK GPS surveying was selected specifically because of the accuracy of data it provides to produce groundwater contour mapping. RTK GPS surveying employs a GPS base station and a GPS rover that reads satellite carrier phase signals. Using the carrier phase signal in conjunction with a base station is expected to provide a horizontal accuracy of approximately 0.1 feet and an elevation accuracy of approximately 0.02 feet. The coordinate system used for the survey was U.S. State Plane 1983, Puerto Rico/Virgin Island 5200, and the NAD 1983, with units in feet.

Each monitoring well at SWMU 74 was surveyed using the RTK GPS method on May 6, 2008. An elevation was obtained from the top of PVC riser for water level elevation calculations and a spot ground surface elevation was also obtained. All survey data was downloaded and processed using Trimble Geomatics Office™ (TGO), which is a software application tool used to convert survey data collected in the field into electronic files for use in office application software such as Auto CADD.

### **3.7     QA/QC Sampling**

The following QA/QC samples were collected during the SWMU 74 investigation:

- Field Duplicates
- MS/MSDs
- Trip Blanks



- Equipment Rinsate Blanks
- Field Blanks

Tables 3-1 and 3-2 provide a summary of the QA/QC samples collected and their associated laboratory analysis.

### **3.7.1 Field Duplicates**

Field duplicates were collected at the target rate of 10 percent of primary environmental samples in accordance with the approved Work Plan. Three field duplicate surface soil samples (74SB13-00D, 74SB161-00D, and 74SB221-00D) were collected corresponding to 28 surface soil samples. 55 field duplicate subsurface soil samples were collected, corresponding to 535 subsurface soil samples. Four field duplicate groundwater samples (74GWHYD3D, 74GWVP1Cb/9D, 74GW9MW02SD, and 74GW12-VP-56D) were collected corresponding to 52 groundwater samples. Field duplicates were analyzed for the same parameters as the primary environmental samples and the results were used to evaluate the field sampling methodology. Field duplicate samples are shown on Table 3-1.

### **3.7.2 Trip Blanks**

One trip blank sample was included in each cooler containing samples from the site intended for VOC or GRO analysis. As shown on Table 3-2, a total of 36 trip blanks accompanied samples from the SWMU 74 investigation. These trip blanks were analyzed for Appendix IX VOCs and/or GRO to evaluate whether cross contamination occurred during shipping of samples.

### **3.7.3 Matrix Spike/Matrix Spike Duplicates**

Matrix spike/matrix spike duplicates were collected at the rate of approximately five percent of primary environmental samples from soil and groundwater, as shown on Table 3-1. Two sets of MS/MSDs were collected corresponding to 28 surface soil samples and 28 MS/MSD were collected corresponding to 535 subsurface soil samples. Three MS/MSD were collected corresponding to 52 groundwater samples. The MS/MSD samples were analyzed for the same parameters as the primary environmental samples and the results were used to evaluate the effect of each type of matrix on the analytical method.

### **3.7.4 Field Blanks**

One field blank sample (FB01) was collected from laboratory-grade deionized water used as the source water for the equipment rinsate samples. No store bought distilled water was purchased during this investigation, so an additional field blank for store bought distilled water was not necessary. The field blank sample was analyzed for Appendix IX VOCs, SVOCs (including low-level PAHs), and metals, to determine whether the water used for generating the equipment rinsates was free of chemicals at levels of concern for the site.

### **3.7.5 Equipment Rinsates**

Equipment rinsate samples were collected from the disposable sampling tools and analyzed for the same parameters as the corresponding primary environmental samples. A total of 23 equipment rinsates were collected from Macro Core liners and stainless steel spoons used for soil sample collection or were collected from tubing that was used for groundwater sampling. One equipment rinsate was collected per day of field investigation work with sample collection occurring. All equipment rinsate samples were analyzed for Appendix IX VOCs and metals.

ER01 through ER06, ER22 and ER24 were also analyzed for Appendix IX SVOCs; 74ER11, 74ER12, 74ER18, 74ER20 and 74ER21 were also analyzed for LLPAHs; ER22 and ER24 were also analyzed for Appendix IX pesticides/PCBs and ERO1 through ERO3 and ER06 through ER24 were also analyzed for TPH GRO and DRO.

### **3.8 Laboratory Analysis**

Fixed-base laboratory analysis was conducted by TestAmerica Laboratories, Inc. (Test America) located in Savannah, Georgia. The list of parameters under the analytical program and the Contract Required Quantitation Limits (CRQLs) are provided in Table 3-3. The data was certified by a Puerto Rico certified chemist. Laboratory analytical data is provided in Appendix B; Puerto Rican Chemist Certificates are given in Appendix C.

### **3.9 Data Validation**

All fixed-base laboratory data were validated by DataQual Environmental Services, LLC (DataQual) of St. Louis, Missouri, an independent third party. The USEPA Region II Data Validation Standard Operating Procedures were followed. Validation reports are provided for each Sample Delivery Group (SDG) in Appendix C.

#### **3.9.1 Summary of Detected Compounds in Field QA/QC Samples**

Field generated QA/QC samples for the field effort consisted of a field blank, equipment rinsates, trip blanks, and environmental duplicates. The blanks were analyzed for all fractions requested in this investigation. Tables 3-4 and 3-5 present the detected compounds found in the trip blanks, equipment rinsates, and field blank.

A total of thirty-six trip blanks were collected in association with the SWMU 74 field investigation. Minor detections of 4-methyl-2-pentanone (MIBK) in 74TB17 and chloromethane in 74TB02 were reported. Three trip blanks were rejected (56TB01, 74TB04, and 74TB06) by the data validator due to the size bubbles in the volatile organic analysis (VOA) vials, which were provided by the analytical laboratory. Trip blank 74TB01 was not analyzed for VOCs but was analyzed for GRO. GRO was not detected in any of the trip blanks. A summary of the trip blank results is present on Table 3-4.

One field blank sample was collected; FB01 representing laboratory grade deionized water. Detections in field blank FB01 included 2-Butanone, 1,4-dichlorobenzene, acetophenone, diethyl phthalate, and di-n-butyl phthalate, copper, and lead. A summary of field blank FB01 data is presented in Table 3-5.

Twenty-three equipment rinsate samples were collected as part of the SWMU 74 field investigation. Minor VOC detections including one of more of the following parameters; 2-butanone, toluene, acetone, benzene, chloroform, methylene chloride, and styrene affected thirteen of the twenty-three rinsate samples. Five rinsate samples were analyzed for LLPAHs which were not detected. Minor detections of the SVOCs 1,4-dichlorobenzene, acetophenone, bis(2-ethylhexyl)phthalate, diethyl phthalate, di-n-butyl phthalate, butyl benzyl phthalate and phenol were detected. Minor concentrations of metals were reported in many of the rinsate samples. Of significance, are the results for ER08, which detected a majority of the reported metals and had detections of barium and copper, and zinc at concentrations of 14, 15, and 40 J mg/l, respectively. Equipment rinsate ER08 was a rinsate of groundwater sample tubing collected on May 5, 2008. Minor detections of DRO were reported for four rinsates and GRO for two rinsate samples. A summary of equipment rinsate data is presented in Table 3-5.

### 3.9.2 Third Party Data Validation Summary

A total of fifty-seven SDGs were produced by Test America and sent to the third party data validator, DataQual for SWMU 74. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in these SDGs (SW-846 methods 6020B, 7417A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. The samples were evaluated based on the following criteria:

- Data Completeness
- Sample Condition
- Technical Holding Times
- Gas Chromatograph (GC)/  
Mass Spectrometer (MS) Tuning
- GC Performance
- Initial/Continuing Calibrations
- Interference Check Solution A (ICSA)/  
Interference Check Solution AB  
(ICSAB) Standards
- Contract Required Detection  
Limits (CRDL) Standards
- Blanks
- Internal Standards
- Surrogate Recoveries
- Laboratory Control Samples
- Matrix Spike Recoveries
- Matrix Duplicate RPDs
- Serial Dilutions
- Field Duplicates
- Identification/Quantitation
- Reporting Limits
- Tentatively Identified Compounds

A brief summary of the more significant data validation results, including data rejections, will be discussed in this section. Data that was qualified as “estimated” or some other qualifier will not be discussed in this section due to the amount of data. Full data validation report summaries are presented in Appendix C. Changes in the results of the laboratory data (qualifiers) due to the application of the data validation objectives did not significantly compromise the data quality. The data as qualified by the validator is acceptable for its intended use. Listed below is a brief discussion of data that was rejected and thus not useable for this investigation.

#### *VOCs*

Multiple SDGs reported some compounds with low relative response factor (RRF) values during initial and continuing calibrations resulting in qualifying certain non-detected values as rejected. VOCs that were rejected included one or more of the following compounds including: acetone, acrolein, acetonitrile, isobutyl alcohol, 3-chloro-1-propene, pentachloroethane, and propionitrile.

The laboratory supplied sample vials for trip blanks 74TB04 and 74TB06 in SDG 36426-4, and 56TB01 in SDG 36289-4 were received with headspace, therefore all non-detects were qualified as rejected and detections were qualified as estimated.

One sample (74SB235-04) in SDG 36978-3 was analyzed out of holding time limits by one day and all positive results were qualified as estimated (J) and non-detected results were rejected (R).

### ***SVOCs/PAHs***

In SDG 36419-4 the initial and continuing calibrations exhibited some compounds with low RRF values, which resulted in qualifying the non-detect values as rejected. In addition, due to high percent difference values in the continuing calibrations, hexachlorophene and 4-nitroquinoline-1-oxide were rejected.

### ***DRO/GRO***

Two soil samples from SDG 36489-3 (74VP3a-03 and 74VP3a-04) were re-analyzed fourteen days outside of the holding time. The original results were used and the reanalysis was rejected.

Soil samples 74SBVP19b-03 and 74SBVP19b-05 from SDG 36891-4 were re-analyzed outside of the holding time for the GRO fraction. The original results were used and the reanalysis was rejected.

Two soil samples (74SB265-03 and 74SB265-03) from SDG 37020-1 were re-extracted outside of the holding time because the field duplicate results did not correspond. The re-extracted results were rejected, the original analysis was used. In the same SDG, five samples (74SB265-03, 74SB265-03D, 74SB269-04, 74SB269-05 and 74SB265-03) for the DRO fraction was re-analyzed; however, the original results were used.

### ***Metals***

The matrix spikes of sample 74SB14-03 within SDG 36360-2 analyzed for metals exhibited non-compliant recoveries below the QC limits for antimony, cobalt, and lead. All results for antimony and cobalt were qualified as estimated. Lead exhibited negative recoveries so all reported positive and non-detect results for lead were rejected based on Region II guidance.

The field duplicate pair 74SB22-03 and 74SB22-03D in SDG 36426-1 exhibited non compliant relative percent differences (RPDs) for chromium, copper, nickel, vanadium, and zinc that required qualification as estimated. In addition, cobalt and lead were required to be qualified as rejected.

The matrix spikes of sample 74SB51-00 in SDG 36426-2 analyzed for the metals fraction exhibited non-compliant percent recoveries for antimony and lead. The lead sample was rejected and the antimony sample estimated. In addition, the field duplicate pair of samples 74SB48-01 and 74SB48-01D exhibited non-compliant RPDs for nickel and chromium. Nickel was qualified as estimated and the chromium qualified as rejected.

The associated matrix spikes within SDG 36426-4 exhibited non-compliant percent recoveries for three analytes for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated in the samples. Positive results for barium were flagged as estimated and positive and non-detect results for mercury was rejected. In addition, mercury was rejected in the field duplicate pair for exhibiting an absolute difference of greater than 4 times the contract required detection limit (CRDL).

In SDG 36489-2, the associated matrix spikes exhibited non-compliant percent recoveries for three analytes for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated in the samples. Positive results for lead were qualified as estimated. Positive and non-detect results for chromium were rejected.

In SDG 36517-1, the associated matrix spikes exhibited non-compliant percent recoveries for analytes for which qualifications were required. Positive and non-detect results for antimony and chromium were flagged as estimated in the samples. Positive results for cobalt were flagged as estimated and positive results for barium were rejected. The associated matrix duplicate exhibited a non-compliant RPD for barium. Positive and non-detect results for barium were qualified as estimated. Barium was rejected in all samples due to spike recoveries greater than 200%.

In SDG 36517-1, the field duplicate pair of samples 74SB86-03 and 74SB86-03D exhibited non-compliant RPD for cobalt, nickel, and zinc and was flagged as estimated. Barium and chromium exhibited non-compliant RPDs and lead exhibited an absolute difference of greater than four times the CRDL and was rejected. The field duplicate pair of samples 74SB91-03 and 74SB91-03D exhibited non-compliant RPD for chromium and nickel and was flagged as estimated. Lead exhibited an absolute difference greater than four times the CRDL and was rejected.

In SDG 36711-1, the field duplicate pair of samples 74SB96-03 and 74SB96-03D exhibited a non-compliant RPD for barium (137%) and the field duplicate pair of samples 74SB121-05 and 74SB121-05D exhibited non-compliant RPD for barium (141%). Barium in both field duplicate pairs was rejected.

In SDG 36806-2, the field duplicate pair of samples 74SB146-02 and 74SB146-02D exhibited non-compliant RPDs for cobalt (40%). Cadmium exhibited an absolute difference greater than four times the CRDL and was rejected.

In SDG 36891-2, the associated matrix spikes of sample 74SB171-04 exhibited non-compliant percent recoveries for two analytes for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated in the samples. Positive and non-detect results for mercury were rejected due to recoveries above 200%.

The field duplicate pair of samples 74SB201-04 and 74SB201-04D in SDG 36891-3 exhibited metals results for one analyte that did not compare. Lead exhibited an absolute difference that was more than four times plus or minus the reporting limit and was rejected in the field duplicate pair based on Region II guidance.

In SDG 36891-5, the percent differences between total and dissolved results were above 20% for some analytes and above 50% for cobalt in two samples. Those above 20% (nickel and barium) were flagged as estimated in both the total and dissolved sample. Those above 50% were rejected in both the total and dissolved sample. These qualifications were made according to Region II guidelines.

The field duplicate pair of samples 74SB191-03 and 74SB191-03D in SDG 36925-1 exhibited metal results that did not compare. The analyte barium exhibited a RPD of 157 percent and was rejected in both samples.

In SDG 36925-4, the associated matrix spike pair exhibited non-compliant recoveries for the dissolved metals analytes. Arsenic, copper, and nickel were recovered above the QC limit and positive results were qualified as estimated in all dissolved metal samples. Barium and zinc were recovered above 200% in both MS and MSD and positive and non-detect results were rejected in all dissolved metals samples.

In addition in SDG 36925-4, the total/dissolved metals analysis comparison exhibited percent differences greater than 50% for three analytes in one pair. Two of these analytes were not qualified because the total sample was analyzed without dilution but the dissolved sample was analyzed with dilution. The analyte cobalt was rejected in sample pair 74VP10a/JP5 and 74VP10a/JP5F.

In SDG 36978-4, the associated matrix spike pair exhibited non-compliant recoveries for the dissolved metals analytes. Arsenic, copper, and nickel were recovered below 200% and were qualified as estimated. Barium and zinc were recovered above 200% in both the MS and MSD and positive and non-detect results were rejected. The field duplicate sample 74GW9MW02SDF should not be used to assess precision and the sample is rejected. Results reported from the 10X dilution in the field duplicate sample are biased high by approximately a factor of 10. Positive results reported from the undiluted analysis of the field duplicate exhibited acceptable reproducibility with the associated field sample. The results reported in the dissolved analysis field duplicate are actually reproducible with the total analysis field duplicate results. Perhaps the field duplicate did not get filtered. Because of the anomalous results, the validator opines that the field duplicate sample should not be used to assess precision.

In SDG 36978-4, the total/dissolved metals analysis comparison exhibited percent differences greater than 20% but less than or equal to 50% for one analyte in one pair and a percent differences greater than 50% for one analyte in one pair. Cobalt (33%) was qualified as estimated and cobalt (60%) was qualified as rejected.

In SDG 37020-3 the field duplicate pair of samples 74SB246-03 and 74SB246-03D exhibited DRO results that did not compare. The analytes vanadium and chromium exhibited absolute differences that were greater than four times the reporting limit and were rejected in both samples.

In SDG 37125-1, the field duplicate (74SB271-03 and 74SB271-03D) pair exhibited non-compliant results for zinc and barium. Zinc was qualified as estimated and barium was rejected in both samples.

In SDG 37226-4, the total/dissolved metals analysis comparison exhibited percent differences greater than 20% but less than or equal to 50% for one analyte in one pair and a percent difference greater than 50% for one analyte in one pair. Cobalt (26%, 55%, and 26%) was qualified as estimated and cobalt (150% and 137%) was qualified as rejected.

### **3.10 Deviations from the Work Plan**

The following discusses some deviations from the approved Work Plan for Phase I of the CMS Investigation for SWMU 74:

- The Work Plan states that samples will be compared to USEPA Region IX Preliminary Remediation Goals (PRGs); however, the USEPA came out with new criteria tables in July 2008, which are referred to as Regional Screening Levels (SLs). The September 2008 Update to the Regional SLs were used for data comparison verses the PRGs as stated in the Work Plan.

- The Work Plan stated that approximately 15 percent of the surface soil, subsurface soil and groundwater samples were to be analyzed for LLPAHs; following completion of the field work approximately 11 percent of the total was sampled for LLPAHs. These samples were selected based on the presence of contamination as ascertained by PID readings, visual inspection, or presence of odor, as well as by random selection. Phase II of the CMS Investigation for SWMU 74 will incorporate LLPAH analyses for all samples collected.
- Groundwater duplicates were collected at a frequency slightly less than 10 percent (approximately 8 percent) because of difficulty collecting enough volume for duplicate analysis from the 1.5-inch diameter monitoring wells. In most cases, groundwater duplicates were collected from existing wells that were larger diameter.
- The format of this report was changed from the original format proposed in the approved Work Plan to enable a more comprehensive discussion of the data. The overall size of the data package was rather large and an expanded reporting format made for an easier presentation.
- Two of the monitoring wells in SWMU 9 Area C (74VP6Aa and 74VP6Ab) failed to produce sufficient water for sample collection during the investigation resulting in a data gap associated with valve pit VP-6A.

## **4.0 EVALUATION CRITERIA**

This section discusses the methods and criteria used to evaluate the data collected during Phase I of the CMS Investigation. As discussed in Sections 1 through 3, the first phase of this CMS investigation is a screening step that included the collection of soil and groundwater samples from areas along the pipeline and near valve pits to determine whether releases have occurred and if they have impacted the adjacent soil and groundwater. To accomplish this goal, the Phase I data were compared to criteria for total TPH, environmental background concentrations of inorganic compounds, as well as to various human health and ecological screening criteria.

### **4.1 TPH**

Phase I of the CMS Investigation for SWMU 74 is a screening step focused on identifying potential releases from the pipelines and associated valve pits. Subsequent phases of the CMS Investigation will focus on confirming, characterizing and delineating site related contamination. Petroleum hydrocarbons are the primary expected contaminants associated with SWMU 74. As indicated in the EPA approved Final Corrective Measures Study Work Plan for SWMU 74 (Baker, 2007), to efficiently screen such a large area, total TPH was selected as an indicator of a release from the pipeline or valve pit. All soil and groundwater samples collected for this Phase I investigation were analyzed for TPH DRO and GRO. Total TPH values exceeding a set screening criterion were considered indicative of a release and those areas were recommended for further investigation. The Puerto Rico Environmental Quality Board (PREQB) screening criteria for total TPH in soil is 100 milligrams per kilogram (mg/kg) and for total TPH in groundwater is 50 mg/L. As discussed below and in detail in the approved Work Plan, a screening value of 25% of the TPH criteria for soil and groundwater was used in this investigation (25 mg/kg total TPH in soil and 12.5 mg/L in groundwater).

The soil samples were also analyzed for Appendix IX VOCs and metals; approximately 11 percent of the soil samples were analyzed for low level PAHs. Similarly, the groundwater samples were additionally analyzed for Appendix IX VOC, and total and dissolved metals; approximately 60 percent of the groundwater samples were analyzed for low level PAHs. Detections of these compounds (VOCs, PAHs, and metals) above background and applicable screening criteria, as discussed in Sections 4.2 through 4.4 is not necessarily an indication of a release from SWMU 74 and will be considered on a case-by-case basis when identifying areas for additional investigation.

#### **4.1.1 TPH DRO and PAHs**

The approved Work Plan indicated that the relationship between PAHs and TPH would be explored to determine a potential trigger level for TPH, above which the presence of one or more PAH constituent would be likely. PAH compounds were not analyzed for in every soil and groundwater sample collected at SWMU 74. Potential fuel-based contamination in soil was evaluated first in those soil samples analyzed for PAHs. This was accomplished by combining all available co-located TPH DRO and PAH soil data from each area (surface soil and subsurface soil) into a single unified data set and running linear regressions that examined the relationship between TPH DRO and PAH concentrations. Separate linear regressions were performed on each PAH compound. For a given TPH DRO and PAH co-located pair, if a result was rejected during data validation activities, analytical data for that pair was omitted from the combined data. In addition, non-detected results were evaluated at the detection limit.

The results of this evaluation show that there is no strong correlation between TPH DRO and PAH concentrations. The correlation coefficient for all PAHs was less than 0.08 except for



fluorene and phenanthrene where the correlation coefficients were 0.617 and 0.789, respectively. Note that a correlation coefficient of greater than 0.2 may conservatively be considered to have some significance. The regressions for these two compounds appear to be controlled by the co-location of the maximum PAH detection with the maximum DRO detection. The overall results of this evaluation suggest that the detection of PAHs in the soil and groundwater samples is not necessarily the result of a release from SWMU 74. (Regression plots for PAHs compounds verses TPH DRO are provided in Appendix D). Consequently, PAHs detections in excess of human health and/or ecological screening criteria were considered on a case-by-case basis and did not automatically trigger identification of an area for additional investigation. As indicated in the Work Plan, if the results of the linear regressions indicate that there is no correlation between TPH and PAH compounds, fuel-related impacts in surface soil and subsurface soil will be identified using a screening value equal to 25 percent of the current PREQB screening criterion of 100 mg/kg for soil and 50 mg/L for groundwater.

#### **4.1.2 TPH and Metals**

A similar evaluation was conducted on the detected metals concentrations in soil to explore the potential relationship between TPH and detected metals. In this evaluation, co-located TPH and metals data from each area (surface and subsurface soil) were combined into a single unified data set. Separate linear regressions were then run for each metal. Identical to the TPH DRO and PAH evaluation, if a result for a given co-located TPH and metal pair was rejected during data validation activities, analytical data for that pair was omitted from the combined data set. Non-detected results also were evaluated at the detection limit reported by the analytical laboratory.

The results of this evaluation also show that there is no strong correlation between TPH and individual metals concentrations in soil. The correlation coefficients for all regressions were less than 0.03 (note that a correlation coefficient of greater than 0.2 may conservatively be considered to have some significance). Regression plots are provided in Appendix D. This lack of correlation between TPH and detected metals concentrations in soil indicates that the presence of a metal in soil is not necessarily the result of a release from SWMU 74. Consequently, detections of metals in excess of background and human health and/or ecological screening values were considered on a case-by-case basis and did not automatically trigger identification of an area for additional investigation. This was applied, by analogy, to groundwater as well.

#### **4.2 Background Criteria**

Detected inorganic compounds were compared against their respective background screening values (upper limit of the mean) following Navy guidance (Naval Facilities Engineering Service Center, [NFESC], 2002 and 2004). The background data used in the evaluations are those presented in the Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds (Baker, 2008). Background criteria for surface soil, subsurface soil (fine sand/silt and clay) and groundwater were used in the evaluation. Detected compounds for each media were compared to applicable human health or ecological screening criteria, as discussed in Sections 4.3 and 4.4, as well as to background concentrations.

#### **4.3 Human Health Screening Criteria**

Applicable human health criteria for soils include USEPA Regional Industrial SLs and USEPA Regional Residential SLs (USEPA, 2008a), and the upper limit of the mean background levels (inorganics only) (Baker, 2008). Applicable human health criteria for groundwater are USEPA Regional Tap Water SLs, Federal Drinking Water MCLs, and any inorganic background levels present in the groundwater at NAPR (Baker, 2008).

#### **4.3.1 Soil**

The EPA recently developed the Regional SLs to support the risk assessment screening process, while improving consistency across EPA Regions and incorporating updated guidance in a timely manner. The Regional SL Table was developed with the Department of Energy's Oak Ridge National Laboratory under an Interagency Agreement as an update of the individual screening tables that had previously been maintained by Regions III, IV, and IX. As recommended by the USEPA, these Regional SLs are to replace all other screening values.

The Regional SL Table contains risk-based screening levels derived from standardized equations (representing ingestion, dermal contact, and inhalation exposure pathways), calculated using the latest toxicity values, default exposure assumptions and physical and chemical properties. The SLs contained in the Regional SL Table are generic; they are calculated without site-specific information. Regional SLs should be viewed as Agency guidelines, not legally enforceable standards. The SLs for potentially carcinogenic chemicals are based on a target Incremental Lifetime Cancer Risk (ILCR) of  $1 \times 10^{-6}$ . The SLs for noncarcinogens are based on a target hazard quotient (HQ) of 1.0. However, in order to account for cumulative risk from multiple chemicals in a medium, the noncarcinogenic SLs will be divided by a factor of ten, yielding a target HQ of 0.1. For potential carcinogens, the toxicity criteria applicable to the derivation of SL values are oral Cancer Slope Factors (CSFs) and inhalation unit risk (IUR) factors; for noncarcinogens, they are chronic oral reference doses (RfDs) and inhalation reference concentrations (RfCs). These toxicity criteria are subject to change as more updated information and results from the most recent toxicological/epidemiological studies become available. The SL table is updated periodically to reflect such changes. It should be noted that the September 2008 update (USEPA, 2008a) was used in this report.

Residential Soil SLs are developed using equations modeling the ingestion, dermal contact, and inhalation exposure routes. Residential Soil SLs for carcinogens are based on combined childhood and adult exposure, while those for noncarcinogens are based on childhood exposure only. Default exposure parameters used in the calculations include an exposure frequency of 350 days per year for both adult and child, exposure durations of 6 years for childhood exposures and 30 years for childhood and adult combined, and body weights of 15 kilogram (kg) for a child and 70 kg for an adult. Soil ingestion rates of 200 mg/day for a child and 100 mg/day for adults are also used. Additionally, age-dependent adjustments are made for the development of residential soil SLs for chemicals identified to be carcinogenic via a mutagenic mode of action (e.g., carcinogenic PAHs).

Industrial Soil SLs are developed using equations modeling the ingestion, dermal contact, and inhalation exposure routes. Industrial Soil SLs for carcinogens and noncarcinogens are based on adult outdoor worker soil exposures. Default exposure parameters include an exposure frequency of 250 days per year, exposure duration of 25 years, and a soil ingestion rate of 100 mg/day. The adult outdoor worker exposure scenario also assumes an 8 hour work day.

#### **4.3.2 Groundwater**

As indicated in Section 4.3, Regional SLs were also used in the evaluation of groundwater analytical results. Regional Tap Water SLs are developed using equations modeling the ingestion and inhalation exposure routes. The dermal exposure route is not included due to uncertainty in the determination of dermal permeability constants for many of the chemicals. Tap Water SLs for carcinogens are based on childhood and adult (drinking water) exposure, while those for noncarcinogens are based on adult exposure only. Default exposure parameters used in the calculations include an exposure frequency of 350 days per year for both adult and child,

exposure durations of 6 years for childhood exposures and 30 years for childhood and adult combined, and body weights of 15 kg for a child and 70 kg for an adult. Tap water ingestion rates of 1 liter per day for a child and 2 liters per day for adults are also used. Additionally, age-dependent adjustments are made for the development of Tap Water SLs for chemicals identified to be carcinogenic via a mutagenic mode of action (e.g., carcinogenic PAHs).

MCLs were also used in the screening evaluation of the groundwater analytical results. MCLs are Federal Groundwater Standards that are enforceable standards for public water supplies promulgated under the Safe Drinking Water Act and are designed for the protection of human health. MCLs are based on laboratory or epidemiological studies and apply to drinking water supplies consumed by a minimum of 25 persons. They are designed for prevention of human health effects associated with a lifetime exposure (70 year lifetime) of an average adult (70 kg) consuming 2 liters of water per day. MCLs also consider the technical feasibility of removing the contaminant from the public water supply (USEPA, 2008a).

#### **4.4 Ecological Screening Values**

Ecological screening values for soil and groundwater were developed from numerous sources, as discussed in the following sections.

##### **4.4.1 Soil**

Surface soil (collected from 0 to 1 foot bgs) and shallow subsurface soil (collected from the 1 to 3 foot bgs interval) represent the most likely zones for exposure of ecological receptors to site contaminants. Consequently, ecological screening values for soil were only applied to surface and shallow subsurface soil.

USEPA ecological soil screening levels (Eco-SSLs) for terrestrial plants and invertebrates (available at <http://www.epa.gov/ecotox/ecossl/>) were preferentially used as soil screening values. For a given metal, if an Eco-SSL has been established for both terrestrial plants and invertebrates, the lowest value was selected as the soil screening value. For a given chemical, if an Eco-SSL was available for both receptor groups, the lowest value was selected as the soil screening value. In the case of chromium and vanadium, insufficient data are available from the literature for derivation of Eco-SSLs for terrestrial plants and/or invertebrates (USEPA, 2008b and 2005). However, both Eco-SSL documents list toxicological data from studies eligible for Eco-SSL derivation. The chromium Eco-SSL document cites two studies (Van Gestel et al., 1992 and 1993) that investigated the effect of chromium on earthworm (*Eisenia andrei*) reproduction, while the vanadium Eco-SSL document cites two studies (Kaplan et al., 1990) that investigated the effect of vanadium on broccoli (*Brassica oleracea*) growth. The chromium studies using earthworms reported Maximum Acceptable Toxicant Concentration (MATC) values of 57 mg/kg, while the vanadium studies using broccoli reported a Lowest Observed Adverse Effect Concentration (LOAEC) of 100 mg/kg and a No Observed Adverse Effect Concentration (NOAEC) of 100 mg/kg. For this ERA, the MATC value of 57 mg/kg based on earthworm reproduction was used as the soil screening value for chromium and the LOAEC value based on broccoli growth (with a safety factor of 10; Wentsel et al., 1996) was used as the soil screening value for vanadium.

For those chemicals lacking terrestrial plant and invertebrate Eco-SSLs or toxicological data eligible for Eco-SSL derivation, the literature-based toxicological benchmarks listed below were used as soil screening values.

- Toxicological thresholds for earthworms and microorganisms (Efroymson et al., 1997a)
- Toxicological thresholds for plants (Efroymson et al., 1997b)

When more than one screening value was available from Efroymson et al. (1997a and 1997b), the lowest value was selected as the surface soil screening value. For those chemicals lacking an Eco-SSL or a toxicological threshold from Efroymson et al. (1997a and 1997b), the following literature-based values, listed in their order of decreasing preference, were used as soil screening values:

- Toxicity reference values for plants and invertebrates listed in USEPA, 1999.
- Soil standards developed by the Ministry of Housing, Spatial Planning and Environment (MHSPE) (MHSPE, 2000), assuming a minimum default soil organic carbon content of 2.0 percent.
- Canadian soil quality guidelines (agricultural land use) developed by the Canadian Council of Ministers of the Environment (CCME) (CCME, 2007).

CCME soil quality guidelines were given the lowest preference since they are background-based values that do not represent effect concentrations.

#### **4.4.2 Groundwater**

Groundwater concentrations were compared to ecological surface water screening values in case of groundwater discharge to surface water. Chronic saltwater National Ambient Water Quality Criteria (NAWQC) (USEPA, 2006) were selected for use as surface water screening values. USEPA NAWQC for cadmium, copper, chromium, lead, mercury, selenium, and zinc are expressed as dissolved concentrations. As a measure of conservatism in this screening, they were converted to total recoverable concentrations using the appropriate conversion factors (USEPA, 2006). For those chemicals lacking a saltwater NAWQC, surface water screening values were identified from the following information listed in their order of decreasing preference:

- Final Chronic Values (FCVs) for saltwater contained in Ecotox Thresholds (USEPA, 1996)
- Chronic screening values for saltwater contained in Ecological Risk Assessment Bulletins – Supplement to Risk Assessment Guidelines (Risk Assessment Guidance for Superfund [RAGS]) (USEPA, 2001)
- Minimum chronic toxicity test endpoints (No Observed Effect Concentration [NOEC] and MATC values) for saltwater species reported in the ECOTOX Database System (Aquatic Toxicity Information Retrieval [AQUIRE] database) (USEPA, 2007b)
- Chronic Lowest Observable Effect Levels (LOELs) for saltwater contained in National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQUIRTs) (Buchman, 2008)

The order of preference was selected based on their level of protection. For example, FCVs would be expected to offer a greater degree of protection than a single species NOEC, MATC, or LOEL since their derivation considers a larger toxicological database. In the absence of FCVs,

USEPA Region IV chronic screening values, chronic test endpoints, and chronic LOELs, screening values were derived from the acute literature values listed below:

- Acute LOELs for saltwater contained in NOAA SQUIRTs (Buchman, 2008)
- Acute toxicity test endpoints (NOEC, Lowest Observed Effect Concentration [LOEC], median lethal concentration [LC<sub>50</sub>], and median effective concentration [EC<sub>50</sub>] values) for saltwater species contained in the ECOTOX Database System (AQUIRE database) (USEPA, 2007b).
- LC<sub>50</sub> values for saltwater species contained in Superfund Chemical Matrix (USEPA, 2004)

Chronic-based screening values were extrapolated from acute NOEC, LOEC, LOEL, LC<sub>50</sub>, and EC<sub>50</sub> values as follows:

- An uncertainty factor of 10 was used to convert an acute NOEC, LOEC, or LOEL to a chronic-based screening value.
- An uncertainty factor of 100 was used to convert an EC<sub>50</sub> or LC<sub>50</sub> to a chronic-based screening value.

When acute toxicity data were used to extrapolate a chronic screening value, NOECs were given preference over LOECs/LOELs, LOECs/LOELs were given preference over LC<sub>50</sub> and EC<sub>50</sub> values, and EC<sub>50</sub> values were given preference over LC<sub>50</sub> values. When more than one value was available from the literature for a given test endpoint (e.g., NOEC), the minimum value was conservatively used to extrapolate a chronic screening value. In some cases, chronic and acute LOELs for chemical classes (e.g., PAHs) were available from Buchman (2008). A LOEL based on a chemical class was used to derive a chronic screening value only if that chemical lacked literature-based benchmarks and/or toxicity test endpoints.

For those chemicals lacking saltwater toxicological thresholds and literature values, surface water screening values were identified or developed from freshwater values using the sources and procedures discussed in the preceding paragraphs with one exception. This exception involved the consideration of freshwater Secondary Chronic Values (SCVs) developed by the USEPA (1996).

## **5.0 AIRFIELD AREA**

The following section describes the investigation results for the Airfield Area portion of SWMU 74. The analytical data is discussed and presented by media type; i.e. surface soil, subsurface soil, and groundwater.

### **5.1 Area Description**

The Airfield Area consists of approximately 5,500 linear feet of pipeline, two valve boxes, the Aircraft Hydrant Refueling System, and the Day Tank Storage System (not part of SWMU 74). The refueling system is comprised of four filling stands or hydrants located north of the main runway. The Day Tank Area consisted of one above ground storage tank with approximately 2.6 million gallons of capacity, a smaller cut and cover tank with approximately 218,000 gallons of capacity and large above ground pumps, filtration systems, and valves. The above ground storage tank and ancillary components including pumps, filtration and valving was protected by a secondary containment structure.

### **5.2 Sampling Summary**

A total of six surface soil samples, 105 subsurface soil samples, and eleven groundwater samples were collected from the Airfield Area, not including duplicates or other QA/QC samples. Sample locations are shown in Figures 5-1 and 5-2.

Six surface soil samples (74SB01-00, 74SB13-00, 74SB22-00, 74SB34-00, 74SB51-00, and 74SB61-00) and one duplicate sample (74SB13-00D) were collected and analyzed during Phase I of the CMS Investigation at SWMU 74 Airfield. Surface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. Select samples were analyzed for LLPAHs, including 74SB01-00 and 74SB22-00.

One hundred and six (106) subsurface soil samples and ten duplicate samples were collected and analyzed during Phase I of the CMS Investigation at SWMU 74 Airfield. All of the subsurface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. Select samples were analyzed for LLPAHs.

A total of eleven groundwater samples [74GW05, 74GW09, 74GW22, 74GW26, 74GW34, 74GW57, 74GWHYD3 (existing), 74GWVP1a, 74GWVP1b, 74GWVP2a, and 74GWVP2b] and one duplicate sample (74GWHYD3D) were collected and analyzed during Phase I of the CMS Investigation at SWMU 74 Airfield. All of the groundwater samples were analyzed for Appendix IX VOCs, total metals and dissolved metals, TPH GRO and TPH DRO. A total of five of the eleven samples were analyzed for LLPAHs.

### **5.3 Area Geology and Hydrogeology**

The entire SMWU 74 Airfield Area is located within the Inland Flat Land regional geology area. The inland flat land area is typically underlain by relatively thick residual soil (i.e., residuum). The residuum generally consists predominately of clay. However, during construction of the Airfield Area a significant portion, if not all, of the surface was cut, filled and reworked to support development. Due to the age of the Airfield (constructed late 1940's), the significant volume of fill and surface reworking required during construction, and the boring location relative to the pipeline and valve box backfill, it is often difficult to identify the fill and natural overburden transition; although the fill/natural overburden sometimes is obvious when coarser grained materials were introduced as fill (e.g., beach sands, gravels, cobbles).

Fill materials, generally ranging in depth from near surface to approximately 12 feet bgs along the pipeline, were observed in the Airfield borings. The fill generally consisted of clay rich profiles with varying amounts of silt and sand. Occasionally, coarse sand, gravel and cobbles were observed in the borings. Native soils, also clay rich and generally light/olive green in color and mottled, were observed.

The water bearing zones in the clay rich subsurface of the Airfield were difficult to ascertain. Occasionally, a sand rich or gravelly zone at depth would produce observable groundwater. In general, it was determined that water bearing zones ranged from typically 10 to 14 feet below ground surface, accordingly the monitoring wells were generally installed between 15 and 20 feet below ground surface with the well screen extending across the 10 to 14 foot interval. A groundwater contour map for the Airfield area is shown on Figure 3-6 and indicates a groundwater flow direction to the southeast. Soil Boring Logs, Well Construction Records, and groundwater level measurements (listed in the field log books) are provided in Appendix A.

#### **5.4 Surface Soil Results**

The detected analytical results for the surface soil data set are provided in Table 5-1. Figure 5-1 presents the detected organic parameters which exceeded criteria in the surface soil and subsurface soil at SWMU 74 Airfield. A complete data set is provided in Appendix B.

Acetone was detected in all six surface soil samples with concentrations ranging from 21 J ug/kg to 850 J ug/kg. Iodomethane was detected in four of the six surface soil samples with concentrations ranging from 1 J ug/kg to 3.4 J ug/kg. Acetone and iodomethane were reported as laboratory artifacts in the data validation summaries for many of the SDGs (see Appendix C) and are believed to be an artifact of the TerraCore sampling procedure rather than contamination from a release from SWMU 74.

Benzo(a)pyrene was the only LLPAH detected in the surface soil samples collected from the Airfield Area. Benzo(a)pyrene was detected at location 74SB22 at a concentration of 0.96 J ug/kg, which is well below the residential and industrial soil SLs.

A total of six metals were detected in the surface soil samples exceeding at least one criteria comparison. These five metals are:

- Arsenic
- Cobalt
- Copper
- Selenium
- Vanadium

Of these five metals, only two were detected in one or more samples at concentrations in excess of the NAPR basewide background screening value, and one other screening criteria. Arsenic exceeded the NAPR basewide background screening value and the residential and industrial soil SLs at location 74SB01 and 74SB34. Vanadium exceeded the NAPR basewide background screening value, the residential and industrial soil SLs, and the ecological screening values at one location, 74SB34.

Total TPH was evaluated with a screening level of 25 mg/kg; two surface soil locations exceeded this value. Locations 74SB01 and 74SB34 reported concentrations of 129 and 29.5 mg/kg, respectively.

In summary, surface soil was determined to be impacted by site related contaminants (Total TPH) at 74SB01 and 74SB34 at SWMU 74 Airfield. Arsenic concentrations exceeding background, residential and industrial soil SLs were also detected at both of these locations; vanadium was detected at concentrations exceeding background, residential and industrial soil SLs and ecological screening values at 74SB34.

## **5.5     Subsurface Soil Results**

The detected results for the subsurface soil data set are provided in Table 5-2. Figure 5-1 presents the location of organic parameters which exceeded any criteria comparison at SWMU 74 Airfield. The complete data set is provided in Appendix B.

VOCs were detected in the subsurface soil at very low concentrations and no VOC detections exceeded the screening criteria. Acetone and isobutyl alcohol were detected in numerous samples and many of the results were rejected by the validator because of initial and continuing calibration low relative response factor values for these compounds.

Fourteen (14) subsurface soil samples and three duplicates were analyzed for LLPAs based on visual observations and PID measurements in the field. Two subsurface soil samples from the same boring (74SB22) exhibited PAHs above the residential soil SLs at the SWMU 74 Airfield. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene exceeded the residential soil SLs at boring 74SB22 from 5 to 7 feet and 7 to 9 feet below ground surface. A duplicate sample was also collected for LLPAs at 74SB22 from 5 to 7 feet which confirmed the elevated detections of benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene, but also reported benzo(k)fluoranthene above the residential soil SL. No other PAHs were detected above screening criteria from the other twelve subsurface soil samples collected.

A total of six (6) different metals were reported as exceeding the NAPR basewide background screening value and at least one other screening criteria. These metals included:

- Arsenic
- Cobalt
- Copper
- Mercury
- Thallium
- Vanadium

Arsenic was detected in 74 of the subsurface soil samples collected, including duplicates, at concentrations above the background standard of 1.59 mg/kg and either the residential (0.39 mg/kg) or industrial (2 mg/kg) soil SLs. Overall, these detected arsenic concentrations were reported less than 10 mg/kg, except for one sample. Boring 74SB39 subsurface soil collected from 7 to 9 feet bgs reported an arsenic concentration of 79 mg/kg. Cobalt exceeded the background concentration and ecological screening values of 26.9 mg/kg in 20 subsurface soil samples. Borings 74SB06 from 1 to 3 feet bgs and 74SB48D from 1 to 3 feet bgs reported cobalt concentrations of 27 and 30 mg/kg, respectively. Cobalt was detected above the NAPR background concentration of 26.9 mg/kg and above the residential soil SL in 16 samples and three duplicates. Cobalt was also detected above the background concentration and above the industrial soil SL of 30 mg/kg in 12 samples with the maximum concentration of 170 mg/kg occurring in sample 74SB54-03. Copper was detected above background and the residential soil SL at seven subsurface soil samples. Copper exceedences ranged from 320 to 710 mg/kg, above



the background concentration of 246 mg/kg and the residential soil SL of 310 mg/kg. The copper exceedences were found between borings 74SB30 and 74SB40 at both shallow and deeper depths. Four subsurface soil samples exceeded the NAPR background concentration (0.108 mg/kg) and ecological screening value (0.1 mg/kg) for mercury for the 1 to 3 foot bgs interval. Boring 74SB34 reported a mercury concentration of 0.2 J mg/kg; borings 74SB37 and 74SB38 each reported a mercury concentration of 0.14 J mg/kg; and boring 74VP26 reported a mercury concentration of 0.19 mg/kg. Thallium exceeded the NAPR background concentration (0.92 mg/kg) and the residential SL (0.51 mg/kg) in four (4) subsurface soil samples. These exceedences were found at two boring locations, 74SB30 and 74SB54. At 74SB30 concentrations of 1.1 and 1.9 mg/kg were reported at 5 to 7 and 7 to 9 feet bgs, respectively, and at 74SB54 concentrations of 2.0 and 1.1 mg/kg were reported at 5 to 7 and 7 to 9 feet bgs, respectively. Vanadium was detected above the NAPR background concentration of 434 mg/kg and either the residential soil SL (55 mg/kg) or the industrial soil SL (720 mg/kg) in eight (8) subsurface soil samples. These vanadium exceedences ranged from 450 to 590 mg/kg and occurred at borings 74SB12, 74SB39, 74SB44, 74SB54, 74SB56, and 74VP1b at various depths. As indicated in Section 4.0, these detections generally are not considered to be the result of a release from the SWMU 74 pipeline or valve pits.

Total TPH was evaluated using 25 mg/kg as the screening criteria for subsurface soil. A total of eighteen subsurface soil samples exceeded the screening value with concentrations ranging from 36 J mg/kg to 2,380 J mg/kg. These TPH exceedences were reported in borings 74SB05, 74SB06, 74SB16, 74SB22, 74SB23, 74SB26, 74SB27, 74SB28, and 74SB30. These borings are located within the hydrant refueling area and the day tank area. Total TPH samples from the hydrant refueling area were reported as predominantly GRO, while samples from the day tank area were predominantly reported as DRO. Figure 5-1 shows the distribution of total TPH exceedences across the SWMU 74 Airfield, particularly the hydrant refueling and day tank areas.

## **5.6 Groundwater Results**

The detected results for the groundwater data set are provided in Table 5-3. Figure 5-2 presents the location of detected organic compounds above SLs and the established TPH criteria of 12.5 mg/l. The complete data set is provided in Appendix B.

Three VOCs, benzene, ethylbenzene, and tetrachloroethene were detected in the groundwater samples above the tap water SLs but below MCLs. Each of these compounds were detected in only one of the eleven samples. Tetrachloroethene was detected in well 74SB05 and benzene and ethylbenzene were detected in well 74SB26.

LLPAHs were analyzed at four of the eleven groundwater wells sampled including 74SB05, 74SB09, 74SB22, and 74HYD3. Only 2-methylnaphthalene and phenanthrene were detected at estimated concentrations just above the detection limit.

Barium was the only total metal detected above both the NAPR basewide background and tap water SLs at wells 74SB22 and 74SB26. Barium concentrations were 950 and 1,300 ug/l, respectively. Cobalt was detected in all but one of the samples above the tap water SL, but was well below the NAPR basewide background. Vanadium was detected in two wells above the tap water SLs, but was well below the NAPR basewide background. Other total metals detected above the ecological screening value included copper, nickel, and vanadium. These detections of copper, nickel and vanadium were well below the NAPR basewide background values.

Barium remained as a dissolved metal above the tap water SLs and NAPR basewide background in two groundwater wells, 74SB22 and 74SB26, at concentrations of 1,000 and 1,700 ug/l

respectively. Note however that, as discussed in Section 4.0, the presence of metals is not necessarily the result of releases from SWMU 74.

Total TPH was detected above the established screening value of 12.5 mg/l in well 74SB26 with a reported concentration of 16.04 mg/l. None of the remaining 10 groundwater wells sampled at the Airfield reported concentrations close to the 12.5 mg/l screening value.

## **5.7 Impacts from Other SWMUs**

Other SWMUs that are located within the Airfield Area and have a close proximity to SWMU 74 include SWMUs 69 and 56. SWMU 69 is an aircraft parking area in which contaminants potentially migrated from the concrete pad to nearby surface soils. SWMU 56 is a drainage ditch located adjacent to the concrete pads surrounding Hanger 200. Aircraft were stored in these areas and contaminants potentially migrated from the concrete pad to nearby soils. These SWMUs are currently being investigated and the chemicals of concern in these areas are predominantly metals. Based on the results of the analytical data collected during Phase I of the CMS Investigation for SWMU 74, it does not appear that SWMU 74 has been impacted by releases at SWMUs 56 or 69.

At the Air Field, a known release of JP-5 jet fuel occurred at the Day Tank Area in October 1999. An approved compensatory restoration project was completed in 2007 within the Los Machos Mangrove Forest to address the damage caused by the JP-5 Airfield release. A bridge was installed along Lake Chamberlain Road where culverts once existed to allow a more enhanced tidal flow into the Los Machos Mangrove Forest. This will improve the quality of the Los Machos Mangrove Forest and compensate for the fuel impacts to the Ensenada Honda mangrove system. Therefore, it is possible some of the data collected in the Day Tank Area that indicate fuel impact may be a result of the October 1999 release. Regardless, fuel impacts to soil and groundwater in the Day Tank Area will be delineated during Phase II of the CMS Investigation for SWMU 74.

## **5.8 Conclusions**

Surface soil fuel related impacts were found at 74SB01 and 74SB34 with regards to total TPH values of 129 and 29.5 J mg/kg, respectively.

Subsurface soil total TPH exceeded the screening value at nine different soil borings including 74SB05, 74SB06, 74SB16, 74SB22, 74SB23, 74SB26, 74SB27, 74SB28, and 74SB30. The total TPH concentrations ranged from 36 J to 2,380 J mg/kg and ranged in depth from 1 to 3 feet to a total depth of 9 to 11 feet at 74SB26 and 74SB27. LLPAH samples were not collected at every sampling location during Phase I of the CMS Investigation. LLPAH exceedences were observed at boring 74SB22. These LLPAH exceedences included benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene.

Metals were detected above screening and background values at numerous soil boring locations at various depths. These metals included arsenic, cobalt, copper, mercury, thallium, and vanadium. Vanadium was detected above screening values and background in six different borings at various depths. Arsenic was detected in most borings above the screening and background values. Cobalt was detected above screening and background in 16 borings, copper in six borings, mercury in four borings, thallium in two borings and vanadium in six borings. As discussed in Section 4, no statistical correlation was observed between the metals concentrations and TPH, and these detections are generally not considered to be the result of a release from SWMU 74.

Groundwater fuel related impacts were found at location 74SB26 with a concentration of total TPH of 16.04 ug/l. Barium was detected above screening and background values at locations 74SB22 and 74SB26 with total concentrations of 950 and 1,300 ug/l, respectively. No free product was noted at any of the groundwater wells installed at the Airfield.

## **5.9 Recommendations for Phase II**

At each location where fuel related contamination is noted above screening, trigger, or background levels additional samples will be collected in order to delineate the contamination. For subsurface fuel contamination, one surface soil sample, a maximum of two subsurface soil samples and one groundwater sample will be collected from these locations. These samples will be analyzed for Appendix IX VOCs, metals, LLPAHs, TPH DRO, and TPH GRO. The inclusion of LLPAHs to the analytical requirement in this phase is intended to provide data for evaluation of human health and ecological concerns during the CMS.

During Phase II, subsurface soil samples will be collected during boring advancement for monitoring well installation. Soil samples will be collected continuously from ground surface to the water table using 2-foot long split-spoon samplers or macrocores®, with two subsurface soil samples and one surface soil sample per boring location being collected for fixed-base laboratory analysis. The subsurface soil samples will be collected from the depth of any suspected contamination, based on PID screening, but at a depth shallower than the water table or 10 feet bgs, whichever occurs first. Sampling procedures and drilling methodology for borings and well installations will follow the approved SWMU 74 CMS Work Plan dated December 6, 2007.

Following sample collection at the groundwater monitoring wells, the wells will be allowed to recover for 48 hours. After this time period the wells will be gauged for groundwater elevation measurements to determine groundwater gradients and flow directions for each investigation area with groundwater impact. Slug testing will also be performed at the groundwater well locations to determine hydraulic conductivity values at each location. This will aid in understanding contaminant migration potential via groundwater.

For ease of discussion, the SWMU 74 Airfield will be further segmented into three separate areas, see Figures 5-3 through 5-6. Figure 5-3 is a key map showing the boundaries of each segment. These areas will be referred to as Segment A or the Aircraft Hydrant Refueling Area, Segment B or the Day Tank Area, and Segment C or the Airfield Fuel Pipeline. The following sections discuss the number of samples, approximate location of samples, and analysis parameters for the three segments.

### ***Segment A - Aircraft Hydrant Refueling Area***

The Aircraft Hydrant Refueling Area will be referred to as Segment A, and is shown on Figure 5-4. Activities for Phase II of the CMS Investigation in this area consist of both surface soil and subsurface soil delineation.

- Three surface soil sample locations are proposed around 74SB01 to further horizontally delineate the TPH impacts to the surface soils. These surface soil samples will be analyzed for VOCs, LLPAHs, metals, and TPH GRO/DRO. If PID measurements indicate potential contamination, up to an additional four surface soil samples may be collected from this area.

- Six surface and subsurface soil sample locations are proposed around 74SB05 and 74SB06 to further delineate the TPH. These sampling locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO/DRO. No wells are proposed in this area since 74SB05 was a well location and no significant TPH was observed in the groundwater at this location. However, if PID measurements indicate potential contamination, up to an additional four soil borings may be installed to delineate contamination in this area. Note that soil sampling will be limited to the vegetated areas and that boring through the concrete apron will not be conducted.

### ***Segment B - Day Tank Area***

The Day Tank Area will be referred to as Segment B, and is presented on Figure 5-5. The Phase II of the CMS Investigation activities in Segment B consists of surface and subsurface soil sample collection and groundwater well installation and sampling.

- Sixteen boring locations are proposed for the Day Tank Area to further delineate the fuel related impacts to surface and subsurface soil. Surface and subsurface soil samples will be analyzed for VOCs, LLPAHs, metals, and TPH GRO/DRO. Up to an additional twelve soil borings (two of which may be converted to wells) may be installed at the discretion of the field geologist and based on PID measurements and visible signs of contamination. Where possible, boring locations will be based on 50 foot grid.
- Of the sixteen boring locations, five will be constructed into groundwater monitoring wells. These wells will be installed as permanent 2" diameter wells with steel bollards protecting the stick up casing. The wells will be sampled for VOCs, LLPAHs, metals, and TPH GRO/DRO. The two existing monitoring wells 74GW22 and 74GW26 will be included in the Phase II of the CMS Investigation sampling program.

### ***Segment C - Airfield Fuel Pipeline Area***

The Airfield Fuel Pipeline will be referred to as Segment C, and is presented on Figure 5-6. The Phase II Investigation of the CMS activities for Segment C will consist of collection of surface soil samples.

- Five surface soil samples will be collected surrounding 74SB34 to further delineate the TPH impacts in the surface soil found there. These samples will be analyzed for VOCs, LLPAHs, metals, and TPH GRO/DRO. Based on the results of the PID measurements and visual observations, an additional three surface soil samples may be collected on an approximate 50 foot spacing at this area to complete the delineation.

## **6.0 SWUMU 9 AREA A/B**

The following section describes the investigation results for the SWMU 9 Area A/B portion of SWMU 74. The analytical data is discussed and presented by media type; i.e. surface soil, subsurface soil, and groundwater.

### **6.1 Area Description**

The area included in the SWMU 9 Area A/B starts at the fence line of the Airfield Area and extends east along Forrestal Road, and includes Manilla Bay Street leading north to the SWMU 9 Area A/B tank area. Boring numbers ranged from 74SB63 through 74SB124 along the underground pipeline runs. A total of seven valve pits were encountered within this area including VP-3, VP-11, VP-1A/9, VP-1B/9, VP-1C/9, VP-2/9, and VP-3/9. The SWMU 9 Area A/B contains four cut and cover underground tanks (UST 212 through 215) installed in 1940. A fill stand is located within the SWMU 9 Area A south of Tanks 212 and 213.

### **6.2 Sampling Summary**

A total of six surface soil samples, 129 subsurface soil samples, and 17 groundwater samples were collected from the SWMU 9 Area A/B, not including duplicates or other QA/QC samples. Sample locations are shown on Figures 6-1 and 6-2.

Six surface soil samples (74SB71-00, 74SB81-00, 74SB91-00, 74SB101-00, 74SB111-00, and 74SB121-00) were collected and analyzed during the 2008 Phase I Investigation of the CMS at SWMU 74 SWMU 9 Area A/B. Surface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO.

A total of 129 subsurface soil samples and fourteen duplicate samples were collected and analyzed during Phase I of the CMS Investigation at SWMU 74 SWMU 9 Area A/B. All of the subsurface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. Thirteen subsurface soil samples plus one duplicate sample were analyzed for LLPAs.

A total of seventeen groundwater wells were installed or found as existing wells near the pipeline in the SWMU 9 Area A/B. These wells included:

74VP3a	74VP1Bb/9
74VP3b	74VP1Ca/9
74SB74	74VP1Cb/9
74SB84	74VP2a/9
74VP11a	74VP2b/9
74VP11b	74VP3a/9
74VP1Aa/9	74VP3b/9
74VP1Ab/9	9MW02S (existing)
74VP1Ba/9	

Two duplicate samples were collected from 74VP1Cb/9 and 9MW02S and in addition, a matrix spike and a matrix spike duplicate were collected from 9MW02S during Phase I of the CMS Investigation at SWMU 74 SWMU 9 Area A/B. Groundwater samples were analyzed for Appendix IX VOCs, total metals and dissolved metals, TPH GRO and TPH DRO. A total of 14 of the 17 samples were analyzed for LLPAs.

### **6.3     Area Geology and Hydrogeology**

Approximately one-third of the western portion of the SMWU 9 Area A/B is located within the Inland Flat Land regional geology area with the remaining portion located in the Upland regional geology area. Subsurface conditions for the Inland Flat Land area of SMWU 9 Area A/B is similar to those described in Section 5.3 for the Airfield Area. The upland areas are underlain by bedrock (predominately Gabbro) and exhibit varying degrees of weathering. Typically, the weathered bedrock is overlain by relatively thin residuum.

Due to the shallow depth of the soil borings (12 feet bgs or less) along the pipeline, only fill, residuum, and highly weathered bedrock (saprolite) were observed during borehole advancement in the SMWU 9 Area A/B area. Similar to the Airfield Area, the fill generally consisted of clay rich profiles with varying amounts of silt and sand and the occasional presence of coarse sand, gravel, and varying amounts of rock fragments. Beach sand and shell fragments also were observed in the fill at some borings. The depth of the fill generally ranged between near surface and approximately six feet bgs along the pipeline and up to 20 feet bgs in the vicinity of cut and cover underground Tanks 212 through 215 and associated valve pits where total boring depths reached up to 24 feet bgs. The saprolite consisted of varying colors (predominantly light/olive greens and white) of mottled clay with varying amounts of silt and fine sand. Competent bedrock was not encountered in any of the borings advanced in SMWU 9 Area A/B.

Groundwater was not readily observed in the shallow clay-rich soils, but did occur typically between 14 and 16 feet below ground surface. This area is surrounded, except to the south, by estuarine wetlands and mangrove. Groundwater can be expected at the elevation of the wetlands which surround the SWMU 9 Area A/B. Due to the close proximity of the estuarine wetlands, groundwater at SWMU 9 Area A/B likely is influenced by tidal movement to some degree. A groundwater contour map was not created for SMWU 9 Area A/B due to the linear nature of the pipeline investigation (i.e., lack of appropriate well placement required for triangulation calculations of groundwater flow and gradient) and the ground surface elevation variation along the pipeline in this area. Testing to evaluate groundwater flow velocities or tidal influence also was not performed during the Phase I investigative activities. Soil boring logs, well construction records, and groundwater level measurements (listed in the field log books) are provided in Appendix A.

### **6.4     Surface Soil Results**

The detected analytical results for the surface soil data set are provided in Table 6-1. Figure 6-1 presents the detected organic parameters which exceeded any screening levels in the surface soil. A complete data set is provided in Appendix B.

VOCs detected in the surface soil samples for the SWMU 74 SWMU 9 Area A/B included acetone, carbon disulfide, and iodomethane. Acetone was detected in every sample and iodomethane in one sample; both are most likely laboratory artifacts. Acetone and iodomethane were detected in the QA/QC samples. Carbon disulfide was detected in three samples and may be a result of laboratory contamination; however, carbon disulfide is a naturally occurring chemical in marine environments. A detection of carbon disulfide at 74SB81 was reported at a concentration of 7 ug/kg, but is well below screening levels.

Metals detected above screening levels and/or background in the surface soil at SWMU 74 SWMU 9 Area A/B included; arsenic, cobalt, copper, lead, selenium and vanadium. Arsenic was detected in every surface soil sample above residential soil SLs, above industrial soil SLs in three of six samples and above background in two of the six samples. Cobalt was detected in each of

the six samples above residential soil SLs and above ecological screening levels in four of the six samples. Copper was detected above ecological screening levels in three of the six samples. Selenium was only detected above the ecological screening level in one sample. Vanadium was detected in all six samples above the residential soil SL and ecological screening level, but none were above NAPR background concentrations. As indicated in Section 4.0, these detections generally are not considered to be the result of a release from the SWMU 74 pipelines or valve pits.

Total TPH was detected in each of the six surface soil samples located at SWMU 74 SWMU 9 Area A/B. The screening value of 25 mg/kg was exceeded in two of these samples, 74SB91-00 and 74SB121-00 at concentrations of 48.31 and 33 mg/kg.

In summary, surface soil was determined to be impacted by site related contaminants at 74SB91 and 74SB121 at SWMU 74 SWMU 9 Area A/B. This is based on the TPH DRO concentrations reported at these two locations in excess of the screening value.

## **6.5 Subsurface Soil Results**

The detected results for the subsurface soil data set are provided in Table 6-2. Figure 6-1 presents the location of organic parameters which exceeded any screening level comparison at SWMU 74 SWMU 9 Area A/B. The complete data set is provided in Appendix B.

VOCs were detected in the subsurface soil at very low concentrations with only acrolein detected at location 74SB113 above the residential soil SLs. This detection was estimated and many of the acrolein results were rejected by the data validator, indicating that this acrolein result may be a result of laboratory interference. Acetone and isobutyl alcohol were detected in numerous samples and many of the results were rejected by the validator because initial and continuing calibration exhibited low relative response factor values. The detections of acetone or isobutyl alcohol were all less than the screening values.

Thirteen subsurface soil samples plus one duplicate sample were analyzed for LLPAHs based on visual observations and PID measurements in the field. LLPAH parameters were not reported above the screening criteria in these subsurface soil samples.

A total of four different metals were reported as exceeding the NAPR basewide background screening value and at least one other screening criteria. These metals included:

- Arsenic
- Cobalt
- Copper
- Vanadium

Arsenic and cobalt were detected above the residential soil SL and NAPR background concentrations (based on a clay matrix) at thirty-nine (39) and thirty-four (34) locations, respectively. Copper was detected above residential soil SLs and background concentrations at five locations and vanadium at one location. As indicated in Section 4.0, these detections are not believed to represent releases from SWMU 74.

Total TPH was detected above the established screening value of 25 mg/kg in thirteen of the subsurface soil samples from ten locations and in one duplicate sample. These subsurface soil samples are:

Sample ID	Total TPH (mg/kg) <sup>(1)</sup>	Dominant TPH Fraction
74SB81-04	530 J	DRO
74SB81-04D	52 J	DRO
74SB86-04	740	DRO
74SB108-04	160 J	GRO
74SB109-05	3602 J	GRO
74SB113-04	145	GRO
74SB114-05	43 J	GRO
74VP1Ba/9-09	3,903 J	GRO
74VP3b/9-05	512 J	GRO
74VP3b/9-07	453 J	GRO
74VP2a/9-08	129	GRO
74VP2a/9-10	28 J	DRO
74VP3b-03	359 J	DRO
74VP3b-04	199 J	DRO

<sup>(1)</sup> Values rounded to the nearest one.

Six of the reported concentrations above the screening criteria were predominantly comprised of DRO, while the other eight were predominantly reported as GRO. This difference in TPH fuel types will be further evaluated in Phase II of the CMS Investigation.

## 6.6 Groundwater Results

The detected results for the groundwater data set are provided in Table 6-3. Figure 6-2 presents the location of detected organic compounds exceeding background and screening criteria and selected inorganic compounds believed to be associated with the fuel pipeline.

Seven VOCs, including benzene, ethylbenzene, toluene, xylenes, vinyl chloride, 4-methyl-2-pentanone (MIBK), and chloroform were detected in the groundwater samples above the tap water SLs. Benzene was also detected above the MCL at two locations, 74VP1Cb/9 and 74VP1Aa/9, at concentrations of 8.1 and 2,500 ug/l, respectively. Benzene was also detected in the duplicate sample 74GWVP1Cb/9D at 12 ug/l. The remaining detected VOCs reported above tap water SLs were chloroform at well 74VP2a/9 as an estimated value of 0.67 J and ethylbenzene and total xylenes in well 74VP11a at concentrations of 2.7 and 23 ug/L respectively. In addition to SLs exceedences, MIBK, benzene, ethylbenzene, toluene, and total xylenes were reported above ecological screening values at well 74VP1Aa/9.

LLPAHs were analyzed at fourteen of the groundwater wells sampled. Well 74VP3b reported benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno[1,2,3-cd]pyrene above their respective tap water SLs and pyrene was reported above the ecological screening value. Naphthalene was detected in well 74VP11b above the tap water SLs. 1-Methylnaphthalene and naphthalene were reported above the tap water SLs in well 74VP11a. 1-Methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected in well 74VP1Aa/9 above their respective tap water SLs.

Total metals that were detected above screening criteria and background concentrations included arsenic, cadmium, cobalt, lead, and nickel. Total arsenic was detected above tap water SLs, ecological screening levels, and background at locations 74VP2b/9 with a concentration of 130 ug/l and 9MW025 and its duplicate sample at a concentration of 57 and 59 ug/L respectively. Total cadmium was detected above tap water SLs, MCLs, ecological screening levels, and background at location 9MW02S with a concentration of 23 ug/L. Total cobalt was detected



above tap water SLs, ecological screening levels, and background at location 74VP11b with a concentration of 670 ug/l. Total lead exceeded the ecological screening level and background at locations 74VP1Ca/9 and 74VP1Cb/9 with concentrations of 36 and 81 ug/l. Total nickel was detected above SLs, ecological screening levels, and background at locations 74VP11b with a concentration of 160 ug/l and 9MW025 at a concentration of 110 ug/L.

Dissolved metals that were detected above screening criteria and background concentrations included arsenic, cobalt, lead, nickel, vanadium, and zinc. Dissolved arsenic remained above tap water SLs and background concentrations at location 74VP2b/9 with a concentration of 120 ug/l. Dissolved cobalt was detected above tap water SLs, ecological screening levels, and background at location 74VP11b with a concentration of 680 ug/l. Dissolved lead exceeded the ecological screening level and background at locations 74VP1Ca/9, 74VP1Cb/9, 74VP1Aa/9, and 74VP1Bb/9. Dissolved nickel remained above tap water SLs, ecological screening levels and background concentrations at location 74VP11b with a concentration of 150 ug/l. Dissolved vanadium was detected above tap water SLs, ecological screening levels and background at locations 74VP1Ca/9, 74VP3a, 74VP3b, and 74SB74. Dissolved zinc was detected above ecological screening levels and background at location 74VP11b with a concentration of 490 ug/l.

Total TPH was detected above the established screening value of 12.5 mg/l in well 74VP1Aa/9 with a reported concentration of 49.7 mg/l. None of the remaining 15 groundwater wells sampled at the SWMU 74 SWMU 9 Area A/B reported concentrations close to the 12.5 mg/l screening value.

Although the comparison plots in Appendix D do not show correlation with the TPH detections, the co-location of metals such as lead with organic detections (i.e. benzene in 74VP1Aa/9 and 74VP1Cb/9) should be further evaluated in subsequent phases of this CMS. The complete data set is provided in Appendix B.

## **6.7     Impacts from Other SWMUs**

Other SWMUs located within the SWMU 9 Area A/B and that have a close proximity to SWMU 74 include SWMU 9 Area A and Area B, and AOC F 1738. The USTs at SWMU 9 Areas A and B were constructed in the 1940's for the storage of aviation gasoline (AVGAS) for piston-driven airplanes. Most recently, Tanks 214 and 215 in Area B were changed from AVGAS storage to diesel fuel marine. Previous reports indicate that each UST was cleaned of petroleum-based sludge every five years. Sludge material collected during tank cleaning activities prior to 1978 was reportedly disposed of onsite in unlined earthen pits. Since 1978, any sludge materials generated during tank cleaning activities have been removed and disposed off-site by a licensed contractor. All tanks were cleaned and put out of service in 2001.

At Area A (the vicinity of Tanks 212 and 213) there is evidence of the impact of past site operations within the subsurface soil and groundwater. Benzene, toluene, ethylbenzene, and xylene (BTEX) were the primary contaminants.

Finally, AOC F 1738 is a former fueling station located along Forrestal Road. This site is part of an ongoing monitored natural attenuation program to observe the natural degradation of fuel impacts to soil and groundwater.

There is potential of fuel impacts from these other SMWUs and AOCs to be interrelated to fuel impacts found during the Phase I of the CMS Investigation for SMWU 74. During Phase II of the CMS Investigation for SWMU 74, efforts will be made to differentiate between pipeline leaks

and outside influences whenever possible. Regardless, fuel related impacts will be delineated within the limits of SWMU 74.

## **6.8 Conclusions**

Surface soil fuel related impacts were found at 74SB91 and 74SB121 based on total TPH concentrations of 48.31 and 33 mg/kg, respectively.

Subsurface soil total TPH exceeding the screening value was identified at ten different soil borings including 74SB81, 74SB86, 74SB108, 74SB109, 74SB113, 74SB114, 74VP1Ba/9, 74VP2a/9, 74VP3b/9, and 74VP3b. TPH impacts were reported in the borings near valve pit VP-1B/9, VP-2/9, VP-3 and VP-3/9 within the SWMU 9 Area A/B. These impacts were found at various depths including 5 to 7 feet down to 19 to 21 feet. Isolated total TPH impacts were found at locations 74SB81 and 74SB86 from a depth of 7 to 9 feet.

Potential groundwater fuel related impacts were found at locations 74VP3b, 74VP11a, 74VP11b, 74VP1Aa/9, and 74VP1Cb/9.

## **6.9 Recommendations for Phase II**

At each location either surface soil samples will be collected or where fuel related contamination is noted above screening, trigger, or background levels either surface soil samples will be collected or additional soil borings will be installed in order to delineate the contamination. For subsurface fuel contamination, a maximum of one surface soil sample, two subsurface soil samples and one groundwater sample will be taken from these locations. These samples will be analyzed for Appendix IX VOCs, metals, low-level PAHs, TPH DRO, and TPH GRO. The inclusion of LLPAHs to the analytical requirement in this phase is intended to provide data for evaluation of human health and ecological concerns during the CMS for PAHs.

During Phase II, subsurface soil samples will be collected during boring advancement for monitoring well installation. Soil samples will be collected continuously from ground surface to the water table using 2-foot long split-spoon samplers or macrocores®, with two subsurface soil samples and one surface soil sample per boring location being collected for fixed-base laboratory analysis. One subsurface soil sample per location will be collected from a depth of 1.0-3.0 feet bgs. The subsurface soil samples will be collected from the depth of any suspected contamination, based on PID screening, but at a depth shallower than the water table or 10 feet bgs, whichever occurs first. Sampling procedures and drilling methodology for borings and well installations will follow the approved SWMU 74 CMS Work Plan dated December 6, 2007.

Following sample collection at the groundwater monitoring wells, the wells will be allowed to recover for 48 hours. After this time period the wells will be gauged for groundwater elevation measurements to determine groundwater gradients and flow directions for each investigation area with groundwater impact. Slug testing will also be performed at the groundwater well locations to determine hydraulic conductivity values at each location. This will aid in understanding contaminant migration potential via groundwater.

Phase II of the CMS Investigation in this area consists of additional delineation of surface and subsurface soil and groundwater. The following paragraphs discuss the number of samples, approximate location of samples, and analysis parameters. Proposed Phase II sample locations are shown on Figure 6-3.

- Six surface and subsurface soil sample locations are proposed around 74SB81 to further horizontally delineate the TPH impacts to the subsurface soil. These surface and subsurface soil samples will be analyzed for VOCs, LLPAHs, metals, TPH GRO and TPH DRO. Two of these boring locations will become groundwater monitoring wells to determine potential impact to groundwater in this area. Groundwater samples will be analyzed for the same parameters as soil. Based on the results of the PID measurements and visual observation, an additional four locations (on an approximate 50 foot spacing) may be sampled for soil to complete the delineation.
- Six surface and subsurface soil sample locations are proposed around 74SB86 to further horizontally delineate the TPH impacts to the subsurface soil. These surface and subsurface soil samples will be analyzed for VOCs, LLPAHs, metals, TPH GRO and TPH DRO. Two of these boring locations will become groundwater monitoring wells to determine potential impact to groundwater in this area. Groundwater samples will be analyzed for the same parameters as soil. Based on the results of the PID measurements and visual observation, an additional four locations (on an approximate 50 foot spacing) may be sampled for soil to complete the delineation.
- Six surface soil sample locations are proposed around 74SB91 to further delineate the TPH impacts to the surface soil. These sampling locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO. Based on the results of the PID measurements and visual observation, an additional four locations may be sampled to complete the delineation.
- Four surface soil sample locations are proposed around 74SB121 to further delineate the TPH impacts to the surface soil. These sampling locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO. Based on the results of the PID measurements and visual observation, an additional four locations may be sampled to complete the delineation.
- Three additional groundwater monitoring wells will be installed surrounding valve pit VP-11 to further delineate VOC and LLPAH impacts to groundwater in this area. Surface, subsurface soil and groundwater samples will be collected at the three well locations. In addition, the two existing wells at valve pit VP-11 (74VP11a and 74VP11b) will be sampled. These sampling locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO.
- Six borings will be advanced in the vicinity of VP-3, of which three will be converted to groundwater monitoring wells that will be installed surrounding valve pit VP-3 at the Airfield fence line to delineate LLPAHs in groundwater at 74VP3b. Surface and subsurface soil will be collected from the six locations; groundwater will be collected from three new wells and two existing wells. These sampling locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO.
- Within the tank area, an additional 29 borings from which surface and subsurface soil samples will be collected surrounding 74SB108, 74SB109, 74SB113, 74SB114, 74VP1Bb/9, 74VP2a/9, and 74VP3b/9 due to impacts to the subsurface soil. These sampling locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO. Based on the results of the PID measurements and visual observation, an additional twelve locations may be sampled to complete the delineation.

- Six additional groundwater monitoring wells are proposed in the SWMU 9 Area A tank area to delineate VOC, LLPAH, metals, and TPH impacts to the groundwater surrounding 74VP1Aa/9 and 74VP1Cb/9. In addition, surface and subsurface soil samples will be collected at these six well locations. The six existing valve pit well locations will also be resampled. These sampling locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO.

## **7.0 JP-5 HILL AND DFM AREA**

The following section describes the investigation results for the JP-5 Hill and DFM Area portion of SWMU 74. The analytical data is discussed and presented by media type; i.e. surface soil, subsurface soil, and groundwater.

### **7.1 Area Description**

The JP-5 Hill and DFM Area consists of the underground pipeline runs along Forrestal Road and includes the most significant elevation change of the SWMU 74 pipeline. Pipeline runs were also followed into JP-5 Hill Tank Area and samples were collected in between the cut and cover tanks and the newer above ground surface tanks. Three individual piping runs leading into the JP-5 Hill Tank Area were sampled. Borings continued down Forrestal Road passing west and south of the DFM Tank Farm Area approaching the Tow Way Fuel Farm. Boring numbers ranged from 74SB125 through 74SB143, 74SB149 through 74SB160, 74SB200 through 74SB211, 74SB226 through 74SB230, and 74SB268 through 74SB285. A total of ten valve pits were investigated within this area including VP-5, VP-7, VP-8, VP-9/JP5, VP-10/JP5, VP-11/JP5, VP-10/DFM, VP-19, VP-20 and VP-1982.

The JP-5 Hill Tank Area contains three cut and cover underground tanks and five above ground storage tanks with a total capacity of approximately 24.5 million gallons. The DFM Tank Area contains three above ground storage tanks with a total capacity of approximately 12.6 million gallons.

### **7.2 Sampling Summary**

A total of seven surface soil samples, 147 subsurface soil samples, and 12 groundwater samples were collected from the JP-5 Hill and DFM Area, not including duplicates or other QA/QC samples. Sample locations are shown on Figures 7-1 and 7-2.

Seven surface soil samples (74SB131-00, 74SB141-00, 74SB151-00, 74SB201-00, 74SB211-00, 74SB271-00, and 74SB281-00) were collected and analyzed during Phase I of the CMS Investigation at SWMU 74 JP-5 Hill and DFM Area. Surface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. Surface soil was not sampled for LLPAH in this area.

A total of 147 subsurface soil samples and thirteen duplicate samples were collected and analyzed during Phase I of the CMS Investigation at SWMU 74 JP-5 Hill and DFM Areas. All of the subsurface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. Twenty samples and two duplicate samples were analyzed for LLPAHs.

A total of twenty groundwater wells were installed or found as existing wells near the pipeline in the JP-5 Hill and DFM Area. These wells included:

74SB151	74VP9b/JP5	74VP10a/DFM
74SB273	74VP10a/JP5	74VP10b/DFM
74SB285	74SB137	74VP19a
74VP07b	74VP11a/JP5	74VP19b
74VP08a	74VP11b/JP5	74VP20
74VP08b	74VP05a	74VP1982
74VP9a/JP5	74VP05b	

Of these twenty wells, eight wells failed to produce enough water for sample collection during the investigation, including 74SB285, 74VP9a/JP5, 74VP10b/JP5, 74VP11a/JP5, 74VP11b/JP5, 74VP05b, 74VP10b/DFM, and 74VP19a. No duplicate groundwater samples were collected from the SWMU 74 SWMU JP-5 Hill and DFM Area. Groundwater samples were analyzed for Appendix IX VOCs, total metals and dissolved metals, TPH GRO and TPH DRO. A total of four of the twelve groundwater samples were analyzed for LLPAHs.

### **7.3 Area Geology and Hydrogeology**

The entire JP-5 Hill and DFM Area is located within the Upland regional geology area. Subsurface conditions for the JP-5 Hill and DFM Area are similar to those described in Section 6.3 for the Upland regional geology portion of SMWU 9 Area A/B. The upland areas are underlain by bedrock (predominately Gabbro) and exhibit varying degrees of weathering. Typically, the weathered bedrock is overlain by relatively thin residuum.

Fill materials, residuum, and highly and moderately weathered bedrock (saprolite) were observed during borehole advancement in the JP-5 Hill and DFM Area. The JP-5 Hill Tank Area is the topographic high of SMWU 74 and saprolite was observed at relatively shallow depths (up to 4 feet bgs). Similar to SMWU 9 Area A/B, the saprolite consisted of varying colors (predominantly light/olive greens and white) of mottled clay with varying amounts of silt and fine sand. Competent bedrock was not encountered in any of the borings advanced in the JP-5 Hill and DFM Area. The fill generally consisted of clay rich profiles with varying amounts of silt and sand and the occasional presence of coarse sand, gravel, and varying amounts of rock fragments. Beach sand and shell fragments also were observed in the fill. The depth of the fill generally ranged between near surface and approximately nine feet bgs along the pipeline and up to 21 feet bgs in the vicinity of cut and cover underground tanks and associated valve pits where total boring depths reached up to 30 feet bgs.

Little groundwater was readily observed in the clay-rich fill and soils. Monitoring wells located at JP-5 Hill were slow to produce groundwater if at all. Groundwater fracture flow appears to be the primary system of groundwater movement based on the highly variable production rate from wells in the same geographic area. As the boring program followed the pipeline along Forrestal Road, the amount of fill, sand, and silt increased and groundwater became visible within 12 feet bgs. It should be noted that the DFM Tank Area and the Tow Way Fuel Farm are located in more topographically high or upland locations when compared to the distribution pipeline runs along Forrestal Road. At the bend of Forrestal Road near the DFM Tank Farm the pipeline is located approximately 300 feet from the water's edge of the Ensenada Honda. Soil Boring Logs, Well Construction Records, and groundwater level measurements (listed in the field log books) are provided in Appendix A.

### **7.4 Surface Soil Results**

The detected analytical results for the surface soil data set are provided in Table 7-1. Figure 7-1 presents the detected organic parameters which exceeded any screening level in the surface soil. A complete data set is provided in Appendix B.

Overall, VOCs detected in the surface soil samples for the SWMU 74 JP-5 Hill and DFM Area are acetone, carbon disulfide, and iodomethane similar to the SWMU 9 Area A/B. Acetone, iodomethane, and carbon disulfide are most likely laboratory artifacts; note, however that carbon disulfide is a naturally occurring chemical in marine environments.

Metals detected above screening levels and background in the surface soil at SWMU 74 JP-5 Hill and DFM Areas are; arsenic and chromium. Arsenic was detected in all seven samples above the residential soil SL, and was detected above background in one sample, 74SB201. Chromium was detected above the ecological screening value and background at location 74SB271. However, as discussed in Section 4, these are not necessarily considered site related contaminants.

Total TPH was detected in six of the seven surface soil samples located at SWMU 74 JP-5 Hill and DFM Area. The screening value of 25 mg/kg was exceeded in one sample 74SB151 at a concentration of 27 mg/kg for TPH DRO.

In summary, surface soil was determined to be minimally impacted by site related contaminants at 74SB151 at SWMU 74 JP-5 Hill and DFM Areas. This is based on the total TPH concentration of 27 mg/kg reported at this location.

## **7.5 Subsurface Soil Results**

The detected results for the subsurface soil data set are provided in Table 7-2. Figure 7-1 presents the location of organic parameters which exceeded screening levels at SWMU 74 JP-5 Hill and DFM Area. The complete data set is provided in Appendix B.

VOCs were detected above the residential soil SLs for benzene, ethylbenzene, and xylenes at locations within SWMU 74 JP-5 Hill and DFM Area. Benzene was reported at sampling locations 74SB210-04, 74SB210-05, 74SB269-04 above residential soil SLs, and 74SB269-05 above both residential and industrial soil SLs. Ethylbenzene was detected at sampling locations 74SB210-04, 74SB210-05 above residential soil SLs, and 74SB269-04 above both residential and industrial soil SLs. Total xylenes were reported above residential soil SLs at sampling locations 74SB210-04 and 74SB210-05. These two boring locations 74SB210 and 74SB269 are located near AOC F 1995 and SWMU 7/8, the Tow Way Fuel Farm Area, see Figure 7-1.

Twenty-two (22) subsurface soil samples including two duplicate samples were analyzed for LLPAHs based on visual observations and PID measurements. Benzo(a)pyrene and benzo(k)fluoranthene were reported above the residential soil SLs at locations sampled within SWMU 74 JP-5 Hill and DFM Area. Benzo(a)pyrene was reported at sampling locations 74SB226 and 74VP10b/DFM with concentrations of 44J and 51J from its duplicate, and 29 ug/kg, respectively. Benzo(k)fluoranthene was reported at sampling location 74SB226 with a concentration of 28J ug/kg. No other LLPAHs exceeded the screening criteria.

A total of five different metals were reported as exceeding the NAPR basewide background screening value and at least one other screening criteria. These metals are:

- Arsenic
- Cobalt
- Copper
- Lead
- Vanadium

Arsenic and cobalt were detected above the residential soil SL and NAPR background concentrations based on a clay matrix at twenty-five (25) and thirty-five (35) locations, respectively. Arsenic and cobalt also exceeded the industrial soil SL at 18 and 29 locations, respectively. Copper was detected at two locations at concentrations exceeding the background screening value and the residential soil SL; lead was detected at one location at concentrations

exceeding background and the SL for both residential and industrial soil. Similarly, vanadium was detected at one location at a concentration exceeding background and the SL for both residential and industrial soil. These detections are not considered to be the result of a release from SWMU 74.

TPH was detected above the established screening value of 25 mg/kg in thirty-one of the subsurface soil samples including three duplicates. These subsurface soil samples are:

Sample ID	Total TPH (mg/kg)	Dominant Fraction
74SB138-04	60	DRO
74SB150-02	51	DRO
74SB151-01	62	DRO
74SB151-01D	31 J	DRO
74SB155-05	89	DRO
74SB156-04	1,012 J	DRO
74SB156-05	958 J	DRO
74SB156-05D	1,100 J	DRO
74SB157-05	308	DRO
74SB210-04	713 J	GRO
74SB210-05	46 J	DRO
74VP20-06	226 J	DRO
74SB268-03	1,620	DRO
74SB268-05	126 J	GRO
74SB269-04	1,130 J	GRO
74SB269-05	840 J	GRO
74SB226-04	549	DRO
74SB226-05	453 J	DRO
74SB226-05D	1,348 J	DRO
74SB227-05	159	GRO
74SB228-04	120	DRO
74SB228-05	238	GRO
74SB229-05	196	GRO
74SB230-05	75 J	DRO
74VP10a/JP5-04	371	DRO
74VP10a/JP5-05	245	DRO
74VP9b/JP5-03	89.43	DRO
74VP9b/JP5-05	62.3 J	DRO
74VP19b-03	7,424 J	DRO
74VP19b-05	281 J	DRO
74VP1982-03	520 J	DRO/GRO

Total TPH from these 28 samples (plus three duplicate samples) range from 31 J mg/kg to 7,424 J mg/kg. Twenty-three of the reported concentrations above the screening criteria were predominantly comprised of DRO, while the other seven were predominantly reported as GRO. One of the samples (74VP1982-03) had just about equal concentrations of both DRO and GRO in the sample. The DRO/GRO dominance will be further characterized during Phase II of the CMS Investigation for SWMU 74.

## 7.6 Groundwater Results

The detected results for the groundwater data set are provided in Table 7-3. Figure 7-2 presents the location of detected organic compounds above screening levels. The complete data set is provided in Appendix B.



Four VOCs, including benzene, chloroform, ethylbenzene, and total xylenes were detected in the groundwater samples above tap water SLs or ecological screening values. Benzene and ethylbenzene were reported above criteria at locations 74VP20 and 74VP1982. Total xylenes were also detected at 74VP20 at a concentration exceeding the tap water SL. Chloroform was detected at 1.3 ug/l at location 74GW273, which is above the tap water SL; however chloroform is also a common laboratory artifact.

LLPAHs were analyzed at four of the groundwater wells sampled. 1-Methylnaphthalene and naphthalene were detected above tap water SLs and 2-Methylnaphthalene was detected above ecological surface water screening values at location 74VP1982. Pyrene was detected above the ecological screening level at location 74VP10a/JP5. 1-Methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b) fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and pyrene were detected above tap water SLs and/or ecological surface water screening levels at location 74VP20.

Barium was the only total metal that was detected above tap water SLs, MCLs and background concentrations with a concentration of 1,600 ug/l at 74VP1982 and 3,400 ug/L at 74VP20.

Dissolved metals that were detected above screening criteria and background concentrations included barium and vanadium. Dissolved barium remained above tap water SLs, MCLs and background concentrations at location 74VP1982 with a concentration of 1,900 ug/l and at 74VP20 with a concentration of 3,900 ug/l. Dissolved vanadium was detected above regional tap water SLs, ecological surface water screening values, and background at locations 74VP10a/DFM, 74VP10a/JP5, 74VP08b, and 74SB273.

No total TPH detections were reported above the established screening value of 12.5 mg/l in the wells sampled in the SWMU 74 JP-5 Hill and DFM Areas.

## **7.7 Impacts from Other SWMUs**

Other SWMUs located within the JP-5 Hill and DFM Area and that have a close proximity to SWMU 74 include SWMUs 7/8, 13, 59, and AOC F (both 1738, and 1995).

SWMU 7/8 is the Tow Way Fuel Farm, which is currently undergoing active free product removal, routine monitoring and the implementation of the activities called out in the CMS. The Tow Way Fuel Farm, in addition to the SWMU 9 Area Tanks, was the first bulk fuel storage facilities installed at the Base in the 1940's. SWMU 13 is a former Pest Control Shop where pesticides were mixed and pesticide application equipment was cleaned. SWMU 13 does not have fuel related contaminants associated with it. SWMU 59 was a vehicle maintenance and refueling area from the 1940's to the 1980's. The site is known to previously have fueling islands and underground storage tanks. The AOC F sites include the previously mentioned 1738 fueling station located along Forrestal Road and 1995 refers to the AST Tank 1995 located at the DFM Tank Area west of the Tow Way Fuel Farm. A reported spill at Tank 1995 in 1985 caused a release of approximately 2,000 to 3,000 gallons of JP-5. The Tank was switched to DFM from JP-5 in 1988 according to records.

With respect to the Tow Way Fuel Farm and DFM Tank Area, fuel related contaminants in the soil and groundwater were known to be present in these areas along Forrestal Road. During the Phase II Investigation for SWMU 74 the horizontal edges of the fuel impacts will be delineated east and west. To the north of the pipeline are the tank storage areas and to the south of the pipeline is the Ensenada Honda. Therefore, delineation will focus on the east and west extents of fuel related impacts in this area.

With respect to SWMU 59 and AOC F 1738, during Phase II of the CMS Investigation for SWMU 74, efforts will be made to differentiate between pipeline leaks and outside influences whenever possible. Regardless, fuel related impacts will be delineated within the limits of the SWMU 74 boundary.

## **7.8 Conclusions**

Surface soil fuel related impacts were found at 74SB151 based on a TPH DRO concentration of 27 mg/kg.

Subsurface soil fuel related impacts based on total TPH were observed at nineteen (19) locations. Three of these locations were identified in the JP-5 Hill Fuel Farm and included 74SB138, 74VP9b/JP5, and 74VP10a/JP5. The concentration range of total TPH in this area was 60 to 371 mg/kg and extended down to 11 feet.

Total TPH concentrations for locations 74SB150 and 74SB151 ranged from 31 J to 62 mg/kg from depths 1 to 5 feet. These two locations are within the boundary of SWMU 59, (ECP Site 5) a former vehicle maintenance facility. These two boring locations also surrounded valve pit VP-7.

Total TPH concentration for three locations including 74SB155, 74SB156, and 74SB157 range from 89 to 1,100 J mg/kg from 7 to 11 feet. These locations within the boundary of AOC F 1995 may be related to a 1985 fuel spill from Tank 1995 at the DFM fuel storage tanks 300 feet east of these locations.

The remaining boring locations (except for 74SB210) in this area with observed TPH impact are located along Forrestal Road and are within the SWMU 7/8 boundary or the Tow Way Fuel Farm. Location 74SB210 is just west of the SWMU 7/8 boundary along Forrestal Road. The borings within SWMU 7/8 include 74SB226, 74SB227, 74SB228, 74SB229, 74SB230, 74SB268, 74SB269, 74VP1982, 74VP19b, and 74VP20. Some of these locations contained LLPAHs and VOCs significantly above screening levels, in addition to the TPH.

Potential groundwater impacts were found within the Tow Way Fuel Farm. Two wells within the Two Way Fuel Farm (74VP20 and 74VP1982) contained VOCs, LLPAHs, and metals above their respective screening criteria. No total TPH detectors were reported above the screening value.

## **7.9 Recommendations for Phase II**

At each location where fuel related contamination is noted above screening, trigger, or background levels additional soil borings will be installed in order to delineate the contamination. For subsurface fuel contamination, one surface soil, two subsurface soil and one groundwater sample will be taken from these locations. These samples will be analyzed for Appendix IX VOCs, metals, LLPAHs, TPH DRO, and TPH GRO. The inclusion of LLPAHs to the analytical requirement in this phase is intended to provide data for evaluation of human health and ecological concerns during the CMS for PAHs, including those with low screening levels.

During Phase II, subsurface soil samples will be collected during boring advancement for monitoring well installation. Soil samples will be collected continuously from ground surface to the water table using 2-foot long split-spoon samplers or macrocores®, with two subsurface soil samples and one surface soil sample per boring location being collected for fixed-base laboratory

analysis. One subsurface soil sample per location will be collected from a depth of 1.0-3.0 feet bgs. The other subsurface soil sample will be collected from the depth of any suspected contamination, based on PID screening, but at a depth shallower than the water table or 10 feet bgs, whichever occurs first. Sampling procedures and drilling methodology for borings and well installations will follow the approved SWMU 74 CMS Work Plan dated December 6, 2007.

For ease of discussion, the SWMU 74 JP-5 Hill and DFM Area will be segmented into two separate areas, see Figures 7-4 and 7-5. A key map showing the limits of each segment is shown on Figure 7-3. Segment A is the JP-5 Hill Tank Area and surrounding pipeline areas, while Segment B is the DFM Tank Area and surrounding pipeline areas. The following sections discuss the number of samples, location of samples, and analysis parameters for the two segments.

#### ***Segment A – JP-5 Hill Tank Area***

The JP-5 Hill Tank Area will be referred to as Segment A, and is presented on Figure 7-4. Phase II of the CMS Investigation activities in this area consists of both surface soil and subsurface soil additional delineation. In addition, newly installed wells as well as some of the wells installed during Phase I will be resampled.

- Six surface and subsurface soil sample locations are proposed around 74VP9b/JP5 to further horizontally delineate the TPH impacts to the subsurface soils. Since the subsurface impacts are shallow, no groundwater monitoring wells are proposed for this area. These soil samples will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO. Based on the results of the PID measurements and visual observations, an additional four locations may be sampled to complete delineation.
- Ten surface and subsurface soil sample locations are proposed around 74SB138 and 74VP10a/JP5 to further delineate the TPH impacts to subsurface soils. Although impacts to groundwater were minimal, two of these borings will become groundwater sampling locations to confirm these results. Additionally, groundwater samples from 74VP10a/JP5 and 74SB137 will be collected. Samples from these locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO. Based on the results of the PID measurements and visual observations, an additional four locations may be sampled to complete delineation.
- Twelve surface and subsurface soil sample locations are proposed around 74SB150 and 74SB151 to further delineate the TPH impacts to the soils. Since the subsurface impacts are shallow no groundwater monitoring wells are proposed for this area. Samples from these locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO/DRO. Based on the results of the PID measurements and visual observations, an additional four locations may be sampled to complete delineation.
- Existing groundwater monitoring wells (from which samples were not collected during Phase I because of a lack of water) to be sampled during Phase II include; 74VP9a/JP5, 74VP11a/JP5, 74VP11b/JP5, 74SB273, and 74SB285. Samples from these locations will be analyzed for VOCs, LLPAHs, metals, and TPH GRO/DRO.

### ***Segment B - DFM Tank Area***

The DFM Tank Area will be referred to as Segment B, and is presented on Figure 7-5. The Phase II of the CMS Investigation activities in Segment B consists of surface and subsurface soil sampling and groundwater well installation and sampling.

- TPH DRO contamination detected in the 7 to 9 foot bgs depth interval at location 74SB155 and in the 7 to 11 foot bgs depth interval at location 74SB156 is consistent with contamination associated with AST 1995. Soil and groundwater contamination associated with the release of JP-5 from AST 1995 is being addressed as part of the Monitored Natural Attenuation program for AOC F. Consequently, additional sampling under SWMU 74 is not warranted for this area.
- Potential contamination associated with 74SB226 through 74SB230, 74SB268, 74SB269, 74VP19a, 74VP19b, 74VP1982 and 74VP20 are being evaluated as part of SWMU 7/8.
- Five surface and subsurface soil sample locations are proposed around 74SB210 to further define TPH and BTEX impacts to the soils. One of these locations will be converted to a monitoring well. Samples from these locations will be analyzed for VOCs, LLPAHs, metals and TPH DRO/GRO. Based on the results of field screening, four additional locations (two of which may be wells) may be sampled to complete delineation.

## **8.0 SWMU 9 AREA C**

The following section describes the investigation results for the SWMU 9 Area C portion of SWMU 74. The analytical data is discussed and presented by media type; i.e. surface soil, subsurface soil, and groundwater.

### **8.1 Area Description**

The SMWU 9C Area includes the pipeline runs along Antietam Road, along the utility Right-of-Way from Forrestal Road and meeting at the entrance leading back to the SWMU 9 Area C tank area. Borings are identified as 74SB144 through 74SB148, 74SB161 through 74SB184, and 74SB188 through 74SB197. A total of four valve pits were investigated including VP-6, VP-6A, VP-6B, and VP-6C. The SMWU 9 Area C tank area contains two cut and cover underground tanks with a total capacity of approximately 500,000 gallons.

### **8.2 Sampling Summary**

A total of four surface soil samples, 84 subsurface soil samples, and six groundwater samples were collected from the SWMU 9 Area C, not including duplicates or other QA/QC samples.

Four surface soil samples (74SB161-00, 74SB171-00, 74SB181-00, and 74SB191-00) and one duplicate sample (74SB161-00D) were collected and analyzed during Phase I of the CMS Investigation at SWMU 74 SWMU 9 Area C. Surface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. No surface soil samples in this area were analyzed for LLPAHs.

A total of 84 subsurface soil samples and eight duplicate samples were collected and analyzed during Phase I of the CMS Investigation at SWMU 74 SWMU 9 Area C. All of the subsurface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. Three samples were analyzed for LLPAHs.

A total of eight groundwater wells were installed or found as existing wells near the pipeline in the SWMU 9 Area C. These wells included:

18GW01 (existing)	74VP6Ba
74SB145	13GW11 (existing)
74VP6Aa	74VP6Ca
74VP6Ab	74VP6Cb

Of these eight wells, two of the installed wells (74VP6Aa and 74VP6Ab) failed to produce enough water for sample collection during the investigation. No duplicate samples were collected from the SWMU 74 SWMU 9 Area C groundwater samples. Groundwater samples were analyzed for Appendix IX VOCs, total metals and dissolved metals, TPH GRO and TPH DRO. One of the six wells (74VP6Cb) sampled in this area was analyzed for LLPAHs.

### **8.3 Area Geology and Hydrogeology**

The entire SMWU Area 9 C is located within the Upland regional geology area. The pipeline and Tanks 216 and 217 were constructed on a peninsula of higher ground (Upland regional area) surrounded by lower elevation wetlands. Subsurface conditions are similar to those observed in the eastern portion of SMWU 9 Area A/B and the JP-5 Hill and DFM Area. As with the fill material observed throughout SMWU 74, it generally consists of clay rich profiles with varying

amounts of silt and sand and the occasional presence of coarse sand, gravel, and varying amounts of rock fragments. As in other areas along the SMWU 74 pipeline, the saprolite consists of varying colors (predominantly light/olive greens and white) of mottled clay with varying amounts of silt and fine sand. Competent bedrock was not encountered in any of the borings advanced in SMWU 9 Area C. The depth of the fill generally ranged between near surface and approximately four feet bgs along the pipeline and up to 20 feet bgs in the vicinity of cut and cover underground tanks and associated valve pits where total boring depths reached up to 22 feet bgs.

Groundwater depths were variable depending on the location along the pipeline. Groundwater was deeper and scarcer in the vicinity of valve pit VP-6A, the groundwater became shallower and wells more productive to the east. Soil boring logs, well construction records, and groundwater level measurements (listed in the field log books) are provided in Appendix A.

#### **8.4 Surface Soil Results**

The detected analytical results for the surface soil data set are provided in Table 8-1. Figure 8-1 presents the detected organic parameters which exceeded any screening levels in the surface soil. A complete data set is provided in Appendix B.

VOCs detected in the surface soil samples for the SWMU 74 SWMU 9 Area C include acetone, 2-butanone, benzene, and iodomethane. All detections were well below all of the screening criteria. Benzene was detected at location 74SB191 with an estimated concentration of 1.1 J ug/kg, which is well below screening levels. Acetone, 2-butanone, and iodomethane are most likely laboratory artifacts.

Metals detected above screening levels and background in the surface soil at SWMU 74 SWMU 9 Area C include: arsenic, barium, chromium, lead, and vanadium. Arsenic was detected above residential and industrial soil SLs in each of the four surface soil samples (plus the duplicate sample) and above background in three of the four samples (plus the duplicate sample). Barium and chromium were detected above the ecological screening level and background concentration at location 74SB181. Lead was detected above background and ecological screening levels at 74SB191. Vanadium was detected above residential soil SLs and ecological screening levels at each location and above background concentrations at location 74SB181. However, as discussed in Section 4.0, these detections are not necessarily considered site related contaminants.

Total TPH was detected in three of the four surface soil samples (plus the duplicate) located at SWMU 74 SWMU 9 Area C. The screening value of 25 mg/kg is exceeded in one sample 74SB191 at a concentration of 77.018 J mg/kg.

In summary, surface soil was determined to be impacted by site related contaminants at 74SB191 at SWMU 74 SWMU 9 Area C. This is based on the TPH concentrations reported at location 74SB191.

#### **8.5 Subsurface Soil Results**

The detected results for the subsurface soil data set are provided in Table 8-2. Figure 8-1 presents the location of organics which exceeded screening levels in the subsurface soil at SWMU 74 SWMU 9 Area C. The complete data set is provided in Appendix B.

VOCs were detected in the subsurface soil at very low concentrations and no VOC detections exceeded the screening criteria.

Three (3) subsurface soil samples were analyzed for LLPAs based on visual observations and PID measurements collected in the field. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene, exceed the residential soil SL in sample 74SB174-04; benzo(a)anthracene and benzo(a)pyrene also exceeded the SL for industrial soil in this sample. Benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno[1,2,3-cd]pyrene exceed residential soil SLs in sample 74SB174-05; benzo(k)fluoranthene also exceeded the SLs for industrial soil in this sample.

A total of six (6) different metals were reported as exceeding the NAPR basewide background screening value and at least one other screening criteria. These metals include:

- Arsenic
- Chromium
- Cobalt
- Copper
- Nickel
- Vanadium

Arsenic and cobalt were detected above the residential soil SL and NAPR background concentrations based on a clay matrix at thirty-one and forty-one locations, respectively. Chromium and nickel were above residential soil SLs and background concentrations at one location each. Copper and vanadium were detected above the residential soil SL and NAPR background at two locations each. As discussed in Section 4.0, these detections do not necessarily represent a release from SWMU 74.

Total TPH was detected above the established screening value of 25 mg/kg in two subsurface soil samples, 74SB174-05 and 74VP6Cb-07, at concentrations of 1,940 and 480 J mg/kg. Both of these samples were reported predominantly as GRO.

## **8.6 Groundwater Results**

The detected results for the groundwater data set that exceed NAPR background and the tap water SL, the MCL, and for ecological surface water screening values are provided in Table 8-3. Figure 8-2 presents the location of detected organic compounds above the applicable screening levels. The complete data set is provided in Appendix B.

Three VOCs, including benzene, carbon disulfide, and vinyl chloride were detected in the groundwater samples above the tap water SLs or ecological screening values. Benzene and carbon disulfide were detected at location 74VP6Ca with low concentrations of 1.1 and 52 ug/l. Vinyl chloride was detected at location 74SB145 with an estimated concentration of 0.2 J ug/l and is not considered fuel related.

LLPAHs were not detected from sample 74GWVP6Cb located in SWMU 74 SMWU 9 Area C.

No detections of total metals were above screening criteria and NAPR background concentrations.

Dissolved metals that were detected above screening criteria and background concentrations included lead and silver. Dissolved lead was detected above the ecological screening level and background at location 74VP6Ca with a concentration of 17 ug/l. Dissolved silver was detected

above the ecological screening and background levels at location 13GW11 with a concentration of 8.8 J ug/l.

No total TPH detections were reported above the established screening value of 12.5 mg/l in the wells located in the SWMU 74 SWMU 9 Area C.

### **8.7     Impacts from Other SWMUs**

Other SWMUs that are located within the SWMU 9 Area C and that have a close proximity to the SWMU 74 pipelines are SWMUs 9 Area C, 13, 53, 57, and 59.

SWMU 9 Area C has two cut and cover tanks used to store various fuels since the original construction in 1940's. As was previously mentioned, SWMU 13 was a pesticide storage facility and did not report any fuel related contaminants. SWMU 53 was the former Malaria Control Building and was used to store pesticides. Therefore, similar to SWMU 13, SWMU 53 does not have fuel related contaminants related to it. SWMU 57 was a former drum storage area consisting of a concrete pad. SWMU 59 was a vehicle maintenance and fueling facility from the 1940's to 1980's.

### **8.8     Conclusions**

Surface soil fuel related impacts were identified at location 74SB191. A total TPH concentration of 77.018 J mg/kg was reported at location 74SB191.

Subsurface soil fuel related impacts based on total TPH were observed at two locations including 74SB174 and 74VP6Cb. 74SB174 is located where the pipeline crosses Antietam Road and 74VP6Cb is located near valve pit VP-6C. Numerous PAHs were also observed at location 74SB174.

Potential groundwater fuel related impacts were found at location 74VP6Ca. Groundwater at location 74VP6Ca contained fuel related contaminants such as benzene. In addition, carbon disulfide was detected above screening levels.

### **8.9     Recommendations for Phase II**

At each location where fuel related contamination is noted above screening, trigger, and background levels additional soil borings will be installed in order to delineate the contamination. For subsurface fuel contamination, a maximum of one surface soil, two subsurface soil, and one groundwater sample will be collected from these locations. These samples will be analyzed for Appendix IX VOCs, metals, LLPAHs, TPH DRO, and TPH GRO. The inclusion of LLPAHs to the analytical requirement in this phase is intended to provide data for evaluation of human health and ecological concerns during the CMS.

During Phase II, subsurface soil samples will be collected during boring advancement for monitoring well installation. Soil samples will be collected continuously from ground surface to the water table using 2-foot long split-spoon samplers or macrocores®, with two subsurface soil samples and one surface soil sample per boring location being collected for fixed-base laboratory analysis. One subsurface soil sample per location will be collected from a depth of 1.0-3.0 feet bgs. The other subsurface soil sample will be collected from the depth of any suspected contamination, based on PID screening, but at a depth shallower than the water table or 10 feet bgs, whichever occurs first. Sampling procedures and drilling methodology for borings and well installations will follow the approved SWMU 74 CMS Work Plan dated December 6, 2007.



Following sample collection at the groundwater monitoring wells, the wells will be allowed to recover for 48 hours. After this time period the wells will be gauged for groundwater elevation measurements to determine groundwater gradients and flow directions for each investigation area with groundwater impact. Slug testing will also be performed at the groundwater well locations to determine hydraulic conductivity values at each location. This will aid in understanding contaminant migration potential via groundwater.

The Phase II of the CMS Investigation activities in this area consists of surface and subsurface soil and groundwater additional delineation. The following discusses the number of samples, approximate location of samples, and analytical parameters. Proposed Phase II sample locations are shown on Figure 8-3.

- Eight surface and subsurface soil sample locations are proposed around 74SB174 to further horizontally delineate the TPH and LLPAH impacts to the subsurface soils. Two of these boring locations will become groundwater well locations to determine impacts to groundwater in this area. These samples will be analyzed for VOCs, LLPAHs, metals, TPH GRO and TPH DRO. An additional four locations may be added to complete delineation based on field observations.
- Four surface soil sample locations are proposed around 74SB191 to further delineate the TPH in the surface soil. These soil sampling locations will be analyzed for VOCs, LLPAHs, metals, TPH GRO and TPH DRO.
- Four borings are proposed surrounding valve pit VP-6C to delineate TPH in the subsurface soil at 74VP6Cb and VOCs in the groundwater at 74VP6Ca. All four borings will be sampled for surface and subsurface soils, and two of the borings will involve construction of groundwater monitoring wells. Samples from these locations will be analyzed for VOCs, LLPAHs, metals, TPH GRO and TPH DRO. A total of four wells will be sampled, the two existing wells at valve pit VP-6C and the two newly installed wells. An additional six locations may be added to complete delineation based on field observations.
- Groundwater samples will be collected from existing groundwater monitoring wells 74VP6Aa and 74VP6Ab, if there is a sufficient volume of water for sampling.

## **9.0 FUELING PIERS AREA**

The following sections describe the investigation results for the Fueling Piers Area portion of SWMU 74. The analytical data is discussed and presented by media type; i.e. surface soil, subsurface soil, and groundwater.

### **9.1 Area Description**

The Fueling Piers Area consists of the underground pipeline along Forrestal Road and the spurs that lead to the Deep Water Fueling Pier (Pier No. 1) and the Berthing Pier (Pier No. 3). Only one valve pit, VP-56, was included in the investigation for this area. No tanks are located within the Fueling Piers Area; however, the Tow Way Fuel Farm is located immediately north of VP-56.

### **9.2 Sampling Summary**

A total of five surface soil samples, 69 subsurface soil samples, and six groundwater samples were collected from the Fueling Piers Area, not including duplicates or other QA/QC samples.

Five surface soil samples (74SB221-00, 74SB231-00, 74SB241-00, 74SB251-00, and 74SB261-00) and one duplicate (74SB221-00D) were collected at the Fueling Piers Area and analyzed during Phase I of the CMS Investigation. Surface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. None of the surface soil samples were analyzed for LLPAHs.

A total of 69 subsurface soil samples and ten duplicate samples were collected at the Fueling Piers Area and analyzed during Phase I of the CMS Investigation. All of the subsurface soil samples were analyzed for Appendix IX VOCs, metals, TPH GRO and TPH DRO. Five subsurface soil samples also were analyzed for LLPAHs.

A total of six groundwater wells were installed or found as existing wells near the pipeline in the Fueling Piers Area:

74SB236	MW02 (existing)
74SB246	UGW12 (existing)
74SB256	GW04 (existing)

Groundwater samples were collected from these six wells and analyzed for Appendix IX VOCs, total metals, dissolved metals, TPH GRO, TPH DRO, and LLPAHs. A duplicate and MS/MSD also was collected at UGW 12 and analyzed for these same parameters.

### **9.3 Area Geology and Hydrogeology**

The Fueling Piers Area is exclusively located along the coastal boundary of the Ensenada Honda waters and within the near-shore flat lands regional geology area. The near-shore areas include the mangrove swamp areas as well as the shores of Ensenada Honda and Puerca Bay. The near-shore areas are typically underlain by marine sand layers (with coral and shell fragments), silt and clay layers, and occasional peat layers. In some near-shore areas, particularly by the harbor and Camp Moscrip in the southeastern portion of the base, fill material overlays the marine layers. The fill consists of rock fragments, debris (e.g., brick), sand, silt, and clay.

The fill material along the pipeline in the Fueling Piers Area was primarily sands and gravels mixed with shell and coral fragments. In places wood and concrete were identified in the fill

material. The depth of the fill generally ranged between five and 12 feet bgs (the total depth of most borings) but reached a depth of 19 feet bgs in one boring. Peat was observed in borings 74SB256 and 74SB236 at depths of 19 and 15 feet bgs, respectively. Bedrock, consisting of relatively competent Gabbro, was observed in boring 74SB246 at a depth of 11 feet bgs. Gabbro is an intrusive, mafic-mineral, igneous rock, which is generally fine-grained and dark green to black in color (Strahler 1981). Marine deposits, generally consisting of sand and shell fragments, were observed below the fill in some borings. Soil Boring Logs, Well Construction Records, and groundwater level measurements (listed in the field log books) are provided in Appendix A.

Groundwater was directly connected to the surface waters of the Ensenada Honda. No formal testing was performed during this phase of investigation to ascertain the porosity and interconnectivity to the surface water, including tidal influence, and salinity. In areas near the Tow Way Fuel Farm, free product was encountered on the groundwater surface. There is an active free product recovery and monitoring system in place for SWMU 7/8, and recovery wells were observed on the north side of Forrestal Road.

#### **9.4 Surface Soil Results**

The detected analytical results for the surface soil data set are provided in Table 9-1. Figure 9-1 presents the detected organic parameters which exceed screening levels in the surface soil. A complete data set is provided in Appendix B.

VOCs detected in the surface soil samples for the SWMU 74 Fueling Piers C Area included acetone, benzene, and carbon disulfide. Benzene was detected at location 74SB221 with an estimated concentration of 1.1 J ug/kg, which is well below residential soil SLs and ecological screening levels. Acetone and carbon disulfide were well below residential soil SLs screening levels; ecological screening values have not been established for these two compounds. Although acetone is most likely a laboratory artifact, carbon disulfide is a naturally occurring chemical in marine environments.

Metals detected above screening levels and background in the surface soil at SWMU 74 Fueling Piers Area were limited to arsenic. Arsenic was detected above the residential and industrial SL at each of the five surface soil locations and was above the background concentration at four of the five locations.

Total TPH was detected in each of the five surface soil samples located at SWMU 74 Fueling Piers Area. The screening value of 25 mg/kg was exceeded in two samples 74SB221-00 (and the duplicate) and 74SB231-00 at concentrations of 100 J and 69 mg/kg. These detections of TPH were entirely DRO.

In summary, surface soil collected at the Fueling Piers Area was determined to be impacted by site related contaminants (i.e., TPH DRO) at two locations (74SB221 and 74SB231).

#### **9.5 Subsurface Soil Results**

The detected results for the subsurface soil data set are provided in Table 9-2. Figure 9-1 presents the location of organic parameters which exceed background and screening levels at SWMU 74 Fueling Piers Area. The complete data set is provided in Appendix B.

VOCs were detected in subsurface soil at very low concentrations and none of the detected concentrations exceed the screening criteria.

Five subsurface soil samples (plus one duplicate sample) were analyzed for LLPAHs based on visual observations and PID measurements collected in the field. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno[1,2,3-cd]pyrene exceeded the residential soil SLs in subsurface soil sample 74SB222-03; the industrial soil SL for benzo(a)pyrene was also exceeded in this sample. In addition, benzo(a)anthracene and benzo(a)pyrene exceeded the residential soil SLs in subsurface soil sample 74SB223-03.

A total of three different metals were reported as exceeding the NAPR basewide background screening value and at least one of the human health Regional SLs. These metals are:

- Arsenic
- Copper
- Vanadium

Arsenic was detected above the residential and industrial soil SL and NAPR background concentrations based on a fine sand/silt matrix at six locations (74SB232, 74SB233, 74SB235, 74SB236, 74SB239, and 74SB246). Copper was detected above the NAPR background concentration and above the residential soil SL at one location, 74SB260. Vanadium was detected above the background concentration and above the residential soil SL at three locations: 74SB216, 74SB218 and 74SB262. As discussed in Section 4.0, these detections are not necessarily the result of a release from SWMU 74.

Total TPH was detected above the established screening value of 25 mg/kg in twenty-six subsurface soil samples. These subsurface soil samples include:

Sample ID	Total TPH	Fraction Exceeding Screening Values
74SB215-03	320	DRO
74SB216-03	2,929	DRO
74SB216-05	2,300.46	DRO
74SB216-05D	2,400.42	DRO
74SB218-03	341	DRO/GRO
74SB218-05	185	DRO/GRO
74SB221-02	1,400.08 J	DRO
74SB221-02D	44 J	DRO
74SB222-03	1,800	DRO
74SB223-03	2,575	DRO/GRO
74SB224-04	155	GRO
74SB224-05	187.3	DRO
74SB256-04	1,000	DRO
74SB258-03	37	DRO
74SB258-05	96	DRO
74SB260-03	25.018 J	DRO
74SB260-04	150.044 J	DRO
74SB261-03	32 J	DRO
74SB261-03D	370 J	DRO
74SB263-04	29	DRO
74SB264-04	54.4	GRO
74SB265-03	45 J	GRO
74SB265-03D	384 J	DRO/GRO
74SB265-04	1,280	DRO/GRO
74SB267-02	45.7	DRO
74SB267-03	520	DRO/GRO

Total TPH from these twenty-six samples ranged from 25.018 J mg/kg (74SB260-03) to 2,929 mg/kg (74SB216-03). Twenty-three of the reported concentrations above the screening criteria were predominantly comprised of DRO, while the other three were predominantly reported as GRO.

## **9.6 Groundwater Results**

The detected results for the groundwater data set are provided in Table 9-3. Figure 9-2 presents the location of detected organic compounds above screening levels. The complete data set is provided in Appendix B.

Carbon disulfide was the only VOC detected in the monitoring wells located at the SWMU 74 Fueling Piers Area. Carbon disulfide was reported below screening criteria.

LLPAHs were analyzed at six of the groundwater wells sampled. Benzo(a)anthracene was detected above the tap water SL in the groundwater sample collected at 74GW246 with a concentration of 0.036 J ug/l.

Total metals (arsenic, cobalt, copper, and vanadium) were detected above the tap water SLs and ecological screening levels, but no detections of total metals were above NAPR background concentrations.

The only dissolved metal that was detected above screening criteria and background concentrations was vanadium. Dissolved vanadium was detected above the ecological screening level and background at location 74SB246 with a concentration of 23 ug/l. However, as discussed in Section 4.0, this detection is not necessarily the result of a release from SWMU 74.

No total TPH detections were reported above the established screening value of 12.5 mg/l in the wells located at the Fueling Piers Area.

## **9.7 Impacts from Other SWMUs**

Other SWMUs that are located within the Fueling Piers Area and that have a close proximity to SWMU 74 are SWMUs 7, 8, 10, 55, 75 and 76.

As previously mentioned SWMU 7/8 is the Tow Way Fuel Farm, with known fuel related contaminants migrating via groundwater and soil through the SWMU 74 boundary. SWMU 10 was a former area where electrical transformers were repaired; SWMU 55 is associated with a TCE plume in the groundwater; and SWMU 75 was a former Emergency Fire Deluge System Building housing water transfer pumps. Diesel and suspected waste oil was identified in this building possibly migrating from the building floor at SWMU 75. SWMU 76 is the U.S. Army Reserve Boat Maintenance Facility; contaminants potentially associated with this SWMU include metals and paint-related hydrocarbons.

## **9.8 Conclusions**

Surface soil fuel related impacts were identified at locations 74SB221 and 74SB231 based on total TPH concentrations of 100 J and 69 mg/kg, respectively.

A total of fifteen (15) subsurface soil locations reported total TPH above the screening levels in the Fueling Piers Area. These detections are grouped together and are further verification of the historical fuel impacts from the Tow Way Fuel Farm (SWMU 7/8). Petroleum recovery has been

historically performed along Forestall Road and leading out to the western most fueling pier. The easternmost boring reporting TPH impact is location 74SB256. Boring location 74SB235 reported benzene at 2.3J from 9 to 11 feet bgs. No total TPH detections were reported above the established screening level in the groundwater monitoring wells at the Fueling Piers Area.

## **9.9     Recommendations for Phase II**

At each location where fuel related contamination is noted above screening, trigger, or background levels additional surface soil samples or a groundwater sample will be collected. These samples will be analyzed for Appendix IX VOCs, metals, LLPAHs, TPH DRO, and TPH GRO. The inclusion of LLPAHs to the analytical requirement in this phase is intended to provide data for evaluation of human health and ecological concerns during the CMS.

Following sample collection at the groundwater monitoring wells, the wells will be allowed to recover for 48 hours. After this time period the wells will be gauged for groundwater elevation measurements to determine groundwater gradients and flow directions. This will aid in understanding contaminant migration potential via groundwater.

Phase II of the CMS Investigation for the Fueling Piers Area will consist of surface soil sampling and groundwater sampling from an existing monitoring well. The following sections discuss the number of samples, approximate location of samples, and analysis parameters. Proposed Phase II sample locations are shown on Figure 9-3.

- Six surface soil sample locations are proposed around 74SB231 to further horizontally delineate the TPH impacts to the surface soil. These surface soil samples will be analyzed for VOCs, LLPAHs, metals, and TPH GRO and TPH DRO.
- Benzo(a)anthracene was detected in the groundwater at well 74SB246 at a low estimated concentration. This well location will be resampled to confirm this detection. This sample will be reanalyzed for VOCs, LLPAHs, metals, TPH GRO and TPH DRO.
- Potential contamination noted at 74SB215, 74SB216, 74SB218, 74SB221 through 74SB224, 74SB256, 74SB258, 74SB260, 74SB261, 74SB263, 74SB264, 74SB265 and 74SB267 are most likely the result of known releases from SWMU 7/8. These areas are already being investigated under SWMU 7/8.

## **10.0 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS**

This section summarizes the overall findings of Phase I of the CMS Investigation for SWMU 74 for each of the five areas. Figure 10-1 presents an overall view of SWMU 74, where fuel related contamination was present, and where the Phase II investigation will further delineate the Phase I screening results for the SWMU 74 CMS. Following regulatory approval of the proposed additional sampling locations Phase II Investigation activities will be completed.

### ***Airfield Area***

Surface soil fuel related impacts were found at 74SB01 and 74SB34 with regards to total TPH values of 129 and 29.5 mg/kg, respectively.

Subsurface soil total TPH exceeded the screening value at nine different soil borings including 74SB05, 74SB06, 74SB16, 74SB22, 74SB23, 74SB26, 74SB27, 74SB28, and 74SB30. The total TPH concentrations ranged from 36 J to 2,380 J mg/kg and ranged in depth from 1 to 3 feet to a total depth of 9 to 11 feet at 74SB26 and 74SB27. LLPAH exceedences were observed at boring 74SB22. These LLPAH exceedences included benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene.

Groundwater fuel related impacts were found at location 74SB26 with a concentration of Total TPH of 16.04 ug/l. Barium was detected above screening and background values at locations 74SB22 and 74SB26 with total concentrations of 950 and 1300 ug/l, respectively. No free product was noted at any of the groundwater wells installed at the Airfield.

Phase II activities at the Airfield Area will include further characterization of surface soil, subsurface soil, and groundwater. The Phase I investigation has identified three areas or segments along the SWMU 74 pipeline runs and hydrant pits to be delineated. In Segment A – Aircraft Hydrant Refueling Area, collection of up to 17 surface soil samples and ten subsurface soil samples are recommended. In Segment B – Day Tank Area, collection of up to 28 surface soil samples, 56 subsurface soil samples and seven groundwater samples are recommended. In Segment C – Airfield Fuel Pipeline Area, collection of up to eight surface soil samples is recommended. All samples will be analyzed for VOCs, LLPAHs, metals, TPH DRO and TPH GRO. Additional “step out” borings/samples may be required to completely delineate fuel related contaminants.

### ***SWMU 9 Area A/B***

Surface soil fuel related impacts were found at 74SB91 and 74SB121 based on total TPH concentrations of 48.31 and 33 mg/kg, respectively.

Subsurface soil total TPH exceeded the screening value at ten different soil borings including 74SB81, 74SB86, 74SB108, 74SB109, 74SB113, 74SB114, 74VP1Ba/9, 74VP2a/9, 74VP3b/9, and 74VP3b. TPH impacts were reported in the borings near valve pit VP-1B/9, VP-2/9, VP-3 and VP-3/9 within the SWMU 9 Area A/B. These impacts were found at various depths including 5 to 7 feet down to 19 to 20 feet. An isolated total TPH impact was found at locations 74SB81 and 74SB86 from a depth of 7 to 9 feet.

Potential groundwater fuel related impacts were found at locations 74VP3b, 74VP11a, 74VP11b, 74VP1Aa/9, and 74VP1Cb/9.

Phase II activities at the SWMU 9 Area A/B will include further characterization of surface soil, subsurface soil, and groundwater. The Phase I investigation has identified eight areas along the SWMU 74 pipeline runs to be delineated. Collection of approximately 94 surface soil, 152 subsurface soil, and 26 groundwater samples is recommended to further delineate the extent of potential contamination at the SWMU 9 Area A/B. Additional “step out” borings/samples may be required to completely delineate fuel related contaminants.

### ***JP-5 Hill and DFM Area***

Surface soil fuel related impacts were found at 74SB151 based on a total TPH concentration of 27 mg/kg.

Subsurface soil fuel related impacts based on total TPH was observed at nineteen (19) locations. Three of these locations were identified in the JP-Hill Fuel Farm and included 74SB138, 74VP9b/JP5Hill, and 74VP10a/JP5Hill. The concentration range of total TPH in this area was 60 to 371 mg/kg and extended down to 10 feet.

Locations 74SB150 and 74SB151 reported total TPH concentrations of ranging from 31 J to 62 mg/kg from depths 1 to 5 feet. These two locations are within the boundary of SWMU 59 (ECP Site 5) a former vehicle maintenance facility. These two boring locations also surrounded valve pit VP-07.

Three locations including 74SB155, 74SB156, and 74SB157 reported total TPH ranging from 89 to 1,100 mg/kg from 7 to 11 feet. These locations are located within the boundary of AOC F 1995 related to a 1985 fuel spill from Tank 1995 at the DFM fuel storage tanks 300 feet east of these locations.

The remaining boring locations (except for 74SB210) in this area with observed TPH impact are located along Forrestal Road and are located within the SWMU 7/8 boundary or the Tow Way Fuel Farm. Location 74SB210 is located just west of the SWMU 7/8 boundary along Forrestal Road. The borings with SWMU 7/8 include 74SB226, 74SB227, 74SB228, 74SB229, 74SB230, 74SB268, 74SB269, 74SB1982, 74VP19b, and 74VP20. These locations contained LLPAHs and VOCs significantly above screening levels, in addition to the TPH.

Potential groundwater impacts were found within the JP-5 Hill Tank Farm, the DFM Tank Farm, and the Tow Way Fuel Farm. Two wells within the Two Way Fuel Farm (74VP20 and 74VP1982) contained VOCs, LLPAHs, and metals above their respectively screening criteria. No total TPH detections were reported above screening values.

Phase II activities at the JP-5 Hill and DFM Area will include further characterization of surface soil, subsurface soil, and groundwater. The Phase I investigation subdivided this area into two segments. In Segment A, the JP-5 Hill Tank Area collection of up to 40 surface soil samples, 80 subsurface soil samples and nine groundwater samples is recommended. In Segment B-DFM Tank Area, collection of up to nine surface soil samples, 18 subsurface soil samples and three groundwater samples is recommended. All samples will be analyzed for VOCs, LLPAHs, metals, TPH DRO and TPH GRO. Additional “step out” borings may be required to completely delineate fuel related contaminants.



### ***SWMU 9 Area C***

Surface soil fuel related impacts were identified at location and 74SB191. Location 74SB191 reported total TPH at a concentration of 77.018 mg/kg.

Subsurface soil fuel related impacts based on total TPH was observed at two locations including 74SB174 and 74VP6Cb. 74SB174 is located at Antietam Road where the pipeline crosses and 74VP6Cb is located near valve pit VP-6C. Numerous PAHs were also observed at location 74SB174.

Groundwater fuel related impacts were found at locations 74VP6Ca. Groundwater at location 74VP6Ca contained fuel related contaminants including benzene. In addition, carbon disulfide was detected above screening levels. Low groundwater yield prevented the collection of groundwater samples from two wells, 74VP6Aa and 74VP6Ab.

Phase II activities at the SWMU 9 Area C will include further characterization of surface soil, subsurface soil, and groundwater. The Phase I investigation has identified three areas along the SWMU 74 pipeline runs to be delineated. Collection of approximately 26 surface soil, 44 subsurface soil, and six groundwater samples is recommended to further delineate contamination at the SWMU 9 Area C. Additional “step out” borings may be required to completely delineate fuel related contaminants.

### ***Fueling Piers Area***

Surface soil fuel related impacts were identified at locations 74SB221 and 74SB231 based on total TPH concentrations of 100 J and 69 mg/kg, respectively.

A total of fifteen (15) subsurface soil locations reported TPH above the screening levels in the fueling piers area. These detections are grouped together and are further verification of the historical fuel impacts from the Tow Way Fuel Farm (SWMU 7/8).

Phase II activities at the Fueling Piers Area will include further characterization of surface soil in the vicinity of 74SB231. Collection of approximately six surface soil samples is recommended to horizontally delineate the contamination. Additionally, well 74SB24b will be resampled to confirm the detection of benzo(a)anthracene.

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TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Surface Soil	74SB01	AIRFIELD	74SB01-00	0.0 - 1.0	04/28/08	X	X		X	X	X			
	74SB13	AIRFIELD	74SB13-00	0.0 - 1.0	04/29/08	X			X	X	X			
			74SB13-00D	0.0 - 1.0	04/29/08	X			X	X	X			Duplicate
			74SB13-00MS/MSD	0.0 - 1.0	04/29/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB34	AIRFIELD	74SB34-00	0.0 - 1.0	05/01/08	X			X	X	X			
			74SB34-00MS/MSD	0.0 - 1.0	05/01/08				X		X			Matrix Spike/Matrix Spike Duplicate
	74SB22	AIRFIELD	74SB22-00	0.0 - 1.0	05/03/08	X			X	X	X			
	74SB51	AIRFIELD	74SB51-00	0.0 - 1.0	05/03/08	X			X	X	X			
	74SB61	AIRFIELD	74SB61-00	0.0 - 1.0	05/03/08	X			X	X	X			
	74SB71	SWMU 9 AB	74SB71-00	0.0 - 1.0	05/05/08	X			X	X	X			
	74SB81	SWMU 9 AB	74SB81-00	0.0 - 1.0	05/05/08	X			X	X	X			
	74SB91	SWMU 9 AB	74SB91-00	0.0 - 1.0	05/07/08	X			X	X	X			
	74SB101	SWMU 9 AB	74SB101-00	0.0 - 1.0	05/05/08	X			X	X	X			
	74SB111	SWMU 9 AB	74SB111-00	0.0 - 1.0	05/07/08	X			X	X	X			
	74SB121	SWMU 9 AB	74SB121-00	0.0 - 1.0	05/13/08	X			X	X	X			
	74SB131	JP 5 HILL	74SB131-00	0.0 - 1.0	05/15/08	X			X	X	X			
	74SB141	JP 5 HILL	74SB141-00	0.0 - 1.0	05/14/08	X			X	X	X			
	74SB151	JP 5 HILL	74SB151-00	0.0 - 1.0	05/15/08	X			X	X	X			
	74SB161	SWMU 9 C	74SB161-00	0.0 - 1.0	05/15/08	X			X	X	X			
			74SB161-00D	0.0 - 1.0	05/15/08	X			X	X	X			Duplicate
	74SB171	SWMU 9 C	74SB171-00	0.0 - 1.0	05/17/08	X			X	X	X			
	74SB181	SWMU 9 C	74SB181-00	0.0 - 1.0	05/19/08	X			X	X	X			
	74SB191	SWMU 9 C	74SB191-00	0.0 - 1.0	05/19/08	X			X	X	X			
	74SB201	JP 5 HILL	74SB201-00	0.0 - 1.0	05/18/08	X			X	X	X			
	74SB211	JP 5 HILL	74SB211-00	0.0 - 1.0	05/19/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Surface Soil (cont.)	74SB221	FUELING PIER	74SB221-00	0.0 - 1.0	05/20/08	X			X	X	X			Duplicate
			74SB221-00D	0.0 - 1.0	05/20/08	X			X	X	X			
	74SB231	FUELING PIER	74SB231-00	0.0 - 1.0	05/20/08	X			X	X	X			
	74SB241	FUELING PIER	74SB241-00	0.0 - 1.0	05/21/08	X			X	X	X			
	74SB251	FUELING PIER	74SB251-00	0.0 - 1.0	05/21/08	X			X	X	X			
	74SB261	FUELING PIER	74SB261-00	0.0 - 1.0	05/21/08	X			X	X	X			
	74SB271	JP 5 HILL	74SB271-00	0.0 - 1.0	05/28/08	X			X	X	X			
	74SB281	JP 5 HILL	74SB281-00	0.0 - 1.0	05/28/08	X			X	X	X			
Subsurface Soil	74SB01	AIRFIELD	74SB01-02	3.0-5.0	04/28/08	X	X		X	X	X			
			74SB01-04	7.0-9.0	04/28/08	X	X		X	X	X			
	74SB02	AIRFIELD	74SB02-03	5.0-7.0	04/28/08	X			X	X	X			
			74SB02-05	9.0-11.0	04/28/08	X			X	X	X			
	74SB04	AIRFIELD	74SB04-01	1.0-3.0	04/28/08	X			X	X	X			
			74SB04-04	7.0-9.0	04/28/08	X			X	X	X			
	74SB05	AIRFIELD	74SB05-01	1.0-3.0	04/29/08	X			X	X	X			
			74SB05-01D	1.0-3.0	04/29/08	X			X	X	X			Duplicate
			74SB05-02	3.0-5.0	04/29/08	X			X	X	X			
	74SB06	AIRFIELD	74SB06-01	1.0-3.0	04/29/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB06-01MS/MSD	1.0-3.0	04/29/08	X			X	X	X			
			74SB06-02	3.0-5.0	04/29/08	X			X	X	X			
	74SB07	AIRFIELD	74SB07-02	3.0-5.0	04/29/08	X			X	X	X			
			74SB07-04	7.0-9.0	04/29/08	X			X	X	X			
	74SB09	AIRFIELD	74SB09-02	3.0-5.0	04/29/08	X			X	X	X			
			74SB09-05	9.0-11.0	04/29/08	X			X	X	X			
	74SB10	AIRFIELD	74SB10-02	3.0-5.0	04/29/08	X			X	X	X			
			74SB10-04	7.0-9.0	04/29/08	X			X	X	X			

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**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
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**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

						Analysis Requested								
Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	Comment
Subsurface Soil (cont.)	74SB11	AIRFIELD	74SB11-02	3.0-5.0	04/30/08	X			X	X	X			
			74SB11-04	7.0-9.0	04/30/08	X	X		X	X	X			
			74SB11-04D	7.0-9.0	04/30/08	X	X		X	X	X			Duplicate
			74SB11-04MS/MSD	7.0-9.0	04/30/08		X				X			Matrix Spike/Matrix Spike Duplicate
	74SB12	AIRFIELD	74SB12-03	5.0-7.0	04/30/08	X			X	X	X			
			74SB12-05	9.0-11.0	04/30/08	X			X	X	X			
	74SB13	AIRFIELD	74SB13-02	3.0-5.0	04/30/08	X			X	X	X			
			74SB13-04	7.0-9.0	04/30/08	X			X	X	X			
	74SB14	AIRFIELD	74SB14-02	3.0-5.0	04/30/08	X			X	X	X			
			74SB14-03	5.0-7.0	04/30/08	X			X	X	X			
	74SB15	AIRFIELD	74SB15-02	3.0-5.0	04/30/08	X			X	X	X			
			74SB15-03	5.0-7.0	04/30/08	X			X	X	X			
	74SB16	AIRFIELD	74SB16-02	3.0-5.0	04/30/08	X			X	X	X			
			74SB16-04	7.0-9.0	04/30/08	X	X		X	X	X			
			74SB16-04D	7.0-9.0	04/30/08	X	X		X	X	X			Duplicate
	74SB22	AIRFIELD	74SB22-03	5.0-7.0	05/03/08	X	X		X	X	X			
			74SB22-03D	5.0-7.0	05/03/08	X	X		X	X	X			Duplicate
			74SB22-03MS/MSD	5.0-7.0	05/03/08		X		X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB22-04	7.0-9.0	05/03/08	X	X		X	X	X			
	74SB23	AIRFIELD	74SB23-02	3.0-5.0	05/03/08	X	X		X	X	X			
			74SB23-03	5.0-7.0	05/03/08	X	X		X	X	X			
	74SB24	AIRFIELD	74SB24-03	5.0-7.0	05/03/08	X	X		X	X	X			
			74SB24-05	9.0-11.0	05/03/08	X	X		X	X	X			
	74SB25	AIRFIELD	74SB25-04	7.0-9.0	05/03/08	X	X		X	X	X			
			74SB25-05	9.0-11.0	05/03/08	X	X		X	X	X			



TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB26	AIRFIELD	74SB26-02	3.0-5.0	05/03/08	X	X		X	X	X			Duplicate
			74SB26-02D	3.0-5.0	05/03/08	X	X		X	X	X			
			74SB26-05	9.0-11.0	05/03/08	X			X	X	X			
	74SB27	AIRFIELD	74SB27-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB27-05	9.0-11.0	05/03/08	X			X	X	X			
	74SB28	AIRFIELD	74SB28-02	3.0-5.0	05/01/08	X			X	X	X			
			74SB28-04	7.0-9.0	05/01/08	X			X	X	X			
	74SB29	AIRFIELD	74SB29-03	5.0-7.0	05/01/08	X			X	X	X			
			74SB29-05	9.0-11.0	05/01/08	X			X	X	X			
	74SB30	AIRFIELD	74SB30-03	5.0-7.0	05/01/08	X			X	X	X			
			74SB30-04	7.0-9.0	05/01/08	X			X	X	X			
	74SB31	AIRFIELD	74SB31-02	3.0-5.0	05/01/08	X	X		X	X	X			
			74SB31-03	5.0-7.0	05/01/08	X			X	X	X			
	74SB32	AIRFIELD	74SB32-02	3.0-5.0	05/01/08	X			X	X	X			
			74SB32-03	5.0-7.0	05/01/08	X			X	X	X			
			74SB32-03D	5.0-7.0	05/01/08	X			X	X	X			
	74SB33	AIRFIELD	74SB33-01	1.0-3.0	05/01/08	X			X	X	X			
			74SB33-02	3.0-5.0	05/01/08	X			X	X	X			
	74SB34	AIRFIELD	74SB34-01	1.0-3.0	05/01/08	X			X	X	X			
			74SB34-02	3.0-4.0	05/01/08	X	X		X	X	X			
	74SB35	AIRFIELD	74SB35-01	1.0-3.0	05/02/08	X			X	X	X			
			74SB35-03	5.0-7.0	05/02/08	X			X	X	X			
	74SB36	AIRFIELD	74SB36-02	3.0-5.0	05/02/08	X			X	X	X			
			74SB36-05	9.0-11.0	05/02/08	X			X	X	X			
	74SB37	AIRFIELD	74SB37-01	1.0-3.0	05/02/08	X			X	X	X			
			74SB37-02	3.0-5.0	05/02/08	X			X	X	X			
			74SB37-02D	3.0-5.0	05/02/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB38	AIRFIELD	74SB38-01	1.0-3.0	05/02/08	X			X	X	X			
			74SB38-02	3.0-5.0	05/02/08	X			X	X	X			
	74SB39	AIRFIELD	74SB39-02	3.0-5.0	05/02/08	X			X	X	X			
			74SB39-04	7.0-9.0	05/02/08	X			X	X	X			
	74SB40	AIRFIELD	74SB40-02	3.0-5.0	05/02/08	X			X	X	X			
			74SB40-04	7.0-9.0	05/02/08	X			X	X	X			
	74SB41	AIRFIELD	74SB41-02	3.0-5.0	05/02/08	X			X	X	X			
			74SB41-04	7.0-9.0	05/02/08	X			X	X	X			
	74SB42	AIRFIELD	74SB42-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB42-04	7.0-9.0	05/03/08	X			X	X	X			
	74SB43	AIRFIELD	74SB43-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB43-04	7.0-9.0	05/03/08	X			X	X	X			
	74SB44	AIRFIELD	74SB44-04	7.0-9.0	05/03/08	X			X	X	X			
			74SB44-05	9.0-11.0	05/03/08	X			X	X	X			
	74SB48	AIRFIELD	74SB48-01	1.0-3.0	05/03/08	X			X	X	X			
			74SB48-01D	1.0-3.0	05/03/08	X			X	X	X			Duplicate
	74SB49	AIRFIELD	74SB49-04	7.0-9.0	05/03/08	X			X	X	X			
			74SB49-05	7.0-9.0	05/03/08	X			X	X	X			
	74SB50	AIRFIELD	74SB50-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB50-04	7.0-9.0	05/03/08	X			X	X	X			
	74SB51	AIRFIELD	74SB51-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB52-03	5.0-7.0	05/03/08	X			X	X	X			
	74SB52	AIRFIELD	74SB52-04	7.0-9.0	05/03/08	X			X	X	X			
			74SB53-04	7.0-9.0	05/03/08	X			X	X	X			
	74SB53	AIRFIELD	74SB53-05	9.0-11.0	05/03/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB54	AIRFIELD	74SB54-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB54-04	7.0-9.0	05/03/08	X			X	X	X			
	74SB55	AIRFIELD	74SB55-02	3.0-5.0	05/03/08	X			X	X	X			
			74SB55-03	5.0-7.0	05/03/08	X			X	X	X			
	74SB56	AIRFIELD	74SB56-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB56-04	7.0-9.0	05/03/08	X			X	X	X			
	74SB57	AIRFIELD	74SB57-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB57-04	7.0-9.0	05/03/08	X			X	X	X			
	74SB58	AIRFIELD	74SB58-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB58-04	7.0-9.0	05/03/08	X			X	X	X			
	74SB59	AIRFIELD	74SB59-04	7.0-9.0	05/03/08	X			X	X	X			
			74SB59-05	9.0-11.0	05/03/08	X			X	X	X			
	74SB60	AIRFIELD	74SB60-04	7.0-9.0	05/03/08	X			X	X	X			
			74SB60-05	9.0-11.0	05/03/08	X			X	X	X			
	74SB61	AIRFIELD	74SB61-03	5.0-7.0	05/03/08	X			X	X	X			
			74SB61-04	7.0-9.0	05/03/08	X			X	X	X			
			74SB61-04D	7.0-9.0	05/03/08	X			X	X	X			Duplicate
	74SB62	AIRFIELD	74SB62-03	5.0-7.0	05/03/08	X			X	X	X			
	74SB63	SWMU 9 A/B	74SB63-03	5.0-7.0	05/04/08	X			X	X	X			
			74SB63-04	7.0-9.0	05/04/08	X			X	X	X			
	74SB64	SWMU 9 A/B	74SB64-03	5.0-7.0	05/04/08	X			X	X	X			
			74SB64-04	7.0-9.0	05/04/08	X			X	X	X			
	74SB65	SWMU 9 A/B	74SB65-03	5.0-7.0	05/04/08	X			X	X	X			
			74SB65-04	7.0-9.0	05/04/08	X			X	X	X			
	74SB66	SWMU 9 A/B	74SB66-03	5.0-7.0	05/04/08	X			X	X	X			
			74SB66-04	7.0-9.0	05/04/08	X			X	X	X			
			74SB66-04D	7.0-9.0	05/04/08	X			X	X	X			Duplicate

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**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
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**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB67	SWMU 9 A/B	74SB67-03	5.0-7.0	05/04/08	X			X	X	X			
			74SB67-04	7.0-9.0	05/04/08	X			X	X	X			
	74SB68	SWMU 9 A/B	74SB68-03	5.0-7.0	05/04/08	X			X	X	X			
			74SB68-04	7.0-9.0	05/04/08	X			X	X	X			
	74SB69	SWMU 9 A/B	74SB69-03	5.0-7.0	05/04/08	X			X	X	X			
			74SB69-04	7.0-9.0	05/04/08	X			X	X	X			
	74SB70	SWMU 9 A/B	74SB70-03	5.0-7.0	05/04/08	X			X	X	X			
			74SB70-04	7.0-9.0	05/04/08	X			X	X	X			
	74SB71	SWMU 9 A/B	74SB71-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB71-03MS/MSD	5.0-7.0	05/05/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB71-04	7.0-9.0	05/05/08	X			X	X	X			
			74SB71-04D	7.0-9.0	05/05/08	X			X	X	X			Duplicate
	74SB72	SWMU 9 A/B	74SB72-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB72-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB73	SWMU 9 A/B	74SB73-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB73-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB74	SWMU 9 A/B	74SB74-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB74-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB75	SWMU 9 A/B	74SB75-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB75-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB76	SWMU 9 A/B	74SB76-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB76-03D	5.0-7.0	05/05/08	X			X	X	X			Duplicate
			74SB76-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB77	SWMU 9 A/B	74SB77-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB77-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB79	SWMU 9 A/B	74SB79-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB79-04	7.0-9.0	05/05/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

						Analysis Requested								
Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	Comment
Subsurface Soil (cont.)	74SB80	SWMU 9 A/B	74SB80-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB80-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB81	SWMU 9 A/B	74SB81-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB81-03MS/MSD	5.0-7.0	05/05/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB81-04	7.0-8.0	05/05/08	X			X	X	X			
			74SB81-04D	7.0-8.0	05/05/08	X			X	X	X			Duplicate
	74SB82	SWMU 9 A/B	74SB82-03	5.0-7.0	05/06/08	X			X	X	X			
			74SB82-03MS/MSD	5.0-7.0	05/06/08				X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB82-04	7.0-9.0	05/06/08	X			X	X	X			
			74SB82-04D	7.0-9.0	05/06/08	X			X	X	X			Duplicate
	74SB83	SWMU 9 A/B	74SB83-02	3.0-4.0	05/06/08	X			X	X	X			
			74SB83-02MS/MSD	3.0-4.0	05/06/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB84	SWMU 9 A/B	74SB84-03	5.0-7.0	05/06/08	X			X	X	X			
			74SB84-03MS/MSD	5.0-7.0	05/06/08				X		X			Matrix Spike/Matrix Spike Duplicate
	74SB85	SWMU 9 A/B	74SB85-03	5.0-7.0	05/06/08	X			X	X	X			
			74SB85-04	7.0-9.0	05/06/08	X			X	X	X			
	74SB86	SWMU 9 A/B	74SB86-03	5.0-7.0	05/06/08	X			X	X	X			
			74SB86-03D	5.0-7.0	05/06/08	X			X	X	X			Duplicate
			74SB86-04	7.0-8.0	05/06/08	X	X		X	X	X			
	74SB87	SWMU 9 A/B	74SB87-03	5.0-7.0	05/07/08	X			X	X	X			
74SB87-04			7.0-9.0	05/07/08	X			X	X	X				
74SB88	SWMU 9 A/B	74SB88-03	5.0-7.0	05/07/08	X			X	X	X				
74SB89	SWMU 9 A/B	74SB89-03	5.0-7.0	05/07/08	X			X	X	X				

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB90	SWMU 9 A/B	74SB90-02	3.0-5.0	05/07/08	X			X	X	X			
	74SB91	SWMU 9 A/B	74SB91-03	5.0-7.0	05/07/08	X			X	X	X			
			74SB91-03D	5.0-7.0	05/07/08	X			X	X	X			Duplicate
			74SB91-03MS/MSD	5.0-7.0	05/07/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB92	SWMU 9 A/B	74SB92-03	5.0-7.0	05/07/08	X			X	X	X			
			74SB92-04	7.0-9.0	05/07/08	X			X	X	X			
	74SB93	SWMU 9 A/B	74SB93-03	5.0-7.0	05/07/08	X			X	X	X			
			74SB93-04	7.0-9.0	05/07/08	X			X	X	X			
	74SB94	SWMU 9 A/B	74SB94-03	5.0-7.0	05/07/08	X			X	X	X			
			74SB94-04	7.0-9.0	05/07/08	X			X	X	X			
	74SB95	SWMU 9 A/B	74SB95-03	5.0-7.0	05/13/08	X			X	X	X			
			74SB95-04	7.0-9.0	05/13/08	X			X	X	X			
	74SB96	SWMU 9 A/B	74SB96-03	5.0-7.0	05/13/08	X			X	X	X			
			74SB96-03D	5.0-7.0	05/13/08	X			X	X	X			Duplicate
			74SB96-05	9.0-11.0	05/13/08	X			X	X	X			
	74SB97	SWMU 9 A/B	74SB97-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB97-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB98	SWMU 9 A/B	74SB98-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB98-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB99	SWMU 9 A/B	74SB99-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB99-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB100	SWMU 9 A/B	74SB100-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB100-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB101	SWMU 9 A/B	74SB101-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB101-03D	5.0-7.0	05/05/08	X			X	X	X			Duplicate
			74SB101-03MS/MSD	5.0-7.0	05/05/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB101-04	7.0-9.0	05/05/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB102	SWMU 9 A/B	74SB102-04	7.0-9.0	05/05/08	X			X	X	X			
			74SB102-05	5.0-7.0	05/05/08	X			X	X	X			
	74SB103	SWMU 9 A/B	74SB103-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB103-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB104	SWMU 9 A/B	74SB104-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB104-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB105	SWMU 9 A/B	74SB105-03	5.0-7.0	05/05/08	X			X	X	X			
			74SB105-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB106	SWMU 9 A/B	74SB106-01	1.0-3.0	05/05/08	X			X	X	X			
			74SB106-04	7.0-9.0	05/05/08	X			X	X	X			
	74SB107	SWMU 9 A/B	74SB107-03	5.0-7.0	05/06/08	X			X	X	X			
			74SB107-03D	5.0-7.0	05/06/08	X			X	X	X			Duplicate
			74SB107-05	9.0-11.0	05/06/08	X			X	X	X			
	74SB108	SWMU 9 A/B	74SB108-03	5.0-7.0	05/06/08	X			X	X	X			
			74SB108-04	7.0-9.0	05/06/08	X			X	X	X			
	74SB109	SWMU 9 A/B	74SB109-04	7.0-9.0	05/06/08	X			X	X	X			
			74SB109-05	9.0-11.0	05/06/08	X			X	X	X			
	74SB110	SWMU 9 A/B	74SB110-04	7.0-9.0	05/06/08	X			X	X	X			
			74SB110-05	9.0-11.0	05/06/08	X			X	X	X			
	74SB111	SWMU 9 A/B	74SB111-03	5.0-7.0	05/07/08	X			X	X	X			
			74SB111-03D	5.0-7.0	05/07/08	X			X	X	X			Duplicate
			74SB111-03MS/MSD	5.0-7.0	05/07/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB111-05	9.0-11.0	05/07/08	X	X		X	X	X			
	74SB112	SWMU 9 A/B	74SB112-04	7.0-9.0	05/07/08	X			X	X	X			
			74SB112-05	9.0-11.0	05/07/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB113	SWMU 9 A/B	74SB113-04	7.0-9.0	05/07/08	X	X		X	X	X			
			74SB113-05	9.0-11.0	05/07/08	X	X		X	X	X			
	74SB114	SWMU 9 A/B	74SB114-04	7.0-9.0	05/13/08	X			X	X	X			
			74SB114-05	9.0-11.0	05/13/08	X	X		X	X	X			
	74SB115	SWMU 9 A/B	74SB115-03	5.0-7.0	05/13/08	X			X	X	X			
			74SB115-05	9.0-11.0	05/13/08	X			X	X	X			
	74SB116	SWMU 9 A/B	74SB116-04	7.0-9.0	05/13/08	X			X	X	X			
			74SB116-05	9.0-11.0	05/13/08	X			X	X	X			
			74SB116-05D	9.0-11.0	05/13/08	X			X	X	X			Duplicate
	74SB117	SWMU 9 A/B	74SB117-03	5.0-7.0	05/13/08	X			X	X	X			
			74SB117-04	7.0-9.0	05/13/08	X			X	X	X			
	74SB118	SWMU 9 A/B	74SB118-03	5.0-7.0	05/13/08	X			X	X	X			
			74SB118-05	9.0-11.0	05/13/08	X			X	X	X			
	74SB119	SWMU 9 A/B	74SB119-04	7.0-9.0	05/13/08	X			X	X	X			
			74SB119-05	9.0-11.0	05/13/08	X			X	X	X			
	74SB120	SWMU 9 A/B	74SB120-04	7.0-9.0	05/14/08	X			X	X	X			
			74SB120-05	9.0-11.0	05/14/08	X			X	X	X			
	74SB121	SWMU 9 A/B	74SB121-05	9.0-11.0	05/13/08	X			X	X	X			
			74SB121-05D	9.0-11.0	05/13/08	X			X	X	X			Duplicate
			74SB121-05MS/MSD	9.0-11.0	05/13/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB122	SWMU 9 A/B	74SB122-03	5.0-7.0	05/13/08	X			X	X	X			
			74SB122-04	7.0-9.0	05/13/08	X			X	X	X			
	74SB123	SWMU 9 A/B	74SB123-03	5.0-7.0	05/13/08	X			X	X	X			
			74SB123-05	9.0-11.0	05/13/08	X			X	X	X			
	74SB124	SWMU 9 A/B	74SB124-02	3.0-5.0	05/13/08	X			X	X	X			
			74SB124-05	9.0-11.0	05/13/08	X			X	X	X			



TABLE 3-1

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**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB125	JP 5 HILL	74SB125-03	5.0-7.0	05/13/08	X			X	X	X			
			74SB125-05	9.0-11.0	05/13/08	X			X	X	X			
	74SB126	JP 5 HILL	74SB126-02	3.0-5.0	05/14/08	X			X	X	X			
			74SB126-05	9.0-11.0	05/14/08	X			X	X	X			
			74SB126-05D	9.0-11.0	05/14/08	X			X	X	X			Duplicate
	74SB127	JP 5 HILL	74SB127-03	3.0-5.0	05/14/08	X			X	X	X			
			74SB127-04	7.0-9.0	05/14/08	X			X	X	X			
	74SB128	JP 5 HILL	74SB128-03	5.0-7.0	05/14/08	X			X	X	X			
			74SB128-05	9.0-11.0	05/14/08	X			X	X	X			
	74SB129	JP 5 HILL	74SB129-02	3.0-5.0	05/14/08	X			X	X	X			
			74SB129-03	5.0-7.0	05/14/08	X			X	X	X			
	74SB130	JP 5 HILL	74SB130-03	5.0-7.0	05/14/08	X			X	X	X			
			74SB130-05	9.0-11.0	05/14/08	X			X	X	X			
	74SB131	JP 5 HILL	74SB131-03	5.0-7.0	05/15/08	X			X	X	X			
			74SB131-03D	5.0-7.0	05/15/08	X			X	X	X			Duplicate
			74SB131-03MS/MSD	5.0-7.0	05/15/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB131-05	9.0-11.0	05/15/08	X			X	X	X			
	74SB132	JP 5 HILL	74SB132-04	7.0-9.0	05/15/08	X			X	X	X			
			74SB132-05	9.0-11.0	05/15/08	X			X	X	X			
	74SB133	JP 5 HILL	74SB133-04	7.0-9.0	05/15/08	X			X	X	X			
			74SB133-05	9.0-11.0	05/15/08	X			X	X	X			
	74SB134	JP 5 HILL	74SB134-04	7.0-9.0	05/15/08	X			X	X	X			
			74SB134-05	9.0-11.0	05/15/08	X			X	X	X			
	74SB135	JP 5 HILL	74SB135-03	5.0-7.0	05/15/08	X			X	X	X			
			74SB135-05	9.0-11.0	05/15/08	X			X	X	X			

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Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB136	JP 5 HILL	74SB136-03	5.0-7.0	05/15/08	X			X	X	X			Duplicate
			74SB136-03D	5.0-7.0	05/15/08	X			X	X	X			
			74SB136-05	9.0-11.0	05/15/08	X			X	X	X			
	74SB137	JP 5 HILL	74SB137-03	5.0-7.0	05/15/08	X			X	X	X			
			74SB137-04	7.0-9.0	05/15/08	X			X	X	X			
	74SB138	JP 5 HILL	74SB138-03	5.0-7.0	05/15/08	X			X	X	X			
			74SB138-04	7.0-9.0	05/15/08	X	X		X	X	X			
	74SB139	JP 5 HILL	74SB139-03	5.0-7.0	05/15/08	X			X	X	X			
			74SB139-05	9.0-11.0	05/15/08	X			X	X	X			
	74SB140	JP 5 HILL	74SB140-04	7.0-9.0	05/15/08	X			X	X	X			
			74SB140-05	9.0-11.0	05/15/08	X			X	X	X			
			74SB141-03	5.0-7.0	05/14/08	X			X	X	X			
	74SB141	JP 5 HILL	74SB141-03 MS/MSD	5.0-7.0	05/14/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB141-05	9.0-11.0	05/14/08	X			X	X	X			Duplicate
			74SB141-05D	9.0-11.0	05/14/08	X			X	X	X			
	74SB142	JP 5 HILL	74SB142-02	3.0-5.0	05/14/08	X			X	X	X			
			74SB142-04	7.0-9.0	05/14/08	X			X	X	X			
	74SB143	JP 5 HILL	74SB143-02	3.0-5.0	05/14/08	X			X	X	X			
			74SB143-04	7.0-9.0	05/14/08	X			X	X	X			
	74SB144	SWMU 9 C	74SB144-03	5.0-7.0	05/14/08	X			X	X	X			
			74SB144-05	9.0-11.0	05/14/08	X			X	X	X			
	74SB145	SWMU 9 C	74SB145-05	9.0-11.0	05/16/08	X			X	X	X			
			74SB145-09	17.0-19.0	05/16/08	X			X	X	X			
	74SB146	SWMU 9 C	74SB146-02	3.0-5.0	05/15/08	X			X	X	X			Duplicate
			74SB146-02D	3.0-5.0	05/15/08	X			X	X	X			
			74SB146-05	9.0-11.0	05/15/08	X			X	X	X			

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**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
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Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB147	SWMU 9 C	74SB147-03	5.0-7.0	05/15/08	X			X	X	X			
			74SB147-04	7.0-9.0	05/15/08	X			X	X	X			
	74SB148	SWMU 9 C	74SB148-02	3.0-5.0	05/15/08	X			X	X	X			
			74SB148-04	7.0-9.0	05/15/08	X			X	X	X			
	74SB149	JP 5 HILL	74SB149-04	7.0-9.0	05/15/08	X			X	X	X			
			74SB149-06	11.0-13.0	05/15/08	X			X	X	X			
	74SB150	JP 5 HILL	74SB150-02	3.0-5.0	05/15/08	X			X	X	X			
			74SB150-06	11.0-13.0	05/15/08	X			X	X	X			
	74SB151	JP 5 HILL	74SB151-01	1.0-3.0	05/15/08	X			X	X	X			Designated 74VP07a on sample lable and COC
			74SB151-01D	1.0-3.0	05/15/08	X			X	X	X			Duplicate; Designated 74VP07a-01D on sample lable and COC
			74SB151-01MS	1.0-3.0	05/15/08	X				X				Matrix Spike; Designated 74VP07a-01MS on sample lable and COC
			74SB151-01MSD	1.0-3.0	05/15/08	X				X				Matrix Spike Duplicate; Designated 74VP07a-01MSD on sample lable and COC
	74SB152	JP 5 HILL	74SB152-03	5.0-7.0	05/15/08	X			X	X	X			
			74SB152-05	9.0-11.0	05/15/08	X			X	X	X			
	74SB153	JP 5 HILL	74SB153-02	3.0-5.0	05/15/08	X			X	X	X			
			74SB153-04	7.0-9.0	05/15/08	X			X	X	X			
	74SB154	JP 5 HILL	74SB154-04	7.0-9.0	05/15/08	X			X	X	X			
			74SB154-05	9.0-11.0	05/15/08	X			X	X	X			
	74SB155	DFM	74SB155-04	7.0-9.0	05/15/08	X			X	X	X			
			74SB155-05	9.0-11.0	05/15/08	X	X		X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB156	DFM	74SB156-04	7.0-9.0	05/15/08	X			X	X	X			
			74SB156-05	9.0-11.0	05/15/08	X	X		X	X	X			
			74SB156-05D	9.0-11.0	05/15/08	X	X		X	X	X			Duplicate
	74SB157	DFM	74SB157-04	7.0-9.0	05/14/08	X			X	X	X			
			74SB157-05	9.0-11.0	05/14/08	X			X	X	X			
	74SB158	DFM	74SB158-03	5.0-7.0	05/14/08	X			X	X	X			
			74SB158-04	7.0-9.0	05/14/08	X			X	X	X			
	74SB159	DFM	74SB159-03	5.0-7.0	05/14/08	X			X	X	X			
			74SB159-05	9.0-11.0	05/14/08	X			X	X	X			
	74SB160	DFM	74SB160-04	7.0-9.0	05/14/08	X			X	X	X			
			74SB160-05	9.0-11.0	05/14/08	X			X	X	X			
	74SB161	SWMU 9 C	74SB161-04	7.0-9.0	05/16/08	X			X	X	X			
			74SB161-04D	7.0-9.0	05/16/08	X			X	X	X			Duplicate
			74SB161-05	9.0-11.0	05/16/08	X			X	X	X			
			74SB161-05 MS/MSD	9.0-11.0	05/16/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB162	SWMU 9 C	74SB162-04	7.0-9.0	05/16/08	X			X	X	X			
			74SB162-05	9.0-11.0	05/16/08	X			X	X	X			
	74SB163	SWMU 9 C	74SB163-03	5.0-7.0	05/16/08	X			X	X	X			
			74SB163-04	7.0-9.0	05/16/08	X			X	X	X			
	74SB164	SWMU 9 C	74SB164-04	7.0-0.9	05/16/08	X			X	X	X			
			74SB164-05	9.0-11.0	05/16/08	X			X	X	X			
	74SB165	SWMU 9 C	74SB165-04	7.0-9.0	05/16/08	X			X	X	X			
			74SB165-05	9.0-11.0	05/16/08	X			X	X	X			
	74SB166	SWMU 9 C	74SB166-04	7.0-9.0	05/16/08	X			X	X	X			
			74SB166-04D	7.0-9.0	05/16/08	X			X	X	X			Duplicate
			74SB166-05	9.0-11.0	05/16/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB167	SWMU 9 C	74SB167-04	7.0-9.0	05/16/08	X			X	X	X			
			74SB167-05	9.0-11.0	05/16/08	X			X	X	X			
	74SB168	SWMU 9 C	74SB168-04	7.0-9.0	05/16/08	X			X	X	X			
			74SB168-05	9.0-11.0	05/16/08	X			X	X	X			
	74SB169	SWMU 9 C	74SB169-04	7.0-9.0	05/16/08	X			X	X	X			
			74SB169-05	9.0-11.0	05/16/08	X			X	X	X			
	74SB170	SWMU 9 C	74SB170-04	7.0-9.0	05/17/08	X			X	X	X			
			74SB170-05	9.0-11.0	05/17/08	X			X	X	X			
	74SB171	SWMU 9 C	74SB171-04	7.0-9.0	05/17/08	X			X	X	X			
			74SB171-04MS/MSD	7.0-9.0	05/17/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB171-05	9.0-11.0	05/17/08	X			X	X	X			
			74SB171-05D	9.0-11.0	05/17/08	X			X	X	X			Duplicate
	74SB172	SWMU 9 C	74SB172-04	7.0-9.0	05/17/08	X			X	X	X			
			74SB172-05	9.0-11.0	05/17/08	X			X	X	X			
	74SB173	SWMU 9 C	74SB173-04	7.0-9.0	05/17/08	X			X	X	X			
			74SB173-05	9.0-11.0	05/17/08	X			X	X	X			
	74SB174	SWMU 9 C	74SB174-04	7.0-9.0	05/17/08	X			X	X	X			
			74SB174-05	9.0-11.0	05/17/08	X	X		X	X	X			
	74SB175	SWMU 9 C	74SB175-04	7.0-9.0	05/17/08	X			X	X	X			
			74SB175-05	9.0-11.0	05/17/08	X			X	X	X			
	74SB176	SWMU 9 C	74SB176-04	7.0-9.0	05/17/08	X			X	X	X			
			74SB176-05	9.0-11.0	05/17/08	X			X	X	X			
			74SB176-05D	9.0-11.0	05/17/08	X			X	X	X			Duplicate
	74SB177	SWMU 9 C	74SB177-04	7.0-9.0	05/17/08	X			X	X	X			
			74SB177-05	9.0-11.0	05/17/08	X			X	X	X			
	74SB178	SWMU 9 C	74SB178-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB178-05	9.0-11.0	05/19/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB179	SWMU 9 C	74SB179-04	9.0-11.0	05/19/08	X			X	X	X			
			74SB179-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB180	SWMU 9 C	74SB180-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB180-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB181	SWMU 9 C	74SB181-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB181-04MS/MSD	7.0-9.0	05/19/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB181-05	9.0-11.0	05/19/08	X			X	X	X			
			74SB181-05D	9.0-11.0	05/19/08	X			X	X	X			Duplicate
	74SB182	SWMU 9 C	74SB182-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB182-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB183	SWMU 9 C	74SB183-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB183-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB184	SWMU 9 C	74SB184-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB184-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB185	JP 5 HILL	74SB185-03	7.0-9.0	05/19/08	X			X	X	X			
			74SB185-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB186	JP 5 HILL	74SB186-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB186-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB187	JP 5 HILL	74SB187-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB187-04	7.0-9.0	05/19/08	X			X	X	X			
	74SB188	SWMU 9 C	74SB188-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB188-04	7.0-9.0	05/19/08	X			X	X	X			
	74SB189	SWMU 9 C	74SB189-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB189-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB190	SWMU 9 C	74SB190-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB190-05	9.0-11.0	05/19/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB191	SWMU 9 C	74SB191-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB191-03D	5.0-7.0	05/19/08	X			X	X	X			Duplicate
			74SB191-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB191	SWMU 9 C	74SB191-05MS/MSD	9.0-11.0	05/19/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB192	SWMU 9 C	74SB192-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB192-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB193	SWMU 9 C	74SB193-03	5.0-7.0	05/20/08	X			X	X	X			
			74SB193-05	7.0-9.0	05/20/08	X			X	X	X			
	74SB194	SWMU 9 C	74SB194-03	5.0-7.0	05/20/08	X			X	X	X			
			74SB194-05	7.0-9.0	05/20/08	X			X	X	X			
	74SB195	SWMU 9 C	74SB195-03	5.0-7.0	05/20/08	X			X	X	X			
			74SB195-05	7.0-9.0	05/20/08	X			X	X	X			
	74SB196	SWMU 9 C	74SB196-03	5.0-7.0	05/20/08	X			X	X	X			
			74SB196-03D	5.0-7.0	05/20/08	X			X	X	X			Duplicate
			74SB196-05	7.0-9.0	05/20/08	X			X	X	X			
	74SB197	SWMU 9 C	74SB197-03	5.0-7.0	05/20/08	X			X	X	X			
			74SB197-05	7.0-9.0	05/20/08	X			X	X	X			
	74SB200	JP 5 HILL	74SB200-04	7.0-9.0	05/18/08	X			X	X	X			
			74SB200-05	9.0-11.0	05/18/08	X			X	X	X			
	74SB201	JP 5 HILL	74SB201-04	7.0-9.0	05/18/08	X			X	X	X			
			74SB201-04D	7.0-9.0	05/18/08	X			X	X	X			Duplicate
			74SB201-05	9.0-11.0	05/18/08	X			X	X	X			
			74SB201-05MS/MSD	9.0-11.0	05/18/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB202	JP 5 HILL	74SB202-04	7.0-9.0	05/18/08	X			X	X	X			
			74SB202-05	9.0-11.0	05/18/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB203	JP 5 HILL	74SB203-04	7.0-9.0	05/18/08	X			X	X	X			
			74SB203-05	9.0-11.0	05/18/08	X			X	X	X			
	74SB204	JP 5 HILL	74SB204-04	7.0-9.0	05/18/08	X			X	X	X			
			74SB204-05	9.0-11.0	05/18/08	X			X	X	X			
	74SB205	JP 5 HILL	74SB205-04	7.0-9.0	05/18/08	X			X	X	X			
			74SB205-05	9.0-11.0	05/18/08	X			X	X	X			
	74SB206	DFM	74SB206-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB206-04D	7.0-9.0	05/19/08	X			X	X	X			Duplicate
			74SB206-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB207	DFM	74SB207-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB207-05	9.0-7.0	05/19/08	X			X	X	X			
	74SB209	JP 5 HILL	74SB209-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB209-05	9.0-11.0	05/19/08	X			X	X	X			
	74SB210	JP 5 HILL	74SB210-04	7.0-9.0	05/19/08	X	X		X	X	X			
			74SB210-05	9.0-11.0	05/19/08	X	X		X	X	X			
	74SB211	JP 5 HILL	74SB211-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB211-03D	5.0-7.0	05/19/08	X			X	X	X			Duplicate
			74SB211-04	7.0-9.0	05/19/08	X			X	X	X			
			74SB211-04MS/MSD	7.0-9.0	05/19/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB213	FUELING PIER	74SB213-03	5.0-7.0	05/19/08	X			X	X	X			
	74SB215	FUELING PIER	74SB215-03	5.0-7.0	05/19/08	X			X	X	X			
	74SB216	FUELING PIER	74SB216-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB216-05	9.0-11.0	05/19/08	X			X	X	X			
			74SB216-05D	9.0-11.0	05/19/08	X			X	X	X			Duplicate
	74SB218	FUELING PIER	74SB218-03	5.0-7.0	05/19/08	X			X	X	X			
			74SB218-05	9.0-11.0	05/19/08	X			X	X	X			



TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

						Analysis Requested								
Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	Comment
Subsurface Soil (cont.)	74SB221	FUELING PIER	74SB221-02	3.0-5.0	05/20/08	X	X		X	X	X			
			74SB221-02D	3.0-5.0	05/20/08	X	X		X	X	X			Duplicate
			74SB221-02MS/MSD	3.0-5.0	05/20/08	X	X		X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB222	FUELING PIER	74SB222-03	5.0-7.0	05/20/08	X	X		X	X	X			
	74SB223	FUELING PIER	74SB223-03	5.0-7.0	05/20/08	X	X		X	X	X			
	74SB224	FUELING PIER	74SB224-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB224-05	9.0-11.0	05/20/08	X			X	X	X			
	74SB225	FUELING PIER	74SB225-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB225-05	9.0-11.0	05/20/08	X			X	X	X			
	74SB226	JP 5 HILL	74SB226-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB226-05	9.0-11.0	05/20/08	X	X		X	X	X			
			74SB226-05D	9.0-11.0	05/20/08	X	X		X	X	X			Duplicate
	74SB227	JP 5 HILL	74SB227-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB227-05	9.0-11.0	05/20/08	X	X		X	X	X			
	74SB228	JP 5 HILL	74SB228-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB228-05	9.0-11.0	05/20/08	X			X	X	X			
	74SB229	JP 5 HILL	74SB229-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB229-05	9.0-11.0	05/20/08	X			X	X	X			
	74SB230	JP 5 HILL	74SB230-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB230-05	9.0-11.0	05/20/08	X	X		X	X	X			
	74SB231	FUELING PIER	74SB231-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB231-04MS/MSD	7.0-9.0	05/20/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB231-05	9.0-11.0	05/20/08	X			X	X	X			
			74SB231-05D	9.0-11.0	05/20/08	X			X	X	X			Duplicate
	74SB232	FUELING PIER	74SB232-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB232-05	9.0-11.0	05/20/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB233	FUELING PIER	74SB233-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB233-05	9.0-11.0	05/20/08	X			X	X	X			
	74SB234	FUELING PIER	74SB234-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB234-05	9.0-11.0	05/20/08	X			X	X	X			
	74SB235	FUELING PIER	74SB235-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB235-05	9.0-11.0	05/20/08	X			X	X	X			
	74SB236	FUELING PIER	74SB236-04	7.0-9.0	05/21/08	X			X	X	X			
			74SB236-05	9.0-11.0	05/21/08	X			X	X	X			
			74SB236-05D	9.0-11.0	05/21/08	X			X	X	X			Duplicate
	74SB237	FUELING PIER	74SB237-04	7.0-9.0	05/21/08	X			X	X	X			
			74SB237-05	9.0-11.0	05/21/08	X			X	X	X			
	74SB238	FUELING PIER	74SB238-04	7.0-9.0	05/21/08	X			X	X	X			
			74SB238-05	9.0-11.0	05/21/08	X			X	X	X			
	74SB239	FUELING PIER	74SB239-04	7.0-9.0	05/21/08	X			X	X	X			
			74SB239-05	9.0-11.0	05/21/08	X			X	X	X			
	74SB240	FUELING PIER	74SB240-04	7.0-9.0	05/21/08	X			X	X	X			
			74SB240-05	9.0-11.0	05/21/08	X			X	X	X			
	74SB241	FUELING PIER	74SB241-04	7.0-9.0	05/21/08	X			X	X	X			
			74SB241-04D	7.0-9.0	05/21/08	X			X	X	X			Duplicate
			74SB241-05	9.0-11.0	05/21/08	X			X	X	X			
			74SB241-05MS/MSD	9.0-11.0	05/21/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB245	FUELING PIER	74SB245-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB245-05	9.0-11.0	05/21/08	X			X	X	X			
	74SB246	FUELING PIER	74SB246-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB246-03D	5.0-7.0	05/21/08	X			X	X	X			Duplicate
			74SB246-05	9.0-11.0	05/21/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB247	FUELING PIER	74SB247-03	5.0-7.0	05/21/08	X			X	X	X			
	74SB248	FUELING PIER	74SB248-03	5.0-7.0	05/21/08	X			X	X	X			
	74SB249	FUELING PIER	74SB249-03	5.0-7.0	05/21/08	X			X	X	X			
	74SB250	FUELING PIER	74SB250-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB250-05	9.0-11.0	05/21/08	X			X	X	X			
	74SB251	FUELING PIER	74SB251-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB251-03D	5.0-7.0	05/21/08	X			X	X	X			Duplicate
			74SB251-05	9.0-11.0	05/21/08	X			X	X	X			
			74SB251-05MS/MSD	9.0-11.0	05/21/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB252	FUELING PIER	74SB252-03	5.0-7.0	05/21/08	X			X	X	X			
	74SB253	FUELING PIER	74SB253-03	5.0-7.0	05/21/08	X			X	X	X			
	74SB254	FUELING PIER	74SB254-03	5.0-7.0	05/21/08	X			X	X	X			
	74SB255	FUELING PIER	74SB255-03	5.0-7.0	05/21/08	X			X	X	X			
	74SB256	FUELING PIER	74SB256-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB256-03D	5.0-7.0	05/21/08	X			X	X	X			Duplicate
			74SB256-04	7.0-9.0	05/21/08	X			X	X	X			
	74SB258	FUELING PIER	74SB258-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB258-05	9.0-11.0	05/21/08	X			X	X	X			
	74SB259	FUELING PIER	74SB259-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB259-04	7.0-9.0	05/21/08	X			X	X	X			
	74SB260	FUELING PIER	74SB260-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB260-04	7.0-9.0	05/21/08	X	X		X	X	X			
	74SB261	FUELING PIER	74SB261-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB261-03D	5.0-7.0	05/21/08	X			X	X	X			Duplicate
			74SB261-03MS/MSD	5.0-7.0	05/21/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
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**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB262	FUELING PIER	74SB262-03	5.0-7.0	05/21/08	X			X	X	X			
	74SB263	FUELING PIER	74SB263-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB263-04	7.0-9.0	05/21/08	X			X	X	X			
	74SB264	FUELING PIER	74SB264-03	5.0-7.0	05/21/08	X			X	X	X			
			74SB264-04	7.0-9.0	05/21/08	X	X		X	X	X			
	74SB265	FUELING PIER	74SB265-03	5.0-7.0	05/20/08	X			X	X	X			
			74SB265-03D	5.0-7.0	05/20/08	X			X	X	X			Duplicate
			74SB265-04	7.0-9.0	05/20/08	X			X	X	X			
	74SB266	FUELING PIER	74SB266-03	5.0-7.0	05/20/08	X			X	X	X			
	74SB267	FUELING PIER	74SB267-02	3.0-5.0	05/20/08	X			X	X	X			
			74SB267-03	5.0-7.0	05/20/08	X			X	X	X			
	74SB268	JP 5 HILL	74SB268-03	5.0-7.0	05/20/08	X			X	X	X			
			74SB268-05	9.0-11.0	05/20/08	X	X		X	X	X			
	74SB269	JP 5 HILL	74SB269-04	7.0-9.0	05/20/08	X			X	X	X			
			74SB269-05	9.0-11.0	05/20/08	X	X		X	X	X			
	74SB270	JP 5 HILL	74SB270-04	7.0-9.0	05/28/08	X			X	X	X			
			74SB270-05	9.0-11.0	05/28/08	X			X	X	X			
	74SB271	JP 5 HILL	74SB271-03	5.0-7.0	05/28/08	X			X	X	X			
			74SB271-03D	5.0-7.0	05/28/08	X			X	X	X			Duplicate
			74SB271-03MS/MSD	5.0-7.0	05/28/08	X			X	X	X			Matrix Spike/Matrix Spike Duplicate
			74SB271-05	9.0-11.0	05/28/08	X			X	X	X			
	74SB272	JP 5 HILL	74SB272-04	7.0-9.0	05/28/08	X			X	X	X			
			74SB272-05	9.0-11.0	05/28/08	X			X	X	X			
	74SB273	JP 5 HILL	74SB273-04	7.0-9.0	05/28/08	X			X	X	X			
			74SB273-05	9.0-11.0	05/28/08	X			X	X	X			
	74SB274	JP 5 HILL	74SB274-03	5.0-7.0	05/28/08	X			X	X	X			
			74SB274-05	9.0-11.0	05/28/08	X			X	X	X			

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**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
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**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74SB275	JP 5 HILL	74SB275-03	5.0-7.0	05/28/08	X			X	X	X			Duplicate
			74SB275-03D	5.0-7.0	05/28/08	X			X	X	X			
	74SB277	JP 5 HILL	74SB277-02	3.0-5.0	05/28/08	X			X	X	X			
	74SB278	JP 5 HILL	74SB278-03	5.0-7.0	05/28/08	X			X	X	X			
			74SB279-03	5.0-7.0	05/28/08	X			X	X	X			
	74SB279	JP 5 HILL	74SB279-05	9.0-11.0	05/28/08	X			X	X	X			
			74SB280-02	3.0-5.0	05/28/08	X			X	X	X			
	74SB280	JP 5 HILL	74SB280-05	9.0-11.0	05/28/08	X			X	X	X			
			74SB281-02	3.0-5.0	05/28/08	X			X	X	X			
	74SB281	JP 5 HILL	74SB281-05	9.0-11.0	05/28/08	X			X	X	X			
			74SB281-05D	9.0-11.0	05/28/08	X			X	X	X			Duplicate
			74SB281-05MS/MSD	9.0-11.0	05/28/08				X		X			Matrix Spike/Matrix Spike Duplicate
	74SB282	JP 5 HILL	74SB282-02	3.0-5.0	05/28/08	X			X	X	X			
			74SB282-05	9.0-11.0	05/28/08	X			X	X	X			
	74SB283	JP 5 HILL	74SB283-02	3.0-5.0	05/28/08	X			X	X	X			
			74SB284-02	3.0-5.0	05/28/08	X			X	X	X			
	74SB284	JP 5 HILL	74SB284-05	9.0-11.0	05/28/08	X			X	X	X			
			74SB285-02	3.0-5.0	05/28/08	X			X	X	X			
	74SB285	JP 5 HILL	74SB285-05	9.0-11.0	05/28/08	X			X	X	X			
			74VP1b-03	5.0-7.0	05/03/08	X			X	X	X			
	74VP1b	AIRFIELD	74VP1b-03D	5.0-7.0	05/03/08	X			X	X	X			Duplicate
			74VP1b-04	7.0-9.0	05/03/08	X			X	X	X			
			74VP1b-04X	7.0-9.0	05/03/08	X			X	X	X			
	74VP2b	AIRFIELD	74VP2b-01	1.0-3.0	05/03/08	X			X	X	X			
			74VP2b-03	5.0-7.0	05/03/08	X			X	X	X			
	74VP3b	SWMU 9 A/B	74VP3b-03	5.0-7.0	05/05/08	X	X		X	X	X			
			74VP3b-04	7.0-9.0	05/05/08	X	X		X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/ RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74VP11a	SWMU 9 A/B	74VP11a-03	5.0-7.0	05/06/08	X			X	X	X			
			74VP11a-04	7.0-9.0	05/06/08	X			X	X	X			
	74VP1Cb/9	SWMU 9 A/B	74VP1Cb/9-02	3.0-5.0	05/07/08	X			X	X	X			
			74VP1Cb/9-04	7.0-9.0	05/07/08	X			X	X	X			
	74VP1Aa/9	SWMU 9 A/B	74VP1Aa/9-03	5.0-7.0	05/07/08	X			X	X	X			
			74VP1Aa/9-04	7.0-9.0	05/07/08	X			X	X	X			
	74VP1Ba/9	SWMU 9 A/B	74VP1Ba/9-05	9.0-11.0	05/13/08	X	X		X	X	X			
			74VP1Ba/9-05D	9.0-11.0	05/13/08	X	X		X	X	X			Duplicate
			74VP1Ba/9-09	17.0-19.0	05/13/08	X	X		X	X	X			
	74VP3b/9	SWMU 9 A/B	74VP3b/9-05	9.0-11.0	05/13/08	X	X		X	X	X			
			74VP3b/9-07	13.0-15.0	05/13/08	X	X		X	X	X			
	74VP2a/9	SWMU 9 A/B	74VP2a/9-08	15.0-17.0	05/14/08	X	X		X	X	X			
			74VP2a/9-10	19.0-21.0	05/14/08	X	X		X	X	X			
	74VP08a	DFM	74VP08a-07	13.0-15.0	05/15/08	X			X	X	X			
			74VP08a-10	19.0-21.0	05/15/08	X			X	X	X			
	74VP05a	JP 5 HILL	74VP05a-04	7.0-9.0	05/16/08	X			X	X	X			
			74VP05a-09	17.0-19.0	05/16/08	X			X	X	X			
	74VP9b/JP5	JP 5 HILL	74VP9b/JP5-03	5.0-7.0	05/16/08	X	X		X	X	X			
			74VP9b/JP5-05	9.0-11.0	05/16/08	X	X		X	X	X			
	74VP10a/JP5	JP 5 HILL	74VP10a/JP5-04	7.0-9.0	05/16/08	X	X		X	X	X			
			74VP10a/JP5-05	9.0-11.0	05/16/08	X	X		X	X	X			
	74VP10b/DFM	DFM	74VP10b/DFM-04	7.0-9.0	05/17/08	X	X		X	X	X			
			74VP10b/DFM-05	9.0-11.0	05/17/08	X	X		X	X	X			
	74VP11b/JP5	JP 5 HILL	74VP11b/JP5-04	7.0-9.0	05/17/08	X			X	X	X			
			74VP11b/JP5-05	9.0-11.0	05/17/08	X			X	X	X			
	74VP6Aa	SWMU 9 C	74VP6Aa-04	7.0-9.0	05/17/08	X			X	X	X			
			74VP6Aa-07	13.0-15.0	05/18/08	X			X	X	X			

TABLE 3-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM- ENVIRONMENTAL SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Subsurface Soil (cont.)	74VP6Ba	SWMU 9 C	74VP6Ba-03	5.0-7.0	05/17/08	X			X	X	X			
			74VP6Ba-04	7.0-9.0	05/17/08	X			X	X	X			
	74VP6Cb	SWMU 9 C	74VP6Cb-04	7.0-9.0	05/17/08	X			X	X	X			
			74VP6Cb-07	13.0-15.0	05/17/08	X			X	X	X			
	74VP19b	JP 5 HILL	74VP19b-03	5.0-7.0	05/18/08	X	X		X	X	X			
			74VP19b-05	9.0-11.0	05/18/08	X	X		X	X	X			
	74VP20	JP 5 HILL	74VP20-05	9.0-11.0	05/19/08	X			X	X	X			
			74VP20-06	11.0-13.0	05/19/08	X	X		X	X	X			
	74VP1982	JP 5 HILL	74VP1982-03	5.0-7.0	05/19/08	X	X		X	X	X			
			74VP1982-05	9.0-11.0	05/19/08	X			X	X	X			
Groundwater	74HYD3	AIRFIELD	74GWHYD3	NA	05/05/08	X	X	X	X	X	X			
			74GWHYD3D	NA	05/05/08	X	X	X	X	X	X			Duplicate
			74GWHYD3MS/MSD	NA	05/05/08	X	X	X	X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB22	AIRFIELD	74GW22	NA	05/05/08	X	X	X	X	X	X			
	74SB05	AIRFIELD	74GW05	NA	05/05/08	X	X	X	X	X	X			
	74VP1a	AIRFIELD	74GWVP1a	NA	05/06/08	X		X	X	X	X			
	74VP2a	AIRFIELD	74GWVP2a	NA	05/06/08	X		X	X	X	X			
	74VP2b	AIRFIELD	74GWVP2b	NA	05/06/08	X		X	X	X	X			
	74GW34	AIRFIELD	74GW34	NA	05/06/08	X	X	X	X	X	X			
	74SB09	AIRFIELD	74GW09	NA	05/06/08	X	X	X	X	X	X			
	74VP1b	AIRFIELD	74GWVP1b	NA	05/05/08	X		X	X	X	X			
	74SB26	AIRFIELD	74GW26	NA	05/05/08	X			X	X	X			
	74SB26	AIRFIELD	74GW26	NA	07/23/08			X						
	74SB57	AIRFIELD	74GW57	NA	05/06/08	X		X	X	X	X			
	74VP1Ca/9	SWMU 9 A/B	74GWVP1Ca/9	NA	05/14/08	X	X	X	X	X	X			
	74VP1Cb/9	SWMU 9A/B	74GWVP1Cb/9	NA	05/14/08	X	X	X	X	X	X			
			74GWVP1Cb/9D	NA	05/14/08	X	X	X	X	X	X			Duplicate

TABLE 3-1

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Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Groundwater (cont.)	74VP3a	SWMU 9 A/B	74GWVP3a	NA	05/14/08	X	X	X	X	X	X			
	74VP3b	SWMU 9 A/B	74GWVP3b	NA	05/14/08	X	X	X	X	X	X			
	74VP11a	SWMU 9 A/B	74GWVP11a	NA	05/15/08	X	X	X	X	X	X			
	74VP11b	SWMU 9 A/B	74GWVP11b	NA	05/15/08	X	X	X	X	X	X			
	74VP1Aa/9	SWMU 9 A/B	74GWVP1Aa/9	NA	05/16/08	X	X	X	X	X	X			
	74VP1Bb/9	SWMU 9 A/B	74GWVP1Bb/9	NA	05/16/08	X	X	X	X	X	X			
	74SB74	SWMU 9 A/B	74GW74	NA	05/15/08	X		X	X	X	X			
	74SB109	SWMU 9 A/B	74GWVP3a/9	NA	05/17/08	X	X	X	X	X	X			
	74VP3b/9	SWMU 9 A/B	74GWVP3b/9	NA	05/17/08	X	X	X	X	X	X			
	74SB84	SWMU 9 A/B	74GW84	NA	05/17/08	X		X	X	X	X			
	18GW01	SWMU 9 C	74GWVP06	NA	05/18/09	X		X	X	X	X			
	74VP10a/DFM	DFM	74GWVP10a/DFM	NA	05/18/09	X	X	X	X	X	X			
	74VP2b/9	SWMU 9 A/B	74GWVP2b/9	NA	05/18/09	X	X	X	X	X	X			
	74VP1Ab/9	SWMU 9 A/B	74GWVP1Ab/9	NA	05/18/08	X	X	X	X	X	X			
	74VP2a/9	SWMU 9 A/B	74GWVP2a/9	NA	05/19/08	X	X	X	X	X	X			
	74VP10a/JP5	JP 5 HILL	74GWVP10A/JP5	NA	05/19/08	X	X	X	X	X	X			
	74VP1Ba/9	SWMU 9 A/B	74GWVP1Ba/9	NA	05/19/08	X		X	X	X	X			
	9MW02S	SWMU 9 A/B	74GW9MW02S	NA	05/20/08	X	X	X	X	X	X			
			74GW9MW02SD	NA	05/20/08	X	X	X	X	X	X			Duplicate
			74GW9MW02SMS/MSD	NA	05/20/08	X	X	X	X	X	X			Matrix Spike/Matrix Spike Duplicate
	74SB151	JP 5 HILL	74GW151	NA	05/21/08	X		X	X	X	X			
	74VP07b	JP 5 HILL	74GWVP07	NA	05/21/08	X		X	X	X	X			
	74VP6Cb	SWMU 9 C	74GWVP6Cb	NA	05/18/08	X	X	X	X	X	X			
	74VPb6Ca	SWMU 9 C	74GWVPb6Ca	NA	05/20/08	X		X	X	X	X			
	74SB145	SWMU 9 C	74GW145	NA	05/21/08	X		X	X	X	X			
	74VP6Ba	SWMU 9 C	74GWVP6Ba	NA	05/21/08	X		X	X	X	X			
	74VP1982	JP 5 HILL	74GWVP1982	NA	05/28/08	X	X	X	X	X	X			



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**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
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**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Site ID	Area	Sample ID	Sample Depth (ft bgs)	Sample Date	Analysis Requested								Comment
						App IX VOCs	Low Level PAHs	App IX Metals (Dissolved)	App IX Metals (Total)	TPH GRO	TPH DRO	TCLP VOCs/RCRA Metals	General Chemistry	
Groundwater (cont.)	74VP20	JP 5 HILL	74GWVP20	NA	05/28/08	X	X	X	X	X	X			
	74VP19b	JP 5 HILL	74GWVP19b	NA	05/28/08	X				X	X			
	GW04	FUELING PIER	74GW04VP24	NA	05/29/08	X	X	X	X	X	X			
	MW02	FUELING PIER	74GWMW2-2-VP56	NA	05/29/08	X	X	X	X	X	X			
	UGW12	FUELING PIER	74GW12-VP-56	NA	05/29/08	X	X	X	X	X	X			
			74GW12-VP-56D	NA	05/29/08	X	X	X	X	X	X			Duplicate
			74GW12-VP-56MS/MSD	NA	05/29/08	X	X	X	X	X	X			Matrix Spike/Matrix Spike Duplicate
	13GW11	SWMU 9 C	74GWVP6Bb	NA	05/30/08	X		X	X	X	X			
	74SB256	FUELING PIER	74GW256	NA	05/30/08	X	X	X	X	X	X			
	74SB236	FUELING PIER	74GW236	NA	05/31/08	X	X	X	X	X	X			
	74VP08a	DFM	74GWVP08a	NA	05/31/08	X		X	X	X	X			
	74VP08b	DFM	74GWVP08b	NA	05/31/08	X		X	X	X	X			
	74SB246	FUELING PIER	74GW246	NA	05/31/08	X	X	X	X	X	X			
	74SB273	JP 5 HILL	74GW273	NA	05/30/08	X		X	X	X	X			
	74VP05a	JP 5 HILL	74GWVP05a	NA	05/30/08					X				
IDW	74VP05a	JP 5 HILL	74GWVP05a	NA	07/23/08			X	X					
	74VP09b/JP5	JP 5 HILL	74GWVP09b/JP5	NA	07/23/08	X			X	X				
IDW	74IDW01	NA	74IDW01	NA	06/05/08			X				X	X	Soil
	74IDW02	NA	74IDW02	NA	06/05/08	X		X					X	Water

**TABLE 3-2**  
**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM - QA/QC SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Sample ID	Sample Date	Analysis Requested							Comment
			App IX VOCs	App IX SVOCs	Low Level PAHs	Pesticides/PCBs	App IX Metals	TPH GRO	TPH DRO	
Trip Blanks	56TB01	04/28/08	X							
	62TB01	05/31/08	X							
	74TB01	04/28/08						X		
	74TB02	04/30/08	X					X		
	74TB03	05/02/08	X					X		
	74TB04	05/04/08	X					X		
	74TB05	05/04/08	X					X		
	74TB06	05/04/08	X					X		
	74TB07	05/05/08	X							
	74TB08	05/05/08	X							
	74TB09	05/06/08	X							
	74TB10	05/06/08	X							
	74TB11	05/07/08	X					X		
	74TB12	05/07/08	X							
	74TB13	05/13/08	X					X		
	74TB14	05/14/08	X							
	74TB15	05/13/08	X					X		
	74TB16	05/15/08	X					X		
	74TB17	05/13/08	X					X		
	74TB18	05/15/08	X					X		
	74TB19	05/15/08	X					X		
	74TB20	05/15/08	X					X		
	74TB21	05/16/08	X							
	74TB22	05/17/08	X							
	74TB23	05/18/08	X							
	74TB24	05/17/08	X							
	74TB25	05/19/08	X							

**TABLE 3-2**  
**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM - QA/QC SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Sample ID	Sample Date	Analysis Requested							Comment
			App IX VOCs	App IX SVOCs	Low Level PAHs	Pesticides/PCBs	App IX Metals	TPH GRO	TPH DRO	
Trip Blanks (cont.)	74TB26	05/19/08	X							
	74TB27	05/21/08	X					X		
	74TB28	05/19/08	X					X		
	74TB29	05/19/08	X					X		
	74TB30	05/20/08	X					X		
	74TB31	05/21/08	X					X		
	74TB32	05/28/08	X					X		
	74TB33	05/28/08	X					X		
	QATB01	05/02/08	X					X		
Equipment Rinsates	ER01	04/28/08	X	X			X	X	X	Acetate Macro Core Liner
	ER02	04/29/08	X	X			X	X	X	Stainless Steel Spoon
	ER03	04/30/08	X	X			X	X	X	Acetate Macro Core Liner
	ER04	05/01/08	X	X			X			Groundwater Sample Tubing
	ER05	05/02/08	X	X			X			Groundwater Sample Tubing
	ER06	05/03/08	X				X	X	X	Groundwater Sample Tubing
	ER07	05/04/08	X				X	X	X	Groundwater Sample Tubing
	ER08	05/05/08	X				X	X	X	Groundwater Sample Tubing
	ER09	05/06/07	X				X	X	X	Acetate Macro Core Liner
	ER10	05/07/08	X				X	X	X	Groundwater Sample Tubing
	74ER11	05/13/08	X		X		X	X	X	Acetate Macro Core Liner
	74ER12	05/14/08	X		X		X	X	X	Groundwater Sample Tubing
	74ER13	05/15/08	X				X	X	X	Acetate Macro Core Liner
	74ER14	05/16/08	X				X	X	X	Groundwater Sample Tubing
	74ER15	05/17/08	X				X	X	X	Acetate Macro Core Liner
	74ER16	05/18/08	X				X	X	X	Groundwater Sample Tubing
	74ER17	05/19/08	X				X	X	X	Acetate Macro Core Liner

**TABLE 3-2**  
**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM - QA/QC SAMPLES**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Media	Sample ID	Sample Date	Analysis Requested							Comment
			App IX VOCs	App IX SVOCs	Low Level PAHs	Pesticides/PCBs	App IX Metals	TPH GRO	TPH DRO	
<b>Equipment Rinsates (cont.)</b>	74ER18	05/20/08	X		X		X	X	X	Acetate Macro Core Liner
	74ER19	05/21/08	X				X	X	X	Groundwater Sample Tubing
	74ER20	05/28/08	X		X		X	X	X	Groundwater Sample Tubing
	74ER21	05/29/08	X		X		X	X	X	Groundwater Sample Tubing
	ER22	05/29/08	X	X		X	X	X	X	Acetate Macro Core Liner
	ER24	05/31/08	X	X		X	X	X	X	Acetate Macro Core Liner
<b>Field Blank</b>	FB01	05/02/08	X	X			X	X	X	Lab Grade Deionized Water

TABLE 3-3

**METHOD PERFORMANCE LIMITS**  
**APPENDIX IX COMPOUND LIST AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Appendix IX - VOCs	Quantitation Limits*		Method Number (Description)
	Water (µg/L)	Low Soil (µg/kg)	
Acetone	25	50	8260B (5030)(low level)
Acetonitrile	40	200	8260B (5030)(low level)
Acrolein	20	100	8260B (5030)(low level)
Acrylonitrile	20	100	8260B (5030)(low level)
Benzene	1.0	5.0	8260B (5030)(low level)
Bromodichloromethane	1.0	5.0	8260B (5030)(low level)
Bromoform	1.0	5.0	8260B (5030)(low level)
Bromomethane	1.0	10	8260B (5030)(low level)
Carbon Disulfide	1.0	5.0	8260B (5030)(low level)
Carbon Tetrachloride	1.0	5.0	8260B (5030)(low level)
Chlorobenzene	1.0	5.0	8260B (5030)(low level)
Chloroethane	1.0	10	8260B (5030)(low level)
Chloroform	1.0	5.0	8260B (5030)(low level)
Chloromethane	1.0	10	8260B (5030)(low level)
Chloroprene	1.0	5.0	8260B (5030)(low level)
3-Chloro-1-propene	1.0	5.0	8260B (5030)(low level)
1,2-Dibromo-3-chloropropane	1.0	10	8260B (5030)(low level)
Dibromochloromethane	1.0	5.0	8260B (5030)(low level)
1,2-Dibromoethane	1.0	5.0	8260B (5030)(low level)
Dibromomethane	1.0	5.0	8260B (5030)(low level)
trans-1,4-Dichloro-2-butene	2.0	10	8260B (5030)(low level)
Dichlorodifluoromethane	1.0	5.0	8260B (5030)(low level)
1,1-Dichloroethane	1.0	5.0	8260B (5030)(low level)
1,2-Dichloroethane	1.0	5.0	8260B (5030)(low level)
trans-1,2-dichloroethene	1.0	5.0	8260B (5030)(low level)
1,1-Dichloroethene	1.0	5.0	8260B (5030)(low level)
Methylene Chloride	5.0	5.0	8260B (5030)(low level)
1,2-Dichloropropane	1.0	5.0	8260B (5030)(low level)
cis-1,3-Dichloropropene	1.0	5.0	8260B (5030)(low level)
trans-1,3-Dichloropropene	1.0	5.0	8260B (5030)(low level)
Ethyl benzene	1.0	5.0	8260B (5030)(low level)
Ethyl methacrylate	1.0	5.0	8260B (5030)(low level)
2-Hexanone	10	25	8260B (5030)(low level)
Iodomethane	5.0	5.0	8260B (5030)(low level)
Isobutanol	40	200	8260B (5030)(low level)
Methacrylonitrile	20	100	8260B (5030)(low level)
2-Butanone	10	25	8260B (5030)(low level)
Methyl methacrylate	1.0	5.0	8260B (5030)(low level)
4-Methyl-2-pentanone	10	25	8260B (5030)(low level)

TABLE 3-3

**METHOD PERFORMANCE LIMITS**  
**APPENDIX IX COMPOUND LIST AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Appendix IX - VOCs (Cont.)	Quantitation Limits*		Method Number (Description)
	Water (µg/L)	Low Soil (µg/kg)	
Pentachloroethane	5.0	25	8260B (5030)(low level)
Propionitrile	20	100	8260B (5030)(low level)
Stryene	1.0	5.0	8260B (5030)(low level)
1,1,1,2-Tetrachloroethane	1.0	5.0	8260B (5030)(low level)
1,1,2,2-Tetrachloroethane	1.0	5.0	8260B (5030)(low level)
Tetrachloroethene	1.0	5.0	8260B (5030)(low level)
Toluene	1.0	5.0	8260B (5030)(low level)
1,1,1-Trichloroethane	1.0	5.0	8260B (5030)(low level)
1,1,2-Trichloroethane	1.0	5.0	8260B (5030)(low level)
Trichloroethene	1.0	5.0	8260B (5030)(low level)
Trichlorofluoromethane	1.0	5.0	8260B (5030)(low level)
1,2,3-Trichloropropane	1.0	5.0	8260B (5030)(low level)
Vinyl Acetate	2.0	10	8260B (5030)(low level)
Vinyl Chloride	1.0	10	8260B (5030)(low level)
Xylene	2.0	10	8260B (5030)(low level)
Low Level PAHs	Quantitation Limits*		Method Number
	Water (µg/L)	Low Soil (µg/kg)	
Acenaphthene	0.2	6.7	8270C
Acenaphthylene	0.2	6.7	8270C
Anthracene	0.2	6.7	8270C
Benzo(a)anthracene	0.2	6.7	8270C
Benzo(b)fluoranthene	0.2	6.7	8270C
Benzo(k)fluoranthene	0.2	6.7	8270C
Benzo(g,h,i)perylene	0.2	6.7	8270C
Benzo(a)pyrene	0.2	6.7	8270C
Chrysene	0.2	6.7	8270C
Dibenzo(a,h)anthracene	0.2	6.7	8270C
Fluoranthene	0.2	6.7	8270C
Fluorene	0.2	6.7	8270C
Indeno(1,2,3-cd)pyrene	0.2	6.7	8270C
1-Methylnaphthalene	0.2	6.7	8270C
2-Methylnaphthalene	0.2	6.7	8270C
Naphthalene	0.2	6.7	8270C
Phenanthrene	0.2	6.7	8270C
Pyrene	0.2	6.7	8270C

TABLE 3-3

**METHOD PERFORMANCE LIMITS**  
**APPENDIX IX COMPOUND LIST AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Total Petroleum Hydrocarbons	Quantitation Limits*		Method Number
	Water (µg/L)	Low Soil (µg/kg)	
TPH DRO	100	3300	8015B
TPH GRO	50	250	8015B
Appendix IX - Metals (Total and Dissolved)	Quantitation Limits*		Method Number
	Water (µg/L)	Low Soil (mg/kg)	
Antimony	20	2.0	6010B (Inductively Coupled Plasma)
Arsenic	10	1.0	6010B (Inductively Coupled Plasma)
Barium	10	1.0	6010B (Inductively Coupled Plasma)
Chromium	10	1.0	6010B (Inductively Coupled Plasma)
Cobalt	10	1.0	6010B (Inductively Coupled Plasma)
Copper	20	2.0	6010B (Inductively Coupled Plasma)
Lead	5.0	0.5	6010B (Inductively Coupled Plasma)
Mercury	0.2	0.02	7470A/7471A (Cold Vapor AA)
Nickel	40	4.0	6010B (Inductively Coupled Plasma)
Selenium	10	1.0	6010B (Inductively Coupled Plasma)
Silver	10	1.0	6010B (Inductively Coupled Plasma)
Thallium	10	1.0	6010B (Inductively Coupled Plasma)
Tin	10	5.0	6010B (Inductively Coupled Plasma)
Vanadium	10	1.0	6010B (Inductively Coupled Plasma)
Zinc	20	2.0	6010B (Inductively Coupled Plasma)
RCRA Metals	Quantitation Limits*		Method Number (Description)
	Water (µg/L)	Low Soil (µg/kg)	
Arsenic	1	10.0	6010B (3050/3010) (Inductively Coupled Plasma)
Barium	1	10.0	6010B (3050/3010) (Inductively Coupled Plasma)
Cadmium	0.5	5.00	6010B (3050/3010) (Inductively Coupled Plasma)
Chromium	1	10.0	6010B (3050/3010) (Inductively Coupled Plasma)
Lead	0.5	5.0	6010B (3050/3010) (Inductively Coupled Plasma)
Mercury	0.02	0.20	7471A/7470A (Cold Vapor AA)
Selenium	1	10.0	6010B (3050/3010) (Inductively Coupled Plasma)
Silver	1	10.0	6010B (3050/3010) (Inductively Coupled Plasma)

**Notes:**

\* Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis, will be higher.

µg/L - microgram per liter

µg/kg - microgram per kilogram

mg/kg - milligram per kilogram

VOCs - Volatile Organic Compounds

PAHs - Polynuclear Aromatic Hydrocarbons

RCRA - Resource Conservation and Recovery Act

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TABLE 3-4

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - TRIP BLANKS**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	56TB01	62TB01	74TB01	74TB02	74TB03	74TB04	74TB05	74TB06
Date	4/29/2008	5/31/2008	4/28/2008	4/30/2008	5/2/2008	5/4/2008	5/4/2008	5/4/2008
<b>Volatile Organic Compounds (ug/L)</b>								
4-Methyl-2-pentanone (MIBK)	0.6 R	0.6 U	NA	0.6 U	0.6 UJ	0.6 R	0.6 U	0.6 R
Chloromethane	0.28 R	0.28 UJ	NA	1.2 J	0.28 UJ	0.28 R	0.28 U	0.28 R
<b>TPH GRO (ug/L)</b>								
<i>Not Detected</i>								

**Notes:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation  
U - Undetected at the Limit of Detection.  
UJ - Reported quantitation limit is qualified as estimated  
R - Data is rejected and not usable  
NA - Not Analyzed  
ug/L - microgram per liter



TABLE 3-4

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - TRIP BLANKS**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	74TB07	74TB08	74TB09	74TB10	74TB11	74TB12	74TB13	74TB14
Date	5/5/2008	5/5/2008	5/6/2008	5/6/2008	5/7/2008	5/7/2008	5/13/2008	5/14/2008
<b>Volatile Organic Compounds (ug/L)</b>								
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Chloromethane	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
<b>TPH GRO (ug/L)</b>								
<i>Not Detected</i>								

**Notes:**

- J - Estimated: The analyte was positively identified; the quantitation is an estimation
- U - Undetected at the Limit of Detection.
- UJ - Reported quantitation limit is qualified as estimated
- R - Data is rejected and not usable
- NA - Not Analyzed
- ug/L - microgram per liter

TABLE 3-4

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - TRIP BLANKS**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	74TB15	74TB16	74TB17	74TB18	74TB19	74TB20	74TB21	74TB22
Date	5/13/2008	5/15/2008	5/13/2008	5/15/2008	5/15/2008	5/15/2008	5/16/2008	5/17/2008
<b>Volatile Organic Compounds (ug/L)</b>								
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.9 J	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Chloromethane	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
<b>TPH GRO (ug/L)</b>								
<i>Not Detected</i>								

**Notes:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation  
U - Undetected at the Limit of Detection.  
UJ - Reported quantitation limit is qualified as estimated  
R - Data is rejected and not usable  
NA - Not Analyzed  
ug/L - microgram per liter

**TABLE 3-4**

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - TRIP BLANKS  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	74TB23	74TB24	74TB25	74TB26	74TB27	74TB28	74TB29	74TB30
Date	5/18/2008	5/17/2008	5/19/2008	5/19/2008	5/21/2008	5/19/2008	5/19/2008	5/20/2008
<b>Volatile Organic Compounds (ug/L)</b>								
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Chloromethane	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ
<b>TPH GRO (ug/L)</b>								
<i>Not Detected</i>								

**Notes:**

- J - Estimated: The analyte was positively identified; the quantitation is an estimation
- U - Undetected at the Limit of Detection.
- UJ - Reported quantitation limit is qualified as estimated
- R - Data is rejected and not usable
- NA - Not Analyzed
- ug/L - microgram per liter

**TABLE 3-4**

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - TRIP BLANKS  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	74TB31	74TB32	74TB33	QATB01
Date	5/21/2008	5/28/2008	5/28/2008	5/2/2008
<b>Volatile Organic Compounds (ug/L)</b>				
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U
Chloromethane	0.28 UJ	0.28 U	0.28 U	0.28 U
<b>TPH GRO (ug/L)</b>				
<i>Not Detected</i>				

**Notes:**

- J - Estimated: The analyte was positively identified; the quantitation is an estimation
- U - Undetected at the Limit of Detection.
- UJ - Reported quantitation limit is qualified as estimated
- R - Data is rejected and not usable
- NA - Not Analyzed
- ug/L - microgram per liter

TABLE 3-5

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - EQUIPMENT RINSATES AND FIELD BLANK**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Sample ID Date	ER01 4/28/2008	ER02 4/29/2008	ER03 4/30/2008	ER04 5/1/2008	ER05 5/2/2008	ER06 5/3/2008	ER07 5/4/2008	ER08 5/5/2008
<b>Volatile Organic Compounds (ug/L)</b>									
2-Butanone (MEK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Chloroform		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Methylene Chloride		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Toluene		0.31 U	0.31 U	0.31 U	0.79 J	0.9 J	0.31 U	0.31 U	0.31 U
<b>Semivolatile Organic Compounds (ug/L)</b>									
1,4-Dichlorobenzene		0.21 J	0.17 J	0.17 J	0.12 UJ	0.15 UJ	NA	NA	NA
Acetophenone		0.47 J	0.42 J	0.39 J	0.35 J	0.35 J	NA	NA	NA
Bis(2-ethylhexyl) phthalate		0.39 J	12	0.34 UJ	0.34 UJ	0.45 UJ	NA	NA	NA
Butyl benzyl phthalate		0.16 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.22 UJ	NA	NA	NA
Diethyl phthalate		0.42 J	0.3 J	0.27 J	0.18 UJ	0.24 UJ	NA	NA	NA
Di-n-butyl phthalate		1.6 J	1.3 J	1.2 J	0.32 J	0.42 J	NA	NA	NA
Naphthalene		0.048 UJ	0.049 UJ	0.049 UJ	0.049 UJ	0.064 UJ	NA	NA	NA
Phenol		0.17 J	0.14 UJ	0.14 UJ	0.14 UJ	0.18 UJ	NA	NA	NA
<b>Metals (mg/L)</b>									
Antimony		0.36 UJ	0.36 UJ	0.36 UJ	0.36 UJ	0.36 UJ	0.36 U	0.36 U	0.36 U
Arsenic		0.28 UJ	0.28 UJ	0.28 UJ	0.28 UJ	0.28 UJ	0.46 J	0.33 J	0.41 J
Barium		2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 U	14
Cadmium		0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 J
Chromium		0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.6 U	0.7 J
Cobalt		0.029 UJ	0.029 UJ	0.029 UJ	0.029 UJ	0.029 UJ	0.029 U	0.029 U	0.087 J
Copper		2.1 J	1.9 J	2.1 J	1.2 UJ	1.2 UJ	3.6 J	5.2	15
Lead		0.48 J	0.15 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.15 U	0.15 U	0.83 J
Nickel		0.32 UJ	0.32 UJ	0.32 UJ	0.32 UJ	0.32 UJ	0.32 U	0.32 U	0.95 J
Tin		1.1 J	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ	0.9 U	0.9 U	0.9 U
Vanadium		0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	1.2 J	1.1 J	1.5 J
Zinc		6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 U	6.5 U	40 J

TABLE 3-5

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - EQUIPMENT RINSATES AND FIELD BLANK**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Sample ID	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08
	Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008	5/5/2008
<b>TPH DRO/GRO (mg/L)</b>									
Diesel Range Organics		0.12	0.03 U	0.028 U	NA	NA	0.03 U	0.028 U	0.028 U
Gasoline Range Organics		0.012 U	0.012 U	0.012 U	NA	NA	0.012 U	0.012 U	0.012 U

**Notes:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

NA - Not Analyzed

ft bgs - feet below ground surface

mg/L - milligram per liter

ug/L - microgram per liter

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

TABLE 3-5

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - EQUIPMENT RINSATES AND FIELD BLANK**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Sample ID Date	ER09 5/6/2008	ER10 5/7/2008	74ER11 5/13/2008	74ER12 5/14/2008	74ER13 5/15/2008	74ER14 5/16/2008	74ER15 5/17/2008	74ER16 5/18/2008
<b>Volatile Organic Compounds (ug/L)</b>									
2-Butanone (MEK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Chloroform		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Methylene Chloride		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Toluene		0.31 U	0.31 U	0.31 U	0.52 J	3	3.6	2.3	1.9
<b>Semivolatile Organic Compounds (ug/L)</b>									
1,4-Dichlorobenzene		NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone		NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate		NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate		NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate		NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate		NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	0.047 U	0.049 U	NA	NA	NA	NA
Phenol		NA	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/L)</b>									
Antimony		0.36 U	0.36 U	0.54 J	0.67 J	0.55 J	0.66 J	0.36 U	0.36 U
Arsenic		0.52 J	0.35 J	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Barium		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Cadmium		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Chromium		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.68 J
Cobalt		0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.037 J
Copper		3.9 J	1.9 J	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	3.9 J
Lead		0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Nickel		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Tin		0.98 J	0.9 U	1.2 J	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Vanadium		1.7 J	0.8 U	1.1 J	0.99 J	1.1 J	1.1 J	0.8 U	0.94 J
Zinc		7.3 J	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U

TABLE 3-5

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - EQUIPMENT RINSATES AND FIELD BLANK**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Sample ID	ER09	ER10	74ER11	74ER12	74ER13	74ER14	74ER15	74ER16
	Date	5/6/2008	5/7/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008
<b>TPH DRO/GRO (mg/L)</b>									
Diesel Range Organics		0.028 U	0.028 U	0.027 U	0.028 U	0.027 U	0.027 U	NA	NA
Gasoline Range Organics		0.012 U	0.012 U	0.012 U	0.012 U	0.014 J	0.014 J	NA	NA

**Notes:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

NA - Not Analyzed

ft bgs - feet below ground surface

mg/L - milligram per liter

ug/L - microgram per liter

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons



TABLE 3-5

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - EQUIPMENT RINSATES AND FIELD BLANK**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Sample ID Date	74ER17 5/19/2008	74ER18 5/20/2008	74ER19 5/21/2008	74ER20 5/28/2008	74ER21 5/29/2008	ER22 5/30/2008	ER24 5/31/2008	FB01 5/2/2008
<b>Volatile Organic Compounds (ug/L)</b>									
2-Butanone (MEK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.1 J	0.69 J
Acetone		5 U	8.4 J	5 U	6.7 J	7 J	5 U	6.6 J	5 U
Benzene		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1.2	0.32 U
Chloroform		0.29 U	0.32 J	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Methylene Chloride		1 U	1.1 J	1 U	1 U	1 U	1 U	1 U	1 U
Styrene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.38 J	0.36 U
Toluene		1.2	0.31 U	0.49 J	0.31 U	0.31 U	0.31 U	0.5 J	0.31 U
<b>Semivolatile Organic Compounds (ug/L)</b>									
1,4-Dichlorobenzene		NA	NA	NA	NA	NA	0.12 U	0.49 UJ	0.16 J
Acetophenone		NA	NA	NA	NA	NA	0.31 J	0.49 UJ	0.38 J
Bis(2-ethylhexyl) phthalate		NA	NA	NA	NA	NA	0.34 U	0.91 UJ	0.34 UJ
Butyl benzyl phthalate		NA	NA	NA	NA	NA	0.42 J	0.72 UJ	0.17 UJ
Diethyl phthalate		NA	NA	NA	NA	NA	0.18 U	0.49 UJ	0.33 J
Di-n-butyl phthalate		NA	NA	NA	NA	NA	0.63 J	0.97 J	1.2 J
Naphthalene		NA	0.049 U	NA	0.049 U	0.049 U	0.049 U	0.065 J	0.049 UJ
Phenol		NA	NA	NA	NA	NA	0.14 U	0.14 UJ	0.14 UJ
<b>Metals (mg/L)</b>									
Antimony		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 UJ
Arsenic		0.28 U	0.28 U	0.28 U	0.44 U	0.48 U	0.48 J	0.52 J	0.28 UJ
Barium		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
Cadmium		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ
Chromium		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 UJ
Cobalt		0.029 U	0.029 U	0.077 J	0.029 U	0.029 U	0.029 U	0.029 U	0.029 UJ
Copper		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	2.1 J
Lead		0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.38 J
Nickel		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 UJ
Tin		0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	1.6 J	0.9 UJ
Vanadium		0.8 U	0.8 U	0.86 J	1.3 J	1.1 J	1.3 J	0.8 U	0.8 UJ
Zinc		6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 UJ

TABLE 3-5

**SUMMARY OF DETECTED RESULTS - QA/QC SUMMARY - EQUIPMENT RINSATES AND FIELD BLANK**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Sample ID	74ER17	74ER18	74ER19	74ER20	74ER21	ER22	ER24	FB01
	Date	5/19/2008	5/20/2008	5/21/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	5/2/2008
<b>TPH DRO/GRO (mg/L)</b>									
Diesel Range Organics		NA	0.068 U	0.071 U	0.11	0.051 J	0.028 U	0.028 J	0.028 UJ
Gasoline Range Organics		NA	0.0069 U	0.0069 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U

**Notes:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

NA - Not Analyzed

ft bgs - feet below ground surface

mg/L - milligram per liter

ug/L - microgram per liter

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

TABLE 5-1

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential</b>	<i>Regional Screening Levels Industrial</i>	<b>Selected Ecological Surface Soil Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB01 74SB01-00 4/28/2008 0.0-1.0	74SB13 74SB13-00 4/30/2008 0.0-1.0	74SB13 74SB13-00D 4/30/2008 0.0-1.0	74SB22 74SB22-00 5/3/2008 0.0-1.0	74SB34 74SB34-00 5/1/2008 0.0-1.0	74SB51 74SB51-00 5/3/2008 0.0-1.0	74SB61 74SB61-00 5/3/2008 0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	21 J	400 J	450 J	210 J	830 J	410 J	130 J
Iodomethane	NE	NE	NE	NE	1.2 U	1.4 J	1.7 J	1 J	3.4 J	1.5 J	0.72 U
<b>LLPAHs (ug/kg)</b>											
Benzo[a]pyrene	15	210	NE	NE	8 U	NA	NA	0.96 J	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(8)</sup>	3.17	0.15 UJ	0.14 U	0.12 U	0.2 U	0.23 J	0.095 UJ	0.08 UJ
Arsenic	0.39	1.6	18 <sup>(4)</sup>	2.65	<u>2.7</u>	<b>1.8</b>	<b>1.5</b>	<b>2.3</b>	<b>3.3</b>	<b>1.3</b>	<b>0.5 J</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	199	65 J	96 J	63 J	120	41	93	37
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.59	0.17	0.24	0.22	0.35	0.21	0.2	0.13
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	1.02	0.19	0.13	0.11	0.09 J	0.14 J	0.19	0.075 J
Chromium	280	1,400	57 <sup>(7)</sup>	49.8	28 J	25	22	41	40 J	36 R	5.1 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	46.2	<b>25</b>	<b>22</b>	<b>18</b>	<b>17</b>	<b>8.2</b>	<b>21</b>	<b>21</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	168	<b>93</b>	<b>93</b>	<b>88</b>	<b>150</b>	<b>150</b>	<b>79</b>	<b>77</b>
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	22	20	6.3 J	5.4 J	6.8	10 J	5.7	0.42
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.109	0.005 U	0.05	0.046	0.059	0.1 J	0.007 J	0.005 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	20.7	19	13	11	9.1	7.9	14	5.9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	1.48	0.16 J	<b>0.6</b>	<b>0.6</b>	<b>0.9</b>	<b>1.6</b>	0.21 J	0.13 UJ
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.05 U	0.054 J	0.22 J	0.051 U	0.1 J	0.032 J	0.02 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(6)</sup>	NE	0.13 U	0.14 U	0.13 U	0.19 J	0.18 U	0.15 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(9)</sup>	259	<b>170</b>	<b>220</b>	<b>210</b>	<b>160</b>	<b>440 J</b>	<b>140</b>	<b>160</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	115	86	64	58	43	46	65 J	59 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	88	11	10	4 J	28 J	15	4.6
Gasoline Range Organics	NE	NE	NE	NE	41 J	0.25 J	0.4 J	0.13 J	1.5 J	0.46	0.062 J
Total TPH	25 <sup>(10)</sup>	NE	NE	NE	<b>129 J</b>	11.25 J	J	4.13 J	<b>29.5 J</b>	15.46	4.662 J

**TABLE 5-1**

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated, The analyte was positively identified; the quantitation is an estimation

R - Result is rejected

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

ft bgs - feet below ground surface

ug/kg - microgram per kilogram

mg/kg - milligram per kilogram

NA - Not Analyzed

NE - Not Established

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

- (1) NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) (Baker, 2008)
- (2) Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- (3) USEPA Action Level for lead in soils
- (4) Plant-based ecological soil screening level (USEPA, 2005a [arsenic]; USEPA, 2005b [cadmium]; USEPA, 2005c [cobalt]; USEPA, 2005d [lead]; USEPA, 2007a [copper]; USEPA, 2007b [nickel]; USEPA, 2007c [selenium])
- (5) Invertebrate-based ecological soil screening level (USEPA, 2005h [antimony]; USEPA, 2005f [barium]; USEPA, 2005g [beryllium]; USEPA, 2007d [zinc])
- (6) Toxicological threshold for earthworms (Efroymson et al., 1997a)
- (7) Reproduction-based MATC for *Eisenia andrei* (earthworm)
- (8) Ecological soil screening level (<http://www.epa.gov/ecotox/ecossl/>)
- (9) Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10
- (10) Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07

**TABLE 5-1**

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

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USEPA. 2005h. Ecological Soil Screening Levels for Antimony (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-61.

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB01 74SB01-02 4/28/2008 3.0 - 5.0	74SB01 74SB01-04 4/28/2008 7.0 - 9.0	74SB02 74SB02-03 4/28/2008 5.0 - 7.0	74SB02 74SB02-05 4/28/2008 9.0 - 11.0	74SB04 74SB04-01 4/28/2008 1.0 - 3.0	74SB04 74SB04-04 4/28/2008 7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.55 UJ	0.68 UJ	0.58 UJ	0.63 UJ	0.49 UJ	0.61 UJ
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	21 J	5.2 R	23 J	4.9 R	5.8 J	4.7 R
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	1.8 J	0.61 U	0.52 U	0.57 U	0.44 U	0.55 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.7 U	0.87 U	0.74 U	0.81 U	0.63 U	0.79 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.48 U	0.6 U	0.51 U	0.56 U	0.43 U	0.54 U
Chloromethane	1,700	8,400	NE	NE	0.68 U	0.85 U	0.72 U	0.79 U	0.62 U	0.76 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.1 U	2.6 U	2.2 U	2.4 U	1.9 U	2.4 U
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.72 U	0.89 U	0.76 U	0.83 U	0.65 U	0.81 U
Iodomethane	NE	NE	NE	NE	0.96 U	1.2 U	1 U	1.1 U	0.87 U	1.1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	66 R	82 R	130 J	77 R	60 R	74 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.5 U	4.4 U	3.8 U	4.1 U	3.2 U	4 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	1.5 U	1.6 U	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	2.1 U	2.3 U	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	2.1 U	2.3 U	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	2.1 U	2.3 U	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	2.1 U	2.3 U	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	0.82 U	0.9 U	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	0.95 U	1 U	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	2.1 U	2.3 U	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	1.2 U	1.4 U	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	0.76 U	0.83 U	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	0.74 U	0.8 U	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	2.1 U	2.3 U	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	0.96 U	1.1 U	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB01 74SB01-02 4/28/2008 3.0 - 5.0	74SB01 74SB01-04 4/28/2008 7.0 - 9.0	74SB02 74SB02-03 4/28/2008 5.0 - 7.0	74SB02 74SB02-05 4/28/2008 9.0 - 11.0	74SB04 74SB04-01 4/28/2008 1.0 - 3.0	74SB04 74SB04-04 4/28/2008 7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	1.5 U	1.6 U	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	0.75 U	0.82 U	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	2.1 U	2.3 U	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	2.1 U	2.3 U	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.2</u>	<b>1.5</b>	<u>4.9</u>	<u>2.2</u>	<b>1.2</b>	<u>3.4</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	61 J	80 J	25 J	23 J	49 J	18 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.28	0.088 U	0.17	0.13	0.26	0.14
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.058 J	0.04 U	0.036 U	0.042 J	0.035 U	0.033 U
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	24 J	12 J	38 J	23 J	22 J	34 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>20</b>	<b>3.9</b>	<b>11</b>	<b>6.9</b>	<b>14</b>	<b>4.7</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	95	82	150	87	67	100
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>14</u>	1.2	4.6	2.7	3.3	3.6
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.036 J	0.037 J	0.051	0.0051 U	0.05	<u>0.41</u>
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	12	21	7	5	7	4.1
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.5 J	0.62 J	1.2	0.96	0.28 J	1.1
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.071 U	0.077 U	0.048 U	0.057 U	0.029 U	0.051 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.15 U	0.14 U	0.15 U	0.23 J	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>270</b>	<b>240</b>	<b>430</b>	<b>290</b>	<b>180</b>	<b>330</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	54	28	35	29	63	27
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	14	4.3 U	2.6 U	3.5 U	2.1 U	2.9 U
Gasoline Range Organics	NE	NE	NE	NE	2.1	0.073 U	0.067 U	0.074 U	0.055 U	0.06 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	16.1	4.373 U	2.667 U	3.574 U	2.155 U	2.96 U

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB05 74SB05-01 4/29/2008 1.0 - 3.0	74SB05 74SB05-01D 4/29/2008 1.0 - 3.0	74SB05 74SB05-02 4/29/2008 3.0 - 5.0	74SB06 74SB06-01 4/29/2008 1.0 - 3.0	74SB06 74SB06-02 4/29/2008 3.0 - 5.0	74SB07 74SB07-02 4/29/2008 3.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.59 U	55 UJ	0.69 U	0.56 U	110 UJ	0.69 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	15 R	430 R	24 R	20 R	1,800 R	91 R
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.52 U	49 U	0.62 U	0.5 U	95 U	1.2 J
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.75 U	71 U	0.89 U	0.72 U	140 U	0.88 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.51 U	48 U	0.61 U	0.49 U	93 U	0.6 U
Chloromethane	1,700	8,400	NE	NE	0.73 U	69 U	0.86 U	0.7 U	130 U	0.86 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.3 U	210 U	2.7 U	2.2 U	410 U	2.7 U
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.77 U	73 U	0.91 U	0.74 U	140 U	0.91 U
Iodomethane	NE	NE	NE	NE	1 U	97 U	1.2 U	0.99 U	190 U	1.2 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	71 R	6,700 R	84 R	68 R	13,000 R	83 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.8 UJ	360 U	4.5 UJ	3.7 UJ	690 U	4.5 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA



TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB05 74SB05-01 4/29/2008 1.0 - 3.0	74SB05 74SB05-01D 4/29/2008 1.0 - 3.0	74SB05 74SB05-02 4/29/2008 3.0 - 5.0	74SB06 74SB06-01 4/29/2008 1.0 - 3.0	74SB06 74SB06-02 4/29/2008 3.0 - 5.0	74SB07 74SB07-02 4/29/2008 3.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.2</u>	<u>2.1</u>	<u>2.8</u>	<u>2.1</u>	<u>4.8</u>	<u>2.1</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	47 J	68 J	74 J	55 J	53 J	26 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.21	0.19	0.25	0.23	0.24	0.27
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.16 J	0.22 J	0.22 J	0.23 J	0.25 J	0.035 UJ
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	29	38	62	36	29	29
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>24 J</b>	<b>29 J</b>	<b>27</b>	<b>27</b>	<b>26</b>	<b>26</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	95	110	99	110	100	120
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	22 J	12 J	27 J	17 J	24 J	3.5 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.004 U	0.0043 U	0.0047 J	0.0042 U	0.0041 U	0.025
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	20	21	22	21	19	8.6
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.2 J	0.13 U	0.22 J	0.19 J	0.29 J	0.76
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.057 J	0.061 J	0.053 J	0.056 J	0.14 J	0.042 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U	0.2 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>170</b>	<b>170</b>	<b>200</b>	<b>190</b>	<b>170</b>	<b>330</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>94</u>	<u>89</u>	87	<u>96</u>	72	52
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	14	10	2.9 U	3.6 U	100	2.9 U
Gasoline Range Organics	NE	NE	NE	NE	0.055 UJ	340 J	36 J	0.096 J	350 J	0.065 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	14	<b>350 J</b>	<b>36 J</b>	0.096 J	<b>450 J</b>	2.965 U

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB07 74SB07-04 4/29/2008 7.0 - 9.0	74SB09 74SB09-02 4/29/2008 3.0 - 5.0	74SB09 74SB09-05 4/29/2008 9.0 - 11.0	74SB10 74SB10-02 4/29/2008 3.0 - 5.0	74SB10 74SB10-04 4/29/2008 7.0 - 9.0	74SB11 74SB11-02 4/30/2008 3.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.57 U	0.56 U	5.2	0.51 U	0.52 U	0.54 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	63 R	38 R	40 R	50 R	24 R	34 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.51 U	0.5 U	0.47 U	0.46 U	0.47 U	0.78 J
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.74 U	0.71 U	0.68 U	0.65 U	0.67 U	0.69 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.5 U	0.49 U	0.46 U	0.45 U	0.46 U	0.47 U
Chloromethane	1,700	8,400	NE	NE	0.72 U	0.69 U	0.66 U	0.63 U	0.65 U	0.67 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.2 U	2.1 U	2 U	2 U	2 U	2.1 U
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.76 U	0.73 U	0.69 U	0.67 U	0.69 U	0.71 U
Iodomethane	NE	NE	NE	NE	1 U	0.97 U	0.93 U	0.89 U	0.92 U	0.95 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	70 R	67 R	64 R	62 R	63 R	65 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.7 UJ	3.6 UJ	3.4 UJ	3.3 UJ	3.4 UJ	3.5 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB07 74SB07-04 4/29/2008 7.0 - 9.0	74SB09 74SB09-02 4/29/2008 3.0 - 5.0	74SB09 74SB09-05 4/29/2008 9.0 - 11.0	74SB10 74SB10-02 4/29/2008 3.0 - 5.0	74SB10 74SB10-04 4/29/2008 7.0 - 9.0	74SB11 74SB11-02 4/30/2008 3.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b><u>1.6</u></b>	<b><u>1.8</u></b>	<b><u>1.4</u></b>	<b><u>1.9</u></b>	<b><u>1.4</u></b>	<b><u>1.7</u></b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	24 J	61 J	93 J	51 J	120 J	130 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.23	0.38	0.26	0.21	0.3	0.36
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.048 J	0.056 J	0.051 J	0.21 J	0.13 J	0.13 J
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	22	23	20	36	21	22
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>13</b>	<b>18</b>	<b>25</b>	<b><u>27</u></b>	<b><u>31</u></b>	<b><u>49</u></b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	100	110	94	100	100	110
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.6 J	2.5 J	2.7 J	<b><u>14</u></b> J	2.6 J	2.7 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.027	0.038	0.016 J	0.0044 U	0.058	0.035
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	8.3	11	8.4	21	9.5	13
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.51 J	0.37 J	0.39 J	0.2 J	0.4 J	0.43 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.053 J	0.024 J	0.036 J	0.039 J	0.036 J	0.035 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.18 J	0.13 U	0.14 U	0.13 U	0.15 J	0.18 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>270</b>	<b>320</b>	<b>310</b>	<b>200</b>	<b>330</b>	<b>300</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	51	50	40	80	50	56
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.7 U	3.2 U	3.1 U	2.3 U	2 U	2.3 U
Gasoline Range Organics	NE	NE	NE	NE	0.057 U	0.062 U	0.057 U	0.059 J	0.059 U	0.055 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	1.757 U	3.262 U	3.157 U	0.059 J	2.059 U	2.355 U

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB11 74SB11-04 4/30/2008 7.0 - 9.0	74SB11 74SB11-04D 4/30/2008 7.0 - 9.0	74SB12 74SB12-03 4/30/2008 5.0 - 7.0	74SB12 74SB12-05 4/30/2008 9.0 - 11.0	74SB13 74SB13-02 4/30/2008 3.0 - 5.0	74SB13 74SB13-04 4/30/2008 7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.62 U	0.59 U	0.53 U	0.55 U	0.56 U	0.59 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	40 J	50 R	160 J	55 J	170 J	120 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.56 U	0.53 U	0.48 U	0.62 J	0.69 J	0.53 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.8 U	0.75 U	0.68 U	0.71 U	0.71 U	0.76 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.55 U	0.52 U	0.47 U	0.49 U	0.49 U	0.52 U
Chloromethane	1,700	8,400	NE	NE	0.78 U	0.73 U	0.67 U	0.69 U	0.69 U	0.74 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 U	2.3 U	2.1 U	2.1 UJ	2.2 U	2.3 U
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.82 U	0.77 U	0.7 U	0.73 U	0.73 U	0.78 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.9 J	0.94 U	0.97 U	0.98 U	1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	76 R	71 R	65 R	67 R	68 R	72 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	4.1 U	3.8 UJ	3.5 UJ	3.6 UJ	3.6 U	3.9 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	1.6 U	1.5 U	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	2.3 U	2.1 U	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	2.3 U	2.1 U	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	2.3 U	2.1 U	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	2.3 U	2.1 U	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	0.88 U	0.8 U	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	1 U	0.92 U	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	2.3 U	2.1 U	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	1.3 U	1.2 U	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	1 J	0.74 U	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	0.79 U	0.72 U	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	2.3 U	2.1 U	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	1 U	2.2 J	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB11 74SB11-04 4/30/2008 7.0 - 9.0	74SB11 74SB11-04D 4/30/2008 7.0 - 9.0	74SB12 74SB12-03 4/30/2008 5.0 - 7.0	74SB12 74SB12-05 4/30/2008 9.0 - 11.0	74SB13 74SB13-02 4/30/2008 3.0 - 5.0	74SB13 74SB13-04 4/30/2008 7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	1.6 U	1.5 U	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	0.8 U	0.73 U	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	2.3 U	2.1 U	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	2.3 U	2.1 U	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.2</u>	<u>2</u>	<u>3.9</u>	<b>1.4</b>	<u>2.1</u>	<u>2.7</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	31 J	24 J	63 J	32 J	<u>250</u> J	36 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.15	0.22	0.23	0.28	0.24	0.19
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.083 J	0.053 J	0.08 J	0.034 UJ	0.13 J	0.042 J
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	19 J	36 J	40	23	38	39
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>11 J</b>	<b>6.9 J</b>	<b>14</b>	<b>13</b>	<u>34</u>	<b>5.3</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	<u>260</u> J	160 J	230	100	100	140
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.8 J	3.2 J	5.9 J	2.4 J	4 J	4.9 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.042 R	0.11 R	<u>0.11</u>	0.036	0.065	<u>0.13</u>
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	13 J	8.2 J	8.2	9.1	9	6.2
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.91	0.73	0.9	0.49 J	1.4	1.2
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.042 J	0.067 J	0.048 J	0.042 J	0.1 J	0.055 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.16 J	0.17 J	0.13 U	0.32 J	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>400 J</b>	<b>280 J</b>	<u>510</u>	<b>270</b>	<b>270</b>	<b>310</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	70	77	41	48	57	31
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.2 U	1.5 U	2.2 U	1.9 U	4 U	1.9 U
Gasoline Range Organics	NE	NE	NE	NE	0.064 U	0.06 U	0.065 J	0.061 J	0.11 J	0.072 J
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	1.264 U	1.56 U	0.065 J	0.061 J	0.11 J	0.072 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB14 74SB14-02 4/30/2008 3.0 - 5.0	74SB14 74SB14-03 4/30/2008 5.0 - 7.0	74SB15 74SB15-02 4/30/2008 3.0 - 5.0	74SB15 74SB15-03 4/30/2008 5.0 - 7.0	74SB16 74SB16-02 4/30/2008 3.0 - 5.0	74SB16 74SB16-04 4/30/2008 7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.58 U	0.62 U	0.52 U	0.6 U	0.61 U	26 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	220 J	230 J	77 J	51 J	68 R	920 R
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.52 U	0.55 U	0.46 U	0.53 U	1 J	23 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.75 U	0.79 U	0.66 U	0.76 U	0.78 U	33 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.51 U	0.54 U	0.46 U	0.52 U	0.53 U	23 U
Chloromethane	1,700	8,400	NE	NE	0.72 U	0.77 U	0.65 U	0.74 U	0.76 U	32 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.2 U	2.4 U	2 U	2.3 U	2.4 U	99 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.77 U	0.81 U	0.68 U	0.78 U	0.8 U	34 U
Iodomethane	NE	NE	NE	NE	1.1 J	5.7	0.91 U	1 U	1.1 U	45 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	70 R	75 R	63 R	72 R	74 R	3,100 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.8 U	4 U	3.4 U	3.9 U	4 U	170 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	15 U
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	21 U
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	21 U
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	21 U
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	21 U
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	14 J
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	13 J
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	21 U
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	14 J
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	14 J
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	12 J
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	21 U
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	83 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB14 74SB14-02 4/30/2008 3.0 - 5.0	74SB14 74SB14-03 4/30/2008 5.0 - 7.0	74SB15 74SB15-02 4/30/2008 3.0 - 5.0	74SB15 74SB15-03 4/30/2008 5.0 - 7.0	74SB16 74SB16-02 4/30/2008 3.0 - 5.0	74SB16 74SB16-04 4/30/2008 7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	15 U
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	7.5 U
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	21 U
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	21 U
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.2</u>	<u>3.6</u>	<u>2.9</u>	<b>1.1</b>	<u>3.1</u>	<b>1.5</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	<u>660</u>	55	85	76	50	70
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.24	0.36	0.36	0.17	0.43	0.16
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.26 J	0.089 J	0.16 J	0.034 UJ	0.16 J	0.037 UJ
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	47 J	63 J	90 J	56 J	57 J	52 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>53</u> J	<b>11</b> J	<b>21</b> J	<b>3.9</b> J	<u>34</u> J	1.6 J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	98	140	140	73	160	160
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	5.1 R	11 R	6.5 R	3.4 R	4 R	2 R
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.058	<u>0.16</u>	0.097	<u>0.32</u>	0.046	0.067
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	10	9.7	9.7	5.5	10	3.4
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.81	1.1	0.93	0.65	1	1.2
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.11 U	0.035 U	0.089 U	0.25	0.071 U	0.047 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	<b>0.71</b>	0.17 J	0.22 J	0.21 J	<b>0.54</b>	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>250</b>	<b>370</b>	<b>390</b>	<b>180</b>	<b>250</b>	<b>220</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	48	46	73	20	39	13
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3.5 U	2.2 U	2.7 U	1.8 U	3.7 U	91 J
Gasoline Range Organics	NE	NE	NE	NE	0.15 J	0.089 J	0.066 J	0.066 J	0.26	130 J
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	0.15 J	0.089 J	0.066 J	0.066 J	0.26	<b>221</b> J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB16 74SB16-04D 4/30/2008 7.0 - 9.0	74SB22 74SB22-03 5/3/2008 5.0 -7.0	74SB22 74SB22-03D 5/3/2008 5.0 -7.0	74SB22 74SB22-04 5/3/2008 7.0 - 9.0	74SB23 74SB23-02 5/3/2008 3.0 - 5.0	74SB23 74SB23-03 5/3/2008 5.0 -7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.64 U	22 U	0.59 U	24 U	0.54 U	23 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	39 J	420 R	54 J	440 R	34 J	180 R
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.97 J	20 U	0.52 U	21 U	0.49 U	21 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.83 U	29 U	0.75 U	30 U	0.7 U	30 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.57 U	20 U	0.51 U	21 U	0.48 U	20 U
Chloromethane	1,700	8,400	NE	NE	0.8 U	28 U	0.73 U	29 U	0.68 U	29 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	17 J	86 U	2.3 UJ	91 U	2.1 UJ	90 U
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.85 U	29 U	0.77 U	31 U	0.72 U	31 U
Iodomethane	NE	NE	NE	NE	1.1 U	39 UJ	1 U	41 UJ	0.96 U	41 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	240 J	2,700 R	71 R	2,800 R	66 R	2,800 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	17 J	150 U	3.8 UJ	150 U	3.5 UJ	150 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	16 R	16 U	17 R	7,900	37 J	1,100
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	22 R	22 U	23 R	8,800	36 J	1,400
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	22 R	22 U	7.8 R	220	22 U	22 U
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	22 R	200 J	23 R	150	22 U	70 J
Benzo[a]anthracene	150	2,100	NE	NE	22 R	<b>630 J</b>	<b>250 J</b>	<b>230</b>	22 U	120
Benzo[a]pyrene	15	210	NE	NE	8.6 R	<b>390 J</b>	<b>160 J</b>	<b>160</b>	8.6 U	71 J
Benzo[b]fluoranthene	150	2,100	NE	NE	9.9 R	<b>860 J</b>	<b>290 J</b>	<b>350</b>	9.9 U	130
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	22 R	130	78 J	69 J	22 U	29 J
Benzo[k]fluoranthene	15	2,100	NE	NE	13 R	13 UJ	<b>170 J</b>	13 U	13 U	13 U
Chrysene	15,000	210,000	NE	NE	8 R	620 J	300 J	240	7.9 U	91
Dibenz(a,h)anthracene	150	210	NE	NE	7.7 R	58 J	34 J	30 J	7.7 U	12 J
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	22 R	1,400 J	480 J	550	22 U	250
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	60 J	200 J	52 J	230	10 U	79 J



TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB16 74SB16-04D 4/30/2008 7.0 - 9.0	74SB22 74SB22-03 5/3/2008 5.0 -7.0	74SB22 74SB22-03D 5/3/2008 5.0 -7.0	74SB22 74SB22-04 5/3/2008 7.0 - 9.0	74SB23 74SB23-02 5/3/2008 3.0 - 5.0	74SB23 74SB23-03 5/3/2008 5.0 -7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	16 R	130	84 J	62 J	16 U	32 J
Naphthalene	3,900	20,000	NE	NE	7.8 R	7.9 U	8.3 R	8 U	7.8 U	7.7 U
Phenanthrene	NE	NE	NE	NE	22 R	430 J	23 R	460	22 U	230
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	22 R	1,400 J	680 J	510	22 U	220
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>1.6</u>	<u>2</u>	<u>3.1</u>	<u>3.6</u>	<u>2.6</u>	<u>2.9</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	87	310 J	350	440	170	27
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.17	0.26 J	0.56 J	0.65	0.37	0.3
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.037 UJ	0.039 U	0.096 J	0.051 J	0.092 J	0.036 U
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	40 J	37 J	82 J	53	42	60
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	2 J	8.8 R	57 R	57	22	10
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	180	120 J	270 J	300	170	240
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.9 R	0.96 R	8.9 R	3.9	6.4	8.1
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.046	0.068	0.056	0.038	0.064	0.02 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	3.1	5.5 J	15 J	24	11	6.9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.1	0.25 J	1.3	0.86	0.83	0.69
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.026 U	0.057 U	0.093 U	0.062 U	0.044 U	0.037 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.34 J	0.42 J	0.43 J	0.22 J	0.14 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	170	97 J	290 J	190	180	220
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	14	24 J	59 J	60	41	23
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	17 J	2,100 J	860 J	1,500	41	380
Gasoline Range Organics	NE	NE	NE	NE	140 J	280	68	140	0.062 U	150
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	157 J	2,380 J	928 J	1,640	41	530

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB24 74SB24-03 5/3/2008 5.0 - 7.0	74SB24 74SB24-05 5/3/2008 9.0 - 11.0	74SB25 74SB25-04 5/3/2008 7.0 - 9.0	74SB25 74SB25-05 5/3/2008 9.0 - 11.0	74SB26 74SB26-02 5/3/2008 3.0 - 5.0	74SB26 74SB26-02D 5/3/2008 3.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.52 U	1.1 U	0.53 U	0.54 U	0.58 U	0.57 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	19 J	14 J	43 J	4.2 R	25 J	25 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.65 J	0.95 U	1.1 J	0.48 U	1.9 J	1.3 J
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.67 U	1.4 U	0.67 U	0.69 U	2 J	0.73 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.46 U	0.93 U	0.46 U	0.47 U	0.51 U	0.5 U
Chloromethane	1,700	8,400	NE	NE	0.65 U	1.3 U	0.65 U	0.67 U	0.73 U	1.5 J
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2 UJ	4.1 UJ	2 UJ	2.1 UJ	2.2 UJ	2.2 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.69 U	1.4 U	0.69 U	0.71 U	0.77 U	0.75 U
Iodomethane	NE	NE	NE	NE	0.91 U	1.9 U	0.92 U	0.95 U	1 U	1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	63 R	130 R	64 R	65 R	71 R	69 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.4 UJ	6.9 UJ	3.4 UJ	3.5 UJ	3.8 UJ	3.7 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	1.5 U	1.5 U	1.5 U	2.3 J	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	2.2 U	2.1 U	2.2 U	2.3 J	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	2.2 U	2.1 U	2.2 U	2 U	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	2.2 U	2.1 U	2.2 U	2 U	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	2.2 U	2.1 U	2.2 U	2 U	NA	NA
Benzo[a]pyrene	15	210	NE	NE	0.84 U	0.82 U	0.84 U	0.78 UJ	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	0.97 U	0.95 U	0.96 U	0.9 UJ	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	2.2 U	2.1 U	2.2 U	2 UJ	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	1.3 U	1.2 U	1.3 U	1.2 UJ	NA	NA
Chrysene	15,000	210,000	NE	NE	0.77 U	0.76 U	0.77 U	0.72 U	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	0.75 U	0.74 U	0.75 U	0.7 UJ	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	2.2 U	2.1 U	2.2 U	2 U	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	0.98 U	0.96 U	0.98 U	0.91 U	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB24 74SB24-03 5/3/2008 5.0 - 7.0	74SB24 74SB24-05 5/3/2008 9.0 - 11.0	74SB25 74SB25-04 5/3/2008 7.0 - 9.0	74SB25 74SB25-05 5/3/2008 9.0 - 11.0	74SB26 74SB26-02 5/3/2008 3.0 - 5.0	74SB26 74SB26-02D 5/3/2008 3.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	1.5 U	1.5 U	1.5 U	1.4 UJ	NA	NA
Naphthalene	3,900	20,000	NE	NE	0.76 U	0.75 U	0.76 U	0.71 U	NA	NA
Phenanthrene	NE	NE	NE	NE	2.2 U	2.1 U	2.2 U	2 U	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	2.2 U	2.1 U	2.2 U	2 U	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.3</b>	<b>1.7</b>	<b>1.2</b>	<b>2.1</b>	<b>1.3</b>	<b>1.1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	90	180	14	21	76	76
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.24	0.17	0.11 U	0.17	0.28	0.25
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.068 J	0.036 U	0.036 U	0.034 U	0.067 J	0.07 J
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	16	26	15	45	20	18
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>16</b>	<b>5.2</b>	0.86	<b>2.8</b>	<b>14</b>	<b>14</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	65	120	48	110	82	73
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.5	3.3	2.3	4.2	2.7	2.5
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.04	<u>0.11</u>	<u>0.18</u>	0.038	0.032	0.061
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	8.4	4.1	2.8	4.4	8.7	8.4
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.16 J	0.74	0.54 J	0.82	0.41 J	0.36 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.051 U	0.045 U	0.025 U	0.02 U	0.044 U	0.053 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.14 U	0.14 U	0.13 U	0.14 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>220</b>	<b>260</b>	<b>120</b>	<b>240</b>	<b>200</b>	<b>180</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	46	18	10	20	55	59
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.1 J	1.9 J	1.4 J	1.2 J	550	420
Gasoline Range Organics	NE	NE	NE	NE	0.06 U	0.057 U	0.061 U	0.063 U	140	120
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	2.1 J	1.9 J	1.4 J	1.2 J	<b>690</b>	<b>540</b>

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB26 74SB26-05 5/3/2008 9.0 - 11.0	74SB27 74SB27-03 5/3/2008 5.0 - 7.0	74SB27 74SB27-05 5/3/2008 9.0 - 11.0	74SB28 74SB28-02 5/1/2008 3.0 - 5.0	74SB28 74SB28-04 5/1/2008 7.0 - 9.0	74SB29 74SB29-03 5/1/2008 5.0 - 7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	25 U	27 U	27 U	0.58 UJ	27 UJ	0.59 UJ
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	200 R	210 R	300 R	32 J	490 R	21 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	23 U	24 U	24 U	0.52 UJ	24 UJ	0.9 J
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	32 U	35 U	35 U	0.74 UJ	35 UJ	0.75 UJ
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	22 U	24 U	24 U	0.51 UJ	40 J	0.51 UJ
Chloromethane	1,700	8,400	NE	NE	32 U	34 U	34 U	0.72 UJ	34 UJ	0.73 UJ
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	98 U	100 U	100 U	2.2 UJ	100 UJ	2.3 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	33 U	36 U	36 U	0.76 UJ	1100 J	0.77 UJ
Iodomethane	NE	NE	NE	NE	44 UJ	48 UJ	48 UJ	1 UJ	47 UJ	1 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	3,100 R	3,300 R	3,300 R	70 R	3,300 R	71 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	160 U	180 U	180 U	3.8 UJ	180 UJ	3.8 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB26 74SB26-05 5/3/2008 9.0 - 11.0	74SB27 74SB27-03 5/3/2008 5.0 - 7.0	74SB27 74SB27-05 5/3/2008 9.0 - 11.0	74SB28 74SB28-02 5/1/2008 3.0 - 5.0	74SB28 74SB28-04 5/1/2008 7.0 - 9.0	74SB29 74SB29-03 5/1/2008 5.0 - 7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>4.5</u>	<u>1.7</u>	<u>1.6</u>	<u>2.1</u>	<u>1.6</u>	<u>1.3</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	33	26	21	47	44	81
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.33	0.11 U	0.15	0.12	0.21	0.17
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.054 J	0.038 U	0.035 U	0.036 UJ	0.037 UJ	0.039 UJ
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	140 R	40 R	44 R	48 J	110 J	20 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>8.3</b>	1.9	0.99	2	<b>2.7</b>	1.8
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	<u>260</u>	88	110	97	210	110
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>64</u>	4.5	4.1	4 J	4.8 J	1.9 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0097 J	0.03	0.042	<u>0.19</u> J	0.091 J	0.035 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	9.3	3	3.3	6.6	8.8	7.3
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.6	1	1.1	1.1	1	0.33 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.082 U	0.048 U	0.024 U	0.049 J	0.019 UJ	0.02 UJ
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.2 J	0.15 U	0.14 U	0.14 U	0.14 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>380</b>	<b>200</b>	<b>180</b>	<b>210</b> J	<b>250</b> J	<b>81</b> J
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	48 J	11 J	12 J	23	30	15
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	420	300	98	22 J	880 J	6 J
Gasoline Range Organics	NE	NE	NE	NE	140 J	89 J	42 J	0.078 UJ	270 J	0.1 UJ
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	<b>560</b> J	<b>389</b> J	<b>140</b> J	22 J	<b>1,150</b> J	6 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB29 74SB29-05 5/1/2008 9.0 - 11.0	74SB30 74SB30-03 5/1/2008 5.0 - 7.0	74SB30 74SB30-04 5/1/2008 7.0 - 9.0	74SB31 74SB31-02 5/1/2008 3.0 - 5.0	74SB31 74SB31-03 5/1/2008 5.0 - 7.0	74SB32 74SB32-02 5/1/2008 3.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.53 UJ	26 UJ	24 UJ	0.54 UJ	0.72 UJ	0.63 UJ
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	4.1 R	360 R	190 R	65 J	33 J	4.9 R
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.47 UJ	24 UJ	21 UJ	0.48 UJ	0.65 UJ	0.57 UJ
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.67 UJ	34 UJ	31 UJ	0.69 UJ	0.92 UJ	0.81 UJ
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.46 UJ	23 UJ	21 UJ	0.47 UJ	0.63 UJ	0.55 UJ
Chloromethane	1,700	8,400	NE	NE	0.66 UJ	33 UJ	30 UJ	0.67 UJ	0.9 UJ	0.79 UJ
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2 UJ	100 UJ	93 UJ	2.1 UJ	2.8 UJ	2.4 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.69 UJ	35 UJ	32 UJ	0.7 UJ	0.95 UJ	0.83 UJ
Iodomethane	NE	NE	NE	NE	0.92 UJ	46 UJ	42 UJ	0.94 UJ	1.3 UJ	1.1 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	64 R	3,200 R	2,900 R	65 R	87 R	76 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.4 UJ	170 UJ	160 UJ	3.5 UJ	4.7 UJ	4.1 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	1.5 UJ	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	2.2 UJ	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	2.2 UJ	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	2.2 UJ	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	2.2 UJ	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	0.85 UJ	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	0.98 UJ	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	2.2 UJ	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	1.3 UJ	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	0.79 UJ	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	0.76 UJ	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	2.2 UJ	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	0.99 UJ	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB29 74SB29-05 5/1/2008 9.0 - 11.0	74SB30 74SB30-03 5/1/2008 5.0 - 7.0	74SB30 74SB30-04 5/1/2008 7.0 - 9.0	74SB31 74SB31-02 5/1/2008 3.0 - 5.0	74SB31 74SB31-03 5/1/2008 5.0 - 7.0	74SB32 74SB32-02 5/1/2008 3.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	1.5 UJ	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	3.3 J	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	2.2 UJ	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	2.2 UJ	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>1.8</u>	<u>3</u>	<u>3</u>	<b>1.3</b>	<b>1</b>	<b>1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	91	<u>630</u>	<u>730</u>	56	14	23
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.14	<u>0.99</u>	<u>0.95</u>	0.21	0.26	0.24
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.034 UJ	0.043 UJ	0.038 UJ	0.064 J	0.049 UJ	0.038 UJ
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	14 J	74 J	110 J	26 J	18 J	20 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	1.1	<u>32</u>	16	<u>31</u>	1.8	<b>2.9</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	84	<u>440</u>	220	72	160	200
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>14</u> J	5 J	3.4 J	3.4 J	1.2 J	1.8 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.065 J	0.1 J	0.035 J	0.062 J	0.057 J	0.044 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	3.7	<u>27</u>	17	20	4.3	6.6
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.81	0.47 J	0.27 J	0.15 U	0.37 J	1
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.019 J	0.063 J	0.02 J	0.043 J	0.027 J	0.046 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	<u>1.1</u>	<u>1.9</u>	0.15 U	0.19 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>150</b> J	<b>200</b> J	<b>230</b> J	<b>200</b> J	<b>270</b> J	<b>260</b> J
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	13	66	<u>110</u>	78	18	14
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	0.74 UJ	150 J	270 J	4.1 J	1 UJ	0.8 UJ
Gasoline Range Organics	NE	NE	NE	NE	0.065 UJ	170 J	130 J	0.07 J	0.082 UJ	0.066 UJ
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	0.805 UJ	<b>320</b> J	<b>400</b> J	4.17 J	1.082 UJ	0.866 UJ

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB32 74SB32-03 5/1/2008 5.0 - 7.0	74SB32 74SB32-03D 5/1/2008 5.0 - 7.0	74SB33 74SB33-01 5/1/2008 1.0 - 3.0	74SB33 74SB33-02 5/1/2008 3.0 - 5.0	74SB34 74SB34-01 5/1/2008 1.0 - 3.0	74SB34 74SB34-02 5/1/2008 3.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.62 UJ	0.62 UJ	0.61 UJ	0.66 UJ	0.62 UJ	0.63 UJ
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	28 J	33 J	35 J	14 J	4.8 R	150 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.55 UJ	0.8 J	0.55 UJ	0.59 UJ	0.55 UJ	0.56 UJ
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.79 UJ	0.79 UJ	0.78 UJ	0.84 UJ	0.79 UJ	0.8 UJ
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.54 UJ	0.54 UJ	0.54 UJ	0.58 UJ	0.54 UJ	0.55 UJ
Chloromethane	1,700	8,400	NE	NE	0.77 UJ	0.77 UJ	0.76 UJ	0.82 UJ	0.77 UJ	0.78 UJ
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 UJ	2.4 UJ	2.4 UJ	2.5 UJ	2.4 UJ	2.4 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.81 UJ	0.81 UJ	0.81 UJ	0.87 UJ	0.81 UJ	0.82 UJ
Iodomethane	NE	NE	NE	NE	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.1 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	75 R	74 R	74 R	80 R	75 R	76 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	4 UJ	4 UJ	4 UJ	4.3 UJ	4 UJ	4.1 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	1.5 UJ
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	2.2 UJ
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	2.2 UJ
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	2.2 UJ
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	2.2 UJ
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	0.85 UJ
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	0.98 UJ
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	2.2 UJ
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	1.3 UJ
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	0.79 UJ
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	0.76 UJ
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	2.2 UJ
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	0.99 UJ



TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB32 74SB32-03 5/1/2008 5.0 - 7.0	74SB32 74SB32-03D 5/1/2008 5.0 - 7.0	74SB33 74SB33-01 5/1/2008 1.0 - 3.0	74SB33 74SB33-02 5/1/2008 3.0 - 5.0	74SB34 74SB34-01 5/1/2008 1.0 - 3.0	74SB34 74SB34-02 5/1/2008 3.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	1.5 UJ
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	0.77 UJ
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	2.2 UJ
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	2.2 UJ
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>0.92</b>	<b>1.6</b>	<b>0.67</b>	<b>0.94</b>	<b>0.93</b>	<b>0.94</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	21 J	41 J	31	84	13	23
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.32	0.5	0.068 J	0.15	0.17	0.24
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.039 UJ	0.04 UJ	0.039 UJ	0.04 UJ	0.039 UJ	0.036 UJ
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	4.2 J	6.1 J	7.3 J	22 J	39 J	42 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	1.1 J	1.7 J	<b>2.6</b>	1.5	<b>2.8</b>	<b>3.9</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	240 J	<b>380 J</b>	54	110	<b>230</b>	240
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3.2 J	4.5 J	0.5 J	1.3 J	1.4 J	1.1 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.026 J	0.054 J	0.078 J	0.071 J	<b>0.2 J</b>	0.042 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	3.4 J	6.7 J	1.9	2.4	7.5	12
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.82	1.3	0.2 J	0.34 J	<b>0.85</b>	0.55 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.036 J	0.06 J	0.03 J	0.057 J	0.022 J	0.035 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.16 U	0.15 U	0.16 U	0.15 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>230 J</b>	<b>310 J</b>	<b>57 J</b>	<b>110 J</b>	<b>360 J</b>	<b>250 J</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	8.8	18	9.1	10	14	23
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	0.82 UJ	0.82 UJ	2.8 J	0.85 UJ	0.81 UJ	0.78 UJ
Gasoline Range Organics	NE	NE	NE	NE	0.07 J	0.066 UJ	0.072 UJ	0.11 UJ	0.089 UJ	0.081 UJ
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	0.07 J	0.886 UJ	2.8 J	0.96 UJ	0.899 UJ	0.861 UJ

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB35 74SB35-01 5/2/2008 1.0 - 3.0	74SB35 74SB35-03 5/2/2008 5.0 - 7.0	74SB36 74SB36-02 5/2/2008 3.0 - 5.0	74SB36 74SB36-05 5/2/2008 9.0 - 11.0	74SB37 74SB37-01 5/2/2008 1.0 - 3.0	74SB37 74SB37-02 5/2/2008 3.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.62 UJ	0.57 UJ	0.58 UJ	0.83 UJ	0.58 UJ	0.65 UJ
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	16 J	14 J	29 J	29 J	82 J	13 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.55 UJ	0.51 UJ	0.52 UJ	0.74 UJ	0.51 UJ	0.58 UJ
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.79 UJ	0.73 UJ	0.74 UJ	1.1 UJ	0.74 UJ	0.83 UJ
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.54 UJ	0.5 UJ	0.51 UJ	0.73 UJ	0.5 UJ	0.57 UJ
Chloromethane	1,700	8,400	NE	NE	0.77 UJ	0.71 UJ	0.72 UJ	1 UJ	0.72 UJ	0.8 UJ
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 UJ	2.2 UJ	2.2 UJ	3.2 UJ	2.2 UJ	2.5 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.81 UJ	0.75 UJ	0.76 UJ	1.1 UJ	0.76 UJ	0.85 UJ
Iodomethane	NE	NE	NE	NE	1.1 UJ	1 UJ	1 UJ	1.5 UJ	1 UJ	1.1 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	75 R	69 R	70 R	100 R	70 R	78 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	4 UJ	3.7 UJ	3.8 UJ	5.4 UJ	3.7 UJ	4.2 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB35 74SB35-01 5/2/2008 1.0 - 3.0	74SB35 74SB35-03 5/2/2008 5.0 - 7.0	74SB36 74SB36-02 5/2/2008 3.0 - 5.0	74SB36 74SB36-05 5/2/2008 9.0 - 11.0	74SB37 74SB37-01 5/2/2008 1.0 - 3.0	74SB37 74SB37-02 5/2/2008 3.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.6</b>	<b>0.88</b>	<b>1.4</b>	<b>1.5</b>	<b>0.51 J</b>	<b>0.5 J</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	31	83	18	<u>280</u>	11	41 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.14	0.15	0.19	<u>0.99</u>	0.099 U	0.092 U
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.039 UJ	0.039 UJ	0.04 U	0.051 J	0.039 U	0.04 U
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	8.6 J	11 J	61 J	77 J	56	43 R
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	0.99	1.5	<b>4.6</b>	<b>11</b>	0.56	0.87 R
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	<b>170</b>	190	160	<b>320</b>	42	42 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.7 J	1.7 J	2.2 J	0.85 J	1.3	1.2 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.082 J	<u>0.24 J</u>	<u>0.12 J</u>	0.013 J	<b>0.14 J</b>	0.064 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	4.2	4.2	8.5	<u>55</u>	2.7	4 J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	<b>0.65</b>	0.54 J	0.89	0.32 J	0.45 J	0.28 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.023 J	0.028 J	0.036 J	0.064 J	0.022 U	0.03 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.15 U	0.16 U	0.22 J	0.15 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>310 J</b>	<b>300 J</b>	<b>350 J</b>	<b>290 J</b>	<b>180</b>	<b>150 J</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	14	15	21 J	53 J	12 J	13 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3.7 J	0.83 UJ	0.81 UJ	0.92 UJ	5.8 J	1.1 J
Gasoline Range Organics	NE	NE	NE	NE	0.066 UJ	0.069 UJ	0.16 UJ	0.079 UJ	0.076 UJ	0.06 UJ
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	3.7 J	0.899 UJ	0.97 UJ	0.999 UJ	5.8 J	1.1 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB37 74SB37-02D 5/2/2008 3.0 - 5.0	74SB38 74SB38-01 5/2/2008 1.0 - 3.0	74SB38 74SB38-02 5/2/2008 3.0 - 5.0	74SB39 74SB39-02 5/2/2008 3.0 - 5.0	74SB39 74SB39-04 5/2/2008 7.0 - 9.0	74SB40 74SB40-02 5/2/2008 3.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.58 UJ	0.63 UJ	0.67 UJ	0.63 UJ	0.67 UJ	0.57 UJ
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	4.5 R	75 J	17 J	37 J	5.1 R	120 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.52 UJ	0.57 UJ	0.6 UJ	0.56 UJ	0.6 UJ	0.51 UJ
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.74 UJ	0.81 UJ	0.86 UJ	0.81 UJ	0.85 UJ	0.73 UJ
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.51 UJ	0.56 UJ	0.59 UJ	0.55 UJ	0.58 UJ	0.5 UJ
Chloromethane	1,700	8,400	NE	NE	0.72 UJ	0.79 UJ	0.83 UJ	0.78 UJ	0.83 UJ	0.71 UJ
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.2 UJ	2.4 UJ	2.6 UJ	2.4 UJ	2.6 UJ	2.2 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.77 UJ	0.83 UJ	0.88 UJ	0.83 UJ	0.88 UJ	0.75 UJ
Iodomethane	NE	NE	NE	NE	1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	4.7 J
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	70 R	77 R	81 R	76 R	81 R	69 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.8 UJ	4.1 UJ	4.4 UJ	4.1 UJ	4.3 UJ	3.7 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB37 74SB37-02D 5/2/2008 3.0 - 5.0	74SB38 74SB38-01 5/2/2008 1.0 - 3.0	74SB38 74SB38-02 5/2/2008 3.0 - 5.0	74SB39 74SB39-02 5/2/2008 3.0 - 5.0	74SB39 74SB39-04 5/2/2008 7.0 - 9.0	74SB40 74SB40-02 5/2/2008 3.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	0.21 J	<u>3</u>	<u>2.1</u>	<u>2.5</u>	<u>79</u>	<u>1</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	17 J	31	8.8	77	15	23
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.047 U	0.17	0.21	0.18	0.24	0.14
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.038 U	0.039 U	0.038 U	0.038 U	0.062 J	0.04 U
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	9.3 R	12	8.6	28	6.5	45
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	0.34 R	<b>4.3</b>	1.4	<b>5.4</b>	<b>5.9</b>	2.2
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	24 J	<b>440</b>	<u>250</u>	<b>480</b>	<b>710</b>	<u>270</u>
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.23 J	<u>7.7</u>	1.5	2.2	2.2	0.83
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.022 J	<u>0.14</u> J	0.082 J	0.074 J	0.014 J	0.05 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	2.3 J	7.3	4	15	11	9.7
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.17 J	<u>0.74</u>	0.83	0.86	3.4	0.46 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.024 U	0.066 U	0.04 U	0.23 U	0.23 U	0.064 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.15 U	0.15 U	0.15 U	0.16 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	42 J	<b>340</b>	<b>260</b>	<b>520</b>	<b>520</b>	<b>260</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	4.3 J	34 J	18 J	48 J	41 J	54 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.4 J	1.2 J	0.79 J	2.2 J	1.3 J	1.2 J
Gasoline Range Organics	NE	NE	NE	NE	0.063 UJ	0.065 UJ	0.064 UJ	0.085 UJ	0.072 UJ	0.066 UJ
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	1.4 J	1.2 J	0.79 J	2.2 J	1.3 J	1.2 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB40	74SB41	74SB41	74SB42	74SB42	74SB43
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB40-04	74SB41-02	74SB41-04	74SB42-03	74SB42-04	74SB43-03
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/2/2008	5/2/2008	5/2/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		7.0 - 9.0	3.0 - 5.0	7.0 - 9.0	5.0 - 7.0	7.0 - 9.0	5.0 - 7.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.72 UJ	0.64 U	0.7 U	0.58 U	0.66 U	0.51 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	36 J	5 R	42 J	14 J	5.1 R	21 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.65 UJ	0.58 U	0.62 U	0.52 U	0.59 U	0.46 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.93 UJ	0.83 U	0.89 U	0.75 U	0.84 U	0.66 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.64 UJ	0.57 U	0.61 U	0.51 U	0.58 U	0.45 U
Chloromethane	1,700	8,400	NE	NE	0.9 UJ	0.8 U	0.87 U	0.73 U	0.82 U	0.64 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.8 UJ	2.5 U	2.7 UJ	2.2 UJ	2.5 UJ	2 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.95 UJ	0.85 U	0.92 U	0.77 U	0.87 U	0.68 U
Iodomethane	NE	NE	NE	NE	1.3 UJ	1.1 U	1.2 U	1 U	1.2 U	0.9 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	88 R	78 R	84 R	71 R	80 R	62 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	4.7 UJ	4.2 U	4.5 UJ	3.8 UJ	4.3 UJ	3.3 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB40 74SB40-04 5/2/2008 7.0 - 9.0	74SB41 74SB41-02 5/2/2008 3.0 - 5.0	74SB41 74SB41-04 5/2/2008 7.0 - 9.0	74SB42 74SB42-03 5/3/2008 5.0 - 7.0	74SB42 74SB42-04 5/3/2008 7.0 - 9.0	74SB43 74SB43-03 5/3/2008 5.0 - 7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.3</u>	<b>0.52 J</b>	<b>0.67 J</b>	<b>0.57 J</b>	<b>1.3</b>	<b>1.4</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	35	27	22	10	16	36
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.26	0.046 U	0.15 U	0.063 U	0.098 U	0.34
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.044 U	0.041 U	0.047 U	0.038 U	0.042 U	0.065 J
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	33	6.7	13	5.7 R	12 R	20 R
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>3.2</b>	1.2	<b>12</b>	0.76	<b>2.4</b>	<b>13</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	<b>520</b>	45	150	27	85	120
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3.4	0.63	0.94	0.81	0.77	2.3
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.063 J	<u>0.45</u>	0.023 J	0.056	0.063	<u>0.11</u>
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	23	1.4	3.7	1	1.9	9.1
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1	0.4 J	0.33 J	0.21 J	0.3 J	0.37 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.12 U	0.021 U	0.038 U	0.02 U	0.022 U	0.023 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.17 U	0.16 U	0.18 U	0.15 U	0.16 U	0.15 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>360</b>	<b>200</b>	<b>340</b>	<b>110</b>	<b>210</b>	<b>240</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	74 J	9.5	41	6.5 J	12 J	55 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.6 J	4.6 J	1.7 J	1 J	2.6 J	2.6 J
Gasoline Range Organics	NE	NE	NE	NE	0.08 UJ	0.069 U	0.076 U	0.061 U	0.072 U	0.073 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	1.6 J	4.6 J	1.7 J	1 J	2.6 J	2.6 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB43 74SB43-04 5/3/2008 7.0 - 9.0	74SB44 74SB44-04 5/3/2008 7.0 - 9.0	74SB44 74SB44-05 5/3/2008 9.0 - 11.0	74SB48 74SB48-01 5/3/2008 1.0 - 3.0	74SB48 74SB48-01D 5/3/2008 1.0 - 3.0	74SB49 74SB49-04 5/3/2008 7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.59 U	0.61 U	0.51 U	0.54 U	0.73 U	0.63 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	40 J	28 J	16 J	31 J	84 J	4.8 R
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.52 U	0.54 U	0.45 U	0.49 U	0.65 U	0.56 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.75 U	0.78 U	0.65 U	0.7 U	0.93 U	0.8 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.51 U	0.53 U	0.45 U	0.48 U	0.64 U	0.55 U
Chloromethane	1,700	8,400	NE	NE	0.73 U	0.75 U	0.63 U	0.68 U	0.91 U	0.78 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.3 UJ	2.3 UJ	2 UJ	2.1 UJ	2.8 UJ	2.4 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.77 U	0.8 U	0.67 U	0.72 U	0.96 U	0.82 U
Iodomethane	NE	NE	NE	NE	1 U	1.1 U	0.89 U	0.95 U	1.3 U	1.1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	71 R	73 R	61 R	66 R	88 R	76 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.8 UJ	3.9 UJ	3.3 UJ	3.5 UJ	4.7 UJ	4.1 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA



TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB43 74SB43-04 5/3/2008 7.0 - 9.0	74SB44 74SB44-04 5/3/2008 7.0 - 9.0	74SB44 74SB44-05 5/3/2008 9.0 - 11.0	74SB48 74SB48-01 5/3/2008 1.0 - 3.0	74SB48 74SB48-01D 5/3/2008 1.0 - 3.0	74SB49 74SB49-04 5/3/2008 7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.1</b>	<b>1.8</b>	<b>3.4</b>	<b>0.78</b>	<b>1.4</b>	<b>1.3</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	85	17	43	60	58	7.7
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.14	0.19	0.26	0.13	0.17	0.11 J
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.04 U	0.042 J	0.28	0.15	0.17	0.036 U
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	19 R	22 R	130 R	13 R	55 R	26 R
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	2.2	<b>9.4</b>	<b>15</b>	<b>22</b>	<b>30</b>	0.91
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	94	84	120	<b>130</b>	<b>130</b>	31
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.9	2.5	<b>7.4</b>	0.66	1.5	1.9
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	<u>0.14</u>	0.07	0.028	0.0043 U	0.0056 J	0.063
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	2.3	5.7	6	13 J	21 J	2.2
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.88	0.46 J	1.2	0.13 U	0.13 U	2.4
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.022 U	0.027 U	0.17 J	0.051 J	0.048 J	0.03 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.14 U	0.21 J	0.13 U	0.13 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>330</b>	<b>220</b>	<b>590</b>	<b>160</b>	<b>160</b>	<b>220</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	18 J	36 J	50 J	66 J	73 J	11 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3 J	1.3 J	1.2 J	1.7 J	2.9 J	2.1 J
Gasoline Range Organics	NE	NE	NE	NE	0.069 U	0.06 U	0.053 U	0.054 U	0.047 U	0.067 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	3 J	1.3 J	1.2 J	1.7 J	2.9 J	2.1 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB49 74SB49-05 5/3/2008 7.0 - 9.0	74SB50 74SB50-03 5/3/2008 5.0 - 7.0	74SB50 74SB50-04 5/3/2008 7.0 - 9.0	74SB51 74SB51-03 5/3/2008 5.0 - 7.0	74SB52 74SB52-03 5/3/2008 5.0 - 7.0	74SB52 74SB52-04 5/3/2008 7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.59 U	0.68 U	0.57 U	0.58 U	0.66 U	0.61 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	22 J	12 J	4.4 R	41 J	17 J	65 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.53 U	0.61 U	0.51 U	2.1 J	0.59 U	0.55 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.76 U	0.87 U	0.73 U	0.74 U	0.85 U	0.79 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.52 U	0.59 U	0.5 U	0.51 U	0.58 U	0.54 U
Chloromethane	1,700	8,400	NE	NE	0.74 U	0.84 U	0.71 U	0.72 U	0.83 U	0.76 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.3 UJ	2.6 UJ	2.2 UJ	2.2 UJ	2.6 UJ	2.4 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.78 U	0.89 U	0.75 U	0.76 U	0.87 U	0.81 U
Iodomethane	NE	NE	NE	NE	1 U	1.2 U	1 U	1 U	1.2 U	1.1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	72 R	82 R	69 R	70 R	80 R	74 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.9 UJ	4.4 UJ	3.7 UJ	3.8 UJ	4.3 UJ	4 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB49 74SB49-05 5/3/2008 7.0 - 9.0	74SB50 74SB50-03 5/3/2008 5.0 - 7.0	74SB50 74SB50-04 5/3/2008 7.0 - 9.0	74SB51 74SB51-03 5/3/2008 5.0 - 7.0	74SB52 74SB52-03 5/3/2008 5.0 - 7.0	74SB52 74SB52-04 5/3/2008 7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>0.47 J</b>	<u>3.5</u>	<b>1.5</b>	<u>2.2</u>	<b>1.4</b>	<b>0.9</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	12	11	27	29	21	24
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.047 J	0.12 J	0.088 J	0.2	0.13	0.098 J
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.038 U	0.057 J	0.05 J	0.092 J	0.07 J	0.14
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	6.4 R	23 R	21 R	84 R	19 R	15 R
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	0.76	<b>2.8</b>	1.9	<b>8.8</b>	<b>5</b>	<b>3.1</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	13	49	47	70	53	46
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.5	2.1	1.8	4.9	2.2	1.7
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	<u>0.19</u>	<u>0.6</u>	<u>0.16</u>	<u>0.11</u>	<u>0.13</u>	0.087
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	1.5	3.6	2.1	9.9	3.4	2.5
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.35 J	5.4	2	1.5	2.6	2.9
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.038 J	0.062 J	0.034 J	0.062 J	0.042 J	0.05 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.16 U	0.14 U	0.33 J	0.16 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>74</b>	<b>280</b>	<b>220</b>	<b>230</b>	<b>230</b>	<b>200</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	9.8 J	33 J	21 J	26 J	35 J	33 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.6 J	4.5 J	3.8 J	7.9	2.6 J	4.7
Gasoline Range Organics	NE	NE	NE	NE	0.062 U	0.068 U	0.064 U	0.1 U	0.064 U	0.064 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	2.6 J	4.5 J	3.8 J	7.9	2.6 J	4.7

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB53	74SB53	74SB54	74SB54	74SB55	74SB55
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB53-04	74SB53-05	74SB54-03	74SB54-04	74SB55-02	74SB55-03
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		7.0 - 9.0	9.0 - 11.0	5.0 - 7.0	7.0 - 9.0	3.0 - 5.0	5.0 - 7.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.64 U	0.67 U	0.56 U	0.68 U	0.56 U	0.44 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	4.9 R	16 J	110 J	290 J	140 J	17 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.57 U	0.6 U	0.5 U	0.61 U	0.5 U	0.39 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.81 U	0.86 U	0.71 U	0.87 U	0.71 U	0.56 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.56 U	0.59 U	0.49 U	0.59 U	0.49 U	0.38 U
Chloromethane	1,700	8,400	NE	NE	0.79 U	0.84 U	0.69 U	0.84 U	0.69 U	0.54 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 UJ	2.6 UJ	2.1 UJ	2.6 UJ	2.1 UJ	1.7 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.84 U	0.88 U	0.73 U	0.89 U	0.73 U	0.57 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.2 U	1.3 J	1.2 U	3.2 J	0.77 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	77 R	81 R	67 R	82 R	67 R	53 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	4.1 UJ	4.4 UJ	3.6 UJ	4.4 UJ	3.6 UJ	2.8 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB53 74SB53-04 5/3/2008 7.0 - 9.0	74SB53 74SB53-05 5/3/2008 9.0 - 11.0	74SB54 74SB54-03 5/3/2008 5.0 - 7.0	74SB54 74SB54-04 5/3/2008 7.0 - 9.0	74SB55 74SB55-02 5/3/2008 3.0 - 5.0	74SB55 74SB55-03 5/3/2008 5.0 - 7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.1</u>	<u>4.7</u> J	<u>6.2</u> J	<u>7.1</u> J	<u>4</u> J	<u>3.8</u> J
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	11	13	<u>960</u>	<u>530</u>	130	34
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.047 J	0.096 U	0.32	0.47	0.34	0.29
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.037 U	0.081 J	<u>2.9</u>	<u>2.1</u>	<u>1.6</u>	0.53
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	12 R	16 J	<u>120</u> J	100 J	67 J	<u>130</u> J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	0.79	1.1	<u>170</u>	<u>78</u>	<u>30</u>	<u>17</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	58	160	130	130	110	100
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2	2.2	<u>42</u>	<u>25</u>	<u>8.4</u>	<u>8.9</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0074 J	0.01 J	<u>0.5</u>	<u>0.24</u>	<u>0.15</u>	0.079
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	1.5	1.8	10	8.6	9.2	5.9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.2	1.8 J	1.5 J	1.4 J	2.4 J	2.8 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.048 J	0.05 U	0.38	0.14 U	0.13 U	0.38
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.14 U	<u>2</u>	<u>1.1</u>	0.43 J	0.25 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>210</b>	<b>370</b>	<u>570</u>	<u>470</u>	<b>390</b>	<b>360</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	31 J	53 J	<u>300</u> J	<u>320</u> J	<u>150</u> J	<u>150</u> J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.3 J	1.1 J	1.2 J	1.3 J	2.3 J	0.88 J
Gasoline Range Organics	NE	NE	NE	NE	0.064 U	0.071 U	0.082 U	0.069 U	0.06 U	0.06 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	2.3 J	1.1 J	1.2 J	1.3 J	2.3 J	0.88 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB56 74SB56-03 5/3/2008 5.0 - 7.0	74SB56 74SB56-04 5/3/2008 7.0 - 9.0	74SB57 74SB57-03 5/3/2008 5.0 - 7.0	74SB57 74SB57-04 5/3/2008 7.0 - 9.0	74SB58 74SB58-03 5/3/2008 5.0 - 7.0	74SB58 74SB58-04 5/3/2008 7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.59 U	0.63 U	0.53 U	0.54 U	0.53 U	0.5 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	22 J	4.9 R	36 J	23 J	31 J	13 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.53 U	0.56 U	0.58 J	0.5 J	0.47 U	0.45 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.76 U	0.81 U	0.68 U	0.7 U	0.68 U	0.65 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.52 U	0.55 U	0.47 U	0.48 U	0.46 U	0.44 U
Chloromethane	1,700	8,400	NE	NE	0.74 U	0.79 U	0.66 U	0.68 U	0.66 U	0.63 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.3 UJ	2.4 UJ	2 UJ	2.1 UJ	2 UJ	1.9 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.78 U	0.83 U	0.7 U	0.72 U	0.7 U	0.66 U
Iodomethane	NE	NE	NE	NE	1 U	1.1 U	0.93 U	0.95 U	0.93 U	0.89 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	72 R	76 R	64 R	66 R	64 R	61 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.8 UJ	4.1 UJ	3.4 UJ	3.5 UJ	3.4 UJ	3.3 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB56 74SB56-03 5/3/2008 5.0 - 7.0	74SB56 74SB56-04 5/3/2008 7.0 - 9.0	74SB57 74SB57-03 5/3/2008 5.0 - 7.0	74SB57 74SB57-04 5/3/2008 7.0 - 9.0	74SB58 74SB58-03 5/3/2008 5.0 - 7.0	74SB58 74SB58-04 5/3/2008 7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.3</u> J	<u>3.2</u> J	<u>2.1</u> J	<u>2</u> J	<u>1.9</u> J	<u>1.8</u> J
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	140	18	44	82	69	71
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.4	0.12	0.3	0.27	0.21	0.32
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	<u>0.65</u>	0.22	0.48	0.19	0.16	0.11 J
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	23 J	27 J	28 J	21 J	16 J	21 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>21</b>	<b>3.1</b>	<b>18</b>	<b>18</b>	<b>15</b>	<b>17</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	100	86	97	97	53	75
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	4.9	5.7	4.7	4.2	3.1	3.2
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.071	<u>0.15</u>	0.069	0.053	0.033	0.039
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	9.4	3.6	8.2	7.8	4.9	6.9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.3 J	2.2 J	1.2 J	0.66 J	0.67 J	0.29 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.13 U	0.083 U	0.099 U	0.064 U	0.052 U	0.07 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.2 J	0.15 U	0.14 J	0.15 J	0.14 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>270</b>	<b>450</b>	<b>300</b>	<b>210</b>	<b>160</b>	<b>230</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>97</u> J	<u>92</u> J	77 J	64 J	41 J	47 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.4 J	3 J	1.7 J	2.9 J	3.4 J	2.2 J
Gasoline Range Organics	NE	NE	NE	NE	0.2 U	0.085 U	0.051 U	0.062 U	0.058 U	0.056 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	1.4 J	3 J	1.7 J	2.9 J	3.4 J	2.2 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB59 74SB59-04 5/3/2008 7.0 - 9.0	74SB59 74SB59-05 5/3/2008 9.0 - 11.0	74SB60 74SB60-04 5/3/2008 7.0 - 9.0	74SB60 74SB60-05 5/3/2008 9.0 - 11.0	74SB61 74SB61-03 5/3/2008 5.0 - 7.0	74SB61 74SB61-04 5/3/2008 7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.53 U	0.52 U	0.49 U	0.49 U	0.39 U	0.73 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	12 J	21 J	25 J	33 J	16 J	50 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.47 U	0.99 J	0.44 U	0.43 U	0.35 U	0.65 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.68 U	0.67 U	0.63 U	0.62 U	0.5 U	0.93 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.46 U	0.46 U	0.43 U	0.43 U	0.35 U	0.64 U
Chloromethane	1,700	8,400	NE	NE	0.66 U	0.65 U	0.62 U	0.6 U	0.49 U	0.91 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2 U	2 U	1.9 U	1.9 U	1.5 U	2.8 U
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.7 U	0.69 U	0.65 U	0.64 U	0.52 U	0.96 U
Iodomethane	NE	NE	NE	NE	0.93 U	0.92 U	0.87 U	0.85 U	0.69 U	1.3 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	64 R	63 R	60 R	59 R	48 R	88 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.4 U	3.4 U	3.2 U	3.2 U	2.6 U	4.7 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA



TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB59 74SB59-04 5/3/2008 7.0 - 9.0	74SB59 74SB59-05 5/3/2008 9.0 - 11.0	74SB60 74SB60-04 5/3/2008 7.0 - 9.0	74SB60 74SB60-05 5/3/2008 9.0 - 11.0	74SB61 74SB61-03 5/3/2008 5.0 - 7.0	74SB61 74SB61-04 5/3/2008 7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.4 J</b>	<b>1.4 J</b>	<b>2 J</b>	<b>1.7 J</b>	<b>2.1 J</b>	<b>2.3 J</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	79	100	87	84	100	100
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.28	0.28	0.25	0.37	0.33	0.39
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.18	0.08 J	0.17	0.11 J	0.082 J	0.32
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	24 J	24 J	18 J	36 J	5.8 J	26 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>16</b>	<b>18</b>	<b>18</b>	<b>22</b>	<b>22</b>	<b>35</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	67	66	79	97	150	89
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.8	2.5	4	3.7	0.78	4
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.036	0.012 J	0.04	0.05	0.025	0.052
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	6.3	6.7	7.1	9.5	8.4	9.8
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.54 J	0.22 J	0.91 J	0.76 J	0.23 J	0.78 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.066 U	0.035 U	0.05 U	0.064 U	0.045 U	0.066 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.13 U	0.15 J	0.16 J	0.16 U	0.27 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>190</b>	<b>180</b>	<b>190</b>	<b>290</b>	<b>270</b>	<b>220</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	40 J	44 J	49 J	60 J	55 J	57 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3 J	2.5 J	6.4	3.1 J	2.6 J	2.8 J
Gasoline Range Organics	NE	NE	NE	NE	0.065 U	0.064 U	0.06 U	0.046 U	0.04 U	0.036 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	3 J	2.5 J	6.4	3.1 J	2.6 J	2.8 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB61 74SB61-04D 5/3/2008 7.0 - 9.0	74SB62 74SB62-03 5/3/2008 5.0 - 7.0	74VP1b 74VP1b-03 5/3/2008 5.0 - 7.0	74VP1b 74VP1b-03D 5/3/2008 5.0 - 7.0	74VP1b 74VP1b-04 5/3/2008 7.0 - 9.0	74VP1b 74VP1b-04X 5/3/2008 7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.48 U	0.6 U	0.54 U	0.51 U	0.52 U	0.57 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	65 J	67 J	120 J	140 J	32 J	33 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.43 U	0.54 U	0.48 U	0.46 U	0.46 U	0.51 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.61 U	0.77 U	0.69 U	0.65 U	0.66 U	0.73 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.42 U	0.53 U	0.47 U	0.45 U	0.45 U	0.5 U
Chloromethane	1,700	8,400	NE	NE	0.6 U	0.75 U	0.67 U	0.64 U	0.64 U	0.71 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	1.9 U	2.3 U	2.1 UJ	2 UJ	2 UJ	2.2 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.63 U	0.79 U	0.71 U	0.67 U	0.68 U	0.75 U
Iodomethane	NE	NE	NE	NE	0.84 U	1.1 U	0.94 U	0.89 U	0.91 U	1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	58 R	73 R	65 R	62 R	62 R	69 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.1 U	3.9 U	3.5 UJ	3.3 UJ	3.4 UJ	3.7 UJ
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB61 74SB61-04D 5/3/2008 7.0 - 9.0	74SB62 74SB62-03 5/3/2008 5.0 - 7.0	74VP1b 74VP1b-03 5/3/2008 5.0 - 7.0	74VP1b 74VP1b-03D 5/3/2008 5.0 - 7.0	74VP1b 74VP1b-04 5/3/2008 7.0 - 9.0	74VP1b 74VP1b-04X 5/3/2008 7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>1.9</u> J	<u>3.3</u> J	<u>2.2</u>	<u>2.4</u>	<u>2.2</u>	<u>1.8</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	120	110	39 J	25 J	78	80
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.33	0.34	0.3	0.35	0.28	0.31
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.21	0.28	0.077 J	0.17	0.078 J	0.15
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	34 J	20 J	30 J	14 J	31	22
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>25</b>	<b>32</b>	<b>20</b>	<b>26</b>	<b>19</b>	<b>28</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	93	160	170 J	<u>270</u> J	130	86
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3.9	3.7	3.5	2.7	3.8	3.4
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.044	0.046	0.071	0.052	0.031	0.052
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	9.8	6.7	11	10	8.1	8.3
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.81 J	1.3 J	1	1.5	0.66	1.2
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.071 U	0.094 U	0.074 U	0.085 U	0.035 U	0.051 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.17 J	0.16 U	0.16 J	0.15 U	0.19 J	0.26 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>240</b>	<b>280</b>	<b>380</b>	<u>520</u>	<b>290</b>	<b>190</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	60 J	56 J	68	<u>95</u>	46	60
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3.3 J	2.2 J	3.3 J	3 J	2 J	1 J
Gasoline Range Organics	NE	NE	NE	NE	0.037 U	0.065 U	0.069 U	0.053 U	0.055 U	0.061 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	3.3 J	2.2 J	3.3 J	3 J	2 J	1 J

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74VP2b 74VP2b-01 5/3/2008 1.0 - 3.0	74VP2b 74VP2b-03 5/3/2008 5.0 - 7.0
<b>Volatile Organic Compounds (ug/kg)</b>						
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.54 U	0.46 U
Acetone	610,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	280 J	52 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.49 U	0.41 U
Chlorobenzene	31,000 <sup>(2)</sup>	150,000 <sup>(2)</sup>	40,000 <sup>(6)</sup>	NE	0.7 U	0.59 U
Chloroform	300	1,500	1,002 <sup>(9)</sup>	NE	0.48 U	0.4 U
Chloromethane	1,700	8,400	NE	NE	0.68 U	0.57 U
Ethyl methacrylate	7,000,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.1 UJ	1.8 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(9)</sup>	NE	0.72 U	0.6 U
Iodomethane	NE	NE	NE	NE	5.1	0.8 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	66 R	55 R
Methyl methacrylate	4,700,000 <sup>(2)</sup>	2,000,000 <sup>(2)</sup>	NE	NE	3.5 UJ	3 UJ
<b>LLPAHs (ug/kg)</b>						
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NE	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA
Benzo[k]fluoranthene	15	2,100	NE	NE	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA
Dibenz(a,h)anthracene	150	210	NE	NE	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA

TABLE 5-2

**SUMMARY OF DETECTED RESULTS - AIRFIELD - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74VP2b 74VP2b-01 5/3/2008 1.0 - 3.0	74VP2b 74VP2b-03 5/3/2008 5.0 - 7.0
<b>LLPAHs (ug/kg)</b>						
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA
<b>Metals (mg/kg)</b>						
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>3.5</u>	<u>2.8</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	28	64
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.16	0.21
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.061 J	<u>1.6</u>
Chromium	280	1,400	57 <sup>(10)</sup>	114.5	18	17
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>5.8</b>	<b>15</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	43	190
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.8	3.7
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	<u>0.19</u>	0.0043 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	4.9	16
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	<u>2.5</u>	0.41 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(8)</sup>	NE	0.089 U	0.26
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.26 J	0.12 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(11)</sup>	434	<b>220</b>	<b>100</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	32	<u>200</u>
<b>TPH DRO/GRO (mg/kg)</b>						
Diesel Range Organics	NE	NE	NE	NE	7.6	2.2 J
Gasoline Range Organics	NE	NE	NE	NE	0.058 U	0.063 U
Total TPH	25 <sup>(12)</sup>	NE	NE	NE	7.6	2.2 J

**TABLE 5-2**

**SUMMARY OF DETECTED RESULTS - SUBSURFACE SOIL - AIRFIELD  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated, the analyte was positively identified; the quantitation is an estimation  
U - Undetected at the Limit of Detection.  
UJ - Reported quantitation limit is qualified as estimated  
R - Data is rejected and not usable  
ft bgs - feet below ground surface  
mg/kg - milligram per kilogram  
ug/kg - microgram per kilogram  
NA - Not Analyzed  
NE - Not Established  
NAPR - Naval Activity Puerto Rico  
USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics  
GRO - Gasoline Range Organics  
TPH - Total Petroleum Hydrocarbons  
LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

- (1) NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) for Subsurface Soil Background Clay Table 3-4 (Baker, 2008)
- (2) Noncarcinogenic Regional Screening Criteria based on a target hazard quotient of 0.1 for conservative screening purposes
- (3) USEPA Action Level for lead in soils
- (4) Plant-based ecological soil screening level (USEPA, 2005a [arsenic]; USEPA, 2005b [cadmium]; USEPA, 2005c [cobalt]; USEPA, 2005d [lead]; USEPA, 2007a [copper]; USEPA, 2007b [nickel]; USEPA, 2007c [selenium])
- (5) Invertebrate-based ecological soil screening level (USEPA, 2005h [antimony]; USEPA, 2005f [barium]; USEPA, 2005g [beryllium]; USEPA, 2000d [zinc])
- (6) Toxicological threshold for earthworms (Efroymson et al., 1997a)
- (7) Toxicological threshold for plants (Efroymson et al., 1997b)
- (8) Ecological soil screening level (<http://www.epa.gov/ecotox/ecossl/>)
- (9) Ministry of Housing, Spatial Analysis and Environment (MHSPE), 2000, Circular on Target Values for Soil Remediation. Directorate-General for Environmental Protection, Department of Soil Protection, The Hague, Netherlands. February 4, 2000.
- (10) Reproduction-based MATC for *Eisenia andrei* (earthworm)
- (11) Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10
- (12) Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07

**TABLE 5-2**

**SUMMARY OF DETECTED RESULTS - SUBSURFACE SOIL - AIRFIELD  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

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USEPA. 2007b. Ecological Soil Screening Levels for Nickel (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-76.

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USEPA. 2007d. Ecological Soil Screening Levels for Zinc (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-72.

USEPA. 2005a. Ecological Soil Screening Levels for Arsenic (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C.

USEPA. 2005b. Ecological Soil Screening Levels for Cadmium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-62.

USEPA. 2005c. Ecological Soil Screening Levels for Cobalt (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-67

USEPA. 2005d. Ecological Soil Screening Levels for Lead (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-70.

USEPA. 2005f. Ecological Soil Screening Levels for Barium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-63.

USEPA. 2005g. Ecological Soil Screening Levels for Beryllium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-63.

USEPA. 2005h. Ecological Soil Screening Levels for Antimony (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-61.

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TABLE 5-3

**SUMMARY OF DETECTED RESULTS - AIRFIELD - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected	NAPR	74SB05	74SB09	74SB22	74SB26 <sup>(18)</sup>	74GW34	74SB57
Sample ID	Tap Water	MCLs	Ecological	Basewide	74GW05	74GW09	74GW22	74GW26	74GW34	74GW57
Date	Screening		Surface Water	Background <sup>(1)</sup>	5/5/2008	5/6/2008	5/5/2008	5/5/2008	5/6/2008	5/6/2008
	Levels		Screening Values							
<b>Volatile Organic Compounds (ug/L)</b>										
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(13)</sup>	NE	0.60 U	0.60 U	0.60 U	0.89 J	0.60 U	0.60 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(12)</sup>	NE	5.0 U	7.7 J	5.0 U	30	9.4 J	5.0 U
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	0.32 U	0.32 U	<b>3.0</b>	0.32 U	0.32 U
Chloromethane	1.8	NE	2700 <sup>(4)</sup>	NE	0.28 U	0.28 U	0.28 U	0.29 J	0.28 U	0.28 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.30 U	0.30 U	0.30 U	<b>2.7</b>	0.30 U	0.30 U
Tetrachloroethene	0.11	5.0	45 <sup>(7)</sup>	NE	<b>2.0</b>	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
<b>LLPAHs (ug/L)</b>										
2-Methylnaphthalene	NE	NE	6 <sup>(8)</sup>	NE	0.022 U	0.022 U	0.097 J	NA	NA	NA
Phenanthrene	NE	NE	8.3 <sup>(14)</sup>	NE	0.017 U	0.020 J	0.017 U	NA	NA	NA
<b>Total Metals (ug/L)</b>										
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(15)</sup>	686	97	230	<b>950</b>	<b>1,300</b>	56	110
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(3)</sup>	162.41	5.3	3.5 J	2.1 J	0.68 J	1.9 J	8.1
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	<b>6.0</b>	<b>4.3</b>	<b>2.4</b>	<b>12</b>	<b>1.6</b>	<b>6.4</b>
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	<b>26</b>	<b>16</b>	<b>8.5</b>	3.9 U	<b>15</b>	<b>29</b>
Lead	NE	15 <sup>(10)</sup>	8.52 <sup>(3)</sup>	26.25	1.7	0.70 U	0.16 U	0.15 U	0.22 U	1.8
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	2.4	2.6	7.5	3.5	<b>9.9</b>	5.3
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	0.600 U	0.60 U	0.60 U	0.60 U	2.7	0.60 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(13)</sup>	484.66	<b>52</b>	<b>26</b>	3.2 U	1.6 U	4.0 U	<b>43</b>
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	19 J	16 J	23 J	16 J	12 J	24 J



TABLE 5-3

**SUMMARY OF DETECTED RESULTS - AIRFIELD - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected	NAPR	74SB05	74SB09	74SB22	74SB26 <sup>(18)</sup>	74GW34	74SB57
Sample ID	Tap Water	MCLs	Ecological	Basewide	74GW05	74GW09	74GW22	74GW26	74GW34	74GW57
Date	Screening		Surface Water	Background <sup>(1)</sup>	5/5/2008	5/6/2008	5/5/2008	5/5/2008	5/6/2008	5/6/2008
<b>Dissolved Metals (ug/L)</b>										
Arsenic	0.045	10	36 <sup>(16)</sup>	14.03	<b>0.61 J</b>	<b>0.75 J</b>	<b>0.81 J</b>	<b>0.64 J</b>	<b>1.1 J</b>	<b>0.83 J</b>
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(15)</sup>	260	71	190	<b>1,000</b>	<b>1,700 J</b>	56	91
Beryllium	7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	5.4	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(11)</sup>	6.5	0.60 U	0.6 U	0.92 J	0.6 U	1.3 J	0.60 U
Cobalt	1.1	NE	45 <sup>(6)</sup>	580.5	<b>1.8</b>	<b>3.1</b>	<b>2.9</b>	<b>8.4 J</b>	<b>1.9</b>	<b>4.4</b>
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	29	2.2 U	2.4 U	<b>7.6</b>	1.2 U	<b>13</b>	1.2 U
Nickel	73	NE	8.28 <sup>(9)</sup>	84.1	0.63 J	1.6	6.7	1.3	<b>9.6</b>	2.4
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	0.60 U	0.6 U	0.6 U	0.81 J	2.8	0.60 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	3.2 J	2.2 J	2.8 J	0.8 U	3.7 J	1.2 J
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	6.5 U	10 J	17 J	6.5 U	12 J	7.9 J
<b>TPH DRO and GRO (mg/L)</b>										
Diesel Range Organics	NE	NE	NE	NE	0.18	0.62	1.0	16	0.38	0.045 J
Gasoline Range Organics	NE	NE	NE	NE	0.012 U	0.013 J	0.012 U	0.040 J	0.012 U	0.012 U
Total TPH	12.5 <sup>(17)</sup>	NE	NE	NE	0.18	0.633 J	1.0	<b>16.04 J</b>	0.38	0.045 J

TABLE 5-3

**SUMMARY OF DETECTED RESULTS - AIRFIELD - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected	NAPR	74HYD3D	74HYD3	74VP1a	74VP1b	74VP2a	74VP2b
Sample ID	Tap Water	MCLs	Ecological	Basewide	74GWHYD3D	74GWHYD3	74GWVP1a	74GWVP1b	74GWVP2a	74GWVP2b
Date	Screening		Surface Water	Background <sup>(1)</sup>	5/5/2008	5/5/2008	5/6/2008	5/5/2008	5/6/2008	5/6/2008
	Levels		Screening Values							
<b>Volatile Organic Compounds (ug/L)</b>										
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(13)</sup>	NE	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(12)</sup>	NE	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	9.5 J
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Chloromethane	1.8	NE	2700 <sup>(4)</sup>	NE	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Tetrachloroethene	0.11	5.0	45 <sup>(7)</sup>	NE	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
<b>LLPAHs (ug/L)</b>										
2-Methylnaphthalene	NE	NE	6 <sup>(8)</sup>	NE	0.022 U	0.022 U	NA	NA	NA	NA
Phenanthrene	NE	NE	8.3 <sup>(14)</sup>	NE	0.017 U	0.017 U	NA	NA	NA	NA
<b>Total Metals (ug/L)</b>										
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(15)</sup>	686	68	69	9.9	74	16	17
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.12 U	0.12 U	0.12 U	0.12 U	0.26 J	0.13 J
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(3)</sup>	162.41	0.60 U	0.60 U	0.97 J	0.60 U	3.2 J	0.76 J
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	<b>3.5</b>	<b>3.4</b>	<b>1.7</b>	<b>2.1</b>	<b>2.3</b>	0.77 J
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	1.2 U	2.4 U	<b>5.3</b>	<b>5.7</b>	<b>23</b>	<b>6.3</b>
Lead	NE	15 <sup>(10)</sup>	8.52 <sup>(3)</sup>	26.25	0.15 U	0.15 U	0.15 U	0.15 U	1.1 J	0.21 U
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	0.47 J	0.61 J	0.72 J	0.79 J	2.8	0.66 J
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(13)</sup>	484.66	1.3 U	1.4 U	5.9	6.2	<b>20</b>	<b>14</b>
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	6.5 U	6.5 U	7.3 J	6.8 J	35 J	8.3 J

TABLE 5-3

**SUMMARY OF DETECTED RESULTS - AIRFIELD - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	Regional	USEPA	Selected	NAPR	74HYD3D	74HYD3	74VP1a	74VP1b	74VP2a	74VP2b
	Sample ID	Tap Water	MCLs	Ecological	Basewide	74GWHYD3D	74GWHYD3	74GWVP1a	74GWVP1b	74GWVP2a	74GWVP2b
	Date	Screening		Surface Water	Background <sup>(1)</sup>	5/5/2008	5/5/2008	5/6/2008	5/5/2008	5/6/2008	5/6/2008
<b>Dissolved Metals (ug/L)</b>											
Arsenic		0.045	10	36 <sup>(16)</sup>	14.03	<b>0.9 J</b>	<b>0.98 J</b>	0.56 U	0.84 U	0.41 U	0.61 U
Barium		730 <sup>(2)</sup>	2,000	16,667 <sup>(15)</sup>	260	58	55	8.2	64	8.4	15
Beryllium		7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	5.4	0.065 U	0.065 U	0.073 J	0.065 U	0.065 U	0.065 U
Chromium		5,500 <sup>(2)</sup>	NE	50.4 <sup>(11)</sup>	6.5	0.6 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U
Cobalt		1.1	NE	45 <sup>(6)</sup>	580.5	<b>2.9</b>	<b>3.3</b>	<b>1.8</b>	<b>2.0</b>	<b>2.1</b>	0.96 J
Copper		150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	29	1.2 U	3.0 U	1.2 U	1.2 U	3.5 U	2.9 U
Nickel		73	NE	8.28 <sup>(9)</sup>	84.1	0.36 J	0.64 J	0.39 J	0.63 J	0.86 J	0.44 J
Selenium		18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	0.6 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U
Vanadium		26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	0.93 J	1.1 J	1.2 J	2.4 J	8.8	12
Zinc		1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	6.5 U	6.9 J	9.1 J	7.4 J	6.5 U	6.5 U
<b>TPH DRO and GRO (mg/L)</b>											
Diesel Range Organics		NE	NE	NE	NE	0.028 U	0.028 U	0.028 U	0.082 J	0.028 U	0.028 U
Gasoline Range Organics		NE	NE	NE	NE	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
Total TPH		12.5 <sup>(17)</sup>	NE	NE	NE	0.04 U	0.04 U	0.04 U	0.082 J	0.04 U	0.04 U

**TABLE 5-3**

**SUMMARY OF DETECTED RESULTS - AIRFIELD - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes:**

U - Not detected

J - Analyte present - Reported value is estimated

mg/L - microgram per liter

ug/L - microgram per liter

NA - Not Analyzed

NE - Not Established

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

- <sup>(1)</sup> NAPR Basewide Groundwater Background - Upper Limit of Means (Mean + 2 standard deviations) Revised Final Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, PR, Baker Environmental (Baker, 2008)
- <sup>(2)</sup> Noncarcinogenic Regional Screening Criteria based on a target hazard quotient of 0.1 for conservative screening purposes
- <sup>(3)</sup> Total Recoverable Criteria Continuous Concentration
- <sup>(4)</sup> Minimum acute value (96-hour LC<sub>50</sub> for *Menidia beryllina* [inland silverside]) with safety factor of 100 (USEPA, 2007)
- <sup>(5)</sup> Minimum acute value (96-hour LC<sub>50</sub> for *Fundulus heteroclitus* [mummichog]) with safety factor of 100 (value expressed as a total recoverable concentration) (USEPA, 2003).
- <sup>(6)</sup> Minimum acute value (96-hour LC<sub>50</sub> for *Nitocra spinipes* [Harpacticoid copepod]) with safety factor of 100 (value expressed as a total recoverable concentration) (USEPA, 2003)
- <sup>(7)</sup> USEPA Region 4 chronic screening value (USEPA, 2001)
- <sup>(8)</sup> Minimum acute value (96-hour LC<sub>50</sub> for *Penaeus aztecus* [brown shrimp]) with safety factor of 100 (USEPA, 2007)
- <sup>(9)</sup> USEPA National recommended water quality criterion (dissolved saltwater CCC) (USEPA, 2006)
- <sup>(10)</sup> USEPA Action Level for lead in drinking water
- <sup>(11)</sup> Total recoverable Criteria Continuous Concentration for hexavalent chromium
- <sup>(12)</sup> Minimum acute value (96-hour LC<sub>50</sub> for *Lumbriculus variegatus* [oligochaete]) with a safety factor of 100
- <sup>(13)</sup> USEPA Region 5 ecological screening level
- <sup>(14)</sup> Final Chronic Value
- <sup>(15)</sup> Minimum acute value (96-hour NOEC for *Cyprinodon variegatus* [sheepshead minnow]) with safety factor of 30 (USEPA, 2007)
- <sup>(16)</sup> Total recoverable Criteria Continuous Concentration for trivalent arsenic
- <sup>(17)</sup> Screening level for TPH is 25% of PREQB groundwater criterion, as proposed in the approved Work Plan dated 12/6/07
- <sup>(18)</sup> Dissolved metals and TPH DRO were collected on 7/23/2008 because sufficient volume was not achievable on 5/5/2008 to fill the required bottles.

**TABLE 5-3**

**SUMMARY OF DETECTED RESULTS - AIRFIELD - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

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TABLE 6-1

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID	<b>Regional Screening</b>	<i>Regional Screening</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB71 74SB71-00 5/5/2008 0.0-1.0	74SB81 74SB81-00 5/5/2008 0.0-1.0	74SB91 74SB91-00 5/7/2008 0.0-1.0	74SB101 74SB101-00 5/5/2008 0.0-1.0	74SB111 74SB111-00 5/7/2008 0.0-1.0	74SB121 74SB121-00 5/13/2008 0.0-1.0
Date Depth Range (ft bgs)	<b>Levels Residential Soil</b>	<i>Levels Industrial Soil</i>								
<b>Volatile Organic Compounds (ug/kg)</b>										
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	430 J	70 J	390 J	73 J	220 J	43 J
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.63 U	7	0.64 J	0.57 J	0.76 U	0.55 U
Iodomethane	NE	NE	NE	NE	2.2 J	0.92 U	1.1 U	1 UJ	1.5 U	1.1 U
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.11 UJ	0.22 UJ	0.26 J	0.12 UJ	0.11 J	0.26 UJ
Arsenic	0.39	1.6	18 <sup>(4)</sup>	2.65	<b>1.3</b>	<b>2.3</b>	<b>1.8</b>	<b>2.9</b>	<b>1.5</b>	<b>2.8</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	199	78 J	80 J	110 R	110 J	75	170
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.59	0.23	0.23	0.24	0.1 J	0.23	0.21
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	1.02	0.15	0.15	0.19	0.17	0.051 J	0.21
Chromium	280	1,400	57 <sup>(7)</sup>	49.8	20	33 R	19 J	12 R	14	29 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	46.2	<b>22</b>	<b>25</b>	<b>13 J</b>	<b>8.7</b>	<b>19</b>	<b>17</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	168	<b>110 J</b>	<b>110</b>	61	55	53	<b>75</b>
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	22	3.9	12 J	<u>27</u>	5.1 J	5.9	<u>39</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.109	0.031	0.011 J	0.061	0.0081 J	0.017 J	0.016 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	20.7	10	17	9.3	6.2	7.8	14
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	1.48	<b>0.74</b>	0.36 J	0.23 J	0.22 J	0.26 J	0.32 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.04 J	0.07 UJ	0.098 J	0.046 UJ	0.022 J	0.074 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(8)</sup>	259	<b>210</b>	<b>160</b>	<b>98</b>	<b>78</b>	<b>120</b>	<b>130</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	115	76 J	69 J	87	35 J	47	85 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	12	11	48	4.5	4 J	33
Gasoline Range Organics	NE	NE	NE	NE	1 J	0.82 J	0.31 J	0.092 UJ	0.084 U	0.07 U
Total TPH	25 <sup>(9)</sup>	NE	NE	NE	13 J	11.82 J	<b>48.31 J</b>	4.5	4 J	<b>33</b>

**TABLE 6-1**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

ft bgs - feet below ground surface

ug/kg - microgram per kilogram

mg/kg - milligram per kilogram

NE - Not Established

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

<sup>(1)</sup> NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) (Baker, 2008)

<sup>(2)</sup> Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes

<sup>(3)</sup> USEPA Action Level for lead in soils

<sup>(4)</sup> Plant-based ecological soil screening level (USEPA, 2005a [arsenic]; USEPA, 2005b [cadmium]; USEPA, 2005c [cobalt]; USEPA, 2005d [lead];

USEPA, 2006a [silver]; USEPA, 2007a [copper]; USEPA, 2007b [nickel]; USEPA, 2007c [selenium])

<sup>(5)</sup> Invertebrate-based ecological soil screening level (USEPA, 2005h [antimony]; USEPA, 2005f [barium]; USEPA, 2005g [beryllium]; USEPA, 2007d [zinc])

<sup>(6)</sup> Toxicological threshold for earthworms (Efroymson et al., 1997a)

<sup>(7)</sup> Reproduction-based MATC for *Eisenia andrei* (earthworm)

<sup>(8)</sup> Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10

<sup>(9)</sup> Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07

**TABLE 6-1**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

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USEPA. 2007b. Ecological Soil Screening Levels for Nickel (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-76.

USEPA. 2007c. Ecological Soil Screening Levels for Selenium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-73.

USEPA. 2007d. Ecological Soil Screening Levels for Zinc (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-72.

USEPA. 2006. Ecological Soil Screening Levels for Silver (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-77.

USEPA. 2005a. Ecological Soil Screening Levels for Arsenic (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-62.

USEPA. 2005b. Ecological Soil Screening Levels for Cadmium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-65.

USEPA. 2005c. Ecological Soil Screening Levels for Cobalt (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-67

USEPA. 2005d. Ecological Soil Screening Levels for Lead (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-70.

USEPA. 2005f. Ecological Soil Screening Levels for Barium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-63.

USEPA. 2005g. Ecological Soil Screening Levels for Beryllium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-64.

USEPA. 2005h. Ecological Soil Screening Levels for Antimony (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-61.



TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB63 74SB63-03 5/4/2008 5.0-7.0	74SB63 74SB63-04 5/4/2008 7.0-9.0	74SB64 74SB64-03 5/4/2008 5.0-7.0	74SB64 74SB64-04 5/4/2008 7.0-9.0	74SB65 74SB65-03 5/4/2008 5.0-7.0	74SB65 74SB65-04 5/4/2008 7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.7 U	2.8 U	2.3 U	2.6 U	2.3 U	2.7 U
2-Hexanone	NE	NE	NE	NE	2.1 U	2.2 U	1.8 U	2 U	1.8 U	2.1 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.9 U	3 U	2.5 U	2.8 U	2.5 U	2.9 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	10 J	4.5 R	3.8 R	8.5 J	7.6 J	4.4 R
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	19 U	20 U	16 U	19 U	16 U	19 U
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	23 U	24 U	20 U	22 U	20 U	23 U
Bromoform	6,100	22,000	NE	NE	1.1 U	1.1 U	0.94 U	1.1 U	0.94 U	1.1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.51 U	0.52 U	0.44 U	0.5 U	0.44 U	0.51 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.5 U	0.51 U	0.43 U	0.49 U	0.43 U	0.5 U
Chloromethane	1,700	8,400	NE	NE	0.71 U	0.73 U	0.61 U	0.69 U	0.61 U	0.71 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.2 U	2.3 U	1.9 U	2.1 U	1.9 U	2.2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.75 U	0.77 U	0.64 U	0.73 U	0.64 U	0.75 U
Iodomethane	NE	NE	NE	NE	0.99 U	1 U	1.5 J	0.98 U	0.86 U	1 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	69 R	71 R	59 R	67 R	59 R	69 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.99 U	1 U	0.86 U	0.98 U	0.86 U	1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.73 U	0.75 U	0.63 U	0.71 U	0.63 U	0.73 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.86 U	0.89 U	0.75 U	0.85 U	0.75 U	0.87 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.5 U	1.5 U	1.3 U	1.5 U	1.3 U	1.5 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB63 74SB63-03 5/4/2008 5.0-7.0	74SB63 74SB63-04 5/4/2008 7.0-9.0	74SB64 74SB64-03 5/4/2008 5.0-7.0	74SB64 74SB64-04 5/4/2008 7.0-9.0	74SB65 74SB65-03 5/4/2008 5.0-7.0	74SB65 74SB65-04 5/4/2008 7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.091 UJ	0.091 UJ	0.081 UJ	0.088 UJ	0.098 J	0.12 J
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.55 J</b>	<b>0.59 J</b>	<b>0.69</b>	<b>0.4 J</b>	<b>0.42 J</b>	<b>0.45 J</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	45 J	140 J	54 J	21 J	22 J	13 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.13	0.1 J	0.18	0.095 J	0.18	0.18
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.12 J	0.19	0.089 J	0.047 J	<u>0.67</u>	<u>0.62</u>
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	5.3	3.6	18	0.56 J	2.5	1.4
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>17</b>	<b>27</b>	<b>19</b>	<b>9.1</b>	<b>7.4</b>	<b>7.1</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	180 J	<b>530 J</b>	91 J	80 J	23 J	17 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.48	0.72	1.7	0.38	1.2	0.99
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0049 R	0.054 R	0.0043 R	0.0069 R	0.0043 R	0.0054 R
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	12	7.2	6.9	1.8	1.9	1.7
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.15 U	0.15 U	0.13 U	0.14 U	0.12 U	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.062 J	0.02 J	0.022 J	0.019 U	0.016 U	0.019 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.15 U	0.13 U	0.14 U	0.12 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.9 U	4.9 U	4.3 U	4.7 U	4 U	4.7 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>140</b>	<b>100</b>	<b>170</b>	<b>78</b>	49	54
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	39	75	61	33	63	63
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.2 J	1.6 J	2 J	1.7 J	1.1 J	1.4 J
Gasoline Range Organics	NE	NE	NE	NE	0.064 U	0.061 U	0.054 U	0.057 U	0.054 U	0.065 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2.2 J	1.6 J	2 J	1.7 J	1.1 J	1.4 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB66 74SB66-03 5/4/2008 5.0-7.0	74SB66 74SB66-04 5/4/2008 7.0-9.0	74SB66 74SB66-04D 5/4/2008 7.0-9.0	74SB67 74SB67-03 5/4/2008 5.0-7.0	74SB67 74SB67-04 5/4/2008 7.0-9.0	74SB68 74SB68-03 5/4/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.7 U	2.8 U	3.2 U	3.1 U	3.1 U	2.8 U
2-Hexanone	NE	NE	NE	NE	2.1 U	2.2 U	2.5 U	2.4 U	2.4 U	2.1 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.9 U	3 U	3.5 U	3.3 U	3.4 U	3 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	4.4 R	20 J	5.3 R	5 R	5.1 R	14 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	19 U	20 U	23 U	22 U	22 U	19 U
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	23 U	24 U	27 U	26 U	27 U	24 U
Bromoform	6,100	22,000	NE	NE	1.1 U	1.1 U	1.3 U	1.3 U	1.3 U	1.1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.5 U	0.56 J	0.61 U	0.58 U	0.59 U	0.52 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.49 U	0.52 U	0.6 U	0.57 U	0.58 U	0.51 U
Chloromethane	1,700	8,400	NE	NE	0.7 U	0.74 U	0.85 U	0.81 U	0.82 U	0.73 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.2 U	2.3 U	2.6 U	2.5 U	2.6 U	2.2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.74 U	0.78 U	0.9 U	0.86 U	0.87 U	0.77 U
Iodomethane	NE	NE	NE	NE	0.99 U	1 U	1.2 U	1.1 U	1.2 U	1 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	68 R	71 R	82 R	79 R	80 R	71 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.99 U	1 U	1.2 U	1.1 U	1.2 U	1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.72 U	0.76 U	0.87 U	0.83 U	0.85 U	0.75 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.86 U	0.9 U	1 U	0.99 U	1 U	0.89 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.5 U	1.6 U	1.8 U	1.7 U	1.7 U	1.5 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB66 74SB66-03 5/4/2008 5.0-7.0	74SB66 74SB66-04 5/4/2008 7.0-9.0	74SB66 74SB66-04D 5/4/2008 7.0-9.0	74SB67 74SB67-03 5/4/2008 5.0-7.0	74SB67 74SB67-04 5/4/2008 7.0-9.0	74SB68 74SB68-03 5/4/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.085 UJ	0.092 UJ	0.092 UJ	0.095 UJ	0.1 UJ	0.097 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	0.28 J	<b>0.46 J</b>	0.37 J	<b>0.71</b>	0.27 J	<b>0.55 J</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	46 J	84 J	110 J	200 J	19 J	140 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.12	0.14	0.15	0.23	0.24	0.41
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.035 U	0.077 J	0.059 J	0.052 J	0.042 U	0.04 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	0.74 J	4.3	1.4	3.5	4.7	9.5
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>22</b>	<b>18 J</b>	<b>29 J</b>	<b>28</b>	<b>6.3</b>	<b>23</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	78 J	60 J	100 J	120 J	33 J	140 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.4	0.71	0.58	1.5	0.3 U	1.3
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.021 R	0.018 R	0.17 R	0.005 R	0.013 R	0.01 R
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	3.5	2.9	4	7.6	3.7	6.7
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.14 U	0.15 U	0.15 U	0.15 U	0.16 U	0.15 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.02 J	0.073 J	0.064 J	0.038 J	0.021 U	0.034 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.15 U	0.15 U	0.15 U	0.16 U	0.15 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.5 U	4.9 U	4.9 U	5.1 U	5.4 U	5.1 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>100</b>	<b>210</b>	<b>180</b>	<b>150</b>	<b>130</b>	<b>140</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	43	58	67	70	30	62
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2 J	1.2 J	2.4 J	0.97 J	0.96 J	1.8 J
Gasoline Range Organics	NE	NE	NE	NE	0.059 U	0.066 U	0.066 U	0.065 U	0.07 U	0.069 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2 J	1.2 J	2.4 J	J J	0.96 J	1.8 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB68 74SB68-04 5/4/2008 7.0-9.0	74SB69 74SB69-03 5/4/2008 5.0-7.0	74SB69 74SB69-04 5/4/2008 7.0-9.0	74SB70 74SB70-03 5/4/2008 5.0-7.0	74SB70 74SB70-04 5/4/2008 7.0-9.0	74SB71 74SB71-03 5/5/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.5 U	3 U	3.1 U	3 U	8.6 U	15 U
2-Hexanone	NE	NE	NE	NE	2.8 U	2.3 U	2.4 U	2.3 U	2.2 U	2.4 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.8 U	3.2 U	3.4 U	3.2 U	3 U	3.3 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	5.8 R	32 J	5.1 R	82 J	130 J	240 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	25 U	21 R	22 U	21 R	20 U	21 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	30 U	25 U	27 U	26 U	24 U	26 UJ
Bromoform	6,100	22,000	NE	NE	1.4 U	1.2 U	1.3 U	1.2 U	1.1 U	1.2 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.67 U	0.56 U	0.59 U	0.57 U	0.53 U	0.57 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.66 U	0.55 U	0.58 U	0.56 U	0.52 U	0.56 U
Chloromethane	1,700	8,400	NE	NE	0.93 U	0.78 U	0.82 U	0.79 U	0.74 U	0.8 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.9 U	2.4 U	2.5 U	2.5 U	2.3 U	2.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.98 U	0.83 U	0.87 U	0.84 U	0.78 U	0.84 U
Iodomethane	NE	NE	NE	NE	1.3 U	1.1 U	1.2 U	1.1 U	3.5 J	2.4 J
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	90 R	76 R	80 R	77 R	72 R	78 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.3 U	1.1 U	1.2 U	1.1 U	1 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.96 U	0.8 U	0.84 U	0.81 U	0.76 U	0.82 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	0.96 U	1 U	0.97 U	0.9 U	0.98 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	2 U	1.7 U	1.7 U	1.7 U	1.6 U	1.7 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB68 74SB68-04 5/4/2008 7.0-9.0	74SB69 74SB69-03 5/4/2008 5.0-7.0	74SB69 74SB69-04 5/4/2008 7.0-9.0	74SB70 74SB70-03 5/4/2008 5.0-7.0	74SB70 74SB70-04 5/4/2008 7.0-9.0	74SB71 74SB71-03 5/5/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.1 UJ	0.1 UJ	0.098 UJ	0.11 J	0.094 J	0.11 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.66 J</b>	<b>1.5</b>	<u>1.8</u>	<u>1.8</u>	<u>2.2</u>	<u>2.3</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	<u>460 J</u>	75 J	34 J	24 J	89 J	88 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	<u>0.64</u>	0.29	0.19	0.22	0.35	0.27
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.043 U	0.041 U	0.04 U	0.38	0.36	0.12 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	4.3	15	14	23	26	25
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>230</u>	<b>14</b>	<b>6.6</b>	<b>21</b>	<u>61</u>	<b>18</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	160 J	60 J	64 J	89 J	71 J	100 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.4	<u>9.9</u>	<u>6.9</u>	<u>7.3</u>	<u>14</u>	4
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0059 R	0.051 R	0.053 R	0.069 R	0.11 R	0.078
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	7.2	5	4.5	5.4	9.3	7.9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.17 U	2.8	1.9	1.7	1.5	2.1
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.044 J	0.058 J	0.037 J	0.15 J	0.1 J	0.032 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.17 U	0.16 U	0.16 U	0.15 U	0.15 J	0.16 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	5.5 U	5.3 U	5.2 U	5.1 U	4.9 U	5.3 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>160</b>	<b>260</b>	<b>270</b>	<b>320</b>	<b>340</b>	<b>430</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	45	42	38	41	56	60 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.6 J	2.3 J	1.8 J	2.1 J	2 J	1.5 J
Gasoline Range Organics	NE	NE	NE	NE	0.075 U	0.069 U	0.068 U	0.063 U	0.062 U	0.068 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.6 J	2.3 J	1.8 J	2.1 J	J J	J J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB71 74SB71-04 5/5/2008 7.0-9.0	74SB71 74SB71-04D 5/5/2008 7.0-9.0	74SB72 74SB72-03 5/5/2008 5.0-7.0	74SB72 74SB72-04 5/5/2008 7.0-9.0	74SB73 74SB73-03 5/5/2008 5.0-7.0	74SB73 74SB73-04 5/5/2008 7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	7.5 U	5.5 U	5.5 U	3.1 U	2.6 U	2.6 U
2-Hexanone	NE	NE	NE	NE	2.8 U	2.2 U	2.3 U	2.4 U	2 U	2 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.8 U	3.1 U	3.2 U	3.3 U	2.8 U	2.8 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	110 R	62 R	50 R	27 R	11 R	4.2 R
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	25 R	20 R	21 R	22 R	18 R	18 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	30 UJ	25 UJ	25 UJ	27 UJ	22 UJ	22 UJ
Bromoform	6,100	22,000	NE	NE	1.5 U	1.2 U	1.2 U	1.3 U	1.1 U	1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.67 U	0.54 U	0.56 U	0.59 U	0.5 U	0.49 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.66 U	0.53 U	0.54 U	0.58 U	0.49 U	0.48 U
Chloromethane	1,700	8,400	NE	NE	0.94 U	0.76 U	0.77 U	0.82 U	0.69 U	0.68 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.9 U	2.3 U	2.4 U	2.5 U	2.1 U	2.1 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.99 U	0.8 U	0.82 U	0.87 U	0.73 U	0.71 U
Iodomethane	NE	NE	NE	NE	1.3 U	1.1 U	2.4 J	1.2 U	0.97 U	0.95 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	91 R	74 R	75 R	80 R	67 R	66 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.3 U	1.1 U	1.1 U	1.2 U	0.97 U	0.95 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.96 U	0.78 U	0.8 U	0.84 U	0.71 U	0.69 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	0.93 U	0.95 U	1 U	0.84 U	0.83 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	2 U	1.6 U	1.6 U	1.7 U	1.5 U	1.4 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB71 74SB71-04 5/5/2008 7.0-9.0	74SB71 74SB71-04D 5/5/2008 7.0-9.0	74SB72 74SB72-03 5/5/2008 5.0-7.0	74SB72 74SB72-04 5/5/2008 7.0-9.0	74SB73 74SB73-03 5/5/2008 5.0-7.0	74SB73 74SB73-04 5/5/2008 7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.1 UJ	0.095 UJ	0.094 UJ	0.095 UJ	0.084 UJ	0.091 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<u>1.8</u>	<b>1.3</b>	<u>1.7</u>	<b>1.3</b>	<b>0.66</b>	<b>1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	<u>300</u> J	210 J	120 J	81 J	35 J	99 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.3	0.26	<u>0.88</u>	<u>0.73</u>	0.13	0.17
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.09 U	0.049 U	0.099 J	0.064 J	0.11 J	<u>0.57</u>
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	21	22	6.1	7	19	40
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>14</b>	<b>12</b>	<u>220</u>	<u>60</u>	<b>17</b>	<u>36</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	99 J	92 J	79 J	47 J	55 J	86 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3.3	2.6	1.1	0.87	0.7	0.73
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.034	0.0073 J	0.0085 J	0.016 J	0.0047 U	0.0063 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	9.7	9.3	12	9.2	14	22
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.94	0.57 J	0.32 J	0.25 J	0.13 U	0.14 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.05 J	0.056 J	0.021 J	0.027 J	0.024 J	0.029 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.17 U	0.15 U	0.15 U	0.15 U	0.13 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	5.5 U	5.1 U	5 U	5.1 U	4.5 U	4.8 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>330</b>	<b>280</b>	<b>410</b>	<b>310</b>	<b>130</b>	<b>150</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	60 J	59 J	46 J	41 J	51 J	86 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.4 J	1.2 J	1.2 J	1.6 J	1.2 J	1.5 J
Gasoline Range Organics	NE	NE	NE	NE	0.073 U	0.068 U	0.065 U	0.067 U	0.061 U	0.056 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.4 J	J J	J J	1.6 J	1.2 J	1.5 J



TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB74 74SB74-03 5/5/2008 5.0-7.0	74SB74 74SB74-04 5/5/2008 7.0-9.0	74SB75 74SB75-03 5/5/2008 5.0-7.0	74SB75 74SB75-04 5/5/2008 7.0-9.0	74SB76 74SB76-03 5/5/2008 5.0-7.0	74SB76 74SB76-03D 5/5/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.7 U	2.7 U	2.4 U	2.3 U	2.4 U	2.6 U
2-Hexanone	NE	NE	NE	NE	2.1 U	2.1 U	1.9 U	1.8 U	1.9 U	2 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.9 U	2.9 U	2.6 U	2.4 U	2.6 U	2.8 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	6.4 R	5.2 R	3.9 R	3.7 R	4 R	4.2 R
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	19 R	19 R	17 R	16 R	17 R	18 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	23 UJ	23 UJ	21 UJ	19 UJ	21 UJ	22 UJ
Bromoform	6,100	22,000	NE	NE	1.1 U	1.1 U	0.99 U	0.92 U	0.99 U	1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.5 U	0.51 U	0.46 U	0.43 U	0.46 U	0.49 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.49 U	0.5 U	0.45 U	0.42 U	0.45 U	0.48 U
Chloromethane	1,700	8,400	NE	NE	0.7 U	0.71 U	0.64 U	0.59 U	0.64 U	0.68 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.2 U	2.2 U	2 U	1.8 U	2 U	2.1 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.74 U	0.75 U	0.67 U	0.63 U	0.68 U	0.71 U
Iodomethane	NE	NE	NE	NE	0.98 U	1 U	0.9 U	0.83 U	0.9 U	0.95 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	68 R	69 R	62 R	58 R	62 R	66 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.98 U	1 U	0.9 U	0.83 U	0.9 U	0.95 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.72 U	0.73 U	0.65 U	0.61 U	0.66 U	0.69 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.86 U	0.87 U	0.78 U	0.73 U	0.79 U	0.83 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.5 U	1.5 U	1.3 U	1.3 U	1.4 U	1.4 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB74 74SB74-03 5/5/2008 5.0-7.0	74SB74 74SB74-04 5/5/2008 7.0-9.0	74SB75 74SB75-03 5/5/2008 5.0-7.0	74SB75 74SB75-04 5/5/2008 7.0-9.0	74SB76 74SB76-03 5/5/2008 5.0-7.0	74SB76 74SB76-03D 5/5/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.081 UJ	0.086 UJ	0.078 UJ	0.073 UJ	0.079 UJ	0.086 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<u>2.8</u>	<u>7.4</u>	<b>1.1</b>	<b>1.1</b>	<b>0.9</b>	<b>1.4</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	79 J	46 J	30 J	24 J	40 J	73 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.14	0.17	0.12 J	0.1	0.1 J	0.16
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.54	0.37	0.18	0.19	0.055 J	0.15
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	7.8	2.1	3.8	3.4	2.2	2.9
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>34</u>	<u>140</u>	<b>22</b>	<b>19</b>	<b>17 J</b>	<u>38 J</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	110 J	<u>1000 J</u>	53 J	26 J	3.3 J	6 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.91	1.8	0.41	0.31	0.28 UJ	0.47 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0079 J	0.005 J	0.0045 U	0.0037 U	0.0055 J	0.0052 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	5.6	8.4	7.5	5.2	4	5.7
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.37 J	1.9	0.13 U	0.12 U	0.13 U	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.02 J	0.034 J	0.054 J	0.047 J	0.13 J	0.062 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.14 U	0.13 U	0.12 U	0.13 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.3 U	4.6 U	4.2 U	3.9 U	4.2 U	4.6 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>170</b>	<b>310</b>	<b>220</b>	<b>190</b>	<b>190</b>	<b>240</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	<u>110 J</u>	48 J	42 J	67 J	34 J	77 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	0.92 J	1.3 J	1.4 J	1.2 J	0.9 J	0.96 J
Gasoline Range Organics	NE	NE	NE	NE	0.053 U	0.062 U	0.055 U	0.049 U	0.053 U	0.055 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.92 J	1.3 J	1.4 J	1.2 J	0.9 J	0.96 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB76 74SB76-04 5/5/2008 7.0-9.0	74SB77 74SB77-03 5/5/2008 5.0-7.0	74SB77 74SB77-04 5/5/2008 7.0-9.0	74SB79 74SB79-03 5/5/2008 5.0-7.0	74SB79 74SB79-04 5/5/2008 7.0-9.0	74SB80 74SB80-03 5/5/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.1 U	2.7 U	3 U	2.8 U	2.6 U	3.2 U
2-Hexanone	NE	NE	NE	NE	1.7 U	2.1 U	2.3 U	2.2 U	2 U	1.4 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.4 U	2.9 U	3.2 U	3 U	2.8 U	1.9 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	16 R	4.4 R	4.8 R	31 J	21 J	20 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	16 R	19 R	21 R	20 R	18 R	13 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	19 UJ	23 UJ	25 UJ	24 UJ	22 UJ	15 UJ
Bromoform	6,100	22,000	NE	NE	0.91 U	1.1 U	1.2 U	1.1 U	1.1 U	0.74 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.42 U	0.51 U	0.56 U	1.5 J	0.49 U	0.34 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.41 U	0.5 U	0.55 U	0.52 U	0.48 U	0.34 U
Chloromethane	1,700	8,400	NE	NE	0.59 U	0.71 U	0.78 U	0.74 U	0.68 U	0.48 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	1.8 U	2.2 U	2.4 U	2.3 U	2.1 U	1.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.62 U	0.75 U	0.82 U	0.78 U	0.72 U	0.5 U
Iodomethane	NE	NE	NE	NE	0.83 U	1 U	1.1 U	1.4 J	0.96 U	1.1 J
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	57 R	69 R	76 R	72 R	66 R	46 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.83 U	1 U	1.1 U	1 U	0.96 U	0.67 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.6 U	0.73 U	0.8 U	0.76 U	0.7 U	0.49 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.72 U	0.87 U	0.95 U	0.91 U	0.84 U	0.58 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.2 U	1.5 U	1.6 U	1.6 U	1.4 U	1 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB76 74SB76-04 5/5/2008 7.0-9.0	74SB77 74SB77-03 5/5/2008 5.0-7.0	74SB77 74SB77-04 5/5/2008 7.0-9.0	74SB79 74SB79-03 5/5/2008 5.0-7.0	74SB79 74SB79-04 5/5/2008 7.0-9.0	74SB80 74SB80-03 5/5/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.077 UJ	0.092 UJ	0.1 UJ	0.095 UJ	0.087 UJ	0.086 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.82</b>	<u>3.2</u>	<b>0.9</b>	<u>1.8</u>	<u>2.3</u>	<b>0.96</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	31 J	170 J	28 J	130 J	<u>510</u> J	110 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.11 J	<u>0.65</u>	0.5	0.46	0.55	0.15
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.043 J	0.18	0.44	0.15	0.29	0.059 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	2.4	7.1	10	6.4	5.7	6.3
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>13</b>	<u>35</u>	<b>16</b>	<u>51</u>	<u>30</u>	<b>18</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	4.4 J	230 J	150 J	220 J	200 J	75 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.28 U	1.2	0.34 U	3.9	4	0.73
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0049 J	0.0049 U	0.071	0.043	0.029	0.0045 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	4	7.2	9.9	5.9	7.3	5.1
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.12 U	0.26 J	0.16 J	1.1	1.1	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.12 J	0.064 J	0.13 J	0.034 J	0.054 J	0.021 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.12 U	0.15 U	0.16 U	0.15 U	0.14 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.1 U	4.9 U	5.5 U	5 U	4.7 U	4.6 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>190</b>	<b>310</b>	<b>100</b>	<b>270</b>	<b>260</b>	<b>170</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	36 J	<u>120</u> J	40 J	<u>91</u> J	<u>110</u> J	45 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2 J	3.2 J	2.8 J	5.7	1.7 J	1 J
Gasoline Range Organics	NE	NE	NE	NE	0.054 U	0.066 U	0.067 U	0.064 U	0.065 U	0.055 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2 J	3.2 J	2.8 J	5.7	1.7 J	1 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB80 74SB80-04 5/5/2008 7.0-9.0	74SB81 74SB81-03 5/5/2008 5.0-7.0	74SB81 74SB81-04 5/5/2008 7.0-9.0	74SB81 74SB81-04D 5/5/2008 7.0-9.0	74SB82 74SB82-03 5/6/2008 5.0-7.0	74SB82 74SB82-04 5/6/2008 7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	4.7 U	2.6 U	3.1 U	2.2 U	2.9 U	3.4 U
2-Hexanone	NE	NE	NE	NE	1.8 U	2 U	2.4 U	1.7 U	2.2 U	2.6 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.6 U	2.8 U	3.3 U	2.4 U	3.1 U	3.6 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	36 J	44 J	28 J	13 J	21 J	24 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	17 R	18 R	22 R	16 R	20 R	24 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	20 UJ	22 UJ	26 UJ	19 UJ	25 U	29 U
Bromoform	6,100	22,000	NE	NE	0.97 U	1.1 U	1.3 U	0.9 U	1.2 U	1.4 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.57 J	0.49 U	0.58 U	0.42 U	0.55 UJ	0.64 UJ
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.44 U	0.48 U	0.57 U	0.41 U	0.54 U	0.63 U
Chloromethane	1,700	8,400	NE	NE	0.63 U	0.68 U	0.81 U	0.58 U	0.76 U	0.89 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	1.9 U	2.1 U	2.5 U	1.8 U	2.4 U	2.8 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.66 U	0.72 U	0.86 U	0.61 U	0.8 U	0.94 U
Iodomethane	NE	NE	NE	NE	0.88 U	0.96 U	1.1 U	0.82 U	1.1 UJ	1.3 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	61 R	66 R	79 R	56 R	74 R	86 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.88 U	0.96 U	1.1 U	0.82 U	1.1 U	1.3 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.64 U	0.7 U	0.83 U	0.6 U	0.78 U	0.91 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.77 U	0.83 U	0.99 U	0.71 U	0.93 U	1.1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.3 U	1.4 U	1.7 U	1.2 U	1.6 U	1.9 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB80 74SB80-04 5/5/2008 7.0-9.0	74SB81 74SB81-03 5/5/2008 5.0-7.0	74SB81 74SB81-04 5/5/2008 7.0-9.0	74SB81 74SB81-04D 5/5/2008 7.0-9.0	74SB82 74SB82-03 5/6/2008 5.0-7.0	74SB82 74SB82-04 5/6/2008 7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.15 UJ	0.11 UJ	0.1 UJ	0.1 UJ	0.074 UJ	0.089 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<u>2.1</u>	<u>2.4</u>	<u>3.5</u>	<u>1.6</u>	<u>4.6</u>	<b>0.93</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	110 J	130 J	72 J	59 J	19	89
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.3	0.24	0.2	0.18	0.051 J	0.23
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.42	0.094 J	0.2	0.089 J	0.031 U	0.039 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	7 R	18 R	13 R	15 R	7.3	12 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>47</u>	<u>29</u>	<b>24</b>	<b>21</b>	<b>3.8</b>	<b>18 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	98	100	110	82	18 J	110 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3.5 J	5.1 J	4.6 J	5.2 J	1.6	0.77
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.069	0.0092 J	0.02 J	0.0045 U	0.004 U	0.0085 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	4.7	12	7.9	8	2.2	8.5 J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.92	0.31 J	0.67 J	0.45 J	0.12 U	0.42 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.11 UJ	0.051 UJ	0.086 UJ	0.063 UJ	0.016 UJ	0.05 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.13 U	0.17 U	0.13 U	0.12 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.6 U	4.5 U	5.5 U	4.4 U	4 U	4.8 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>210</b>	<b>190</b>	<b>200</b>	<b>180</b>	27	<b>230</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	49 J	74 J	74 J	58 J	13 J	37 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.8 J	11	530 J	52 J	3.4 J	4.8
Gasoline Range Organics	NE	NE	NE	NE	0.061 U	0.068 J	0.17 J	0.058 U	0.21 J	0.066 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2.8 J	11.068 J	<b>530.17 J</b>	<b>52 J</b>	3.61 J	4.8

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB82 74SB82-04D 5/6/2008 7.0-9.0	74SB83 74SB83-02 5/6/2008 3.0-5.0	74SB84 74SB84-03 5/6/2008 5.0-7.0	74SB85 74SB85-03 5/6/2008 5.0-7.0	74SB85 74SB85-04 5/6/2008 7.0-9.0	74SB86 74SB86-03 5/6/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.5 U	3 U	2.7 U	2.7 U	2.3 U	2.2 U
2-Hexanone	NE	NE	NE	NE	2.7 U	2.3 U	2.1 U	2.1 U	1.8 U	1.7 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.8 U	3.2 U	2.8 U	2.9 U	2.5 U	2.4 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	14 J	13 J	12 J	30 J	21 J	6.3 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	25 R	21 R	19 R	19 R	16 R	16 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	30 U	25 U	23 U	23 U	20 U	19 U
Bromoform	6,100	22,000	NE	NE	1.4 U	1.2 U	1.1 U	1.1 U	0.94 U	0.91 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.66 UJ	0.56 UJ	0.5 U	0.52 U	1.1 J	0.42 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.65 U	0.55 U	0.49 U	0.51 U	0.43 U	0.41 U
Chloromethane	1,700	8,400	NE	NE	0.92 U	0.79 U	0.7 U	0.72 U	0.6 U	0.59 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.9 U	2.4 U	2.2 U	2.2 U	1.9 U	1.8 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.97 U	0.83 U	0.74 U	0.76 U	0.64 U	0.62 U
Iodomethane	NE	NE	NE	NE	1.3 UJ	1.1 UJ	0.98 U	1 U	0.85 U	0.83 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	89 R	76 R	68 R	70 R	59 R	57 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.3 U	1.1 U	0.98 U	1 U	0.85 U	0.83 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.95 U	0.81 U	0.72 U	0.74 U	0.62 U	0.61 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	0.96 U	0.85 U	0.88 U	0.74 U	0.72 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.9 U	1.7 U	1.5 U	1.5 U	1.3 U	1.2 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB82 74SB82-04D 5/6/2008 7.0-9.0	74SB83 74SB83-02 5/6/2008 3.0-5.0	74SB84 74SB84-03 5/6/2008 5.0-7.0	74SB85 74SB85-03 5/6/2008 5.0-7.0	74SB85 74SB85-04 5/6/2008 7.0-9.0	74SB86 74SB86-03 5/6/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.088 UJ	0.084 UJ	0.13 J	0.1 UJ	0.08 UJ	0.089 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>1.1</b>	<b>0.72</b>	<b>1.6</b>	<b>3.2</b>	0.47 U	<b>0.84</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	100	63	55 R	87 R	87 R	150 R
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.22	0.2	0.23	0.39	0.17	0.16
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.08 J	0.055 J	0.12	0.048 J	0.033 U	0.099 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	29 J	30	18 J	6.2 J	19 J	26 R
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>29 J</b>	<b>33</b>	<b>21 J</b>	<b>110 J</b>	<b>15 J</b>	<b>20 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	150 J	120 J	86 J	100	100	74
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.4	1.6	5.8	2.3	1	62 R
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0075 J	0.0044 U	0.014 J	0.048	0.0042 J	0.0095 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	19 J	22	11	7	11	8.4 J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.16 J	0.13 U	0.18 J	1.5	0.19 J	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.041 J	0.04 J	0.034 J	0.021 U	0.065 J	0.026 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.13 U	0.15 U	0.16 U	0.13 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.7 U	4.5 U	4.8 U	5.3 U	4.3 U	4.8 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>200</b>	<b>220</b>	<b>140</b>	<b>270</b>	<b>140</b>	<b>130</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	71 J	72 J	67	54	45	53 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	7.9	5.7	3 J	2.6 J	12	3.5 J
Gasoline Range Organics	NE	NE	NE	NE	0.083 U	0.066 U	0.064 U	0.066 U	0.059 U	0.051 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	7.9	5.7	3 J	2.6 J	12	3.5 J



TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB86 74SB86-03D 5/6/2008 5.0-7.0	74SB86 74SB86-04 5/6/2008 7.0-9.0	74SB87 74SB87-03 5/7/2008 5.0-7.0	74SB87 74SB87-04 5/7/2008 7.0-9.0	74SB88 74SB88-03 5/7/2008 5.0-7.0	74SB89 74SB89-03 5/7/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.4 U	2.4 U	2.5 U	2.7 U	2.8 U	2.6 U
2-Hexanone	NE	NE	NE	NE	1.9 U	1.9 U	1.9 U	2.1 U	2.1 U	2 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.6 U	2.6 U	2.6 U	2.9 U	3 U	2.8 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	22 J	3.9 R	24 J	23 J	14 J	29 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	17 R	17 R	17 R	19 R	19 R	18 U
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	20 U	20 U	21 U	23 U	23 U	22 U
Bromoform	6,100	22,000	NE	NE	0.97 U	0.98 U	1 U	1.1 U	1.1 U	1.1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.45 U	0.45 U	0.46 U	1.8 J	0.52 U	0.49 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.44 U	0.44 U	0.46 U	0.5 U	0.51 U	0.48 U
Chloromethane	1,700	8,400	NE	NE	0.63 U	0.63 U	0.65 U	0.72 U	0.72 U	0.68 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	1.9 U	2 U	2 U	2.2 U	2.2 U	2.1 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.66 U	0.67 U	0.68 U	0.76 U	0.77 U	0.72 U
Iodomethane	NE	NE	NE	NE	0.88 U	0.89 U	0.91 U	1 U	1 U	0.96 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	61 R	290 J	63 R	70 R	70 R	66 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.88 U	0.89 U	0.91 U	1 U	1 U	0.96 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.65 U	0.65 U	0.67 U	0.74 U	0.75 U	0.7 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.77 U	0.77 U	0.79 U	0.88 U	0.89 U	0.83 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.3 U	1.3 U	1.4 U	1.5 U	1.5 U	1.4 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	8.6 U	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	6.9 U	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	19 U	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	8.7 U	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	19 U	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	19 U	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB86 74SB86-03D 5/6/2008 5.0-7.0	74SB86 74SB86-04 5/6/2008 7.0-9.0	74SB87 74SB87-03 5/7/2008 5.0-7.0	74SB87 74SB87-04 5/7/2008 7.0-9.0	74SB88 74SB88-03 5/7/2008 5.0-7.0	74SB89 74SB89-03 5/7/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.076 UJ	0.079 UJ	0.075 UJ	0.15 J	0.1 J	0.078 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.63</b>	<b>0.63</b>	<b>1.2</b>	<b>1.6</b>	0.5 U	<b>0.74</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	28 R	45 R	150 R	140	69 R	76 R
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.1	0.21	0.29	0.26	0.19	0.19
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.085 J	0.048 J	0.19	0.048 J	0.16	0.054 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	3.2 R	19 J	21 J	29	4.8 J	35 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>13 J</b>	<b>21 J</b>	<b>26 J</b>	<b>19</b>	<b>25 J</b>	<b>26 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	54	110	110	120	100	120
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1 R	0.83	2.2	1.3	1.5	1.9
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0043 U	0.004 U	0.0085 J	0.011 J	0.0074 J	0.0037 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	3.2 J	15	16	15	4.7	22
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.12 U	0.13 J	0.35 J	0.34 J	0.13 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.016 U	0.11 J	0.033 J	0.019 J	0.017 U	0.037 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.12 U	0.13 U	0.12 U	0.14 U	0.13 U	0.13 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.1 U	4.2 U	4 U	4.6 U	4.4 U	4.2 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>100</b>	<b>110</b>	<b>170</b>	<b>160</b>	<b>100</b>	<b>150</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	35 J	49	82	52	48	49
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	5.8	740	4.3	7.2	1.2 J	1.5 J
Gasoline Range Organics	NE	NE	NE	NE	0.051 U	0.053 J	0.051 U	1.1	0.057 U	0.052 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	5.8	<b>740.053 J</b>	4.3	8.3	1.2 J	1.5 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB90 74SB90-02 5/7/2008 3.0-5.0	74SB91 74SB91-03 5/7/2008 5.0-7.0	74SB91 74SB91-03D 5/7/2008 5.0-7.0	74SB92 74SB92-03 5/7/2008 5.0-7.0	74SB92 74SB92-04 5/7/2008 7.0-9.0	74SB93 74SB93-03 5/7/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	4.8 U	2.5 U	2.9 U	3 U	3.2 U	2.5 U
2-Hexanone	NE	NE	NE	NE	2.4 U	2 U	2.3 U	2.4 U	2.5 U	1.9 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.3 U	2.7 U	3.1 U	3.3 U	3.4 U	2.7 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	50 J	17 J	4.7 R	24 J	21 J	4.1 R
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	22 R	18 U	20 U	21 U	22 U	18 U
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	26 U	22 U	25 U	26 U	27 U	21 U
Bromoform	6,100	22,000	NE	NE	1.3 U	1 U	1.2 U	1.2 U	1.3 U	1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	4.6 J	0.48 U	0.55 U	1.2 J	0.6 U	0.47 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.58 U	0.47 U	0.54 U	0.56 U	0.59 U	0.46 U
Chloromethane	1,700	8,400	NE	NE	0.82 U	0.67 U	0.76 U	0.8 U	0.84 U	0.65 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 U	2.1 U	2.4 U	2.5 U	2.6 U	2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.86 U	0.7 U	0.8 U	0.85 U	0.89 U	0.69 U
Iodomethane	NE	NE	NE	NE	1.2 U	0.94 U	1.1 U	1.1 U	1.2 U	0.92 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	79 R	65 R	74 R	78 R	81 R	64 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.2 U	0.94 U	1.1 U	1.1 U	1.2 U	0.92 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.84 U	0.69 U	0.78 U	0.82 U	0.86 U	0.67 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1 U	0.82 U	0.93 U	0.98 U	1 U	0.8 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	1.4 U	1.6 U	1.7 U	1.8 U	1.4 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB90 74SB90-02 5/7/2008 3.0-5.0	74SB91 74SB91-03 5/7/2008 5.0-7.0	74SB91 74SB91-03D 5/7/2008 5.0-7.0	74SB92 74SB92-03 5/7/2008 5.0-7.0	74SB92 74SB92-04 5/7/2008 7.0-9.0	74SB93 74SB93-03 5/7/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.082 UJ	0.084 UJ	0.14 J	0.087 UJ	0.097 UJ	0.079 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>1.5</b>	<b>0.89</b>	<b>0.93</b>	<b>1.2</b>	<b>2.9</b>	0.42 U
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	100 R	42 R	51 R	100 R	16 R	40 R
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.36	0.21	0.22	0.35	<b>1.3</b>	0.088 J
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.07 J	0.1 J	0.17	0.036 U	0.04 U	0.062 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	37 J	6.6 J	19 J	5.4 J	1.5 J	2.1 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>31</b> J	<b>21</b> J	<b>24</b> J	<b>20</b> J	<b>39</b> J	<b>13</b> J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	110	100	94	96	210	24 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.4	0.96 R	15 R	1.4	1.7	0.38
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.049	0.0052 J	0.011 J	0.039	0.0048 U	0.0042 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	16	6.9 J	11 J	6.1	6.1	3.2
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.5	0.13 U	0.19 J	0.61	0.15 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.021 J	0.018 U	0.037 J	0.019 U	0.021 U	0.017 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.13 U	0.13 U	0.14 U	0.15 U	0.13 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.4 U	4.5 U	4.2 U	4.6 U	5.2 U	4.2 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>240</b>	<b>140</b>	<b>160</b>	<b>210</b>	<b>250</b>	<b>120</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	53	75	71	64	<b>89</b>	29
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.1 J	2.7 J	6.9	2.3 J	1.1 J	0.76 J
Gasoline Range Organics	NE	NE	NE	NE	0.067 U	0.054 U	0.088 U	0.068 U	0.072 U	0.068 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2.1 J	2.7 J	6.9	2.3 J	1.1 J	0.76 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB93 74SB93-04 5/7/2008 7.0-9.0	74SB94 74SB94-03 5/7/2008 5.0-7.0	74SB94 74SB94-04 5/7/2008 7.0-9.0	74SB95 74SB95-03 5/13/2008 5.0-7.0	74SB95 74SB95-04 5/13/2008 7.0-9.0	74SB96 74SB96-03 5/13/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.7 U	2.6 U	2.8 U	2.8 U	2.6 U	3.1 U
2-Hexanone	NE	NE	NE	NE	2.1 U	2 U	2.1 U	2.1 U	2 U	2.4 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.9 U	2.8 U	3 U	3 U	2.8 U	3.4 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	4.4 R	4.3 R	4.5 R	7 R	7 J	15 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	19 U	18 U	19 U	19 U	18 R	22 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	23 U	22 U	23 U	23 U	22 U	27 U
Bromoform	6,100	22,000	NE	NE	1.1 U	1.1 U	1.1 U	1.1 U	1 U	1.3 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.51 U	0.49 U	0.52 U	0.52 U	0.49 U	0.59 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.5 U	0.48 U	0.51 U	0.51 U	0.48 U	0.58 U
Chloromethane	1,700	8,400	NE	NE	0.71 U	0.69 U	0.72 U	0.72 U	0.68 U	0.82 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.75 U	0.73 U	0.76 U	0.77 U	0.71 U	0.87 U
Iodomethane	NE	NE	NE	NE	1 U	0.97 U	1 U	1 U	0.95 U	1.2 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	69 R	67 R	70 R	70 R	66 R	80 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1 U	0.97 U	1 U	1 U	0.95 U	1.2 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.73 U	0.71 U	0.74 U	0.74 U	0.69 U	0.84 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.87 U	0.84 U	0.89 U	0.89 U	0.83 U	1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.5 U	1.5 U	1.5 U	1.5 U	1.4 U	1.7 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB93 74SB93-04 5/7/2008 7.0-9.0	74SB94 74SB94-03 5/7/2008 5.0-7.0	74SB94 74SB94-04 5/7/2008 7.0-9.0	74SB95 74SB95-03 5/13/2008 5.0-7.0	74SB95 74SB95-04 5/13/2008 7.0-9.0	74SB96 74SB96-03 5/13/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.082 U	0.078 U	0.086 U	0.085 UJ	0.084 UJ	0.092 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	0.51 U	0.32 U	0.42 U	0.41 U	0.37 U	<b>1.2</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	19	62	15	49	48	510 R
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.13	0.16	0.16	0.18	0.13	0.48
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.084 J	0.09 J	0.052 J	0.065 J	0.052 J	0.038 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	2.4	1.8	2	3.3 J	3.6 J	5.2 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>23</b>	<b>26</b>	<b>23</b>	<b>30</b>	<b>24</b>	<b>12</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	73	74	110	43	84	180
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.51	0.74	0.7	0.47	0.82	1.7
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0046 U	0.0044 U	0.0047 U	0.0077 J	0.0061 J	0.0053 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	5	5	4.2	6.2	5.2	14
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.13 U	0.12 U	0.14 U	0.14 U	0.13 U	0.15 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.021 J	0.017 U	0.018 U	0.018 J	0.018 J	0.024 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.12 U	0.14 U	0.14 U	0.13 U	0.15 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.4 U	4.2 U	4.6 U	4.5 U	4.5 U	4.9 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>260</b>	<b>190</b>	<b>140</b>	<b>220</b>	<b>250</b>	<b>230</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	79	83	<u>100</u>	<u>90</u> J	<u>92</u> J	<u>160</u> J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	0.69 U	1.7 J	1.4 J	2.6 J	2 J	2.6 J
Gasoline Range Organics	NE	NE	NE	NE	0.061 U	0.061 U	0.062 U	0.065 U	0.062 U	0.071 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.751 U	1.7 J	1.4 J	2.6 J	2 J	2.6 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB96 74SB96-03D 5/13/2008 5.0-7.0	74SB96 74SB96-05 5/13/2008 9.0-11.0	74SB97 74SB97-03 5/5/2008 5.0-7.0	74SB97 74SB97-04 5/5/2008 7.0-9.0	74SB98 74SB98-03 5/5/2008 5.0-7.0	74SB98 74SB98-04 5/5/2008 7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.1 U	3.5 U	2.8 U	9.9 U	5.5 U	2.9 U
2-Hexanone	NE	NE	NE	NE	2.4 U	2.7 U	2.2 U	7 J	2.9 J	2.2 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.3 U	3.8 U	3 U	3.8 J	2.9 U	3.1 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	5 R	16 J	11 J	24 J	4.4 UJ	13 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	22 R	25 R	20 R	19 R	19 R	20 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	26 U	30 U	24 UJ	23 U	23 U	24 U
Bromoform	6,100	22,000	NE	NE	1.3 U	1.4 U	1.1 U	1.1 U	1.1 U	1.2 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.58 U	0.67 U	0.52 U	0.51 U	0.52 U	0.54 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.57 U	0.65 U	0.51 U	0.5 U	0.51 U	0.53 U
Chloromethane	1,700	8,400	NE	NE	0.81 U	0.93 U	0.73 U	0.71 U	0.72 U	0.75 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 U	2.9 U	2.3 U	2.2 U	2.2 U	2.3 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.86 U	0.98 U	0.77 U	0.75 U	0.76 U	0.79 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.3 U	1 U	1 UJ	1 UJ	1.1 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	79 R	90 R	71 R	69 R	70 R	73 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.1 U	1.3 U	1 U	1 U	1 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.84 U	0.96 U	0.75 U	0.73 U	0.74 U	0.77 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1 U	1.1 U	0.89 U	0.87 U	0.88 U	0.92 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	2 U	1.5 U	1.5 U	1.5 U	1.6 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB96 74SB96-03D 5/13/2008 5.0-7.0	74SB96 74SB96-05 5/13/2008 9.0-11.0	74SB97 74SB97-03 5/5/2008 5.0-7.0	74SB97 74SB97-04 5/5/2008 7.0-9.0	74SB98 74SB98-03 5/5/2008 5.0-7.0	74SB98 74SB98-04 5/5/2008 7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.098 UJ	0.095 UJ	0.087 UJ	0.092 UJ	0.087 UJ	0.096 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>1.5</b>	<b>1.2</b>	<b>0.79</b>	<b>1.3</b>	<b>2</b>	<b>0.66</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	96 R	120	21 J	17 J	82 J	9.1 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.5	<u>0.61</u>	0.11 J	0.17	0.17	0.16
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.04 U	0.039 U	0.036 U	0.038 U	0.04 J	0.039 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	5.2 J	7.3 J	14 R	29 R	29 R	8.9 R
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>10</b>	<b>16</b>	<b>4.2</b>	<b>8.8</b>	<b>7</b>	<b>5.2</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	180	160	45	85	73	72
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.4	1.7	1.3 J	2.1 J	1.9 J	0.68 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0053 U	0.0056 U	0.0051 U	0.0049 U	0.077	0.0044 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	10	9.4	4.4	10	6.7	4.3
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.22 J	0.15 U	0.24 J	0.41 J	1.4	0.22 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.037 J	0.025 J	0.025 UJ	0.02 UJ	0.033 UJ	0.037 UJ
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.16 U	0.15 U	0.14 U	0.15 U	0.14 U	0.15 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	5.2 U	5 U	4.7 U	4.9 U	4.7 U	5.1 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>250</b>	<b>200</b>	<b>120</b>	<b>190</b>	<b>310</b>	<b>110</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	<u>130</u> J	<u>140</u> J	61 J	<u>190</u> J	39 J	50 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3.3 J	2.2 J	1.7 J	1 J	0.77 U	1.4 J
Gasoline Range Organics	NE	NE	NE	NE	0.07 U	0.077 U	0.065 U	0.064 U	0.058 U	0.063 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	3.3 J	2.2 J	1.7 J	1 J	0.828 U	1.4 J



TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB99 74SB99-03 5/5/2008 5.0-7.0	74SB99 74SB99-04 5/5/2008 7.0-9.0	74SB100 74SB100-03 5/5/2008 5.0-7.0	74SB100 74SB100-04 5/5/2008 7.0-9.0	74SB101 74SB101-03 5/5/2008 5.0-7.0	74SB101 74SB101-03D 5/5/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.4 U	2.5 U	28 U	11 U	3.5 U	3.1 U
2-Hexanone	NE	NE	NE	NE	2.7 U	2 U	2.1 U	2.1 U	2 U	2.4 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.7 U	2.7 U	2.9 U	2.9 U	2.7 U	3.3 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	63 J	34 J	400 J	160 J	39 J	24 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	24 R	18 R	19 R	19 R	18 R	22 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	29 U	22 U	23 U	23 U	22 U	26 U
Bromoform	6,100	22,000	NE	NE	1.4 U	1 U	1.1 U	1.1 U	1 U	1.3 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	2.2 J	1 J	1.3 J	0.5 U	0.63 J	0.58 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.64 U	0.47 U	0.51 J	0.49 U	0.47 U	0.57 U
Chloromethane	1,700	8,400	NE	NE	0.9 U	0.67 U	1.5 J	0.7 U	0.95 J	0.81 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.8 U	2.1 U	2.2 U	2.2 U	2.1 U	2.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.95 U	0.71 U	0.76 U	0.74 U	0.71 U	0.86 U
Iodomethane	NE	NE	NE	NE	1.3 UJ	0.94 UJ	12 J	1 J	0.94 UJ	1.1 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	88 R	65 R	70 R	68 R	65 R	79 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.3 U	0.94 U	1 U	0.99 U	0.94 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.93 U	0.69 U	0.74 U	0.72 U	0.69 U	0.83 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	0.82 U	0.88 U	0.86 U	0.82 U	0.99 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.9 U	1.4 U	1.5 U	1.5 U	1.4 U	1.7 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB99 74SB99-03 5/5/2008 5.0-7.0	74SB99 74SB99-04 5/5/2008 7.0-9.0	74SB100 74SB100-03 5/5/2008 5.0-7.0	74SB100 74SB100-04 5/5/2008 7.0-9.0	74SB101 74SB101-03 5/5/2008 5.0-7.0	74SB101 74SB101-03D 5/5/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.093 UJ	0.095 UJ	0.084 UJ	0.089 UJ	0.089 UJ	0.09 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<u>2</u>	<b>0.87</b>	<u>3.3</u>	<u>3.9</u>	<u>2.9</u>	<u>3.6</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	33 J	12 J	150 J	26 J	23 J	14 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.16	0.12 J	0.31	0.32	0.12	0.15
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.046 J	0.039 U	0.33	0.048 J	0.037 U	0.057 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	13 R	6 R	16 R	36 R	15 R	26 R
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>5.2</b>	<b>3.2</b>	<u>61</u>	<b>9.2</b>	<b>2.9</b>	<b>3.3</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	62	77	56	110	57	82
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.1 J	0.77 J	4.9 J	4.4 J	2.8 J	5.3 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.048	0.0048 U	0.079	<u>0.15</u>	0.081	0.027
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	4.2	2.8	9.7	6.3	3.8	3.8
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	2.6	0.5 J	2	2.2	2.8 J	5.2 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.035 UJ	0.02 UJ	0.088 UJ	0.035 UJ	0.061 UJ	0.055 UJ
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.15 U	0.13 U	0.14 U	0.14 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	5 U	5.1 U	4.5 U	4.8 U	4.8 U	4.8 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>250</b>	<b>150</b>	<b>210</b>	<u>470</u>	<b>410</b>	<b>410</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	31 J	24 J	<u>91</u> J	78 J	21 J	23 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.5 J	2.3 J	1.8 J	1.8 J	1.5 J	0.95 J
Gasoline Range Organics	NE	NE	NE	NE	0.063 U	0.064 U	0.059 J	0.066 U	0.057 U	0.069 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.5 J	2.3 J	1.859 J	1.8 J	1.5 J	0.95 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB101 74SB101-04 5/5/2008 7.0-9.0	74SB102 74SB102-04 5/5/2008 7.0-9.0	74SB102 74SB102-05 5/5/2008 9.0-11.0	74SB103 74SB103-03 5/5/2008 5.0-7.0	74SB103 74SB103-04 5/5/2008 7.0-9.0	74SB104 74SB104-03 5/5/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.3 U	2.5 U	2.7 U	3 U	2.9 U	3 U
2-Hexanone	NE	NE	NE	NE	2.6 U	1.9 U	2.1 U	2.3 U	2.2 U	2.3 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.6 U	2.7 U	2.9 U	3.2 U	3.1 U	3.2 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	15 J	16 J	7 UJ	19 UJ	11 UJ	29 UJ
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	24 R	17 R	19 U	21 U	20 U	21 U
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	28 U	21 U	23 U	26 U	24 U	25 U
Bromoform	6,100	22,000	NE	NE	1.4 U	1 U	1.1 U	1.2 U	1.2 U	1.2 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.63 U	0.47 U	0.5 U	0.57 U	0.54 U	6.5 J
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.62 U	0.46 U	0.49 U	0.56 U	0.53 U	0.55 U
Chloromethane	1,700	8,400	NE	NE	0.88 U	0.65 U	0.7 U	0.79 U	0.76 U	0.78 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.7 U	2 U	2.2 U	2.5 U	2.3 U	2.4 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.93 U	0.69 U	0.74 U	0.84 U	0.8 U	0.83 U
Iodomethane	NE	NE	NE	NE	1.2 UJ	0.91 U	0.99 UJ	1.1 UJ	1.1 UJ	1.1 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	85 R	63 R	68 R	77 R	73 R	76 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.2 U	0.91 U	0.99 U	1.1 U	1.1 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.9 U	0.67 U	0.72 U	0.82 U	0.78 U	0.81 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	0.8 U	0.86 U	0.97 U	0.93 U	0.96 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.9 U	1.4 U	1.5 U	1.7 U	1.6 U	1.7 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB101 74SB101-04 5/5/2008 7.0-9.0	74SB102 74SB102-04 5/5/2008 7.0-9.0	74SB102 74SB102-05 5/5/2008 9.0-11.0	74SB103 74SB103-03 5/5/2008 5.0-7.0	74SB103 74SB103-04 5/5/2008 7.0-9.0	74SB104 74SB104-03 5/5/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.082 UJ	0.083 UJ	0.087 UJ	0.088 UJ	0.09 UJ	0.24 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<u>2.6</u>	<u>2.7</u>	<u>2</u>	<u>4.2</u>	<b>0.59 J</b>	<u>3.2</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	20 J	35 J	32 J	47 J	47	89
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.082 U	0.13	0.096 U	0.2	0.075 J	0.28
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.034 U	0.034 U	0.036 U	0.05 J	0.037 U	<u>0.7</u>
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	31 R	24 R	18 R	25 R	4.8	31
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>2.7</b>	<b>5.2</b>	<b>4.1</b>	<b>14</b>	1.6	<b>17</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	54	58	43	82	22 J	170 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3.5 J	5 J	<u>7.3 J</u>	3.4 J	2.2	2.6
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0048 U	<u>0.19</u>	0.0044 U	<u>0.19</u>	0.035	0.0039 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	2.4	4.2	3.1	8	3.3	15
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	2.4	<u>6.9</u>	1.4	3.5	0.96	0.36 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.034 UJ	0.054 UJ	0.039 UJ	0.047 UJ	0.037 J	0.11 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.13 U	0.14 U	0.14 U	0.14 U	0.12 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.4 U	4.4 U	4.7 U	4.7 U	4.8 U	4.1 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>360</b>	<b>300</b>	<b>300</b>	<b>360</b>	40	<b>140</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	13 J	24 J	14 J	45 J	9.7 J	<u>170 J</u>
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2 J	1.8 J	3 J	5.6	4.1 J	5
Gasoline Range Organics	NE	NE	NE	NE	0.061 U	0.062 U	0.06 U	0.064 J	0.066 U	0.15 J
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2 J	1.8 J	3 J	5.664 J	4.1 J	5.15 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB104 74SB104-04 5/5/2008 7.0-9.0	74SB105 74SB105-03 5/5/2008 5.0-7.0	74SB105 74SB105-04 5/5/2008 7.0-9.0	74SB106 74SB106-01 5/5/2008 1.0-3.0	74SB106 74SB106-04 5/5/2008 7.0-9.0	74SB107 74SB107-03 5/6/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.5 U	7.1 U	2.7 U	7.8 U	2.9 U	3.2 U
2-Hexanone	NE	NE	NE	NE	1.9 U	2.2 U	2.1 U	2 U	2.2 U	2.5 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.7 U	3 U	2.9 U	2.7 U	3.1 U	3.5 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	12 UJ	110 J	43 UJ	85 UJ	51 UJ	41 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	18 U	20 U	19 U	18 U	20 U	23 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	21 U	24 U	23 U	21 U	25 U	28 U
Bromoform	6,100	22,000	NE	NE	1 U	3.2 J	1.1 U	1 U	1.2 U	1.3 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.47 U	0.53 U	0.5 U	1.7 J	0.54 U	0.61 UJ
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.46 U	0.52 U	0.49 U	0.47 U	0.53 U	0.6 U
Chloromethane	1,700	8,400	NE	NE	0.65 U	1.8 J	0.7 U	0.66 U	0.76 U	0.85 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2 U	2.3 U	2.2 U	2 U	2.3 U	2.6 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.69 U	0.77 U	0.74 U	0.7 U	0.8 U	0.9 U
Iodomethane	NE	NE	NE	NE	0.92 UJ	6 J	0.99 UJ	0.93 UJ	1.1 UJ	1.2 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	64 R	71 R	68 R	64 R	74 R	83 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.92 U	1 U	0.99 U	0.93 U	1.1 U	1.2 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.67 U	0.75 U	0.72 U	0.68 U	0.78 U	0.88 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.8 U	0.9 U	0.86 U	1.4 J	0.93 U	1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.8 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB104 74SB104-04 5/5/2008 7.0-9.0	74SB105 74SB105-03 5/5/2008 5.0-7.0	74SB105 74SB105-04 5/5/2008 7.0-9.0	74SB106 74SB106-01 5/5/2008 1.0-3.0	74SB106 74SB106-04 5/5/2008 7.0-9.0	74SB107 74SB107-03 5/6/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.087 UJ	0.087 UJ	0.087 UJ	0.2 UJ	0.17 UJ	0.087 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>1.4</b>	<b>4.4</b>	<b>1.9</b>	<b>2.7</b>	<b>6.5</b>	<b>2.7</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	16	<u>240</u>	61	61	47	19
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.1 J	0.27	0.08 J	0.23	0.23	0.12
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.036 U	0.21	0.094 J	<u>1.1</u>	0.35	0.036 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	8.3	14	5.7	21	34	15
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	2.2	<b>620</b>	<b>8.3</b>	<b>12</b>	<b>49</b>	<b>4.4 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	48 J	68 J	45 J	170 J	100 J	49 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2	3.2	1.6	2.7	4.8	1.7
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0042 U	0.008 J	0.025	0.0037 U	0.024	0.053
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	1.8	7.6	3	14	13	4
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.95	2.1	0.97	0.5 J	2.3	4.3
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.019 UJ	0.032 J	0.02 J	0.14 J	0.11 J	0.054 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.23 J	0.14 U	0.12 U	0.13 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.7 U	4.6 U	4.6 U	4.2 U	4.3 U	4.6 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>150</b>	<b>190</b>	<b>130</b>	<b>100</b>	<b>320</b>	<b>270</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	19 J	53 J	23 J	<u>220</u> J	76 J	24 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.6 J	2.8 J	2.6 J	3.2 J	3 J	3.1 J
Gasoline Range Organics	NE	NE	NE	NE	0.067 U	0.065 U	0.074 J	0.06 U	0.056 U	0.073 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2.6 J	2.8 J	2.674 J	3.2 J	3 J	3.1 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB107 74SB107-03D 5/6/2008 5.0-7.0	74SB107 74SB107-05 5/6/2008 9.0-11.0	74SB108 74SB108-03 5/6/2008 5.0-7.0	74SB108 74SB108-04 5/6/2008 7.0-9.0	74SB109 74SB109-04 5/6/2008 7.0-9.0	74SB109 74SB109-05 5/6/2008 9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	4 U	2.8 U	3.3 U	4.1 UJ	2.9 U	3100 U
2-Hexanone	NE	NE	NE	NE	2.5 U	2.2 U	2.5 U	2.7 UJ	2.2 U	2400 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.5 U	3 U	3.5 U	3.7 UJ	3.1 U	3300 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	77 J	31 J	38 J	35 J	4.7 R	5100 R
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	23 R	19 R	23 R	24 R	20 R	22000 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	28 U	24 U	28 U	29 UJ	25 U	26000 U
Bromoform	6,100	22,000	NE	NE	1.3 U	1.1 U	1.3 U	1.4 UJ	1.2 U	1300 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.61 UJ	0.52 UJ	9.1 J	4.3 J	0.54 U	590 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.6 U	0.51 U	0.6 U	0.63 UJ	0.53 U	570 U
Chloromethane	1,700	8,400	NE	NE	0.85 U	0.73 U	0.86 U	0.9 UJ	0.76 U	810 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.6 U	2.3 U	2.7 U	2.8 UJ	7.3	2500 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.9 U	0.77 U	0.91 U	0.95 UJ	0.8 U	860 U
Iodomethane	NE	NE	NE	NE	1.2 UJ	1 UJ	1.2 UJ	1.3 UJ	1.1 U	1100 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	83 R	71 R	83 R	87 R	450 J	79000 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.2 U	1 U	1.2 U	1.3 UJ	2.8 J	1100 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.87 U	0.75 U	0.88 U	0.92 UJ	0.78 U	840 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1 U	0.89 U	1.1 U	1.1 UJ	0.93 U	1000 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.8 U	1.5 U	1.8 U	1.9 UJ	1.6 U	1700 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB107 74SB107-03D 5/6/2008 5.0-7.0	74SB107 74SB107-05 5/6/2008 9.0-11.0	74SB108 74SB108-03 5/6/2008 5.0-7.0	74SB108 74SB108-04 5/6/2008 7.0-9.0	74SB109 74SB109-04 5/6/2008 7.0-9.0	74SB109 74SB109-05 5/6/2008 9.0-11.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.087 UJ	0.092 UJ	0.091 UJ	0.09 UJ	0.094 UJ	0.092 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<u>2.6</u>	<b>0.75</b>	<u>2.3</u>	<u>2</u>	<b>1</b>	<u>1.8</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	18	30	17	17	70 R	26 R
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.13	0.065 J	0.15	0.16	0.2	0.33
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.037 J	0.038 U	0.043 J	0.037 U	0.039 U	0.038 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	15	5.1	24	16	6.1 J	10 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>6.6 J</b>	1.8	<b>3.3</b>	<b>3.8</b>	<b>8.8 J</b>	<b>8.3 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	53 J	22 J	57 J	65 J	81	110
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.7	0.47	<u>12</u>	<u>10</u>	6.3	5.3
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.022 J	0.0047 U	0.048	0.0047 U	0.008 J	0.0049 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	4.1	1.6	4.3	3	3.2	4
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	3.8	0.34 J	3.3	2.7	1.9	0.67
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.044 J	0.02 UJ	0.05 J	0.019 UJ	0.03 J	0.048 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.15 U	0.15 U	0.14 U	0.15 U	0.15 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.7 U	4.9 U	4.9 U	4.8 U	5 U	4.9 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>280</b>	<b>63</b>	<b>240</b>	<b>300</b>	<b>130</b>	<b>260</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	26 J	12 J	24 J	20 J	28	43
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3 J	2.7 J	6.8	9.9	4.9	2.2 J
Gasoline Range Organics	NE	NE	NE	NE	0.067 U	0.066 U	2.2	150 J	0.27	3600
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	3 J	2.7 J	9.0	<b>159.9 J</b>	5.17	<b>3602.2 J</b>



TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB110 74SB110-04 5/6/2008 7.0-9.0	74SB110 74SB110-05 5/6/2008 9.0-11.0	74SB111 74SB111-03 5/7/2008 5.0-7.0	74SB111 74SB111-03D 5/7/2008 5.0-7.0	74SB111 74SB111-05 5/7/2008 9.0-11.0	74SB112 74SB112-04 5/7/2008 7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.6 U	2.7 U	11 U	2.9 U	13 J	2.9 U
2-Hexanone	NE	NE	NE	NE	2 U	2.1 U	2.3 U	2.3 U	2.6 U	2.2 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.8 U	2.8 U	3.2 U	3.1 U	3.6 U	3.1 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	15 J	7.1 J	140 J	40 J	73 J	12 U
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	18 U	19 R	21 U	20 U	23 U	20 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	22 U	23 U	25 U	25 U	28 U	25 U
Bromoform	6,100	22,000	NE	NE	1.1 U	1.1 U	1.2 U	1.2 U	1.4 U	1.2 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.49 U	0.5 U	0.56 U	0.55 U	2.3 J	0.55 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.48 U	0.49 U	0.55 U	0.54 U	0.62 U	0.54 U
Chloromethane	1,700	8,400	NE	NE	0.69 U	0.7 U	0.78 U	0.76 U	0.87 U	0.76 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.1 U	2.2 U	2.4 U	2.4 U	2.7 U	2.4 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.72 U	0.74 U	0.82 U	0.8 U	0.92 U	0.8 U
Iodomethane	NE	NE	NE	NE	0.97 U	0.98 U	1.1 U	1.1 U	1.2 U	1.1 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	67 R	68 R	76 R	74 R	85 R	74 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.97 U	0.98 U	1.1 U	1.1 U	1.2 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.7 U	0.72 U	0.8 U	0.78 U	0.9 U	0.78 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.84 U	0.85 U	0.95 U	0.93 U	1.1 U	0.93 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.4 U	1.5 U	1.6 U	1.6 U	1.8 U	1.6 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	0.99 U	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	0.79 U	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	2.2 U	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	1 U	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	2.2 U	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	2.2 U	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB110 74SB110-04 5/6/2008 7.0-9.0	74SB110 74SB110-05 5/6/2008 9.0-11.0	74SB111 74SB111-03 5/7/2008 5.0-7.0	74SB111 74SB111-03D 5/7/2008 5.0-7.0	74SB111 74SB111-05 5/7/2008 9.0-11.0	74SB112 74SB112-04 5/7/2008 7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.093 J	0.086 UJ	0.088 U	0.084 U	0.091 U	0.083 U
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>1.2</b>	<b>1.2</b>	<b>1.3</b>	<b>1.5</b>	<b>1.6</b>	<b>0.85</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	60 R	54 R	120	87	120	40
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.47	0.23	0.44	0.33	0.32	0.2
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.075 J	0.047 J	0.073 J	0.099 J	0.081 J	0.12
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	11 J	9.4 J	9.1	9.2	8.7	17
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>36</b> J	<b>26</b> J	<b>37</b>	<b>36</b>	<b>32</b>	<b>35</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	89	41 J	92	130	110	130
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.6	1.4	1.2	0.87	<b>24</b>	0.62
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0066 J	0.0058 J	0.017 J	0.018 J	0.014 J	0.0065 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	7.1	5	7.4	7.5	8	15
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.13 U	0.14 U	0.22 J	0.31 J	0.22 J	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.017 U	0.038 J	0.022 J	0.026 J	0.024 J	0.031 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.14 U	0.14 U	0.13 U	0.14 U	0.13 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.2 U	4.6 U	4.7 U	4.5 U	4.8 U	4.4 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>230</b>	<b>220</b>	<b>180</b>	<b>200</b>	<b>160</b>	<b>200</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	<b>110</b>	<b>100</b>	88	76	76	65
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	0.69 U	0.75 U	2.6 J	1.7 J	1.8 J	1.9 J
Gasoline Range Organics	NE	NE	NE	NE	0.048 U	0.19 J	0.075 U	0.064 U	0.55	0.06 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.738 U	0.19 J	2.6 J	1.7 J	2.35 J	1.9 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB112 74SB112-05 5/7/2008 9.0-11.0	74SB113 74SB113-04 5/7/2008 7.0-9.0	74SB113 74SB113-05 5/7/2008 9.0-11.0	74SB114 74SB114-04 5/13/2008 7.0-9.0	74SB114 74SB114-05 5/13/2008 9.0-11.0	74SB115 74SB115-03 5/13/2008 5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.6 U	2.7 U	3.6 UJ	10 UJ	3.7 UJ	2.9 UJ
2-Hexanone	NE	NE	NE	NE	2 U	2.1 U	2.8 UJ	5.7 J	2.9 UJ	2.3 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.8 U	2.9 U	3.9 UJ	3.5 UJ	4 UJ	3.2 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	17 J	27 U	5.9 R	43 J	30 J	21 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	18 R	<b>31 J</b>	25 R	23 UJ	26 UJ	21 UJ
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	22 U	23 U	31 UJ	27 U	31 U	25 U
Bromoform	6,100	22,000	NE	NE	1.1 U	1.1 U	1.5 UJ	1.3 U	1.5 U	1.2 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.53 J	2.6 J	3.7 J	0.61 U	1.8 J	0.55 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.48 U	0.5 U	0.67 UJ	0.6 U	0.68 U	0.54 U
Chloromethane	1,700	8,400	NE	NE	0.68 U	0.71 U	0.95 UJ	0.85 U	0.97 U	0.77 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.1 U	2.2 U	2.9 UJ	2.6 U	3 U	2.4 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.72 U	0.75 U	14 J	0.9 U	1 U	0.82 U
Iodomethane	NE	NE	NE	NE	0.96 U	1 U	1.3 UJ	1.2 UJ	1.4 UJ	1.1 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	66 R	69 R	92 R	82 R	94 R	75 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.96 U	1 U	1.3 UJ	1.2 U	1.4 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.7 U	0.73 U	0.97 UJ	0.87 U	1 U	1.1 J
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.83 U	0.87 U	1.2 UJ	1 U	1.2 U	0.95 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.4 U	1.5 U	2 UJ	1.8 U	2 U	1.6 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	0.94 J	1.1 U	NA	1.2 U	NA
Chrysene	15,000	210,000	NE	NE	NA	0.75 U	0.86 J	NA	1.7 J	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	2.1 U	8.8 J	NA	2.6 U	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	0.95 U	1.1 U	NA	1.2 U	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	2.1 U	2.4 U	NA	2.6 U	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	2.1 U	8.3 J	NA	8 J	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB112 74SB112-05 5/7/2008 9.0-11.0	74SB113 74SB113-04 5/7/2008 7.0-9.0	74SB113 74SB113-05 5/7/2008 9.0-11.0	74SB114 74SB114-04 5/13/2008 7.0-9.0	74SB114 74SB114-05 5/13/2008 9.0-11.0	74SB115 74SB115-03 5/13/2008 5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.082 U	0.083 U	0.097 U	0.11 UJ	0.12 UJ	0.13 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.96</b>	<b>0.59</b>	<b>0.82</b>	<u>2.2</u>	<u>3</u>	<u>3.4</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	25	130	97	210	<u>270</u>	13
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.22	0.19	0.19	0.56	<u>0.7</u>	0.3
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.13	0.035 J	0.11 J	0.085 J	0.09 J	0.037 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	12	6.7	9	20	18	24
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>24</b>	<b>20</b>	<u>49</u>	<u>32</u>	<u>45</u>	<b>11</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	130	110	130	67	91	98
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.55	4.1	<u>7.3</u>	<u>8.9</u>	<u>8.6</u>	4.8
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.007 J	0.0063 J	0.01 J	0.017 J	0.0059 U	0.043
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	13	8.5	16	12	15	6.3
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.13 U	0.13 U	0.16 U	0.61 J	0.37 J	2.8
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.025 J	0.018 U	0.024 J	0.024 J	0.027 J	0.019 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.13 U	0.16 U	0.15 U	0.17 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.4 U	4.4 U	5.2 U	5.1 U	5.6 U	4.8 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>200</b>	<b>200</b>	<b>230</b>	<b>190</b>	<b>250</b>	<b>350</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	<u>93</u>	<u>94</u>	82	<u>210</u> J	<u>280</u> J	46 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.8 J	4.7	5.1	2.8 J	3.3 J	2.8 J
Gasoline Range Organics	NE	NE	NE	NE	0.059 J	140	4.8 J	0.072 U	40	0.059 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2.859 J	<b>144.7</b>	9.9 J	2.8 J	<b>43.3</b> J	2.8 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB115 74SB115-05 5/13/2008 9.0-11.0	74SB116 74SB116-04 5/13/2008 7.0-9.0	74SB116 74SB116-05 5/13/2008 9.0-11.0	74SB116 74SB116-05D 5/13/2008 9.0-11.0	74SB117 74SB117-03 5/13/2008 5.0-7.0	74SB117 74SB117-04 5/13/2008 7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.5 UJ	3.4 UJ	3.7 UJ	3.8 UJ	3 UJ	2.9 UJ
2-Hexanone	NE	NE	NE	NE	2.7 UJ	2.7 UJ	2.9 UJ	2.9 UJ	2.3 UJ	2.3 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.7 UJ	3.7 UJ	4 UJ	4 UJ	3.2 UJ	3.1 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	17 J	52 J	60 J	46 J	22 J	4.8 R
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	24 UJ	24 UJ	26 UJ	26 UJ	21 UJ	21 UJ
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	29 U	29 U	32 U	32 U	26 U	25 U
Bromoform	6,100	22,000	NE	NE	1.4 U	1.4 U	1.5 U	1.5 U	1.2 U	1.2 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.65 U	0.65 U	0.7 U	0.71 U	0.57 U	0.55 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.64 U	0.64 U	0.69 U	0.7 U	0.56 U	0.54 U
Chloromethane	1,700	8,400	NE	NE	0.91 U	0.9 U	0.98 U	0.99 U	0.79 U	0.77 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.8 U	2.8 U	3 U	3.1 U	2.4 U	2.4 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.96 U	0.96 U	1 U	1 U	0.83 U	0.81 U
Iodomethane	NE	NE	NE	NE	1.3 UJ	1.3 UJ	1.4 UJ	1.4 UJ	1.1 UJ	1.1 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	88 R	88 R	95 R	96 R	77 R	75 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.3 U	1.3 U	1.4 U	1.4 U	1.1 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.94 U	0.93 U	1 U	1 U	0.81 U	0.79 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	1.1 U	1.2 U	1.2 U	0.97 U	0.94 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.9 U	1.9 U	2.1 U	2.1 U	1.7 U	1.6 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB115 74SB115-05 5/13/2008 9.0-11.0	74SB116 74SB116-04 5/13/2008 7.0-9.0	74SB116 74SB116-05 5/13/2008 9.0-11.0	74SB116 74SB116-05D 5/13/2008 9.0-11.0	74SB117 74SB117-03 5/13/2008 5.0-7.0	74SB117 74SB117-04 5/13/2008 7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.095 UJ	0.11 UJ	0.099 UJ	0.11 UJ	0.092 UJ	0.18 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.96</b>	<u>2.7</u>	<u>2.4</u>	<b>1.3</b>	<b>0.65</b>	<u>1.7</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	11	<u>460</u>	<u>320</u>	<u>250</u>	28	43
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.39	<u>0.62</u>	0.58	0.51	0.13	0.32
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.039 U	0.047 J	0.041 U	0.045 U	0.038 U	0.037 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	9.8	8.3	8.6	8.3	7.2	16
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>19</b>	<u>40</u>	<u>30</u> J	<b>18</b> J	<b>4.6</b>	<b>4.7</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	110	83	81	71	45	97
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3	1.9	1.8	2.5	1.3	2
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0049 U	0.045	0.023 J	0.031	0.0098 J	0.054
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	19	9.4	8.5	8.7	3.2	5.1
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.66	1.5	1.1	1	0.27 J	0.56 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.026 J	0.025 J	0.021 U	0.036 J	0.046 J	0.021 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.16 U	0.16 U	0.17 U	0.15 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	5.1 U	5.5 U	5.3 U	5.8 U	4.9 U	4.8 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<b>210</b>	<b>260</b>	<b>260</b>	<b>200</b>	<b>120</b>	<b>270</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	<u>89</u> J	<u>170</u> J	<u>150</u> J	<u>130</u> J	34 J	54 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3.4 J	2.9 J	2.7 J	2.2 J	1.5 J	2.4 J
Gasoline Range Organics	NE	NE	NE	NE	0.078 U	0.079 U	0.091 U	0.087 U	0.07 U	0.073 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	3.4 J	2.9 J	2.7 J	2.2 J	1.5 J	2.4 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB118 74SB118-03 5/13/2008 5.0-7.0	74SB118 74SB118-05 5/13/2008 9.0-11.0	74SB119 74SB119-04 5/13/2008 7.0-9.0	74SB119 74SB119-05 5/13/2008 9.0-11.0	74SB120 74SB120-04 5/14/2008 7.0-9.0	74SB120 74SB120-05 5/14/2008 9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.1 UJ	3.7 UJ	2.6 UJ	3.1 UJ	2.6 UJ	3.3 UJ
2-Hexanone	NE	NE	NE	NE	2.4 UJ	2.9 UJ	2.1 UJ	2.4 UJ	2 UJ	2.6 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.3 UJ	4 UJ	2.8 UJ	3.4 UJ	2.8 UJ	3.6 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	24 J	30 J	15 J	5.1 R	4.3 R	15 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	22 UJ	26 UJ	19 UJ	22 UJ	18 UJ	23 UJ
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	26 U	32 U	23 U	27 U	22 U	28 U
Bromoform	6,100	22,000	NE	NE	1.2 U	1.5 U	1.1 U	1.3 U	1.1 U	1.3 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.58 U	0.7 U	0.5 U	0.59 U	0.49 U	0.62 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.57 U	0.69 U	0.49 U	0.58 U	0.48 U	0.61 U
Chloromethane	1,700	8,400	NE	NE	0.8 U	0.98 U	0.7 U	0.82 U	0.69 U	0.87 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 U	3 U	2.2 U	2.5 U	2.1 U	2.7 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.85 U	1 U	0.74 U	0.87 U	0.72 U	0.92 U
Iodomethane	NE	NE	NE	NE	1.1 UJ	1.4 J	0.98 UJ	1.2 UJ	0.97 UJ	1.2 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	78 R	95 R	68 R	80 R	67 R	85 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.1 U	1.4 U	0.98 U	1.2 U	0.97 U	1.2 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.83 U	1 U	0.72 U	0.85 U	0.71 U	0.89 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.98 U	1.2 U	0.85 U	1 U	0.84 U	1.1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	2.1 U	1.5 U	1.7 U	1.4 U	1.8 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB118 74SB118-03 5/13/2008 5.0-7.0	74SB118 74SB118-05 5/13/2008 9.0-11.0	74SB119 74SB119-04 5/13/2008 7.0-9.0	74SB119 74SB119-05 5/13/2008 9.0-11.0	74SB120 74SB120-04 5/14/2008 7.0-9.0	74SB120 74SB120-05 5/14/2008 9.0-11.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.1 UJ	0.1 UJ	0.11 UJ	0.089 UJ	0.076 UJ	0.12 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<u>1.9</u>	<u>1.3</u>	<u>1.6</u>	<u>1.1</u>	<u>2</u>	<u>0.77</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	160	<u>310</u>	88	76	52	35
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.2	0.43	0.27	0.32	0.24	0.14
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.038 U	0.081 J	0.3	0.076 J	0.11	0.088 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	24	9.4	16	7.7	8.2	4.6
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>12</u>	<u>27</u>	<u>14</u>	<u>37</u>	<u>25</u>	<u>23</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	150	67	200	26	<u>400</u>	<u>340</u>
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.6	<u>13</u>	1.6	0.48	1.1	0.57
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.032	0.0056 U	0.013 J	0.011 J	0.006 J	0.006 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	7.6	10	9.1	7.4	8.3	6
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.65	0.17 U	0.22 J	0.34 J	0.23 J	0.16 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.027 J	0.045 J	0.052 J	0.097 J	0.11 J	0.12 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.17 U	0.13 U	0.14 U	0.12 U	0.16 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.9 U	5.6 U	4.5 U	4.8 U	4.1 U	5.2 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434.00	<u>290</u>	<u>220</u>	<u>150</u>	<u>210</u>	<u>230</u>	<u>170</u>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88.00	49 J	79 J	<u>100</u> J	84 J	78 J	68 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.3 J	4.7 J	3.9 J	2.8 J	3.1 J	2.7 J
Gasoline Range Organics	NE	NE	NE	NE	0.071 U	0.081 U	0.058 U	0.066 U	0.068 U	0.083 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2.3 J	4.7 J	3.9 J	2.8 J	3.1 J	2.7 J



TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB121 74SB121-05 5/13/2008 9.0-11.0	74SB121 74SB121-05D 5/13/2008 9.0-11.0	74SB122 74SB122-03 5/13/2008 5.0-7.0	74SB122 74SB122-04 5/13/2008 7.0-9.0	74SB123 74SB123-03 5/13/2008 5.0-7.0	74SB123 74SB123-05 5/13/2008 9.0-11.0	74SB124 74SB124-02 5/13/2008 3.0-5.0
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3 U	3.4 U	3.2 U	3.1 U	3.6 U	3.1 U	7.4 U
2-Hexanone	NE	NE	NE	NE	2.3 U	2.7 U	2.5 U	2.4 U	2.8 U	2.4 U	3.1 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	3.2 U	3.7 U	3.4 U	3.4 U	3.9 U	3.4 U	4.3 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	26 J	26 J	23 J	19 J	22 J	9.7 J	61 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	21 R	24 R	22 R	22 R	25 R	22 U	28 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	26 U	29 U	27 U	27 U	31 U	27 U	34 U
Bromoform	6,100	22,000	NE	NE	1.2 U	1.4 U	1.3 U	1.3 U	1.5 U	1.3 U	1.6 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.57 U	0.64 U	0.6 U	0.59 U	1.6 J	0.59 U	2.5 J
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.56 U	0.63 U	0.59 U	0.58 U	0.67 U	0.58 U	0.75 U
Chloromethane	1,700	8,400	NE	NE	0.79 U	0.9 U	0.84 U	0.83 U	0.95 U	0.83 U	1.1 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 U	2.8 U	2.6 U	2.6 U	3 U	2.6 U	3.3 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.84 U	0.95 U	0.88 U	0.87 U	1 U	0.87 U	1.1 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.3 U	1.2 U	1.2 U	1.3 U	1.2 U	1.5 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	77 R	87 R	81 R	80 R	93 R	80 U	100 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1.1 U	1.3 U	1.2 U	1.2 U	1.3 U	1.2 U	1.5 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.82 U	0.92 U	0.86 U	0.85 U	0.98 U	0.85 U	1.1 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.97 U	1.1 U	1 U	1 U	1.2 U	1 U	1.3 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	1.9 U	1.8 U	1.7 U	2 U	1.7 U	2.2 U
<b>LLPAHs (ug/kg)</b>											
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB121 74SB121-05 5/13/2008 9.0-11.0	74SB121 74SB121-05D 5/13/2008 9.0-11.0	74SB122 74SB122-03 5/13/2008 5.0-7.0	74SB122 74SB122-04 5/13/2008 7.0-9.0	74SB123 74SB123-03 5/13/2008 5.0-7.0	74SB123 74SB123-05 5/13/2008 9.0-11.0	74SB124 74SB124-02 5/13/2008 3.0-5.0
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.089 UJ	0.085 UJ	0.093 U	0.14 UJ	0.096 UJ	0.098 J	0.22 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.93</b>	<b>0.93</b>	<b>0.52 J</b>	<u>1.7</u>	<u>1.9</u>	<u>2.5</u>	<u>1.6</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	250 R	43 R	<u>530 J</u>	25 J	27 J	43 J	140 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.27	0.24	0.21	0.39	0.19	0.38	0.43
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.066 J	0.039 J	0.038 U	0.13	0.04 U	0.04 U	0.084 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	14 J	15 J	52	32	40	6.6	66
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>18</b>	<b>16</b>	<b>12 J</b>	<b>14 J</b>	<b>6 J</b>	<b>9.4 J</b>	<u>39 J</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	210	190	97	64	61	<u>370</u>	87
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	4.5 J	2.6 J	2.5	<u>10</u>	<u>7.6</u>	3.8	<u>8.5</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0046 U	0.0048 U	0.005 U	0.0044 U	0.029	0.0055 U	0.058
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	18	17	<u>25 J</u>	<u>30 J</u>	8.2 J	7.3 J	<u>36 J</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.14 U	0.14 U	0.17 J	0.15 J	2.5	0.37 J	0.7 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.019 U	0.018 U	0.022 J	0.023 J	0.023 J	0.022 J	0.04 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.14 U	0.15 U	0.15 U	0.15 U	0.16 J	0.18 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.8 U	4.5 U	5 U	5 U	5.1 U	<u>5.2 J</u>	6 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>190</b>	<b>180</b>	<b>120</b>	<b>260</b>	<b>260</b>	<b>150</b>	<b>250</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>140 J</u>	<u>130 J</u>	<u>170 J</u>	<u>170 J</u>	19 J	88 J	57 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	6.7	4.3	0.81 U	0.77 U	0.86 U	0.84 U	4.5 J
Gasoline Range Organics	NE	NE	NE	NE	0.064 U	0.069 U	0.074 U	0.074 U	0.072 U	0.082 U	0.084 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	6.7	4.3	0.884 U	0.844 U	0.932 U	0.922 U	4.5 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB124 74SB124-05	74VP2a/9 74VP2a/9-08	74VP2a/9 74VP2a/9-10	74VP1Aa/9 74VP1Aa/9-03	74VP1Aa/9 74VP1Aa/9-04	74VP1Cb/9 74VP1Cb/9-02
					5/13/2008 9.0-11.0	5/14/2008 15.0-17.0	5/14/2008 21.0-23.0	5/7/2008 5.0-7.0	5/7/2008 7.0-9.0	5/7/2008 3.0-5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.7 U	3.4 UJ	3.1 U	2.4 U	2.2 U	2.5 U
2-Hexanone	NE	NE	NE	NE	2.1 U	2.6 UJ	2.4 U	1.9 U	1.7 U	1.9 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.9 U	3.6 UJ	3.3 U	2.6 U	2.4 U	2.7 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	8 J	150 J	31 U	10 J	16 J	32 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	19 R	24 R	22 R	17 R	15 R	18 R
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	23 U	29 UJ	26 U	21 U	19 U	21 U
Bromoform	6,100	22,000	NE	NE	1.1 U	1.4 UJ	1.2 U	0.99 U	0.89 U	1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.52 J	0.64 UJ	0.58 U	0.46 U	1.6 J	0.55 J
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.5 U	0.62 UJ	0.57 U	0.45 U	0.41 U	0.46 U
Chloromethane	1,700	8,400	NE	NE	0.72 U	0.89 UJ	0.81 U	0.64 U	0.58 U	0.66 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.2 U	2.7 UJ	2.5 U	2 U	1.8 U	2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.76 U	0.94 UJ	0.85 U	0.68 U	0.61 U	0.69 U
Iodomethane	NE	NE	NE	NE	1 U	1.2 UJ	1.1 UJ	0.9 U	0.81 U	0.92 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	70 R	86 R	78 R	62 R	56 R	64 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	1 U	1.2 UJ	1.1 U	0.9 U	0.81 U	0.92 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.74 U	0.91 UJ	0.83 U	0.66 U	0.59 U	0.67 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.88 U	1.1 UJ	0.99 U	0.78 U	0.71 U	0.8 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.5 U	1.9 UJ	1.7 U	1.4 U	1.9 J	1.4 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	0.96 U	0.95 U	NA	NA	NA
Chrysene	15,000	210,000	NE	NE	NA	0.77 U	0.76 U	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	5.1 J	2.1 U	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	6.3 J	0.96 U	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	2.1 U	2.1 U	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	5.5 J	2.1 U	NA	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB124 74SB124-05	74VP2a/9 74VP2a/9-08	74VP2a/9 74VP2a/9-10	74VP1Aa/9 74VP1Aa/9-03	74VP1Aa/9 74VP1Aa/9-04	74VP1Cb/9 74VP1Cb/9-02
					5/13/2008 9.0-11.0	5/14/2008 15.0-17.0	5/14/2008 21.0-23.0	5/7/2008 5.0-7.0	5/7/2008 7.0-9.0	5/7/2008 3.0-5.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.086 UJ	0.089 UJ	0.089 UJ	0.075 U	0.074 U	0.085 U
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.92</b>	<u>1.7</u>	<u>1.7</u>	<b>0.92</b>	<b>0.98</b>	<b>1.1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	85 J	75	54	33	20	99
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.36	0.28	0.24	0.22	0.18	0.41
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.036 U	0.12 J	0.21	0.054 J	0.039 J	0.082 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	10	4.1	5.6	4.2	3.6	17
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>17 J</b>	<b>14</b>	<u>27</u>	<b>20</b>	<b>26</b>	<u>27</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	<u>300</u>	74	240	190	150	81
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3.3	<u>7.5</u>	1.5	0.81	0.62	<u>6.5</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.004 U	0.0049 U	0.0048 U	0.0072 J	0.0048 J	0.019 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	12 J	5.9	7.6	6.1	4.4	8.4
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.14 U	0.14 U	0.14 U	0.12 J	0.15 J	0.18 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.026 J	0.026 J	0.03 J	0.016 U	0.016 U	0.021 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.14 U	0.14 U	0.12 U	0.12 U	0.14 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.6 U	4.8 U	4.8 U	4 U	4 U	4.5 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>140</b>	<b>210</b>	<b>230</b>	<b>150</b>	<b>140</b>	<b>170</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	72 J	70 J	87 J	73	66	83
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	3.7 J	9.4	28	1.6 J	1.8 J	2.6 J
Gasoline Range Organics	NE	NE	NE	NE	0.067 U	120	0.3 J	0.05 U	0.045 U	0.054 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	3.7 J	<b>129.4</b>	<b>28.3 J</b>	1.6 J	1.8 J	2.6 J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74VP1Cb/9 74VP1Cb/9-04 5/7/2008 7.0-9.0	74VP1Ba/9 74VP1Ba/9-05D 5/13/2008 9.0-11.0	74VP1Ba/9 74VP1Ba/9-05 5/13/2008 9.0-11.0	74VP1Ba/9 74VP1Ba/9-09 5/13/2008 17.0-19.0	74VP3b/9 74VP3b/9-05 5/13/2008 9.0-11.0	74VP3b/9 74VP3b/9-07 5/13/2008 13.0-15.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	4.4 U	7.2 U	5.7 U	680 U	750 U	130 U
2-Hexanone	NE	NE	NE	NE	1.9 U	2.2 U	2.5 U	530 U	590 U	100 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	2.6 U	3 U	3.4 U	730 U	810 U	140 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	43 J	66 J	40 J	1100 U	2500 U	530 J
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	17 R	20 R	22 R	4800 R	5300 R	930 U
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	21 U	24 U	27 U	5800 U	6400 U	1100 U
Bromoform	6,100	22,000	NE	NE	1 U	1.1 U	1.3 U	280 U	310 U	54 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.46 U	0.61 J	0.75 J	130 U	140 U	25 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.45 U	0.51 U	0.59 U	130 U	140 U	25 U
Chloromethane	1,700	8,400	NE	NE	0.65 U	0.73 U	0.83 U	180 U	200 U	35 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2 U	2.3 U	2.6 U	560 U	610 U	110 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.68 U	0.77 U	0.88 U	190 U	210 U	37 U
Iodomethane	NE	NE	NE	NE	0.91 U	1 U	1.2 U	250 UJ	280 UJ	49 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	63 R	71 R	81 R	17000 R	19000 R	3400 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	0.91 U	1 U	1.2 U	250 U	280 U	49 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.66 U	0.75 U	0.85 U	180 U	200 U	36 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	0.79 U	0.9 U	1 U	220 U	240 U	43 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.4 U	1.5 U	1.8 U	380 U	420 U	74 U
<b>LLPAHs (ug/kg)</b>										
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	0.88 U	0.88 U	1.3 J	0.99 U	1 U
Chrysene	15,000	210,000	NE	NE	NA	0.71 U	0.71 U	2.6 J	0.85 J	1.1 J
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	2 U	2 U	6.5 J	2.2 U	2.6 J
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	0.89 U	0.89 U	0.95 U	1 U	1.1 U
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	2 U	2 U	2.1 U	2.2 U	2.3 U
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	2 U	2 U	5.9 J	2.2 U	2.3 U

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74VP1Cb/9 74VP1Cb/9-04 5/7/2008 7.0-9.0	74VP1Ba/9 74VP1Ba/9-05D 5/13/2008 9.0-11.0	74VP1Ba/9 74VP1Ba/9-05 5/13/2008 9.0-11.0	74VP1Ba/9 74VP1Ba/9-09 5/13/2008 17.0-19.0	74VP3b/9 74VP3b/9-05 5/13/2008 9.0-11.0	74VP3b/9 74VP3b/9-07 5/13/2008 13.0-15.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.088 U	0.087 UJ	0.1 UJ	0.09 UJ	0.092 UJ	0.097 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.67</b>	<b>0.81</b>	<b>0.87</b>	0.36 U	<b>1</b>	0.39 U
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	100	110	97	88	27	20
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.25	0.25	0.24	0.19	0.16	0.12 J
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.062 J	0.075 J	0.057 J	0.037 U	0.038 U	0.04 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	9.1	6.7 J	6.9 J	7.2 J	75 J	12 UJ
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>27</b>	<b>30</b>	<b>28</b>	<b>20</b>	<b>3</b>	<b>4.2</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	81	<b>320</b>	<b>370</b>	14	59	50
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>7.2</u>	2.9	2	2.7	4.6	2.5
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.013 J	0.012 J	0.0083 J	<u>0.16</u>	0.005 U	0.0052 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	6.7	7.1	6.9	6.4	4.3	3.9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.14 U	0.14 U	0.13 U	0.14 U	1	0.16 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.019 J	0.029 J	0.044 J	0.022 J	0.02 J	0.021 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.14 U	0.13 U	0.14 U	0.15 U	0.16 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.7 U	4.5 U	4.3 U	4.8 U	4.9 U	5.2 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>160</b>	<b>200</b>	<b>210</b>	<b>170</b>	<b>190</b>	<b>60</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	83	<u>160</u> J	<u>150</u> J	<u>140</u> J	28 J	36 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.6 J	2.3 J	2.3 J	2.5 J	2.4 J	2.9 J
Gasoline Range Organics	NE	NE	NE	NE	0.057 U	0.16 J	0.09 J	3900	510	450 J
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2.6 J	2.46 J	2.39 J	<b>3902.5</b> J	<b>512.4</b> J	<b>452.9</b> J

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID	<b>Regional Screening</b>	<i>Regional Screening</i>	Selected Ecological Surface Soil Screening Values	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74VP3b 74VP3b-03	74VP3b 74VP3b-04	74VP11a 74VP11a-03	74VP11a 74VP11a-04
Date	<b>Levels</b>	<i>Levels</i>			5/5/2008	5/5/2008	5/6/2008	5/6/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>			5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>								
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	1200 U	600 U	2.5 U	2.7 U
2-Hexanone	NE	NE	NE	NE	900 U	470 U	1.9 U	2.1 U
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	NE	1200 U	650 U	2.7 U	3 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	1900 R	2500 J	30 J	28 UJ
Acrolein	16 <sup>(2)</sup>	68 <sup>(2)</sup>	NE	NE	8200 U	4200 R	18 R	19 U
Acrylonitrile	240	1200	1,000,000 <sup>(6)</sup>	NE	9900 U	5100 U	21 U	23 U
Bromoform	6,100	22,000	NE	NE	470 U	240 U	1 U	1.1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	220 U	110 U	0.47 U	0.52 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	220 U	110 U	0.46 U	0.51 U
Chloromethane	1,700	8,400	NE	NE	310 U	160 U	0.66 U	0.72 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	950 U	490 U	2 U	2.2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	320 U	170 U	0.69 U	0.76 U
Iodomethane	NE	NE	NE	NE	430 U	220 U	0.92 U	1 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	#### R	15000 R	64 R	70 R
Methylene Chloride	11,000	54,000	1,004 <sup>(8)</sup>	NE	430 U	220 U	0.92 U	1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	310 U	160 U	0.67 U	0.74 U
trans-1,3-Dichloropropene	NE	NE	100 <sup>(12)</sup>	NE	370 U	190 U	0.8 U	0.89 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	650 U	330 U	1.4 U	1.5 U
<b>LLPAHs (ug/kg)</b>								
Benzo[b]fluoranthene	150	2,100	NE	NE	0.87 J	0.83 U	NA	NA
Chrysene	15,000	210,000	NE	NE	0.67 U	0.67 U	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	2.5 J	1.9 U	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	0.84 U	0.84 U	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	13	2.8 J	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	2.2 U	2.3 U	NA	NA

TABLE 6-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74VP3b 74VP3b-03 5/5/2008 5.0-7.0	74VP3b 74VP3b-04 5/5/2008 7.0-9.0	74VP11a 74VP11a-03 5/6/2008 5.0-7.0	74VP11a 74VP11a-04 5/6/2008 7.0-9.0
<b>Metals (mg/kg)</b>								
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.09 UJ	0.086 UJ	0.089 UJ	0.091 UJ
Arsenic	0.39	1.60	18 <sup>(4)</sup>	1.59	<b>0.71</b>	<b>0.42 J</b>	<b>1.8</b>	<b>1.5</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	43	42	17	23
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.11	0.081 J	0.3	0.23
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.04 J	0.037 J	0.12	0.062 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	2.4	1.6	25	21
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>11</b>	<b>12</b>	<b>7.1</b>	<b>4.3</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	27 J	18 J	170 J	160 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.47	0.33	3	3
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0 U	0.0044 U	0.02 J	0.015 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	1.7	2.1	7.2	6.8
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.12 U	0.12 U	1	0.5 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.02 J	0.027 J	0.032 J	0.027 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.12 U	0.12 U	0.14 U	0.15 U
Tin	4,700 <sup>(2)</sup>	61,000 <sup>(2)</sup>	50 <sup>(7)</sup>	4	4.2 U	4 U	4.7 U	4.9 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>150</b>	<b>180</b>	<b>320</b>	<b>280</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	36 J	42 J	45 J	55 J
<b>TPH DRO and GRO (mg/kg)</b>								
Diesel Range Organics	NE	NE	NE	NE	340	150	1.6 J	1.7 J
Gasoline Range Organics	NE	NE	NE	NE	19 J	49 J	0.065 J	0.061 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	<b>359 J</b>	<b>199 J</b>	1.665 J	1.7 J



**TABLE 6-2**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated, the analyte was positively identified; the quantitation is an estimation  
U - Undetected at the Limit of Detection.  
UJ - Reported quantitation limit is qualified as estimated  
R - Data is rejected and not usable  
NE - Not Established  
NA - Not Analyzed  
ft bgs - feet below ground surface  
mg/kg - milligram per kilogram  
ug/kg - microgram per kilogram  
NAPR - Naval Activity Puerto Rico  
USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics  
GRO - Gasoline Range Organics  
TPH - Total Petroleum Hydrocarbons  
LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

- <sup>(1)</sup> NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) for Subsurface Soil Background Clay Table 3-4 (Baker, 2008)
- <sup>(2)</sup> Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- <sup>(3)</sup> USEPA Action Level for lead in soils
- <sup>(4)</sup> Plant-based ecological soil screening level (USEPA, 2005a [arsenic]; USEPA, 2005b [cadmium]; USEPA, 2005c [cobalt]; USEPA, 2007a [copper]; USEPA, 2005d [lead]; USEPA, 2006a [silver]; USEPA, 2007a [copper]; USEPA, 2007b [nickel]; USEPA, 2007c [selenium])
- <sup>(5)</sup> Invertebrate-based ecological soil screening level (USEPA, 2005h [antimony]; USEPA, 2005f [barium]; USEPA, 2005g [beryllium]; USEPA, 2000d [zinc])
- <sup>(6)</sup> Toxicological threshold for earthworms (Efroymson et al., 1997a)
- <sup>(7)</sup> Toxicological threshold for plants (Efroymson et al., 1997b)
- <sup>(8)</sup> Ministry of Housing, Spatial Analysis and Environment (MHSPE), 2000, Circular on Target Values for Soil Remediation. Directorate-General for Environmental Protection, Department of Soil Protection, The Hague, Netherlands. February 4, 2000.
- <sup>(9)</sup> Reproduction-based MATC for *Eisenia andrei* (earthworm)
- <sup>(10)</sup> Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10
- <sup>(11)</sup> Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07
- <sup>(12)</sup> Canadian soil quality guideline based on agricultural land uses
- <sup>(13)</sup> Pyrene used as a surrogate for screening purposes.

**TABLE 6-2**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

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USEPA. 2005g. Ecological Soil Screening Levels for Beryllium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C.

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OSWER Directive 9285.7-61.

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected	NAPR	74VP1Ca/9	74VP1Cb/9	74VP1Cb/9	74VP3a	74VP3b	74VP11a
Sample ID	Tap Water	MCLs	Ecological	Basewide	74GWVP1Ca/9	74GWVP1Cb/9	74GWVP1Cb/9D	74GWVP3a	74GWVP3b	74GWVP11a
Date	Screening Levels		Surface Water Screening Values	Background <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/15/2008

**Volatile Organic Compounds (ug/L)**

2-Butanone (MEK)	710 <sup>(2)</sup>	NE	13,333 <sup>(16)</sup>	NE	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Hexanone	NE	NE	99 <sup>(14)</sup>	NE	0.68 U	9.9 J	0.68 U	0.68 U	0.68 U	0.68 U
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(14)</sup>	NE	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(13)</sup>	NE	44 U	11 J	36 U	19 J	13 J	38
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	<b>8.1</b>	<b>12</b>	0.32 U	0.32 U	0.32 U
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(14)</sup>	NE	0.17 U	0.44 U	0.54 J	0.17 U	0.17 U	0.77 U
Chloroform	0.19	NE	815 <sup>(7)</sup>	NE	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane	1.8	NE	2700 <sup>(4)</sup>	NE	0.28 U	0.52 J	0.28 U	0.28 U	1.5	0.28 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.3 U	0.3 U	0.73 J	0.3 U	0.3 U	<b>2.7</b>
Toluene	230 <sup>(2)</sup>	NE	37 <sup>(7)</sup>	NE	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
Vinyl chloride	0.02	2.0	930 <sup>(14)</sup>	NE	0.2 U	<b>0.26 J</b>	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	20 <sup>(2)</sup>	10,000	27 <sup>(14)</sup>	NE	0.87 U	0.87 U	1.3 J	0.87 U	0.87 U	<b>23</b>

**LLPAHs (ug/L)**

1-Methylnaphthalene	2.3	NE	NE	NE	0.049 U	0.049 U	0.048 U	0.048 U	1.1 J	<b>3.7 J</b>
2-Methylnaphthalene	15 <sup>(2)</sup>	NE	6 <sup>(8)</sup>	NE	0.022 U	0.023 U	0.022 U	0.022 U	0.76 J	1.5 J
Acenaphthene	220 <sup>(2)</sup>	NE	9.7 <sup>(7)</sup>	NE	0.019 U	0.02 U	0.019 U	0.019 U	0.93 J	0.19 U
Acenaphthylene	NE	NE	6.0 <sup>(19)</sup>	NE	0.049 U	0.049 U	0.048 U	0.048 U	0.84 J	0.47 U
Anthracene	1,100 <sup>(2)</sup>	NE	5.35 <sup>(10)</sup>	NE	0.021 U	0.022 U	0.021 U	0.021 U	1.1 J	0.21 U
Benzo[a]anthracene	0.03	NE	6 <sup>(19)</sup>	NE	0.025 U	0.025 U	0.025 U	0.025 U	<b>0.95 J</b>	0.25 U
Benzo[a]pyrene	0.003	0.20	10 <sup>(20)</sup>	NE	0.024 U	0.025 U	0.024 U	0.024 U	<b>1 J</b>	0.24 U
Benzo[b]fluoranthene	0.029	NE	6.0 <sup>(19)</sup>	NE	0.036 U	0.036 U	0.035 U	0.036 U	<b>0.89 J</b>	0.35 U
Benzo[g,h,i]perylene	110 <sup>(2)</sup>	NE	6.0 <sup>(19)</sup>	NE	0.023 U	0.024 U	0.023 U	0.023 U	1.2 J	0.23 U
Benzo[k]fluoranthene	0.290	NE	6.0 <sup>(19)</sup>	NE	0.019 U	0.02 U	0.019 U	0.019 U	<b>1 J</b>	0.19 U
Chrysene	2.90	NE	10 <sup>(20)</sup>	NE	0.027 U	0.027 U	0.027 U	0.027 U	1.2 J	0.26 U

TABLE 6-3

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	Regional	USEPA	Selected	NAPR	74VP1Ca/9	74VP1Cb/9	74VP1Cb/9	74VP3a	74VP3b	74VP11a
	Sample ID	Tap Water	MCLs	Ecological	Basewide	74GWVP1Ca/9	74GWVP1Cb/9	74GWVP1Cb/9D	74GWVP3a	74GWVP3b	74GWVP11a
	Date	Screening		Surface Water	Background <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/15/2008
<b>LLPAHs (ug/L)</b>											
Dibenz(a,h)anthracene		0.003	NE	6.0 <sup>(19)</sup>	NE	0.023 U	0.024 U	0.023 U	0.023 U	<b>1.3 J</b>	0.23 U
Fluoranthene		150 <sup>(2)</sup>	NE	11 <sup>(15)</sup>	NE	0.049 U	0.049 U	0.048 U	0.048 U	1.2 J	0.47 U
Fluorene		150 <sup>(2)</sup>	NE	10 <sup>(9)</sup>	NE	0.018 U	0.12 J	0.16 J	0.018 U	0.92 J	0.18 U
Indeno[1,2,3-cd]pyrene		0.03	NE	6.0 <sup>(19)</sup>	NE	0.022 U	0.023 U	0.022 U	0.022 U	<b>1.1 J</b>	0.22 U
Naphthalene		0.14	NE	23.5 <sup>(7)</sup>	NE	0.049 U	0.049 U	0.048 U	0.048 U	0.49 UJ	<b>4.1 J</b>
Phenanthrene		NE	NE	8.3 <sup>(15)</sup>	NE	0.017 U	0.018 U	0.017 U	0.017 U	1.2 J	0.17 U
Pyrene		110 <sup>(2)</sup>	NE	0.248 <sup>(10)</sup>	NE	0.026 U	0.026 U	0.026 U	0.026 U	<b>1.3 J</b>	0.25 U
<b>Total Metals (ug/L)</b>											
Antimony		1.5 <sup>(2)</sup>	6.0	500 <sup>(21)</sup>	12.24	0.69 U	1.1 U	1.2 U	0.67 U	0.83 U	0.54 U
Arsenic		0.045	10	36.0 <sup>(17)</sup>	18.89	1.8 U	<b>12</b>	<b>11</b>	0.86 U	0.93 U	0.78 U
Barium		730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	686	13	66	70	23 J	27	110
Beryllium		7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	2.21	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.15 J	0.12 U	0.12 J	0.31 J	0.22 J	0.62
Chromium		5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	0.62 J	0.6 U	0.6 U	0.6 U	1 J	1 J
Cobalt		1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	0.77	<b>2.4 J</b>	<b>2.7</b>	1 J	0.14 J	3.9 U
Copper		150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	2.2 U	1.8 U	2 U	<b>6.4</b>	1.8 U	3.9 U
Lead		NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	26.25	<b>36</b>	<b>81</b>	<b>84</b>	0.82 U	0.15 U	0.15 U
Nickel		73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	0.84 J	1.3	1.3	0.75 J	0.92 J	<b>8.4</b>
Selenium		18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	0.68 J	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Silver		18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 J
Tin		2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	9.35	0.93 J	1.3 J	0.92 J	0.93 J	0.9 U	1.8 J
Vanadium		26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	484.66	<b>23</b>	9.3	10 J	<b>34</b>	<b>28</b>	4 U
Zinc		1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	6.5 U	6.5 J	9.5 J	12 J	6.5 U	35

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	Regional	USEPA	Selected	NAPR	74VP1Ca/9	74VP1Cb/9	74VP1Cb/9	74VP3a	74VP3b	74VP11a
	Sample ID	Tap Water	MCLs	Ecological	Basewide	74GWVP1Ca/9	74GWVP1Cb/9	74GWVP1Cb/9D	74GWVP3a	74GWVP3b	74GWVP11a
	Date	Screening		Surface Water	Background <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/15/2008
<b>Dissolved Metals (ug/L)</b>											
Antimony		1.5 <sup>(2)</sup>	6.0	500 <sup>(21)</sup>	11.19	0.4 U	0.99 U	0.88 U	0.59 U	0.73 U	0.36 U
Arsenic		0.045	10	36 <sup>(17)</sup>	14.03	<b>1.5 J</b>	<b>12</b>	<b>9.7</b>	<b>0.7 J</b>	<b>0.93 J</b>	<b>1 J</b>
Barium		730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	260	15	73	64	32 J	29	110
Beryllium		7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	5.4	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.57
Chromium		5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.61 J
Cobalt		1.1	NE	45 <sup>(6)</sup>	580.5	0.95	<b>3.1 J</b>	<b>2.5</b>	<b>1.5 J</b>	0.61	<b>64</b>
Copper		150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	29	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.7 U
Lead		NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	1.3	<b>32 J</b>	<b>78 J</b>	<b>81 J</b>	0.15 UJ	0.15 UJ	0.15 UJ
Nickel		73	NE	8.28 <sup>(3)</sup>	84.1	1.6	1.5	1.2	1.1	0.73 J	<b>8.6</b>
Selenium		18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Silver		18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	3.67	0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ
Tin		2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	NE	1.1 J	0.9 U	0.9 U	0.9 U	0.9 U	1.3 J
Vanadium		26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	<b>22</b>	9.3	<b>13 J</b>	<b>21</b>	<b>28</b>	3.3 U
Zinc		1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	29
<b>TPH DRO and GRO (mg/L)</b>											
Diesel Range Organics		NE	NE	NE	NE	1.5	2	2.4	0.38	1.4	NA
Gasoline Range Organics		NE	NE	NE	NE	1.1 J	0.58 J	0.86 J	0.012 U	0.012 U	0.24
Total TPH		12.5 <sup>(18)</sup>	NE	NE	NE	2.6 J	2.58 J	3.26 J	0.38	1.4	0.24

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	Regional Tap Water Screening Levels	USEPA MCLs	Selected Ecological Surface Water Screening Values	NAPR Basewide Background <sup>(1)</sup>	74VP11b 74GWVP11b 5/15/2008	74VP1Aa/9 74GWVP1Aa/9 5/16/2008	74VP1Ab/9 74GWVP1Ab/9 5/18/2008	74VP1Ba/9 74GWVP1Ba/9 5/19/2008	74VP1Bb/9 74GWVP1Bb/9 5/16/2008
<b>Volatile Organic Compounds (ug/L)</b>									
2-Butanone (MEK)	710 <sup>(2)</sup>	NE	13,333 <sup>(16)</sup>	NE	1.4 U	82 U	0.6 U	0.6 U	130
2-Hexanone	NE	NE	99 <sup>(14)</sup>	NE	0.68 U	14 U	0.68 U	0.68 U	0.68 U
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(14)</sup>	NE	0.6 U	210	0.6 U	0.6 U	0.6 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(13)</sup>	NE	25	190 J	9.2 J	17 J	1000
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	2,500	0.32 U	0.32 U	0.32 U
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(14)</sup>	NE	0.33 J	7.6 U	0.17 U	0.63 J	0.17 U
Chloroform	0.19	NE	815 <sup>(7)</sup>	NE	0.29 U	5.8 U	0.29 U	0.29 U	0.29 U
Chloromethane	1.8	NE	2700 <sup>(4)</sup>	NE	0.28 U	5.6 U	0.28 U	0.28 U	0.28 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.3 U	460	0.3 U	0.3 U	0.3 U
Toluene	230 <sup>(2)</sup>	NE	37 <sup>(7)</sup>	NE	0.88 U	3,800	0.31 U	0.31 U	0.31 U
Vinyl chloride	0.02	2.0	930 <sup>(14)</sup>	NE	0.2 U	4 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	20 <sup>(2)</sup>	10,000	27 <sup>(14)</sup>	NE	0.87 U	3,100	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>									
1-Methylnaphthalene	2.3	NE	NE	NE	0.36	18 J	0.049 U	NA	0.047 U
2-Methylnaphthalene	15 <sup>(2)</sup>	NE	6 <sup>(8)</sup>	NE	0.11 J	31 J	0.11 J	NA	0.022 U
Acenaphthene	220 <sup>(2)</sup>	NE	9.7 <sup>(7)</sup>	NE	0.019 U	0.19 UJ	0.019 U	NA	0.019 U
Acenaphthylene	NE	NE	6.0 <sup>(19)</sup>	NE	0.047 U	0.47 UJ	0.049 U	NA	0.047 U
Anthracene	1,100 <sup>(2)</sup>	NE	5.35 <sup>(10)</sup>	NE	0.021 U	0.21 UJ	0.021 U	NA	0.021 U
Benzo[a]anthracene	0.03	NE	6 <sup>(19)</sup>	NE	0.025 U	0.25 UJ	0.025 U	NA	0.025 U
Benzo[a]pyrene	0.003	0.20	10 <sup>(20)</sup>	NE	0.024 U	0.24 UJ	0.024 U	NA	0.024 U
Benzo[b]fluoranthene	0.029	NE	6.0 <sup>(19)</sup>	NE	0.035 U	0.35 UJ	0.036 U	NA	0.035 U
Benzo[g,h,i]perylene	110 <sup>(2)</sup>	NE	6.0 <sup>(19)</sup>	NE	0.023 U	0.23 UJ	0.023 U	NA	0.023 U
Benzo[k]fluoranthene	0.290	NE	6.0 <sup>(19)</sup>	NE	0.019 U	0.19 UJ	0.019 U	NA	0.019 U
Chrysene	2.90	NE	10 <sup>(20)</sup>	NE	0.026 U	0.26 UJ	0.027 U	NA	0.026 U

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID Sample ID	Regional Tap Water	USEPA MCLs	Selected Ecological Surface Water	NAPR Basewide Background <sup>(1)</sup>	74VP11b 74GWVP11b 5/15/2008	74VP1Aa/9 74GWVP1Aa/9 5/16/2008	74VP1Ab/9 74GWVP1Ab/9 5/18/2008	74VP1Ba/9 74GWVP1Ba/9 5/19/2008	74VP1Bb/9 74GWVP1Bb/9 5/16/2008
<b>LLPAHs (ug/L)</b>	Date	Screening								
Dibenz(a,h)anthracene		0.003	NE	6.0 <sup>(19)</sup>	NE	0.023 U	0.23 UJ	0.023 U	NA	0.023 U
Fluoranthene		150 <sup>(2)</sup>	NE	11 <sup>(15)</sup>	NE	0.047 U	0.47 UJ	0.049 U	NA	0.047 U
Fluorene		150 <sup>(2)</sup>	NE	10 <sup>(9)</sup>	NE	0.018 U	0.18 UJ	0.018 U	NA	0.018 U
Indeno[1,2,3-cd]pyrene		0.03	NE	6.0 <sup>(19)</sup>	NE	0.022 U	0.22 UJ	0.022 U	NA	0.022 U
Naphthalene		0.14	NE	23.5 <sup>(7)</sup>	NE	<b>0.92</b>	<b>120 J</b>	0.049 U	NA	0.047 U
Phenanthrene		NE	NE	8.3 <sup>(15)</sup>	NE	0.017 U	0.17 UJ	0.017 U	NA	0.017 U
Pyrene		110 <sup>(2)</sup>	NE	0.248 <sup>(10)</sup>	NE	0.025 U	0.25 UJ	0.026 U	NA	0.025 U
<b>Total Metals (ug/L)</b>										
Antimony		1.5 <sup>(2)</sup>	6.0	500 <sup>(21)</sup>	12.24	0.56 U	0.7 U	0.36 U	<b>2.7</b>	0.36 U
Arsenic		0.045	10	36.0 <sup>(17)</sup>	18.89	2 U	1.2 U	1.3 U	<b>5.3</b>	<b>0.79 J</b>
Barium		730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	686	350	55	41	31	14
Beryllium		7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	2.21	0.73	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	<b>13</b>	0.17 J	0.12 U	0.23 J	0.12 U
Chromium		5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	0.6 U	0.73 J	2.5 J	2.3 J	3.2 J
Cobalt		1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	<b>670</b>	<b>3.3 J</b>	<b>2</b>	<b>3.8 J</b>	0.39 R
Copper		150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	<b>29</b>	3.8 U	2.8 U	4.1 U	2.2 U
Lead		NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	26.25	0.15 U	<b>16</b>	3	4.6	<b>12</b>
Nickel		73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	<b>160</b>	1.5	1.9	7.5	2.3
Selenium		18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	0.6 U	0.6 U	0.6 U	0.83 J	0.6 U
Silver		18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	0.21 J	0.09 U	0.09 U	0.09 U	0.09 UJ
Tin		2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	9.35	1.1 J	2 J	4.7 J	1.8 J	1.8 J
Vanadium		26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	484.66	2.6 U	<b>15</b>	<b>15</b>	8.5	8.6
Zinc		1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	<b>530</b>	48	39 J	48 J	11 J

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	Regional	USEPA	Selected	NAPR	74VP11b	74VP1Aa/9	74VP1Ab/9	74VP1Ba/9	74VP1Bb/9
	Sample ID	Tap Water	MCLs	Ecological	Basewide	74GWVP11b	74GWVP1Aa/9	74GWVP1Ab/9	74GWVP1Ba/9	74GWVP1Bb/9
	Date	Screening		Surface Water	Background <sup>(1)</sup>	5/15/2008	5/16/2008	5/18/2008	5/19/2008	5/16/2008
<b>Dissolved Metals (ug/L)</b>										
Antimony		1.5 <sup>(2)</sup>	6.0	500 <sup>(21)</sup>	11.19	0.36 U	0.46 U	0.42 U	<b>2.7</b>	0.77 U
Arsenic		0.045	10	36 <sup>(17)</sup>	14.03	<b>3.8</b>	<b>1.5 J</b>	1.2 U	<b>4.5</b>	0.71 U
Barium		730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	260	<u>340</u>	49	36	22	11
Beryllium		7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	5.4	0.63	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	<b>11</b>	0.12 U	0.12 U	0.12 U	0.12 U
Chromium		5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	0.6 U	0.6 U	2.8 J	1.2 J	0.6 U
Cobalt		1.1	NE	45 <sup>(6)</sup>	580.5	<b>680</b>	<b>4.1 J</b>	<b>2.2</b>	<b>4.8 J</b>	1 R
Copper		150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	29	<b>27</b>	1.3 U	1.2 U	1.2 U	1.2 U
Lead		NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	1.3	0.15 UJ	<b>17 J</b>	<u>2.6</u>	<u>2.8</u>	<b>15 J</b>
Nickel		73	NE	8.28 <sup>(3)</sup>	84.1	<b>150</b>	1.7	1.9	<b>8.4</b>	0.86 J
Selenium		18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	0.6 U	0.6 U	0.6 U	0.65 J	0.6 U
Silver		18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	3.67	0.13 J	0.09 UJ	0.09 UJ	0.09 UJ	0.09 U
Tin		2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	NE	0.9 U	1.3 J	4 J	0.9 U	1.2 J
Vanadium		26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	1.4 U	8.7	8.8	2.7 U	8.9
Zinc		1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	<b>490</b>	46	31	9.5 J	6.5 U
<b>TPH DRO and GRO (mg/L)</b>										
Diesel Range Organics		NE	NE	NE	NE	1.2	5.7	0.99	1.7	1.6
Gasoline Range Organics		NE	NE	NE	NE	0.014 J	44	0.15	0.16	0.26 J
Total TPH		12.5 <sup>(18)</sup>	NE	NE	NE	1.214 J	<b>49.7</b>	1.14	1.86 J	1.86 J



TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected	NAPR	74SB74	74SB84	74VP3a/9	74VP3b/9	74VP2a/9	74VP2b/9
Sample ID	Tap Water	MCLs	Ecological	Basewide	74GW74	74GW84	74GWVP3a/9	74GWVP3b/9	74GWVP2a/9	74GWVP2b/9
Date	Screening Levels		Surface Water Screening Values	Background <sup>(1)</sup>	5/15/2008	5/17/2008	5/17/2008	5/17/2008	5/19/2008	5/18/2008

**Volatile Organic Compounds (ug/L)**

2-Butanone (MEK)	710 <sup>(2)</sup>	NE	13,333 <sup>(16)</sup>	NE	0.6 U	3.1 U	12 U	0.6 U	0.6 U	0.6 U
2-Hexanone	NE	NE	99 <sup>(14)</sup>	NE	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(14)</sup>	NE	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(13)</sup>	NE	5 U	30	58	12 J	10 J	17 J
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	0.32 U	0.32 U	0.32 U	0.35 J	0.32 U
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(14)</sup>	NE	0.43 J	0.63 U	0.42 U	0.67 U	0.97 UJ	0.17 U
Chloroform	0.19	NE	815 <sup>(7)</sup>	NE	0.29 U	0.29 U	0.29 U	0.29 U	<b>0.67 J</b>	0.29 U
Chloromethane	1.8	NE	2700 <sup>(4)</sup>	NE	0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ	0.28 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.3 U	0.3 U	0.3 U	0.3 U	0.99 J	0.93 J
Toluene	230 <sup>(2)</sup>	NE	37 <sup>(7)</sup>	NE	0.51 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
Vinyl chloride	0.02	2.0	930 <sup>(14)</sup>	NE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	20 <sup>(2)</sup>	10,000	27 <sup>(14)</sup>	NE	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U

**LLPAHs (ug/L)**

1-Methylnaphthalene	2.3	NE	NE	NE	NA	NA	0.047 U	0.047 U	0.36	0.049 U
2-Methylnaphthalene	15 <sup>(2)</sup>	NE	6 <sup>(8)</sup>	NE	NA	NA	0.022 U	0.022 U	0.41	0.022 U
Acenaphthene	220 <sup>(2)</sup>	NE	9.7 <sup>(7)</sup>	NE	NA	NA	0.019 U	0.019 U	0.11 J	0.14 J
Acenaphthylene	NE	NE	6.0 <sup>(19)</sup>	NE	NA	NA	0.047 U	0.047 U	0.047 U	0.049 U
Anthracene	1,100 <sup>(2)</sup>	NE	5.35 <sup>(10)</sup>	NE	NA	NA	0.021 U	0.021 U	0.021 U	0.021 U
Benzo[a]anthracene	0.03	NE	6 <sup>(19)</sup>	NE	NA	NA	0.025 U	0.025 U	0.025 U	0.025 U
Benzo[a]pyrene	0.003	0.20	10 <sup>(20)</sup>	NE	NA	NA	0.024 U	0.024 U	0.024 U	0.024 U
Benzo[b]fluoranthene	0.029	NE	6.0 <sup>(19)</sup>	NE	NA	NA	0.035 U	0.035 U	0.035 U	0.036 U
Benzo[g,h,i]perylene	110 <sup>(2)</sup>	NE	6.0 <sup>(19)</sup>	NE	NA	NA	0.023 U	0.023 U	0.023 U	0.023 U
Benzo[k]fluoranthene	0.290	NE	6.0 <sup>(19)</sup>	NE	NA	NA	0.019 U	0.019 U	0.019 U	0.019 U
Chrysene	2.90	NE	10 <sup>(20)</sup>	NE	NA	NA	0.026 U	0.026 U	0.026 U	0.027 U

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	Regional Tap Water Screening	USEPA MCLs	Selected Ecological Surface Water	NAPR Basewide Background <sup>(1)</sup>	74SB74 74GW74 5/15/2008	74SB84 74GW84 5/17/2008	74VP3a/9 74GWVP3a/9 5/17/2008	74VP3b/9 74GWVP3b/9 5/17/2008	74VP2a/9 74GWVP2a/9 5/19/2008	74VP2b/9 74GWVP2b/9 5/18/2008
<b>LLPAHs (ug/L)</b>										
Dibenz(a,h)anthracene	0.003	NE	6.0 <sup>(19)</sup>	NE	NA	NA	0.023 U	0.023 U	0.023 U	0.023 U
Fluoranthene	150 <sup>(2)</sup>	NE	11 <sup>(15)</sup>	NE	NA	NA	0.047 U	0.047 U	0.047 U	0.049 U
Fluorene	150 <sup>(2)</sup>	NE	10 <sup>(9)</sup>	NE	NA	NA	0.018 U	0.018 U	0.62	0.69
Indeno[1,2,3-cd]pyrene	0.03	NE	6.0 <sup>(19)</sup>	NE	NA	NA	0.022 U	0.022 U	0.022 U	0.022 U
Naphthalene	0.14	NE	23.5 <sup>(7)</sup>	NE	NA	NA	0.047 U	0.047 U	0.047 U	0.049 U
Phenanthrene	NE	NE	8.3 <sup>(15)</sup>	NE	NA	NA	0.042 J	0.017 U	0.017 U	0.054 J
Pyrene	110 <sup>(2)</sup>	NE	0.248 <sup>(10)</sup>	NE	NA	NA	0.025 U	0.025 U	0.027 J	0.026 U
<b>Total Metals (ug/L)</b>										
Antimony	1.5 <sup>(2)</sup>	6.0	500 <sup>(21)</sup>	12.24	3.8	3.6 U	0.75 U	1.1 U	0.36 U	0.36 U
Arsenic	0.045	10	36.0 <sup>(17)</sup>	18.89	2.6	4.7 J	0.86 J	1.4 J	2.1 J	130
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	686	5.9 J	160 J	71	63	9.3	12
Beryllium	7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	2.21	0.065 U	0.65 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.12 U	1.2 U	0.39 J	0.12 U	0.12 U	0.18 J
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	0.6 U	6 U	0.6 U	0.6 U	0.8 U	0.6 U
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	1 R	21	8.9	4	6.6	9.4
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	5.6	300	1.2 U	1.2 U	17	64
Lead	NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	26.25	0.15 U	1.5 U	0.89 U	0.97 U	8.2	1.8
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	2.6	13	10	4.1 J	0.99 J	1.5
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	1.2 J	6 U	0.76 J	1.6 J	0.6 U	0.6 U
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	0.09 U	0.9 UJ	0.09 UJ	0.09 UJ	0.09 U	0.09 UJ
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	9.35	0.9 U	9 U	0.9 U	0.9 U	0.9 U	0.9 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	484.66	100	8 U	5.3	14	13	33
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	9.1 J	75 J	64	25	6.7 J	12 J

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID Sample ID Date	Regional Tap Water Screening	USEPA MCLs	Selected Ecological Surface Water	NAPR Basewide Background <sup>(1)</sup>	74SB74 74GW74 5/15/2008	74SB84 74GW84 5/17/2008	74VP3a/9 74GWVP3a/9 5/17/2008	74VP3b/9 74GWVP3b/9 5/17/2008	74VP2a/9 74GWVP2a/9 5/19/2008	74VP2b/9 74GWVP2b/9 5/18/2008
<b>Dissolved Metals (ug/L)</b>											
Antimony		1.5 <sup>(2)</sup>	6.0	500 <sup>(21)</sup>	11.19	2.4 U	1.2 U	0.36 U	1.8 U	0.59 U	0.77 U
Arsenic		0.045	10	36 <sup>(17)</sup>	14.03	<b>2.7</b>	1.5 U	1.5 U	1.6 U	2.2 U	<b>120</b>
Barium		730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	260	5.8	200 J	100	58	8.7 R	4.5 J
Beryllium		7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	5.4	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	0.12 U	0.32 J	0.12 U	0.12 U	0.12 U	0.12 U
Chromium		5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	0.6 U	1.6 J	1.5 J	0.6 U	1.2 U	0.6 U
Cobalt		1.1	NE	45 <sup>(6)</sup>	580.5	1.9 R	<b>25</b>	<b>91</b>	<b>4.1</b>	<b>3.6</b>	<b>3.7</b>
Copper		150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	29	<b>5.4</b>	3.3 U	1.2 U	1.2 U	1.8 U	3.2 U
Lead		NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	1.3	0.15 UJ	0.24 UJ	0.31 U	1 UJ	<b>3.9</b>	0.67 UJ
Nickel		73	NE	8.28 <sup>(3)</sup>	84.1	2.3	<b>15</b>	<b>15</b>	5.5 J	0.87 J	0.68 J
Selenium		18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	1.1 J	1.3 J	0.6 U	1.8 J	0.6 U	0.6 U
Silver		18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	3.67	0.09 UJ	0.14 J	0.09 UJ	0.09 U	0.09 UJ	0.09 U
Tin		2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	NE	0.9 U	1.1 J	1.5 J	0.91 J	1 U	0.9 U
Vanadium		26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	<b>120</b>	7.2	1.1 U	<b>15</b>	3.4 U	6.2
Zinc		1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	6.5 U	37	20	29	6.5 R	6.5 U
<b>TPH DRO and GRO (mg/L)</b>											
Diesel Range Organics		NE	NE	NE	NE	0.17	2.6	1.8	2.8	1	0.88
Gasoline Range Organics		NE	NE	NE	NE	0.012 U	0.012 U	0.22	0.12	1.6	0.4 J
Total TPH		12.5 <sup>(18)</sup>	NE	NE	NE	0.17	2.6	2.02	2.92	2.6	1.28 J

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	Regional Tap Water Screening Levels	USEPA MCLs	Selected Ecological Surface Water Screening Values	NAPR Basewide Background <sup>(1)</sup>	9MW02S 74GW9MW02S 5/20/2008	9MW02S 74GW9MW02SD 5/20/2008
<b>Volatile Organic Compounds (ug/L)</b>						
2-Butanone (MEK)	710 <sup>(2)</sup>	NE	13,333 <sup>(16)</sup>	NE	0.6 U	0.6 U
2-Hexanone	NE	NE	99 <sup>(14)</sup>	NE	0.68 U	0.68 U
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(14)</sup>	NE	0.6 U	0.6 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(13)</sup>	NE	5 U	5 U
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	0.32 U
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(14)</sup>	NE	0.17 U	0.17 U
Chloroform	0.19	NE	815 <sup>(7)</sup>	NE	0.29 U	0.29 U
Chloromethane	1.8	NE	2700 <sup>(4)</sup>	NE	0.28 U	0.28 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.3 U	0.3 U
Toluene	230 <sup>(2)</sup>	NE	37 <sup>(7)</sup>	NE	0.31 U	0.31 U
Vinyl chloride	0.02	2.0	930 <sup>(14)</sup>	NE	0.2 U	0.2 U
Xylenes, Total	20 <sup>(2)</sup>	10,000	27 <sup>(14)</sup>	NE	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>						
1-Methylnaphthalene	2.3	NE	NE	NE	0.049 U	0.049 U
2-Methylnaphthalene	15 <sup>(2)</sup>	NE	6 <sup>(8)</sup>	NE	0.022 U	0.022 U
Acenaphthene	220 <sup>(2)</sup>	NE	9.7 <sup>(7)</sup>	NE	0.019 U	0.019 U
Acenaphthylene	NE	NE	6.0 <sup>(19)</sup>	NE	0.049 U	0.049 U
Anthracene	1,100 <sup>(2)</sup>	NE	5.35 <sup>(10)</sup>	NE	0.021 U	0.021 U
Benzo[a]anthracene	0.03	NE	6 <sup>(19)</sup>	NE	0.025 U	0.025 U
Benzo[a]pyrene	0.003	0.20	10 <sup>(20)</sup>	NE	0.024 U	0.024 U
Benzo[b]fluoranthene	0.029	NE	6.0 <sup>(19)</sup>	NE	0.036 U	0.036 U
Benzo[g,h,i]perylene	110 <sup>(2)</sup>	NE	6.0 <sup>(19)</sup>	NE	0.023 U	0.023 U
Benzo[k]fluoranthene	0.290	NE	6.0 <sup>(19)</sup>	NE	0.019 U	0.019 U
Chrysene	2.90	NE	10 <sup>(20)</sup>	NE	0.027 U	0.027 U

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID Sample ID Date	Regional Tap Water Screening	USEPA MCLs	Selected Ecological Surface Water	NAPR Basewide Background <sup>(1)</sup>	9MW02S 74GW9MW02S 5/20/2008	9MW02S 74GW9MW02SD 5/20/2008
<b>LLPAHs (ug/L)</b>							
Dibenz(a,h)anthracene		0.003	NE	6.0 <sup>(19)</sup>	NE	0.023 U	0.023 U
Fluoranthene		150 <sup>(2)</sup>	NE	11 <sup>(15)</sup>	NE	0.049 U	0.049 U
Fluorene		150 <sup>(2)</sup>	NE	10 <sup>(9)</sup>	NE	0.018 U	0.018 U
Indeno[1,2,3-cd]pyrene		0.03	NE	6.0 <sup>(19)</sup>	NE	0.022 U	0.022 U
Naphthalene		0.14	NE	23.5 <sup>(7)</sup>	NE	0.049 U	0.049 U
Phenanthrene		NE	NE	8.3 <sup>(15)</sup>	NE	0.017 U	0.017 U
Pyrene		110 <sup>(2)</sup>	NE	0.248 <sup>(10)</sup>	NE	0.026 U	0.026 U
<b>Total Metals (ug/L)</b>							
Antimony		1.5 <sup>(2)</sup>	6.0	500 <sup>(21)</sup>	12.24	3.6 U	3.6 U
Arsenic		0.045	10	36.0 <sup>(17)</sup>	18.89	<b>57</b>	<b>59</b>
Barium		730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	686	160	160
Beryllium		7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	2.21	0.65 U	0.65 U
Cadmium		1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	<b>23</b>	<b>23</b>
Chromium		5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	6 U	6 U
Cobalt		1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	<b>480</b>	<b>480</b>
Copper		150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	<b>150</b>	<b>150</b>
Lead		NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	26.25	4.5 U	4.3 U
Nickel		73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	<b>110</b>	<b>110</b>
Selenium		18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	6 U	6 U
Silver		18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	<b>2.3 J</b>	<b>2.4 J</b>
Tin		2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	9.35	9 U	9 U
Vanadium		26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	484.66	8 U	8 U
Zinc		1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	<b>380</b>	<b>380</b>

TABLE 6-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID Sample ID Date	Regional Tap Water Screening	USEPA MCLs	Selected Ecological Surface Water	NAPR Basewide Background <sup>(1)</sup>	9MW02S 74GW9MW02S 5/20/2008	9MW02S 74GW9MW02SD 5/20/2008
<b>Dissolved Metals (ug/L)</b>							
Antimony		1.5 <sup>(2)</sup>	6.0	500 <sup>(21)</sup>	11.19	0.36 U	3.6 R
Arsenic		0.045	10	36 <sup>(17)</sup>	14.03	6 J	62 R
Barium		730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	260	15 R	150 R
Beryllium		7.3 <sup>(2)</sup>	4.0	310 <sup>(5)</sup>	5.4	0.07 U	0.79 R
Cadmium		1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	21	20 R
Chromium		5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	0.83 U	9 R
Cobalt		1.1	NE	45 <sup>(6)</sup>	580.5	410	440 R
Copper		150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	29	13 J	140 R
Lead		NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	1.3	0.45 U	4.9 R
Nickel		73	NE	8.28 <sup>(3)</sup>	84.1	9.1 J	93 R
Selenium		18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	0.64 J	6.7 R
Silver		18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	3.67	0.2 UJ	2.1 R
Tin		2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	NE	0.9 U	9 R
Vanadium		26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	0.8 U	8 R
Zinc		1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	43 R	440 R
<b>TPH DRO and GRO (mg/L)</b>							
Diesel Range Organics		NE	NE	NE	NE	0.091 U	0.084 U
Gasoline Range Organics		NE	NE	NE	NE	0.0069 U	0.0069 U
Total TPH		12.5 <sup>(18)</sup>	NE	NE	NE	0.0979 U	0.0909 U

**TABLE 6-3**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

U - Not detected	DRO - Diesel Range Organics
J - Analyte present - Reported value is estimated	GRO - Gasoline Range Organics
UJ - Reported quantitation limit is qualified as estimated	TPH - Total Petroleum Hydrocarbons
R - Rejected	LLPAH - Low-level Polynuclear Aromatic Hydrocarbon
NE - Not Established	
NA - Not Analyzed	
mg/l - milligram per liter	
ug/l - microgram per liter	
NAPR - Naval Activity Puerto Rico	
USEPA - United States Environmental Protection Agency	

- (1) NAPR Basewide Groundwater Background - Upper Limit of Means (Mean + 2 standard deviations) Revised Final Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, PR, Baker Environmental (Baker,
- (2) Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- (3) Total Recoverable Criteria Continuous Concentration
- (4) Minimum acute value (96-hour LC<sub>50</sub> for *Menidia beryllina* [inland silverside]) with safety factor of 100 (USEPA, 2007)
- (5) Minimum acute value (96-hour LC<sub>50</sub> for *Fundulus heteroclitus* [mummichog]) with safety factor of 100 (USEPA, 2003).
- (6) Minimum acute value (96-hour LC<sub>50</sub> for *Nitocra spinipes* [Harpacticoid copepod]) with safety factor of 100 (USEPA, 2003)
- (7) USEPA Region 4 chronic screening value (USEPA, 2001)
- (8) Minimum acute value (96-hour LC<sub>50</sub> for *Penaeus aztecus* [brown shrimp]) with safety factor of 100 (USEPA, 2007)
- (9) Minimum acute value (96-hour LC<sub>50</sub> for *Nereis arenaceodentata* [polychaete]) with safety factor of 100
- (10) Minimum acute value (48-hr LC<sub>50</sub> for *Americamysis bahia* [opossum shrimp]) with a safety factor of 100
- (11) USEPA Action Level for lead in drinking water
- (12) Total recoverable Criteria Continuous Concentration for hexavalent chromium
- (13) Minimum acute value (96-hour LC<sub>50</sub> for *Lumbriculus variegatus* [oligochaete]) with a safety factor of 100
- (14) USEPA Region 5 ecological screening level
- (15) Final Chronic Value
- (16) Minimum acute value (96-hour NOEC for *Cyprinodon variegatus* [sheepshead minnow]) with safety factor of 30 (USEPA, 2007)
- (17) Total recoverable Criteria Continuous Concentration for trivalent arsenic
- (18) Screening level for TPH is 25% of PREQB groundwater criterion, as proposed in the approved Work Plan dated 12/6/07
- (19) Acute LOEL for chemical class with a safety factor of 50
- (20) Acute value (LC<sub>50</sub>) with a safety factor of 100
- (21) Proposed Criteria Continuous Concentration

**TABLE 6-3**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA A/B - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

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TABLE 7-1

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB131 74SB131-00 5/15/2008 0.0-1.0	74SB141 74SB141-00 5/14/2008 0.0-1.0	74SB151 74SB151-00 5/15/2008 0.0-1.0	74SB201 74SB201-00 5/18/2008 0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>								
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	5.1 U	39 U	150	280
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.59 U	0.53 U	0.8 U	0.69 U
Iodomethane	NE	NE	NE	NE	1.2 U	1 UJ	1.6 UJ	4 J
<b>Metals (mg/kg)</b>								
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.32 UJ	0.087 UJ	0.43 UJ	0.17 J
Arsenic	0.39	1.6	18 <sup>(4)</sup>	2.65	<b>2</b>	<b>0.95</b>	<b>2.5</b>	<b>2.8</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	199	47 J	180 J	54 J	180
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.59	0.27	0.41	0.3	0.35
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	1.02	0.075 J	0.093 J	0.13	0.16
Chromium	280	1,400	57 <sup>(7)</sup>	49.8	30	28	28 J	29
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	46.2	<b>22 J</b>	<b>46 J</b>	<b>30 J</b>	<b>27 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	168	<b>100</b>	43	<b>88</b>	<b>88</b>
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	22	3.4	10	12 J	4.1
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.109	0.0043 U	0.0043 U	0.016 J	0.048
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	20.7	<b>24</b>	15 J	11	14
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	1.48	0.13 U	0.13 U	<b>1.2</b>	<b>1.3</b>
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.028 J	0.099 J	0.16 J	0.053 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(8)</sup>	259	<b>160</b>	<b>150</b>	<b>220</b>	<b>190</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	115	82 J	87 J	72 J	67 J
<b>TPH DRO and GRO (mg/kg)</b>								
Diesel Range Organics	NE	NE	NE	NE	3.6 J	0.68 U	27	4.6
Gasoline Range Organics	NE	NE	NE	NE	0.064 U	0.071 U	0.083 U	0.26 J
Total TPH	25 <sup>(9)</sup>	NE	NE	NE	3.6 J	0.751 U	<b>27</b>	4.86

TABLE 7-1

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB211 74SB211-00 5/19/2008 0.0-1.0	74SB271 74SB271-00 5/28/2008 0.0-1.0	74SB281 74SB281-00 5/28/2008 0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	98 J	56 UJ	60 UJ
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.49 U	0.61 J	0.54 U
Iodomethane	NE	NE	NE	NE	1.3 J	2.9 J	1.1 U
<b>Metals (mg/kg)</b>							
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.15 J	0.079 UJ	0.077 UJ
Arsenic	0.39	1.6	18 <sup>(4)</sup>	2.65	<b>1.2</b>	<b>1.2</b>	<b>0.88</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	199	78	100 J	65
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.59	0.22	0.33	0.19
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	1.02	0.035 U	0.15	0.13
Chromium	280	1,400	57 <sup>(7)</sup>	49.8	25	<u>65</u> J	40
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	46.2	<b>22</b>	<b>38</b>	<b>26</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	168	<b>130</b> J	<b>120</b>	<b>94</b>
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	22	2	5.9	8.1
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.109	0.0097 J	0.0045 U	0.005 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	20.7	16	<u>38</u>	<u>30</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	1.48	0.19 J	0.17 J	0.24 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.04 J	0.045 J	0.027 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(8)</sup>	259	<b>190</b>	<b>180</b>	<b>140</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	115	43 J	73 J	97 J
<b>TPH DRO and GRO (mg/kg)</b>							
Diesel Range Organics	NE	NE	NE	NE	4.9	1.5	3.8
Gasoline Range Organics	NE	NE	NE	NE	0.57	0.063 U	0.1 J
Total TPH	25 <sup>(9)</sup>	NE	NE	NE	5.47	1.5	3.9

**TABLE 7-1**

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

ft bgs - feet below ground surface

ug/kg - microgram per kilogram

mg/kg - milligram per kilogram

NE - Not Established

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

<sup>(1)</sup> NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) (Baker, 2008)

<sup>(2)</sup> Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes

<sup>(3)</sup> USEPA Action Level for lead in soils

<sup>(4)</sup> Plant-based ecological soil screening level (USEPA, 2005a [arsenic]; USEPA, 2005b [cadmium]; USEPA, 2005c [cobalt]; USEPA, 2005d [lead];

USEPA, 2006a [silver]; USEPA, 2007a [copper]; USEPA, 2007b [nickel]; USEPA, 2007c [selenium])

<sup>(5)</sup> Invertebrate-based ecological soil screening level (USEPA, 2005h [antimony]; USEPA, 2005f [barium]; USEPA, 2005g [beryllium]; USEPA, 2007d [zinc])

<sup>(6)</sup> Toxicological threshold for earthworms (Efroymson et al., 1997a)

<sup>(7)</sup> Reproduction-based MATC for *Eisenia andrei* (earthworm)

<sup>(8)</sup> Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10

<sup>(9)</sup> Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07

**TABLE 7-1**

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

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- USEPA. 2005c. Ecological Soil Screening Levels for Cobalt (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-67
- USEPA. 2005d. Ecological Soil Screening Levels for Lead (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-70.
- USEPA. 2005f. Ecological Soil Screening Levels for Barium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-63.
- USEPA. 2005g. Ecological Soil Screening Levels for Beryllium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-64.
- USEPA. 2005h. Ecological Soil Screening Levels for Antimony (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-61.

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB125	74SB125	74SB126	74SB126	74SB126	74SB127	74SB127
Sample ID	Screening	Screening	Ecological	Basewide	74SB125-03	74SB125-05	74SB126-02	74SB126-05D	74SB126-05	74SB127-03	74SB127-04
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/13/2008	5/13/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		5.0-7.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0
	Soil	Soil	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3 U	3.5 U	3.1 U	2.5 U	2.7 U	2.5 U	2.8 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.64 U	0.74 U	0.57 U	0.54 U	0.57 U	0.53 U	0.59 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	15 J	9.2 J	19 U	7.8 U	12 U	7.7 U	6.7 U
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.89 U	1 U	0.79 U	0.75 U	0.79 U	0.73 U	0.82 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.57 U	0.66 U	0.51 U	0.48 U	0.51 U	0.47 U	0.53 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.56 U	0.65 U	0.5 U	0.47 U	0.5 U	0.46 U	0.52 U
Chloromethane	1,700	8,400	NE	NE	0.8 U	0.92 U	0.71 U	0.67 U	0.71 U	0.66 U	0.74 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 U	2.8 U	2.2 U	2.1 U	2.1 U	2.2 U	2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.84 U	0.97 U	0.75 U	0.71 U	0.75 U	0.7 U	0.78 U
Iodomethane	NE	NE	NE	NE	1.1 UJ	1.3 U	1 U	0.94 U	1 U	0.93 U	1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	78 R	89 R	70 J	65 R	69 R	64 R	72 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	27 U	31 U	24 U	23 U	24 U	22 U	25 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1.3 U	1 U	0.94 U	1 U	0.93 U	1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.82 U	0.95 U	0.73 U	0.69 U	0.73 U	0.68 U	0.76 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.89 U	1 U	0.79 U	0.75 U	0.79 U	0.73 U	0.82 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	1.3 U	0.97 U	0.92 U	0.97 U	0.9 U	1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	1.9 U	1.5 U	1.4 U	1.5 U	1.4 U	1.6 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.6 U	3 U	2.3 U	2.2 U	2.3 U	2.1 U	2.4 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB125	74SB125	74SB126	74SB126	74SB126	74SB127	74SB127
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB125-03	74SB125-05	74SB126-02	74SB126-05D	74SB126-05	74SB127-03	74SB127-04
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/13/2008	5/13/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	<b>Screening Values</b>		5.0-7.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.11 UJ	0.1 UJ	0.21 UJ	0.76 J	0.46 UJ	0.087 UJ	0.1 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>0.95</b>	<b>0.74</b>	<b>6.5</b>	<b>17</b>	<b>13</b>	<b>0.76</b>	0.57 U
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	23	27	92	36 J	21 J	44	59
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.24	<u>0.64</u>	0.5	0.32	0.2	0.21	0.14
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.037 U	0.039 U	0.23	0.48	0.36	0.041 J	0.058 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	18	20	5	2.2	4.7	0.74 J	5.1
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>23 J</b>	<b>22 J</b>	<b>19</b>	<b>13 J</b>	<b>5.7 J</b>	<b>15</b>	<b>20</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	140	140	160	<u>260</u>	190	10	0.74 U
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.7	1.9	<u>260</u>	<b>830</b>	<b>640</b>	1.2	2
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0051 UJ	0.0051 UJ	0.0053 J	0.0086 J	0.0077 J	0.0055 J	0.0046 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	17	14	7.7	11 J	7.5 J	1.9	5.4
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.4 J	0.15 U	0.42 J	0.48 J	0.43 J	0.14 U	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.03 J	0.085 J	0.034 J	0.088 J	0.41	0.062 J	0.02 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.15 U	0.13 U	0.12 U	0.13 U	0.14 U	0.15 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>240</b>	<b>180</b>	<b>210</b>	<b>360</b>	<b>360</b>	<b>100</b>	<b>130</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	51	50	<u>330 J</u>	<u>700 J</u>	<u>390 J</u>	51 J	57 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	0.77 U	0.86 U	3.6 J	3.4 J	4	2.8 J	2 J
Gasoline Range Organics	NE	NE	NE	NE	0.07 U	0.091 U	0.061 U	0.058 U	0.067 U	0.068 U	0.064 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.84 U	0.951 U	3.6 J	3.4 J	4	2.8 J	2 J

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB128	74SB128	74SB129	74SB129	74SB130	74SB130	74SB131
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB128-03	74SB128-05	74SB129-02	74SB129-03	74SB130-03	74SB130-05	74SB131-03D
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		5.0-7.0	9.0-11.0	3.0-5.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3 U	2.9 U	8.4 J	2.8 U	2.8 J	2.7 U	2.7 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.62 U	0.62 U	1.4 U	0.59 U	0.57 U	0.57 U	0.58 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	11 U	9.8 U	44 U	12 U	24 U	5.1 U	5.7 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.87 U	0.86 U	2 U	0.81 U	0.79 U	0.79 U	0.8 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.56 U	0.55 U	1.3 U	0.53 U	1.2 J	0.51 U	0.52 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.55 U	0.54 U	1.2 U	0.51 U	0.5 U	0.5 U	0.51 U
Chloromethane	1,700	8,400	NE	NE	0.78 U	0.77 U	1.8 U	0.73 U	0.71 U	0.71 U	0.72 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.3 U	2.4 U	2.4 U	5.5 U	2.3 U	2.2 U	2.2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.82 U	0.81 U	1.9 U	0.77 U	0.75 U	0.75 U	0.76 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.1 U	2.5 UJ	1 U	1 U	0.99 U	1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	76 R	75 R	170 R	71 R	69 R	69 R	70 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	26 U	26 U	60 U	25 U	24 U	24 U	24 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1.1 U	2.5 U	1 U	1 U	0.99 U	1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.8 U	0.79 U	1.8 U	0.75 U	0.73 U	0.73 U	0.74 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.87 U	0.86 U	2 U	0.81 U	0.79 U	0.79 U	0.8 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	1.1 U	2.4 U	1 U	0.98 U	0.96 U	0.98 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.6 U	1.6 U	3.7 U	1.5 U	1.5 U	1.5 U	1.5 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.5 U	2.5 U	5.7 U	2.4 U	2.3 U	2.3 U	2.3 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB128	74SB128	74SB129	74SB129	74SB130	74SB130	74SB131
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB128-03	74SB128-05	74SB129-02	74SB129-03	74SB130-03	74SB130-05	74SB131-03D
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	<b>Screening Values</b>		5.0-7.0	9.0-11.0	3.0-5.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.099 UJ	0.11 UJ	0.077 UJ	0.076 UJ	0.089 UJ	0.076 UJ	0.31 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	0.6 U	<b>0.69</b>	<b>1.5</b>	<b>0.62</b>	<b>0.77</b>	<b>0.82</b>	<b>1.1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	95	58	19	56	150	45	39 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.18	0.22	0.052 J	0.22	0.56	0.19	0.26
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.038 U	0.046 J	0.035 J	0.031 U	0.052 J	0.076 J	0.055 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	16	36	2.8	9.3	16	12	4.1
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>31</b>	<b>38</b>	<b>4</b>	<b>30</b>	<b>86</b>	<b>22</b>	<b>15 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	120	<b>370</b>	26	140	82	68	60
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.2	3.8	1	0.6	2.7	5.6	0.95
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0063 J	0.0046 U	0.0085 J	0.0043 U	0.024	0.0044 U	0.0044 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	9.5	17	1.6	14	16	12	11
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.15 U	0.14 U	0.12 U	0.12 U	0.41 J	0.12 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.11 J	0.096 J	0.017 U	0.03 J	0.034 J	0.025 J	0.028 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.14 U	0.12 U	0.12 U	0.14 U	0.12 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>170</b>	<b>170</b>	34	<b>200</b>	<b>220</b>	<b>180</b>	<b>110 J</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	59 J	86 J	10 J	50 J	<u>92</u> J	74 J	<u>94</u> J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	1.9 J	1.1 J	1.5 J	1.2 J	1.1 J	0.87 J	1.2 J
Gasoline Range Organics	NE	NE	NE	NE	0.069 U	0.071 U	0.078 U	0.065 U	0.073 U	0.06 U	0.065 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.9 J	1.1 J	1.5 J	1.2 J	1.1 J	0.87 J	1.2 J



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB131	74SB131	74SB132	74SB132	74SB133	74SB133	74SB134
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB131-03	74SB131-05	74SB132-04	74SB132-05	74SB133-04	74SB133-05	74SB134-04
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.8 U	5.7 U	3.2 U	3.2 U	3.5 U	3.2 U	3 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.6 U	0.65 U	0.68 U	0.67 U	0.74 U	0.67 U	0.64 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	5.8 U	38 U	8 J	16 J	16 U	21 J	6 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.83 U	0.91 U	0.94 U	0.92 U	1 U	0.92 U	0.89 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.54 U	0.58 U	0.6 U	0.6 U	0.67 U	0.6 U	0.57 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.53 U	0.57 U	0.59 U	0.58 U	0.65 U	0.58 U	0.56 U
Chloromethane	1,700	8,400	NE	NE	0.75 U	0.81 U	0.84 U	0.83 U	0.93 U	0.83 U	0.8 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.3 U	2.5 U	2.6 U	2.6 U	2.9 U	2.6 U	2.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.79 U	0.86 U	0.89 U	0.88 U	0.98 U	0.88 U	0.84 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1.1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	73 R	79 R	82 U	81 U	90 R	81 U	77 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	25 U	28 U	28 U	28 U	31 U	28 U	27 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.77 U	0.84 U	0.87 U	0.85 U	0.95 U	0.85 U	0.82 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.83 U	0.91 U	0.94 U	0.92 U	1 U	0.92 U	0.89 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1 U	1.1 U	1.2 U	1.1 U	1.3 U	1.1 U	1.1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.6 U	1.7 U	1.8 U	1.8 U	2 U	1.8 U	1.7 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.4 U	2.6 U	2.7 U	2.7 U	3 U	2.7 U	2.6 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB131	74SB131	74SB132	74SB132	74SB133	74SB133	74SB134
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB131-03	74SB131-05	74SB132-04	74SB132-05	74SB133-04	74SB133-05	74SB134-04
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>								
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.37 UJ	0.28 UJ	0.29 UJ	0.28 UJ	0.3 UJ	0.28 UJ	0.26 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>0.82</b>	<b>0.87</b>	<b>0.83</b>	<b>0.68</b>	<b>1.2</b>	<b>0.98</b>	<b>0.79</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	14 J	14 J	34 J	45 J	57 J	32 J	20 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.27	0.27	0.42	0.33	0.3	0.24	0.28
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.037 U	0.055 J	0.037 J	0.051 J	0.24	0.19	0.08 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	5.3	6.1	3.8	2.4	64	26	45
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>13 J</b>	<b>13 J</b>	<b>16 J</b>	<b>17 J</b>	<b>35 J</b>	<b>20 J</b>	<b>30 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	52	46	15	4.1	83	59	87
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.52	0.71	0.91	1.3	1.4	1.2	1.1
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0045 U	0.0048 U	0.0047 U	0.0045 U	0.0045 U	0.0044 U	0.0039 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	13	12	24	<u>26</u>	<u>31</u>	22	<u>27</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.062 J	0.034 J	0.046 J	0.051 J	0.053 J	0.057 J	0.033 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>160 J</b>	<b>140</b>	<b>98</b>	<b>68</b>	<b>140</b>	<b>95</b>	<b>200</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>92 J</u>	<u>100 J</u>	86 J	63 J	<u>93 J</u>	61 J	73 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	1.5 J	0.81 J	0.75 J	0.89 J	22	0.85 J	1.2 J
Gasoline Range Organics	NE	NE	NE	NE	0.067 U	0.07 U	0.065 U	0.14 U	0.12 U	0.07 U	0.083 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.5 J	0.81 J	0.75 J	0.89 J	22	0.85 J	1.2 J

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB134	74SB135	74SB135	74SB136	74SB136	74SB136	74SB137
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB134-05	74SB135-03	74SB135-05	74SB136-03D	74SB136-03	74SB136-05	74SB137-03
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.1 U	2.8 U	2.6 U	12 U	18 U	9.9 U	8.9 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.65 U	0.59 U	0.55 U	0.71 U	0.66 U	0.57 U	0.67 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	13 J	12 U	5.4 J	200	230	82	68
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.9 U	0.82 U	0.76 U	0.99 U	0.92 U	0.78 U	0.93 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.58 U	0.53 U	0.49 U	0.64 U	0.59 U	0.51 U	12
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.57 U	0.52 U	0.48 U	0.62 U	0.58 U	0.5 U	0.59 U
Chloromethane	1,700	8,400	NE	NE	0.81 U	0.74 U	0.68 U	0.89 U	1 J	0.7 U	0.84 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 U	2.3 U	2.1 U	2.7 U	2.5 U	2.2 U	2.6 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.85 U	0.78 U	0.72 U	0.94 U	0.87 U	0.74 U	0.88 U
Iodomethane	NE	NE	NE	NE	1.1 U	1 U	0.96 U	1.2 U	3.4 J	3.3 J	1.2 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	79 U	71 R	66 UJ	86 UJ	80 UJ	68 UJ	81 UJ
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	27 U	25 U	23 UJ	30 UJ	28 UJ	24 UJ	28 UJ
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1 U	0.96 U	1.2 U	1.2 U	0.99 U	1.2 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.83 U	0.76 U	0.7 U	0.91 U	0.85 U	0.72 U	0.86 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.9 U	0.82 U	0.76 U	0.99 U	0.92 U	0.78 U	0.93 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	1 U	0.93 U	1.2 U	1.1 U	0.96 U	1.1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	1.6 U	1.4 UJ	1.9 UJ	1.7 UJ	1.5 UJ	1.8 UJ
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.6 U	2.4 U	2.2 U	2.9 U	2.7 U	2.3 U	2.7 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB134	74SB135	74SB135	74SB136	74SB136	74SB136	74SB137
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB134-05	74SB135-03	74SB135-05	74SB136-03D	74SB136-03	74SB136-05	74SB137-03
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	<b>Screening Values</b>		9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.26 UJ	0.24 UJ	0.35 UJ	0.23 UJ	0.26 UJ	0.3 UJ	0.23 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.3</b>	<b>0.7</b>	<b>0.88</b>	<b>1.2</b>	<b>1.1</b>	<b>3.2</b>	<b>1.4</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	37 J	48 J	50 J	86 J	140 J	<u>530</u> J	40 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.32	0.21	0.27	0.39	0.3	<u>0.73</u>	0.45
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.16	0.12	0.21	0.12 J	0.074 J	0.41	0.046 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	40	60	61	72 J	28 J	<u>160</u>	110
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>36</b> J	<b>21</b> J	<b>32</b> J	<b>44</b> J	<b>27</b> J	<b>190</b> J	<b>35</b> J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	94	90	100	82	99	80	72
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.96	1.5	5.6	<u>8.5</u> J	2.3 J	<u>11</u>	4.3
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0044 U	0.0045 U	0.0042 U	0.053	0.054	0.0046 U	0.016 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	<u>39</u>	<u>26</u>	<u>44</u>	<u>28</u>	22	<u>61</u>	23
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.13 U	0.14 U	0.13 U	0.91	0.18 J	1.1	1.2
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.053 J	0.035 J	0.029 J	0.057 J	0.045 J	0.028 J	0.034 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.14 U	0.13 U	0.15 U	0.14 U	0.13 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>210</b>	<b>120</b>	<b>250</b>	<b>210</b>	<b>190</b>	<b>520</b>	<b>220</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>91</u> J	62 J	<u>94</u> J	63 J	82 J	76 J	40 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	2 J	1.1 J	1 J	1 J	1.4 J	1.3 J	1.7 J
Gasoline Range Organics	NE	NE	NE	NE	0.072 U	0.082 U	0.065 U	0.076 U	0.068 U	0.055 U	0.073 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2 J	1.1 J	1 J	1 J	1.4 J	1.3 J	1.7 J

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB137	74SB138	74SB138	74SB139	74SB139	74SB140	74SB140
Sample ID	Screening	Screening	Ecological	Basewide	74SB137-04	74SB138-03	74SB138-04	74SB139-03	74SB139-05	74SB140-04	74SB140-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0
	Soil	Soil	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.2 U	4.5 U	3 U	3.4 U	2.7 U	2.7 U	2.8 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.68 U	0.58 U	0.53 U	0.71 U	0.57 U	0.58 U	0.59 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	38 J	28 J	18 J	12 J	11 J	9.1 J	43 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.94 U	0.81 U	0.74 U	0.99 U	0.79 U	0.8 U	0.82 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.89 J	5.3	0.48 U	0.64 U	0.51 U	0.52 U	0.53 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.59 U	0.51 U	0.47 U	0.62 U	0.5 U	0.51 U	0.52 U
Chloromethane	1,700	8,400	NE	NE	0.84 U	0.73 U	0.67 U	0.89 U	0.71 U	0.72 U	0.74 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.6 U	2.3 U	2.1 U	2.7 U	2.2 U	2.2 U	2.3 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.89 U	0.77 U	0.7 U	0.94 U	0.75 U	0.76 U	0.78 U
Iodomethane	NE	NE	NE	NE	1.2 U	1 U	0.94 U	1.2 U	1 U	1 UJ	1 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	82 R	71 UJ	65 UJ	86 UJ	69 UJ	70 R	72 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	100 J	25 UJ	22 UJ	30 UJ	24 U	24 U	25 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.2 U	1 U	0.94 U	1.2 U	1 U	1 U	1.5 J
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.87 U	0.75 U	0.68 U	0.91 U	0.73 U	0.74 U	0.76 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.94 U	0.81 U	0.74 U	0.99 U	0.79 U	0.8 U	0.82 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.2 U	1 U	0.91 U	1.2 U	0.98 U	0.98 U	1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.8 U	1.5 UJ	1.4 UJ	1.9 UJ	1.5 U	1.5 U	1.6 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.7 U	2.4 U	2.2 U	2.9 U	2.3 U	2.3 U	2.4 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	1.6 U	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	2.2 U	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	0.74 U	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	0.74 U	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	2.2 U	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	2.2 U	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	0.85 U	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	0.98 U	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	2.2 U	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	1.3 U	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB137	74SB138	74SB138	74SB139	74SB139	74SB140	74SB140
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB137-04	74SB138-03	74SB138-04	74SB139-03	74SB139-05	74SB140-04	74SB140-05
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	Screening Values		7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	0.79 U	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	0.76 U	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	2.2 U	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	9.6	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	1.6 U	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	0.78 U	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	2.2 U	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	2.2 U	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.24 UJ	0.25 UJ	0.24 UJ	0.24 UJ	0.16 UJ	0.15 UJ	0.14 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.3</b>	<b>2.1</b>	<b>1.4</b>	<b>0.96</b>	<b>0.95</b>	<b>0.81</b>	<b>1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	97 J	270 J	660 J	81 J	73 J	30 J	64 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.35	0.34	0.55	0.36	0.2	0.23	0.23
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.039 U	0.11	0.13	0.14	0.22	0.14	0.2
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	110	32	110	130	79 J	39 J	35 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>13 J</b>	<b>51 J</b>	<b>61 J</b>	<b>31 J</b>	<b>25 J</b>	<b>24 J</b>	<b>30 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	81	32	84	110	91	58	72
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3.2	3	5.8	2	0.73 J	9.6 J	15 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0051 U	0.0043 U	0.023 J	0.0047 U	0.004 U	0.004 U	0.004 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	20	27	36	52	42	25	28
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.1	0.13 U	0.7	0.16 J	0.14 J	0.13 U	0.12 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.02 UJ	0.017 UJ	0.032 J	0.028 J	0.022 J	0.037 J	0.037 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.13 U	0.15 U	0.14 U	0.13 U	0.13 U	0.12 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>220</b>	<b>240</b>	<b>220</b>	<b>140</b>	<b>110</b>	<b>180</b>	<b>190</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	44 J	150 J	51 J	96 J	65 J	73 J	86 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	10	11	60	0.92 J	1.2 J	0.7 J	11
Gasoline Range Organics	NE	NE	NE	NE	0.076 U	0.22 U	0.057 U	0.067 U	0.058 U	0.071 U	0.1 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	10	11	<b>60</b>	0.92 J	1.2 J	0.7 J	11

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB141	74SB141	74SB141	74SB142	74SB142	74SB143	74SB143
Sample ID	Screening	Screening	Ecological	Basewide	74SB141-03	74SB141-05D	74SB141-05	74SB142-02	74SB142-04	74SB143-02	74SB143-04
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		5.0-7.0	9.0-11.0	9.0-11.0	3.0-5.0	7.0-9.0	3.0-5.0	7.0-9.0
	Soil	Soil	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.9 U	2.5 U	2.5 U	4.1 U	3.7 U	3.2 U	2.5 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.62 U	0.53 U	0.52 U	0.87 U	0.79 U	0.67 U	0.53 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	20 U	12 J	14 J	26 J	19 U	250	7.9 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.86 U	0.73 U	0.72 U	1.2 U	1.1 U	0.93 U	0.73 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.55 U	0.47 U	0.47 U	0.78 U	0.7 U	4.1 J	0.47 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.54 U	0.46 U	0.46 U	0.76 U	0.69 U	0.59 U	0.82 J
Chloromethane	1,700	8,400	NE	NE	0.77 U	0.66 U	0.65 U	1.1 U	0.98 U	0.84 U	0.66 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 U	2 U	2 U	3.4 U	3 U	2.6 U	2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.81 U	0.7 U	0.69 U	1.1 U	1 U	0.89 U	0.7 U
Iodomethane	NE	NE	NE	NE	1.1 UJ	0.93 U	0.92 U	1.5 U	1.4 UJ	1.2 UJ	0.93 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	75 R	64 R	63 R	110 R	95 R	82 R	64 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	26 U	22 U	22 U	37 U	33 U	28 U	22 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	0.93 U	0.92 U	1.5 U	1.4 U	1.2 U	0.93 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.79 U	0.68 U	0.67 U	1.1 U	1 U	0.86 U	0.68 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.86 U	0.73 U	0.72 U	1.2 U	1.1 U	0.93 U	0.73 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	0.9 U	0.89 U	1.5 U	1.3 U	1.1 U	0.9 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.6 U	1.4 U	1.4 U	2.3 U	2.1 U	1.8 U	1.4 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.5 U	2.1 U	2.1 U	3.5 U	3.2 U	2.7 U	2.1 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB141	74SB141	74SB141	74SB142	74SB142	74SB143	74SB143
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB141-03	74SB141-05D	74SB141-05	74SB142-02	74SB142-04	74SB143-02	74SB143-04
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	<b>Screening Values</b>		5.0-7.0	9.0-11.0	9.0-11.0	3.0-5.0	7.0-9.0	3.0-5.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.08 UJ	0.073 UJ	0.073 UJ	0.1 UJ	0.086 UJ	0.087 UJ	0.083 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.1</u>	<u>1.9</u>	<u>1.5</u>	<b>0.64 J</b>	<b>0.85</b>	<b>1.1</b>	<b>0.96</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	91 J	28 J	28 J	55 J	150 J	<u>330 J</u>	35 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.38	0.28	0.29	0.23	0.25	0.38	0.25
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.26	0.24	0.19	0.042 U	0.044 J	0.036 U	0.034 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	12	2.4	2.9	5.8	5.8	28	6
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>27 J</u>	<b>4.9 J</b>	<b>5.4 J</b>	<b>17 J</b>	<b>23 J</b>	<b>14 J</b>	<b>16 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	140	79	85	13	13	26	20
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>63</u>	<u>80</u>	<u>62</u>	2.1	2.8	3.6	0.91
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0043 U	0.0036 U	0.0037 U	0.0049 U	0.0047 U	0.018 J	0.004 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	12 J	2.2 J	2.6 J	11 J	12 J	11 J	10 J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.13 U	0.12 U	0.12 U	0.16 U	0.14 U	1.1	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.062 J	0.021 J	0.025 J	0.047 J	0.035 J	0.039 J	0.041 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.12 U	0.12 U	0.16 U	0.14 U	0.14 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>120</b>	44	45	<b>180</b>	<b>160</b>	<b>200</b>	<b>170</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>240 J</u>	<u>130 J</u>	<u>150 J</u>	76 J	<u>98 J</u>	69 J	<u>93 J</u>
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	0.67 U	0.62 U	0.62 U	0.87 U	0.71 U	0.74 U	0.68 U
Gasoline Range Organics	NE	NE	NE	NE	0.061 U	0.056 U	0.051 U	0.093 U	0.074 U	0.062 U	0.061 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.731 U	0.676 U	0.671 U	0.963 U	0.784 U	0.802 U	0.741 U



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB149	74SB149	74SB150	74SB150	74SB151	74SB151	74SB152
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB149-04	74SB149-06	74SB150-02	74SB150-06	74SB151-01	74SB151-01D	74SB152-03
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	Screening		7.0-9.0	11.0-13.0	3.0-5.0	11.0-13.0	1.0-3.0	1.0-3.0	5.0-7.0
	<b>Soil</b>	<i>Soil</i>	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	17 U	8.9 U	2.7 U	3.8 U	5 U	4.1 U	13 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.69 U	0.8 U	0.58 U	0.8 U	0.59 U	0.62 U	0.68 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	82 J	67 J	63	40 J	28 J	18 J	220 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.96 U	1.1 U	0.8 U	1.1 U	0.81 U	0.85 U	0.94 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	1.2 J	13	1.9 J	4.5 J	0.53 U	0.55 U	3.9 J
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.6 U	0.7 U	0.51 U	0.7 U	0.52 U	0.54 U	0.59 U
Chloromethane	1,700	8,400	NE	NE	0.86 U	0.99 U	0.72 U	0.99 U	0.73 U	0.77 U	0.84 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.7 U	3.1 U	2.2 U	3.1 U	2.3 U	2.4 U	2.6 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.91 U	1 U	0.76 U	1 U	0.77 U	0.81 U	0.89 U
Iodomethane	NE	NE	NE	NE	1.2 U	1.4 U	1 UJ	1.4 UJ	1 UJ	1.1 U	1.2 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	83 R	96 R	70 R	96 R	71 R	75 UJ	82 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	29 U	33 U	24 U	34 U	25 U	26 UJ	29 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.2 U	1.4 U	1 U	1.4 U	1 U	1.1 U	1.2 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.88 U	1 U	0.74 U	1 U	0.75 U	0.79 U	0.87 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.96 U	1.1 U	0.8 U	1.1 U	0.81 U	0.85 U	0.94 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.2 U	1.4 U	0.98 U	1.4 U	1 U	1 U	1.2 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.8 U	2.1 U	1.5 U	2.1 U	1.5 U	1.6 UJ	1.8 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.8 U	3.2 U	2.3 U	3.2 U	2.4 U	2.5 U	2.7 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB149	74SB149	74SB150	74SB150	74SB151	74SB151	74SB152
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB149-04	74SB149-06	74SB150-02	74SB150-06	74SB151-01	74SB151-01D	74SB152-03
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	Screening		7.0-9.0	11.0-13.0	3.0-5.0	11.0-13.0	1.0-3.0	1.0-3.0	5.0-7.0
	<b>Soil</b>	<i>Soil</i>	Values								
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.09 U	0.15 U	0.29 U	0.12 U	0.45 UJ	0.4 UJ	0.54 U
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1</b>	<b>3</b>	<b>2.2</b>	<b>2.2</b>	<b>2.5</b>	<b>2.2</b>	<b>1.9</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	72 J	170 J	160 J	89 J	52 J	46 J	130 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.22	0.55	0.085 J	0.44	0.24	0.34	<u>0.75</u>
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.13	0.057 J	0.23	0.36	0.17	0.11	<u>0.55</u>
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	46 J	70 J	35 J	60 J	28 J	31 J	35 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>25 J</b>	<b>26 J</b>	<b>11 J</b>	<b>59 J</b>	<b>16 J</b>	<b>26 J</b>	<b>45 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	230 J	81 J	60 J	97 J	<b>84</b>	<b>97</b>	98 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>6.9</u>	<u>34</u>	<u>16</u>	<u>55</u>	<u>15 J</u>	<u>12 J</u>	<u>9.4</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.007 J	0.043 J	0.0058 J	0.077 J	0.019 J	0.013 J	0.07 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	17	18	11	17	11	12	20
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.38 J	1.6	0.14 J	2.4	<b>0.68</b>	<b>1.1</b>	1.8
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.047 J	0.042 J	0.037 J	0.2 J	0.08 J	0.17 J	2.1
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.16 U	0.13 U	0.16 U	0.13 U	0.13 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>210 J</b>	<b>360 J</b>	<b>86 J</b>	<b>400 J</b>	<b>170</b>	<b>230</b>	<b>230 J</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	71 J	<u>97 J</u>	68 J	79 J	59 J	80 J	73 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	7.6	19	51	7.2	62	31 J	7.7
Gasoline Range Organics	NE	NE	NE	NE	0.12 J	0.087 U	0.058 U	0.085 U	0.066 U	0.067 U	0.07 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	7.72 J	19	<b>51</b>	7.2	<b>62</b>	<b>31 J</b>	7.7

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB152	74SB153	74SB153	74SB154	74SB154	74SB155	74SB155
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB152-05	74SB153-02	74SB153-04	74SB154-04	74SB154-05	74SB155-04	74SB155-05
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	Screening		9.0-11.0	3.0-5.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.4 U	23 U	3.1 U	2.9 U	3.1 U	3.8 U	2.7 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.71 U	0.64 U	0.65 U	0.61 U	0.65 U	0.8 U	0.57 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	17 U	290	9.4 U	22 J	88	13 J	33 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.98 U	0.89 U	0.9 U	0.84 U	0.89 U	1.1 U	0.79 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	6.3	0.58 U	0.58 U	0.54 U	1.4 J	0.72 U	1.1 J
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.62 U	0.57 U	0.57 U	0.53 U	0.57 U	0.7 U	0.5 U
Chloromethane	1,700	8,400	NE	NE	0.88 U	0.8 U	0.81 U	0.76 U	0.8 U	1 U	0.71 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.7 U	2.5 U	2.5 U	2.3 U	2.5 U	3.1 U	2.2 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.93 U	0.85 U	0.85 U	0.8 U	0.85 U	1.1 U	0.75 U
Iodomethane	NE	NE	NE	NE	1.2 U	2.2 J	1.1 U	1.1 UJ	1.1 UJ	1.4 UJ	1 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	86 R	78 R	78 R	74 R	78 R	97 R	69 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	30 U	27 U	27 U	26 U	27 U	34 U	24 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.2 U	1.1 U	1.1 U	1.3 J	1.1 U	1.4 U	1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.91 U	0.83 U	0.83 U	0.78 U	0.83 U	1 U	0.73 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.98 U	0.89 U	0.9 U	0.84 U	0.89 U	1.1 U	0.79 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.2 U	1.1 U	1.1 U	1 U	1.1 U	1.4 U	0.98 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.9 U	1.7 U	1.7 U	1.6 U	1.7 U	2.1 U	1.5 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.9 U	2.6 U	2.6 U	2.5 U	2.6 U	3.2 U	2.3 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB152	74SB153	74SB153	74SB154	74SB154	74SB155	74SB155
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB152-05	74SB153-02	74SB153-04	74SB154-04	74SB154-05	74SB155-04	74SB155-05
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	Screening Values		9.0-11.0	3.0-5.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.097 U	0.93	0.086 U	0.23 UJ	0.22 UJ	0.11 UJ	0.41 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>0.51 J</b>	<b>1.6</b>	<b>0.43 J</b>	<b>1.5</b>	<b>0.72</b>	<b>0.4 J</b>	<b>1.7</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	<u>820 J</u>	99 J	200 J	58 J	29 J	19 J	59 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.44	0.44	0.4	0.5	0.093 J	0.15	0.32
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	<u>1.7</u>	0.074 J	0.044 J	0.04 U	0.054 J	0.11	0.27
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	15 J	33 J	39 J	30 J	8.7 J	3.6 J	34 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>59 J</u>	<u>33 J</u>	<b>13 J</b>	<u>27 J</u>	<b>6.6 J</b>	<b>19 J</b>	<b>24 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	89 J	100 J	130 J	150	36	59	99
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.6	3.5	1.4	1.9 J	3.3 J	0.38 J	5.3 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	<u>0.11 J</u>	0.1 J	0.0047 UJ	0.01 J	0.013 J	0.0079 J	0.018 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	14	13	18	14	3.9	4.7	14
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.16 U	0.73	0.14 U	0.68	0.2 J	0.12 U	0.68
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	3.1	0.085 J	0.23	0.038 J	0.041 J	0.026 J	0.12 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.16 U	0.14 U	0.14 U	0.16 U	0.15 U	0.12 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>82 J</b>	<b>230 J</b>	<b>150 J</b>	<b>210</b>	38	<b>150</b>	<b>180</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	71 J	57 J	67 J	83 J	20 J	<u>92 J</u>	70 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	5.8	6.9	1.1 J	4.8	3.5 J	2 J	89
Gasoline Range Organics	NE	NE	NE	NE	0.069 U	0.069 U	0.071 U	0.076 U	0.07 U	0.076 U	0.2 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	5.8	6.9	1.1 J	4.8	3.5 J	2 J	<b>89</b>

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB156	74SB156	74SB156	74SB157	74SB157	74SB158	74SB158
Sample ID	Screening	Screening	Ecological	Basewide	74SB156-04	74SB156-05D	74SB156-05	74SB157-04	74SB157-05	74SB158-03	74SB158-04
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0
	Soil	Soil	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3 U	2.9 U	3.4 U	3.4 U	3.2 U	6.2 U	9.2 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.63 U	0.62 U	0.72 U	0.72 U	0.68 U	0.71 U	0.65 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	33 J	29 J	49 J	17 J	40 J	84 J	130 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.88 U	0.86 U	0.99 U	1 U	0.95 U	4.2 J	0.91 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	2.5 J	2.6 J	3.4 J	5.4 J	3.7 J	2 J	20
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.56 U	0.55 U	0.63 U	0.64 U	0.6 U	0.62 U	0.57 U
Chloromethane	1,700	8,400	NE	NE	0.79 U	0.77 U	0.89 U	0.9 U	0.85 U	0.89 U	0.82 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 U	2.4 U	2.8 U	2.8 U	2.6 U	2.7 U	2.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.83 U	0.82 U	0.94 U	0.95 U	0.9 U	0.94 U	0.86 U
Iodomethane	NE	NE	NE	NE	1.1 UJ	1.1 UJ	1.3 UJ	1.3 U	1.2 UJ	1.2 U	1.1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	77 R	75 R	87 R	88 R	83 R	86 R	79 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	27 U	26 U	30 U	30 U	29 U	30 U	28 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1.1 U	1.3 U	1.3 U	1.2 U	1.2 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.81 U	0.8 U	0.92 U	0.93 U	0.88 U	0.91 U	0.84 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.88 U	0.86 U	0.99 U	1 U	0.95 U	1.5 J	0.91 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	1.1 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	1.6 U	1.9 U	1.9 U	1.8 U	1.9 U	1.7 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.6 U	2.5 U	2.9 U	2.9 U	2.8 U	2.9 U	3.9 J
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	15 U	16 U	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	21 U	23 U	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	6.9 U	7.6 U	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	6.9 U	7.6 U	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	21 U	23 U	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	21 U	23 U	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	8 U	8.8 U	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	9.3 U	10 U	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	21 U	23 U	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	12 U	13 U	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB156 74SB156-04 5/15/2008 7.0-9.0	74SB156 74SB156-05D 5/15/2008 9.0-11.0	74SB156 74SB156-05 5/15/2008 9.0-11.0	74SB157 74SB157-04 5/14/2008 7.0-9.0	74SB157 74SB157-05 5/14/2008 9.0-11.0	74SB158 74SB158-03 5/14/2008 5.0-7.0	74SB158 74SB158-04 5/14/2008 7.0-9.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	7.4 U	8.2 U	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	7.2 U	7.9 U	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	21 U	23 U	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	130 J	10 UJ	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	15 U	16 U	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	7.3 U	8 U	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	290 J	23 UJ	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	21 U	23 U	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.22 UJ	0.2 UJ	0.18 UJ	0.2 UJ	0.16 UJ	0.084 UJ	0.24 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.4</b>	<b>1.2</b>	<b>1</b>	<b>1.6</b>	<b>1.4</b>	<b>0.97</b>	<b>1.6</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	73 J	97 J	110 J	38 J	120 J	<u>230</u> J	190 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	<u>0.64</u>	0.25	0.23	0.4	0.51	<u>0.87</u>	0.48
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.053 J	0.13	0.15	0.038 U	0.035 U	0.044 J	0.066 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	26 J	33 J	30 J	18	18	47	78
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>66</b> J	<b>40</b> J	<b>46</b> J	<b>27</b> J	<b>56</b> J	<b>96</b> J	<b>65</b> J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	130	130	140	110	86	110	140
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2.5 J	0.89 J	1.1 J	2.7	5.2	<u>10</u>	<u>12</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.005 U	0.011 J	0.0068 J	0.012 J	0.0046 J	0.0044 U	0.0066 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	<u>29</u>	23	<u>25</u>	16 J	18 J	<u>42</u> J	<u>32</u> J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.18 J	0.13 U	0.15 U	0.75	0.42 J	0.13 U	0.5 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.028 J	0.11 J	0.16 J	0.029 J	0.082 J	0.021 J	0.031 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.13 U	0.15 U	0.15 U	0.14 U	0.13 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>160</b>	<b>200</b>	<b>190</b>	<b>270</b>	<b>240</b>	<b>180</b>	<b>200</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>130</u> J	<u>120</u> J	<u>130</u> J	<u>110</u> J	<u>120</u> J	78 J	<u>97</u> J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	1000 J	1100 J	890 J	2.5 J	270	3.3 J	2.8 J
Gasoline Range Organics	NE	NE	NE	NE	12	3.7 U	68 J	2.2	38	0.24 J	1.7
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	<b>1,012 J</b>	<b>1,100 J</b>	<b>958 J</b>	4.7 J	<b>308</b>	3.54 J	4.5 J

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB159	74SB159	74SB160	74SB160	74SB185	74SB185	74SB186
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB159-03	74SB159-05	74SB160-04	74SB160-05	74SB185-03	74SB185-05	74SB186-03
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	Screening		5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0
	<b>Soil</b>	<i>Soil</i>	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3 U	2.9 U	2.9 U	3.5 U	4.5 UJ	5.8 UJ	14 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.64 U	0.62 U	0.61 U	0.74 U	0.79 U	0.43 U	0.75 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	72 J	19 J	59	10 J	27 J	35 J	74
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.89 U	0.86 U	0.85 U	1 U	1.1 U	1.4 J	1 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.57 U	0.56 U	0.55 U	0.66 U	0.71 U	0.39 U	0.67 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.56 U	0.55 U	0.54 U	0.65 U	0.69 U	0.38 U	0.66 U
Chloromethane	1,700	8,400	NE	NE	0.8 U	0.77 U	0.76 U	0.93 U	0.98 U	0.54 U	0.93 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 U	2.4 U	2.4 U	2.9 U	3 U	1.7 U	2.9 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.84 U	0.82 U	0.8 U	0.98 U	1 U	0.57 U	0.98 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.1 U	1.1 UJ	1.3 UJ	1.4 U	0.76 U	1.3 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	77 R	75 R	74 R	90 R	96 R	52 R	2,700 J
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	27 U	26 U	26 U	31 U	33 U	18 U	31 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1.1 U	1.1 U	1.3 U	1.4 U	0.76 U	1.3 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.82 U	0.8 U	0.78 U	0.95 U	1 U	0.55 U	0.96 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.89 U	0.86 U	0.85 U	1 U	1.6 U	1.3 U	1 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	1.1 U	1 U	1.3 U	1.3 U	0.73 U	1.3 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	1.6 U	1.6 U	2 U	2.1 U	1.1 U	2 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	4.1 J	2.5 U	2.5 U	3 U	3.2 U	1.7 U	3 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB159	74SB159	74SB160	74SB160	74SB185	74SB185	74SB186
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB159-03	74SB159-05	74SB160-04	74SB160-05	74SB185-03	74SB185-05	74SB186-03
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	Screening Values		5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.1 U	0.094 U	0.084 U	0.093 U	0.12 UJ	0.16 UJ	0.095 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.1</b>	<b>1.2</b>	<b>0.84</b>	<b>0.57 J</b>	<b>3.8</b>	<b>4</b>	<b>3.7</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	<u>230</u> J	34 J	41 J	200 J	19	24	220
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.43	0.43	0.24	0.23	0.035 J	0.026 J	0.43
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.039 U	0.041 J	0.049 J	0.079 J	0.033 U	0.051 J	0.2
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	<u>120</u> J	3.5 J	12 J	<u>190</u> J	3.1	4.3	31
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>17</b> J	<b>8</b> J	<b>14</b> J	<b>69</b> J	2.1	2.3	<b>360</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	170 J	6.4 J	47 J	85 J	5.4	7.7	62
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>7.2</u>	3	<u>11</u>	<u>34</u>	1.2	<u>19</u>	<u>34</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.016 J	0.004 UJ	0.004 UJ	0.0053 UJ	0.0063 J	0.0075 J	0.031
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	19	4.1	11	<u>62</u>	1.2	1.5	<u>33</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.4	0.16 J	0.15 J	0.15 U	0.13 U	0.16 J	1.9
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.049 J	0.043 J	0.039 J	0.19 J	0.017 U	0.015 U	0.066 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.12 U	0.13 U	0.15 U	0.13 U	0.11 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>240</b> J	<b>61</b> J	<b>120</b> J	<b>140</b> J	20	29	<b>200</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	45 J	33 J	77 J	<u>110</u> J	5.3 J	9.5 J	64 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	0.82 U	2.4 J	0.67 U	0.83 U	4.8 J	4.6 J	2.4 UJ
Gasoline Range Organics	NE	NE	NE	NE	0.81	2.4	0.054 U	0.081 U	0.0095 U	0.0073 U	0.54
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.81	4.8 J	0.724 U	0.911 U	4.8 J	4.6 J	0.54



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB186	74SB187	74SB187	74SB200	74SB200	74SB201	74SB201
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB186-05	74SB187-03	74SB187-04	74SB200-04	74SB200-05	74SB201-04D	74SB201-04
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.2 UJ	3.5 UJ	4.3 UJ	3.7 UJ	13 UJ	3 UJ	3.9 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.68 U	0.74 U	0.92 U	0.77 U	0.96 U	0.62 U	0.82 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	29 J	34 J	66 J	11 J	43 J	8.4 J	32 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.95 U	1 U	1.3 U	1.1 U	2.5 J	0.87 U	1.1 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.61 U	0.66 U	0.82 U	0.85 J	2.4 J	0.56 U	0.73 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.6 U	0.65 U	0.8 U	0.68 U	0.84 U	0.55 U	0.72 U
Chloromethane	1,700	8,400	NE	NE	0.85 U	0.92 U	1.1 U	0.96 U	1.2 U	0.78 U	1 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.6 U	2.8 U	3.5 U	3 UJ	3.7 UJ	2.4 UJ	3.2 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.9 U	0.97 U	1.2 U	1 U	1.3 U	0.82 U	1.1 U
Iodomethane	NE	NE	NE	NE	1.2 U	1.3 U	1.9 J	1.4 U	1.7 U	1.1 U	1.4 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	83 R	89 R	810 J	94 U	120 U	76 U	99 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	29 U	31 U	39 U	33 U	40 U	26 U	34 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.2 U	1.3 U	1.6 U	1.4 U	1.7 U	1.1 U	1.4 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.87 U	0.95 U	1.2 U	0.99 U	1.2 U	0.8 U	1 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.95 U	1 U	1.3 U	1.1 U	1.3 U	0.87 U	1.1 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.2 U	1.3 U	1.6 U	1.3 U	1.6 U	1.1 U	1.4 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.8 U	1.9 U	2.4 U	2 U	2.5 U	1.6 U	2.2 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.8 U	3 U	3.7 U	3.1 U	3.9 U	2.5 U	3.3 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB186	74SB187	74SB187	74SB200	74SB200	74SB201	74SB201
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB186-05	74SB187-03	74SB187-04	74SB200-04	74SB200-05	74SB201-04D	74SB201-04
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	<b>Screening Values</b>		9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.094 UJ	0.087 UJ	0.13 UJ	0.09 U	0.34 J	0.09 U	0.093 U
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>1.6</u>	<u>2.2</u>	<b>0.79 J</b>	<b>0.95</b>	<u>7.4</u>	<b>0.94</b>	<b>0.92</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	150	31	86	150	13	53	57
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.39	0.33	<u>0.6</u>	0.44	0.072 J	0.28	0.19
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.053 J	0.036 U	0.053 U	0.1 J	0.055 U	0.12 J	0.057 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	24	26	6.3	52	15	56	47
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>15</b>	<b>8.9</b>	<b>16</b>	<u>32</u> J	<b>2.4 J</b>	<u>33</u> J	<u>33</u> J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	120	56	<u>500</u>	150	10	94	110
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>31</u>	<u>11</u>	<u>8.6</u>	1.9	1.3	3.6 R	1.2 R
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0047 U	0.06	0.006 U	0.0052 J	0.0095 J	0.0052 U	0.011 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	13	9	10	<u>33</u>	4.9	<u>36</u>	<u>40</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.85	1.5	0.21 J	0.14 U	0.43 J	0.22 J	0.15 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.022 J	0.018 U	0.029 J	0.042 J	0.043 J	0.027 J	0.02 UJ
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.14 U	0.21 U	0.14 U	0.21 U	0.14 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>230</b>	<b>260</b>	<b>230</b>	<b>150</b>	24	<b>160</b>	<b>170</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	56 J	38 J	68 J	68 J	10 J	58 J	59 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	0.83 UJ	0.87 UJ	10 J	1.5 U	1.8 U	2 U	3.6 U
Gasoline Range Organics	NE	NE	NE	NE	0.0078 U	0.0069 U	0.26	0.46	0.1 U	0.067 U	0.072 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.8378 U	0.8769 U	10.26 J	0.46	1.9 U	2.067 U	3.672 U

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB201	74SB202	74SB202	74SB203	74SB203	74SB204	74SB204
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB201-05	74SB202-04	74SB202-05	74SB203-04	74SB203-05	74SB204-04	74SB204-05
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	8 UJ	2.6 UJ	3.7 UJ	3.2 UJ	3.6 UJ	3.7 UJ	3.3 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.96 U	0.56 U	0.79 U	0.68 U	0.77 U	0.77 U	0.7 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	26 J	8.1 J	22 J	35 J	18 J	27 J	6.9 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	2 J	0.77 U	1.1 U	0.95 U	1.1 U	1.1 U	0.97 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.86 U	0.5 U	0.93 J	1.7 J	1 J	2.1 J	0.62 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.84 U	0.49 U	0.69 U	0.6 U	0.67 U	0.68 U	0.61 U
Chloromethane	1,700	8,400	NE	NE	1.2 U	0.69 U	0.98 U	0.85 U	0.95 U	0.96 U	0.87 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	3.7 UJ	2.1 UJ	3 UJ	2.6 UJ	3 UJ	3 UJ	2.7 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	1.3 U	0.73 U	1 U	0.9 U	1 U	1 U	0.92 U
Iodomethane	NE	NE	NE	NE	1.7 U	0.98 U	1.4 U	1.2 U	1.3 U	1.4 U	1.2 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	120 U	67 U	95 U	83 U	93 U	94 U	84 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	40 U	23 U	33 U	29 U	32 U	33 U	29 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.7 U	0.98 U	1.4 U	1.2 U	1.3 U	1.4 U	1.2 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	1.2 U	0.71 U	1 U	0.87 U	0.98 U	0.99 U	0.89 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	1.3 U	0.77 U	1.1 U	0.95 U	1.1 U	1.1 U	0.97 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.6 U	0.95 U	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	2.5 U	1.5 U	2.1 U	1.8 U	2 U	2 U	1.8 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	3.9 U	2.2 U	3.2 U	2.8 U	3.1 U	3.1 U	2.8 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB201	74SB202	74SB202	74SB203	74SB203	74SB204	74SB204
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB201-05	74SB202-04	74SB202-05	74SB203-04	74SB203-05	74SB204-04	74SB204-05
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	<b>Screening Values</b>		9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.27 J	0.082 U	0.1 J	0.092 U	0.11 U	0.1 J	0.087 U
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>5.5</u>	<b>1.2</b>	<b>1.5</b>	<u>2.1</u>	<b>1.6</b>	<b>1.4</b>	<b>0.85</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	22	64	90	58	120	26 J	110 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.046 J	0.27	0.35	0.38	0.49	0.5	0.23
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.047 U	0.065 J	0.064 J	0.068 J	0.053 J	0.12 J	0.22
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	9.6	46	68	96	<u>120</u>	98	40
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>4.5 J</b>	<b>32 J</b>	<b>32 J</b>	<b>30 J</b>	<b>43 J</b>	<b>44 J</b>	<b>32 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	13	100	82	88	92	110 J	130 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.56	1.4	3.8	5.7	3.9	2.8	0.95
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.012 J	0.0063 J	0.017 J	0.038	0.013 J	0.024 J	0.0048 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	4.3	<u>39</u>	<u>30</u>	<u>30</u>	<u>38</u>	<u>35 J</u>	17 J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.3 J	0.13 U	0.74	1.8	1.1	0.79	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.024 UJ	0.027 J	0.027 J	0.031 J	0.025 J	0.063 J	0.11 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.18 U	0.13 U	0.15 U	0.15 U	0.18 U	0.16 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	28	<b>160</b>	<b>190</b>	<b>260</b>	<b>250</b>	<b>230</b>	<b>190</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	7.1 J	62 J	56 J	58 J	56 J	46 J	63 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	1.2 U	3.7 U	2.1 U	2.1 U	4.1 U	5.4	1.3 U
Gasoline Range Organics	NE	NE	NE	NE	0.11 U	0.064 U	0.076 U	0.073 U	0.088 U	0.069 U	0.081 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.31 U	3.764 U	2.176 U	2.173 U	4.188 U	5.4	1.381 U

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB205	74SB205	74SB206	74SB206	74SB206	74SB207	74SB207
Sample ID	Screening	Screening	Ecological	Basewide	74SB205-04	74SB205-05	74SB206-04D	74SB206-04	74SB206-05	74SB207-04	74SB207-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	Soil	Soil	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3 U	2.8 U	3.4 UJ	3.8 UJ	3.8 UJ	2.5 UJ	4.2 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.63 UJ	0.6 UJ	0.71 U	0.8 U	0.8 U	0.53 U	0.64 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	16 J	6.7 J	54 J	67 J	19 J	9.1 J	62 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.87 U	0.83 U	0.98 U	1.1 U	1.1 U	0.74 U	0.89 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.56 U	0.54 U	0.63 U	0.72 U	0.72 U	0.48 U	0.57 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.55 U	0.53 U	0.62 U	0.7 U	0.7 U	0.47 U	0.56 U
Chloromethane	1,700	8,400	NE	NE	0.78 U	0.75 U	0.88 U	1 U	1 U	0.67 U	0.8 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 U	2.3 U	2.7 U	3.1 U	3.1 U	2.1 U	2.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.83 U	0.79 U	0.93 U	1.1 U	1.1 U	0.7 U	0.84 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.1 U	1.2 U	1.4 U	1.4 UJ	0.94 UJ	1.1 UJ
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	76 U	73 U	86 R	97 R	97 R	65 R	77 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	26 U	25 U	30 U	34 U	34 U	23 U	27 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1.1 U	1.2 U	1.4 U	1.4 U	0.94 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.8 U	0.77 U	0.91 U	1 U	1 U	0.68 U	0.82 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.87 U	0.83 U	0.98 U	1.1 U	1.1 U	0.74 U	0.89 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	1 U	1.2 U	1.4 U	1.4 U	0.91 U	1.1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	1.6 U	1.9 U	2.1 U	2.1 U	1.4 U	1.7 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.5 U	2.4 U	2.9 U	3.2 U	3.2 U	2.2 U	2.6 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB205 74SB205-04 5/18/2008 7.0-9.0	74SB205 74SB205-05 5/18/2008 9.0-11.0	74SB206 74SB206-04D 5/19/2008 7.0-9.0	74SB206 74SB206-04 5/19/2008 7.0-9.0	74SB206 74SB206-05 5/19/2008 9.0-11.0	74SB207 74SB207-04 5/19/2008 7.0-9.0	74SB207 74SB207-05 5/19/2008 9.0-11.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.089 J	0.093 J	0.096 UJ	0.11 UJ	0.13 UJ	0.073 UJ	0.1 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.5</u>	<u>1.7</u>	<b>1.4</b>	<b>1.5</b>	<b>1.1</b>	<b>0.53</b>	<u>1.6</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	23 J	18 J	66	76	24	28	25
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.36	0.22	0.52	0.5	0.29	0.2	0.22
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.27	0.2	0.04 U	0.062 J	0.031 U	0.058 J	0.14
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	21	28	37	36	3.3	33	41
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>15 J</b>	<b>14 J</b>	<b>13 J</b>	<b>20 J</b>	<b>9.6</b>	<b>26</b>	<u>100</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	110 J	130 J	110	95	46	120	150
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2	2.4	<u>32</u>	<u>35</u>	<u>6.4</u>	0.58	4.5
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0045 U	0.0077 J	0.015 J	0.081 J	0.004 U	0.0036 U	0.0039 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	12 J	8.3 J	13	14	4.6	<u>44</u>	<u>30</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.22 J	0.13 U	1.3	1.4	0.2 J	0.12 U	0.31 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.02 J	0.17 J	0.036 J	0.032 J	0.043 J	0.1 J	0.12 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.13 U	0.15 U	0.14 U	0.12 U	0.12 U	0.12 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>130</b>	<b>95</b>	<b>300</b>	<b>290</b>	<b>80</b>	<b>150</b>	<b>220</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	82 J	67 J	54 J	51 J	46 J	34 J	47 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	0.75 U	0.73 U	0.82 UJ	0.81 UJ	1 UJ	0.94 UJ	3.2 UJ
Gasoline Range Organics	NE	NE	NE	NE	0.061 U	0.072 U	0.0075 U	0.0085 U	0.0065 U	0.007 U	0.06
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.811 U	0.802 U	0.8275 U	0.8185 U	1.0065 U	0.947 U	0.06

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB209	74SB209	74SB210	74SB210	74SB211	74SB211	74SB211
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB209-04	74SB209-05	74SB210-04	74SB210-05	74SB211-03D	74SB211-03	74SB211-04
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	Screening		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	7.0-9.0
	<b>Soil</b>	<i>Soil</i>	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.1 UJ	3.4 UJ	120 UJ	480 U	2.9 UJ	4.3 UJ	7.5 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.65 U	0.71 U	26 U	100 U	0.61 U	0.63 U	0.64 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	32 J	20 J	200 UJ	1,400 J	15 J	60 J	57 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.9 U	0.99 U	<b>4,200 J</b>	<b>3,200 J</b>	0.85 U	0.87 U	0.88 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.58 U	0.64 U	23 U	91 U	0.55 U	0.56 U	0.57 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.57 U	0.62 U	23 U	89 U	0.54 U	0.55 U	0.56 U
Chloromethane	1,700	8,400	NE	NE	0.81 U	0.89 U	32 U	130 U	0.76 U	0.79 U	0.8 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.5 U	2.7 U	100 U	310 U	2.4 U	2.4 U	2.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.85 U	0.94 U	<b>12,000</b>	<b>12,000 J</b>	0.8 U	0.83 U	0.84 U
Iodomethane	NE	NE	NE	NE	1.1 UJ	1.2 U	45 U	180 U	1.1 U	1.1 U	1.1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	79 R	86 R	3,100 U	12,000 U	74 R	76 R	77 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	27 U	30 U	1,100 U	4,300 U	26 U	27 U	27 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1.2 U	45 U	180 U	1.1 U	1.1 U	1.1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.83 U	0.91 U	33 U	130 U	0.78 U	0.81 U	0.82 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.9 U	0.99 U	6,700 J	7,900 J	0.85 U	0.87 U	0.88 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	1.2 U	44 U	170 U	1 U	1.1 U	1.1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.7 U	1.9 U	68 U	270 U	1.6 U	1.7 U	1.7 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.6 U	2.9 U	<b>77,000</b>	<b>78,000 J</b>	2.5 U	2.5 U	2.6 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	710	260 J	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	1,500	540 J	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	12 J	6.1 U	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	12 J	6.1 U	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	18 U	18 U	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	18 U	18 U	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	7.1 U	7.1 U	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	14 J	8.2 U	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	18 U	18 U	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	11 U	11 U	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	Selected	<u>NAPR</u>	74SB209	74SB209	74SB210	74SB210	74SB211	74SB211	74SB211
Sample ID	<b>Screening</b>	<i>Screening</i>	Ecological	<u>Basewide</u>	74SB209-04	74SB209-05	74SB210-04	74SB210-05	74SB211-03D	74SB211-03	74SB211-04
Date	<b>Levels</b>	<i>Levels</i>	Surface Soil	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	Screening Values		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	25 J	14 J	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	6.4 U	6.4 U	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	48 J	30 J	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	190	94 J	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	13 U	13 U	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	920	310	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	120	67 J	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	44 J	26 J	NA	NA	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.087 UJ	0.084 UJ	0.21 J	0.18 J	0.078 J	0.076 U	0.08 J
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>0.99</b>	<b>0.67</b>	<b>2.5</b>	<b>2</b>	<b>1.1</b>	<b>1.2</b>	<b>1.1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	35	24	21	9.5	36	28	36
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.21	0.21	0.3	0.23	0.18	0.2	0.19
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.35	0.26	0.13	0.07 J	0.04 J	0.059 J	0.077 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	23	19	4.5	4.7	23	28	27
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>32</b>	<b>30</b>	<b>33</b>	<b>18</b>	<b>25</b>	<b>25</b>	<b>21</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	210	170	140	95	120 J	140 J	110 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<b>22</b>	5	2.3	2.3	0.56	0.49	0.53
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0044 U	0.0039 U	0.004 U	0.0042 U	0.004 U	0.004 U	0.0043 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	20	17	9.2	6.1	15	17	17
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.15 J	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.019 J	0.037 J	0.14 J	0.17 J	0.02 J	0.029 J	0.032 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>320</b>	<b>220</b>	<b>170</b>	<b>150</b>	<b>190</b>	<b>190</b>	<b>160</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<b>97 J</b>	58	47	49	46 J	43 J	37 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	0.78 UJ	1.6 U	33	28	0.85 U	0.76 U	1.6 U
Gasoline Range Organics	NE	NE	NE	NE	0.0084 U	0.063 U	680 J	18 J	0.076 U	0.12 J	0.56
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	0.7884 U	1.663 U	<b>713 J</b>	<b>46 J</b>	0.926 U	0.12 J	0.56



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB226	74SB226	74SB226	74SB227	74SB227	74SB228	74SB228
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB226-04	74SB226-05D	74SB226-05	74SB227-04	74SB227-05	74SB228-04	74SB228-05
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	5.3 UJ	97 U	130 U	6.9 UJ	130 U	3.1 UJ	110 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.62 U	20 U	22 U	0.7 U	27 U	0.66 U	27 J
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	40 UJ	150 UJ	190 UJ	31 UJ	210 UJ	24 U	180 UJ
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.86 U	28 U	31 U	0.96 U	38 U	0.92 U	32 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.93 J	18 U	20 U	1.3 J	24 U	0.59 U	29 J
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.55 U	17 U	19 U	0.61 U	24 U	0.58 U	20 U
Chloromethane	1,700	8,400	NE	NE	0.77 U	25 U	28 U	0.87 U	34 U	0.82 U	29 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 UJ	77 U	86 U	2.7 UJ	110 U	2.6 U	90 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.82 U	26 U	29 U	0.91 U	1,000	0.87 U	44 J
Iodomethane	NE	NE	NE	NE	1.1 U	35 U	39 U	1.2 U	48 U	1.2 U	41 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	75 R	2,400 U	2,700 U	84 R	3,300 U	80 R	2,800 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	26 U	840 U	930 U	29 U	1,200 U	28 U	980 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	35 UJ	39 UJ	1.2 U	48 UJ	1.2 U	63 UJ
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.8 U	25 U	32 J	0.89 U	35 U	0.85 U	30 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.86 U	53 U	60 U	0.96 U	38 U	0.92 U	61 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	34 UJ	38 UJ	1.2 U	47 UJ	1.1 U	40 UJ
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.6 U	52 U	58 U	1.8 U	72 U	1.7 U	61 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.5 U	80 U	89 U	2.8 U	840	2.7 U	94 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	130	79	NA	7.8	NA	11
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	19 U	19 U	NA	14	NA	9.2
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	110	88	NA	0.65 U	NA	0.71 U
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	25 J	19 U	NA	1.9 U	NA	2.1 U
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	190	160	NA	1.9 U	NA	2.1 U
Benzo[a]anthracene	150	2,100	NE	NE	NA	120	100	NA	1.9 U	NA	2.1 U
Benzo[a]pyrene	15	210	NE	NE	NA	51 J	44 J	NA	0.75 U	NA	0.82 U
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	93	52 J	NA	0.86 U	NA	0.95 U
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	25 J	22 J	NA	1.9 U	NA	2.1 U
Benzo[k]fluoranthene	15	210	NE	NE	NA	11 U	28 J	NA	1.1 U	NA	1.2 U

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB226	74SB226	74SB226	74SB227	74SB227	74SB228	74SB228
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB226-04	74SB226-05D	74SB226-05	74SB227-04	74SB227-05	74SB228-04	74SB228-05
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	<b>Screening Values</b>		7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	120	100	NA	0.82 J	NA	0.76 U
Dibenz(a,h)anthracene	15	210	NE	NE	NA	6.6 U	6.8 U	NA	0.67 U	NA	0.73 U
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	440	340	NA	2.3 J	NA	2.1 U
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	130	110	NA	1.6 J	NA	3.4 J
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	26 J	19 J	NA	1.4 U	NA	1.5 U
Naphthalene	3,900	20,000	NE	NE	NA	6.7 U	6.9 U	NA	0.68 U	NA	0.75 U
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	340	240	NA	2.5 J	NA	2.4 J
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	370	310	NA	1.9 U	NA	2.1 U
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.093 J	0.17 J	0.13 J	0.087 J	0.084 J	0.25 U	0.086 U
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.3</b>	<b>1.4</b>	<b>1.5</b>	<b>0.93</b>	<b>1.2</b>	<b>3.9</b>	<b>1.9</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	30	19	24	52	73	67	29
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.21	0.22	0.23	0.27	0.31	0.29	0.3
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.086 J	0.14	0.2	0.035 U	0.032 U	0.24	0.061 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	5	4.8	4.4	13	33	23	14
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>15</b>	<b>17</b>	<b>22</b>	<b>39</b>	<b>31</b>	<b>29</b>	<b>23</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	29	71	77	31	180	59	44
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	2	1.9 J	2.3	1.4	1.7	<b>6.9</b>	4.2
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.004 U	0.0042 U	0.0045 U	0.0042 U	0.004 U	0.024 J	0.035
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	6.5	7.6	7.6	<b>28</b>	22	14	8.6
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.13 U	0.41 J	0.64	0.15 J	0.12 U	0.51 J	0.53 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.017 U	0.017 U	0.028 J	0.018 U	0.032 U	0.051 J	0.11 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.13 U	0.13 U	0.13 U	0.12 U	0.14 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>190 J</b>	<b>300 J</b>	<b>310 J</b>	<b>210 J</b>	<b>230 J</b>	<b>150</b>	<b>140</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	79 J	<b>140</b>	<b>110 J</b>	67 J	64 J	86	40
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	510	1,300 J	420 J	4.8	8.9	120	8.3
Gasoline Range Organics	NE	NE	NE	NE	39	48	33	0.21	150	0.066 U	230
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	<b>549</b>	<b>1,348 J</b>	<b>453 J</b>	5.01	<b>159</b>	<b>120</b>	<b>238</b>

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB229	74SB229	74SB230	74SB230	74SB268	74SB268	74SB269
Sample ID	Screening	Screening	Ecological	Basewide	74SB229-04	74SB229-05	74SB230-04	74SB230-05	74SB268-03	74SB268-05	74SB269-04
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	7.0-9.0
	Soil	Soil	Values								
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.8 UJ	110 U	5.7 UJ	130 U	1,400 U	560 U	3,200 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.6 U	24 U	0.7 U	28 U	300 U	120 U	670 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	23 U	180 U	52 U	210 UJ	2,300 UJ	910 UJ	5,200 UJ
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.83 U	33 U	0.97 U	39 U	420 U	160 U	10,000
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.54 U	21 U	3.4 J	25 U	270 U	110 U	600 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.53 U	21 U	0.61 U	24 U	260 U	100 U	590 U
Chloromethane	1,700	8,400	NE	NE	0.75 U	30 U	0.87 U	35 U	380 U	150 U	840 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.3 U	92 U	2.7 U	120 J	1,200 U	460 U	2,600 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.79 U	31 U	0.92 U	37 U	400 U	160 U	30,000
Iodomethane	NE	NE	NE	NE	1.1 U	42 U	1.2 U	49 U	530 U	210 U	1,200 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	73 R	2,900 U	84 R	3,400 U	37,000 U	14,000 U	82,000 UJ
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	25 U	1,000 U	29 U	1,200 U	13,000 U	5,000 U	28,000 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	42 U	1.2 U	49 UJ	530 UJ	210 UJ	1,200 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.77 U	30 U	0.89 U	36 U	390 U	150 U	860 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.83 U	33 UJ	0.97 U	39 U	530 U	160 U	1,800 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1 U	40 U	1.2 U	47 UJ	510 UJ	200 UJ	1,100 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.6 U	62 U	1.8 U	73 U	790 U	310 U	1,800 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.4 U	180 J	2.8 U	110 U	1,200 U	480 U	2,700 U
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	46	NA	38 J	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	69	NA	37 J	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	23	NA	6.3 U	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	2.3 U	NA	19 U	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	2.3 U	NA	19 U	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	2.3 U	NA	19 U	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	0.87 U	NA	7.2 U	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	1 U	NA	8.3 U	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	2.3 U	NA	19 U	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	1.3 U	NA	11 U	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB229	74SB229	74SB230	74SB230	74SB268	74SB268	74SB269
Sample ID	Screening	Screening	Ecological	Basewide	74SB229-04	74SB229-05	74SB230-04	74SB230-05	74SB268-03	74SB268-05	74SB269-04
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	Residential Soil	Industrial Soil	Screening Values		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	1.6 J	NA	11 J	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	0.78 U	NA	6.5 U	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	21	NA	22 J	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	43	NA	43 J	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	1.6 U	NA	13 U	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	64	NA	6.6 U	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	99	NA	34 J	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	16	NA	28 J	NA
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.27 U	0.17 U	0.095 U	0.15 U	0.15 U	0.074 U	0.47 U
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>1.8</u>	<u>3.4</u>	<u>1.2</u>	<u>3.1</u>	<u>1.3</u>	<u>1.2</u>	<u>7.2</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	49	<u>230</u>	96	140	43	46	180
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.43	<u>0.65</u>	0.34	0.49	0.29	0.21	<u>0.77</u>
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.088 J	0.073 J	0.039 U	0.13	0.15	0.086 J	<u>0.67</u>
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	46	1.7	27	50	48	2.4	23
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>40</u>	<u>20</u>	<u>26</u>	<u>42</u>	<u>27</u>	<u>23</u>	<u>34</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	120	53	79	66	69	130	97
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>19</u>	<u>8.2</u>	3.3	<u>8.9</u>	5.6	1.8	<u>11</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0074 J	0.0043 U	0.0081 J	0.014 J	0.0079 J	0.004 U	0.011 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	<u>26</u>	3.7	11	18	21	16	16
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.47 J	0.18 J	0.81	0.6	0.27 J	0.14 J	0.65
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.03 J	0.018 UJ	0.062 J	0.036 J	0.053 J	0.03 J	0.055 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.13 U	0.15 U	0.14 U	0.14 U	0.12 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<u>200</u>	<u>60</u>	<u>210</u>	<u>150</u>	<u>160</u>	<u>180</u>	<u>210</u>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>95</u>	70	55	81	73 J	64 J	<u>99 J</u>
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	NE	14	86	2 U	46	1,500	57	250
Gasoline Range Organics	NE	NE	NE	NE	0.063 U	110	0.077 U	29 J	120	69 J	880 J
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	14	<u>196</u>	2.08 U	<u>75 J</u>	<u>1,620</u>	<u>126 J</u>	<u>1,130 J</u>

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB269	74SB270	74SB270	74SB271	74SB271	74SB271
Sample ID	Screening	Screening	Ecological	Basewide	74SB269-05	74SB270-04	74SB270-05	74SB271-03D	74SB271-03	74SB271-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/20/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0
	Soil	Soil	Values							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	1,600 U	2.9 UJ	3.2 UJ	4 UJ	3.9 UJ	4.2 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	340 U	0.62 U	0.67 U	0.85 U	0.82 U	0.89 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	2,600 UJ	13 UJ	12 UJ	23 UJ	8.9 UJ	6.8 UJ
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	1,500 J	0.86 U	0.93 U	1.2 U	1.1 U	1.2 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	300 U	0.56 U	0.6 U	0.76 U	0.73 U	0.79 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	300 U	0.55 U	0.59 U	0.75 U	0.72 U	0.78 U
Chloromethane	1,700	8,400	NE	NE	420 U	0.78 U	0.83 U	1.1 U	1 U	1.1 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	1,300 U	2.4 U	2.6 U	3.3 U	3.2 U	3.4 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	3,100	0.82 U	0.88 U	1.1 U	1.1 U	1.2 U
Iodomethane	NE	NE	NE	NE	600 U	1.1 U	1.2 U	1.5 U	1.4 U	1.6 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	41,000 UJ	75 U	81 U	100 U	99 U	110 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	14,000 U	26 U	28 U	36 U	35 U	37 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	600 U	1.1 U	1.2 U	1.5 U	1.4 U	1.6 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	430 U	0.8 U	0.86 U	1.1 U	1.1 U	1.1 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	830 UJ	0.86 U	0.93 U	1.2 U	1.1 U	1.2 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	580 U	1.1 U	1.1 U	1.5 U	1.4 U	1.5 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	890 U	1.6 U	1.8 U	2.2 U	2.2 U	2.3 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	1,400 U	2.5 U	2.7 U	3.4 U	3.3 U	3.6 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	390	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	630	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	7.6 U	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	23 U	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	23 U	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	23 U	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	8.8 U	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	10 U	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	23 U	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	13 U	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB269	74SB270	74SB270	74SB271	74SB271	74SB271
Sample ID	Screening	Screening	Ecological	Basewide	74SB269-05	74SB270-04	74SB270-05	74SB271-03D	74SB271-03	74SB271-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/20/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0
	Soil	Soil	Values							
<b>LLPAHs (ug/kg)</b>			NE							
Chrysene	15,000	210,000	NE	NE	8.2 U	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	7.9 U	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	24 J	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	10 U	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	16 U	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	890	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	97	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	31 J	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.24 U	0.16 UJ	0.088 UJ	0.1 UJ	0.11 UJ	0.19 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.9</u>	<u>2.1</u>	<b>0.79</b>	0.27 J	0.3 J	<b>1.4</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	100	14 J	4.9 J	8.9 R	86 R	2.2 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.54	0.49	0.34	0.12 J	0.12 J	0.31
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.098 J	0.053 J	0.042 J	0.041 U	0.044 U	0.045 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	<u>140</u>	87 J	54 J	83 J	110 J	<u>180 J</u>
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>94</u>	<b>8</b>	<b>4.6</b>	<b>4.9</b>	<b>5.4</b>	<b>4</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	47	230	87	53	67	55
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>8.6</u>	<u>6.9</u>	3.6	0.85	0.89	3.6
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.051	0.0047 U	0.0052 U	0.0049 U	0.0058 U	0.0055 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	<u>38</u>	15	9.5	12	18	21
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.7	0.32 J	0.24 J	0.16 U	0.17 U	0.18 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.064 J	0.037 J	0.03 J	0.031 J	0.023 U	0.069 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.15 U	0.14 U	0.16 U	0.17 U	0.16 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>240</b>	<b>410</b>	<b>180</b>	40	40	<b>290</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	52 J	64 J	39 J	59 J	<u>96 J</u>	73 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	140	0.7	0.74	0.79	1.6	0.61
Gasoline Range Organics	NE	NE	NE	NE	700 J	0.071 U	0.072 U	0.089 U	0.1 U	0.082 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	<b>840 J</b>	0.7	0.74	0.79	1.6	0.61

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB272	74SB272	74SB273	74SB273	74SB274	74SB274
Sample ID	Screening	Screening	Ecological	Basewide	74SB272-04	74SB272-05	74SB273-04	74SB273-05	74SB274-03	74SB274-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0
	Soil	Soil	Values							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.5 UJ	3.6 UJ	2.9 UJ	3.1 UJ	2.7 UJ	2.8 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.74 U	0.75 U	0.61 U	0.66 U	0.56 U	0.6 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	17 UJ	15 UJ	4.8 UJ	12 UJ	5.1 UJ	6.7 UJ
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	1 U	1 U	0.85 U	0.92 U	0.78 U	0.83 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.66 U	0.67 U	0.55 U	0.59 U	0.5 U	0.53 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.65 U	0.66 U	0.54 U	0.58 U	0.49 U	0.52 U
Chloromethane	1,700	8,400	NE	NE	0.92 U	0.93 U	0.76 U	0.82 U	0.7 U	0.74 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.8 U	2.9 U	2.4 U	2.5 U	2.2 U	2.3 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.97 U	0.99 U	0.8 U	0.87 U	0.74 U	0.78 U
Iodomethane	NE	NE	NE	NE	1.3 U	1.3 U	1.1 U	1.2 U	0.99 U	1 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	89 U	91 U	74 U	80 U	68 U	72 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	31 U	32 U	26 U	28 U	24 U	25 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.3 U	1.3 U	1.1 U	1.2 U	0.99 U	1 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.94 U	0.96 U	0.78 U	0.85 U	0.72 U	0.76 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	1 U	1 U	0.85 U	0.92 U	0.78 U	0.83 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.3 U	1.3 U	1 U	1.1 U	0.96 U	1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.9 U	2 U	1.6 U	1.7 U	1.5 U	1.6 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	3 U	3 U	2.5 U	2.7 U	2.3 U	2.4 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB272	74SB272	74SB273	74SB273	74SB274	74SB274
Sample ID	Screening	Screening	Ecological	Basewide	74SB272-04	74SB272-05	74SB273-04	74SB273-05	74SB274-03	74SB274-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0
	Soil	Soil	Values							
<b>LLPAHs (ug/kg)</b>				NE						
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.087 UJ	0.088 UJ	0.083 UJ	0.094 UJ	0.078 UJ	0.095 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.8</u>	<u>2.5</u>	<b>0.8</b>	<b>1</b>	<b>0.89</b>	<u>2.8</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	<u>240</u> J	<u>250</u> J	24 J	140 J	24 J	37 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	<u>1.3</u>	<u>1.3</u>	0.2	0.26	0.23	0.29
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.17	0.24	0.1 J	0.28	0.45	<u>0.79</u>
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	25 J	32 J	21 J	75 J	49 J	58 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>70</u>	<u>91</u>	<b>9.4</b>	<u>37</u>	<b>25</b>	<u>31</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	55	53	150	160	150	93
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3	4	0.43	2.5	1.4	5.4
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0048 U	0.0043 U	0.0047 U	0.0041 U	0.0043 U	0.0044 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	<u>32</u>	<u>32</u>	22	<u>50</u>	<u>29</u>	<u>31</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.16 J	0.16 J	0.13 U	0.13 U	0.13 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.019 J	0.034 J	0.082 J	0.044 J	0.072 J	0.026 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.14 U	0.14 U	0.13 U	0.13 U	0.13 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	47	<b>63</b>	<b>220</b>	<b>140</b>	<b>180</b>	<b>260</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	<u>160</u> J	<u>140</u> J	30 J	67 J	62 J	<u>100</u> J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	2.6	0.82	0.84	2.2	1.1	0.62
Gasoline Range Organics	NE	NE	NE	NE	0.088 U	0.074 U	0.069 U	0.072 U	0.066 U	0.065 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	2.6	0.82	0.84	2.2	1.1	0.62



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB275	74SB275	74SB277	74SB278	74SB279	74SB279
Sample ID	Screening	Screening	Ecological	Basewide	74SB275-03D	74SB275-03	74SB277-02	74SB278-03	74SB279-03	74SB279-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	9.0-11.0
	Soil	Soil	Values							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	4 UJ	3.1 UJ	4.1 UJ	3.3 UJ	3.9 UJ	3.6 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.85 U	0.65 U	0.87 U	0.7 U	0.83 U	0.77 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	13 UJ	9.6 UJ	34 UJ	7.4 UJ	14 UJ	8.8 UJ
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	1.2 U	0.91 U	1.2 U	0.98 U	1.1 U	1.1 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.76 U	0.59 U	0.78 U	0.63 U	0.74 U	0.68 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.75 U	0.57 U	0.77 U	0.62 U	0.73 U	0.67 U
Chloromethane	1,700	8,400	NE	NE	1.1 U	0.82 U	1.1 U	0.88 U	1 U	0.95 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	3.3 U	2.5 U	3.4 U	2.7 U	3.2 U	3 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	1.1 U	0.86 U	1.1 U	0.93 U	1.1 U	1 U
Iodomethane	NE	NE	NE	NE	1.5 U	1.1 U	1.5 U	1.2 U	1.5 U	1.3 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	100 R	79 R	110 R	85 R	100 U	93 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	36 UJ	28 UJ	37 UJ	30 UJ	35 U	32 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.5 U	1.1 U	1.5 U	1.2 U	1.5 U	1.3 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	1.1 U	0.84 U	1.1 U	0.9 U	1.1 U	0.98 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	1.2 U	0.91 U	1.2 U	0.98 U	1.1 U	1.1 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.5 U	1.1 U	1.5 U	1.2 U	1.4 U	1.3 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	2.2 U	1.7 U	2.3 U	1.9 U	2.2 U	2 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	3.4 U	2.6 U	3.5 U	2.8 U	3.3 U	3.1 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74SB275	74SB275	74SB277	74SB278	74SB279	74SB279
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74SB275-03D	74SB275-03	74SB277-02	74SB278-03	74SB279-03	74SB279-05
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>							
<b>LLPAHs (ug/kg)</b>			NE							
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.11 UJ	0.083 UJ	0.082 UJ	0.074 UJ	0.095 UJ	0.096 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.4</b>	<b>1.7</b>	<b>0.97</b>	<b>1.1</b>	<b>1</b>	<b>1.2</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	36 J	82 J	56	110	190 J	150 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.3	0.27	0.24	0.26	0.57	0.34
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.043 U	0.083 U	0.072 U	0.059 U	0.039 U	0.06 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	24	19	31	22	37 J	36 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>18</b>	<b>25</b>	<b>22</b>	<b>36</b>	<b>67</b>	<b>35</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	110	140	110	130	130	100
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	1.2	1.5	1.9	1.6	1.2	1.4
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.01 J	0.0042 U	0.0047 U	0.0042 U	0.0052 U	0.0051 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	16	16	22	17	<u>26</u>	<u>32</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.17 U	0.13 U	0.13 U	0.12 U	0.15 U	0.15 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.076 J	0.088 J	0.042 J	0.11 J	0.027 J	0.021 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.17 U	0.13 U	0.13 U	0.12 U	0.15 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>200</b>	<b>230</b>	<b>170</b>	<b>160</b>	<b>160</b>	<b>200</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	61 J	<u>95</u> J	56 J	42 J	60 J	73 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.4	1.1	1.8	0.53	0.73	0.91
Gasoline Range Organics	NE	NE	NE	NE	0.17 J	0.07 U	0.13 J	0.081 U	0.08 U	0.082 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.57 J	1.1	1.93 J	0.53	0.73	0.91

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB280	74SB280	74SB281	74SB281	74SB281	74SB282
Sample ID	Screening	Screening	Ecological	Basewide	74SB280-02	74SB280-05	74SB281-02	74SB281-05D	74SB281-05	74SB282-02
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		3.0-5.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	3.0-5.0
	Soil	Soil	Values							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	3.7 UJ	4.1 UJ	3.9 UJ	3 UJ	3.1 UJ	3.7 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.78 U	0.87 U	0.83 U	0.64 U	0.65 U	0.79 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	10 UJ	9 UJ	24 UJ	4.9 UJ	5.1 UJ	16 UJ
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	1.1 U	1.2 U	1.2 U	0.88 U	0.91 U	1.1 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.7 U	0.77 U	0.74 U	0.57 U	0.59 U	0.71 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.68 U	0.76 U	0.73 U	0.56 U	0.57 U	0.69 U
Chloromethane	1,700	8,400	NE	NE	0.97 U	1.1 U	1 U	0.79 U	0.82 U	0.98 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	3 U	3.3 U	3.2 U	2.5 U	2.5 U	3.1 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	1 U	1.1 U	1.1 U	0.84 U	0.86 U	1 U
Iodomethane	NE	NE	NE	NE	1.4 U	1.5 U	1.5 U	1.1 U	1.1 U	2.2 J
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	94 R	100 R	100 R	77 R	79 R	96 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	33 UJ	36 UJ	35 UJ	27 UJ	28 UJ	33 UJ
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.4 U	1.5 U	1.5 U	1.1 U	1.1 U	1.4 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	1 U	1.1 U	1.1 U	0.82 U	0.84 U	1 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	1.1 U	1.2 U	1.2 U	0.88 U	0.91 U	1.1 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.3 U	1.5 U	1.4 U	1.1 U	1.1 U	1.3 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	2 U	2.3 U	2.2 U	1.7 U	1.7 U	2.1 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	3.1 U	3.5 U	3.4 U	2.6 U	2.6 U	3.2 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB280	74SB280	74SB281	74SB281	74SB281	74SB282
Sample ID	Screening	Screening	Ecological	Basewide	74SB280-02	74SB280-05	74SB281-02	74SB281-05D	74SB281-05	74SB282-02
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		3.0-5.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	3.0-5.0
	Soil	Soil	Values							
<b>LLPAHs (ug/kg)</b>				NE						
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.097 UJ	0.096 UJ	0.099 UJ	0.09 UJ	0.085 UJ	0.079 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.5</b>	<b>0.6 J</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1.1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	90	19	<u>420</u>	150 J	<u>240 J</u>	63
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.34	0.22	0.31	<u>0.69</u>	<u>0.75</u>	0.22
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.04 U	0.04 U	0.052 U	0.09 U	0.09 U	0.036 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	83	52	78	60	54	20
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>18</b>	<b>11</b>	<b>12</b>	<b>64</b>	<b>56</b>	<b>21</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	120	130	90	150	160	100
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	3	1.9	<u>8.7</u>	1.1	1.1	0.79
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0048 U	0.0051 U	0.022 J	0.0051 U	0.0046 U	0.0045 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	21	<u>28</u>	18	<u>41</u>	<u>45</u>	19
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	1.1	0.15 U	1.5	0.21 U	0.2 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.021 UJ	0.023 J	0.025 J	0.024 J	0.018 UJ	0.036 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.15 U	0.16 U	0.14 U	0.14 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>310</b>	<b>130</b>	<b>380</b>	<b>330</b>	<b>260</b>	<b>190</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	39 J	66 J	41 J	<u>96 J</u>	88 J	30 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1	1.3	1.9	0.96	2.1	1.2
Gasoline Range Organics	NE	NE	NE	NE	0.082 U	0.11 J	0.087 U	0.064 UJ	0.079 UJ	0.077 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1	1.41 J	1.9	0.96	2.1	1.2

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB282	74SB283	74SB284	74SB284	74SB285	74SB285
Sample ID	Screening	Screening	Ecological	Basewide	74SB282-05	74SB283-02	74SB284-02	74SB284-05	74SB285-02	74SB285-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		9.0-11.0	3.0-5.0	3.0-5.0	9.0-11.0	3.0-5.0	9.0-11.0
	Soil	Soil	Values							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.9 UJ	2.6 UJ	3.5 UJ	3.7 UJ	3.6 UJ	4.3 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.62 U	0.54 U	0.74 U	0.78 U	0.75 U	0.91 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	6.3 UJ	24 UJ	35 UJ	18 UJ	9.5 UJ	9.4 UJ
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.86 U	0.75 U	1 U	1.1 U	1 U	1.3 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.56 U	0.48 U	0.66 U	0.7 U	0.67 U	0.81 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.55 U	0.47 U	0.65 U	0.69 U	0.66 U	0.8 U
Chloromethane	1,700	8,400	NE	NE	0.78 U	0.67 U	0.92 U	0.98 U	0.94 U	1.1 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 U	2.1 U	2.9 U	3 U	2.9 U	3.5 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.82 U	0.71 U	0.98 U	1 U	0.99 U	1.2 U
Iodomethane	NE	NE	NE	NE	1.1 U	0.95 U	1.3 U	1.4 U	1.3 U	1.6 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	75 R	65 U	90 U	95 U	91 U	110 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	26 UJ	23 U	31 U	33 U	32 U	38 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	0.95 U	1.3 U	1.4 U	1.3 U	1.6 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.8 U	0.69 U	0.95 U	1 U	0.97 U	1.2 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.86 U	0.75 U	1 U	1.1 U	1 U	1.3 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1.1 U	0.92 U	1.3 U	1.3 U	1.3 U	1.5 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.6 U	1.4 U	2 U	2.1 U	2 U	2.4 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.5 U	2.2 U	3 U	3.2 U	3 U	3.7 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB282	74SB283	74SB284	74SB284	74SB285	74SB285
Sample ID	Screening	Screening	Ecological	Basewide	74SB282-05	74SB283-02	74SB284-02	74SB284-05	74SB285-02	74SB285-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		9.0-11.0	3.0-5.0	3.0-5.0	9.0-11.0	3.0-5.0	9.0-11.0
	Soil	Soil	Values							
<b>LLPAHs (ug/kg)</b>			NE							
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.083 UJ	0.073 UJ	0.082 UJ	0.076 UJ	0.089 UJ	0.087 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.1</b>	<b>1.7</b>	<b>1</b>	<b>1.1</b>	<b>0.79</b>	<b>0.64</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	89	59 J	<u>330</u> J	34 J	130 J	60 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.28	0.3	0.44	0.28	0.26	0.18
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.046 U	0.049 J	0.054 J	0.17	0.037 U	0.036 U
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	30	54 J	66 J	35 J	43 J	44 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>21</b>	<b>27</b>	<b>56</b>	<b>23</b>	<b>20</b>	<b>11</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	130	95	100	98	110	74
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	0.89	1.7	3.3	0.83	1.8	1.6
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0044 U	0.011 J	0.0044 U	0.0043 U	0.0047 U	0.005 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	19	<u>35</u>	<u>39</u>	<u>51</u>	<u>33</u>	<u>26</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.13 U	0.23 J	0.13 U	0.12 U	0.14 U	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.022 J	0.056 J	0.033 J	0.051 J	0.14 J	0.11 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.12 U	0.13 U	0.12 U	0.14 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>210</b>	<b>150</b>	<b>170</b>	<b>160</b>	<b>140</b>	<b>110</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	36 J	42 J	<u>92</u> J	62 J	70 J	60 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.3	1.4	1.2	0.77	0.89	1.3
Gasoline Range Organics	NE	NE	NE	NE	0.062 U	0.066 U	0.076 U	0.091 U	0.097 U	0.088 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.3	1.4	1.2	0.77	0.89	1.3

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74VP05a	74VP05a	74VP08a	74VP08a	74VP9b/JP5	74VP9b/JP5
Sample ID	Screening	Screening	Ecological	Basewide	74VP05a-04	74VP05a-09	74VP08a-07	74VP08a-10	74VP9b/JP5-03	74VP9b/JP5-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/16/2008	5/16/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	17.0-19.0	13.0-15.0	19.0-21.0	5.0-7.0	9.0-11.0
	Soil	Soil	Values							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	6.8 UJ	3.1 U	4.5 U	3.2 U	190 U	3.6 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.61 U	0.65 U	0.96 U	0.67 U	34 U	0.76 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	53 J	10 J	12 U	8.5 U	270 J	19 UJ
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.84 U	0.9 U	1.3 U	0.93 U	47 U	1.1 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	2.9 J	0.58 U	0.86 U	0.6 U	30 U	1.5 J
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.53 U	0.57 U	0.84 U	0.59 U	29 U	0.67 U
Chloromethane	1,700	8,400	NE	NE	0.76 U	0.81 U	1.2 U	0.84 U	42 U	0.95 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.4 U	2.5 U	3.7 U	2.6 U	130 U	2.9 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.8 U	0.85 U	1.3 U	0.88 U	44 U	1 U
Iodomethane	NE	NE	NE	NE	1.1 U	1.1 U	1.7 U	1.2 U	59 U	1.3 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	74 U	78 U	120 R	81 R	4,100 U	92 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	26 U	27 U	40 U	28 U	1,400 U	32 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	1.1 U	1.1 U	1.7 U	1.2 U	59 U	1.3 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.78 U	0.83 U	1.2 U	0.86 U	43 U	0.98 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.84 U	0.9 U	1.3 U	0.93 U	47 U	1.1 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	1 U	1.1 U	1.6 U	1.1 U	57 U	1.3 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.6 U	1.7 U	2.5 U	1.8 U	88 U	2 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.5 U	2.6 U	3.9 U	2.7 U	140 U	3.1 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	NA	NA	NA	NA	18 U	1.4 U
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	25 U	1.9 U
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	8.4 U	4.6 J
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	25 U	2.2 J
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	25 U	1.9 U
Benzo[a]anthracene	150	2,100	NE	NE	NA	NA	NA	NA	25 U	1.9 U
Benzo[a]pyrene	15	210	NE	NE	NA	NA	NA	NA	9.7 U	0.75 U
Benzo[b]fluoranthene	150	2,100	NE	NE	NA	NA	NA	NA	11 U	0.86 U
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	NA	NA	NA	NA	25 U	1.9 U
Benzo[k]fluoranthene	15	210	NE	NE	NA	NA	NA	NA	15 U	1.1 U

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74VP05a	74VP05a	74VP08a	74VP08a	74VP9b/JP5	74VP9b/JP5
Sample ID	Screening	Screening	Ecological	Basewide	74VP05a-04	74VP05a-09	74VP08a-07	74VP08a-10	74VP9b/JP5-03	74VP9b/JP5-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/16/2008	5/16/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	17.0-19.0	13.0-15.0	19.0-21.0	5.0-7.0	9.0-11.0
	Soil	Soil	Values							
<b>LLPAHs (ug/kg)</b>				NE						
Chrysene	15,000	210,000	NE	NE	NA	NA	NA	NA	9 U	0.69 U
Dibenz(a,h)anthracene	15	210	NE	NE	NA	NA	NA	NA	8.7 U	0.67 U
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	25 U	1.9 U
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	11 U	3.1 J
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	NA	NA	NA	NA	18 U	1.4 U
Naphthalene	3,900	20,000	NE	NE	NA	NA	NA	NA	8.8 U	1.9 J
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	NA	NA	NA	NA	25 U	5 J
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	NA	NA	NA	NA	25 U	1.9 U
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.11 UJ	0.13 UJ	0.098 U	0.083 UJ	0.11 UJ	0.079 UJ
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.4</b>	<b>0.96</b>	<b>0.5 J</b>	<b>0.95</b>	0.26 J	0.37 J
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	120 J	57 J	91 J	48	34 J	43 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.42	0.33	0.24	0.2	0.12 J	0.29
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.042 J	0.27	0.05 J	0.25	0.1 J	0.097 J
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	13 J	12 J	20 J	20	19 J	23 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>18</b>	<b>19</b>	<b>28 J</b>	<b>27 J</b>	<b>14</b>	<b>17</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	70	72	180 J	140	47	50
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>15</u>	2.3	1.6	<u>59</u>	2.2	0.85
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.0098 J	0.058	0.0055 UJ	0.0042 U	0.0054 U	0.0041 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	9	6.3	<u>28</u>	<u>26</u>	17	<u>25</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.61 J	0.14 U	0.16 U	0.32 J	0.17 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.026 J	0.08 J	0.24 J	0.081 J	0.035 J	0.078 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.14 U	0.16 U	0.13 U	0.17 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>190</b>	<b>130</b>	<b>280 J</b>	<b>270</b>	<b>85</b>	<b>96</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	56	68	<u>150 J</u>	<u>160</u>	54	49
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.3 U	0.76 U	0.83 U	0.7 U	89	54
Gasoline Range Organics	NE	NE	NE	NE	0.074 U	0.073 U	0.3	0.097 U	0.43	8.3 J
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	1.374 U	0.833 U	0.3	0.797 U	<b>89.43</b>	<b>62.3 J</b>



TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74VP10a/JP5	74VP10a/JP5	74VP10b/DFM	74VP10b/DFM	74VP11b/JP5	74VP11b/JP5
Sample ID	Screening	Screening	Ecological	Basewide	74VP10a/JP5-04	74VP10a/JP5-05	74VP10b/DFM-04	74VP10b/DFM-05	74VP11b/JP5-04	74VP11b/JP5-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	Soil	Soil	Values							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	2.6 U	130 UJ	19 UJ	7.7 UJ	6.7 UJ	3.1 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	0.55 U	21 U	0.6 U	0.62 U	0.58 U	0.66 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	52 J	160 U	100	58	63	22 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	0.76 U	29 U	0.83 U	0.86 U	0.8 U	0.91 U
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.98 J	19 U	0.54 U	0.56 U	0.52 U	0.59 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	0.48 U	19 U	0.53 U	0.54 U	0.51 U	0.58 U
Chloromethane	1,700	8,400	NE	NE	0.68 U	26 U	0.75 U	0.77 U	0.72 U	0.82 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	2.1 U	82 U	2.3 UJ	2.4 UJ	2.2 UJ	2.5 UJ
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	0.72 U	28 U	0.79 U	0.82 U	0.76 U	0.87 U
Iodomethane	NE	NE	NE	NE	0.96 U	37 U	1.1 U	1.1 U	2.4 J	1.2 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	66 U	2,700 J	73 U	75 U	70 U	80 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	23 U	890 U	25 U	26 U	24 U	28 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	0.96 U	37 U	1.1 U	1.1 U	1 U	1.2 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	0.7 U	27 U	0.77 U	0.8 U	0.74 U	0.84 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	0.76 U	29 U	0.83 U	0.86 U	0.8 U	0.91 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	0.93 U	36 U	1 U	1.1 U	0.99 U	1.1 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	1.4 U	56 U	2.4 J	1.6 U	1.5 U	1.7 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	2.2 U	85 U	2.4 U	2.5 U	2.3 U	2.7 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	14 U	14 U	1.3 U	1.4 U	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	20 U	20 U	1.9 U	2 U	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	6.8 U	6.7 U	10	0.69 U	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	20 U	20 U	1.9 U	2 U	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	20 U	20 U	44	2 U	NA	NA
Benzo[a]anthracene	150	2,100	NE	NE	20 U	20 U	53	2.7 J	NA	NA
Benzo[a]pyrene	15	210	NE	NE	7.9 U	7.7 U	29	0.79 U	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	9.1 U	8.9 U	57	0.91 U	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	63 J	20 U	12	2 U	NA	NA
Benzo[k]fluoranthene	15	210	NE	NE	12 U	12 U	1.1 U	1.2 U	NA	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74VP10a/JP5	74VP10a/JP5	74VP10b/DFM	74VP10b/DFM	74VP11b/JP5	74VP11b/JP5
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74VP10a/JP5-04	74VP10a/JP5-05	74VP10b/DFM-04	74VP10b/DFM-05	74VP11b/JP5-04	74VP11b/JP5-05
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>	<b>Screening Values</b>		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>			NE							
Chrysene	15,000	210,000	NE	NE	7.3 U	7.1 U	52	3 J	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NE	7 U	6.9 U	5.3 J	0.71 U	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	44 J	230	140	7.6 J	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	9.2 U	9 U	16	0.93 U	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	14 U	14 U	12	1.4 U	NA	NA
Naphthalene	3,900	20,000	NE	NE	7.2 U	7 U	0.89 J	0.72 U	NA	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	20 U	20 U	1.9 J	2 U	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	69 J	220	110	6.9 J	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.08 UJ	0.26 UJ	0.081 J	0.11 J	0.084 U	0.082 U
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<b>1.1</b>	<b>1.4</b>	<b>1</b>	<b>0.83</b>	<b>1.3</b>	<b>1.2</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	83 J	82	<u>310</u>	36	220	110
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.26	0.18	0.43	0.42	0.48	0.33
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.14	0.43	0.06 J	0.073 J	<u>0.8</u>	0.42
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	36 J	34	38	63	78	100
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<b>26</b>	<b>27 J</b>	<b>120 J</b>	<b>37 J</b>	<b>72 J</b>	<b>48 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	76	110	140	90	97	100
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>8</u>	<u>47 J</u>	2	2	<u>9.5</u>	<u>27</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.01 J	0.0046 R	0.0044 J	0.0043 U	0.0074 J	0.0063 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	<u>26</u>	<u>25</u>	<u>30</u>	<u>39</u>	<u>69</u>	<u>52</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.2 J	0.13 U	0.17 J	0.14 U	0.13 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.05 J	0.046 J	0.037 J	0.054 J	0.042 J	0.034 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.13 U	0.13 U	0.12 U	0.14 U	0.13 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>150</b>	<b>160</b>	<b>140</b>	<b>220</b>	<b>120</b>	<b>130</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	67	73	59 J	<u>110 J</u>	<u>110 J</u>	<u>100 J</u>
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	370	240	3.1 U	4	1.5 U	1.4 U
Gasoline Range Organics	NE	NE	NE	NE	1.0	4.9	0.27	0.15 J	0.06 U	0.075 U
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	<b>371</b>	<b>244.9</b>	0.27	4.15 J	1.56 U	1.475 U

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74VP19b	74VP19b	74VP20	74VP20	74VP1982	74VP1982
Sample ID	Screening	Screening	Ecological	Basewide	74VP19b-03	74VP19b-05	74VP20-05	74VP20-06	74VP1982-03	74VP1982-05
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	Residential	Industrial	Screening		5.0-7.0	9.0-11.0	9.0-11.0	11.0-13.0	5.0-7.0	9.0-11.0
	Soil	Soil	Values							
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	NE	120 U	130 U	6.2 UJ	3.6 UJ	320 UJ	15 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	NE	24 U	24 U	0.64 U	0.76 U	25 UJ	0.68 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	190 U	190 U	55 J	43 J	190 UJ	66 J
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(8)</sup>	NE	34 U	33 U	0.88 U	3.7 J	34 UJ	2.5 J
Carbon disulfide	670,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	22 U	22 U	1.2 J	0.91 J	22 UJ	0.61 U
Chloroform	300	1,500	1,002 <sup>(8)</sup>	NE	21 U	21 U	0.56 U	0.67 U	22 UJ	0.6 U
Chloromethane	1,700	8,400	NE	NE	30 U	30 U	0.79 U	0.95 U	31 UJ	0.85 U
Ethyl methacrylate	700,000 <sup>(2)</sup>	9,200,000 <sup>(2)</sup>	NE	NE	94 U	93 U	2.5 U	2.9 U	96 UJ	2.6 U
Ethylbenzene	5,700	29,000	5,003 <sup>(8)</sup>	NE	32 U	32 U	3 J	6 J	33 UJ	0.9 U
Iodomethane	NE	NE	NE	NE	43 U	42 U	2.5 J	1.3 U	44 UJ	1.2 U
Isobutyl alcohol	23,000,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	NE	2,900 UJ	2,900 U	77 R	92 R	3,000 UJ	82 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	1,004 <sup>(8)</sup>	NE	1,000 U	1,000 U	27 U	32 U	1,000 UJ	29 U
Methylene Chloride	11,000	54,000	400 <sup>(8)</sup>	NE	43 U	42 U	1.1 U	1.3 U	44 UJ	1.2 U
Tetrachloroethene	570	2700	400 <sup>(8)</sup>	NE	31 U	31 U	0.82 U	0.97 U	32 UJ	0.87 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	13,001 <sup>(8)</sup>	NE	34 U	33 U	0.88 U	1.1 U	38 UJ	0.94 U
trans-1,2-Dichloroethene	NE	NE	100 <sup>(12)</sup>	NE	41 U	41 U	1.1 U	1.3 U	42 UJ	1.2 U
Vinyl acetate	99,000 <sup>(2)</sup>	420,000 <sup>(2)</sup>	NE	NE	64 U	63 U	1.7 U	2 U	65 UJ	1.8 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	2,501 <sup>(8)</sup>	NE	98 U	97 U	9 J	3.1 U	100 UJ	2.7 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NE	17 U	16 U	NA	680	9.4	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NE	24 U	22 U	NA	670	10	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	7.9 U	7.4 U	NA	8.5 U	0.74 U	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NE	24 U	22 U	NA	25 U	2.2 U	NA
Anthracene	1,700,000 <sup>(2)</sup>	17,000,000 <sup>(2)</sup>	NE	NE	24 U	22 U	NA	25 U	2.2 U	NA
Benzo[a]anthracene	150	2,100	NE	NE	130 J	22 U	NA	25 U	3.4 J	NA
Benzo[a]pyrene	15	210	NE	NE	9.2 U	8.5 U	NA	9.8 U	1.7 J	NA
Benzo[b]fluoranthene	150	2,100	NE	NE	11 U	9.8 U	NA	11 U	2 J	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	100 J	22 U	NA	25 U	2.2 U	NA
Benzo[k]fluoranthene	15	210	NE	NE	14 U	13 U	NA	15 U	1.3 U	NA

TABLE 7-2

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<b>Selected</b>	<u>NAPR</u>	74VP19b	74VP19b	74VP20	74VP20	74VP1982	74VP1982
Sample ID	<b>Screening</b>	<i>Screening</i>	<b>Ecological</b>	<u>Basewide</u>	74VP19b-03	74VP19b-05	74VP20-05	74VP20-06	74VP1982-03	74VP1982-05
Date	<b>Levels</b>	<i>Levels</i>	<b>Surface Soil</b>	<u>Background</u> <sup>(1)</sup>	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>	<b>Screening</b>		5.0-7.0	9.0-11.0	9.0-11.0	11.0-13.0	5.0-7.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>	<b>Values</b>							
<b>LLPAHs (ug/kg)</b>			NE							
Chrysene	15,000	210,000	NE	NE	270 J	7.9 U	NA	9.1 U	5.1 J	NA
Dibenz(a,h)anthracene	15	210	NE	NE	8.2 U	7.6 U	NA	8.8 U	0.76 U	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	360 J	22 U	NA	25 U	13	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NE	2,700 J	10 U	NA	29 J	29	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	17 U	16 U	NA	18 U	1.6 U	NA
Naphthalene	3,900	20,000	NE	NE	8.3 U	7.8 U	NA	200	0.78 U	NA
Phenanthrene	170,000 <sup>(2)(13)</sup>	1,700,000 <sup>(2)(13)</sup>	NE	NE	7,900 J	22 U	NA	32 J	2.2 U	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NE	650 J	200	NA	25 U	12	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	NE	0.22 J	0.2 J	0.26 J	0.32 J	0.26 J	0.28 J
Arsenic	0.39	2	18 <sup>(4)</sup>	1.59	<u>2.3</u>	<u>2.1</u>	<u>2.5</u>	<u>2.5</u>	<u>9.9</u>	<u>3</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	220	120 J	110 J	86	79	210	100
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.596	0.33	0.51	0.51	0.57	0.58	0.55
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	0.54	0.21	0.061 J	0.22	0.35	0.44	0.21
Chromium	280	1,400	57 <sup>(9)</sup>	114.5	49	60	<u>180</u>	<u>170</u>	29	<u>140</u>
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	26.9	<u>43</u> J	<u>37</u> J	<u>39</u>	<u>34</u>	<u>42</u>	<u>37</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	246	110 J	120 J	59 J	65 J	70 J	78 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	6.3	<u>8.4</u>	<u>8.1</u>	<u>6.7</u>	<u>8.1</u>	<u>11</u>	<u>6.5</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.108	0.049	0.0049 J	0.081 J	<u>0.27</u> J	0.013 J	0.072 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	24.7	23 J	17 J	<u>29</u>	<u>37</u>	12	<u>30</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	5.94	0.81	1.6	1.5	1.4	1.3	1.1
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.082 J	0.025 J	1.2	1.9	0.033 J	0.32
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	1 <sup>(7)</sup>	0.92	0.15 U	0.15 U	0.15 U	0.16 U	0.15 U	0.16 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(10)</sup>	434	<b>200</b>	<b>430</b>	<b>270</b>	<b>310</b>	<b>240</b>	<b>250</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	88	82 J	59 J	36 J	38 J	55 J	59 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	7,400 J	280	6	190	270	20
Gasoline Range Organics	NE	NE	NE	NE	24 J	1.3 J	0.34 J	36 J	250 J	0.67
Total TPH	25 <sup>(11)</sup>	NE	NE	NE	<b>7,424</b> J	<b>281.3</b> J	6.34 J	<b>226</b> J	<b>520</b> J	20.7

**TABLE 7-2**

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

R - Data is rejected and not usable

NA - Not Analyzed

NE - Not Established

ft bgs - feet below ground surface

mg/kg - milligram per kilogram

ug/kg - microgram per kilogram

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

- (1) NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) for Subsurface Soil Background Clay Table 3-4 (Baker, 2008)
- (2) Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- (3) USEPA Action Level for lead in soils
- (4) Plant-based ecological soil screening level (USEPA, 2005a [arsenic]; USEPA, 2005b [cadmium]; USEPA, 2005c [cobalt]; USEPA, 2005d [lead]; USEPA, 2006a [silver]; USEPA, 2007a [copper]; USEPA, 2007b [nickel]; USEPA, 2007c [selenium])
- (5) Invertebrate-based ecological soil screening level (USEPA, 2005h [antimony]; USEPA, 2005f [barium]; USEPA, 2005g [beryllium]; USEPA, 2000d [zinc])
- (6) Toxicological threshold for earthworms (Efroymson et al., 1997a)
- (7) Toxicological threshold for plants (Efroymson et al., 1997b)
- (8) Ministry of Housing, Spatial Analysis and Environment (MHSPE), 2000, Circular on Target Values for Soil Remediation. Directorate-General for Environmental Protection, Department of Soil Protection, The Hague, Netherlands. February 4, 2000.
- (9) Reproduction-based MATC for *Eisenia andrei* (earthworm)
- (10) Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10
- (11) Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07
- (12) Canadian soil quality guideline based on agricultural land uses
- (13) Pyrene used as a surrogate for screening purposes.

**TABLE 7-2**

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

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USEPA. 2005g. Ecological Soil Screening Levels for Beryllium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C.

OSWER Directive 9285.7-64.

USEPA. 2005h. Ecological Soil Screening Levels for Antimony (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C.

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TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	Regional Tap Water Screening Levels	USEPA MCLs	Selected Ecological Surface Water Screening Values	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74VP05a 74GWVP05a 5/30/2008	74VP05a 74GWVP05a 7/23/2008	74VP07b 74GWVP07 5/21/2008	74VP08a 74GWVP08a 5/31/2008	74VP08b 74GWVP08b 5/31/2008	74VP9b/JP5 74GWVP9b/JP5 7/23/2008
<b>Volatile Organic Compounds (ug/L)</b>										
2-Hexanone	NE	NE	99 <sup>(14)</sup>	NE	0.68 U	NA	0.68 U	22	0.68 U	0.68 U
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(14)</sup>	NE	0.6 U	NA	0.6 U	0.6 U	0.87 J	0.6 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(13)</sup>	NE	7.8 U	NA	7.9 J	5 J	37	5 U
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	NA	0.32 U	0.32 U	0.32 U	0.32 U
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(14)</sup>	NE	7.9 J	NA	0.44 J	2 J	4.7 J	0.6 U
Chloroform	0.19	NE	815 <sup>(7)</sup>	NE	0.29 U	NA	0.29 U	0.29 U	0.29 U	0.29 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.3 U	NA	1.5	0.3 U	0.3 U	0.3 U
Xylenes, Total	20 <sup>(2)</sup>	10,000	27 <sup>(14)</sup>	NE	0.87 U	NA	0.87 U	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>										
1-Methylnaphthalene	2.3	NE	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	15 <sup>(2)</sup>	NE	6 <sup>(8)</sup>	NE	NA	NA	NA	NA	NA	NA
Acenaphthene	220 <sup>(2)</sup>	NE	9.7 <sup>(7)</sup>	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,100 <sup>(2)</sup>	NE	5.35 <sup>(10)</sup>	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	0.03	NE	6 <sup>(17)</sup>	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	0.003	0.20	10 <sup>(18)</sup>	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	0.029	NE	6.0 <sup>(17)</sup>	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	110 <sup>(2)</sup>	NE	6.0 <sup>(17)</sup>	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	0.290	NE	6.0 <sup>(17)</sup>	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.003	NE	6.0 <sup>(17)</sup>	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	150 <sup>(2)</sup>	NE	11 <sup>(15)</sup>	NE	NA	NA	NA	NA	NA	NA
Fluorene	150 <sup>(2)</sup>	NE	10 <sup>(9)</sup>	NE	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	0.03	NE	6.0 <sup>(17)</sup>	NE	NA	NA	NA	NA	NA	NA
Naphthalene	0.14	NE	23.5 <sup>(7)</sup>	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	8.3 <sup>(15)</sup>	NE	NA	NA	NA	NA	NA	NA
Pyrene	110 <sup>(2)</sup>	NE	0.248 <sup>(10)</sup>	NE	NA	NA	NA	NA	NA	NA
<b>Total Metals (ug/L)</b>										
Arsenic	0.045	10	36.0 <sup>(5)</sup>	18.89	NA	<b>1.6 J</b>	<b>5.4</b>	1.6 U	2.2 U	<b>3.1</b>
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	686	NA	46 J	130	120	20	58 J

TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID	Regional Tap Water	USEPA MCLs	Selected Ecological Surface Water Screening Values	NAPR Basewide Background <sup>(1)</sup>	74VP05a 74GWVP05a 5/30/2008	74VP05a 74GWVP05a 7/23/2008	74VP07b 74GWVP07 5/21/2008	74VP08a 74GWVP08a 5/31/2008	74VP08b 74GWVP08b 5/31/2008	74VP9b/JP5 74GWVP9b/JP5 7/23/2008
Date	Screening Levels									
<b>Total Metals (ug/L)</b>										
Beryllium	7.3 <sup>(2)</sup>	4	310 <sup>(19)</sup>	2.21	NA	0.067 J	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	NA	0.18 J	0.12 U	0.12 U	0.29 J	0.26 J
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	NA	40	2.5 U	3.6 U	9.6	28
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	NA	<b>5.4 J</b>	<b>6.6 J</b>	<b>2.3 J</b>	<b>4.4</b>	<b>4.2 J</b>
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	NA	<b>27</b>	3.4 U	<b>7.4</b>	<b>12</b>	<b>17</b>
Lead	NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	26.25	NA	<b>22</b>	0.43 U	0.63 U	0.78 U	3.3
Mercury	1.1 <sup>(2)</sup>	NE	1.11 <sup>(3)</sup>	0.15	NA	0.08 U	0.08 U	0.08 U	<u>0.32</u>	0.08 U
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	NA	<b>25</b>	<b>11</b>	2.5	8.2	<b>17</b>
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	NA	0.6 U	0.9 J	0.98 J	1 J	0.06 U
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	NA	0.2 J	0.09 U	0.09 U	0.19 J	0.1 J
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	9.35	NA	3 J	1.9 J	1.9 U	2.6 U	4.7 J
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	484.66	NA	<b>27</b>	7.3	<b>14</b>	<b>34</b>	<b>24</b>
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	NA	<b>240</b>	55	23 J	46 J	160
<b>Dissolved Metals (ug/L)</b>										
Arsenic	0.045	10	36.0 <sup>(5)</sup>	14.03	NA	<b>0.96 J</b>	<b>5.2 J</b>	1.5 U	2.3 U	NA
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	260	NA	31 J	130 R	110	16	NA
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	NA	0.12 U	0.14 J	0.12 J	0.2 J	NA
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	NA	1.8 J	1.9 U	0.78 U	1.2 U	NA
Cobalt	1.1	NE	45 <sup>(6)</sup>	580.5	NA	<b>2.6 J</b>	<b>8.8 J</b>	<b>3 J</b>	<b>3.8</b>	NA
Mercury	1.1 <sup>(2)</sup>	NE	1.11 <sup>(3)</sup>	0.157	NA	0.08 U	0.08 U	0.08 U	0.09 J	NA
Nickel	73	NE	8.28 <sup>(3)</sup>	84.1	NA	<b>8.8</b>	<b>10 J</b>	1.9	5.4	NA
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	NA	0.6 U	0.75 J	0.92 J	1 J	NA
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	3.67	NA	0.09 U	0.09 UJ	0.09 UJ	0.11 J	NA
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	NE	NA	0.9 U	1.4 U	1.4 U	0.9 U	NA
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	NA	3.6 J	5.2	<b>15</b>	<b>28</b>	NA
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	NA	11 J	54 R	20 J	19 J	NA



TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected Ecological	NAPR	74VP05a	74VP05a	74VP07b	74VP08a	74VP08b	74VP9b/JP5
Sample ID	Tap Water	MCLs	Surface Water	Basewide	74GWVP05a	74GWVP05a	74GWVP07	74GWVP08a	74GWVP08b	74GWVP9b/JP5
Date	Screening Levels		Screening Values	Background <sup>(1)</sup>	5/30/2008	7/23/2008	5/21/2008	5/31/2008	5/31/2008	7/23/2008
<b>TPH DRO and GRO (mg/L)</b>										
Diesel Range Organics	NE	NE	NE	NE	NA	NA	5.4	0.73	0.85	NA
Gasoline Range Organics	NE	NE	NE	NE	0.012 U	NA	0.076	0.052	0.036 J	0.12 U
Total TPH	12.5 <sup>(4)</sup>	NE	NE	NE	0.012 U	NA	5.476	0.782	0.886 J	0.12 U

TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	Regional Tap Water Screening Levels	USEPA MCLs	Selected Ecological Surface Water Screening Values	NAPR Basewide Background <sup>(1)</sup>	74VP10a/DFM 74GWVP10a/DFM 5/18/2008	74VP10a/JP5 74GWVP10a/JP5 5/19/2008	74VP19b 74GWVP19b 5/28/2008	74VP19b 74GWVP19b 7/23/2008	74VP20 74GWVP20 5/28/2008	74SB151 74GW151 5/21/2008
<b>Volatile Organic Compounds (ug/L)</b>										
2-Hexanone	NE	NE	99 <sup>(14)</sup>	NE	0.68 U	0.68 U	0.68 U	NA	0.68 U	0.68 U
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(14)</sup>	NE	0.6 U	0.6 U	0.9 J	NA	0.6 U	0.6 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(13)</sup>	NE	15 J	7.4 J	8.6 U	NA	17 U	5 U
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	0.32 U	0.32 U	NA	5.3	0.32 U
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(14)</sup>	NE	0.17 U	0.17 U	0.57 J	NA	0.17 U	0.17 U
Chloroform	0.19	NE	815 <sup>(7)</sup>	NE	0.29 U	0.29 U	0.29 U	NA	0.29 U	0.29 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.3 U	0.3 U	0.3 U	NA	34	0.3 U
Xylenes, Total	20 <sup>(2)</sup>	10,000	27 <sup>(14)</sup>	NE	0.87 U	0.87 U	0.87 U	NA	22	0.87 U
<b>LLPAHs (ug/L)</b>										
1-Methylnaphthalene	2.3	NE	NE	NE	1.1	1.8	NA	NA	56	NA
2-Methylnaphthalene	15 <sup>(2)</sup>	NE	6 <sup>(8)</sup>	NE	1	1.3	NA	NA	50	NA
Acenaphthene	220 <sup>(2)</sup>	NE	9.7 <sup>(7)</sup>	NE	0.26	0.85	NA	NA	0.71 J	NA
Anthracene	1,100 <sup>(2)</sup>	NE	5.35 <sup>(10)</sup>	NE	0.021 U	0.12 J	NA	NA	0.4 J	NA
Benzo[a]anthracene	0.03	NE	6 <sup>(17)</sup>	NE	0.025 U	0.025 U	NA	NA	0.49 J	NA
Benzo[a]pyrene	0.003	0.20	10 <sup>(18)</sup>	NE	0.024 U	0.024 U	NA	NA	0.4 J	NA
Benzo[b]fluoranthene	0.029	NE	6.0 <sup>(17)</sup>	NE	0.036 U	0.036 U	NA	NA	0.38 J	NA
Benzo[g,h,i]perylene	110 <sup>(2)</sup>	NE	6.0 <sup>(17)</sup>	NE	0.023 U	0.023 U	NA	NA	0.37 J	NA
Benzo[k]fluoranthene	0.290	NE	6.0 <sup>(17)</sup>	NE	0.019 U	0.019 U	NA	NA	0.37 J	NA
Dibenz(a,h)anthracene	0.003	NE	6.0 <sup>(17)</sup>	NE	0.023 U	0.023 U	NA	NA	0.35 J	NA
Fluoranthene	150 <sup>(2)</sup>	NE	11 <sup>(15)</sup>	NE	0.049 U	0.45	NA	NA	0.49 U	NA
Fluorene	150 <sup>(2)</sup>	NE	10 <sup>(9)</sup>	NE	0.42	1.3	NA	NA	0.73 J	NA
Indeno[1,2,3-cd]pyrene	0.03	NE	6.0 <sup>(17)</sup>	NE	0.022 U	0.022 U	NA	NA	0.34 J	NA
Naphthalene	0.14	NE	23.5 <sup>(7)</sup>	NE	0.049 U	0.049 U	NA	NA	67	NA
Phenanthrene	NE	NE	8.3 <sup>(15)</sup>	NE	0.24	0.22	NA	NA	0.54 J	NA
Pyrene	110 <sup>(2)</sup>	NE	0.248 <sup>(10)</sup>	NE	0.026 U	0.31	NA	NA	0.43 J	NA
<b>Total Metals (ug/L)</b>										
Arsenic	0.045	10	36.0 <sup>(5)</sup>	18.89	1.1 J	1.8 J	NA	4.9	2.8	2.9
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	686	14	56	NA	300 J	3,400	210

TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID	Regional Tap Water	USEPA MCLs	Selected Ecological Surface Water	NAPR Basewide	74VP10a/DFM 74GWVP10a/DFM	74VP10a/JP5 74GWVP10a/JP5	74VP19b 74GWVP19b	74VP19b 74GWVP19b	74VP20 74GWVP20	74SB151 74GW151
Date	Screening Levels		Screening Values	Background <sup>(1)</sup>	5/18/2008	5/19/2008	5/28/2008	7/23/2008	5/28/2008	5/21/2008
<b>Total Metals (ug/L)</b>										
Beryllium	7.3 <sup>(2)</sup>	4	310 <sup>(19)</sup>	2.21	0.065 U	0.065 U	NA	0.065 U	0.065 U	0.065 U
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.19 J	0.12 U	NA	0.12 U	0.12 U	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	0.88 J	1.4 U	NA	3.9 J	14 J	5 U
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	0.88 R	1.1 R	NA	8.6 J	55	2.8
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	4.1 U	2.6 U	NA	6.3	1.8 U	8.9
Lead	NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	26.25	0.77 U	0.88 U	NA	0.68 U	0.15 U	1.6
Mercury	1.1 <sup>(2)</sup>	NE	1.11 <sup>(3)</sup>	0.15	0.08 U	0.08 U	NA	0.08 U	0.08 U	0.08 U
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	1.4	1.3	NA	4.9	57	3.2
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	0.6 U	0.6 U	NA	1.5 J	0.81 J	0.6 U
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	0.09 UJ	0.09 U	NA	0.09 U	0.09 U	0.09 U
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	9.35	2.1 J	0.9 U	NA	1.9 J	1.5 J	1.2 J
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	484.66	140	5.9	NA	12	5.8	12
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	25	12 J	NA	27	190 J	15 J
<b>Dissolved Metals (ug/L)</b>										
Arsenic	0.045	10	36.0 <sup>(5)</sup>	14.03	0.96 U	11 U	NA	5.7	2.2 U	1.9 U
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	260	11	380 R	NA	200 J	3,900	200 R
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	0.12 U	0.12 U	NA	0.12 U	0.38 U	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	0.6 U	7.6 U	NA	2.8 J	20 J	1.3 U
Cobalt	1.1	NE	45 <sup>(6)</sup>	580.5	2 R	4.2 R	NA	12 J	55	2.2
Mercury	1.1 <sup>(2)</sup>	NE	1.11 <sup>(3)</sup>	0.157	0.08 U	0.08 U	NA	0.08 U	0.08 U	0.08 U
Nickel	73	NE	8.28 <sup>(3)</sup>	84.1	1.2	15 J	NA	6.5	57	1.3 J
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	0.6 U	3 U	NA	1.9 J	0.79 J	0.6 U
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	3.67	0.09 U	0.45 UJ	NA	0.09 U	0.37 J	0.09 UJ
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	NE	1.1 J	4.5 U	NA	1.1 J	3.1 J	0.9 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	130	41	NA	16	4.7 U	2.2 U
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	13 J	67 R	NA	8.5 J	220	6.8 R

TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected Ecological	NAPR	74VP10a/DFM	74VP10a/JP5	74VP19b	74VP19b	74VP20	74SB151
Sample ID	Tap Water	MCLs	Surface Water	Basewide	74GWVP10a/DFM	74GWVP10a/JP5	74GWVP19b	74GWVP19b	74GWVP20	74GW151
Date	Screening Levels		Screening Values	Background <sup>(1)</sup>	5/18/2008	5/19/2008	5/28/2008	7/23/2008	5/28/2008	5/21/2008
<b>TPH DRO and GRO (mg/L)</b>										
Diesel Range Organics	NE	NE	NE	NE	1.5	1.5	NA	NA	4.7	3.6
Gasoline Range Organics	NE	NE	NE	NE	0.21	0.031 J	0.11	NA	0.42	0.15
Total TPH	12.5 <sup>(4)</sup>	NE	NE	NE	1.71	1.531 J	0.11	NA	5.12	3.75

TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	Regional Tap Water Screening Levels	USEPA MCLs	Selected Ecological Surface Water Screening Values	NAPR Basewide Background <sup>(1)</sup>	74SB273 74GW273 5/30/2008	74VP1982 74GWVP1982 5/28/2008
<b>Volatile Organic Compounds (ug/L)</b>						
2-Hexanone	NE	NE	99 <sup>(14)</sup>	NE	0.68 U	0.68 U
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(14)</sup>	NE	0.6 U	0.6 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(13)</sup>	NE	9 J	9.7 U
Benzene	0.41	5.0	109 <sup>(7)</sup>	NE	0.32 U	<b>3.6</b>
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(14)</sup>	NE	0.17 U	0.17 U
Chloroform	0.19	NE	815 <sup>(7)</sup>	NE	<b>1.3</b>	0.29 U
Ethylbenzene	1.5	700	4.3 <sup>(7)</sup>	NE	0.3 U	<b>16</b>
Xylenes, Total	20 <sup>(2)</sup>	10,000	27 <sup>(14)</sup>	NE	0.87 U	19
<b>LLPAHs (ug/L)</b>						
1-Methylnaphthalene	2.3	NE	NE	NE	NA	<b>16 J</b>
2-Methylnaphthalene	15 <sup>(2)</sup>	NE	6 <sup>(8)</sup>	NE	NA	<b>11 J</b>
Acenaphthene	220 <sup>(2)</sup>	NE	9.7 <sup>(7)</sup>	NE	NA	0.65 J
Anthracene	1,100 <sup>(2)</sup>	NE	5.35 <sup>(10)</sup>	NE	NA	0.22 U
Benzo[a]anthracene	0.03	NE	6 <sup>(17)</sup>	NE	NA	0.25 U
Benzo[a]pyrene	0.003	0.20	10 <sup>(18)</sup>	NE	NA	0.25 U
Benzo[b]fluoranthene	0.029	NE	6.0 <sup>(17)</sup>	NE	NA	0.36 U
Benzo[g,h,i]perylene	110 <sup>(2)</sup>	NE	6.0 <sup>(17)</sup>	NE	NA	0.24 U
Benzo[k]fluoranthene	0.290	NE	6.0 <sup>(17)</sup>	NE	NA	0.2 U
Dibenz(a,h)anthracene	0.003	NE	6.0 <sup>(17)</sup>	NE	NA	0.24 U
Fluoranthene	150 <sup>(2)</sup>	NE	11 <sup>(15)</sup>	NE	NA	0.49 U
Fluorene	150 <sup>(2)</sup>	NE	10 <sup>(9)</sup>	NE	NA	1.4 J
Indeno[1,2,3-cd]pyrene	0.03	NE	6.0 <sup>(17)</sup>	NE	NA	0.23 U
Naphthalene	0.14	NE	23.5 <sup>(7)</sup>	NE	NA	<b>13 J</b>
Phenanthrene	NE	NE	8.3 <sup>(15)</sup>	NE	NA	0.88 J
Pyrene	110 <sup>(2)</sup>	NE	0.248 <sup>(10)</sup>	NE	NA	0.26 U
<b>Total Metals (ug/L)</b>						
Arsenic	0.045	10	36.0 <sup>(5)</sup>	18.89	2.2 U	<b>4.2</b>
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	686	40	<b><u>1,600</u></b>

TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID	Regional Tap Water	USEPA MCLs	Selected Ecological Surface Water Screening Values	NAPR Basewide Background <sup>(1)</sup>	74SB273 74GW273 5/30/2008	74VP1982 74GWVP1982 5/28/2008
Date	Screening Levels					
<b>Total Metals (ug/L)</b>						
Beryllium	7.3 <sup>(2)</sup>	4	310 <sup>(19)</sup>	2.21	0.17 U	0.065 U
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.24 J	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	54	2.9 J
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	23	11
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	73	3.9 U
Lead	NE	15 <sup>(11)</sup>	8.52 <sup>(3)</sup>	26.25	1.4 U	0.5 U
Mercury	1.1 <sup>(2)</sup>	NE	1.11 <sup>(3)</sup>	0.15	0.08 U	0.08 U
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	37	11
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	1.6 J	1.5 J
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	0.17 J	0.1 J
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	9.35	3.4 U	3.1 J
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	484.66	140	12
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	56 J	8.3 J
<b>Dissolved Metals (ug/L)</b>						
Arsenic	0.045	10	36.0 <sup>(5)</sup>	14.03	1.4 U	3.9
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(16)</sup>	260	2.7 J	1,900
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	0.12 U	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	0.6 U	3.2 J
Cobalt	1.1	NE	45 <sup>(6)</sup>	580.5	4.5	12 B
Mercury	1.1 <sup>(2)</sup>	NE	1.11 <sup>(3)</sup>	0.157	0.08 U	0.08 U
Nickel	73	NE	8.28 <sup>(3)</sup>	84.1	9	12
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	1.2 J	1.4 J
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	3.67	0.09 UJ	0.09 UJ
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(14)</sup>	NE	1 U	3.3 J
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(14)</sup>	20.96	55	11
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	6.5 U	9.1 J

TABLE 7-3

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected Ecological	NAPR	74SB273	74VP1982
Sample ID	Tap Water	MCLs	Surface Water	Basewide	74GW273	74GWVP1982
Date	Screening Levels		Screening Values	Background <sup>(1)</sup>	5/30/2008	5/28/2008
<b>TPH DRO and GRO (mg/L)</b>						
Diesel Range Organics	NE	NE	NE	NE	0.92	8.7
Gasoline Range Organics	NE	NE	NE	NE	0.012 U	0.43
Total TPH	12.5 <sup>(4)</sup>	NE	NE	NE	0.92	9.13

**TABLE 7-3**

**SSUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

U - Not detected  
J - Analyte present - Reported value is estimated  
UJ - Reported quantitation limit is qualified as estimated  
NE - Not Established  
NA - Not Analyzed  
R - Rejected data, not usable  
mg/l - milligram per liter  
ug/l - microgram per liter  
NAPR - Naval Activity Puerto Rico  
USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics  
GRO - Gasoline Range Organics  
TPH - Total Petroleum Hydrocarbons  
LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

- (1) NAPR Basewide Groundwater Background - Upper Limit of Means (Mean + 2 standard deviations) Revised Final Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, PR, Baker Environmental (Baker, 2008)
- (2) Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- (3) Total Recoverable Criteria Continuous Concentration
- (4) Screening level for TPH is 25% of PREQB groundwater criterion, as proposed in the approved Work Plan dated 12/6/07
- (5) Total recoverable Criteria Continuous Concentration for trivalent arsenic
- (6) Minimum acute value (96-hour LC<sub>50</sub> for *Nitocra spinipes* [Harpacticoid copepod]) with safety factor of 100 (USEPA, 2003)
- (7) USEPA Region 4 chronic screening value (USEPA, 2001)
- (8) Minimum acute value (96-hour LC<sub>50</sub> for *Penaeus aztecus* [brown shrimp]) with safety factor of 100 (USEPA, 2007)
- (9) Minimum acute value (96-hour LC<sub>50</sub> for *Nereis arenaceodentata* [polychaete]) with safety factor of 100
- (10) Minimum acute value (48-hr LC<sub>50</sub> for *Americamysis bahia* [opossum shrimp]) with a safety factor of 100
- (11) USEPA Action Level for lead in drinking water
- (12) Total recoverable Criteria Continuous Concentration for hexavalent chromium
- (13) Minimum acute value (96-hour LC<sub>50</sub> for *Lumbriculus variegatus* [oligochaete]) with a safety factor of 100
- (14) USEPA Region 5 ecological screening level
- (15) Final Chronic Value
- (16) Minimum acute value (96-hour NOEC for *Cyprinodon variegatus* [sheepshead minnow]) with safety factor of 30 (USEPA, 2007)
- (17) Acute LOEL for chemical class with a safety factor of 50
- (18) Acute value (LC<sub>50</sub>) with a safety factor of 100
- (19) Minimum acute value (96-hr LC<sub>50</sub> for *Fundulus heteroclitus* [mummichog]) with a safety factor of 100



**TABLE 7-3**

**SUMMARY OF DETECTED RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

Baker Environmental, Inc, (2008). Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico. February 29, 2008.

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TABLE 8-1

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<b>Selected Ecological Surface Soil Screening Values</b>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB161 74SB161-00 5/16/2008 0.0-1.0	74SB161 74SB161-00D 5/16/2008 0.0-1.0	74SB171 74SB171-00 5/17/2008 0.0-1.0	74SB181 74SB181-00 5/19/2008 0.0-1.0	74SB191 74SB191-00 5/19/2008 0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>									
2-Butanone (MEK)	28,000	190,000	NE	NE	4.6 U	6.8 U	11 J	2.9 UJ	11 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	21 J	38 J	120 J	44 J	75
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(2)</sup>	NE	0.75 U	1 U	0.87 U	0.85 U	1.1 J
Iodomethane	NE	NE	NE	NE	0.95 UJ	1.3 UJ	1.2 J	1.1 UJ	1.3 U
<b>Metals (mg/kg)</b>									
Arsenic	0.39	1.6	18 <sup>(4)</sup>	2.65	<u>4</u>	<u>4.2</u>	<u>3.2</u>	<u>1.4</u>	<u>2.8</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	199	15 J	20 J	53	<u>350</u>	52 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.59	0.054 J	0.091 J	0.24	0.38	0.18
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	1.02	0.051 J	0.081 J	0.44	0.041 J	0.33
Chromium	280	1,400	57 <sup>(7)</sup>	49.8	17 J	23 J	22	<u>58</u>	32
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	46.2	<b>5.4 J</b>	<b>7.5 J</b>	<b>16 J</b>	<b>19</b>	<b>16 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	168	21 J	51 J	93	65	68 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	22	6.5 J	7.8 J	<u>38 J</u>	3.4	<u>210 J</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.109	0.004 J	0.0056 J	0.014 R	0.01 J	0.024
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	20.7	6.8	7.8	12	18	15
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	1.48	0.18 J	0.23 J	<u>1.2</u>	<u>1</u>	0.32 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.016 UJ	0.019 J	0.18 J	0.041 J	0.067 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(8)</sup>	259	<b>63</b>	<b>68</b>	<b>150</b>	<b>260</b>	<b>130</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	115	14 J	22 J	80	53 J	110
<b>TPH DRO and GRO (mg/kg)</b>									
Diesel Range Organics	NE	NE	NE	NE	2.4 J	2.3 J	2.8 U	1.2 UJ	77
Gasoline Range Organics	NE	NE	NE	NE	0.071 U	0.072 U	0.067 U	0.032 J	0.018 J
Total TPH	25 <sup>(9)</sup>	NE	NE	NE	2.4 J	2.3 J	2.867 U	0.032 J	<b>77.018 J</b>

**TABLE 8-1**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

ft bgs - feet below ground surface

ug/kg - microgram per kilogram

mg/kg - milligram per kilogram

NE - Not Established

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

- (1) NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) (Baker, 2008)
- (2) Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- (3) USEPA Action Level for lead in soils
- (4) Plant-based ecological soil screening level (USEPA, 2005a [arsenic]; USEPA, 2005b [cadmium]; USEPA, 2005c [cobalt]; USEPA, 2005d [lead]; USEPA, 2006a [silver]; USEPA, 2007a [copper]; USEPA, 2007b [nickel]; USEPA, 2007c [selenium])
- (5) Invertebrate-based ecological soil screening level (USEPA, 2005f [barium]; USEPA, 2005g [beryllium]; USEPA, 2007d [zinc])
- (6) Toxicological threshold for earthworms (Efroymson et al., 1997a)
- (7) Reproduction-based MATC for *Eisenia andrei* (earthworm)
- (8) Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10
- (9) Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07

**TABLE 8-1**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

Baker Environmental, Inc, (2008). Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico. February 29, 2008.

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USEPA. 2005a. Ecological Soil Screening Levels for Arsenic (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-62.

USEPA. 2005b. Ecological Soil Screening Levels for Cadmium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-65.

USEPA. 2005c. Ecological Soil Screening Levels for Cobalt (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-67

USEPA. 2005d. Ecological Soil Screening Levels for Lead (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-70.

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USEPA. 2005g. Ecological Soil Screening Levels for Beryllium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-64.

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB144	74SB144	74SB145	74SB145	74SB146	74SB146	74SB146
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB144-03	74SB144-05	74SB145-05	74SB145-09	74SB146-02	74SB146-02D	74SB146-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/14/2008	5/14/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		5.0-7.0	9.0-11.0	9.0-11.0	17.0-19.0	3.0-5.0	3.0-5.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>								
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3 U	3.5 U	3.9 UJ	3.1 U	2.5 U	2.4 U	3 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.63 U	0.73 U	0.63 U	0.66 U	0.53 U	0.5 U	0.63 U
2-Hexanone	NE	NE	NE	2.3 U	2.7 U	2.3 U	2.4 UJ	2 U	1.8 U	2.3 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	11 J	13 J	23 J	11 J	4.1 U	18 J	8.6 J
Benzene	1,100	5,600	NE	0.87 U	1 U	0.87 U	0.92 U	0.73 U	0.69 U	0.88 U
Bromoform	6,100	22,000	NE	1.2 U	7.7	1.2 U	1.3 U	1 U	0.97 U	1.2 U
Carbon disulfide	67,000	300,000	NE	0.56 U	0.66 U	0.56 U	0.59 U	0.47 U	0.45 U	0.57 U
Ethylbenzene	5,700	29,000	NE	0.83 U	0.96 U	0.83 U	0.87 U	0.7 U	0.66 U	0.84 U
Iodomethane	NE	NE	NE	1.1 U	1.3 U	1.1 U	1.2 U	0.97 UJ	0.88 UJ	1.1 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	76 R	89 R	76 U	80 U	64 R	61 R	77 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	27 U	31 U	26 U	28 U	22 U	21 U	27 U
trans-1,2-Dichloroethene	NE	NE	NE	1.1 U	1.2 U	1.1 U	1.1 U	0.9 U	0.85 U	1.1 U
<b>LLAHs (ug/kg)</b>										
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB144	74SB144	74SB145	74SB145	74SB146	74SB146	74SB146
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB144-03	74SB144-05	74SB145-05	74SB145-09	74SB146-02	74SB146-02D	74SB146-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/14/2008	5/14/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		5.0-7.0	9.0-11.0	9.0-11.0	17.0-19.0	3.0-5.0	3.0-5.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>								
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.094 UJ	0.086 UJ	0.086 UJ	0.081 UJ	0.28 U	0.075 U	0.094 U
Arsenic	0.39	1.60	1.59	<b>1.4</b>	<b>0.86</b>	<b>0.66</b>	<b>0.87</b>	<b>1.1</b>	<b>1</b>	<b>0.74</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	190 J	150 J	62 J	27 J	76 J	54 J	95 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.38	0.48	0.44	0.14	0.32	0.23	<u>0.63</u>
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.039 U	0.036 U	0.056 J	0.1 J	1.2 R	0.31 R	0.047 J
Chromium	280	1,400	114.5	18	7.9	20 J	6.2 J	28 J	38 J	<b>650 J</b>
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>9.8 J</b>	<u>62 J</u>	<u>46</u>	<b>18</b>	<u>39 J</u>	<b>26 J</b>	<u>64 J</u>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	63	9.9	43	<b>510</b>	110 J	91 J	140 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	5.1	1.5	1	0.69	4.8	4.3	0.98
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.007 J	0.0042 U	0.0044 U	0.0044 U	0.0078 J	0.011 J	0.0045 UJ
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	8.8 J	16 J	16	12	<u>31</u>	23	<b>200</b>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	1.2	0.17 J	0.23 J	0.12 U	0.18 J	0.14 J	0.15 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.02 U	0.028 J	0.031 J	0.11 J	0.12 J	0.037 J	0.063 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.15 U	0.14 U	0.13 U	0.12 U	0.12 U	0.12 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>200</b>	<b>150</b>	<b>170</b>	<b>120</b>	<b>130 J</b>	<b>170 J</b>	<b>110 J</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	56 J	<u>120 J</u>	78	56	<u>130 J</u>	<u>96 J</u>	<u>95 J</u>
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	0.82 U	0.72 U	0.74 U	0.67 U	1.9 J	3.3 J	1.8 J
Gasoline Range Organics	NE	NE	NE	0.073 U	0.067 U	0.074 U	0.058 U	0.068 U	0.073 U	0.08 U
Total TPH	25 <sup>(4)</sup>	NE	NE	0.893 U	0.787 U	0.814 U	0.728 U	1.9 J	3.3 J	1.8 J

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB147	74SB147	74SB148	74SB148	74SB161	74SB161	74SB161	74SB162
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB147-03	74SB147-04	74SB148-02	74SB148-04	74SB161-04	74SB161-04D	74SB161-05	74SB162-04
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		5.0-7.0	7.0-9.0	3.0-5.0	7.0-9.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0
	<b>Soil</b>	<i>Soil</i>									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.7 U	2.6 U	3.3 U	3.5 U	5.5 U	5.8 U	4.4 U	4.8 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.77 U	0.54 U	0.7 U	0.74 U	0.62 U	0.68 U	0.65 U	1 U
2-Hexanone	NE	NE	NE	2.8 U	2 U	2.6 U	2.7 U	2.3 U	2.5 U	2.4 U	3.7 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	53 J	4.5 J	7.8 J	42 J	41 J	34 J	28 J	55 J
Benzene	1,100	5,600	NE	1.1 U	0.75 U	0.97 U	1 U	0.86 U	0.95 U	0.91 U	1.4 U
Bromoform	6,100	22,000	NE	1.5 U	1 U	1.3 U	1.4 U	1.2 U	1.3 U	1.3 U	1.9 U
Carbon disulfide	67,000	300,000	NE	2.5 J	0.49 U	0.62 U	0.66 U	0.55 U	0.61 U	0.59 U	0.9 U
Ethylbenzene	5,700	29,000	NE	1 U	0.71 U	0.92 U	0.98 U	0.81 U	0.9 U	0.86 U	1.3 U
Iodomethane	NE	NE	NE	2.1 J	0.95 U	1.2 U	1.3 UJ	1.1 UJ	1.2 U	1.1 U	1.8 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	93 R	66 R	84 R	90 R	75 R	83 UJ	79 UJ	120 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	33 U	23 U	29 U	31 U	26 U	29 UJ	28 UJ	42 U
trans-1,2-Dichloroethene	NE	NE	NE	1.3 U	0.92 U	1.2 U	1.3 U	1.1 U	1.2 U	1.1 U	1.7 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	NAPR	74SB147	74SB147	74SB148	74SB148	74SB161	74SB161	74SB161	74SB162
Sample ID	Screening	Screening	Basewide	74SB147-03	74SB147-04	74SB148-02	74SB148-04	74SB161-04	74SB161-04D	74SB161-05	74SB162-04
Date	Levels	Levels	Background <sup>(1)</sup>	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range (ft bgs)	Residential	Industrial		5.0-7.0	7.0-9.0	3.0-5.0	7.0-9.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0
	Soil	Soil									
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.12 U	0.076 U	0.15 U	0.48 U	0.15 UJ	0.17 UJ	0.17 UJ	0.23 UJ
Arsenic	0.39	1.60	1.59	<u>1.6</u>	<b>0.95</b>	<b>1.5</b>	<u>3.8</u>	<u>1.6</u>	<b>1.5</b>	<b>1.3</b>	<u>2.3</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	92 J	87 J	52 J	97 J	51 J	46 J	35 J	<u>450</u> J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.45	0.53	0.18	0.57	0.33	0.32	0.44	0.37
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.41	0.07 J	0.22	<u>1.1</u>	0.057 J	0.084 J	0.049 J	0.1 J
Chromium	280	1,400	114.5	41 J	110 J	34 J	65 J	24 J	26 J	26 J	61 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<u>36</u> J	<b>26</b> J	<b>21</b> J	<u>91</u> J	<b>22</b> J	<b>26</b> J	<b>23</b> J	<u>29</u> J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	81 J	<u>250</u> J	79 J	170 J	93	89	89	77
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	<u>12</u>	2.3	<u>7.3</u>	<u>16</u>	<u>15</u> J	<u>20</u> J	4.4 J	<u>12</u> J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.094 J	0.0043 UJ	0.0063 J	0.054 J	0.0043 U	0.005 J	0.0093 J	0.0047 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	16	<u>88</u>	19	<u>46</u>	20	22	18	<u>31</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	1.3	0.12 U	0.16 J	1.2	0.15 J	0.16 J	0.14 U	0.3 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.2 J	0.082 J	0.06 J	0.16 J	0.041 J	0.04 J	0.049 J	0.032 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.16 U	0.12 U	0.13 U	0.16 U	0.12 U	0.13 U	0.14 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>170</b> J	<b>99</b> J	<b>130</b> J	<b>240</b> J	<b>170</b>	<b>190</b>	<b>190</b>	<b>210</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	65 J	45 J	79 J	87 J	63 J	75 J	68 J	84 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	0.84 U	6.9	18	6.6	2.9 J	2.2 J	2.1 J	0.77 J
Gasoline Range Organics	NE	NE	NE	0.083 U	0.066 U	0.065 U	0.081 U	0.065 U	0.065 U	0.07 U	0.066 U
Total TPH	25 <sup>(4)</sup>	NE	NE	0.923 U	6.9	18	6.6	2.9 J	2.2 J	2.1 J	0.77 J



TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	NAPR	74SB162	74SB163	74SB163	74SB164	74SB164	74SB165	74SB165	74SB166
Sample ID	Screening	Screening	Basewide	74SB162-05	74SB163-03	74SB163-04	74SB164-04	74SB164-05	74SB165-04	74SB165-05	74SB166-04
Date	Levels	Levels	Background <sup>(1)</sup>	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range (ft bgs)	Residential	Industrial		9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
	Soil	Soil									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	4 U	3.5 U	2.7 U	5.8 UJ	3.4 U	3.3 U	3 U	3.3 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.85 U	0.75 U	0.56 U	1 U	0.72 U	0.7 U	0.64 U	0.7 U
2-Hexanone	NE	NE	NE	3.1 UJ	2.7 UJ	2.1 UJ	3.7 U	2.7 U	2.6 U	2.3 U	2.6 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	22 J	11 J	9.2 J	39 J	11 J	16 J	17 J	13 J
Benzene	1,100	5,600	NE	1.2 U	1 U	0.78 U	1.4 U	1 U	0.97 U	0.88 U	0.97 U
Bromoform	6,100	22,000	NE	1.6 U	1.4 U	1.1 U	2 U	1.4 U	1.3 U	1.2 U	1.3 U
Carbon disulfide	67,000	300,000	NE	0.76 U	0.67 U	0.5 U	0.91 U	0.65 U	0.62 U	0.57 U	0.62 U
Ethylbenzene	5,700	29,000	NE	1.1 U	0.98 U	0.74 U	1.3 U	0.95 U	0.92 U	0.84 U	0.92 U
Iodomethane	NE	NE	NE	1.5 U	1.3 U	0.98 U	1.8 U	1.3 U	1.2 U	1.1 U	1.2 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	100 U	90 U	68 U	120 U	88 U	84 U	180 J	84 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	36 U	31 U	24 U	43 U	30 U	29 U	27 U	29 U
trans-1,2-Dichloroethene	NE	NE	NE	1.5 U	1.3 U	0.95 U	1.7 U	1.2 U	1.2 U	1.1 U	1.2 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB162	74SB163	74SB163	74SB164	74SB164	74SB165	74SB165	74SB166
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB162-05	74SB163-03	74SB163-04	74SB164-04	74SB164-05	74SB165-04	74SB165-05	74SB166-04
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
	<b>Soil</b>	<i>Soil</i>									
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.21 UJ	0.17 UJ	0.17 UJ	0.12 UJ	0.085 UJ	0.094 UJ	0.089 UJ	0.12 UJ
Arsenic	0.39	1.60	1.59	<b>1.1</b>	<b>2.4</b>	<b>2.9</b>	<b>1.2</b>	<b>0.78</b>	<b>0.52</b>	<b>1.3</b>	<b>0.84</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	140 J	96	91	170 J	63 J	66 J	140 J	100 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.37	0.48	0.49	0.5	0.4	0.22	0.33	0.26
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.13	0.14	0.16	0.045 J	0.035 U	0.038 J	0.079 J	0.056 J
Chromium	280	1,400	114.5	62 J	41	32	21 J	24 J	28 J	21 J	23 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>36</b> J	<b>25</b>	<b>23</b>	<b>31</b>	<b>24</b>	<b>33</b>	<b>34</b>	<b>31</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	81	230	210	130	57	83	59	92
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	1.4 J	3	2.7	2.7	1.7	2.1	3.3	2.3
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.005 U	0.004 U	0.0038 U	0.0055 U	0.0046 U	0.0048 J	0.004 U	0.0043 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	<b>31</b>	<b>26</b>	20	24	22	<b>28</b>	<b>29</b>	<b>27</b>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.15 U	0.51 J	0.53	0.26 J	0.14 U	0.12 U	0.14 U	0.16 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.037 J	0.081 J	0.11 J	0.054 J	0.069 J	0.33	0.042 J	0.035 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.15 U	0.12 U	0.12 U	0.16 U	0.14 U	0.12 U	0.14 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>160</b>	<b>240</b>	<b>180</b>	<b>240</b>	<b>190</b>	<b>200</b>	<b>160</b>	<b>270</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	<b>89</b> J	<b>92</b> J	<b>91</b> J	80	65	<b>92</b>	<b>99</b>	80
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	0.77 U	1.4 J	1.8 J	0.93 UJ	0.73 UJ	2.2 UJ	1.3 UJ	0.69 UJ
Gasoline Range Organics	NE	NE	NE	0.084 U	0.063 U	0.069 U	0.11 U	0.069 U	0.065 U	0.09 J	0.072 U
Total TPH	25 <sup>(4)</sup>	NE	NE	0.854 U	1.4 J	1.8 J	1.04 U	0.799 U	2.265 U	0.09 J	0.762 U

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB166	74SB166	74SB167	74SB167	74SB168	74SB168	74SB169	74SB169
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB166-04D	74SB166-05	74SB167-04	74SB167-05	74SB168-04	74SB168-05	74SB169-04	74SB169-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.1 U	3.9 U	3.3 UJ	2.9 U	3 U	2.8 U	3.9 UJ	3.5 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.66 U	0.82 U	0.65 U	0.62 U	0.64 U	0.58 U	0.67 U	0.73 U
2-Hexanone	NE	NE	NE	2.4 UJ	3 U	2.4 U	2.3 U	2.3 U	2.2 U	2.5 U	2.7 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	9.7 J	11 J	19 J	9.7 J	20 J	6.2 J	42 J	18 J
Benzene	1,100	5,600	NE	0.92 U	1.1 U	0.9 U	0.86 U	0.88 U	0.81 U	0.92 U	1 U
Bromoform	6,100	22,000	NE	1.3 U	1.6 U	1.3 U	1.2 U	1.2 U	1.1 U	1.3 U	1.4 U
Carbon disulfide	67,000	300,000	NE	0.59 U	0.73 U	0.58 U	0.55 U	0.57 U	0.52 U	0.6 U	0.66 U
Ethylbenzene	5,700	29,000	NE	0.87 U	1.1 U	0.85 U	0.81 U	0.84 U	0.77 U	0.88 U	0.96 U
Iodomethane	NE	NE	NE	1.2 U	1.4 U	1.1 U	1.1 U	1.1 U	1 U	1.2 U	1.3 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	80 U	99 U	79 U	75 U	77 U	71 U	81 U	89 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	28 U	34 U	27 U	26 U	27 U	25 U	28 U	31 U
trans-1,2-Dichloroethene	NE	NE	NE	1.1 U	1.4 U	1.1 U	1.1 U	1.1 U	0.99 U	1.1 U	1.2 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	NAPR	74SB166	74SB166	74SB167	74SB167	74SB168	74SB168	74SB169	74SB169
Sample ID	Screening	Screening	Basewide	74SB166-04D	74SB166-05	74SB167-04	74SB167-05	74SB168-04	74SB168-05	74SB169-04	74SB169-05
Date	Levels	Levels	Background <sup>(1)</sup>	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range (ft bgs)	Residential	Industrial		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	Soil	Soil									
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.1 UJ	0.1 UJ	0.083 UJ	0.088 UJ	0.11 UJ	0.12 UJ	0.094 UJ	0.088 UJ
Arsenic	0.39	1.60	1.59	<b>0.84</b>	<b>0.64 J</b>	<b>0.89</b>	<b>0.9</b>	<b>2.4</b>	<b>2</b>	<b>1.1</b>	<b>0.8</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	56 J	86 J	79 J	75 J	230 J	66 J	300 J	92 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.28	0.23	0.81	0.34	0.75	1.1	0.66	0.27
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.064 J	0.12 J	0.038 J	0.068 J	0.095 J	0.22	0.097 J	0.14
Chromium	280	1,400	114.5	18 J	29 J	25 J	36 J	45 J	20 J	40 J	40 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>29</b>	<b>26</b>	<b>39</b>	<b>22</b>	<b>21</b>	<b>11</b>	<b>36</b>	<b>30</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	120	78	90	130	96	88	55	85
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	2.4	1.2	4.9	1.9	78	47	13	6.1
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.0039 U	0.0054 U	0.004 U	0.0048 U	0.0048 U	0.0044 U	0.015 J	0.02 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	30	22	13	20	14	17	23	21
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.13 U	0.16 U	0.2 J	0.19 J	1.6	0.37 J	0.98	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.038 J	0.035 J	0.022 J	0.051 J	0.035 J	0.36	0.12 J	0.67
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.13 U	0.16 U	0.13 U	0.14 U	0.14 U	0.14 U	0.15 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>280</b>	<b>210</b>	<b>140</b>	<b>170</b>	<b>280</b>	<b>190</b>	<b>210</b>	<b>200</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	74	60	110	140	120	130	110	95
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	0.68 UJ	0.86 UJ	1.2 UJ	0.75 UJ	0.78 UJ	0.75 U	2.2 U	0.76 U
Gasoline Range Organics	NE	NE	NE	0.066 U	0.088 U	0.061 U	0.078 U	0.075 U	0.065 U	0.071 U	0.07 U
Total TPH	25 <sup>(4)</sup>	NE	NE	0.746 U	0.948 U	1.261 U	0.828 U	0.855 U	0.815 U	2.271 U	0.83 U

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	<u>NAPR</u>	74SB170	74SB170	74SB171	74SB171	74SB171	74SB172	74SB172	74SB173
Sample ID	Screening	Screening	<u>Basewide</u>	74SB170-04	74SB170-05	74SB171-04	74SB171-05	74SB171-05D	74SB172-04	74SB172-05	74SB173-04
Date	Levels	Levels	<u>Background</u> <sup>(1)</sup>	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range (ft bgs)	Residential	Industrial		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
	Soil	Soil									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.3 UJ	5.9 J	14 J	3.7 U	3.3 U	3.5 U	7.6 J	3.1 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.69 U	0.74 U	0.58 U	0.78 U	0.69 U	0.74 U	0.7 U	5 J
2-Hexanone	NE	NE	NE	2.5 UJ	3 J	2.2 UJ	2.9 U	2.5 U	2.7 U	2.6 UJ	2.4 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	27 UJ	40 UJ	180 J	46 UJ	72 UJ	62 UJ	140 J	39 UJ
Benzene	1,100	5,600	NE	0.95 U	1 U	0.81 U	1.1 U	0.96 U	1 U	0.97 U	0.91 U
Bromoform	6,100	22,000	NE	1.3 U	1.4 U	1.1 U	1.5 U	1.3 U	1.4 U	1.4 U	1.3 U
Carbon disulfide	67,000	300,000	NE	0.61 U	0.66 U	0.52 U	0.7 U	0.62 U	0.66 U	0.63 U	0.59 U
Ethylbenzene	5,700	29,000	NE	0.9 U	0.98 U	0.77 U	1 U	0.91 U	0.97 U	0.92 U	0.86 U
Iodomethane	NE	NE	NE	1.2 U	1.3 U	12	1.4 U	1.2 U	1.3 U	1.2 U	1.2 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	83 R	90 R	71 R	94 R	84 R	90 R	85 R	79 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	29 U	31 U	25 U	33 U	29 U	31 U	30 U	28 U
trans-1,2-Dichloroethene	NE	NE	NE	1.2 U	1.3 U	0.99 U	1.3 U	1.2 U	1.3 U	1.2 U	1.1 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	0.71 U	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	2.1 U	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	2.1 U	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	0.82 U	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	0.94 U	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	2.1 U	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	1.2 U	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	0.76 U	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	0.73 U	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	2.1 U	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	0.95 U	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	1.5 U	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	2.1 U	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	<u>NAPR</u>	74SB170	74SB170	74SB171	74SB171	74SB171	74SB172	74SB172	74SB173
Sample ID	Screening	Screening	<u>Basewide</u>	74SB170-04	74SB170-05	74SB171-04	74SB171-05	74SB171-05D	74SB172-04	74SB172-05	74SB173-04
Date	Levels	Levels	<u>Background</u> <sup>(1)</sup>	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range (ft bgs)	Residential	Industrial		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
	Soil	Soil									
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.15 UJ	0.084 UJ	0.12 UJ	0.13 UJ	0.11 UJ	0.12 UJ	0.094 UJ	0.1 UJ
Arsenic	0.39	1.60	1.59	<b>0.75</b>	<b>0.71</b>	<u>2.5</u>	<b>1.4</b>	<b>0.92</b>	<u>2.6</u>	<b>1.3</b>	<u>2.2</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	51	83	44	31	29	8.7	12	30
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.31	0.49	0.45	0.43	0.38	<u>0.73</u>	0.55	0.35
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.067 J	0.21	<u>1.6</u>	0.08 J	0.071 J	0.1 J	0.098 J	0.039 U
Chromium	280	1,400	114.5	29	28	33	53	51	81	63	44
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>19 J</b>	<b>21 J</b>	<u>33 J</u>	<b>8.3 J</b>	<b>12 J</b>	<b>9 J</b>	<b>4.4 J</b>	<b>5.2 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	39	31	110	160	170	190	140	68
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	<u>6.9 J</u>	1.7 J	<u>63 J</u>	<u>29 J</u>	<u>23 J</u>	<u>28 J</u>	<u>40 J</u>	<u>9.8 J</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.0042 R	0.0046 R	0.013 R	0.0052 R	0.011 R	0.0044 R	0.005 R	0.0052 R
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	20	23	16	12	14	17	12	9.9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.2 J	0.13 U	1.9	2	0.92	2.5	2.6	3.2
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.036 J	0.18 J	0.65	0.061 J	0.075 J	0.055 J	0.082 J	0.025 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.14 U	0.13 U	0.13 U	0.15 U	0.14 U	0.14 U	0.15 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>130</b>	<b>130</b>	<b>330</b>	<b>340</b>	<b>280</b>	<b>390</b>	<b>350</b>	<b>340</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	<u>110</u>	<u>100</u>	<u>140</u>	<u>120</u>	<u>130</u>	<u>110</u>	65	42
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	4.6	1.5 U	1.2 U	1.4 U	1.1 U	0.74 U	0.78 U	0.94 U
Gasoline Range Organics	NE	NE	NE	0.078 U	0.087 U	0.071 U	0.072 U	0.073 U	0.081 U	0.077 U	0.068 U
Total TPH	25 <sup>(4)</sup>	NE	NE	4.6	1.587 U	1.271 U	1.472 U	1.173 U	0.821 U	0.857 U	1.008 U

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB173	74SB174	74SB174	74SB175	74SB175	74SB176	74SB176	74SB176
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB173-05	74SB174-04	74SB174-05	74SB175-04	74SB175-05	74SB176-04	74SB176-05	74SB176-05D
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.2 U	3.5 U	140 UJ	3.8 UJ	3.3 UJ	2.9 UJ	3.8 UJ	3.5 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.67 U	0.75 U	30 UJ	0.8 U	0.7 U	0.61 U	0.8 U	0.74 U
2-Hexanone	NE	NE	NE	2.5 U	2.8 U	110 UJ	2.9 UJ	2.6 UJ	2.2 UJ	2.9 UJ	2.7 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	23 UJ	22 UJ	4000 J	40 UJ	38 J	16 UJ	24 UJ	19 UJ
Benzene	1,100	5,600	NE	0.92 U	1 U	42 UJ	1.1 U	0.97 U	0.85 U	1.1 U	1 U
Bromoform	6,100	22,000	NE	1.3 U	1.4 U	59 UJ	1.5 U	1.3 U	1.2 U	1.5 U	1.4 U
Carbon disulfide	67,000	300,000	NE	0.6 U	0.69 J	27 UJ	0.71 U	0.62 U	0.55 U	0.72 U	0.67 U
Ethylbenzene	5,700	29,000	NE	0.88 U	0.99 U	1600 J	1 U	0.92 U	0.8 U	1.1 U	0.98 U
Iodomethane	NE	NE	NE	1.2 U	1.3 U	53 UJ	1.4 U	1.2 U	1.1 U	1.4 U	1.3 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	81 R	91 R	3700 R	97 R	85 R	74 R	97 R	90 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	28 U	32 U	1300 UJ	34 U	29 U	26 U	34 U	31 U
trans-1,2-Dichloroethene	NE	NE	NE	1.1 U	1.3 U	52 UJ	1.4 U	1.2 U	1 U	1.4 U	1.3 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	240 R	810	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	4500	3000 R	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	<b>4800</b>	3900 R	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	<b>2300</b>	1800 R	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	<b>5100</b>	2700 R	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	1100 R	640	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	140 R	<b>1000 J</b>	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	4800	3000 R	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	82 R	<b>250</b>	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	14000	5700 R	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	1600	1300 R	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	1000 R	<b>740</b>	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	11000	4900 R	NA	NA	NA	NA	NA

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	<u>NAPR</u>	74SB173	74SB174	74SB174	74SB175	74SB175	74SB176	74SB176	74SB176
Sample ID	Screening	Screening	<u>Basewide</u>	74SB173-05	74SB174-04	74SB174-05	74SB175-04	74SB175-05	74SB176-04	74SB176-05	74SB176-05D
Date	Levels	Levels	<u>Background</u> <sup>(1)</sup>	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range (ft bgs)	Residential	Industrial		9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0
	Soil	Soil									
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.087 UJ	0.12 UJ	0.12 UJ	0.092 UJ	0.12 UJ	0.17 UJ	0.099 UJ	0.13 UJ
Arsenic	0.39	1.60	1.59	<b>0.64</b>	<b>1.5</b>	<b>1.4</b>	<b>0.73</b>	<b>0.76</b>	<b>1.1</b>	<b>0.61</b>	<b>0.72</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	4	34	84	89	130	80	110	94
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.27	0.28	0.21	0.27	0.5	0.14	0.14	0.12
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.044 J	0.042 U	0.13 J	0.063 J	0.24	0.22	0.42	0.29
Chromium	280	1,400	114.5	95	22	17	9.8	5.8	10	8.7	9.6
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>12 J</b>	<b>4.2 J</b>	<b>14 J</b>	<b>12 J</b>	<b>29 J</b>	<b>28 J</b>	<b>24 J</b>	<b>22 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	99	75	110	72	82	130	140	160
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	3.7 J	<u>12 J</u>	<u>27 J</u>	<u>29 J</u>	<u>96 J</u>	2.1 J	1.7 J	1.7 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.005 R	0.0049 R	0.006 R	0.0046 R	0.004 R	0.0043 R	0.0043 R	0.0042 R
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	<u>28</u>	8.6	14	6.9	8.3	9.8	9.1	9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.14 U	1.4	0.17 J	0.15 U	0.14 U	0.13 U	0.13 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.11 J	0.033 J	0.14 J	0.16 J	0.14 J	0.064 J	0.098 J	0.084 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.14 U	0.16 U	0.16 U	0.15 U	0.14 U	0.13 U	0.13 U	0.13 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>160</b>	<b>310</b>	<b>240</b>	<b>180</b>	<b>170</b>	<b>280</b>	<b>200</b>	<b>210</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	<u>110</u>	49	<u>120</u>	87	<u>150</u>	<u>110</u>	88	<u>91</u>
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	2.5 U	1.1 U	140	1.1 U	1.1 U	1.1 U	2.2 U	2.3 U
Gasoline Range Organics	NE	NE	NE	0.074 U	9.8 J	1800	0.082 U	0.073 U	0.072 U	0.085 J	0.07 U
Total TPH	25 <sup>(4)</sup>	NE	NE	2.574 U	9.8 J	<b>1940</b>	1.182 U	1.173 U	1.172 U	0.085 J	2.37 U



TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB177	74SB177	74SB178	74SB178	74SB179	74SB179	74SB180	74SB180
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB177-04	74SB177-05	74SB178-04	74SB178-05	74SB179-04	74SB179-05	74SB180-04	74SB180-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/17/2008	5/17/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.9 UJ	3.2 UJ	2.9 U	3 U	2.8 U	2.8 U	4.1 UJ	3.8 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.81 U	0.68 U	0.61 UJ	0.63 UJ	0.6 UJ	0.6 UJ	0.87 U	0.81 U
2-Hexanone	NE	NE	NE	3 UJ	2.5 UJ	2.3 U	2.3 U	2.2 U	2.2 U	3.2 UJ	3 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	19 UJ	12 UJ	14 J	10 J	6.9 J	8 J	14 J	11 J
Benzene	1,100	5,600	NE	1.1 U	0.94 U	0.85 U	0.88 U	0.83 U	0.83 U	1.2 U	1.1 U
Bromoform	6,100	22,000	NE	1.6 U	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.7 U	1.6 U
Carbon disulfide	67,000	300,000	NE	0.73 U	0.61 U	0.55 U	0.57 U	0.54 U	0.54 U	0.77 U	0.72 U
Ethylbenzene	5,700	29,000	NE	1.1 U	0.89 U	0.81 U	0.84 U	0.79 U	0.79 U	1.1 U	1.1 U
Iodomethane	NE	NE	NE	1.4 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.5 UJ	1.4 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	99 R	82 R	74 U	77 U	73 U	73 U	100 R	98 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	34 U	28 U	26 U	27 U	25 U	25 U	36 U	34 U
trans-1,2-Dichloroethene	NE	NE	NE	1.4 U	1.2 U	1 U	1.1 U	1 U	1 U	1.5 U	1.4 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	<u>NAPR</u>	74SB177	74SB177	74SB178	74SB178	74SB179	74SB179	74SB180	74SB180
Sample ID	Screening	Screening	<u>Basewide</u>	74SB177-04	74SB177-05	74SB178-04	74SB178-05	74SB179-04	74SB179-05	74SB180-04	74SB180-05
Date	Levels	Levels	<u>Background</u> <sup>(1)</sup>	5/17/2008	5/17/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	Residential	Industrial		7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
	Soil	Soil									
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.11 UJ	0.091 UJ	0.094 UJ	0.19 UJ	0.077 UJ	0.077 UJ	0.078 UJ	0.075 UJ
Arsenic	0.39	1.60	1.59	<b>0.72</b>	<b>0.88</b>	<b>0.65</b>	<b>1.4</b>	<b>1.2</b>	<b>1</b>	<b>1.2</b>	<b>1.3</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	49	73	90 J	46 J	67 J	50 J	140 J	70 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.16	0.16	0.18	0.32	0.43	0.22	0.26	0.22
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.3	<u>0.72</u>	0.09 J	0.1 J	0.063 J	0.069 J	0.18	0.11
Chromium	280	1,400	114.5	23	23	50	36	11	9.2	43	30
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>28</b> J	<b>33</b> J	<b>38</b> J	<b>30</b> J	<b>27</b> J	<b>27</b> J	<b>41</b> J	<b>51</b> J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	68	30	160 J	66 J	110 J	84 J	150 J	<b>580</b> J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	<u>6.4</u> J	<u>120</u> J	0.91 J	0.99 J	1.6 J	1 J	0.85 J	1.5 J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.004 R	0.004 R	0.0043 U	0.0047 U	0.004 U	0.0037 U	0.0042 U	0.004 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	18	19	<u>32</u>	<u>28</u>	13	13	19	13
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.12 U	0.13 U	0.13 U	0.14 U	0.12 U	0.12 U	0.12 U	0.12 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.044 J	0.017 U	0.027 J	0.044 J	0.058 J	0.077 J	0.048 J	0.046 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.12 U	0.13 U	0.13 U	0.14 U	0.12 U	0.12 U	0.12 U	0.12 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>260</b>	<b>180</b>	<b>260</b>	<b>240</b>	<b>220</b>	<b>200</b>	<b>290</b>	<b>260</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	<u>100</u>	<u>410</u>	<u>180</u>	85	70	74	75	51
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	1.1 U	0.77 U	4.8	4.4	3.5 U	3.1 U	3 U	4.3
Gasoline Range Organics	NE	NE	NE	0.076 U	0.067 U	0.0072 U	0.0074 U	0.0066 U	0.0062 U	0.0073 U	0.0071 U
Total TPH	25 <sup>(4)</sup>	NE	NE	1.176 U	0.837 U	4.8	4.4	3.5066 U	3.1062 U	3.0073 U	4.3

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	NAPR	74SB181	74SB181	74SB181	74SB182	74SB182	74SB183	74SB183	74SB184
Sample ID	Screening	Screening	Basewide	74SB181-04	74SB181-05	74SB181-05D	74SB182-04	74SB182-05	74SB183-04	74SB183-05	74SB184-04
Date	Levels	Levels	Background <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	Residential	Industrial		7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
	Soil	Soil									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	2.4 UJ	3.8 UJ	3.4 UJ	3.1 UJ	3.7 UJ	3.4 UJ	3.2 UJ	2.9 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.5 U	0.8 U	0.71 U	0.66 U	0.78 U	0.72 U	0.67 U	0.62 UJ
2-Hexanone	NE	NE	NE	1.8 UJ	3 UJ	2.6 UJ	2.4 UJ	2.9 UJ	2.6 UJ	2.5 UJ	2.3 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	18 J	18 J	16 J	8.2 J	11 J	7.4 J	5.1 U	10 J
Benzene	1,100	5,600	NE	0.69 U	1.1 U	0.99 U	0.91 U	1.1 U	1 U	0.92 U	0.86 U
Bromoform	6,100	22,000	NE	0.96 U	1.5 U	1.4 U	1.3 U	1.5 U	1.4 U	1.3 U	1.2 U
Carbon disulfide	67,000	300,000	NE	0.44 U	0.72 U	0.64 U	0.59 U	0.7 U	0.64 U	0.6 U	0.55 U
Ethylbenzene	5,700	29,000	NE	0.65 U	1.1 U	0.94 U	0.87 U	1 U	0.95 U	0.88 U	0.81 U
Iodomethane	NE	NE	NE	0.87 UJ	1.4 UJ	1.3 UJ	1.2 U	1.4 UJ	1.3 U	1.2 U	1.1 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	60 R	97 R	86 R	80 R	94 R	87 R	81 R	75 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	21 U	34 U	30 U	28 U	33 U	30 U	28 U	26 U
trans-1,2-Dichloroethene	NE	NE	NE	0.85 U	1.4 U	1.2 U	1.1 U	1.3 U	1.2 U	1.1 U	1.1 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	NAPR	74SB181	74SB181	74SB181	74SB182	74SB182	74SB183	74SB183	74SB184
Sample ID	Screening	Screening	Basewide	74SB181-04	74SB181-05	74SB181-05D	74SB182-04	74SB182-05	74SB183-04	74SB183-05	74SB184-04
Date	Levels	Levels	Background <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	Residential	Industrial		7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
	Soil	Soil									
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.075 UJ	0.083 UJ	0.081 UJ	0.087 UJ	0.087 UJ	0.087 UJ	0.087 UJ	0.21 UJ
Arsenic	0.39	1.60	1.59	<b>1</b>	<b>0.97</b>	<b>0.92</b>	<b>1.2</b>	<b>1.1</b>	<b>1.5</b>	<b>1.5</b>	<b>4.7</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	63	89 J	130 J	95	140	200	110	22 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.14	0.24	0.24	0.23	0.23	<u>0.64</u>	0.25	0.38
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.09 J	0.067 J	0.073 J	0.04 J	0.043 J	0.29	0.32	0.11 J
Chromium	280	1,400	114.5	21	59	61	86	55	22	26	7.3
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>29</b>	<b>52</b>	<b>53</b>	<b>33</b>	<b>32</b>	<b>78</b>	<b>39</b>	<b>14 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	91	14	15	130	180	87	110	230 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	1	1.3	1.6	<u>31</u>	2	0.73	0.63	<u>20 J</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.004 U	0.0042 U	0.0044 U	0.0045 U	0.0047 U	0.0046 U	0.0048 U	0.0047 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	24	<u>39</u>	<u>49</u>	<u>41</u>	<u>30</u>	<u>36</u>	<u>41</u>	12
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.12 U	0.13 U	0.13 U	0.14 U	0.14 U	0.14 U	0.14 U	0.23 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.074 J	0.056 J	0.054 J	0.047 J	0.059 J	0.083 J	0.092 J	0.063 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.12 U	0.13 U	0.13 U	0.14 U	0.14 U	0.14 U	0.14 U	0.19 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>260</b>	<b>190</b>	<b>190</b>	<b>280</b>	<b>230</b>	<b>220</b>	<b>240</b>	<b>320</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	66 J	<u>93 J</u>	<u>90 J</u>	74 J	86 J	69 J	74 J	<u>92</u>
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	1.1 UJ	0.91 UJ	0.88 UJ	0.71 UJ	0.94 UJ	1.2 UJ	0.76 UJ	1.4 U
Gasoline Range Organics	NE	NE	NE	0.0064 U	0.0094 U	0.0082 U	0.0071 U	0.0077 U	0.0076 U	0.0091 U	0.0078 U
Total TPH	25 <sup>(4)</sup>	NE	NE	1.1064	0.9194 U	0.8882 U	0.7171 U	0.9477 U	1.2076 U	0.7691 U	1.4078 U

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB184	74SB188	74SB188	74SB189	74SB189	74SB190	74SB190	74SB191
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB184-05	74SB188-03	74SB188-04	74SB189-03	74SB189-05	74SB190-03	74SB190-05	74SB191-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0
	<b>Soil</b>	<i>Soil</i>									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.2 U	14 U	3.2 U	3 U	3.4 U	29 U	2.9 U	7.8 U
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.67 UJ	0.57 UJ	0.62 UJ	0.64 UJ	0.72 UJ	0.81 UJ	0.6 UJ	0.61 UJ
2-Hexanone	NE	NE	NE	2.5 U	2.1 U	2.3 U	2.3 U	2.6 U	3 U	2.2 U	2.2 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	11 J	150	24 J	23 J	9.1 J	330	19 J	98
Benzene	1,100	5,600	NE	0.93 U	0.79 U	0.85 U	0.88 U	1 U	1.1 U	0.83 U	0.84 U
Bromoform	6,100	22,000	NE	1.3 U	2.1 J	1.2 U	1.2 U	1.4 U	1.6 U	1.2 U	1.2 U
Carbon disulfide	67,000	300,000	NE	0.6 U	0.51 U	0.55 U	0.57 U	0.64 U	0.76 J	0.55 J	0.54 U
Ethylbenzene	5,700	29,000	NE	0.88 U	0.75 U	0.81 U	0.84 U	0.95 U	1.1 U	0.79 U	0.8 U
Iodomethane	NE	NE	NE	1.2 U	5.7	1.1 U	1.1 U	1.3 U	11	1.1 U	8.7
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	81 U	69 U	74 U	77 U	87 U	98 U	73 U	74 U
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	28 U	24 U	26 U	27 U	30 U	34 U	25 U	26 U
trans-1,2-Dichloroethene	NE	NE	NE	1.1 U	0.97 U	1 U	1.1 U	1.2 U	1.4 U	1 U	1 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB184	74SB188	74SB188	74SB189	74SB189	74SB190	74SB190	74SB191
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB184-05	74SB188-03	74SB188-04	74SB189-03	74SB189-05	74SB190-03	74SB190-05	74SB191-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.18 UJ	0.18 UJ	0.092 UJ	0.083 UJ	0.1 UJ	0.28 UJ	0.088 UJ	0.16 UJ
Arsenic	0.39	1.60	1.59	<u>1.7</u>	<u>5.5</u>	<u>2.2</u>	<u>1.6</u>	<b>0.56 J</b>	<u>6.3</u>	<u>2.7</u>	<u>3</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	87 J	<u>1500</u> J	69 J	11 J	39 J	210 J	77 J	280 R
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	<u>0.64</u>	<u>0.81</u>	0.29	0.13	0.16	<u>0.78</u>	0.26	0.39
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.082 J	<u>1.1</u>	0.038 U	0.034 U	0.042 U	<u>0.73</u>	0.036 U	0.11 J
Chromium	280	1,400	114.5	14	31	21	18	6.1	44	15	23
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<u>42</u> J	<u>320</u> J	<b>5.8 J</b>	<b>2.6 J</b>	<b>5.6 J</b>	<u>160</u> J	<b>5.4 J</b>	<u>28</u> J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	120 J	43 J	51 J	32 J	130 J	59 J	95 J	34 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	2.5 J	<u>97</u> J	<u>19</u> J	<u>7.8</u> J	<u>7.8</u> J	<u>99</u> J	<u>15</u> J	<u>23</u> J
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.005 U	0.061	<u>0.28</u>	<u>0.12</u>	0.02 J	0.064	0.066	0.09
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	18	<u>46</u>	6.2	4.7	6.5	23	4.6	8
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.15 U	3.2	2	1.7	0.32 J	4.4	1	2.1
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.04 J	0.075 J	0.02 U	0.082 J	0.022 U	0.12 J	0.043 J	0.055 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.15 U	0.35 J	0.15 U	0.13 U	0.16 U	0.19 J	0.14 U	0.14 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>180</b>	<b>430</b>	<b>250</b>	<b>220</b>	<b>180</b>	<u>510</u>	<b>330</b>	<b>290</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	84	<u>100</u>	34	19	47	83	30	44
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	0.93 U	1.2 U	2.3 U	2.1 U	5.3	13	4.3 U	21 J
Gasoline Range Organics	NE	NE	NE	0.0081 U	0.0079 U	0.023 J	0.0088 U	0.0075 U	0.057 J	0.007 U	0.0054 U
Total TPH	25 <sup>(4)</sup>	NE	NE	0.9381 U	1.2079 U	0.023 J	2.1088 U	5.3	13 J	4.307 U	21 J

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	<u>NAPR</u>	74SB191	74SB191	74SB192	74SB192	74SB193	74SB193	74SB194	74SB194
Sample ID	Screening	Screening	<u>Basewide</u>	74SB191-03D	74SB191-05	74SB192-03	74SB192-05	74SB193-03	74SB193-05	74SB194-03	74SB194-05
Date	Levels	Levels	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	Residential	Industrial		5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0
	Soil	Soil									
<b>Volatile Organic Compounds (ug/kg)</b>											
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	8.5 U	3 U	3.2 U	3.3 U	2.9 UJ	3.7 UJ	3.7 UJ	3.7 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.55 UJ	0.63 UJ	0.67 UJ	0.69 UJ	0.61 U	0.79 U	0.61 U	0.78 U
2-Hexanone	NE	NE	NE	2 U	2.3 U	2.5 U	2.5 U	2.2 UJ	2.9 UJ	2.2 UJ	2.9 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	90	14 J	27 J	14 J	18 UJ	12 UJ	55 U	22 UJ
Benzene	1,100	5,600	NE	0.76 U	0.87 U	0.92 U	0.96 U	0.84 U	1.1 U	0.84 U	1.1 U
Bromoform	6,100	22,000	NE	1.1 U	1.2 U	1.3 U	1.3 U	1.2 U	1.5 U	1.2 U	1.5 U
Carbon disulfide	67,000	300,000	NE	0.49 U	0.56 U	0.6 U	0.62 U	0.54 U	0.71 U	0.54 U	0.87 J
Ethylbenzene	5,700	29,000	NE	0.73 U	0.83 U	0.88 U	0.91 U	0.8 U	1 U	0.8 U	1 U
Iodomethane	NE	NE	NE	8	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U	1.1 U	1.4 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	67 U	76 U	81 U	84 U	74 R	95 R	74 R	95 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	23 U	26 U	28 U	29 U	26 U	110 J	26 U	33 U
trans-1,2-Dichloroethene	NE	NE	NE	0.94 U	1.1 U	1.1 U	1.2 U	1 U	1.3 U	1 U	1.3 U
<b>LLAHs (ug/kg)</b>											
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

## SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL

## SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

## PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

## NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	<u>NAPR</u>	74SB191	74SB191	74SB192	74SB192	74SB193	74SB193	74SB194	74SB194
Sample ID	Screening	Screening	<u>Basewide</u>	74SB191-03D	74SB191-05	74SB192-03	74SB192-05	74SB193-03	74SB193-05	74SB194-03	74SB194-05
Date	Levels	Levels	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	Residential	Industrial		5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0
	Soil	Soil									
<b>Metals (mg/kg)</b>											
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.13 UJ	0.11 UJ	0.091 UJ	0.095 UJ	0.095 UJ	0.087 UJ	0.085 UJ	0.12 J
Arsenic	0.39	1.60	1.59	<u>2.5</u>	<u>2.9</u>	<u>2.2</u>	<b>0.69</b>	<u>2.8</u>	<u>1.7</u>	<u>1.9</u>	<u>3.4</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	34 R	15 J	11 J	5.5 J	33	7.6	49	6.9
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.41	0.17	0.099 J	0.056 J	0.12 J	0.11 J	0.13	0.46
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.097 J	0.08 J	0.038 U	0.039 U	0.039 U	0.036 U	0.035 U	0.051 J
Chromium	280	1,400	114.5	20	26	36	14	46	32	25	26
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>19 J</b>	<b>8.4 J</b>	2.3 J	0.9 J	<b>2.4</b>	1.1	1.4	<b>4.2</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	34 J	27 J	33 J	21 J	34	59	56	130
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	<u>14 J</u>	<u>14 J</u>	6.3 J	2.5 J	<u>8.4</u>	<u>8.1</u>	<u>8.8</u>	<u>16</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.024	0.088	0.071	0.0055 U	0.02 J	0.0044 U	0.07	0.0047 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	8.3	4.4	6.1	2.7	6.1	3	4.5	6.2
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	1.2	1.8	3.4	0.56 J	5.3	1.4	1.4	1.4
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.075 J	0.07 J	0.23 J	0.026 J	0.17 U	0.019 U	0.15 U	0.039 U
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.13 U	0.14 U	0.18 J	0.15 U	0.15 U	0.14 U	0.14 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>280</b>	<b>310</b>	<b>220</b>	<b>82</b>	<b>240 J</b>	<b>210 J</b>	<b>210 J</b>	<b>590 J</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	57	19	18	7.2	20 J	9.8 J	18 J	38 J
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics	NE	NE	NE	4 J	5.3	5.6	5	3.6 U	2 U	3 U	2.7 U
Gasoline Range Organics	NE	NE	NE	0.0059 U	0.0073 U	0.0073 U	0.0078 U	0.007 U	0.0068 U	0.0076 U	0.0064 U
Total TPH	25 <sup>(4)</sup>	NE	NE	4 J	5.3	5.6	5	3.607 U	2.0068 U	3.0076 U	2.7064 U



TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB195	74SB195	74SB196	74SB196	74SB196	74SB197	74SB197
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB195-03	74SB195-05	74SB196-03	74SB196-03D	74SB196-05	74SB197-03	74SB197-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0
	<b>Soil</b>	<i>Soil</i>								
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	7.6 UJ	5.3 UJ	3.3 UJ	3.2 UJ	9.2 UJ	4.9 UJ	4 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.69 U	0.91 U	0.7 U	0.67 U	0.7 U	0.64 U	0.79 U
2-Hexanone	NE	NE	NE	2.5 UJ	3.3 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.4 UJ	2.9 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	77 UJ	70 UJ	33 UJ	32 UJ	26 UJ	22 U	34 U
Benzene	1,100	5,600	NE	1.1 J	1.3 U	0.97 U	0.94 U	0.97 U	0.89 U	1.1 U
Bromoform	6,100	22,000	NE	1.3 U	1.8 U	1.3 U	1.3 U	1.4 U	1.2 U	1.5 U
Carbon disulfide	67,000	300,000	NE	0.62 U	2.9 J	0.62 U	0.6 U	0.63 U	0.57 U	13
Ethylbenzene	5,700	29,000	NE	0.91 U	1.2 U	0.92 U	0.89 U	0.92 U	0.84 U	1 U
Iodomethane	NE	NE	NE	1.2 U	1.6 U	1.2 U	1.4 J	1.2 U	1.1 U	1.4 U
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	84 R	110 R	84 R	82 R	85 R	77 R	95 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	29 U	38 U	29 U	28 U	30 U	27 U	33 U
trans-1,2-Dichloroethene	NE	NE	NE	1.2 U	1.5 U	1.2 U	1.1 U	1.2 U	1.1 U	1.3 U
<b>LLAHs (ug/kg)</b>										
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB195	74SB195	74SB196	74SB196	74SB196	74SB197	74SB197
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB195-03	74SB195-05	74SB196-03	74SB196-03D	74SB196-05	74SB197-03	74SB197-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.13 J	0.12 J	0.091 UJ	0.093 UJ	0.098 UJ	0.095 U	0.092 U
Arsenic	0.39	1.60	1.59	<u>2.7</u>	<u>2</u>	<u>1.6</u>	<u>2.2</u>	<b>0.74</b>	<u>1.7</u>	<b>0.91</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	220	55	57	57	18	18	37
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.3	0.39	0.33	0.38	0.42	0.21	0.22
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.16	0.24	0.066 J	0.099 J	0.04 U	0.074 J	0.05 J
Chromium	280	1,400	114.5	<u>140</u>	92	37	38	25	41	17
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>20</b>	<b>18</b>	<b>8.9</b>	<b>8.5</b>	<b>14</b>	<b>3.5</b>	<b>10</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	110	130	92	93	86	56	86
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	<u>12</u>	<u>17</u>	<u>7.1</u>	<u>12</u>	3.9	<u>17</u>	<u>11</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.01 J	0.022 J	0.005 U	0.0056 J	0.0051 U	0.0051 U	0.0048 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	16	14	11	11	14	6.6	11
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.92	0.69 J	1	1.6	0.16 U	1.7	0.25 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.058 U	0.08 U	0.036 U	0.039 U	0.11 U	0.074 J	0.059 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.16 U	0.17 U	0.15 U	0.15 U	0.16 U	0.15 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>290 J</b>	<b>300 J</b>	<b>260 J</b>	<b>320 J</b>	<b>100 J</b>	<b>300</b>	<b>160</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	58 J	73 J	46 J	48 J	60 J	36	70
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	3.4	1.5 U	1.5 U	1.6 U	2.4 U	1.3 U	1.4 U
Gasoline Range Organics	NE	NE	NE	0.0091 U	0.0096 U	0.0075 U	0.0078 U	0.0095 U	0.062 U	0.078 U
Total TPH	25 <sup>(4)</sup>	NE	NE	3.4	1.5096 U	1.5075 U	1.6078 U	2.4095 U	1.362 U	1.478 U

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74VP6Aa	74VP6Aa	74VP6Ba	74VP6Ba	74VP6Cb	74VP6Cb
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74VP6Aa-04	74VP6Aa-07	74VP6Ba-03	74VP6Ba-04	74VP6Cb-04	74VP6Cb-07
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/17/2008	5/18/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		7.0-9.0	13.0-15.0	5.0-7.0	7.0-9.0	7.0-9.0	13.0-15.0
	<b>Soil</b>	<i>Soil</i>							
<b>Volatile Organic Compounds (ug/kg)</b>									
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.5 UJ	3.3 UJ	3.1 UJ	3.9 UJ	2.8 UJ	150 UJ
2-Chloro-1,3-butadiene	860 <sup>(2)</sup>	3,600 <sup>(2)</sup>	NE	0.74 U	0.69 U	0.65 U	0.82 U	0.59 U	31 U
2-Hexanone	NE	NE	NE	2.7 UJ	2.5 UJ	2.4 UJ	3 UJ	2.2 UJ	110 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	15 J	12 J	22 J	43 J	20 J	2500 J
Benzene	1,100	5,600	NE	1 U	0.95 U	0.9 U	1.1 U	0.81 U	43 U
Bromoform	6,100	22,000	NE	1.4 U	1.3 U	1.3 U	1.6 U	1.1 U	60 U
Carbon disulfide	67,000	300,000	NE	0.66 U	0.61 U	0.58 U	0.73 U	0.53 U	28 U
Ethylbenzene	5,700	29,000	NE	0.97 U	0.9 U	0.85 U	1.1 U	0.77 U	49 J
Iodomethane	NE	NE	NE	1.3 U	1.2 U	1.1 U	2.9 J	1 U	54 UJ
Isobutyl alcohol	2,300,000 <sup>(2)</sup>	31,000,000 <sup>(2)</sup>	NE	90 U	83 R	79 U	99 U	71 U	3800 R
Methacrylonitrile	320 <sup>(2)</sup>	1,800 <sup>(2)</sup>	NE	31 U	29 U	27 U	35 U	25 U	1300 U
trans-1,2-Dichloroethene	NE	NE	NE	1.3 U	1.2 U	1.1 U	1.4 U	1 U	53 U
<b>LLAHs (ug/kg)</b>									
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA
Anthracene	1,700,000 <sup>(2)</sup>	170,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	15	210	NE	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	15	210	NE	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA

TABLE 8-2

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74VP6Aa	74VP6Aa	74VP6Ba	74VP6Ba	74VP6Cb	74VP6Cb
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74VP6Aa-04	74VP6Aa-07	74VP6Ba-03	74VP6Ba-04	74VP6Cb-04	74VP6Cb-07
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/17/2008	5/18/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range (ft bgs)	<b>Residential</b>	<i>Industrial</i>		7.0-9.0	13.0-15.0	5.0-7.0	7.0-9.0	7.0-9.0	13.0-15.0
	<b>Soil</b>	<i>Soil</i>							
<b>Metals (mg/kg)</b>									
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	NE	0.091 U	0.096 J	0.096 U	0.11 U	0.099 J	0.094 U
Arsenic	0.39	1.60	1.59	<b>0.95</b>	<b>1.3</b>	<b>1.8</b>	<b>1.6</b>	<b>3.2</b>	<b>1.2</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	220	75	61	130	61	<u>270</u>	57
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.596	0.18	0.2	0.37	<u>0.71</u>	0.33	0.32
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.54	0.14	0.16	0.063 J	0.11 J	0.045 J	0.2
Chromium	280	1,400	114.5	100	9.2	41	58	19	28
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	26.9	<b>48 J</b>	<b>31 J</b>	<b>8.4 J</b>	<b>41 J</b>	<b>29 J</b>	<b>34 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	246	82	59	84	120	82	66
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.3	1.9	1.8	<u>17</u>	3.4	<u>11</u>	3.6
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.108	0.0051 U	0.0041 U	0.038	0.01 J	<u>0.13</u>	0.047
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	24.7	<u>33</u>	8.7	14	<u>31</u>	17	<u>36</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	5.94	0.15 U	0.14 U	1.5	0.18 J	1.6	0.15 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.047 J	0.035 J	0.19 J	0.1 J	0.056 J	0.055 J
Thallium	0.51 <sup>(2)</sup>	6.6 <sup>(2)</sup>	0.92	0.15 U	0.14 U	0.15 U	0.17 U	0.14 U	0.15 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	434.00	<b>200</b>	<b>270</b>	<b>240</b>	<b>240</b>	<b>110</b>	<b>130</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	88.00	<u>110 J</u>	77 J	78 J	<u>160 J</u>	<u>92 J</u>	81 J
<b>TPH DRO and GRO (mg/kg)</b>									
Diesel Range Organics	NE	NE	NE	1.7 U	0.77 U	1.2 U	1.8 U	1.4 U	0.99 U
Gasoline Range Organics	NE	NE	NE	0.074 U	0.069 U	0.072 U	0.08 U	0.13 J	480 J
Total TPH	25 <sup>(4)</sup>	NE	NE	1.774 U	0.839 U	1.272 U	1.88 U	0.13 J	<b>480 J</b>

**TABLE 8-2**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

UJ - Reported quantitation limit is qualified as estimated

R - Data is rejected and not usable

NE - Not Established

NA - Not Analyzed

ft bgs - feet below ground surface

mg/kg - milligram per kilogram

ug/kg - microgram per kilogram

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

- <sup>(1)</sup> NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) for Subsurface Soil Background Clay Table 3-4 (Baker, 2008)
- <sup>(2)</sup> Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- <sup>(3)</sup> USEPA Action Level for lead in soils
- <sup>(4)</sup> Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07

**TABLE 8-2**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

Baker Environmental, Inc, (2008). Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico. February 29, 2008.

Efroymson, R.A., M.E. Will, and G.W. Suter II. 1997a. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revisions. Oak Ridge National Laboratory, Oak Ridge, TN. ES/ER/TM-126/R2.

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TABLE 8-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	Regional Tap Water Screening Levels	USEPA MCLs	Selected Ecological Surface Water Screening Values	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	18GW01 74GWVP06 5/18/2008	74VP6Ca 74GWVP6Ca 5/21/2008	74VP6Cb 74GWVP6Cb 5/21/2008	74VP6Ba 74GWVP6Ba 5/21/2008	13GW11 74GWVP6Bb 5/30/2008	74SB145 74GW145 5/21/2008
<b>Volatile Organic Compounds (ug/L)</b>										
2-Butanone (MEK)	710 <sup>(2)</sup>	NE	13,333 <sup>(11)</sup>	NE	0.6 U	64	27	1.1 U	1.2 U	0.6 U
4-Methyl-2-pentanone (MIBK)	200 <sup>(2)</sup>	NE	170 <sup>(10)</sup>	NE	0.6 U	24	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	2,200 <sup>(2)</sup>	NE	1,000 <sup>(9)</sup>	NE	5 U	250	61	16 J	5 U	11 J
Benzene	0.41	5.0	109 <sup>(6)</sup>	NE	0.32 U	<b>1.1</b>	0.32 U	0.32 U	0.32 U	0.32 U
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(10)</sup>	NE	0.17 U	<b>52</b>	2.1	1.5 UJ	0.17 U	1.2 J
Chloromethane	1.8	NE	2700 <sup>(4)</sup>	NE	0.28 U	0.28 U	0.28 U	0.28 UJ	0.28 UJ	0.49 J
Ethylbenzene	1.5	700	4.3 <sup>(6)</sup>	NE	0.3 U	0.5 J	0.3 U	0.3 U	0.3 U	0.3 U
Vinyl chloride	0.02	2.0	930 <sup>(10)</sup>	NE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	<b>0.2 J</b>
<b>LLPAHs (ug/L)</b>										
<i>None Detected</i>										
<b>Total Metals (ug/L)</b>										
Arsenic	0.045	10	36.0 <sup>(12)</sup>	18.89	<b>0.94 J</b>	<b>1.8 J</b>	<b>1 J</b>	1.9 U	2 U	1.1 U
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(11)</sup>	686	8.6	32	20	35	4.6 J	20
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.12 U	0.12 U	0.12 U	0.12 U	<b>6.8</b>	0.16 J
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(3)</sup>	162.41	21	18	10	14 J	1 J	5.3
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(5)</sup>	633.21	<b>1.6</b>	<b>2.6</b>	1 R	<b>4.7</b>	<b>2.1</b>	0.31 U
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	1.2 U	<b>19</b>	<b>9</b>	<b>7.1</b>	5 U	<b>5.6</b>
Lead	NE	15 <sup>(7)</sup>	8.52 <sup>(3)</sup>	26.25	0.15 U	<b>21</b>	7.3	1.4 U	0.4 U	0.41 U
Mercury	1.1 <sup>(2)</sup>	NE	1.11 <sup>(3)</sup>	0.15	<u>0.27</u>	0.08 U	0.08 U	0.08 U	<u>0.97</u>	0.08 U
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	7.3	7.4	4.5	3.6	3.1	1.6
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	0.6 U	0.77 J	0.6 U	0.6 U	0.6 U	1.3 J
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(6)</sup>	18.31	0.09 UJ	0.09 U	0.09 U	0.09 U	<b>9.7</b>	0.09 UJ
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(10)</sup>	9.35	0.9 U	7.6	4.9 J	1.6 J	0.9 U	2 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(10)</sup>	484.66	<b>16</b>	<b>19</b>	6.2	8.2	<b>26</b>	<b>18</b>
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	19 J	54	33	<b>140 J</b>	9.2 J	26 J

TABLE 8-3

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected Ecological	NAPR	18GW01	74VP6Ca	74VP6Cb	74VP6Ba	13GW11	74SB145
Sample ID	Tap Water	MCLs	Surface Water	Basewide	74GWVP06	74GWVP6Ca	74GWVP6Cb	74GWVP6Ba	74GWVP6Bb	74GW145
Date	Screening Levels		Screening Values	Background <sup>(1)</sup>	5/18/2008	5/21/2008	5/21/2008	5/21/2008	5/30/2008	5/21/2008
<b>Dissolved Metals (ug/L)</b>										
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(11)</sup>	260	7.5	23 R	16 R	25	2.6 J	21
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	0.12 U	0.19 J	0.12 U	0.16 J	<b>6.8</b>	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(8)</sup>	6.5	0.6 U	3.1 U	1.5 U	1.3 J	0.74 J	1.1 J
Cobalt	1.1	NE	45 <sup>(5)</sup>	580.5	<b>1.8</b>	<b>2.3</b>	1.6 R	<b>5</b>	<b>1.5</b>	0.61
Lead	NE	15 <sup>(7)</sup>	8.52 <sup>(3)</sup>	1.3	0.15 UJ	<b>17</b>	<b>2.6</b>	0.15 U	0.15 U	0.15 U
Mercury	1.1 <sup>(2)</sup>	NE	1.11 <sup>(3)</sup>	0.157	0.087 J	0.08 U	0.08 U	0.08 U	<u>0.65</u>	0.08 U
Nickel	73	NE	8.28 <sup>(3)</sup>	84.1	0.39 J	1.7 J	2.4 J	2.1	2.4	0.96 J
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	0.6 U	0.77 J	0.6 U	0.6 U	0.6 U	1.1 J
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(6)</sup>	3.67	0.09 U	0.09 UJ	0.09 UJ	0.09 UJ	<b>8.8</b> J	0.09 UJ
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(10)</sup>	NE	0.9 U	6.7	3 U	0.9 U	0.9 U	2.8 J
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(10)</sup>	20.96	<b>13</b>	4.9 U	2.4 U	2.3 U	<b>17</b>	<b>14</b>
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	8.3 J	15 R	14 R	33	7.6 J	23
<b>TPH DRO and GRO (mg/L)</b>										
Diesel Range Organics	NE	NE	NE	NE	0.25	1.5	0.84	0.4	0.086 J	1
Gasoline Range Organics	NE	NE	NE	NE	0.012 U	1.9	1.9	0.012 U	0.012 U	0.0069 U
Total TPH	12.5 <sup>(13)</sup>	NE	NE	NE	0.25	3.4	2.74	0.4	0.086 J	1



**TABLE 8-3**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

U - Not detected	DRO - Diesel Range Organics
J - Analyte present - Reported value is estimated	GRO - Gasoline Range Organics
UJ - Reported quantitation limit is qualified as estimated	TPH - Total Petroleum Hydrocarbons
R - Rejected	LLPAH - Low-level Polynuclear Aromatic Hydrocarbon
NE - Not Established	
mg/l - milligram per liter	
ug/l - microgram per liter	
NAPR - Naval Activity Puerto Rico	
USEPA - United States Environmental Protection Agency	

- <sup>(1)</sup> NAPR Basewide Groundwater Background - Upper Limit of Means (Mean + 2 standard deviations) Revised Final Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, PR, Baker Environmental (Baker, 2008)
- <sup>(2)</sup> Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- <sup>(3)</sup> Total Recoverable Criteria Continuous Concentration
- <sup>(4)</sup> Minimum acute value (96-hour LC<sub>50</sub> for *Menidia beryllina* [inland silverside]) with safety factor of 100 (USEPA, 2007)
- <sup>(5)</sup> Minimum acute value (96-hour LC<sub>50</sub> for *Nitocra spinipes* [Harpacticoid copepod]) with safety factor of 100 (USEPA, 2003)
- <sup>(6)</sup> USEPA Region 4 chronic screening value (USEPA, 2001)
- <sup>(7)</sup> USEPA Action Level for lead in drinking water
- <sup>(8)</sup> Total recoverable Criteria Continuous Concentration for hexavalent chromium
- <sup>(9)</sup> Minimum acute value (96-hour LC<sub>50</sub> for *Lumbriculus variegatus* [oligochaete]) with a safety factor of 100
- <sup>(10)</sup> USEPA Region 5 ecological screening level
- <sup>(11)</sup> Minimum acute value (96-hour NOEC for *Cyprinodon variegatus* [sheepshead minnow]) with safety factor of 30 (USEPA, 2007)
- <sup>(12)</sup> Total recoverable Criteria Continuous Concentration for trivalent arsenic
- <sup>(13)</sup> Screening level for TPH is 25% of PREQB groundwater criterion, as proposed in the approved Work Plan dated 12/6/07

**TABLE 8-3**

**SUMMARY OF DETECTED RESULTS - SWMU 9 AREA C - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

Baker Environmental, Inc, (2008). Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico. February 29, 2008.

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TABLE 9-1

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	74SB221	74SB221	74SB231	74SB241	74SB251	74SB261
Sample ID	Screening	Screening	Ecological	Basewide	74SB221-00	74SB221-00D	74SB231-00	74SB241-00	74SB251-00	74SB261-00
Date	Levels	Levels	Surface Soil	Background <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	Residential Soil	Industrial Soil	Screening Values		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	NE	48 J	31 J	70 U	53 U	78 UJ	74 U
Benzene	1,100 <sup>(2)</sup>	5,600 <sup>(2)</sup>	101 <sup>(2)</sup>	NE	1.1 J	0.82 U	1.2 U	0.69 U	1.4 U	0.87 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	NE	0.5 U	0.53 U	0.76 U	1.1 J	0.88 U	0.68 J
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	78 <sup>(5)</sup>	3.17	0.51	0.41 J	0.39 U	0.53	0.26 J	0.59
Arsenic	0.39	1.6	18 <sup>(4)</sup>	2.65	<b>3.6</b>	<b>3.1</b>	<b>4.6</b>	<b>2</b>	<b>3.1</b>	<b>2.9</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	330 <sup>(5)</sup>	199	110 J	37 J	25	79 J	58	46 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	40 <sup>(5)</sup>	0.59	0.26	0.26	0.038 U	0.18	0.13 J	0.16
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	32 <sup>(4)</sup>	1.02	0.14	0.098 J	0.22	0.38	0.16	0.17
Chromium	280	1,400	57 <sup>(7)</sup>	49.8	25	20	8.4	25 J	16	29 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	13 <sup>(4)</sup>	46.2	<b>21</b>	<b>16</b>	<b>2.7</b>	<b>12 J</b>	<b>8.8</b>	<b>14 J</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	70 <sup>(4)</sup>	168	<b>86 J</b>	<b>73 J</b>	14	<b>72 J</b>	70	55 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	120 <sup>(4)</sup>	22	5.2	4.6	<b>35</b>	<b>49</b>	6.1	14
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.1 <sup>(6)</sup>	0.109	0.021 J	0.024 J	0.01 J	0.012 J	0.011 J	0.0099 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	38 <sup>(4)</sup>	20.7	16	16	2.9	18 J	7.8	11 J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	0.52 <sup>(4)</sup>	1.48	0.19 J	0.21 J	0.26 J	0.12 J	0.3 U	0.28 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	560 <sup>(4)</sup>	NE	0.085 J	0.062 J	0.04 J	0.057 J	0.042 J	0.049 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	10 <sup>(8)</sup>	259	<b>150</b>	<b>130</b>	<b>18</b>	<b>120 J</b>	<b>89</b>	<b>110 J</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	120 <sup>(5)</sup>	115	54 J	48 J	22	89	52 J	58
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	NE	100 J	26 J	69	19	6.7	9.3
Gasoline Range Organics	NE	NE	NE	NE	0.06 U	0.058 U	0.084 U	0.0053 U	0.056 J	0.0062 U
Total TPH	25 <sup>(9)</sup>	NE	NE	NE	<b>100 J</b>	<b>26 J</b>	<b>69</b>	19	6.756 J	9.3

**TABLE 9-1**

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation

U - Undetected at the Limit of Detection.

ft bgs - feet below ground surface

ug/kg - microgram per kilogram

mg/kg - milligram per kilogram

NE - Not Established

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

<sup>(1)</sup> NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) (Baker, 2008)

<sup>(2)</sup> Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes

<sup>(3)</sup> USEPA Action Level for lead in soils

<sup>(4)</sup> Plant-based ecological soil screening level (USEPA, 2005a [arsenic]; USEPA, 2005b [cadmium]; USEPA, 2005c [cobalt]; USEPA, 2005d [lead]; USEPA, 2006a [silver]; USEPA, 2007a [copper]; USEPA, 2007b [nickel]; USEPA, 2007c [selenium])

<sup>(5)</sup> Invertebrate-based ecological soil screening level (USEPA, 2005h [antimony]; USEPA, 2005f [barium]; USEPA, 2005g [beryllium]; USEPA, 2007d [zinc])

<sup>(6)</sup> Toxicological threshold for earthworms (Efroymson et al., 1997a)

<sup>(7)</sup> Reproduction-based MATC for *Eisenia andrei* (earthworm)

<sup>(8)</sup> Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10

<sup>(9)</sup> Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07

**TABLE 9-1**

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

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TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB213	74SB215	74SB216	74SB216	74SB216	74SB218	74SB218
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB213-03	74SB215-03	74SB216-03	74SB216-05	74SB216-05D	74SB218-03	74SB218-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	9.0-11.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	6.8 UJ	5.4 UJ	150 U	3.3 UJ	3.7 UJ	100 UJ	140 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	2.4 UJ	2.4 UJ	120 UJ	2.6 UJ	2.9 UJ	82 UJ	110 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	3.3 UJ	3.4 UJ	160 UJ	3.6 UJ	4 UJ	110 U	150 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	49 J	48 J	250 U	30 J	37 J	170 UJ	220 UJ
Benzene	1,100	5,600	NE	1 J	0.92 U	44 U	0.98 U	1.1 U	31 U	40 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	0.57 U	2.1 J	29 U	1.3 J	1.2 J	20 U	26 U
Chloromethane	1,700	8,400	NE	0.8 U	0.82 U	40 U	0.88 U	0.97 U	28 U	36 U
Ethylbenzene	5,700	29,000	NE	0.84 U	0.87 U	42 U	0.93 U	1 U	29 U	38 U
Iodomethane	NE	NE	NE	1.1 U	1.2 U	56 U	1.2 U	1.4 U	39 U	50 U
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	0.74 U	0.77 U	37 U	0.81 U	0.9 U	26 U	33 U
Tetrachloroethene	570	2,700	NE	0.82 U	0.85 U	41 U	0.9 U	1 U	28 U	37 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	0.89 U	0.92 U	69 U	0.98 U	1.1 U	51 U	61 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	2.6 U	2.7 U	320 J	2.8 U	3.1 U	89 U	120 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB213 74SB213-03 5/19/2008 5.0-7.0	74SB215 74SB215-03 5/19/2008 5.0-7.0	74SB216 74SB216-03 5/19/2008 5.0-7.0	74SB216 74SB216-05 5/19/2008 9.0-11.0	74SB216 74SB216-05D 5/19/2008 9.0-11.0	74SB218 74SB218-03 5/19/2008 5.0-7.0	74SB218 74SB218-05 5/19/2008 9.0-11.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.39 J	0.26 J	0.5 J	0.35 J	0.4 J	0.091 J	0.09 U
Arsenic	0.39	2	6.66	<b>1.9</b>	<b>1.9</b>	<b>2.5</b>	<b>2.4</b>	<b>2.4</b>	<b>1.2</b>	<b>0.62</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	70	190	81	68	73	24	28
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.32	0.49	0.38	0.7	0.8	0.19	0.22
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.096 J	0.047 J	0.039 U	0.041 J	0.049 J	0.048 J	0.056 J
Chromium	280	1,400	47.9	16	<u>110</u>	<u>200</u>	<u>160</u>	<u>200</u>	8.5	29
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>18</b>	<b>15</b>	<b>12</b>	<b>53</b>	<b>61</b>	<b>23</b>	<b>21</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	56 J	74 J	69 J	87 J	98 J	48 J	5.9 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	2.8	3.6	<u>9.2</u>	4.7	5.2	1.4	1
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0072 J	0.014 J	0.015 J	0.022 J	0.042 J	0.0038 U	0.005 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	14	20	23	<u>36</u>	<u>40</u>	10	9.5
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.16 J	<u>1.2</u>	<u>1.6</u>	<u>1.3</u>	<u>1.5</u>	0.13 U	0.14 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.034 J	0.02 U	0.034 J	0.021 J	0.029 J	0.017 U	0.041 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	<b>110</b>	<b>240</b>	<b>250</b>	<b>250</b>	<b>300</b>	<b>270</b>	<b>160</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	50 J	46 J	44 J	53 J	61 J	88 J	51 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	8.8	320	2,900	2,300	2,400	260	140
Gasoline Range Organics	NE	NE	NE	0.054 U	0.072 U	29	0.46	0.42	81	45
Total TPH	25 <sup>(4)</sup>	NE	NE	8.8	<b>320</b>	<b>2,929</b>	<b>2,300.46</b>	<b>2,400.42</b>	<b>341</b>	<b>185</b>

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB221	74SB221	74SB222	74SB223	74SB224	74SB224	74SB225
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB221-02	74SB221-02D	74SB222-03	74SB223-03	74SB224-04	74SB224-05	74SB225-04
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		3.0-5.0	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	14 UJ	91 UJ	13 UJ	160 UJ	96 U	6.5 UJ	4.6 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	1.9 UJ	71 UJ	2.8 UJ	87 UJ	75 UJ	2.5 UJ	2.2 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	2.7 UJ	98 U	3.8 U	120 U	100 U	3.4 U	3 U
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	75 J	150 UJ	40 UJ	180 UJ	160 UJ	47 UJ	34 UJ
Benzene	1,100	5,600	NE	0.73 U	27 U	1.1 J	33 U	28 U	0.93 U	0.83 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	0.57 J	17 U	0.68 U	21 U	18 U	0.6 U	0.53 U
Chloromethane	1,700	8,400	NE	0.86 J	24 U	0.94 U	29 U	25 U	0.84 U	0.74 U
Ethylbenzene	5,700	29,000	NE	0.69 U	25 U	0.99 U	31 U	30 J	0.89 U	0.78 U
Iodomethane	NE	NE	NE	5.5	34 U	1.3 U	41 U	36 U	1.2 U	1 U
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	0.61 U	22 U	0.88 U	27 U	24 J	0.78 U	0.69 U
Tetrachloroethene	570	2,700	NE	0.67 U	26 J	0.97 U	30 U	26 U	0.86 U	0.76 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	0.73 U	35 U	1 U	47 J	74 U	0.93 U	0.83 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	2.1 U	78 U	3.1 U	95 U	94 J	2.7 U	2.4 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	14 U	14 U	14 U	100	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	20 U	20 U	20 U	19 U	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	6.6 U	6.5 U	160	240	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	20 U	20 U	20 U	84	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	20 U	20 U	<b>310</b>	<b>190</b>	NA	NA	NA
Benzo[a]pyrene	15	210	NE	7.7 U	13 J	<b>360</b>	<b>110</b>	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	15 J	13 J	<b>720</b>	110	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	20 U	20 U	200	42 J	NA	NA	NA
Chrysene	15,000	210,000	NE	7.7 J	14 J	470	240	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	20 U	20 U	380	350	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	9 U	8.8 U	300	440	NA	NA	NA



TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB221 74SB221-02 5/20/2008 3.0-5.0	74SB221 74SB221-02D 5/20/2008 3.0-5.0	74SB222 74SB222-03 5/20/2008 5.0-7.0	74SB223 74SB223-03 5/20/2008 5.0-7.0	74SB224 74SB224-04 5/20/2008 7.0-9.0	74SB224 74SB224-05 5/20/2008 9.0-11.0	74SB225 74SB225-04 5/20/2008 7.0-9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	14 U	14 U	<b>190</b>	27 J	NA	NA	NA
Naphthalene	3,900	20,000	NE	7 U	6.9 U	6.9 U	6.8 U	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	20 U	20 U	20 U	280	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	20 U	22 J	520	400	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.31 J	0.35 J	0.25 J	0.44 J	0.086 J	0.076 UJ	0.16 J
Arsenic	0.39	2	6.66	<b>2.7</b>	<b>3.9</b>	<b>2.5</b>	<b>2.9</b>	<b>0.99</b>	<b>1</b>	<b>1.7</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	51	53	53	80	180	160	36
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.19	0.3	0.13	0.54	0.25	0.18	0.19
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.23	0.48	0.36	0.058 J	0.13	0.079 J	0.15
Chromium	280	1,400	47.9	25	26	19	<u>60</u>	16	18	19
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>19</b>	<b>18</b>	<b>15</b>	<b>35</b>	<b>26</b>	<b>15</b>	<b>15</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	83 J	77 J	53	<u>160</u>	<u>130</u>	<u>130</u>	40
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	3.8	3.3	<u>9.5</u>	1.5	1.1	0.63	5.4
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0069 J	0.0076 J	0.0098 J	0.008 J	0.0045 U	0.0039 U	0.0039 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	12	17	11	<u>42</u>	23	12	13
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.21 J	0.19 J	0.13 J	0.22 J	0.13 J	0.12 U	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.054 J	0.036 J	0.033 J	0.1 J	0.036 J	0.069 J	0.042 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	<b>110</b>	<b>110</b>	<b>110 J</b>	<b>210 J</b>	<b>150 J</b>	<b>150 J</b>	<b>91 J</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	69 J	83 J	39 J	62 J	47 J	39 J	38 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	1,400 J	44 J	1,800	2,500	25	180	18
Gasoline Range Organics	NE	NE	NE	0.08 J	0.064 U	0.0079 U	75	130	7.3	0.0072 U
Total TPH	25 <sup>(4)</sup>	NE	NE	<b>1,400.08 J</b>	<b>44 J</b>	<b>1,800</b>	<b>2,575</b>	<b>155</b>	<b>187.3</b>	18

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB225	74SB231	74SB231	74SB231	74SB232	74SB232	74SB233
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB225-05	74SB231-04	74SB231-05	74SB231-05D	74SB232-04	74SB232-05	74SB233-04
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	2.9 UJ	4.5 UJ	4.7 UJ	3.1 UJ	4.8 UJ	7.1 UJ	7.2 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	2.1 UJ	3.1 UJ	2.6 UJ	2 UJ	2.9 UJ	2.6 UJ	3.6 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	2.9 U	4.2 UJ	3.6 UJ	2.7 UJ	4 UJ	3.6 UJ	5 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	24 UJ	34 U	30 U	17 U	29 U	41 U	54 U
Benzene	1,100	5,600	NE	0.8 U	1.1 U	0.97 U	0.75 U	1.1 U	0.97 U	1.4 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	0.52 U	0.74 U	0.63 U	0.48 U	0.7 U	12	0.88 U
Chloromethane	1,700	8,400	NE	0.72 U	1 U	0.87 U	0.67 U	0.97 U	0.88 U	1.2 U
Ethylbenzene	5,700	29,000	NE	0.76 U	1.1 U	0.92 U	0.71 U	1 U	0.92 U	1.3 U
Iodomethane	NE	NE	NE	1 U	1.5 U	1.2 U	0.95 U	1.4 U	1.2 U	1.7 U
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	0.67 U	0.96 U	0.81 U	0.63 U	0.9 U	0.81 U	1.1 U
Tetrachloroethene	570	2,700	NE	0.74 U	1.1 U	0.89 U	0.69 U	1 U	0.9 U	1.3 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	0.8 U	1.1 U	0.97 U	0.75 U	1.1 U	0.97 U	1.4 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	2.3 U	3.3 U	2.8 U	2.2 U	3.2 U	2.8 U	4 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB225	74SB231	74SB231	74SB231	74SB232	74SB232	74SB233
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB225-05	74SB231-04	74SB231-05	74SB231-05D	74SB232-04	74SB232-05	74SB233-04
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.12 J	0.2 U	0.32 U	0.21 U	0.21 U	0.31 U	0.25 U
Arsenic	0.39	2	6.66	<b>0.91</b>	<b>3.9</b>	<b>5.5</b>	<b>5.4</b>	<b>4.8</b>	<b>7.2</b>	<b>4.5</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	21	8.5	11	12	8.9	8.4	11
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.23	0.02 U	0.17 J	0.04 U	0.041 U	0.045 U	0.049 U
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.33	0.035 U	0.46	0.068 U	0.071 U	0.078 U	0.084 U
Chromium	280	1,400	47.9	<u>86</u>	1.8	6	4.7	2.2 J	5.1	2.7
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>33</b>	1.1	<b>3.4 J</b>	2.1 J	1.3	1.8	1.3
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	66	1.1 U	5.4	4.5	1.7 U	2.8 U	2.6 U
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	2.2	0.18 U	1.9 J	0.43 UJ	0.26 U	0.48 U	<u>6.4</u>
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0041 U	0.0044 U	0.0063 J	0.0045 J	0.0046 U	0.0045 U	0.0052 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	18	0.86	1.9	1.7	1.1	1.7	1.4
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.14 U	0.13 U	0.25 U	0.26 U	0.28 U	0.3 U	0.33 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.022 J	0.018 UJ	0.11 J	0.035 UJ	0.037 UJ	0.04 UJ	0.043 UJ
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	<b>150 J</b>	2.9	30 J	15 J	4.8	12	5.2
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	61 J	0.88 J	6.5 J	3.5 J	1.5 U	3.5 J	2.4 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	1.5 U	1.6 U	16 J	4.2 J	1.4 U	3.6 U	4.3 U
Gasoline Range Organics	NE	NE	NE	0.0069 U	0.12 U	0.064 U	0.086 U	0.091 U	0.08 U	0.1 U
Total TPH	25 <sup>(4)</sup>	NE	NE	1.5069 U	1.72 U	16 J	4.2 J	1.491 U	3.68 U	4.4 U

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB233	74SB234	74SB234	74SB235	74SB235	74SB236	74SB236
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB233-05	74SB234-04	74SB234-05	74SB235-04	74SB235-05	74SB236-04	74SB236-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	10 UJ	9 UJ	3 UJ	5.4 R	5.1 UJ	3.4 UJ	4.5 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.1 UJ	1.9 UJ	2.3 UJ	3 J	3.3 UJ	2.7 UJ	3.5 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	4.3 UJ	2.6 UJ	3.2 UJ	3.2 R	4.6 UJ	3.7 UJ	4.9 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	52 UJ	100 J	18 U	22 R	51 U	53 U	55 U
Benzene	1,100	5,600	NE	1.2 U	0.71 U	0.88 U	0.87 R	<b>2.3 J</b>	1 U	1.3 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	1.4 J	0.46 U	0.57 U	0.56 R	0.81 U	0.65 U	0.86 U
Chloromethane	1,700	8,400	NE	1.1 U	0.63 U	0.79 U	0.78 R	1.1 U	0.91 U	1.2 U
Ethylbenzene	5,700	29,000	NE	1.1 U	0.67 U	0.84 U	0.83 R	1.2 U	0.96 U	1.3 U
Iodomethane	NE	NE	NE	1.5 U	4.6	1.1 U	1.1 R	1.6 U	1.3 UJ	1.7 UJ
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	0.98 U	0.59 U	0.74 U	0.73 R	1 U	0.84 U	1.1 U
Tetrachloroethene	570	2,700	NE	1.1 U	0.65 U	0.81 U	0.8 R	1.2 U	0.93 U	1.2 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	1.2 U	0.71 U	0.88 U	0.87 R	1.3 U	1 U	1.3 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	3.4 U	2.1 U	2.6 U	2.5 R	3.6 U	2.9 U	3.9 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB233	74SB234	74SB234	74SB235	74SB235	74SB236	74SB236
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB233-05	74SB234-04	74SB234-05	74SB235-04	74SB235-05	74SB236-04	74SB236-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.24 U	0.086 U	0.19 U	0.23 U	0.32 U	0.4 J	0.19 J
Arsenic	0.39	2	6.66	<u>6.7</u>	<u>1.8</u>	<u>1.9</u>	<u>3.5</u>	<u>7</u>	<u>7.2</u>	<u>2</u>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	9.8	110	87	26	14	13 J	9.8 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.047 U	0.38	0.37	0.042 J	0.06 J	0.06 U	0.024 U
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.081 U	0.27	0.078 J	0.07 U	0.055 J	0.044 J	0.042 U
Chromium	280	1,400	47.9	6	<u>71</u>	40	7.2	17	16 J	3.7 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	2.3	<u>27</u>	<u>22</u>	<u>2.9</u>	2	1.6 J	0.62 J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	4.9 U	<u>210</u>	88	11	11	8.4 J	1.4 UJ
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	0.42 U	3.5	1.4	1.2	0.74	0.76	0.41
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0053 U	0.029	0.016 J	0.0046 U	0.0063 U	0.0053 J	0.0051 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	2.3	<u>36</u>	21	3.1	5.1	5.1 J	0.97 J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.31 U	0.54 J	0.47 J	0.27 U	0.77	0.42 J	0.16 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.042 UJ	0.052 J	0.03 J	0.036 UJ	0.026 J	0.021 J	0.022 U
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	16	<u>150</u>	<u>130</u>	18	24	30 J	5.4 J
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	4 J	<u>100</u>	90	7.3 J	8.8	7.1	1.1 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	1.5 U	1.8 U	1.2	1.5	1.7 U	3.1	2.9
Gasoline Range Organics	NE	NE	NE	0.081 U	0.06 U	0.059 U	0.076 U	0.097 U	0.0078 U	0.0093 U
Total TPH	25 <sup>(4)</sup>	NE	NE	1.581 U	1.86 U	1.2	1.5	1.797 U	3.1	2.9

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB236	74SB237	74SB237	74SB238	74SB238	74SB239	74SB239
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB236-05D	74SB237-04	74SB237-05	74SB238-04	74SB238-05	74SB239-04	74SB239-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	11 UJ	4.6 UJ	11 UJ	3.9 UJ	39 J	16 UJ	21 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.2 UJ	3.6 UJ	3.8 UJ	3 UJ	2.9 UJ	2.7 UJ	3.6 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	4.5 UJ	5 UJ	5.3 UJ	4.2 UJ	4 UJ	3.7 UJ	5 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	52 UJ	46 U	56 U	42 U	170	97 U	150 U
Benzene	1,100	5,600	NE	1.2 U	1.4 U	1.4 U	1.1 U	1.1 U	1 U	1.3 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	0.79 U	0.88 U	3.8 J	0.73 U	7.2	0.65 U	13
Chloromethane	1,700	8,400	NE	1.1 UJ	1.2 U	1.3 U	1 U	0.98 U	0.91 U	1.2 U
Ethylbenzene	5,700	29,000	NE	1.2 U	1.3 U	1.4 U	1.1 U	1 U	0.96 U	1.3 U
Iodomethane	NE	NE	NE	1.5 U	1.7 UJ	1.8 UJ	1.4 UJ	1.4 U	1.3 U	1.7 U
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	1 U	1.1 U	1.2 U	0.95 U	0.91 U	0.84 U	1.1 U
Tetrachloroethene	570	2,700	NE	1.1 U	1.3 U	1.3 U	1 U	1 U	0.93 U	1.2 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	1.2 U	1.4 U	1.4 U	1.1 J	1.1 U	1 U	1.3 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	3.6 U	3.9 U	4.2 U	3.3 U	3.2 U	2.9 U	3.9 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB236	74SB237	74SB237	74SB238	74SB238	74SB239	74SB239
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB236-05D	74SB237-04	74SB237-05	74SB238-04	74SB238-05	74SB239-04	74SB239-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.17 J	0.15 J	0.18 J	0.25 J	0.23 J	0.19 J	0.39 J
Arsenic	0.39	2	6.66	<b>2</b>	<b>2</b>	<b>2.3</b>	<b>2.3</b>	<b>3.4</b>	<b>2.8</b>	<b>6.7</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	9.4 J	11 J	11 J	18 J	19 J	12 J	13 J
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.025 U	0.022 U	0.026 U	0.044 J	0.039 U	0.049 U	0.062 U
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.044 U	0.038 U	0.044 U	0.042 J	0.063 J	0.078 J	0.092 J
Chromium	280	1,400	47.9	4.2 J	2.6 J	3.2 J	10 J	9.5 J	12 J	17 J
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	0.64 J	0.54 J	0.69 J	2.2 J	<b>2.9 J</b>	1.4 J	1.8 J
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	1.6 UJ	0.71 UJ	1.5 UJ	11 J	13 J	6.9 J	11 J
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	0.33 J	0.11 J	0.57	1.1	2	0.47	0.76
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0052 U	0.0047 U	0.006 U	0.0054 J	0.0064 J	0.0054 J	0.0062 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	1.1 J	0.66 J	0.75 J	3.3 J	3.2 J	3.6 J	5.9 J
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.17 U	0.15 U	0.17 U	0.25 J	0.25 J	0.65 J	0.82
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.023 U	0.02 U	0.023 U	0.019 U	0.019 U	0.031 J	0.028 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	6.1 J	2.4 J	4.1 J	23 J	28 J	15 J	32 J
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	1.3 J	0.78 U	1.5 J	9.3	11	5.5	9.3
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	1.8	0.88	1.7	11	14	8.3	9.2
Gasoline Range Organics	NE	NE	NE	0.0092 U	0.14 UJ	0.011 U	0.0074 U	0.035 J	0.0094 U	0.011 U
Total TPH	25 <sup>(4)</sup>	NE	NE	1.8	0.88	1.7	11	14.035 J	8.3	9.2

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB240	74SB240	74SB241	74SB241	74SB241	74SB245	74SB245
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB240-04	74SB240-05	74SB241-04D	74SB241-04	74SB241-05	74SB245-03	74SB245-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	11 UJ	14 UJ	16 UJ	7.6 UJ	11 UJ	10 UJ	6.2 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	2.3 UJ	2.9 UJ	3 UJ	2.9 UJ	2.9 UJ	3.4 UJ	2.3 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	3.1 UJ	4 UJ	4.1 UJ	4 UJ	4 UJ	4.7 UJ	3.2 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	65 U	60 U	78 U	51 U	58 U	76 U	47 U
Benzene	1,100	5,600	NE	0.85 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	0.88 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	1.8 J	4.3 J	0.73 U	0.7 U	4 J	1.4 J	0.7 J
Chloromethane	1,700	8,400	NE	0.76 U	0.98 U	1 U	0.97 U	0.99 U	1.1 U	0.79 U
Ethylbenzene	5,700	29,000	NE	0.8 U	1 U	1.1 U	1 U	1 U	1.2 U	0.83 U
Iodomethane	NE	NE	NE	1.1 U	1.4 U	1.4 U	1.4 U	1.4 U	1.6 U	1.2 J
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	0.71 U	0.91 U	0.94 U	0.9 U	0.92 U	1.1 U	0.73 U
Tetrachloroethene	570	2,700	NE	0.78 U	1 U	1 U	1 U	1 U	1.2 U	0.81 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	0.85 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	0.88 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	2.5 U	3.2 U	3.3 U	3.1 U	3.2 U	3.7 U	2.6 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA



TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB240	74SB240	74SB241	74SB241	74SB241	74SB245	74SB245
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB240-04	74SB240-05	74SB241-04D	74SB241-04	74SB241-05	74SB245-03	74SB245-05
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.24 J	0.23 J	0.35 J	0.21 J	0.37 J	0.19 J	0.2 J
Arsenic	0.39	2	6.66	<b>2.5</b>	<b>2.2</b>	<b>3.7</b>	<b>3.7</b>	<b>3.1</b>	<b>2.8</b>	<b>3.5</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	20 J	9.5 J	12	9.4 J	10	38	45
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.069 U	0.024 U	0.049 U	0.02 U	0.045 U	0.074 J	0.15 J
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.088 J	0.041 U	0.042 U	0.034 U	0.038 U	0.23	0.21
Chromium	280	1,400	47.9	9.2 J	3 J	9.7	3.6 J	3.8	11	16
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>4.9 J</b>	0.62 J	1	0.57 J	0.81	<b>9.1</b>	<b>8.1</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	42 J	1.4 UJ	4.1 U	0.89 UJ	1.4 U	64	67
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	4.2	0.21 J	0.5 U	0.66	0.22 U	<u>6.3</u>	3.4
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0064 J	0.005 U	0.0052 U	0.0042 U	0.0051 U	0.0041 U	0.0053 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	6.1 J	0.87 J	2.7	0.73 J	0.96	5.9	7.2
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.21 J	0.17 J	0.33 U	0.13 U	0.3 U	0.28 U	0.47 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.027 J	0.021 U	0.044 UJ	0.018 U	0.04 UJ	0.045 J	0.062 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	40 J	3.7 J	13	3.3 J	4.6	<b>63</b>	<b>68</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	20	1.2 J	5 U	0.7 U	2.6 U	42 J	46 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	25	3.1	2.4	1.9	2.1	1.7	2.9
Gasoline Range Organics	NE	NE	NE	0.0076 U	0.0095 U	0.01 U	0.011 U	0.0089 U	0.029 J	0.01 U
Total TPH	25 <sup>(4)</sup>	NE	NE	25	3.1	2.4	1.9	2.1	1.729 J	2.9

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB246	74SB246	74SB246	74SB247	74SB248	74SB249	74SB250
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB246-03D	74SB246-03	74SB246-05	74SB247-03	74SB248-03	74SB249-03	74SB250-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	20 UJ	10 UJ	17 UJ	4.4 UJ	3.9 UJ	7.3 UJ	4.7 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	11 UJ	5.1 UJ	4 UJ	2.9 UJ	3.1 UJ	3 UJ	3 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	16 UJ	7 UJ	5.5 UJ	4 UJ	4.2 UJ	4.1 UJ	4.1 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	160 U	65 U	85 UJ	34 U	20 J	56 UJ	36 UJ
Benzene	1,100	5,600	NE	4.3 U	1.9 U	1.5 U	1.1 J	1.2 U	1.1 U	1.1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	2.8 U	1.2 U	0.97 U	0.7 U	0.74 U	0.73 U	0.72 U
Chloromethane	1,700	8,400	NE	3.9 U	1.7 U	1.3 UJ	0.97 U	1 U	1 UJ	1 UJ
Ethylbenzene	5,700	29,000	NE	4.1 U	1.8 U	1.4 U	1 U	1.1 U	1.1 U	1.1 U
Iodomethane	NE	NE	NE	5.5 U	2.4 U	1.9 U	1.4 U	1.5 U	1.4 U	1.4 U
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	3.6 U	1.6 U	1.2 U	0.91 U	0.96 U	0.94 U	0.93 U
Tetrachloroethene	570	2,700	NE	4 U	1.8 U	1.4 U	1 U	1.1 U	1 U	1 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	4.3 U	1.9 U	1.5 U	1.1 U	1.2 U	1.1 U	1.1 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	13 U	5.5 U	4.4 U	3.2 U	3.3 U	3.3 U	3.3 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB246	74SB246	74SB246	74SB247	74SB248	74SB249	74SB250
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB246-03D	74SB246-03	74SB246-05	74SB247-03	74SB248-03	74SB249-03	74SB250-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.53 J	0.4 J	0.16 UJ	0.2 J	0.2 UJ	0.2 UJ	0.18 UJ
Arsenic	0.39	2	6.66	<b>6.9</b>	<b>4.5</b>	<b>1.8</b>	<b>3.1</b>	<b>2.9</b>	<b>3.7</b>	<b>2.8</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	21	15	76	35	14	19	27
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.095 J	0.053 U	0.13 J	0.12 J	0.048 U	0.047 U	0.043 U
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.067 U	0.046 U	0.08 J	0.11 J	0.041 U	0.041 U	0.087 J
Chromium	280	1,400	47.9	23 R	4.4 R	27	19	5.1	6.3	5.9
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>4.7 J</b>	1.6 J	<b>10</b>	<b>12</b>	<b>2.5</b>	1.8	<b>3.8</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	16	5.3 U	63	74	13	7.4	27
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	1.2 U	0.5 U	1.7	3.8	0.39 U	0.44 U	0.49 U
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0082 U	0.0057 U	0.0071 J	0.0044 U	0.0049 U	0.0054 U	0.005 U
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	6.5	1.4	13	9.4	2.1	1.8	2.9
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.51 U	0.35 U	0.25 U	0.3 U	0.32 U	0.31 U	0.29 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.069 UJ	0.047 UJ	0.036 J	0.04 UJ	0.042 UJ	0.042 UJ	0.038 UJ
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	38 R	13 R	<b>82</b>	<b>97</b>	15	12	24
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	17 U	4.6 U	37 J	36 J	9.7 U	5.8 U	24 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	4.3 J	1.4 J	1.7	1.4	1.2	0.97	0.9
Gasoline Range Organics	NE	NE	NE	0.032 U	0.016 U	0.058 J	0.013 U	0.089 UJ	0.012 U	0.15 UJ
Total TPH	25 <sup>(4)</sup>	NE	NE	4.3 J	1.4 J	1.758 J	1.4	1.2	0.97	0.9

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB250	74SB251	74SB251	74SB251	74SB252	74SB253	74SB254
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB250-05	74SB251-03	74SB251-03D	74SB251-05	74SB252-03	74SB253-03	74SB254-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	7.8 UJ	8.6 UJ	38 J	3.2 UJ	16 UJ	8.5 UJ	3 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3.8 UJ	3.4 UJ	13 J	2.5 UJ	2.7 UJ	2.8 UJ	2.4 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	5.3 UJ	4.7 UJ	5.6 J	3.4 UJ	3.8 UJ	3.9 UJ	3.3 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	64 UJ	69 UJ	250 J	18 J	180 J	83 J	4.9 UJ
Benzene	1,100	5,600	NE	1.4 U	1.3 U	1.1 U	0.93 U	1 U	1.1 U	0.89 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	0.93 U	0.83 U	0.7 U	0.6 U	0.67 U	0.68 U	0.57 U
Chloromethane	1,700	8,400	NE	1.3 UJ	1.2 UJ	0.98 U	0.84 U	0.93 U	0.95 U	0.8 U
Ethylbenzene	5,700	29,000	NE	1.4 U	1.2 U	1 U	0.88 U	0.98 U	1 U	0.84 U
Iodomethane	NE	NE	NE	1.8 U	3.9 J	7.3	1.2 U	1.3 U	1.3 U	1.1 U
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	1.2 U	1.1 U	0.91 U	0.78 U	0.86 U	0.88 U	0.74 U
Tetrachloroethene	570	2,700	NE	1.3 U	1.2 U	1 U	0.86 U	0.95 U	0.97 U	0.82 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	1.4 U	1.3 U	1.1 U	0.93 U	1 U	1.1 U	0.89 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	4.2 U	3.8 U	3.2 U	2.7 U	3 U	3.1 U	2.6 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB250	74SB251	74SB251	74SB251	74SB252	74SB253	74SB254
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB250-05	74SB251-03	74SB251-03D	74SB251-05	74SB252-03	74SB253-03	74SB254-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.27 J	0.19 UJ	0.19 UJ	0.17 UJ	0.28 J	0.15 UJ	0.72 J
Arsenic	0.39	2	6.66	<b>5.9</b>	<b>0.99 J</b>	<b>1.2 J</b>	<b>0.83 J</b>	<b>3.1</b>	<b>1.3</b>	<b>3.4</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	16	110	110	97	41	72	23
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.088 J	0.23 J	0.22 J	0.14 J	0.14 J	0.2 J	0.62
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.044 U	0.05 J	0.073 J	0.083 J	0.18	0.31	0.15
Chromium	280	1,400	47.9	14	14	15	14	34	16	17
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>2.5</b>	<b>29</b>	<b>24</b>	<b>13</b>	<b>13</b>	<b>19</b>	<b>18</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	14	<u>240</u>	<u>220</u>	120	66	100	72
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	0.61 U	0.96	1.2	1.4	<u>6.7</u>	4.1	5
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0065 J	0.0047 U	0.0061 J	0.0048 U	0.0041 U	0.0037 U	<u>0.23</u>
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	4.6	12	12	10	15	12	16
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.45 J	0.41 J	0.41 J	0.28 U	0.33 J	0.24 U	0.24 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.046 UJ	0.046 J	0.071 J	0.05 J	0.054 J	0.035 J	0.032 UJ
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	22	<b>190</b>	<b>180</b>	<b>110</b>	<b>89</b>	<b>130</b>	<b>110</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	11 U	50 J	62 J	41 J	55 J	<u>93</u> J	76 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	1.5	1.8	1.1	18	1.2	1.6	1.3
Gasoline Range Organics	NE	NE	NE	0.32 UJ	0.0084 U	0.0092 U	0.099	0.012 U	0.006 U	0.0065 U
Total TPH	25 <sup>(4)</sup>	NE	NE	1.5	1.8	1.1	18.099	1.2	1.6	1.3

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB255	74SB256	74SB256	74SB256	74SB258	74SB258	74SB259
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB255-03	74SB256-03	74SB256-03D	74SB256-04	74SB258-03	74SB258-05	74SB259-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	3 UJ	6.5 UJ	2.2 UJ	4.6 UJ	8 UJ	3.5 UJ	7.4 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	2.4 UJ	1.8 UJ	1.7 UJ	2.6 UJ	1.7 UJ	2 UJ	2.1 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	3.3 UJ	2.5 UJ	2.4 UJ	3.6 UJ	2.4 UJ	2.8 UJ	2.9 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	30 J	61 UJ	27 UJ	34 U	47 U	31 U	46 U
Benzene	1,100	5,600	NE	0.89 U	0.67 U	0.65 U	0.97 U	0.65 U	0.75 U	0.79 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	0.58 U	0.43 U	0.42 U	3.9 J	0.42 U	0.48 U	0.51 U
Chloromethane	1,700	8,400	NE	0.8 U	0.6 U	0.59 U	0.87 U	0.59 U	0.67 U	0.71 U
Ethylbenzene	5,700	29,000	NE	0.85 U	0.63 U	0.62 U	0.92 U	0.62 U	0.71 U	0.75 U
Iodomethane	NE	NE	NE	1.1 U	0.85 U	0.83 U	1.2 UJ	0.9 U	0.95 UJ	1 UJ
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	0.74 U	0.56 U	0.55 U	0.81 U	0.55 U	0.63 U	0.66 U
Tetrachloroethene	570	2,700	NE	0.82 U	0.62 U	0.6 U	0.9 U	0.6 U	0.69 U	0.73 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	0.89 U	0.67 U	0.65 U	0.97 U	0.65 U	0.75 U	0.79 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	2.6 U	1.9 U	1.9 U	2.8 U	1.9 U	2.2 U	2.3 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	NA	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB255	74SB256	74SB256	74SB256	74SB258	74SB258	74SB259
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB255-03	74SB256-03	74SB256-03D	74SB256-04	74SB258-03	74SB258-05	74SB259-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	NA	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.17 J	0.17 U	0.2 U	0.63 U	0.16 U	0.078 U	0.24 U
Arsenic	0.39	2	6.66	<b>3.7</b>	<b>1.3</b>	<b>1.5</b>	<b>2.7</b>	<b>2.5</b>	<b>1.2</b>	<b>2.4</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	42	59	43	<u>230</u>	41	48	23
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.44	0.17	0.14	0.55	0.11	0.2	0.068 J
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.2	0.16	0.15	0.086 J	0.1	<u>1.6</u>	0.077 J
Chromium	280	1,400	47.9	7.5	27	19	<u>90</u>	<u>51</u>	18	44
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>31</b>	<b>19</b>	<b>14</b>	<b>30</b>	<b>17</b>	<b>20</b>	<b>14</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	96	110	<u>150</u>	<u>130</u>	56	100	32
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	5.1	<u>15</u>	<u>18</u>	5	2.3	1	1.6
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.0057 J	0.0047 J	0.0052 J	0.02 J	0.012 J	0.0039 U	0.016 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	20	13	9.5	23	23	11	16
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.26 U	0.13 J	0.13 J	0.66	0.12 J	0.12 U	0.12 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.035 UJ	0.041 J	0.046 J	0.061 J	0.035 J	0.07 J	0.021 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	<b>200</b>	<b>140</b>	<b>110</b>	<b>250</b>	<b>110</b>	<b>200</b>	<b>92</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	<u>110</u> J	61 J	50 J	59 J	35 J	73 J	22 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	1.2	20	0.98	1,000	37	96	1.3
Gasoline Range Organics	NE	NE	NE	0.0069 U	0.054 J	0.065 J	0.096 U	0.056 U	0.06 U	0.067 U
Total TPH	25 <sup>(4)</sup>	NE	NE	1.2	20.054 J	1.045 J	<b>1,000</b>	<b>37</b>	<b>96</b>	1.3

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB259	74SB260	74SB260	74SB261	74SB261	74SB262	74SB263
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB259-04	74SB260-03	74SB260-04	74SB261-03	74SB261-03D	74SB262-03	74SB263-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	10 UJ	8.1 UJ	6.7 UJ	2.8 UJ	170 U	8.2 UJ	8.7 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	4.3 UJ	4.8 J	2.3 UJ	2.2 UJ	88 UJ	2.8 UJ	2.4 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	6 UJ	3.5 J	3.1 UJ	3 UJ	120 U	3.9 UJ	3.4 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	74 U	33 UJ	58 U	75 U	180 UJ	44 UJ	61 U
Benzene	1,100	5,600	NE	1.6 U	0.8 U	0.86 U	0.82 U	33 U	1.1 U	0.92 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	1 U	0.52 U	0.74 J	0.53 U	21 U	0.69 U	0.59 U
Chloromethane	1,700	8,400	NE	1.5 U	0.72 UJ	0.77 U	0.73 U	30 U	0.96 UJ	0.82 U
Ethylbenzene	5,700	29,000	NE	1.5 U	0.76 U	0.81 U	0.78 U	31 U	1 U	0.87 U
Iodomethane	NE	NE	NE	2.1 UJ	1 U	1.1 UJ	1 UJ	42 U	1.3 U	1.2 UJ
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	1.4 U	0.67 U	0.72 U	0.68 U	28 U	0.89 U	0.77 U
Tetrachloroethene	570	2,700	NE	1.5 U	0.74 U	0.79 U	0.75 U	30 U	0.98 U	0.85 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	1.6 U	0.8 U	0.86 U	0.96 J	43 U	1.1 U	0.92 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	4.7 U	2.3 U	2.5 U	2.4 U	96 U	3.1 U	2.7 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	71 U	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	100 U	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	34 U	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	100 U	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	100 U	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	39 U	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	45 U	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	100 U	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	36 U	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	100 U	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	45 U	NA	NA	NA	NA



TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date Depth Range (ft bgs)	<b>Regional Screening Levels Residential Soil</b>	<i>Regional Screening Levels Industrial Soil</i>	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB259 74SB259-04 5/21/2008 7.0-9.0	74SB260 74SB260-03 5/21/2008 5.0-7.0	74SB260 74SB260-04 5/21/2008 7.0-9.0	74SB261 74SB261-03 5/21/2008 5.0-7.0	74SB261 74SB261-03D 5/21/2008 5.0-7.0	74SB262 74SB262-03 5/21/2008 5.0-7.0	74SB263 74SB263-03 5/21/2008 5.0-7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	71 U	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	200 J	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	100 U	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	100 U	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	1.2	0.3 J	0.42 J	0.27 J	0.3 J	0.26 J	0.4 U
Arsenic	0.39	2	6.66	<b>1.5</b>	<b>2.2</b>	<b>1.5</b>	<b>4</b>	<b>4.3</b>	<b>3.2</b>	<b>6.1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	28 J	47 J	110 J	19 J	19 J	73 J	23
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.34	0.15	0.32	0.038 U	0.052 U	0.34	0.076 J
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.2	0.12	0.12	0.062 J	0.17	0.29	0.08 J
Chromium	280	1,400	47.9	32 J	39 J	39 J	21 J	28 J	<u>99 J</u>	16
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>23 J</b>	<b>17 J</b>	<b>29 J</b>	<b>5.5 J</b>	<b>7.1 J</b>	<b>24 J</b>	<b>6.9</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	66 J	<b>350 J</b>	<u>140 J</u>	17 J	15 J	64 J	18
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	<u>24</u>	<u>8.7</u>	4.5	0.72	0.83	3.9	1.6
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.022	0.013 J	0.0073 J	0.0067 J	0.0058 J	0.0085 J	0.011 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	19 J	15 J	24 J	7.1 J	9.9 J	<u>29 J</u>	6.5
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.12 U	0.14 J	0.26 J	0.14 J	0.17 J	0.5 J	0.17 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.056 J	0.034 J	0.037 J	0.018 U	0.021 J	0.019 U	0.029 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	<b>120 J</b>	<b>110 J</b>	<b>170 J</b>	40 J	53 J	<b>300 J</b>	44
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	<u>100</u>	41	71	10 J	16 J	56	14 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	17	25	150	32 J	370 J	13	1
Gasoline Range Organics	NE	NE	NE	0.01 U	0.018 J	0.044 J	0.076 UJ	0.0073 U	0.098	0.07 U
Total TPH	25 <sup>(4)</sup>	NE	NE	17	<b>25.018 J</b>	<b>150.044 J</b>	<b>32 J</b>	<b>370 J</b>	13.098	1

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB263	74SB264	74SB264	74SB265	74SB265	74SB265	74SB266
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB263-04	74SB264-03	74SB264-04	74SB265-03	74SB265-03D	74SB265-04	74SB266-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	8 UJ	4.3 UJ	25 UJ	9.5 UJ	1,100 U	2,200 U	7.5 UJ
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	2.2 UJ	2.8 UJ	2.8 UJ	2.1 UJ	870 UJ	1,700 UJ	2.6 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	3 UJ	3.9 UJ	3.9 UJ	2.9 UJ	1,200 U	2,400 R	3.7 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	69 UJ	46 UJ	160 J	110 J	1,800 UJ	3,700 UJ	73 UJ
Benzene	1,100	5,600	NE	0.82 U	1.1 U	1.1 U	<b>1.2 J</b>	330 U	660 U	1 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	0.53 U	4.4 J	0.75 J	1.3 J	210 U	420 U	0.64 U
Chloromethane	1,700	8,400	NE	0.74 U	0.94 U	0.95 U	0.71 U	290 U	590 U	0.89 U
Ethylbenzene	5,700	29,000	NE	0.78 U	1 U	1 U	0.75 U	310 U	620 U	0.94 U
Iodomethane	NE	NE	NE	1 U	1.3 U	1.3 U	1 U	410 U	830 U	1.3 U
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	0.69 U	0.88 U	0.89 U	0.66 U	270 U	550 U	0.83 U
Tetrachloroethene	570	2,700	NE	0.76 U	0.97 U	0.98 U	0.73 U	300 U	610 U	0.92 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	0.82 U	1.1 U	1.1 U	0.79 U	330 U	660 U	1 U
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	2.4 U	3.1 U	3.1 U	2.3 U	950 U	1,900 U	2.9 U
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene	22,000	99,000	NE	NA	NA	2,400	NA	NA	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA	1,700	NA	NA	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	7.7 U	NA	NA	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA	23 U	NA	NA	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA	23 U	NA	NA	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA	8.9 U	NA	NA	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA	10 U	NA	NA	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA	23 U	NA	NA	NA	NA
Chrysene	15,000	210,000	NE	NA	NA	8.2 U	NA	NA	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	60 J	NA	NA	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA	61 J	NA	NA	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**

**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**

**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB263	74SB264	74SB264	74SB265	74SB265	74SB265	74SB266
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB263-04	74SB264-03	74SB264-04	74SB265-03	74SB265-03D	74SB265-04	74SB266-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/21/2008	5/21/2008	5/21/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>										
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA	16 U	NA	NA	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA	8.1 U	NA	NA	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA	80 J	NA	NA	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA	77 J	NA	NA	NA	NA
<b>Metals (mg/kg)</b>										
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.17 U	0.5 U	0.4 U	0.49 U	0.41 U	0.51 U	0.15 U
Arsenic	0.39	2	6.66	<b>0.98</b>	<b>2.9</b>	<b>3.5</b>	<b>2.2</b>	<b>2.1</b>	<b>2.7</b>	<b>2.1</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	7.3	40	71	57	50	47	27
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.2	0.18	0.22	0.19	0.19	0.17	0.062 J
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	<u>1.4</u>	0.13	0.15	0.17	0.13	0.16	0.078 J
Chromium	280	1,400	47.9	25	27	<u>48</u>	32	38	44	<u>58</u>
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>23</b>	<b>16</b>	<b>26</b>	<b>18</b>	<b>18</b>	<b>17</b>	<b>11</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	1.7 J	52	98	55	60	51	42
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	<u>13</u>	3.2	<u>8.6</u>	<u>8.6</u> J	4.6 J	<u>7.4</u>	1.6
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.012 J	0.017 J	0.0083 J	0.01 J	0.011 J	0.013 J	0.008 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	22	13	21	12	13	15	13
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.12 U	0.2 J	0.25 J	0.22 J	0.21 J	0.23 J	0.13 U
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.11 J	0.032 J	0.051 J	0.055 J	0.047 J	0.044 J	0.038 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	<b>110</b>	<b>120</b>	<b>160</b>	<b>120</b>	<b>120</b>	<b>120</b>	<b>89</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	<u>120</u> J	36 J	61 J	46 J	42 J	39 J	26 J
<b>TPH DRO and GRO (mg/kg)</b>										
Diesel Range Organics	NE	NE	NE	29	2.4	1.4	12 J	290 J	1,100	22
Gasoline Range Organics	NE	NE	NE	0.077 U	0.067 U	53	33 J	94 J	180	0.43
Total TPH	25 <sup>(4)</sup>	NE	NE	<b>29</b>	2.4	<b>54.4</b>	<b>45</b> J	<b>384</b> J	<b>1,280</b>	22.43

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	NAPR	74SB267	74SB267
Sample ID	Screening	Screening	Basewide	74SB267-02	74SB267-03
Date	Levels	Levels	Background <sup>(1)</sup>	5/20/2008	5/20/2008
Depth Range (ft bgs)	Residential Soil	Industrial Soil		3.0-5.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>					
2-Butanone (MEK)	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	16 UJ	100 U
2-Hexanone	2,800,000 <sup>(2)</sup>	19,000,000 <sup>(2)</sup>	NE	2.4 UJ	81 UJ
4-Methyl-2-pentanone (MIBK)	530,000 <sup>(2)</sup>	5,200,000 <sup>(2)</sup>	NE	3.4 UJ	110 UJ
Acetone	6,100,000 <sup>(2)</sup>	61,000,000 <sup>(2)</sup>	NE	110 UJ	270 U
Benzene	1,100	5,600	NE	0.92 U	30 U
Carbon disulfide	67,000 <sup>(2)</sup>	300,000 <sup>(2)</sup>	NE	0.59 U	20 U
Chloromethane	1,700	8,400	NE	0.83 U	27 U
Ethylbenzene	5,700	29,000	NE	0.87 U	54 J
Iodomethane	NE	NE	NE	1.2 U	39 U
Styrene	650,000 <sup>(2)</sup>	3,800,000 <sup>(2)</sup>	NE	0.77 U	25 U
Tetrachloroethene	570	2,700	NE	0.85 U	28 U
Toluene	500,000 <sup>(2)</sup>	4,600,000 <sup>(2)</sup>	NE	0.92 U	60 J
Xylenes, Total	60,000 <sup>(2)</sup>	260,000 <sup>(2)</sup>	NE	2.7 U	480
<b>LLPAHs (ug/kg)</b>					
1-Methylnaphthalene	22,000	99,000	NE	NA	NA
2-Methylnaphthalene	31,000 <sup>(2)</sup>	410,000 <sup>(2)</sup>	NE	NA	NA
Acenaphthene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA
Acenaphthylene	340,000 <sup>(2)</sup>	3,300,000 <sup>(2)</sup>	NE	NA	NA
Benzo[a]anthracene	150	2,100	NE	NA	NA
Benzo[a]pyrene	15	210	NE	NA	NA
Benzo[b]fluoranthene	150	2,100	NE	NA	NA
Benzo[g,h,i]perylene	1,700	17,000	NE	NA	NA
Chrysene	15,000	210,000	NE	NA	NA
Fluoranthene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA
Fluorene	230,000 <sup>(2)</sup>	2,200,000 <sup>(2)</sup>	NE	NA	NA

TABLE 9-2

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	<b>Regional</b>	<i>Regional</i>	<u>NAPR</u>	74SB267	74SB267
Sample ID	<b>Screening</b>	<i>Screening</i>	<u>Basewide</u>	74SB267-02	74SB267-03
Date	<b>Levels</b>	<i>Levels</i>	<u>Background</u> <sup>(1)</sup>	5/20/2008	5/20/2008
Depth Range (ft bgs)	<b>Residential Soil</b>	<i>Industrial Soil</i>		3.0-5.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>					
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NA	NA
Naphthalene	3,900	20,000	NE	NA	NA
Phenanthrene	170,000 <sup>(2)(5)</sup>	1,700,000 <sup>(2)(5)</sup>	NE	NA	NA
Pyrene	170,000 <sup>(2)</sup>	1,700,000 <sup>(2)</sup>	NE	NA	NA
<b>Metals (mg/kg)</b>					
Antimony	3.1 <sup>(2)</sup>	41 <sup>(2)</sup>	7.44	0.58	0.21 U
Arsenic	0.39	2	6.66	<b>2.8</b>	<b>1.9</b>
Barium	1,500 <sup>(2)</sup>	19,000 <sup>(2)</sup>	207	58	88
Beryllium	16 <sup>(2)</sup>	200 <sup>(2)</sup>	0.933	0.23	0.4
Cadmium	7 <sup>(2)</sup>	81 <sup>(2)</sup>	0.57	0.18	0.09 J
Chromium	280	1,400	47.9	<u>56</u>	<u>95</u>
Cobalt	2.3 <sup>(2)</sup>	30 <sup>(2)</sup>	63.1	<b>19</b>	<b>35</b>
Copper	310 <sup>(2)</sup>	4,100 <sup>(2)</sup>	120	58	81
Lead	400 <sup>(3)</sup>	800 <sup>(3)</sup>	6.2	<u>6.6</u>	5.2
Mercury	2.3 <sup>(2)</sup>	31 <sup>(2)</sup>	0.067	0.006 J	0.013 J
Nickel	160 <sup>(2)</sup>	2,000 <sup>(2)</sup>	26.5	19	<u>27</u>
Selenium	39 <sup>(2)</sup>	510 <sup>(2)</sup>	1.19	0.26 J	0.37 J
Silver	39 <sup>(2)</sup>	510 <sup>(2)</sup>	NE	0.036 J	0.036 J
Vanadium	55 <sup>(2)</sup>	720 <sup>(2)</sup>	256	<b>110</b>	<b>170</b>
Zinc	2,300 <sup>(2)</sup>	31,000 <sup>(2)</sup>	92	51 J	63 J
<b>TPH DRO and GRO (mg/kg)</b>					
Diesel Range Organics	NE	NE	NE	44	400
Gasoline Range Organics	NE	NE	NE	1.7	120
Total TPH	25 <sup>(4)</sup>	NE	NE	<b>45.7</b>	<b>520</b>

**TABLE 9-2**

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation  
U - Undetected at the Limit of Detection.  
UJ - Reported quantitation limit is qualified as estimated  
R - Data is rejected and not usable  
NE - Not Established  
NA - Not Analyzed  
ft bgs - feet below ground surface  
mg/kg - miligrams per kilogram  
ug/kg - micrograms per kilogram  
NAPR - Naval Activity Puerto Rico  
USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics  
GRO - Gasoline Range Organics  
TPH - Total Petroleum Hydrocarbons  
LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

- <sup>(1)</sup> NAPR basewide background surface soil screening value (upper limit of the means concentration [mean plus two standard deviations]) for Subsurface Soil Background Fine Sand/Silt Table 3-7 (Baker, 2008)
- <sup>(2)</sup> Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- <sup>(3)</sup> USEPA Action Level for lead in soils
- <sup>(4)</sup> Screening level for TPH is 25% of PREQB soil criterion, as proposed in the approved Work Plan dated 12/6/07
- <sup>(5)</sup> Pyrene used as a surrogate for screening purposes.

Acenaphthene

**TABLE 9-2**

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

Baker Environmental, Inc, (2008). Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico. February 29, 2008.

Efroymson, R.A., M.E. Will, and G.W. Suter II. 1997a. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revisions. Oak Ridge National Laboratory, Oak Ridge, TN. ES/ER/TM-126/R2.

Efroymson, R.A., M.E. Will, G.W. Suter II, and A.C. Wooten. 1997b. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revisions. Oak Ridge National Laboratory, Oak Ridge, TN. ES/ER/TM-85/R3

TABLE 9-3

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	<b>Regional Tap Water Screening Levels</b>	<i>USEPA</i> <i>MCLs</i>	Selected Ecological Surface Water Screening Values	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	74SB256 74GW256 5/30/2008	74SB236 74GW236 5/31/2008	74SB246 74GW246 5/31/2008	MW02 74GWMW2-2-VP56 5/29/2008
<b>Volatile Organic Compounds (ug/L)</b>								
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(4)</sup>	NE	6.2 J	0.66 J	0.17 U	0.17 U
<b>LLPAHs (ug/L)</b>								
Benzo[a]anthracene	0.03	NE	6 <sup>(11)</sup>	NE	0.25 U	0.025 U	<b>0.036 J</b>	0.025 U
Chrysene	2.90	NE	10 <sup>(9)</sup>	NE	0.27 U	0.027 U	0.086 J	0.027 U
Fluoranthene	150 <sup>(2)</sup>	NE	11 <sup>(5)</sup>	NE	0.49 U	0.049 U	0.073 J	0.049 U
<b>Total Metals (ug/L)</b>								
Arsenic	0.045	10	36.0 <sup>(14)</sup>	18.89	<b>12</b>	<b>5.8</b>	1.5 U	1.1 U
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(13)</sup>	686	290	3.9 J	120	30
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.12 U	0.12 U	0.18 J	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	9.6 J	2.2 U	3.6 U	0.6 U
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	<b>7.6</b>	0.45 U	<b>5.6</b>	0.76 R
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	<b>9.3</b>	1.2 U	<b>13</b>	2.3 U
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	8.2	1.8	2.8	0.67 J
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	2.9	0.89 J	0.87 J	0.6 U
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	0.2 J	0.09 U	0.09 U	0.09 U
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(4)</sup>	9.35	2.1 J	0.9 U	0.9 U	0.9 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(4)</sup>	484.66	<b>31</b>	5.8	<b>29</b>	2.2 U
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	17 J	6.5 U	12 J	6.5 U



TABLE 9-3

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	USEPA	Selected	NAPR	74SB256	74SB236	74SB246	MW02
Sample ID	Tap Water	MCLs	Ecological	Basewide	74GW256	74GW236	74GW246	74GWMW2-2-VP56
Date	Screening Levels		Surface Water Screening Values	Background <sup>(1)</sup>	5/30/2008	5/31/2008	5/31/2008	5/29/2008
<b>Dissolved Metals (ug/L)</b>								
Arsenic	0.045	10	36 <sup>(14)</sup>	14.03	<b>9.7</b>	<b>6.3</b>	1.7 U	0.83 U
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(13)</sup>	260	<u>300</u>	3.3 J	110	31
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	0.12 U	0.12 U	0.22 J	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	4.5 J	0.6 U	0.6 U	1.5 J
Cobalt	1.1	NE	45 <sup>(6)</sup>	580.5	<b>3.2</b>	1	<b>5.1</b>	1.8 R
Nickel	73	NE	8.28 <sup>(3)</sup>	84.1	4.8	1.4	2	1.2
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	2.1 J	1 J	1 J	0.6 U
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(4)</sup>	NE	1.3 J	0.9 U	0.9 U	0.9 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(4)</sup>	20.96	<b>15</b>	5.8	<b>23</b>	0.95 U
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	12 J	6.5 U	8 J	6.5 U
<b>TPH DRO and GRO (mg/L)</b>								
Diesel Range Organics	NE	NE	NE	NE	1.8	0.1	0.32	7.7
Gasoline Range Organics	NE	NE	NE	NE	0.012 U	0.012 U	0.012 U	0.091
Total TPH	12.5 <sup>(8)</sup>	NE	NE	NE	1.8	0.1	0.32	7.791

TABLE 9-3

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	<b>Regional Tap Water Screening Levels</b>	<i>USEPA</i> <i>MCLs</i>	Selected Ecological Surface Water Screening Values	<u>NAPR</u> <u>Basewide</u> <u>Background</u> <sup>(1)</sup>	UGW12 74GW12-VP-56 5/29/2008	UGW12 74GW12-VP-56D 5/29/2008	GW04 74GW04VP24 5/29/2008
<b>Volatile Organic Compounds (ug/L)</b>							
Carbon disulfide	100 <sup>(2)</sup>	NE	15 <sup>(4)</sup>	NE	0.17 U	0.17 U	0.28 J
<b>LLPAHs (ug/L)</b>							
Benzo[a]anthracene	0.03	NE	6 <sup>(11)</sup>	NE	0.25 R	0.025 U	0.25 U
Chrysene	2.90	NE	10 <sup>(9)</sup>	NE	0.27 R	0.027 U	0.27 U
Fluoranthene	150 <sup>(2)</sup>	NE	11 <sup>(5)</sup>	NE	0.49 R	0.049 U	0.49 U
<b>Total Metals (ug/L)</b>							
Arsenic	0.045	10	36.0 <sup>(14)</sup>	18.89	2.7	2.5 U	7.3
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(13)</sup>	686	11	12	73
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	16.62	0.12 U	0.12 U	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	162.41	0.6 U	0.6 U	0.6 U
Cobalt	1.1 <sup>(2)</sup>	NE	45 <sup>(6)</sup>	633.21	0.65 J	0.71 J	1.2 R
Copper	150 <sup>(2)</sup>	1,300	3.73 <sup>(3)</sup>	324	2.3 U	1.8 U	4.4 U
Nickel	73 <sup>(2)</sup>	NE	8.28 <sup>(3)</sup>	95.7	0.48 J	0.47 J	1.7
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	29.88	0.6 U	0.6 U	0.76 J
Silver	18 <sup>(2)</sup>	NE	0.23 <sup>(7)</sup>	18.31	0.09 U	0.09 U	0.09 U
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(4)</sup>	9.35	0.9 U	0.9 U	0.9 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(4)</sup>	484.66	2.1 U	2.1 U	34
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	547.53	6.5 U	6.5 U	13 J

TABLE 9-3

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - GROUNDWATER**  
**SWMU 74 - FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID Sample ID Date	Regional Tap Water Screening Levels	USEPA MCLs	Selected Ecological Surface Water Screening Values	NAPR Basewide Background <sup>(1)</sup>	UGW12 74GW12-VP-56 5/29/2008	UGW12 74GW12-VP-56D 5/29/2008	GW04 74GW04VP24 5/29/2008
<b>Dissolved Metals (ug/L)</b>							
Arsenic	0.045	10	36 <sup>(14)</sup>	14.03	2.2 U	2 U	5.6
Barium	730 <sup>(2)</sup>	2,000	16,667 <sup>(13)</sup>	260	12	13	85
Cadmium	1.8 <sup>(2)</sup>	5.0	8.85 <sup>(3)</sup>	36.42	0.12 U	0.12 U	0.12 U
Chromium	5,500 <sup>(2)</sup>	NE	50.4 <sup>(12)</sup>	6.5	0.6 U	0.7 J	0.66 J
Cobalt	1.1	NE	45 <sup>(6)</sup>	580.5	0.82 J	1.1 J	3 R
Nickel	73	NE	8.28 <sup>(3)</sup>	84.1	0.68 J	0.52 J	1.9
Selenium	18 <sup>(2)</sup>	50	71.1 <sup>(3)</sup>	23.92	0.6 U	0.6 U	0.62 J
Tin	2,200 <sup>(2)</sup>	NE	180 <sup>(4)</sup>	NE	0.9 U	0.9 U	0.9 U
Vanadium	26 <sup>(2)</sup>	NE	12 <sup>(4)</sup>	20.96	0.9 U	0.94 U	37
Zinc	1,100 <sup>(2)</sup>	NE	85.6 <sup>(3)</sup>	360.64	8.1 J	6.5 U	6.5 U
<b>TPH DRO and GRO (mg/L)</b>							
Diesel Range Organics	NE	NE	NE	NE	5.2	4.6	8.1
Gasoline Range Organics	NE	NE	NE	NE	0.14	0.11	0.075
Total TPH	12.5 <sup>(8)</sup>	NE	NE	NE	5.34	4.71	8.175

**TABLE 9-3**

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes/Qualifiers:**

U - Not detected

J - Analyte present - Reported value is estimated

R -Rejected data; not usable

NE - Not Established

mg/l - milligram per liter

ug/l - microgram per liter

NAPR - Naval Activity Puerto Rico

USEPA - United States Environmental Protection Agency

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

TPH - Total Petroleum Hydrocarbons

LLPAH - Low-level Polynuclear Aromatic Hydrocarbon

- (1) NAPR Basewide Groundwater Background - Upper Limit of Means (Mean + 2 standard deviations) Revised Final Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, PR, Baker Environmental (Baker, 2008)
- (2) Noncarcinogenic Regional Screening Levels based on a target hazard quotient of 0.1 for conservative screening purposes
- (3) Total Recoverable Criteria Continuous Concentration
- (4) USEPA Region 5 ecological screening level
- (5) Final Chronic Value
- (6) Minimum acute value (96-hour LC<sub>50</sub> for *Nitocra spinipes* [Harpacticoid copepod]) with safety factor of 100 (USEPA, 2003)
- (7) USEPA Region 4 chronic screening value (USEPA, 2001)
- (8) Screening level for TPH is 25% of PREQB groundwater criterion, as proposed in the approved Work Plan dated 12/6/07
- (9) Acute value (LC<sub>50</sub>) with a safety factor of 100
- (10) USEPA National recommended water quality criterion (dissolved saltwater CCC) (USEPA, 2006)
- (11) Acute LOEL for chemical class with a safety factor of 50
- (12) Total recoverable Criteria Continuous Concentration for hexavalent chromium
- (13) Minimum acute value (96-hour NOEC for *Cyprinodon variegatus* [sheepshead minnow]) with safety factor of 30 (USEPA, 2007)
- (14) Total recoverable Criteria Continuous Concentration for trivalent arsenic

**TABLE 9-3**

**SUMMARY OF DETECTED RESULTS - FUELING PIERS AREA - GROUNDWATER  
SWMU 74 - FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

Baker Environmental, Inc, (2008). Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico. February 29, 2008.

Buchman, M.F. 1999. NOAA Screening Quick Reference Tables. NOAA HAZMAT Report 99-1. National Oceanic and Atmospheric Administration, Seattle, WA. 12pp.

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USEPA. 1996. Ecotox Thresholds. Eco Update, Volume 3, Number 2. Office of Solid Waste and Emergency Response, Washington, D.C. EPA/F-95/038.

## FIGURES

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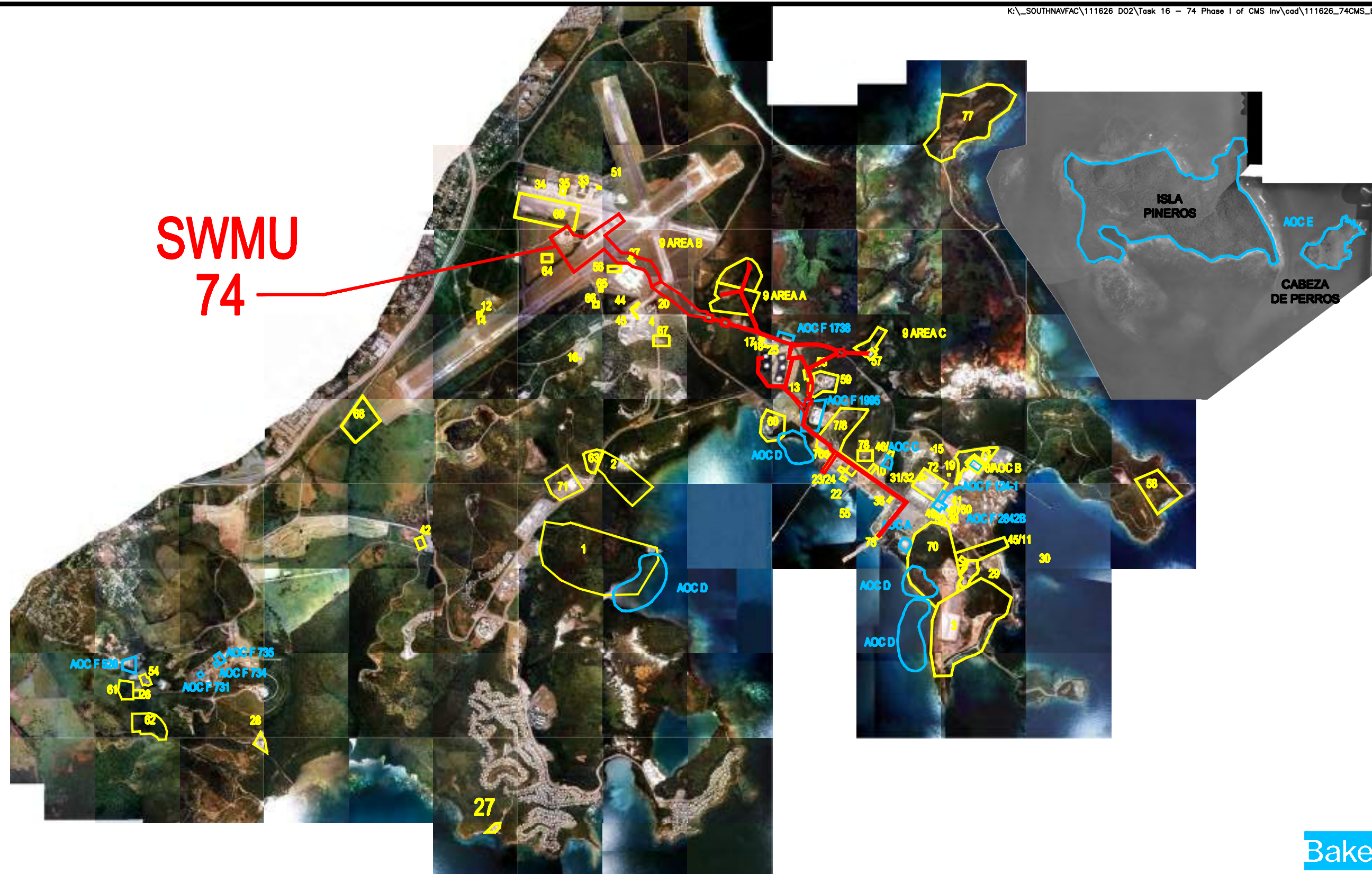


1 inch = 4 miles


Baker


FIGURE 2-1  
NAPR LOCATION MAP  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT






### LEGEND

 – SWMUs

 – AOCs

 – AREA TO WHICH THIS INVESTIGATION PERTAINS

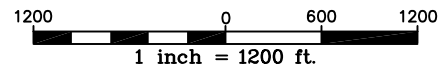
SOURCE: GEO-MARINE, INC., SEPTEMBER 6, 2000.

FIGURE 2-2  
SWMU/AOC LOCATION MAP  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO





SOURCE: GEO-MARINE, INC., SEPTEMBER 6, 2000



**Baker**

—SWMU BOUNDARY

**LEGEND**

**NOTE**

SWMU 74 INCLUDES THE FUEL PIPELINES AND HYDRANT PITS.  
SWMU 74 DOES NOT INCLUDE THE FUEL FARMS OR TANKS.

FIGURE 2-3  
SWMU 74 LOCATION  
SWMU 74—FUEL PIPELINES AND  
HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO





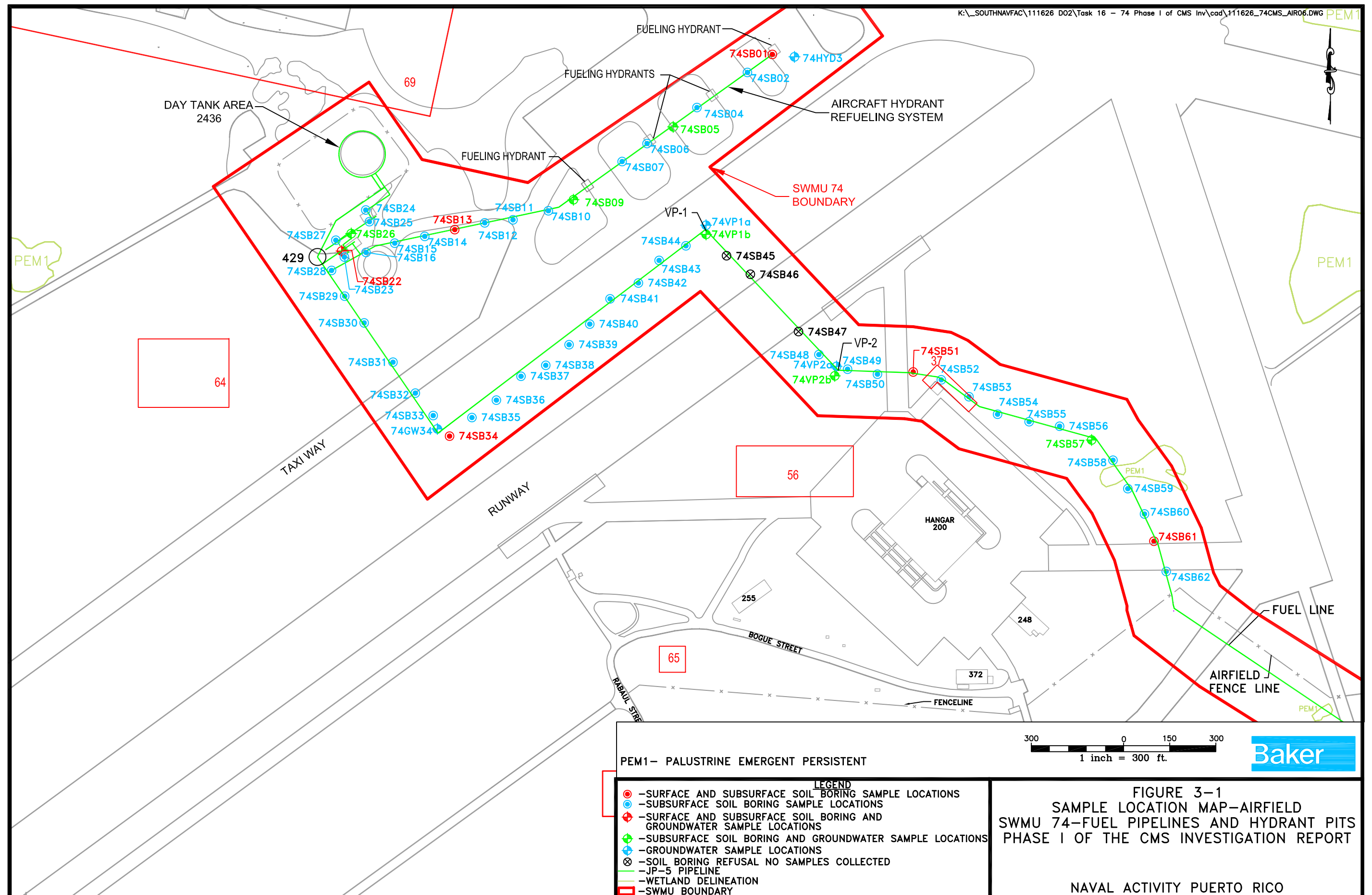
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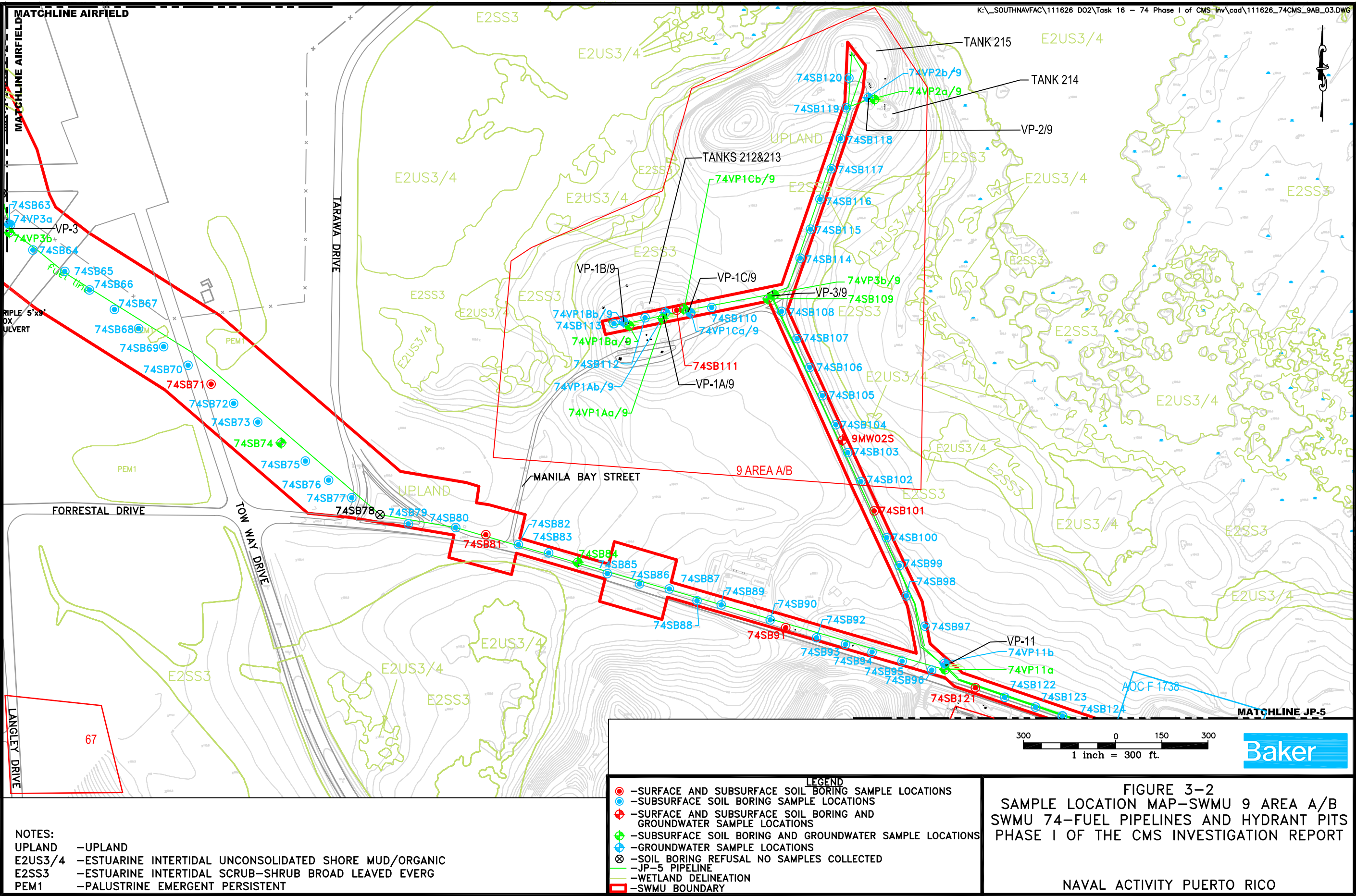
**Baker**

- LEGEND**
- SWMU BOUNDARY
  - GEOGRAPHIC AREAS IN THE PHASE I CMS INVESTIGATION REPORT

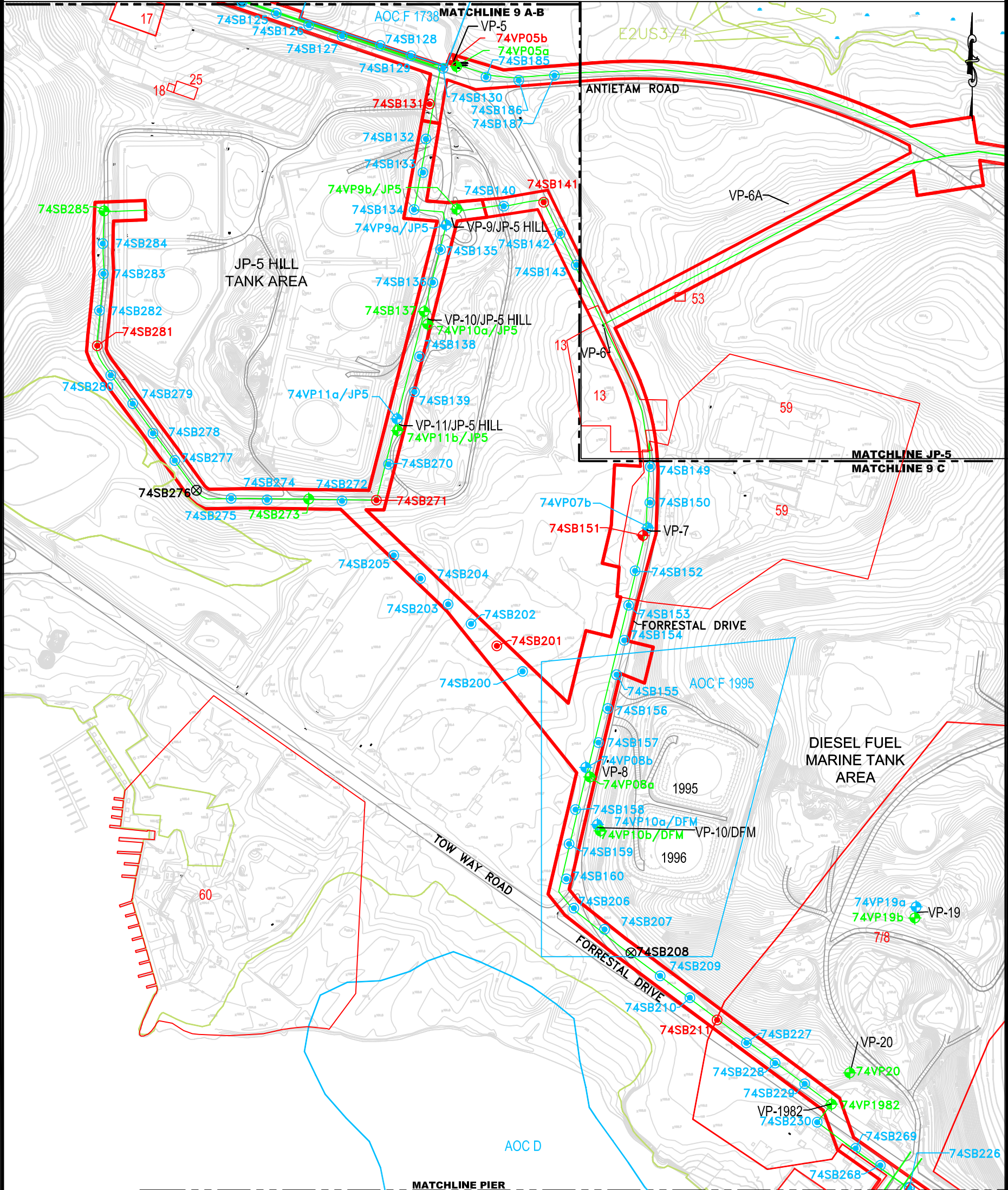
**FIGURE 2-4**  
INDEX MAP OF SWMU 74 AREAS  
SWMU 74—FUEL PIPELINES AND  
HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO





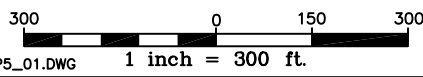






NOTES:  
E2US3/4- ESTUARINE INTERTIDAL UNCON  
SOLIDATED SHORE MUD/ORGANIC

K:\\_SOUTHNAVFAC\111626 D02\Task 16 - 74 Phase I of CMS Inv\cad\111626\_74CMS\_JP5\_01.DWG



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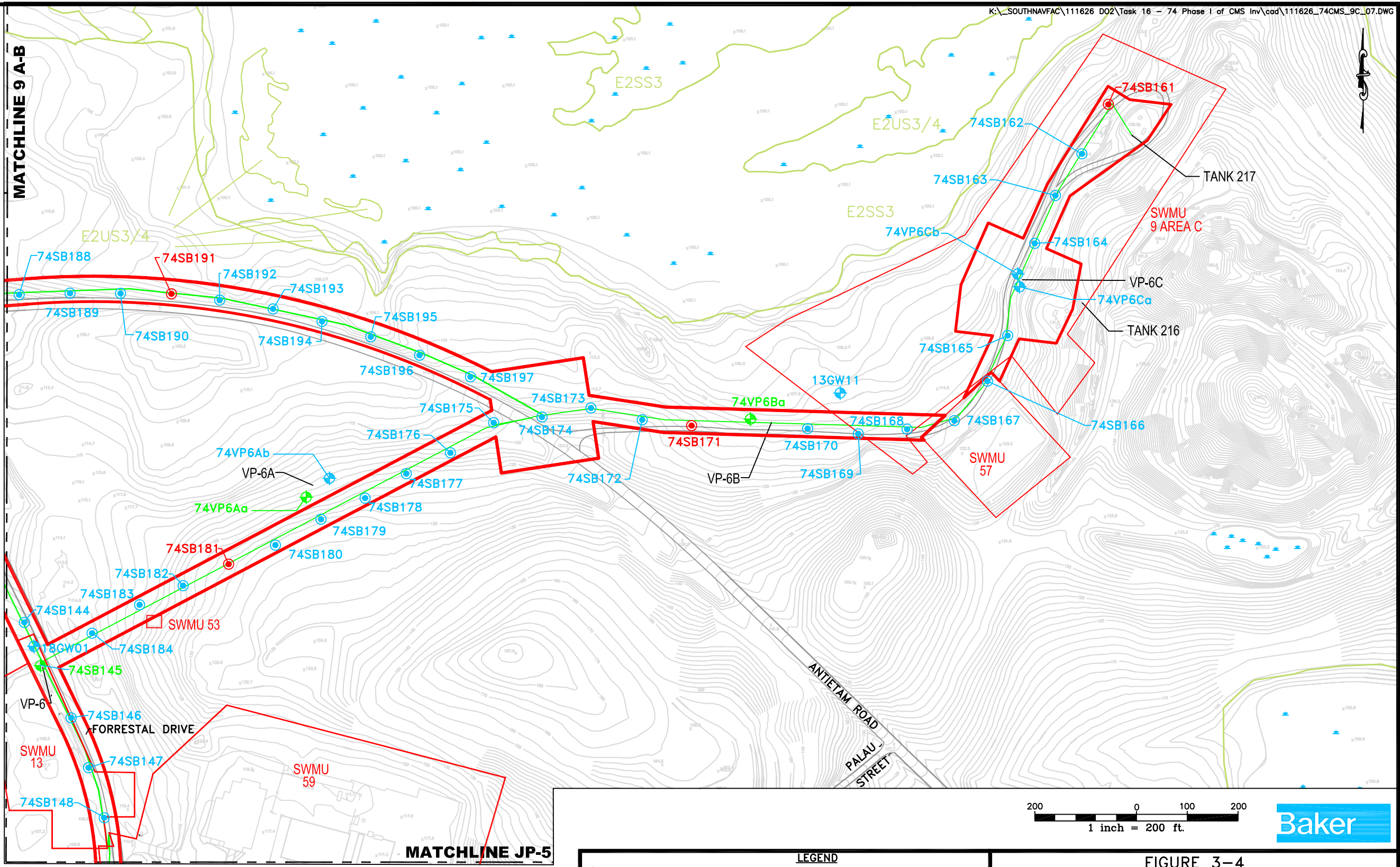
- LEGEND
- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - ⊕ -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - ⊕ -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - -GROUNDWATER SAMPLE LOCATIONS
  - ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
  - -JP-5 PIPELINE
  - -WETLAND DELINEATION
  - -SWMU BOUNDARY

FIGURE 3-3  
SAMPLE LOCATION MAP-JP-5 HILL AND DFM AREA  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT

NAVAL ACTIVITY PUERTO RICO



MATCHLINE 9 A-B

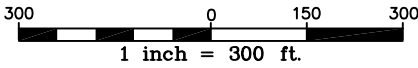
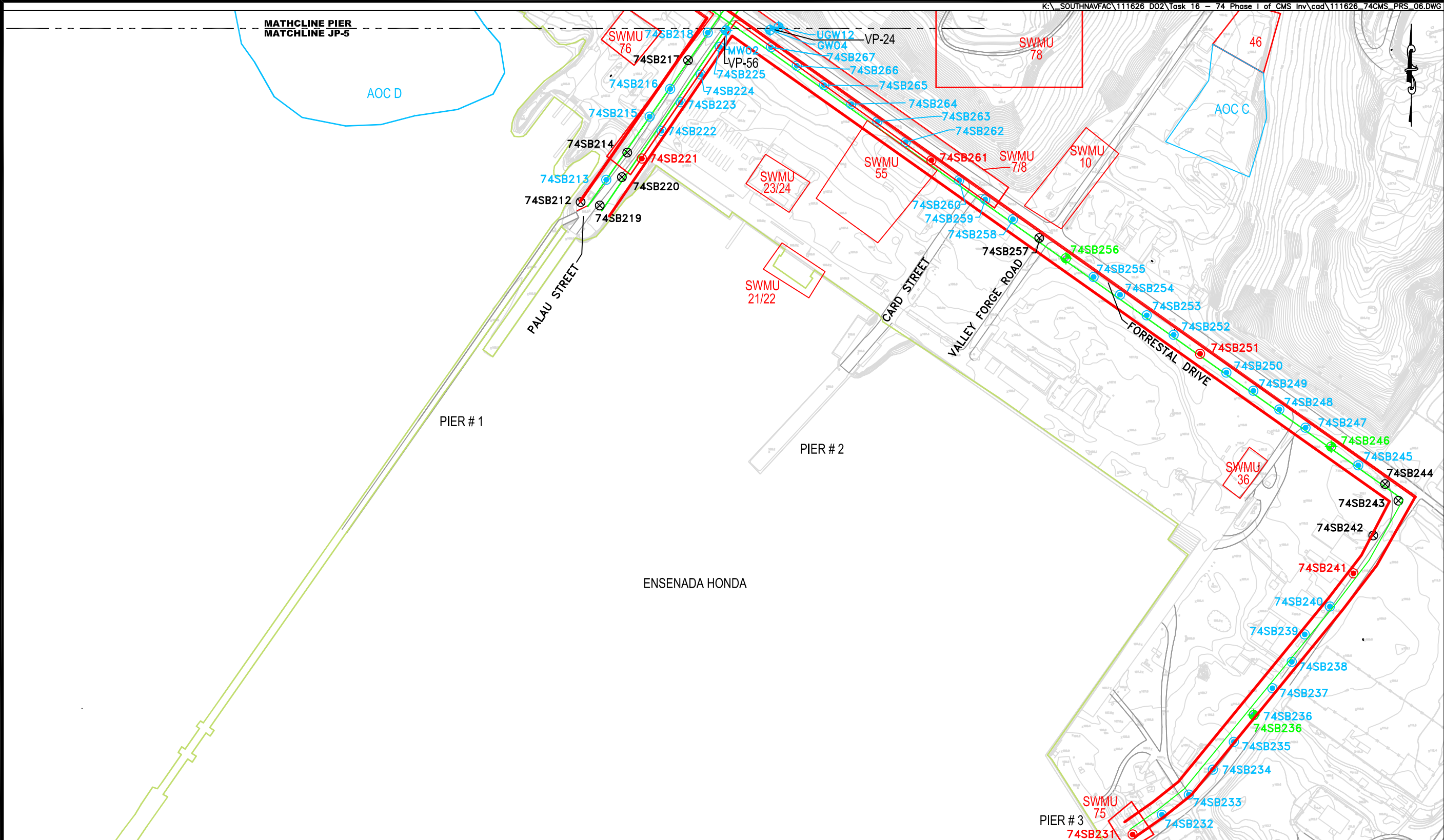


NOTES:  
E2US3/4 -ESTUARINE INTERTIDAL UNCON SOLIDATED SHORE MUD/ORGANIC  
E2SS3 -ESTUARINE INTERTIDAL SCRUB-SHRUB BROAD LEAVED EVERG

- LEGEND**
- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - -GROUNDWATER SAMPLE LOCATIONS
  - JP-5 PIPELINE
  - WETLAND DELINEATION
  - SWMU BOUNDARY

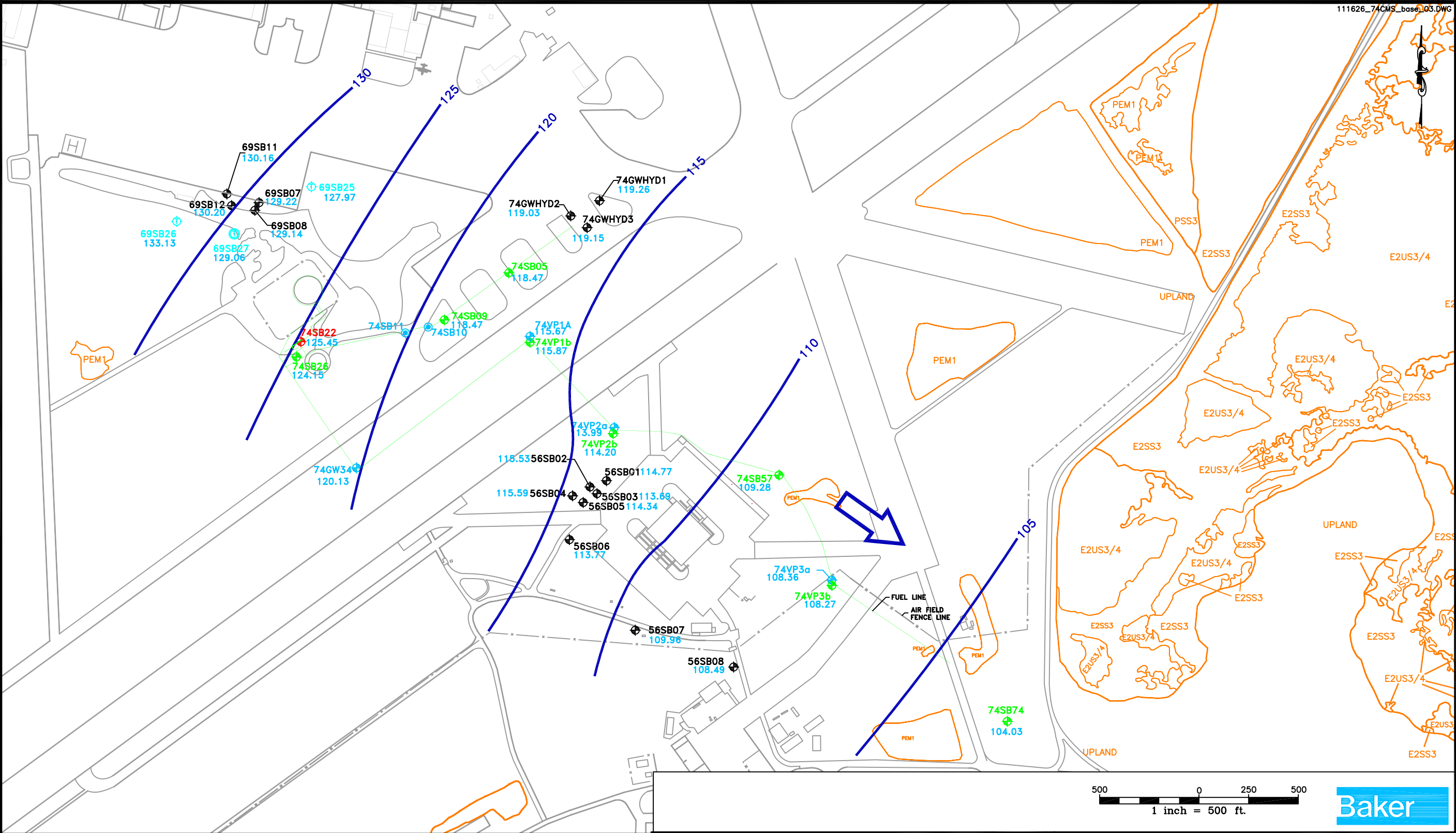
FIGURE 3-4  
SAMPLE LOCATION MAP-SWMU 9 AREA C  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT





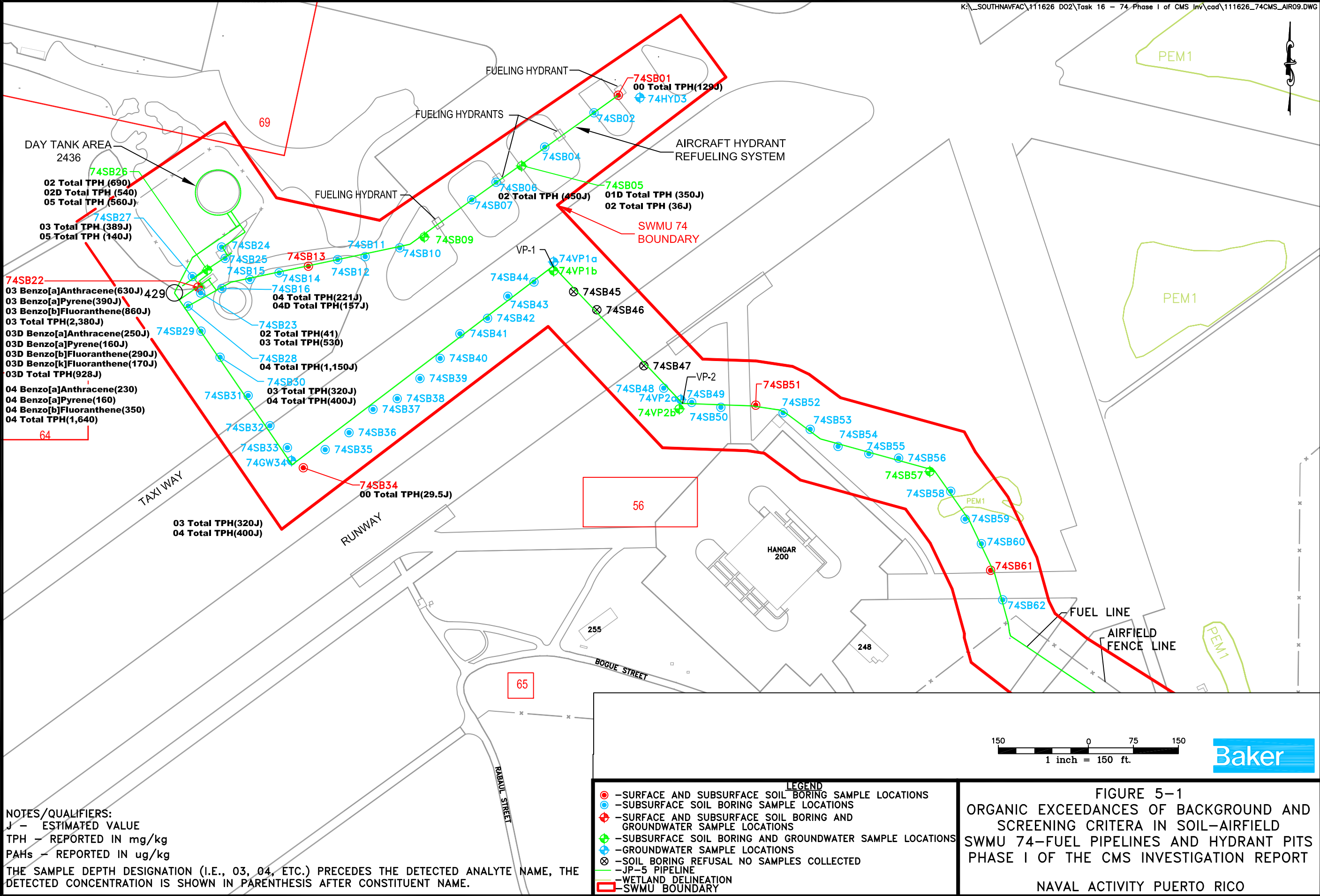
- LEGEND**
- - SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - - SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - - SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - - GROUNDWATER SAMPLE LOCATIONS
  - ⊗ - SOIL BORING REFUSAL NO SAMPLES COLLECTED
  - JP-5 PIPELINE
  - WETLAND DELINEATION
  - SWMU BOUNDARY

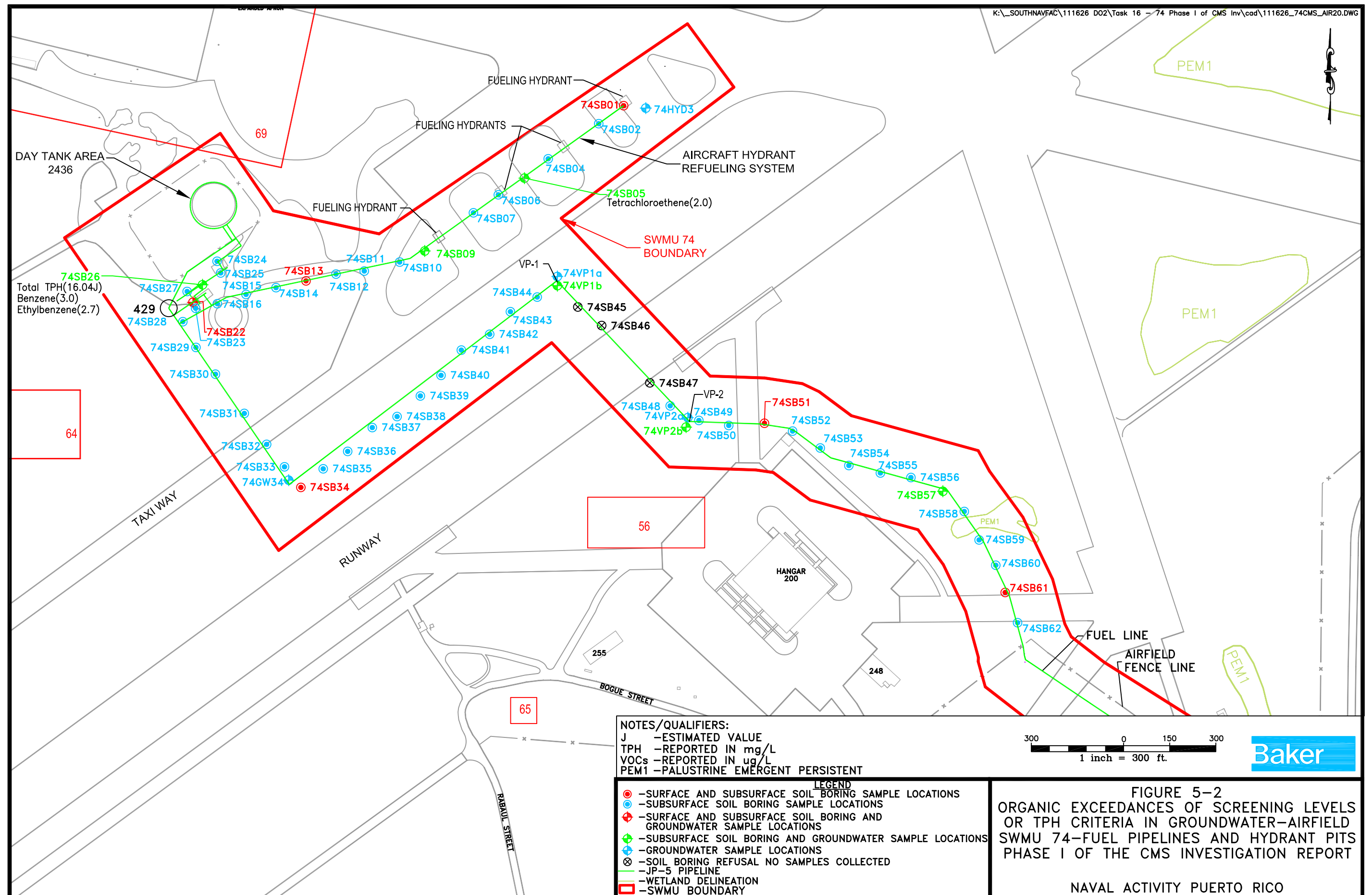
**FIGURE 3-5**  
SAMPLE LOCATION MAP-FUELING PIERS AREA  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT

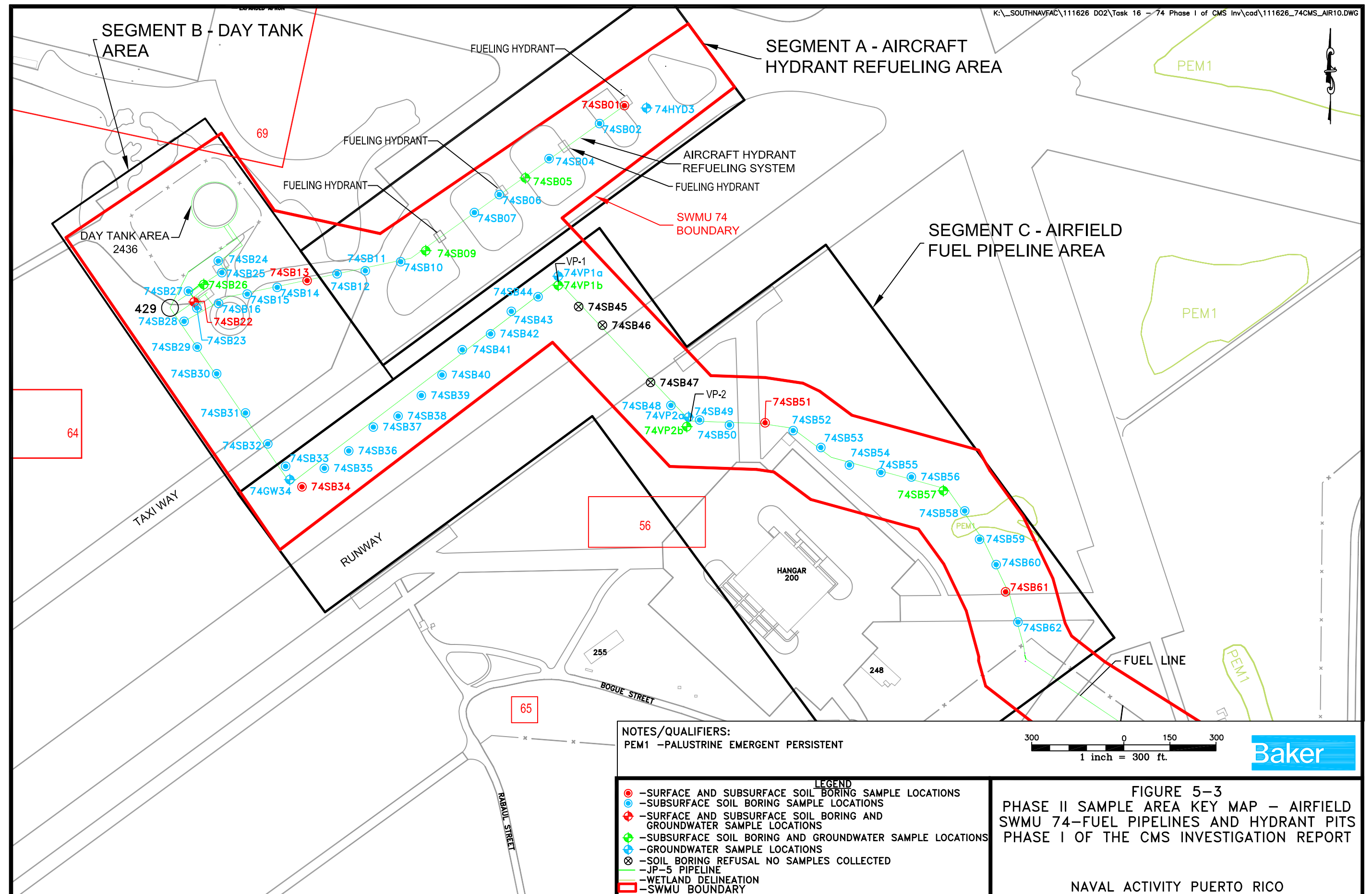


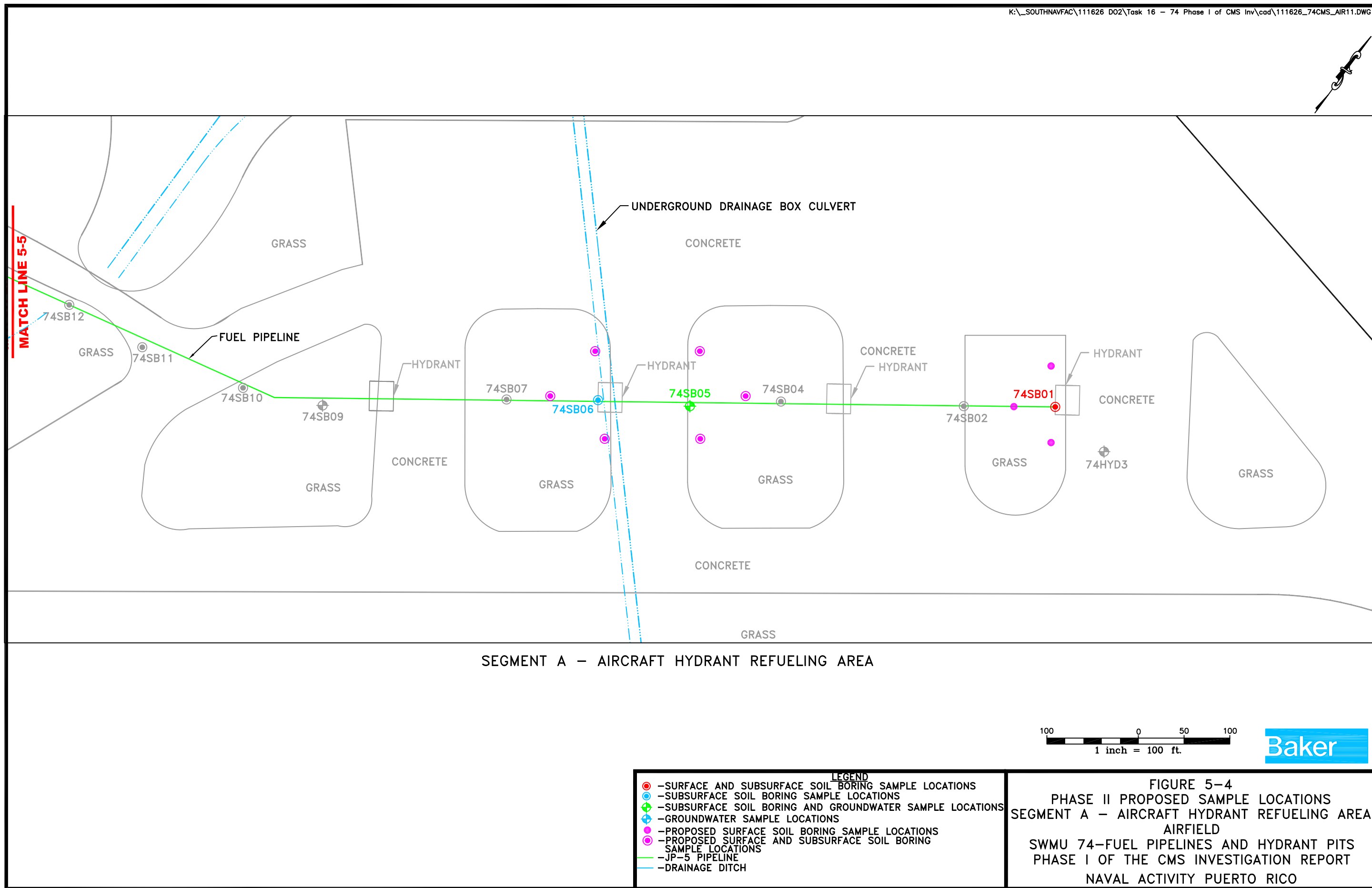
<p><b>GROUNDWATER LEGEND</b></p> <p>—ESTIMATED GROUNDWATER CONTOUR, FEET</p> <p>—GROUNDWATER FLOW DIRECTION</p> <p>ALL ELEVATIONS SHOWN ARE MEAN SEA LEVEL PLUS 100 FEET DEPTH TO WATER MEASURED ON JULY 22, 2008</p>	<p><b>LEGEND</b></p> <ul style="list-style-type: none"><li>—CMS INVESTIGATION SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS</li><li>—SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS</li><li>—SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS</li><li>—GROUNDWATER SAMPLE LOCATIONS</li><li>108.49 —GROUNDWATER ELEVATION</li></ul>	<p><b>FIGURE 3-6</b></p> <p><b>REGIONAL GROUNDWATER CONTOUR MAP-AIRFIELD SWMU 74-FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CMS INVESTIGATION REPORT</b></p> <p>NAVAL ACTIVITY PUERTO RICO</p>
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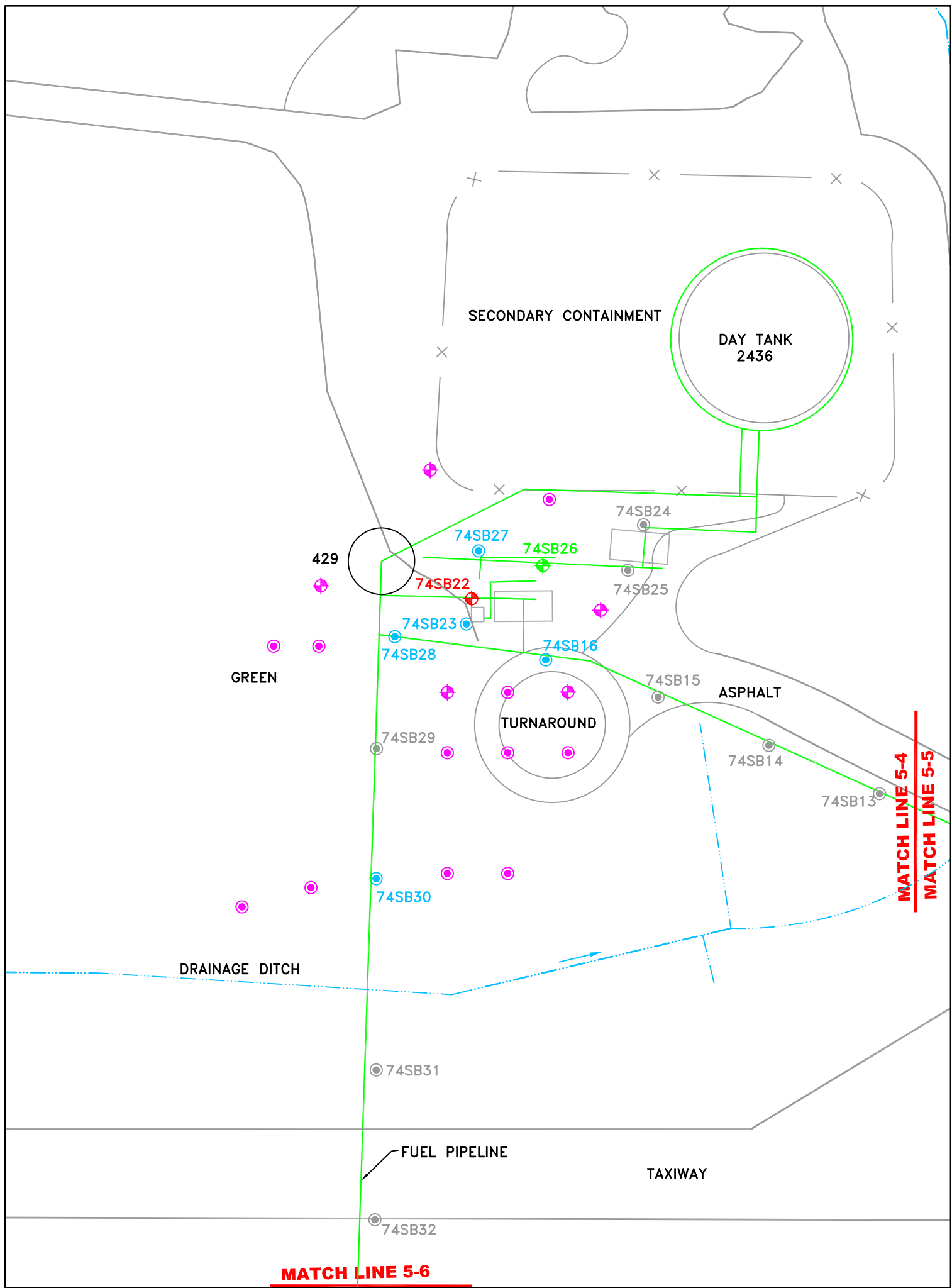




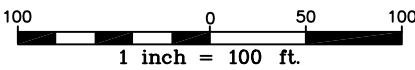








SEGMENT B - DAY TANK AREA



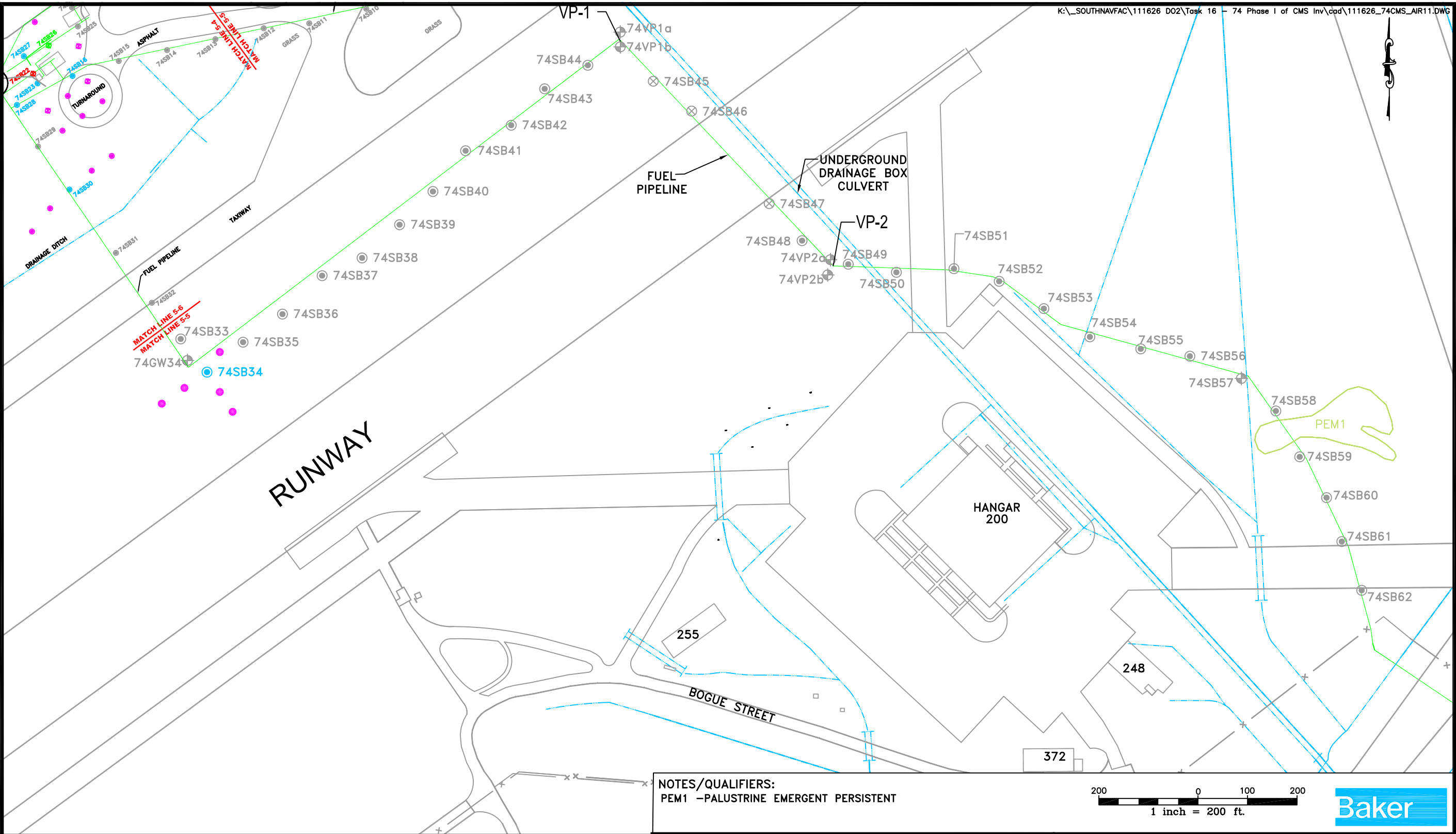
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LEGEND

- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- -PROPOSED SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -PROPOSED SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- JP-5 PIPELINE
- DRAINAGE DITCH
- FENCE LINE

FIGURE 5-5  
PHASE II PROPOSED SAMPLE LOCATIONS  
SEGMENT B - DAY TANK AREA - AIRFIELD  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT

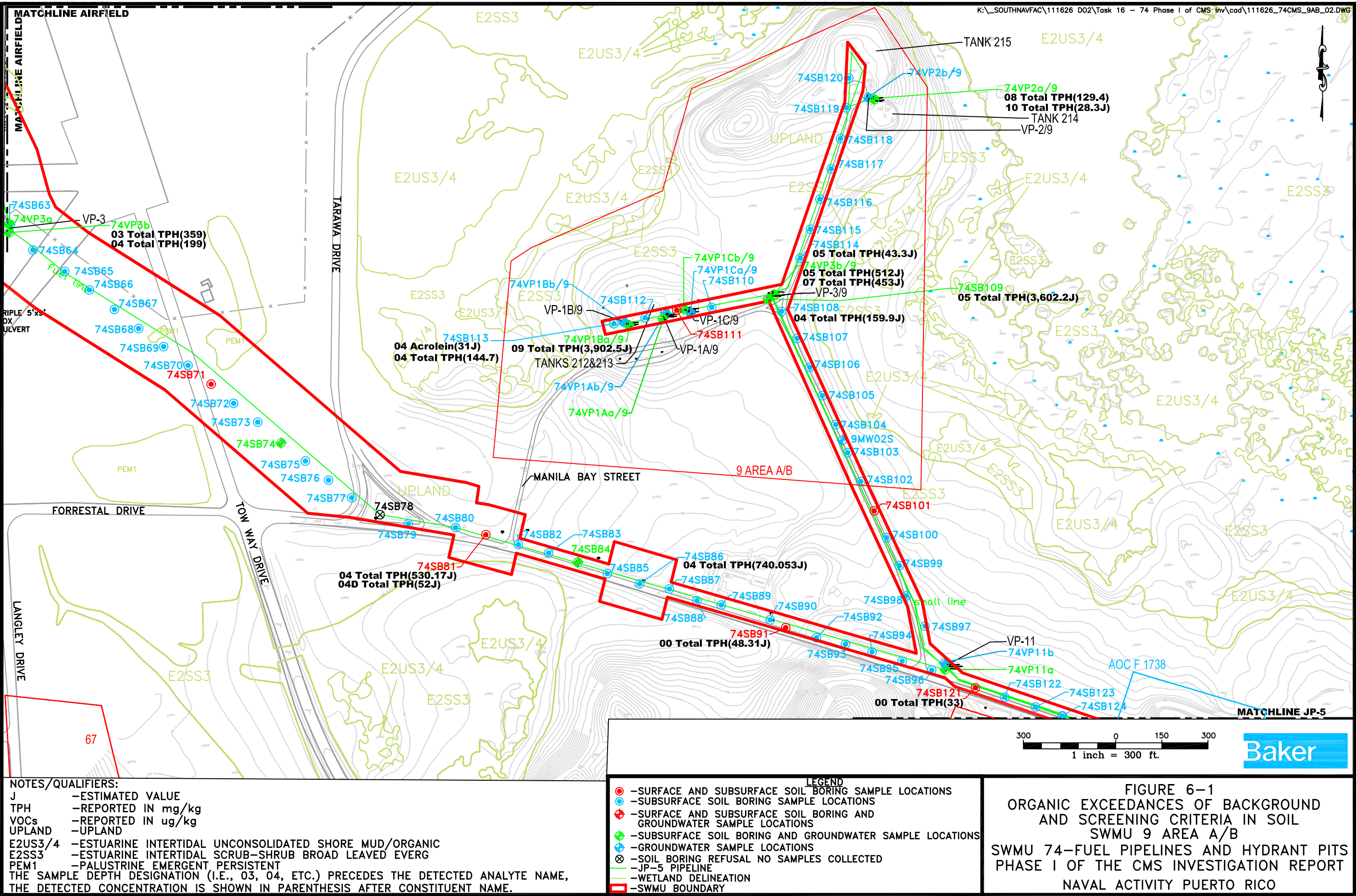
NAVAL ACTIVITY PUERTO RICO



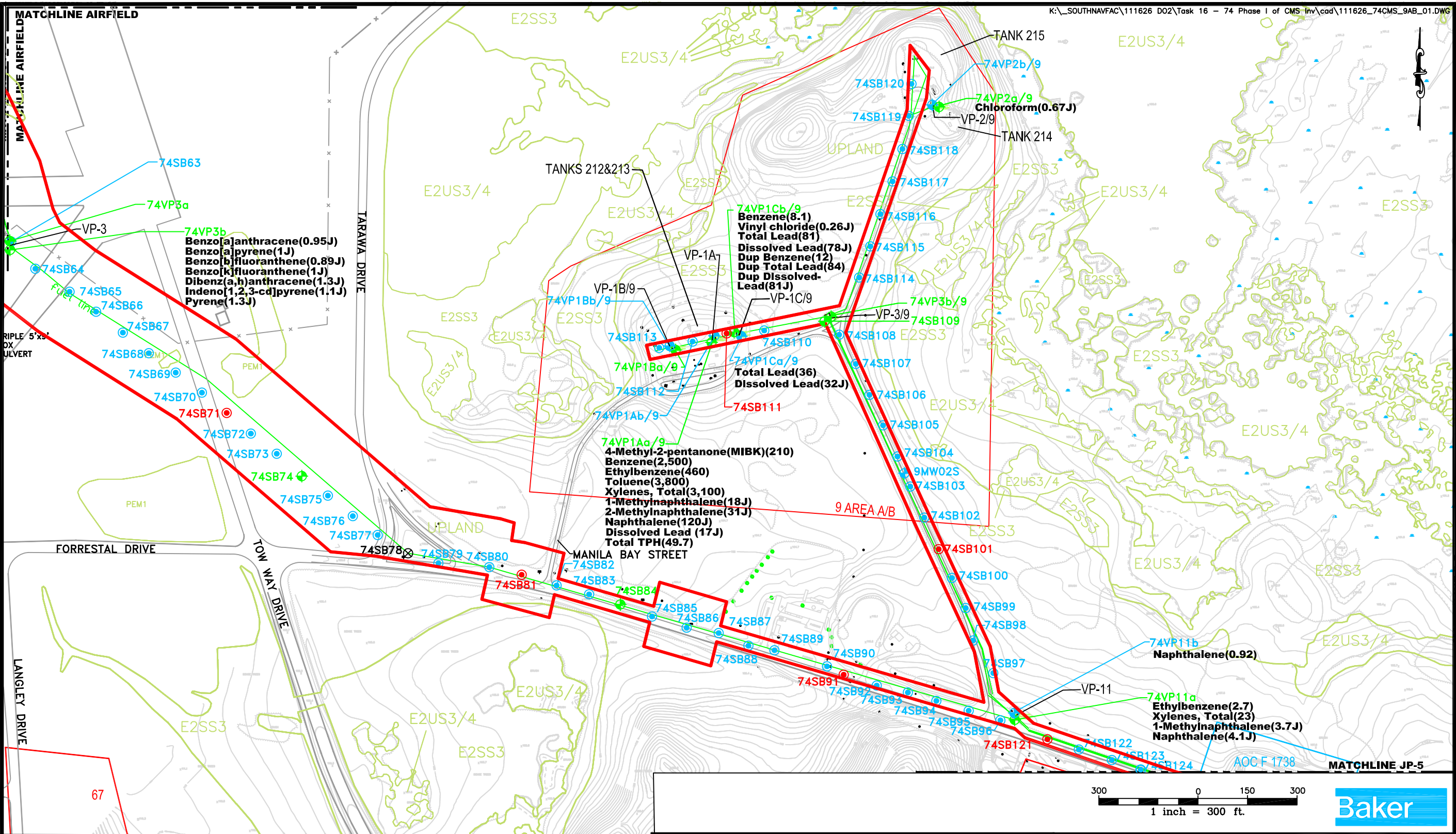
SEGMENT C - AIRFIELD FUEL PIPELINE AREA

- LEGEND**
- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - ⊕ -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - ⊕ -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - ⊕ -GROUNDWATER SAMPLE LOCATIONS
  - ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
  - ⊕ -PROPOSED SURFACE SOIL BORING SAMPLE LOCATIONS
  - ⊕ -PROPOSED SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - JP-5 PIPELINE — DRAINAGE DITCH — FENCE LINE

**FIGURE 5-6**  
**PHASE II PROPOSED SAMPLE LOCATIONS**  
**SEGMENT C - AIRFIELD FUEL PIPELINE AREA**  
**AIRFIELD**  
**SWMU 74-FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION REPORT**  
**NAVAL ACTIVITY PUERTO RICO**







**NOTES/QUALIFIERS:**

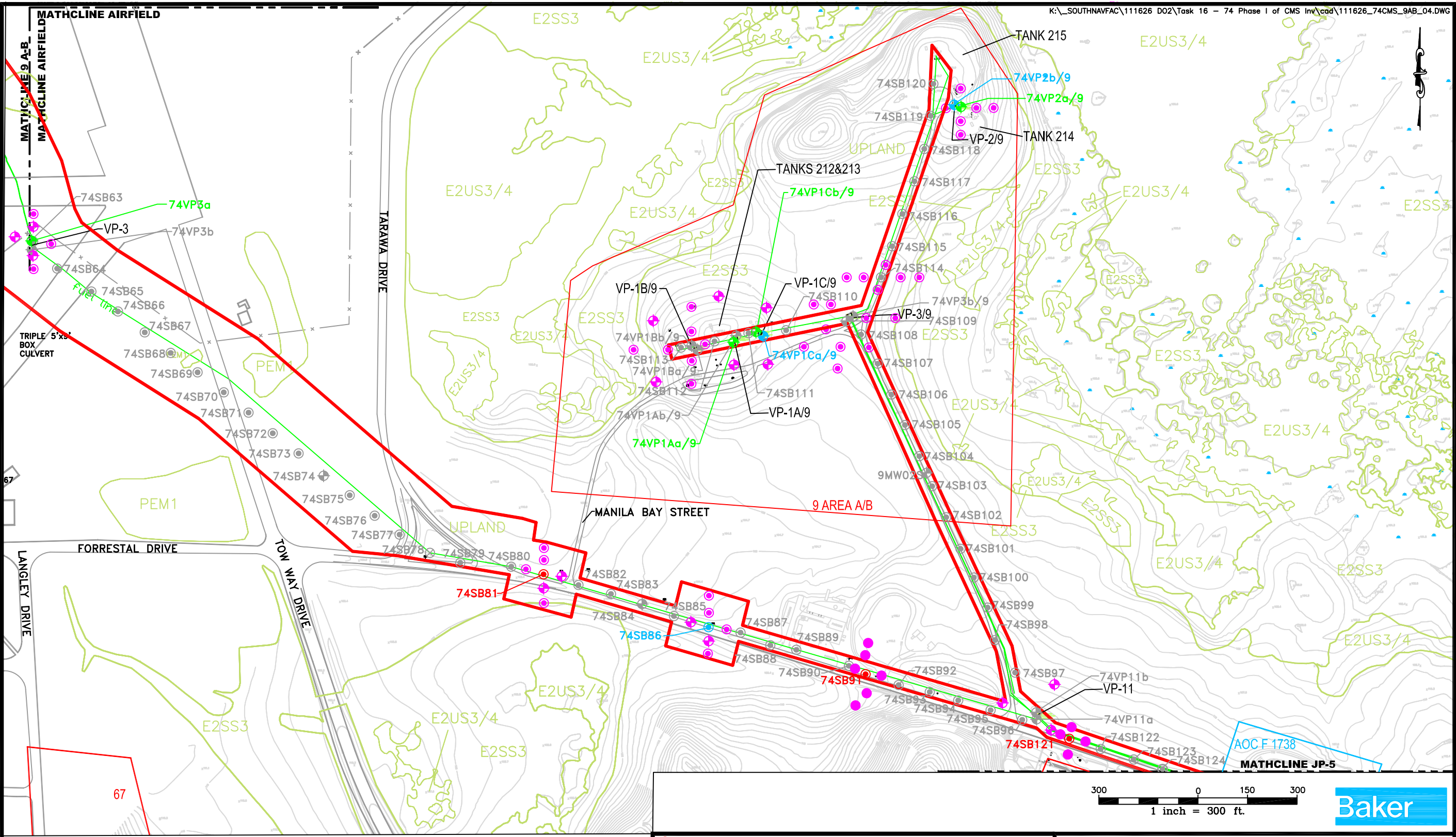
J	-ESTIMATED VALUE
TPH	-REPORTED IN mg/L
PAHs	-REPORTED IN ug/L
VOCs	-REPORTED IN ug/L
UPLAND	-UPLAND
E2US3/4	-ESTUARINE INTERTIDAL UNCONSOLIDATED SHORE MUD/ORGANIC
E2SS3	-ESTUARINE INTERTIDAL SCRUB-SHRUB BROAD LEAVED EVERG
PEM	-PALUSTRINE EMERGENT PERSISTENT

**LEGEND**

- SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- GROUNDWATER SAMPLE LOCATIONS
- SOIL BORING REFUSAL NO SAMPLES COLLECTED
- JP-5 PIPELINE
- WETLAND DELINEATION
- SWMU BOUNDARY

**FIGURE 6-2**  
**ORGANIC EXCEEDANCES OF BACKGROUND AND SCREENING CRITERIA AND SELECTED INORGANIC COMPOUNDS IN GROUNDWATER**  
**SWMU 9 AREA A/B**  
**SWMU 74-FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION REPORT**  
**NAVAL ACTIVITY PUERTO RICO**



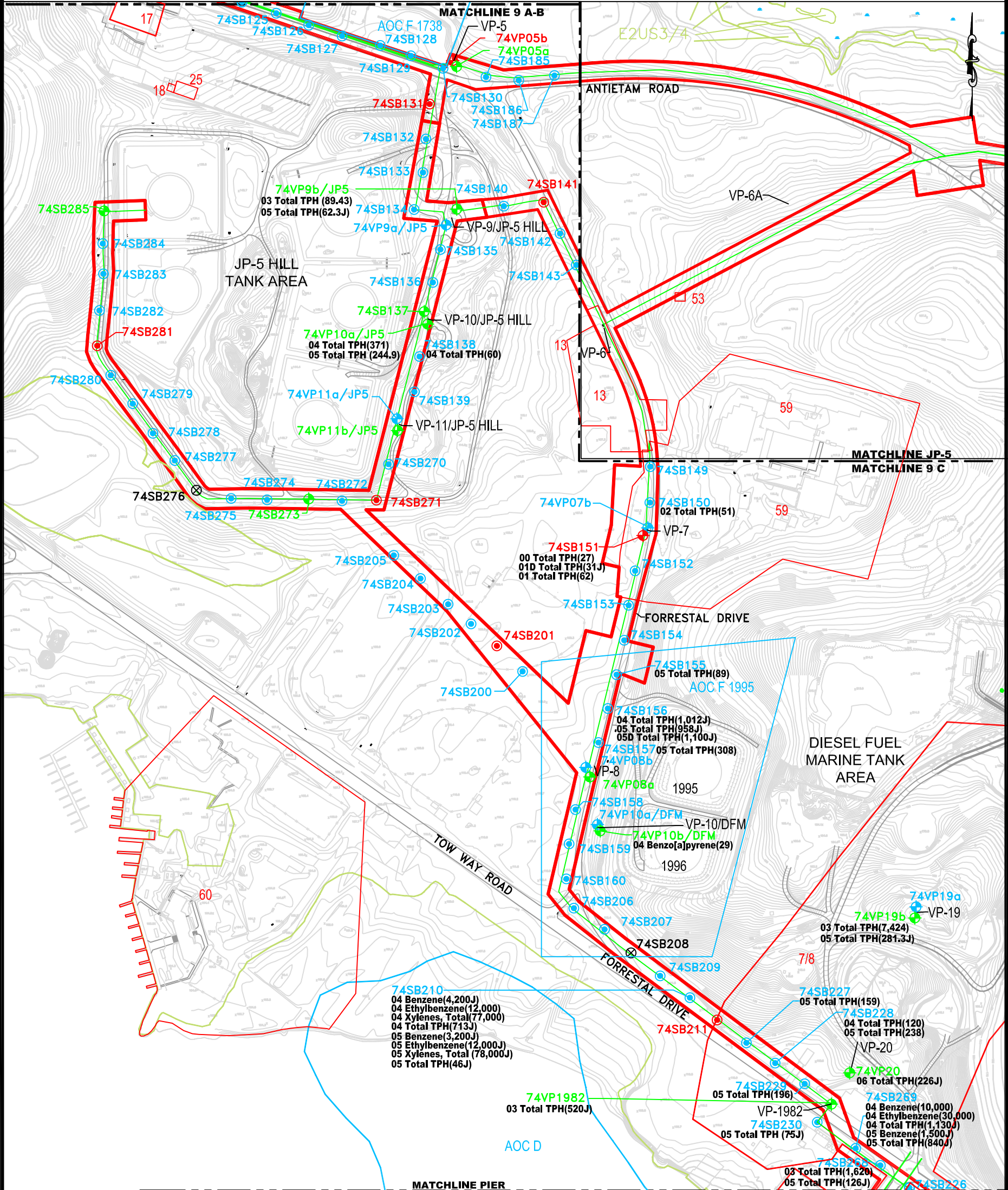


NOTES:  
 UPLAND -UPLAND  
 E2US3/4 -ESTUARINE INTERTIDAL UNCONSOLIDATED SHORE MUD/ORGANIC  
 E2SS3 -ESTUARINE INTERTIDAL SCRUB-SHRUB BROAD LEAVED EVERG  
 PEM1 -PALUSTRINE EMERGENT PERSISTENT

- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- ⊕ -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- ⊕ -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- ⊕ -GROUNDWATER SAMPLE LOCATIONS
- ⊕ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
- ⊕ -PROPOSED SURFACE SOIL BORING SAMPLE LOCATIONS
- ⊕ -PROPOSED SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- ⊕ -PROPOSED SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS

FIGURE 6-3  
 PHASE II PROPOSED SAMPLE LOCATIONS  
 SWMU 9 AREA A/B  
 SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
 PHASE I OF THE CMS INVESTIGATION REPORT  
 NAVAL ACTIVITY PUERTO RICO





NOTES/QUALIFIERS:  
J -ESTIMATED VALUE  
TPH -REPORTED IN mg/kg  
PAHs -REPORTED IN ug/kg  
VOCs -REPORTED IN ug/kg  
E2US3/4 -ESTUARINE INTERTIDAL UNCONSOLIDATED SHORE MUD/ORGANIC  
THE SAMPLE DEPTH DESIGNATION (I.E., 03, 04, ETC.)  
PRECEDES THE DETECTED ANALYTE NAME, THE DETECTED  
CONCENTRATION IS SHOWN IN PARENTHESIS AFTER  
CONSTITUENT NAME.

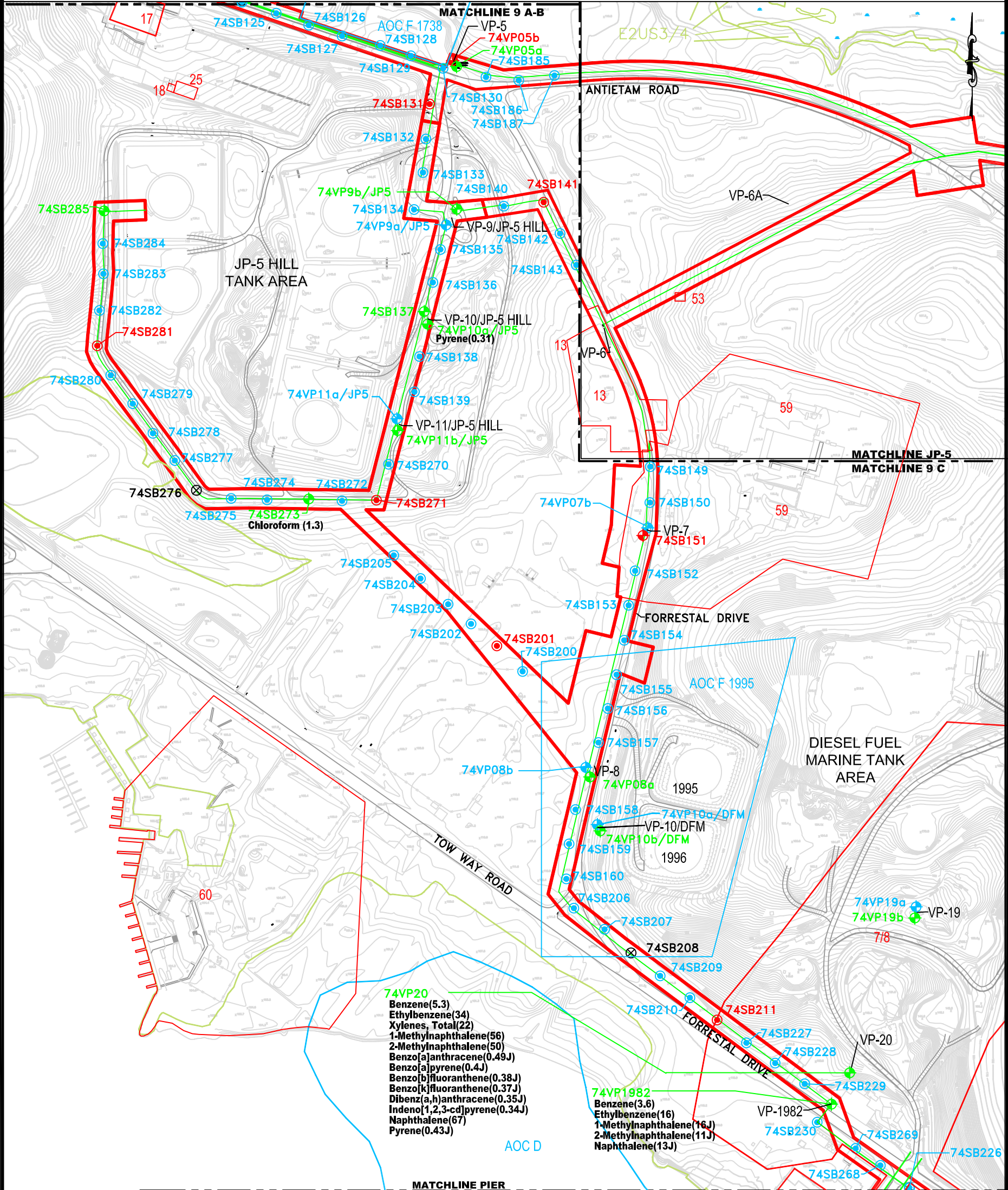
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- LEGEND
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  - -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - -GROUNDWATER SAMPLE LOCATIONS
  - ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
  - -JP-5 PIPELINE
  - -WETLAND DELINEATION
  - -SWMU BOUNDARY

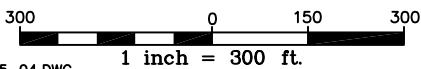
FIGURE 7-1  
ORGANIC EXCEEDANCE OF BACKGROUND AND  
SCREENING CRITERIA AND TPH EXCEEDANCES OF  
CRITERIA IN SOIL - JP-5 HILL AND DFM AREA  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO







NOTES/QUALIFIERS:  
J -ESTIMATED VALUE  
LLPAHs -REPORTED IN ug/L  
VOCs -REPORTED IN ug/L  
E2US3/4 -ESTUARINE INTERTIDAL UNCONSOLIDATED SHORE MUD/ORGANIC

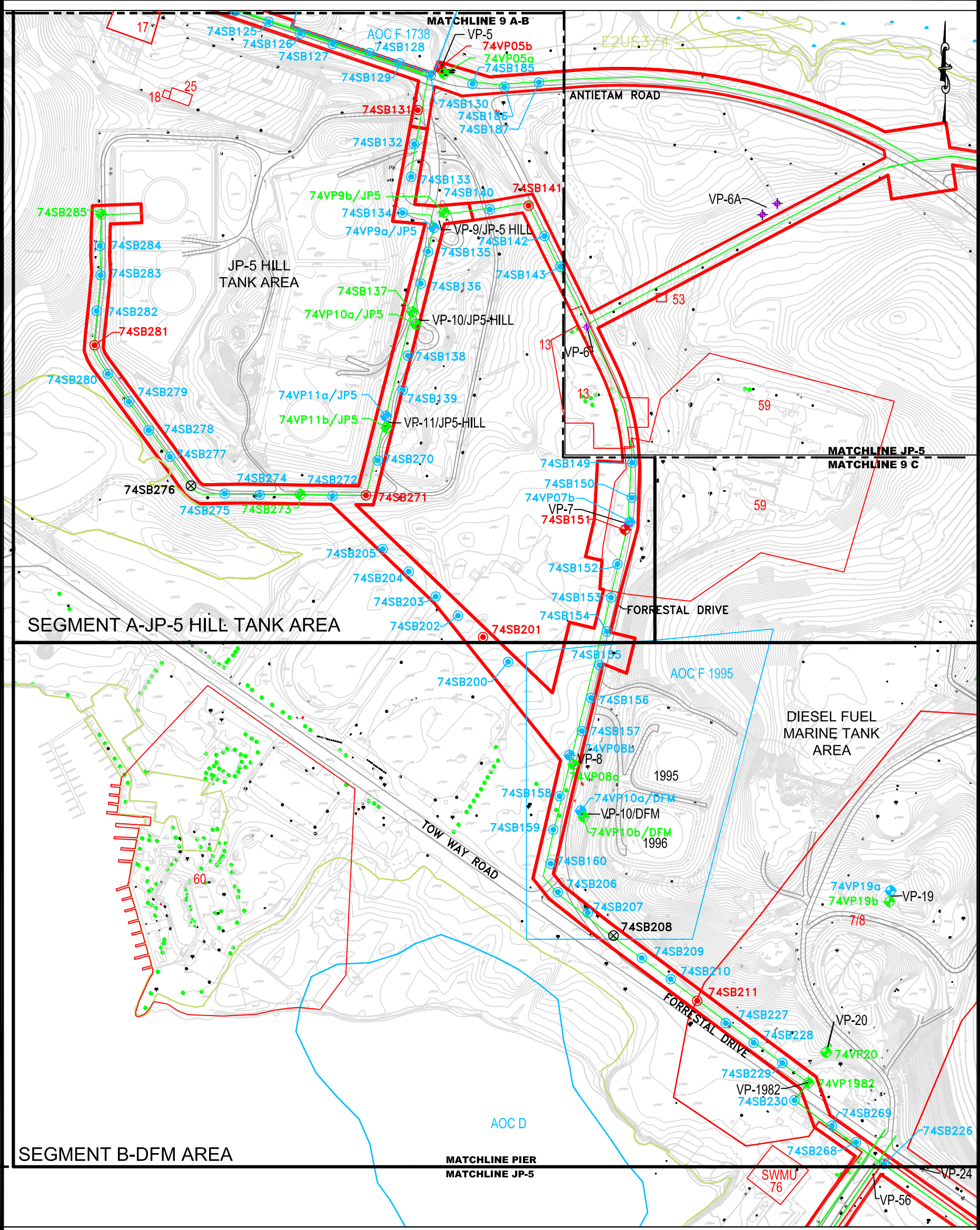


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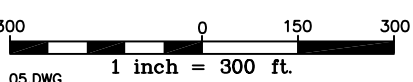
- LEGEND
- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - -GROUNDWATER SAMPLE LOCATIONS
  - ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
  - -JP-5 PIPELINE
  - -WETLAND DELINEATION
  - -SWMU BOUNDARY

FIGURE 7-2  
ORGANIC EXCEEDANCES OF BACKGROUND AND  
SCREENING CRITERIA IN GROUNDWATER  
JP-5 HILL AND DFM AREA  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO





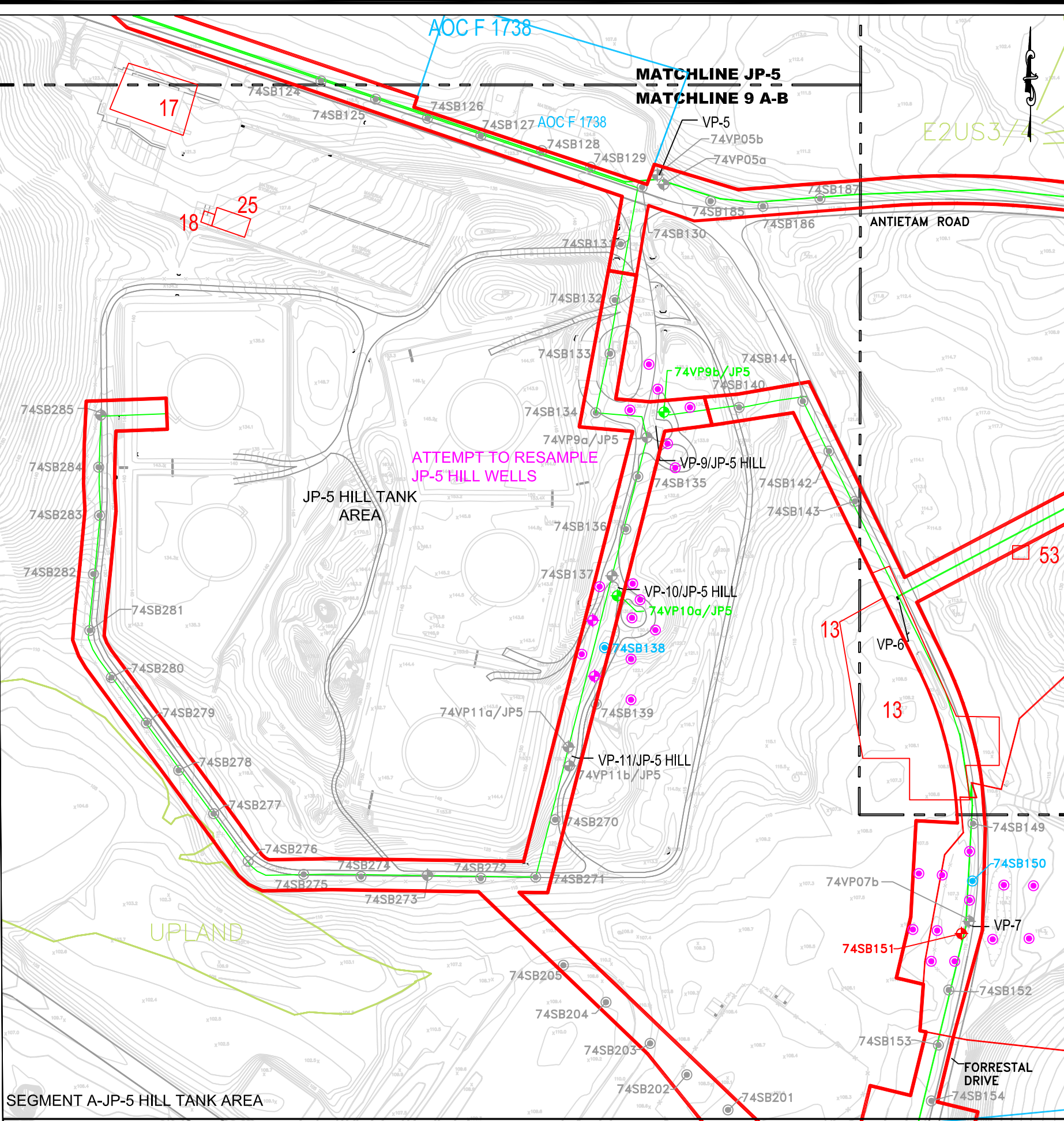
NOTES:  
E2US3/4- ESTUARINE INTERTIDAL UNCONSOLIDATED  
SHORE MUD/ORGANIC  
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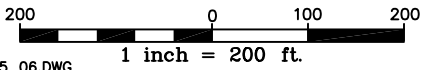
- LEGEND**
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  - -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - ⊕ -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - ⊕ -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - ⊕ -GROUNDWATER SAMPLE LOCATIONS
  - ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
  - -JP-5 PIPELINE
  - -WETLAND DELINEATION
  - -SWMU BOUNDARY

**FIGURE 7-3**  
**PHASE II SAMPLE AREA KEY MAP**  
**JP-5 HILL AND DFM AREA**  
**SWMU 74-FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION REPORT**  
  
**NAVAL ACTIVITY PUERTO RICO**





NOTES:  
E2US3/4 -ESTUARINE INTERTIDAL UNCONSOLIDATED  
SHORE MUD/ORGANIC  
UPLAND -UPLAND



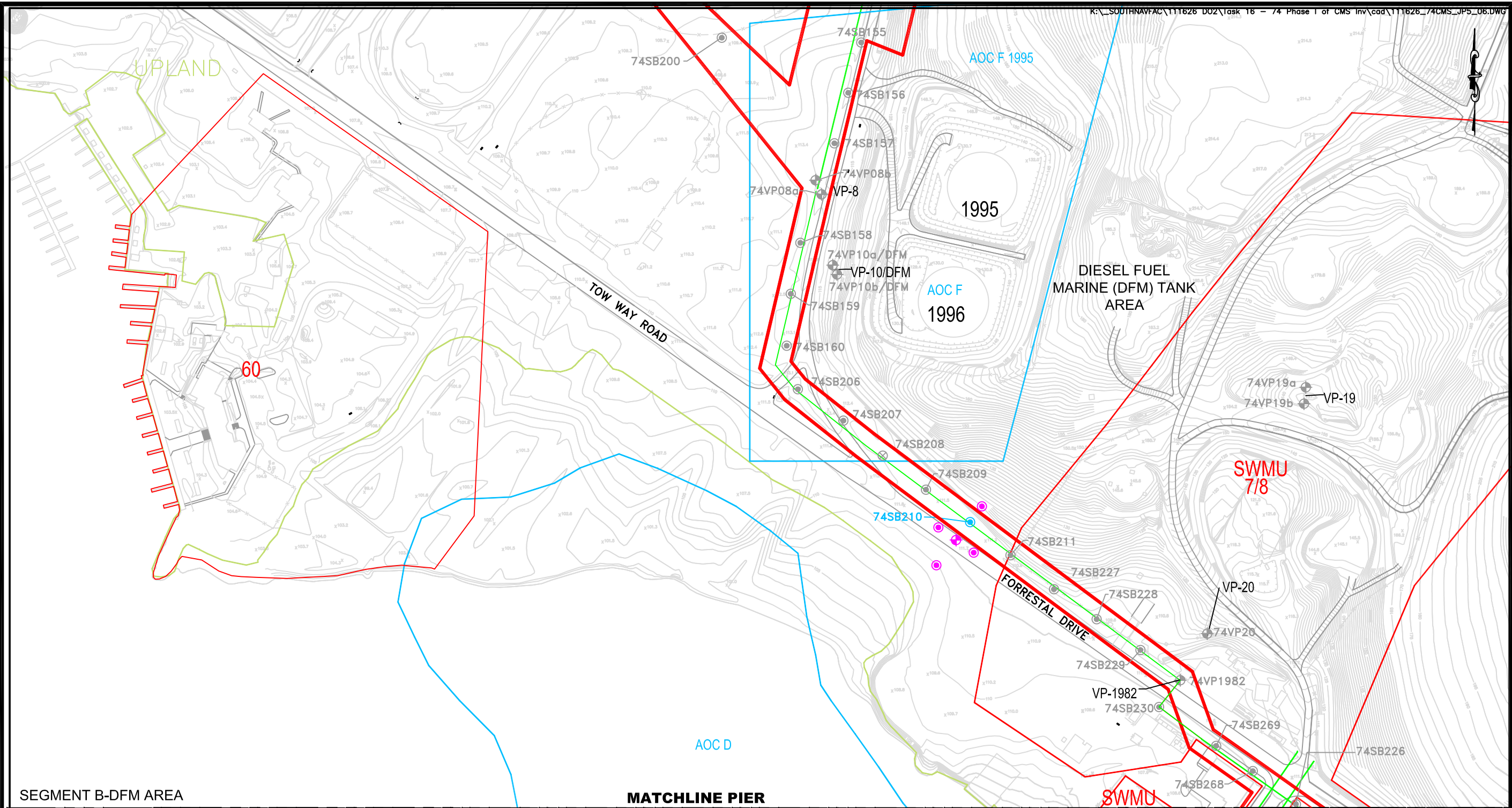
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- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- -GROUNDWATER SAMPLE LOCATIONS
- ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
- -PROPOSED SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -PROPOSED SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- JP-5 PIPELINE —WETLAND DELINEATION —SWMU BOUNDARY

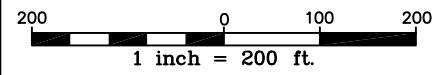
FIGURE 7-4  
PHASE II PROPOSED SAMPLE LOCATIONS  
SEGMENT A - JP-5 HILL TANK AREA  
JP-5 HILL AND DFM AREA  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO





SEGMENT B-DFM AREA

MATCHLINE PIER

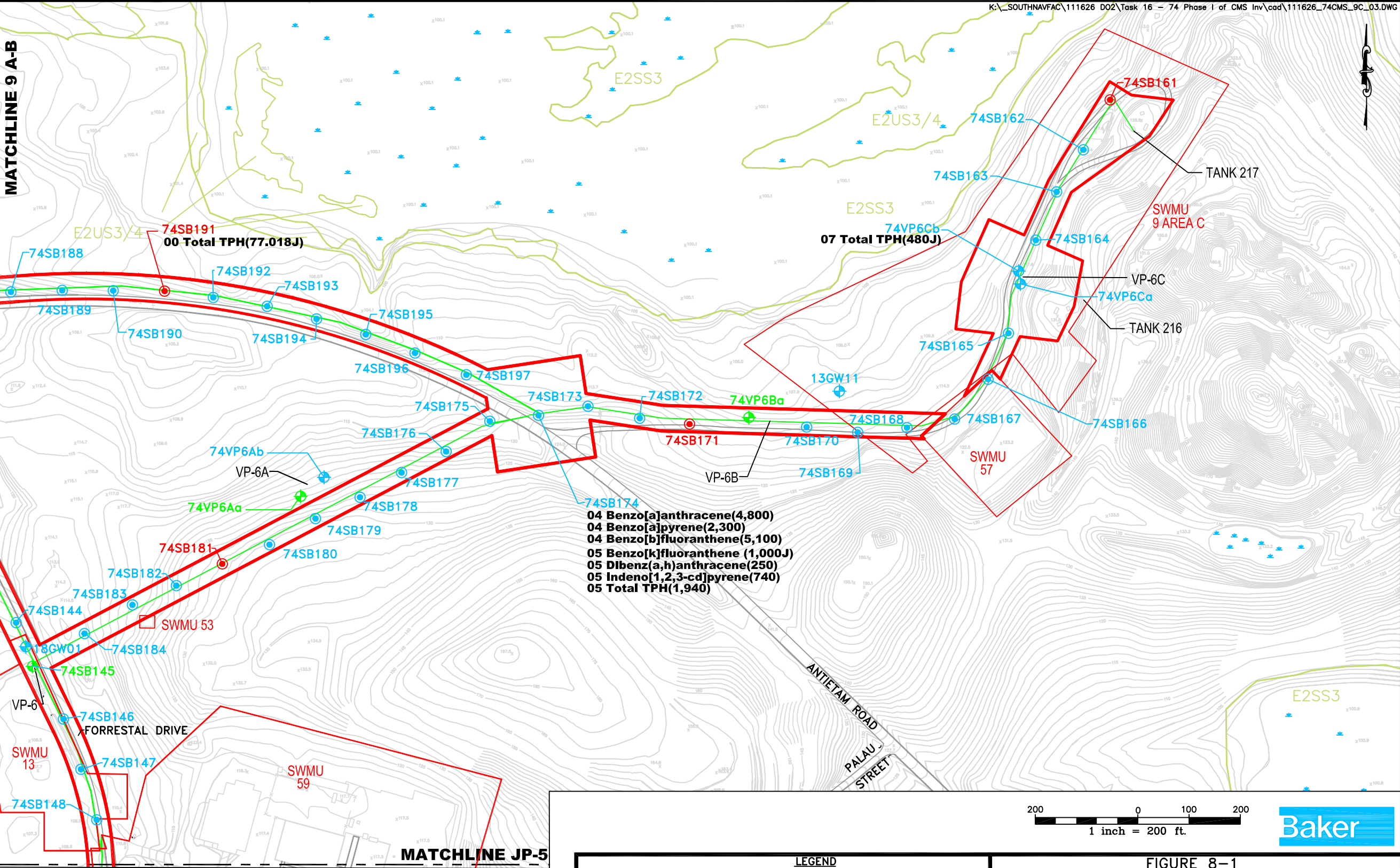


- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- ⊕ -SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- ⊕ -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- ⊕ -GROUNDWATER SAMPLE LOCATIONS
- ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
- -PROPOSED SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- ⊕ -PROPOSED SURFACE AND SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- JP-5 PIPELINE —WETLAND DELINEATION —SWMU BOUNDARY

FIGURE 7-5  
 PHASE II PROPOSED SAMPLE LOCATIONS  
 SEGMENT B – DFM AREA  
 JP-5 HILL AND DFM AREA  
 SWMU 74–FUEL PIPELINES AND HYDRANT PITS  
 PHASE I OF THE CMS INVESTIGATION REPORT  
 NAVAL ACTIVITY PUERTO RICO



MATCHLINE 9 A-B



NOTES/QUALIFIERS:  
J - ESTIMATED VALUE  
TPH - REPORTED IN mg/kg  
PAHs - REPORTED IN ug/kg  
E2US3/4 - ESTUARINE INTERTIDAL UNCONSOLIDATED SHORE MUD/ORGANIC  
E2SS3 - ESTUARINE INTERTIDAL SCRUB-SHRUB BROAD LEAVED EVERG

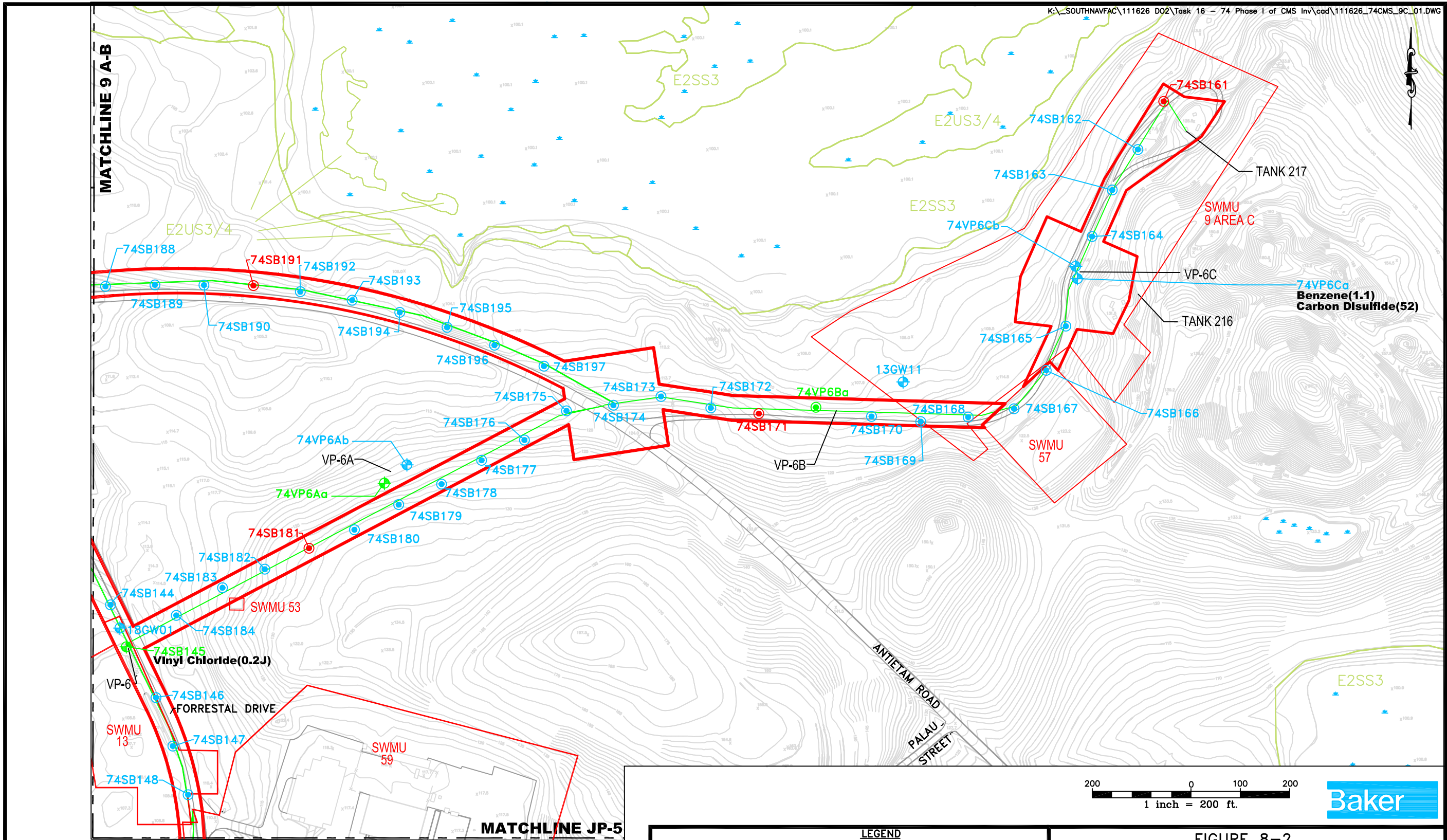
THE SAMPLE DEPTH DESIGNATION (I.E., 03, 04, ETC.) PRECEDES THE DETECTED ANALYTE NAME, THE DETECTED CONCENTRATION IS SHOWN IN PARENTHESIS AFTER CONSTITUENT NAME.

**LEGEND**

- - SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- - SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- ⊕ - SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- ⊙ - GROUNDWATER SAMPLE LOCATIONS
- JP-5 PIPELINE
- WETLAND DELINEATION
- ▭ - SWMU BOUNDARY

**FIGURE 8-1**  
ORGANIC EXCEEDANCES OF BACKGROUND AND SCREENING CRITERIA AND TPH EXCEEDANCES OF CRITERIA IN SOIL  
SWMU 9 AREA C  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO



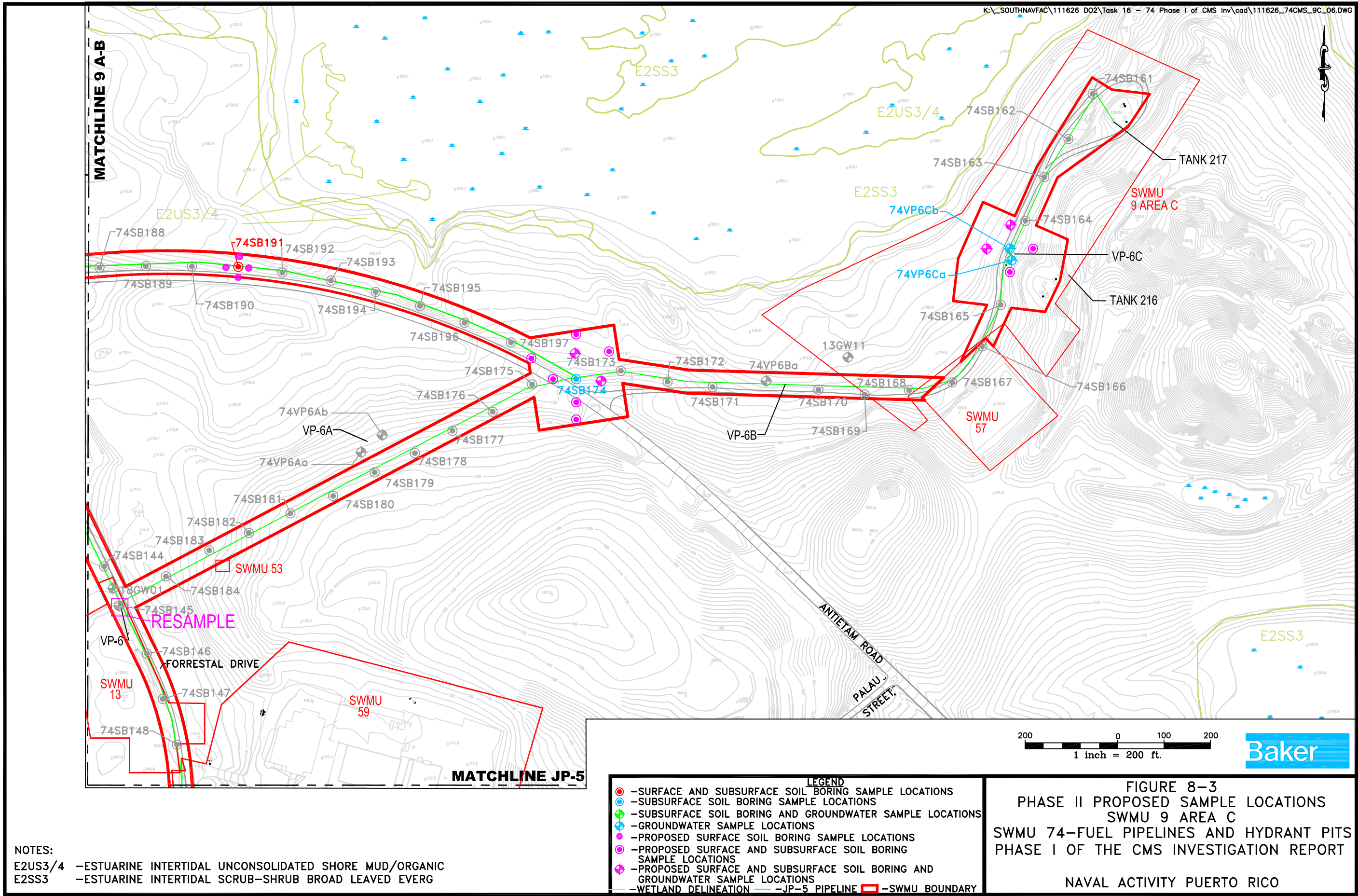


NOTES/QUALIFIERS:  
J -ESTIMATED VALUE  
VOCs -REPORTED IN ug/L  
E2US3/4 -ESTUARINE INTERTIDAL UNCONSOLIDATED SHORE MUD/ORGANIC  
E2SS3 -ESTUARINE INTERTIDAL SCRUB-SHRUB BROAD LEAVED EVERG

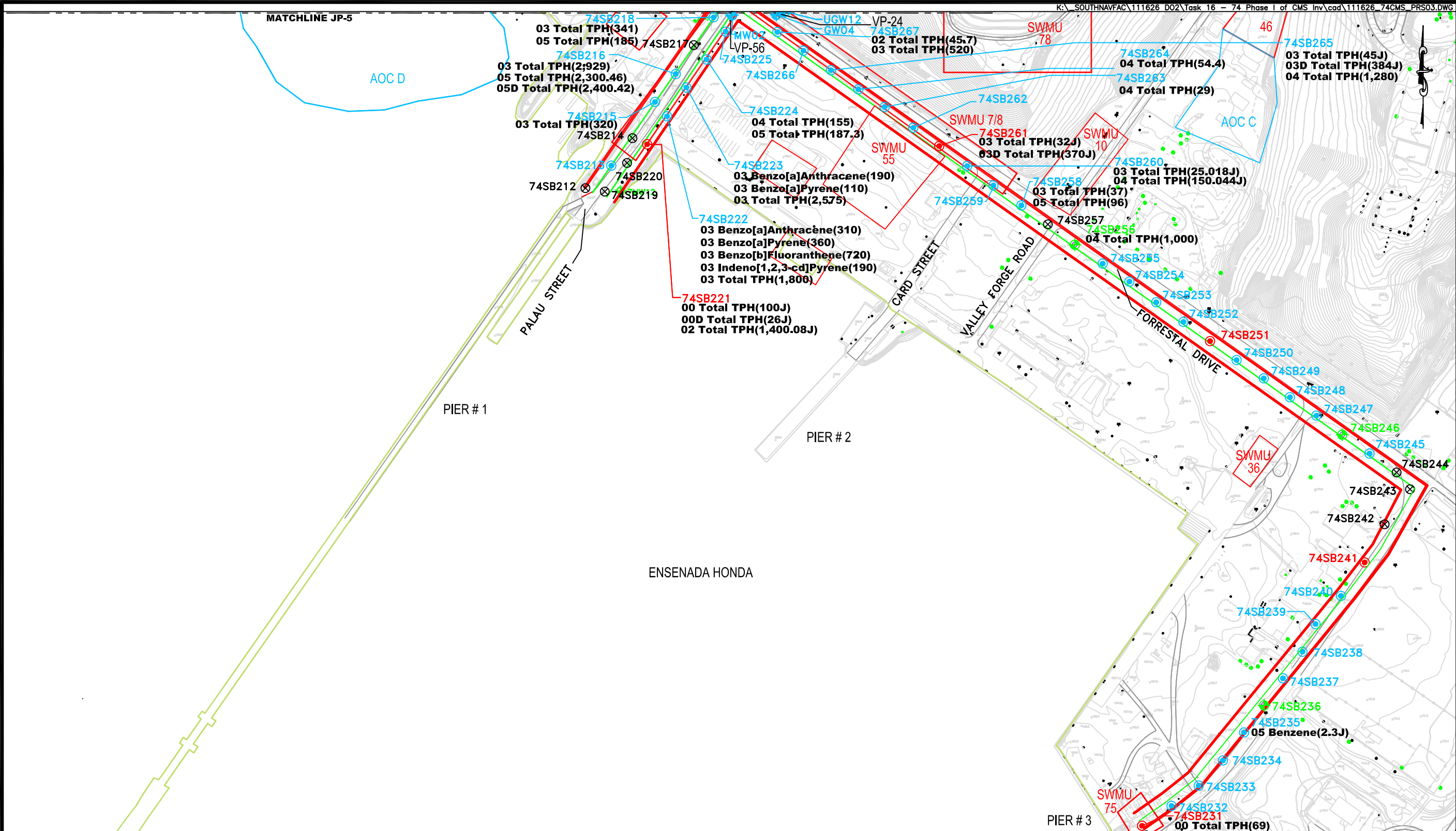
- LEGEND**
- SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - GROUNDWATER SAMPLE LOCATIONS
  - JP-5 PIPELINE
  - WETLAND DELINEATION
  - SWMU BOUNDARY

FIGURE 8-2  
ORGANIC EXCEEDANCES OF BACKGROUND AND  
SCREENING CRITERIA IN GROUNDWATER  
SWMU 9 AREA C  
SWMU 74-FUEL PIPELINES AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO





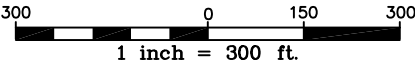




NOTES/QUALIFIERS:

J - ESTIMATED VALUE  
TPH - REPORTED IN mg/kg  
PAHs - REPORTED IN ug/kg

THE SAMPLE DEPTH DESIGNATION (I.E., 03, 04, EXC.) PRECEDES THE DETECTED ANALYTE NAME, THE DETECTED CONCENTRATIONS IS SHOWN IN PARENTHESIS AFTER ANALYTE NAME.

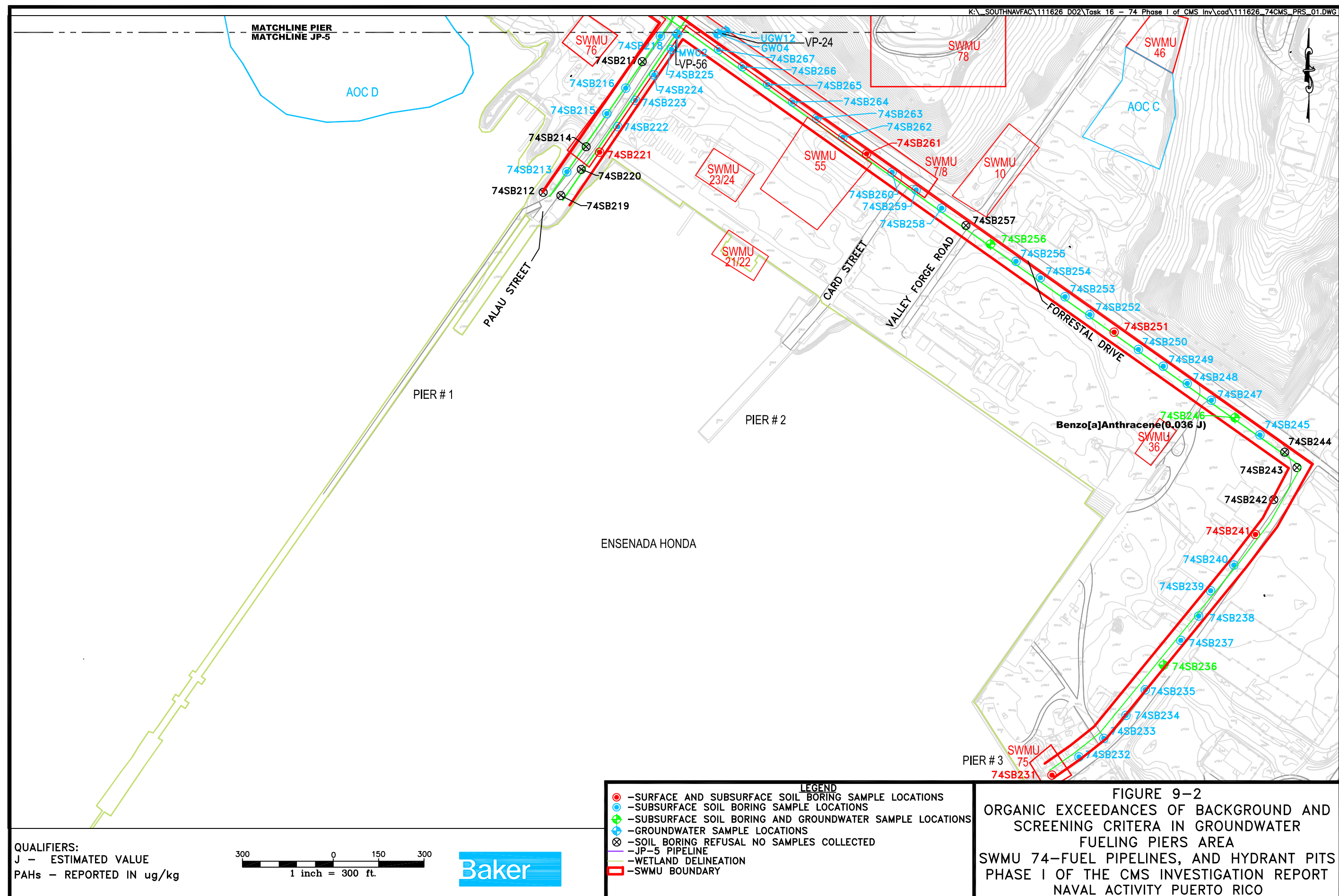


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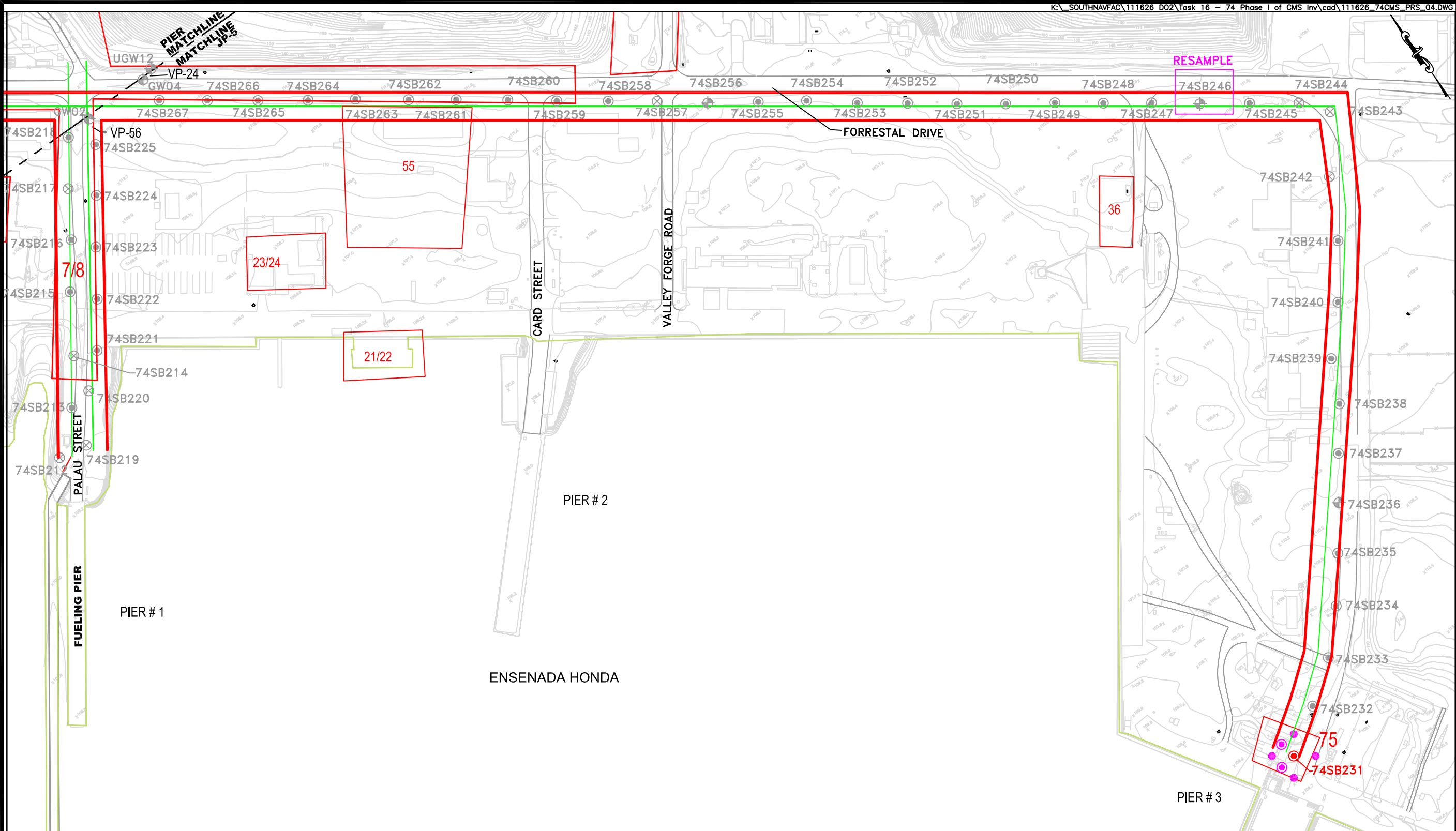
- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
- ⊕ -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
- ⊙ -GROUNDWATER SAMPLE LOCATIONS
- ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
- JP-5 PIPELINE
- WETLAND DELINEATION
- SWMU BOUNDARY

FIGURE 9-1

ORGANIC EXCEEDANCES OF BACKGROUND AND SCREENING CRITERIA AND TPH EXCEEDANCES OF CRITERIA IN SOIL FUELING PIERS AREA  
SWMU 74-FUEL PIPELINES, AND HYDRANT PITS  
PHASE I OF THE CMS INVESTIGATION REPORT  
NAVAL ACTIVITY PUERTO RICO







- LEGEND**
- -SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -SUBSURFACE SOIL BORING AND GROUNDWATER SAMPLE LOCATIONS
  - -GROUNDWATER SAMPLE LOCATIONS
  - ⊗ -SOIL BORING REFUSAL NO SAMPLES COLLECTED
  - -PROPOSED SURFACE SOIL BORING SAMPLE LOCATIONS
  - -PROPOSED SURFACE AND SUBSURFACE SOIL BORING SAMPLE LOCATIONS
  - -WETLAND DELINEATION
  - -JP-5 PIPELINE
  - -SWMU BOUNDARY

**FIGURE 9-3**  
**PHASE II PROPOSED SAMPLE LOCATIONS**  
**FUELING PIERS AREA**  
**SWMU 74-FUEL PIPELINES AND HYDRANT PITS**  
**PHASE I OF THE CMS INVESTIGATION REPORT**

NAVAL ACTIVITY PUERTO RICO







**APPENDIX A**  
**FIELD ACTIVITIES**

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**Field Log Book Notes**

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**Field Scientist- Adam Gailey**

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①

May 2, 2008

Arrive at NAPIR 0700

0815 FB01 Lab Grade DI  $H_2O$   
VOCs, SVOCs, Metals and  
Pb/Cd.0820 ER05 Ground  $H_2O$   
Tubing for VOCs, SVOCs + Metals.0850 FB02 from Potable  
 $H_2O$  from Drinkers Water  
Tank - VOCs, SVOCs, Metals  
and Pb/Cd.

(0830-1145)

Fuel Pipeline was Field Verified  
using Mapping grade Diff. GPS.  
Proposed Boring Locations were  
then flagged at approx. 5-6' offsets  
from the Pipeline.1330 - Prepare and Pack Cases  
for FedEx shipment.

1700 Depart NAPIR.

ADG

WEATHER: Clouds and  
light breeze  
Mid 80's.

②

May 3, 2008

Arrive at NAPIR approx. 0645

Prepare for field - Depart  
DPW at 0745.0930 - Continue with field  
verifying fuel line at  
Sucker Fill using DGPS.  
Entire Airstfield flagged and  
GPS'd.

(to SB 62 at fence line)

Depart NAPIR 1930.



WEATHER: Cloudy Sun  
Mid 90's

May 4, 2009

③ Arrive at Nupr 0630.

GPS Fuel line from flags  
#62 to #110.

Download GPS Data.

Depart Nupr 1330.

ADG.

WEATHER: Mostly Sunny  
Mid 90's

May 5, 2008

Arrive at Nupr at 0630.

Prep to continue flagging  
oil boring locations along  
fuel line.

④

ADG  
5/5/08



⑤

$$\frac{1}{b} \frac{1}{a}$$

Yesterday: partly cloudy  
(6) 60's - 80's

May 13, 2008

Arrive at NAPP 0645. Begin prepping for 2<sup>nd</sup> field season

## Wen Development

- 74GWVP3A -

Start Pumping: 0857  
Stop Pumping: 0906

Static Water Level - 9.92

Total Depth - 18.43

1 <sup>st</sup> gallon	pH	Temp	Cond	DO	Turb
	7.79	28.05	2.018	3.27	1.09

Well Pumped RT. No ~~observed~~  
on eddy

74 GWV 36

Start Page: 0920  
Stop: 0927  
Page: 0927

Static water level - 6.49

Total Depth - 16.10

<u>1<sup>st</sup> Salol</u>	<u>pH</u>	<u>Temp</u>	<u>Cond</u>	<u>Do</u>	<u>Time</u>
-	7.94	29.29	1.69	3.04	12.9

Very faint Petroleum odor. Clear.

2<sup>nd</sup> 1/2 yellow

	<u>TH</u>	<u>TWP</u>	<u>Cost</u>	<u>DO</u>	<u>Tally</u>
Revised Proj.	9.89	29.23	1.478	3.90	25.9



⑦ 74GWUP11A  
 Static Water Level - 15.23  
 Total Depth - 19.92

1<sup>st</sup> gallon. pH Temp Cond DO Turb  
 6.72 29.02 4.289 3.14 14.2

Pumped Dry.

Only 1/2 gallon pumped. Clear.  
 Faint odor of Petroleum.

74GWUP11b

start: 1005  
 stop:

Static Water Level - 16.20  
 Total Depth - 32.00

1<sup>st</sup> gallon. pH Temp Cond DO Turb  
 6.30 22.0 12.5 3.45 14.2

Somewhat turbid but Clearing. No  
 Petroleum odors.

2<sup>nd</sup> gallon. pH Temp Cond DO Turb  
 6.45 26.50 14.0 3.47 27.4  
 Clearing. No odor.

3<sup>rd</sup> gallon. pH Temp Cond DO Turb  
 6.59 29.93 14.40 3.70 24.4  
 No odor. Pumped dry.

⑧ 74GWUP1Ca  
 Static Water Level - 17.13  
 Total Depth - 23.75

1<sup>st</sup> gallon. pH Temp Cond DO Turb  
 7.72 29.30 1.383 3.55 5.57

Clear. No odor.

2<sup>nd</sup> gallon. ~~pH~~ ~~Temp~~ ~~Cond~~ ~~DO~~ ~~Turb~~  
 Pumped. Dry. 1 gallon.

74GWUP1Cb  
 Static Water Level - 14.24  
 Total Depth - 24.10

1<sup>st</sup> gallon. pH Temp Cond DO Turb  
 7.45 29.90 1.650 3.74 27.4

Slight fuel odor. Clear.

2<sup>nd</sup> gallon. pH Temp Cond DO Turb  
 7.52 28.6 1.75 3.30 19.8

Pumped Dry. Slight odor - Petroleum.



⑨

Collect Rinseate from  
Acetate Liner at 1500 hrs.

Parameters include:

App. IX Use

DRO

GRO

ICPAT

Metals

Depart NAPR at 1730.

ADG

⑩

Wednesday, May 14, 2008

Arrive at NAPR at 0630.

Prepare for data field survey.

Collect ER 12 from  
Ground Water Sampling Tubing  
at 0705.

Groundwater Sampling and  
Field ex. Prep for S.A.P.M.M.T.

Depart NAPR. 1700.

Weather:

Sunny and Hot  
AC to upper 80's

Thursday

May 15, 2008

Arrive at NAPR 0630.

# Flag Soil Boring Locations

161 to 173 - areas near  
Tank 216 and 217 SUMM 9.



Groundwater Sampling

11

GW VPIA.

Static Water Level - 16.97

Sample time at 11 07

Back to Public Works to  
prep for Day's Fed-ex  
shipment. Stake fuel line + GPS  
flags 161 to 174

Collect Equipment Kinetics  
for Acetate Core Lines at 1430.

Depart NAPA 1700

ADG.

12

May 16, 2008

Arrive at NAPA 0640.

Prepare for day's field  
events.

Collect Equipment Kinetics  
from GW Collection Sampling  
Tubing at 0730.

Flag fuel line and Boring  
Locations

Prep Coolers for Fed-ex  
shipment.

Depart NAPA 1700.

ADG.



(13)

May 17, 2008

Arrive at NARR 0830.

Continue ~~working~~ flagging  
fuel line. #190 - #205Prepare containers for upcoming  
shipment.Sample ~~74GW84~~ 74GW84 at 1505.

Collect 74ER15 at 0700.

Depart NARR at 1700.

APK.

(14)

May 18, 2008

Arrive at NARR at 0645.

Collect 74ER16 at 0730.

Sum 27 - static water levels.

27GW08 - 2.0 ft.

27GW04 - 3.20 ft.

27GW05 - 1.80 ft.

27GW06 - 1.50 ft.

27GW07 - 4.35 ft.

74GWUP11b / JP5 Hill -

static - no water

Total - 12.92

74GWUP11A / JP5 Hill

static - 21.8

Total - 21.95

74GWUP10A / JP5 Hill

static - 13.70

Total - 22.60

APK



Dev.  
F-Purge-

15

1032 pH Temp Cond Do Turb  
7.03 27.79 1.109 3.49 95.0

slight Petroleum odor. approx  
1/2 gallon pumped. Clearing.

1039 pH Temp Cond Do Turb  
7.02 27.78 1.148 3.52 52.6

slight Petro odor. 1 gal. Pumped  
clearing.

1043 pH Temp Cond Do Turb  
6.98 27.68 1.184 3.57 49.8

slight Petro odor. 1 gal. Pumped

1048 pH Temp Cond Do Turb  
6.97 27.63 1.058 3.62 46.2

slight Petro odor. 1 gal. Pumped

1056 pH Temp Cond Do Turb  
6.97 27.88 1.170 3.57 47.4

1 gal. Pumped. DRY

16

74 GW UP 106 / JPS Hill

static - Dry

Total - 22.60

74 GW UP 9a / JPS Hill

static - Dry

Total - 23.0

74 GW UP 9b / JPS Hill

static - Dry

Total - 23.60

UP 05b -  
74 GW 05b -

static - Dry

Total - 22.40

74 GW UP 05a

static - 24.79

Total - 25.20

Pumped Dry. little water - readings  
not taken.

74 GW 145

static - 22.15 - Trace of water

Total - 22.15



74 GW UP06

Existing Well

(17)

Static - 9.60

Total - 30.00

Purge

1150

PH Temp Cond DO Turb  
7.21 30.17 7.699 4.21 7.20  
1 gal Pumped. organic odor.

1200

PH Temp Cond DO Turb  
7.23 30.09 7.697 4.28 9.09  
1 gal Pumped. No odor.

1205

PH Temp Cond DO Turb  
7.19 30.17 7.659 4.22 8.70

Start Sampling: 1230

VOC - X

GR - X

DR - X

Metals - X

74 GW UP08b

(18)

Static - 25.61

Total - 25.75

74 GW UP08a

Static - 26.25

Total - 26.70

74 GW UP10a / DEM

Sampling at 1345

Static - 17.62

Total - 23.72

VOC - X  
GR - X  
DR - X  
Metals - X  
PAH - X

74 GW UP10b / DEM

Static - ~~17.62~~ - dry

Total - ~~23.72~~ 21.3

Depart APR 1500

Fixe



(19)

May 19, 2008

Arrive at NHR at 0645.

Prepare for day's field events.

Collect ER 17 at 0715.

Activate Core Logger.

Flag additional fuel line  
across starting with #206  
and ending at #269.

ADG:

(20)

May 20, 2008

Arrive at NHR 0645.

Prep for fieldwork.

Collect ER 18 at 710

Sum 25

24GW05	-	9.85
24GW06	-	9.25
24GW07	-	4.30
24GW08	-	6.50

74GWUP6Ch

State	-	19.90
Total	-	22.45

Sample time 1100.

Voc - ✓

Geo - ✓

Metals - ✓

Dro - ✓



74GWUP6A

Static - 20.70

Total - 22.65

Surf Time: 1135

Voc - x

Obs - x

Met - x

Dro - x

74GWUP3A

Static - 15.43

Total - 17.45

GPS RTK Survey at Various  
MNA SITES at Bundy  
Area.

Depart  
NAPR

1200 hrs.

DDA

(21)

(22)

May 21, 2008

Weather:

Mostly Sunny - High 80's.

Arrive at NAPR 0640.

Collect ER 19 at 0720.

Play remaining final cone at  
JP-5 (Hill #270 to #285)



7/22/08

(35)

## STATIC WATER LEVEL

		TD
69GW25	10.65	21.28
69GW07	11.55	18.61
69GW08	10.68	19.05
69GW12	11.88	—
69GW11	14.28	—
69GW26	13.17	—
69GW27	14.38	—
56GW03	3.94	—
56GW01	3.10	—
56GW02	3.08	—
56GW04	<del>2.88</del> 2.66	—
56GW05	5.77	—
56GW06	3.28	—
56GW07	6.67	—
74GW05 0805	10.78	—
74GW05	8.66	—
74GW22	11.61	—
74GW26	13.00	—
74GW34	9.00	—
74GWV00A	10.75	—
74GWV01B	10.35	—
74GWV02A	10.58	—
74GWV02B	9.70	—
74GW57	6.05	—

(36)

WELL	TIME	SWL
Airfield 1	1127	5.92
Airfield 2	1129	5.93
Airfield 3	1207	5.33
61GW01	1235	8.29
61GW02	1228	8.37
61GW03	1233	3.75
61GW04	1230	7.45
61GW05	1237	6.20
61GW06	1239	8.57
71GW04	<del>1307</del>	<del>7.44</del> 1310 1855
71GW05	1308	15.10 Dry/15.10
71GW06	1305	7.18
71GW08	1313	4.46
56GW08	<del>1325</del>	6.20
74GWVP3A	1327	6.58 NO LOCK
74GWVP3B	1328	7.00 NO LOCK
74GW74	1332	9.86
74GW84	1335	9.05
74GWVP11A	1337	15.18
74GWVP11B	1339	17.10
74GWVP12A	1345	19.07 Sample Tubing Left
74GWVP12B	1346	17.95
74GWVP12A	1348	18.90
74GWVP12B	1349	18.75
74GWVP12A	1351	17.60
74GWVP12B	1353	17.00



(37)

WELL	SWL	TD	TIME	
74GWVP3a/9	13.67		1356	NO LOCK
74GWVP3b/9	13.85		1358	
74GWVP2b/9	20.70		1400	NO LOCK
74GWVP12b/9	20.60		1401	NO LOCK
74GWVP10b/2S	11.90		1409	NO LOCK
74GWVP8SA	24.12	25.00	1413	
74GWVP8SB	22.15		1415	
74GWVP9b/5	21.69		1420	NO LOCK
74GWVP9a/5	22.55		1422	NO LOCK
74GWVP10b/5	22.20	22.60	1425	NO LOCK
74GWVP10a/5	13.00		1427	NO LOCK
74GWVP11a/5	21.48		1430	NO LOCK
74GWVP11b/5	22.42		1432	NO LOCK
74GW273	16.30		1434	NO LOCK
74GW285	—	23.15	1438	NO LOCK
74GWVP6cb	20.17		1455	NO LOCK
74GWVP6ca	20.92		1456	NO LOCK
74GWVP6Ba	15.30		1500	NO LOCK
74GWVP6Bb	16.10		1502	NO LOCK
74GWVP6Ab	—	18.75	1505	NO LOCK
74GWVP6Aa	21.35	24.40	1507	NO LOCK
74GW145	11.30		1510	
74GWVP06a	10.37		1512	NO LOCK
74GWVP07a	7.33		1529	
74GWVP08a	7.17		1531	

(38)

Well	SWL	TD	TIME	
74GWVP08b	14.41		1537	
74GWVP07a	14.81		1539	
74GWVP10a DFM	17.57		1542	
74GWVP10b DFM	19.70	21.00	1544	
74 UGW5	13.32	ex-well	1601	NO LOCK
74 MW2	12.07	ex-well	1603	NO LOCK
74GW256	12.00		1607	
74GWVP192	9.70		1609	
74GW246	9.50		1612	
74GW236	11.87		1617	
74VP19B	11.40		1719	TYPING NO LOCK
74VP19A	—	17.70	1721	NO LOCK

88 Sony

(3)

7/23

## Sample Log

WELL	Collected	TIME
74GNVP19B	Metals (T/D), DRD	0807
74GNVP05A	Metals (T/D)	0829
74GNVP07B - JPS fall	VOC, GRD, $\frac{1}{2}$ metal	0900
74GNVP11A - JPS fall	DRY - Both 19B	0927
74 GW 2G	Metals (D)	1058



## STATIC WATER LEVEL

69GN 25	10.65
69GN 07	11.55
69GN 08	10.68
69GN 12	11.88
69GN 11	14.28
69GN 26	13.17
69GN 27	14.38
56GN 03	3.94
56GN 01	3.10
56GN 02	3.08
56GN 04	<del>2.22</del> 2.66
56GN 05	5.77
56GN 06	3.28
56GN 07	6.67
74GN 08 0805	10.78
74GN 05	8.66
74GN 22	11.61
74GN 26	13.00
74GN 34	9.00
74GNV P01A	10.75
74GNV P01B	10.35
74GNV P02A	10.58
74GNV P02B	9.70
74GN 57	6.05

TD  
21.28  
18.61  
19.05

WELL	TIME	SWL
Airfield 1	1127	5.92
Airfield 2	1129	5.93
Airfield 3	1207	5.33
61 GW 01	1235	8.29
61 GW 02	1228	8.37
61 GW 03	1233	3.75
61 GW 04	1230	7.45
61 GW 05	1237	6.20
61 GW 06	1239	8.57
71 GW 04	<del>1300</del>	<del>7.40</del>
71 GW 05	1308	15.10
71 GW 06	1305	7.18
71 GW 08	1313	4.46
STOGW 08	<del>1325</del>	6.20
74 GW VP 3A	1327	6.58
74 GW VP 3B	1328	7.00
74 GW 74	1332	9.86
74 GW 84	1335	9.05
74 GW VP 11A	1337	15.18
74 GW VP 12B	1339	17.10
74 GW VP 13A	1345	19.07
74 GW VP 10B	1346	17.95
74 GW VP 1A6A	1348	18.90
74 GW VP 1A	1349	18.75
74 GW VP 16A	1351	17.60
74 GW VP 1C	1353	17.00

320.21

1310 1855

Dry/TD 15:10

NO LOCK

No Lot

Sample Tubing Left



WELL	SWL	T.D.	TIME	
74GWVP319	13.67		1356	NO LOCK
74GWVP329	13.85		1358	
74GWVP2019	20.70		1400	NO LOCK
74GWVP2019	20.60		1401	NO LOCK
74GWVP2025	11.90		1409	NO LOCK
74GWVP05A	24.12	25.00	1413	
74GWVP05B	22.15		1415	
74GWVP91PS	21.69		1420	NO LOCK
74GWVP91PS	22.55		1422	NO LOCK
74GWVP1061PS	22.20	22.60	1425	NO LOCK
74GWVP1061PS	13.00		1427	NO LOCK
74GWVP1101PS	21.48		1430	NO LOCK
74GWVP1101PS	22.42		1432	NO LOCK
74GW273	16.30		1434	NO LOCK
74GW285	—	23.15	1438	NO LOCK
74GWVP60b	20.17		1455	NO LOCK
74GWVP60a	20.92		1456	NO LOCK
74GWVP68a	15.30		1500	NO LOCK
74GWVP68b	16.10		1502	NO LOCK
74GWVP68b	—	18.75	1505	NO LOCK
74GWVP68a	24.35	24.40	1507	NO LOCK
74GW145	11.30		1510	
74GWVP06A	10.37		1512	NO LOCK
74GWVP06A	7.33		1529	
74GWVP06A	7.17		1531	

Well	SWL	T.D.	TIME	
74GWVP08b	14.41		1537	
74GWVP08a	14.81		1539	
74GWVP10a DEF	17.57		1542	
74GWVP10a DEF	19.70	21.00	1544	
74 UGWS	13.32	ex-well	1601	NO LOCK
74 MW2	12.07	ex-well	1603	NO LOCK
74GW256	12.00		1607	
74GWVP198	9.70		1609	
74GW246	9.50		1612	
74GW236	11.77		1617	
74VP19B	11.40		1719	NO LOCK
74VP19A	—	17.70	1721	NO LOCK

88° Sunny

7/23

## Sample Log

WELL	Collected	TIME
74GWV19B	Metals (T/D), DRD	0807
74GWV195A	Metals (T/D)	0829
74GWV191B - JPS	VOL, GRD, 1/2	0900
74GWV191A - JPS	DRY - Bottom	0927
74GW 26	Metals (D)	1058

7/23

ID

TIME

Photo #

Surface

Type

WP1	1352	15	Floor (hardwood)
WP2	1403	16	Table (wood)
WP3	1416	17	Desk (wood)
WP4	1432	18	Plastic computer chair mat
WP5	1439	19	Top of file cabinet
WP6	1448	20	Linoleum Tile Floor
WP7	1455	21	Linoleum Tile Floor
WP8	1508	22	Top of metal file cabinet
WP9	1516	23	Desk (plastic top)
WP10	1525	24	Top of metal file cabinet
WP11	1559	25	Desk (plastic top)
WP12	0721	26	Linoleum floor
WP13	0730	27	Plastic top wastebasket
WP14	0738	28	Linoleum floor
WP15	0750	29	Plastic floor mat
WP16	0800	30	Linoleum floor
WP17	0805	31	Mahogany desk
WP18	0813	32	Linoleum floor
WP19	0824	33	Linoleum floor
WP20	0830	34	Desk top
WP21	0840	35	Counter
WP22	0850	36	Linoleum floor
BG1	0928	37	Linoleum floor
BG2	0940	38	Linoleum floor

**Geologist – Joe Burawa**

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(22)

5/3/08 (23)

On-site 6:00

Prep sampling supplies

Team Meeting

UFA on-site airfield 7:00am

JHB

JHB

(24)

745827

5/3/08 (25)  
Cloudy  
80° -0-4'  
4' Rec  
41 pldSilty clay, med to dark brown  
damp, med stiff

Samples collected

745827-03

835

745827-05

845

4-8'

4' Rec

Pld

06.2 75

07.0 149

07.7 232

05 41

rocks throughout @ 3'  
becomes sandy clay, dark  
brown  
light  
4.5' Silty clay reddish brown  
damp, soft, hydrous  
impact @ 6.2@ 8.5' become dark red and  
blue gray clay intermixed  
damp clay is stiff  
sandy clay soft, moist @  
11.5' <sup>sandy clay</sup>

8-12'

4' Rec.

Pld

2200

with 18.5

wet 20

JAB

JAB

(26)

745B26

0-4'  
3' Rec  
21 to 3.5  
@ 2.5 60ppm

Silty clay dark brown,  
some gravel, stiff, damp

@ 2.5' Becomes dark gray  
soft, damp, less gravel

4-8'  
4' Rec  
7200ppm

@ 4' clay, stiff, med gray  
damp  
becomes light brown and red  
mod soft, damp, plastic  
silty clay

↓

8-12'  
4' Rec  
2300  
@ 7.5' 533  
ppm

some @ above some sand

some blue gray clay @  
11' ↓

12-16'  
4' Rec.  
100-150  
throughout

silty clay, some sand  
mod stiff clay to moist

JHB

5/3/68

(27)

Samples collected

745B26-02  
745B26-02 D  
745B26-05

Install Well  
10' Prepack Screen 1.5" Dia.  
TD. 20'

JHB

(28)

745B25

0-4'  
2.3' Rec  
21 ppm

Silty clay, dark brown,  
damp, stiff, rocks  
lighter brown c. 1.5' dry

cobble pushed @ 5.2'

4-8'  
1.2' Rec  
21 ppm

light brown sandy clay, med.  
stiff, damp pebbles  
throughout

8-12'  
4' Rec.  
21 ppm

Dark red sandy clay and  
light brown silty clay  
some light blue clay throughout  
stiff, plastic, damp  
fine-grained sand

JHB

5/3/08

(29)

Samples Collected

745B ~~25~~ 25-04  
745B25-05

JHB



745824

0-4'  
3.2' Rec  
21 ppm  
Silty clay dark brown, damp  
mod stiff to 0.8'  
gravel from 0.8 to 1.5'  
then silty clay, some sand  
dark brown, stiff, damp to dry  
pebbles

4-8'  
3.6' Rec  
21 ppm  
Brown sand, @ 4.7' loose  
damp to moist to 6.2'  
well sorted  
6.2 to 8.4' silty clay

8-12'  
4' Rec  
21 ppm  
soft, gray brown, damp  
@ 8.4' light brown silty clay  
very stiff, damp, trace sand

becomes red and light blue gray  
clay @ 11'

JHB

Samples Collected

745824 - 03

745824 - 05

JHB

(32)

74SB23 (mapped 22)

0-4'  
2.7' Rec  
cl ppm

Silty Clay, med brown  
mod soft, damp. roots,  
@ 0.8' light brown, silty clay  
some sand and rocks, damp  
to moist

4-8'  
2.7' Rec  
5 ppm 8.5  
+ 5  
40 ppm 4'

@ 4.5' becomes gray brown  
soft, moist clay with silt

8-12'  
4' Rec.  
7200 ppm  
@ 8.5  
50 ppm  
in clay  
below

same light blue clay with  
sandy clay @ 6.5' moist today  
mod soft

light blue med med brown  
clay some silt @ 8.5'  
wet

JHB

5/3/07

(33)

Samples collected

74SB23 - 02

74SB23 - 03

JHB

(34)

5/2/08 (35)

745822 (mapped 23)

0-4'  
3.4' Rec  
4 ppmSilty clay, dark brown,  
mod stiff damp  
becomes med brown silty  
clay with sand, clay stiff  
gravel.4-8'  
4' Rec.  
7200c 4.5 med brown clay, soft  
damp to moist, hydrocarbon  
stainway some sand8-12'  
4'  
73008.5' Sandy clay mod soft  
damp to moistsome light blue clay is soft  
soft12-16'  
4'  
7300sandy  
same clay with light blue  
clay some silt, soft  
damp to moist

JHB

## Samples collected

745822-00  
745822-03  
745822-03 D  
745822-03 MS  
745822-03 MSD  
745822-04Install 1.5" prepacked well  
to total Depth of 16.0'

JHB

(36)

745B62

0-4' Topsoil sandy loam @ 0-2"  
 2.3' Rec silty clay, med brown, clay  
 4 ppm med stiff cobble @ 1.1'

4-8' Sand and clay diam 1.2 to  
 3.2 Rec 5' wet from 3.5 to 5 perched  
 4 ppm green calc, med soft zone  
 gravel,  
 2.5' med dark brown  
 sandy clay, med soft clay

8-10' Refusal  
 1.2' Rec  
 4 ppm 8' Sandy clay, soft;  
 saturated, green and brown  
 refusal @ 10'

JHB

5/3/08

(37)

Sampled

745B62-03

JHB

74SB61

0-4'  
3.4' Rec.  
~1 @ 3  
3.4' 80 ppm

4-8'  
4' Rec.  
5-10 ppm

8-12'  
2.9' Rec.  
~1 ppm

Topsoil top 2"  
then sandy clay and gravel  
to 1.6' damp to dry, red  
hard, light brown, rocks  
1/4" Sand and pebbles 1/4"  
green, loose, dry then 3.5'  
Silty clay soft dark brown  
and gray  
C. 4' wet to approx 5'  
then moist silty clay  
dark brown, soft  
plastic and mud gray



JHB

Samples collected

74SB61-00  
74SB61-03  
74SB61-04  
74SB61-04B

JHB

5/3/08

(41)

(40)

745860

Samples collected

0-4' Brown silty clay, damp,  
mod soft pellets  
2.4' Rec.  
21 ppm

4-8' becomes mod brown 1.5'  
@ 4.5 clay same silt  
tan and red, stiff  
hard, damp

8-12' @ 6.5' Dark brown silty  
clay with some sand, soft  
damp

2.2' Rec.  
21 ppm



JHB

745860 - 04 1510  
745860 - 05 1515



JHB

(42)

74SB59

0-4' Sandy clay, moist, soft  
 3.0' Rec to 0.6'  
 <1 ppm  
 A  
 reddish brown, silty clay  
 mod soft, damp.  
 4-8' became dark brown @  
 3.5' Rec 4.5' mod soft to soft  
 <1 ppm clay to moist,  
 becomes lighter brown  
 same soil @ 9.6'  
 8-12'  
 2.1' Rec.  
 <1 ppm

JHB

Samples collected

74SB59-04  
 74SB59-05

JHB



745858

0-4'  
3.9' Rec  
21 ppm

4-8'  
3.4' Rec  
21 ppm

8-12'  
3.8' Rec  
21 ppm

Top soil top 2"  
light brown and red  
silty clay, some sand  
and pebbles, damp, mod hard  
@ 4.2' becomes dark brown  
sandy clay, soft, damp  
to moist

@ 9.5' clayey sand, mod to  
dark brown, wet, soft  
then 11' tan and red silty  
clay mod, stiff, damp  
trace light blue clay  
throughout

JHB

## Samples collected

745858-03 5-7 1545  
745858-04 7-9 1555

Clean-up JPA offsite @ 1700  
Prep sample bottles and ice  
for storage over weekend.

Offsite @ 18:45

JHB

46

5/4/08  
Sunny 85°

47

On-site 615 am  
Prep for sampling and fieldwork

JFA - on-site @ 7:00 (airfield)

Install GW well @ 745809  
@ end of refueler pads

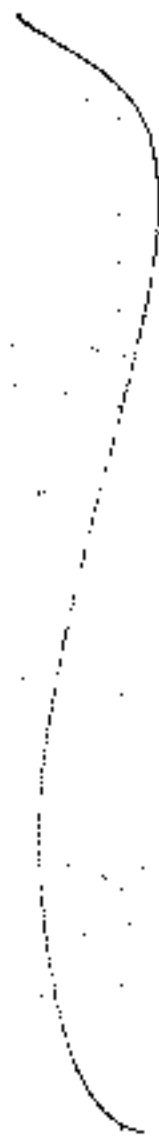
1.5" Geoprobe Report to 16' BGS  
10' Screen  
Sand to 5'  
Bentonite to top  
Push Protective casing and  
cement pad.  
Finish @ 1030.

JFA Mob. to 74GW22 & 74GW26  
and install protective casings  
and concrete aprons.

JMB

JMB

48



JHB

49



JHB

50

5/5/08 (51)  
Sun 85°

On-site 620

VFA on-site 6:30 airfield  
breakdown down path and mob  
to base side.

Prep for drilling & sampling  
Begin drilling @ 8:15

JHB

JHB

745B97

0-4'  
3.3 Rec.  
<1 ppm

Topsoil Dark brown, soft  
damp.

Gravel from 0.5' to 1.3'  
gray, loose, dry

4-8'  
4' Rec.  
1/1 ppm

@ 1.3 red and tan silty  
clay, med hard, stiff  
damp

silty clay with some sand  
at 4.5 light brown, stiff, damp

8-12'  
4' Rec.  
<1 ppm

between mac plastic @ 9'  
damp

JHB

Samples collected

745B97-03

745B97-04

JHB

(54)

745898

0-4'  
3.4' Rec.  
4 ppm

Topsoil dark brown soft  
to 0.2'  
brown sand and gravel  
lt gray, loose dry to 3.1

4-8'  
4' Rec.  
4 ppm

Dark brown sandy clay from  
3.1 to 3.5 very hard  
dry  
red and tan silty clay  
e 3.5' mod hard stiff  
some sand damp  
e 8.5' becomes med brown  
and tan silty clay  
mod. soft, damp, plastic

8-12'  
4' Rec.  
4 ppm

JHB

5/5/08

(55)

Samples collected

745898-03

745898-04

JHB

(56)

745899

0-4'  
2.5' sec.  
1 ppm

Topsoil dark brown soft  
dry to 0.5'  
then gravel, loose, dry  
large rocks @ 3.5'

4-8'  
4.0' sec.  
1 ppm

tan and red silty clay  
@ 4.6 red hard, stiff

8-12'  
3.7' sec.  
1 ppm

becomes sandy clay and  
clay @ 8.5' clay is light  
gray to white the sandy clay  
is maroon red damp to moist  
soft than above.

JHB

5/5/82

(57)

Samples Collected

745899-03

745899-04

JHB



(58)

74SB100

0-4'  
0.5' Rec  
Cl ppm

Topsoil to 0.7' dark brown  
soft, clay  
then gravel and some sand

4-5'  
0.5' Rec  
Cl ppm

5' @ tan/red silty clay  
mod hard to hard, clay  
trace of sand

8-12'  
0.5' Rec  
Cl ppm

became lighter in color @ 8'  
tan and mod brown, clay  
little silt.

JHB

6/8/08 (59)

Samples collected @

74SB100 - 03  
74SB100 - 04

JHB

(60)

7458101 -

0-4'  
2.2' Rec.  
cl ppm

Topsail first 2"  
then gravel 2" to 0.5"  
then sand and some clay to  
2'  
2d light gray gravel, loose, dry  
to 4.2'

4-8'  
3.8' Rec.  
cl ppm

@ 4.2' tan and red silty clay  
with some ~~clay~~ sand. med. hard

8-12'  
4' Rec.  
cl ppm

@ 7.5' dark red silty clay with  
some white clay, damp, damp  
plastic, med soft

JAB

5/5/08 (61)

## Samples collected

7458101-00

7458101-03

7458101-03D

7458101-03 MS

7458101-03 MSD

7458101-04

JAB

(62)

745B102

0-4'  
3' Rec.  
2 ppm

Sand and gravel  
grayish brown; damp to dry  
med-grained sand, some silt  
to 5'

then red and gold silty  
clay, small pebbles  
tight, med. hard, damp

4-8'  
4' Rec.  
2 ppm

@ 7.5' light gray clay  
mixed with burnt red  
sandy clay, damp, very  
stiff, dark purple nodules  
in sandy clay

8-12'  
4' Rec.  
2 ppm

JHB

5/5/08 (63)

Samples Collected

745B102-04

745B102-05

JHB

(64)

745B103

0-4'  
2.9' Rec.  
≤ 1 ppm

Sand and gravel to 4.8'  
grayish brown; damp to  
dry, loose, rocks

4.8' gold and red silty clay  
med hard, some sand  
damp

4-8'  
3.6' Rec.  
≤ 1 ppm

8.1' light gray clay and  
maroon sandy clay, plastic  
damp, med soft, some  
mottling

8-12'  
3.2' Rec.  
≤ 1 ppm

JHB

5/5/08

(65)

Samples collected

745B103 - 03

745B103 - 04

Oil filter leaking off Graprobe  
JFA off site 1230 to 3 to fix  
drilling again at 3 pm

JHB

(66)

74SB104

5/3/68

(67)

Samples collected

0-4'  
3.1' Rec  
4 ppm

Topsoil. 4" at top  
med brown, damp silt loam  
@ 0.3' Sand and gravel  
loose dry until 2'

74SB104-03

74SB104-04

4-8'  
28' Rec  
4 ppm

@ 7' red and white clay  
white clay with mottled  
sandy clay, med soft to  
soft, damp to moist,  
some pebbles

8-12'  
3.6' Rec  
4 ppm



JHB

JHB

(68)

74SB105

0-4'  
2.1' Rec.  
<1 ppm

4-8'  
3.5' Rec.  
<1 ppm

8-12'  
1.8' Rec.  
<1 ppm

Topsoil to 0.5' brown  
silt damp  
0.5 sand and gravel  
dry, loose, rocks, to  
approx 5' then brown  
silty clay, damp,  
became stained black (mud)  
to 7' then red/brown  
silty clay, mud hard, damp  
@ approx 8.5' red (maroon) <sup>sandy</sup> clay  
with light gray clay  
silt, moist

JHB

5/5/68

(69)

Samples collected

74SB105-03  
74SB105-04

JHB

74SB106-

0-4' Topsoil to 0.5' silt loam  
 2' Rec. Brown, soft, damp  
 4 ppm

0.5' Sand and gravel, loose, dry  
 shell layer from 0.8 to 1.2'  
 then sand and gravel again

4-8'  
 0.6' Rec.  
 4 ppm  
 Approx 7' Maroon sandy clay  
 and white/lk. gray clay  
 soft, damp, some salt

8-12'  
 3' Rec.  
 4 ppm

JHB

Samples collected

74SB106-01

74SB106-04

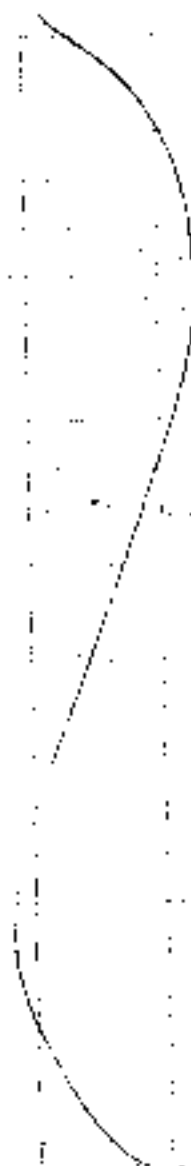
Pierced sample at public works  
 JFA off-site 4:30

off-site 6:20 pm

JHB



72

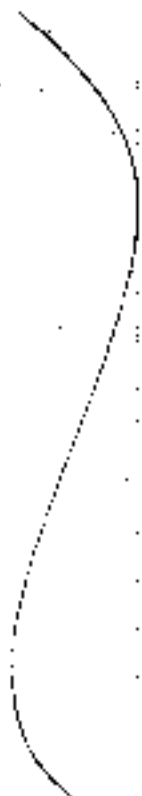


JHB

5/6/08

73

on-site 630  
JFA on-site 720  
prep for sampling, meeting for  
duplicate sampling off 74



JHB

5/6/08

(75)

(74)

74SB107

0-4'  
2.7' Rec.  
1 ppm

Topsoil dark brown silt  
loam, soft, damp  
Brown sand @ 0.3' with  
gravel, loose, dry  
@ 1.3 Gray sand and gravel  
loose, clay

4-8'  
4' Rec.  
1 ppm

@ 4.4 reddish brown silty  
clay with light brown sandy  
clay, red stiff and hard  
damp to dry

8-12'  
4' Rec.  
1 ppm

@ 7.2' became white/light gray  
clay mixed with brown clay  
dries to moist, stiff, swells  
in tube

JHB

Samples collected:

74SB107-03  
74SB107-03D  
74SB107-05

JHB

(70)

74SB108

0-4'  
3.8' Rec  
14 ppm

Topsoil, silt loam, brown, clay  
to 0.2'

Brown sand and gravel to 1.5'  
loose, dry

light brown silty clay from 1.5 to 1.7  
then sand and gravel to 2.5'

4-8'  
4' Rec.  
4 ppm

dark brown sandy clay from 2.5  
to 4.3

light brown and reddish brown  
silty clay, clay, stiff to 7.2'

light gray and maroon clay, clay  
to moist, softer, some sand

8-12'  
4 Rec.  
4 ppm



JHB

5/6/88

(71)

Samples collected:

74SB108-03

74SB108-04

566W06 slug test  $\Sigma$  2.91  
TD. 18.41

566W07 slug test  $\Sigma$  6.49  
TD. 18.44

- Clean up airfield site with bobcat  
remove drums, lines, label wells  
and survey



JHB

8/6/08

(76)

745B109

0-4'  
3.5' Rec  
4 ppm

Topsoil to 0.6' brown  
soft, damp. Sand and gravel  
from 0.6 to 1.4'  
then brown silty clay, some  
sand, rocks, damp.

4-8'  
4' Rec  
4 ppm

transitions into white and red  
clay, mud hard, damp, some  
silt.

8-12'  
4' Rec.  
4 ppm

@ 8.5' becomes light gray and  
maroon clay, very plastic, damp



JHB

(79)

Samples Collected

745B109 - 04

745B109 - 05

JHB

5/6/08

(40)

745B110

(81)

0-4'  
4' Rec.

Silt loam to 0.9' mod hard  
dark brown, damp  
from 0.9 to 3.1' lean brown  
clay, mod. hard and stiff  
damp

4-8'  
4' Rec.

@ 3.2 clayey sand, mod soft to  
soft, light brown, fine to med.  
grained sand.

8-12'  
4' Rec.

light clay content (sandy clay)  
from 7.5 to 9 and then 10.3  
to 12, damp, soft  
pebbles throughout, occasional  
stone.

Samples collected

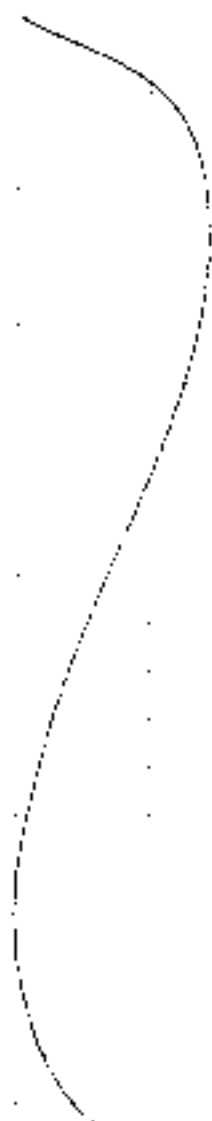
745B110 - 04

745B110 - 05

JHB

JHB

82



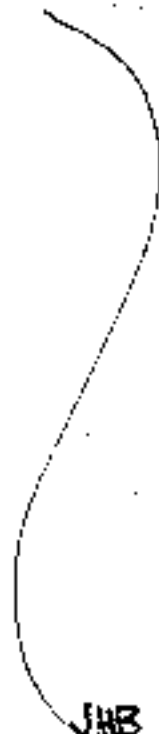
JHB

5/7/08

83

on-site 6:20

Drilled gray sand and gravel at  
airfield and bring out  
C pipeline @ 7:40 am  
start drilling



JHB

54

7458111

0-4'  
2.6' Rec.  
4 ppm

Silt loam mixed with sand  
dark brown, mod soft clay  
to 1.1'

1.1 to 1.6 sand with stones  
loose, dry, soft

4-8'  
2.9' Rec.  
4 ppm

@ 1.6 sandy clay, some  
pebbles, mod hard, damp  
light brown

8-12'  
3.1' Rec.  
78500 ppm

silty clay  
@ approx. 9.3' becomes  
more reddish in color, damp  
mod hard, some sand

@ 11.5  
5-10 above

@ 11.2' sandy clayey sand  
soft wet greenish gray color

JHB

5/7/08

55

Samples collected:

7458111-00

7458111-03

7458111-03 D

7458111-03 MS

7458111-03 MSD

7458111-05

JHB



86

5/7/18

87

7458112

Samples collected

0-4'  
3.7' Rec  
P.D. down  
No swell

Sandy loam, dark brown  
damp to dry, med hard  
to h.l.

7458112-04  
7458112-05

4-8'  
4' Rec  
P.D. down  
No swell

c 1.1 sandy silt, some clay  
dry, med hard, light brown  
c 2.8 to 3.2 light gray/blue  
cobble

8-12'  
4' Rec.  
P.D. down  
No swell

3.2' light brown, sandy silt  
damp, med hard,  
6.2' Sandy clay, med brown,  
damp, med hard  
c 9.1 Silty clay, hard,  
stiff, damp,  
c 10.5 clayey sand, med  
soft, med brown, damp.



JHB

JHB

5/7/08

(89)

74SB113

Samples collected

74SB113 - 04

74SB113 - 05

0-4'  
3.5' Rec.  
41 ppm

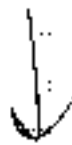
Silt loam, dark brown,  
damp, med hard, pebbles roots  
@ 1.0. Sandy clay, med  
brown, damp to dry, med hard  
bedded with more clay @ 3.5

4-8'  
1.7' Rec.  
@ 7.5  
500 ppm

Sand (Fill)  
4.5' light gray, loose, dry  
shells throughout,  
@ 7.5 dark green gray clay  
with sand, hydrocarbon odor.

8-12'  
3.4' Rec.  
@ 9'  
1300 ppm  
@ 11'  
1100 ppm

stones,  
alternating zones of silty clay  
and sandy clay from 8-12'  
dark green gray, pebbles  
damp to moist.



JHB

JHB

5/7/08

90

VPIBB/9

0-4' Topsoil, Silt Loam, dark brown  
 2.5' Rec. to 0.3'  
 4 ppm Sandy clay, damp to dry,  
 med. brown pebbles throughout  
 4-8' @ 2.3' dark brown, silty clay  
 4' Rec. dry, med hard.  
 <1 ppm 3.9 to 7.6 Clayey sand  
 light brown, med soft,  
 8-12' dry to damp  
 4' Rec. becomes greenish gray sandy  
 60 ppm clay @ 7.6', damp, med. hard  
 8-10' same silt  
 20 ppm @ 13.6 Silty clay, stiff,  
 10-12' damp to moist, caliche?  
 12-16' @ 16.2 Dark red brown silty  
 4' Rec. clay, stiff, then clayey sand  
 2200 mg/kg brown to 17-18.2  
 then Greenish gray silty  
 16-20' clay, moist, caliche?, soft  
 4' Rec. hydrocarbon odor  
 18-20'  
 2300 ppm

JHB

91

20-24' Sandy clay, very soft to soft  
 4' Rec. moist to wet, swelling clay  
 2300 caliche.

Set 1.5" well @ 24'



JHB

(92)

086W05

V

9.54

~~\*\*\*~~

TD.

12-59

JHB

5/13/08

Tuesday

(93)

on-site 6:30 am

check in @ security Bldg and  
obtain vehicle passes

JHB

5/13

(95)

VP1Ba/9

0-4'  
3' Rec.  
80 ppmSandy clay, dry, hard,  
grayish brown, some stores4-8'  
4' Rec.  
300 ppmsilly sand, dry, med hard,  
greenish brown,8-12'  
4' Rec.  
500 ppmbecomes more green at 10'  
Sandy clay, calcareous, light gray12-16'  
4' Rec.  
500 ppmIntermittent sandy zones from  
14.1' and 15.1 to 15.616-20'  
4' Rec.  
1800 ppm@ 19.3 lean clay, some silt  
dark green, strong hydrocarbon  
odor, tight spondulite structure.more silt than clay at 21'  
brown color, dry to moist

JHB

20-24'  
4' Rec.  
1800 ppm

same sand at 22' to 22.8'

Samples collected

74VP1Ba/9-05	1010
74VP1Ba/9-05D	1010
74VP1Ba/9-09	1100

monitored for PAHs

JHB

5/13

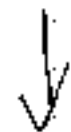
(97)

(96)

74VP36/9

0-4' Silty clay and gravel fine o  
 1.9' Rec. to 1', then light brown, sand  
 41 ppm fine to med grained, loose

4-8'  
 22' Rec.  
 41 ppm



8-12' Variegated clay @ 10'  
 red, blue, green, gray, soft  
 110 80 ppm damp to moist  
 @ 11'  
 3.3' Rec.

12-16'  
 4' Rec.  
 7150 ppm

16-20' becomes reddish brown, moist  
 7 1500 ppm strong odor, mottled, silty clay  
 22' Rec.

JHB

Samples Collected

74VP36/9-05 1140  
 74VP36/9-07 1200

marked for Patts



JHB

(99)

5/1/65  
Sunny 88°F

(98)

7458 VP3a/9

No samples collected.

0-4' Silty sand and gravel to 1'  
 3.2' Rec then reddish tan silty clay,  
 <1 ppm hard, clay to 4.5'  
 4-8' @ 4.5 Soft silty clay, mottled  
 4' Rec. beige and red  
 10 ppm  
 8-12' 8' becomes light blue clay and  
 4' Rec. red silty clay, some sand throughout  
 7900 ppm red soft clay to moist  
 12-16  
 4' Rec. more plastic at 14'  
 1300 ppm softer  
 16-20' hydrocarbon odor  
 4' Rec.  
 1300 ppm

JHB

JHB



745B114

5/13/08

0-4'  
2.6' Rec.  
clpm

Silt loam and gravel to  
1.3' then hard sandy  
clay, brown, dry, brittle

4-8'  
3.8' Rec.  
clpm

becomes silty clay @ 4.8'  
mod soft, blowing damp  
to moist. mottling

Sandy clay @ 7.2'  
soft, damp to moist,  
brownish green

8-12'  
2.7' Rec.  
500gpm  
@ 10.5'

med greenish black @ 11.2  
clayey sand from 11.2 to 11.8  
saturated, wet soft very

JHB

## Samples collected

745B114-04	1430
745B114-05	1440

JHB

(102)

74SB11S

0-4  
20' Rec.  
cl ppm

4-8'  
4' Rec.  
cl ppm

8-12'  
4' Rec.  
cl ppm

Silt loam and gravel  
dry, loose, hard  
to 3.5'  
then dark brown sandy  
clay, some organics, dry hard  
silty sand @ 5.8'  
orange and brown, mod. hard  
damp to dry, some sand  
more reddish @ 6'  
@ 8.5' maroon and light  
gray clay, some silt,  
mottled heavily, mod. soft  
damp to moist



JHB

5/13/68

(103)

## Samples collected

74SB11S-03 1500  
74SB11S-05 1510



JHB

(104)

74SB 116

0-4'  
1.8' Rec  
4 ppm

Sandy loam and gravel  
first 3.5' hard, loose, dry

4-8'  
3.8' Rec  
4 ppm

Sandy clay, reddish brown,  
soft to mid soft

8-12'  
4.0' Rec  
4 ppm

some mottling @ 8' to 9.5'

becomes siltier and more  
@ 9.5', more clay, red, white

met spherulite at 11'



JHB

8/13/08

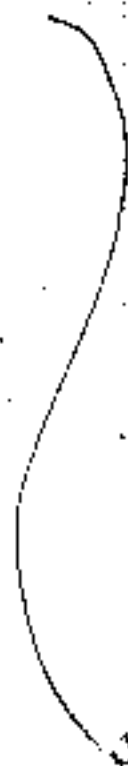
(105)

Samples collected

74SB 116-04

74SB 116-05

74SB 116-05D



JHB

(106)

74SB117

0-4'  
 <1 ppm  
 1.9' Rec.

Sandy loam, gravel; loose  
 clay, @ 2.5' dark brown  
 and red sandy clay, dry, hard,  
 roots, organic

4-8'  
 <1 ppm  
 4' Rec.

@ 4.5' med orange brown  
 silty clay, damp to moist  
 med. hard, some sand  
 throughout

8-12'  
 <1 ppm  
 4' Rec.

Saturated zone from 11.1 to  
 11.9' med gray, clayey  
 sand with pebbles  
 then saprolite brown and  
 white.



JHB

5/13/68

(107)

Samples collected

74SB117-03 1550

74SB117-04 1600



JHB

(108)

745B118

0-4'  
2.9' Rec  
1 ppm

Sandy loam and gravel  
to 4.5', dry; loose

silty clay @ 4.5 light  
brown, damp, hard

4-8'  
4' Rec.  
1 ppm

reddish brown @ 7'

8-12'  
3.5' Rec.  
3000 ppm  
@ 11.5

becomes sandy clay @  
9.0', mod hard, damp.  
caliche (white)

in wet zone  
250 above

Saturated @ 11.5 to 12  
dark green and white  
mod hard.

JHB

5/13/08

(109)

Samples collected

745B118-03 1610  
745B118-05 1630 PAH

JHB

(110)

7458119

0-4'  
2.5' Rec.  
41 ppm

Sandy loam and gravel  
dry, loose, to 4.5'

med brown silty clay  
dry to damp, hard, broken

4-8'  
4' Rec.  
41 ppm

gravel zone from 6.8 to  
7.4' light gray, loose, dry  
then sandy clay, med  
hard, some silt

8-12'  
4' Rec.  
41 ppm

damp  
none

JHB

5/13/68

(111)

Samples collected

7458119-04 1630  
7458119-05 1640

JHB

112

JAB

5/14/08  
Sunny

113

On-site 630.  
JFA and GES on-site 700

Monitor to 745 PM 20 and start  
drilling @ 730.

JAB



(114)

745B120

0-4'  
3.8' Rec  
4 ppm

Sandy loam and gravel  
to 2.0', dry, loose and  
broken up

4-8'  
4.0' Rec.  
4 ppm

then sandy clay, light  
brown, mod hard, dry to damp  
some silt

gravelly zone from 4.8 to 5.1  
light gray, then sandy clay  
again.

8-12'  
4.0' Rec  
4 ppm

becomes silty sand from  
8.4 to 9.8', loose, dry  
gray brown, dry  
silty clay from 9.8 to 10.6  
light brown, mod hard, damp  
@ 10.6 sandy clay, light brown  
mod hard, some silt, damp

X

JHB

5/14/08

(115)

Samples collected

745B120-04

745B120-05

Mobilize to 745B74 to install  
well

JHB

116

746w 74

0-12' logged previously by CHR

12-16 sandy clay, med to light brown  
pebbles throughout, light gray  
precipitation, med hard.

16-20 same sandy clay <sup>visibly</sup> moist to  
wet from 16-17' and  
20 to 21.5'

20-24

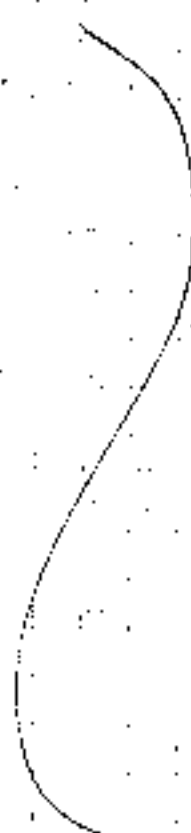
Set 1.5" <sup>temp</sup> well at 24'  
with 10' screw  
sand to 12'  
Refusal with 3 1/4" Id. drive point  
Apex with 4 1/4" HSA  
End @ 1330

JHB

5/14/08

117

No samples collected at this  
time.



JHB

(118)

74GW84

0-4'

21

2.2' Rec.

4-8'

21

2.8' Rec.

8-12'

15-30 ppm

4' Rec.

12-16'

21

3' Rec.

16-20'

21

3.4' Rec.

Sandy loam and gravel to  
2' then medium grained sand  
loose, clay

4.2' Silty clay, greenish black  
very soft, moist, some sand

Same soft silty clay,  
greenish black, moist

becomes clay with some silt at  
16', very soft, sticky moist

same as above.



JHB

5/14/08

(119)

Stop drilling @ 1350  
No samples collected at this  
time.

Set 1.5" Temp. Well

10' Screen

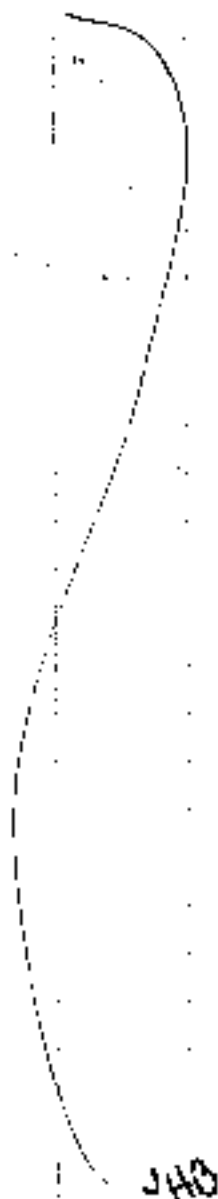
sand to 8'

JFA

Drillers off-site 430 to get  
cement

JHB

(120)



JHB

5/15/08

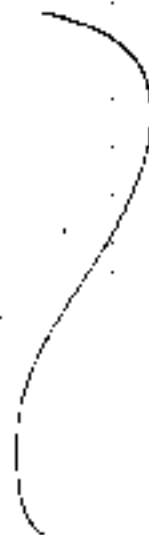
(121)

On-site 630 am

JFA and GeoEnvironTech @ 7:00

Prep for day  
Find valve pits along road  
outside UP-S Hill.

Begin drilling @ 8:15



JHB

(122)

745B131

- 0-4' Silty Sand and gravel to 0.3'  
 4' Rec. Very dry @ 0.3' Sandy clay  
 2 ppm med brown, med hard; dry  
 some stones  
 3.1 to 3.3 silty clay then  
 48' sandy clay again  
 4' Rec. med. hard, damp, med brown  
 1 ppm more clay rich grayish brown  
 @ 7.5'  
 8-12' sandy clay, contained  
 4' Rec. some silty areas  
 1 ppm moist to wet @ 11.8'  
 bottom of tube  
 No hydrocarbon odor

JHB

5/15/08  
Sunny Hot

(123)

- Samples collected 745B131-00  
 745B131-03  
 745B131-03D  
 745B131-03MS  
 /MSD  
 745B131-05

JHB

(124)

74SB132

0-4'  
4' Rec.  
21 ppm

4-8'  
4' Rec.  
21 ppm

8-12'  
4' Rec.  
21 ppm

Silt loam to 1.1 mod  
hard, dark brown, dry  
when sand and silt  
very dry (dusky) mod  
hard, loose in most zones  
some zone more clay rich  
8-10 more clay & 11-12  
rest just some clay  
very dry throughout  
No hydrocarbon odor

X

JHB

5/15/88

(125)

Samples collected

74SB132-04  
74SB132-05

JHB

(126)

745B133

0-4  
3.2 Rec  
4 ppm

Sandy loam, med dark brown  
dry, hard to 0.7'  
then gray brown. Sandy silt  
with some gravel, loose  
dry, med hard

4-8  
2.7 Rec  
4 ppm

@ 5.2' med gray green  
sandy clay, damp, med hard  
fine to med grained sand  
(sapratic)

8-12  
3.3 Rec  
4 ppm



JHB

5/15/88

(127)

Samples collected

745B133-04

745B133-05



JHB



(128)

7458134

0-4'  
3.1' Rec  
<1 ppm

Silt Loam, dark brown,  
med soft, dry; broken  
to 0.4 then gray gravel, loose  
and dry to 0.7'

4-8'  
3.8' Rec  
<1 ppm

then sandy silt with gravel  
dry, loose, gray brown  
@ 4.5 med brown sandy clay  
with some silt, dry to damp  
mod. hard.

8-12'  
4' Rec.  
<1 ppm

Sandy zone from 11.1 to 11.5  
damp.

X

JHB

5/15/08

(129)

Samples collected

7458134-04  
7458134-05

JHB

(130)

74SB135

0-4  
3.9' Rec  
cl ppm

Sandy loam and gravel  
to 0.4', dry, broken, med soft  
0.4' Sandy clay, med brown  
damp to dry, med soft

4-8'  
4' Rec  
cl ppm

0.4' Dark Brown. Silty clay  
med. hard, damp to dry  
occasional stone  
0.4' light green gray sandy clay  
silty siltstone, med hard, some  
iron staining, damp to dry

8-12'  
4' Rec.  
cl ppm

becomes sandy silt, siltstone,  
very dry, med soft, gray

No hydrocarbon odor

JHB

5/15/68

(131)

Samples Collected

74SB135-03  
- 74SB135-05

JHB

(132)

~~74SB136~~ 74SB136

0-4  
3.8' Rec.  
4 ppm

Sandy loam and gravel to  
0.5', mod soft, dry, broken  
greenish gray sandy clay  
"saprolite", mod. hard, broken  
damp to dry, occasional  
cobbles throughout @ 4.5'  
Dark Brown, silty clay  
mod hard, damp,

8-12'  
3.9' Rec.  
4 ppm

mixed with limestone gravel  
from 10.4 to 12, damp

JAB

5/15/08

(133)

Samples collected

74SB136 -03

74SB136 -03D

74SB136 -05

JAB

(134)

74SB137

- 0-4' Sandy loam and gravel.  
 3-7' Rec to 0.7 then  
 <1 ppm sandy clay, saprolite,  
 greenish gray, dry to damp,  
 mod hard, stones,  
 4-8' @ 4.2' Silty clay, dark brown  
 4' Rec mod hard, damp, occasional  
 <1 ppm stones
- Sandy clay at 8.8' mod brown  
 gray, damp to dry, mod soft  
 8-12' some saprolite areas  
 4' Rec.  
 <1 ppm

JAB

5/15/08

(135)

## Samples Collected

74SB137-03

74SB137-04

Come back on 5/16/08 instead  
 1.5" well at this location

74GW137

- 12-16 Saprolite greenish gray  
 4' Rec weathered rock, rock frags  
 <1 ppm sand, silt and clay  
 next inside, mod hard
- 16-20' some iron staining  
 4' Rec. No hydrocarbon odor  
 <1 ppm

Set well @ 20' TD  
 10' Screen  
 Sand to 8  
 Bent to 6  
 Grout

JAB

(136)

74SB138

- 0-4' Sandy Loam and gravel  
 3.5' Rec to 1.5' then sandy clay  
 2 ppm med soft, damp, some sand  
 throughout  
 @ 3.5' becomes silty clay  
 4-8' dark brown turning greenish  
 4' Rec brown at 5' with hydrocarbon  
 odor  
 5-6' 90 ppm  
 1/2" @ 6-8' becomes light brown  
 sandy clay, med soft to med  
 hard, damp,  
 8-12' layer of quartz gravel @ 11.4  
 3.7' Rec to 11.7'  
 4 ppm then sandy clay again

JHB

5/15/08

(137)

Samples collected

74SB 138 -03  
 74SB 138 -04

JHB

(138)

7458139

0-4' Silt Loam to 1.5'  
3.8' Rec Dark Brown, damp.  
<1 ppm then silty clay, dark brown,  
some gravel @ 2.1 to 2.3'  
silty clay to 4.8'  
4-8' then sandy clay with some  
4' Rec gravel, more clay from 7.2  
cl ppm to 9.1, damp to dry, med  
soft

8-12'  
3.4' Rec.  
2 ppm

↓  
No. hydrocarbon Odor.

JHB

5/15/08

(139)

### Samples Collected

7458139-03  
7458139-05

JHB

(140)

745B140

0-4'  
3.6' Rec  
4 ppm

Silt loam and gravel to  
0.5', dry, broken; med  
brown, then sandy clay  
dry, broken, gray brown  
some stones

4-8'  
1.7' Rec  
4 ppm

@ 3.6 gray green saprolite  
weathered into sandy  
clay, compact and hard

8-12'  
3.0' Rec.  
4 ppm

@ 10.2 becomes sandy silt  
soft, dry, loose, some  
rock frags throughout

No hydrocarbon odor

JHB

5/15/08

(141)

Samples Collected

745B140-04

745B140-05

JHB



(142)

74GWVP99/JPS Hill

0-4 Silt loam and gravel to 0.3'  
 2.5 ppm then sandy clay  
 3.8 Rec med brown, silty, broken  
 4-8 Loess, 8 then med. green  
 20-30 ppm gray unweathered rock, sandy  
 4 Rec clay (sandy) (sandy)  
 8-12  
 200 ppm  
 2.18 Rec  
 12-16  
 500 ppm  
 2.7 Rec  
 16-20  
 500 ppm  
 3.2 Rec

Becomes moist @ ~14'

Install 1.5" N/A to 20'  
 with 10' Screen.

JHB

5/16/08

(143)

On-site 630

JFA and GeoEnviroTech on-site  
 7:00

Prep for drilling field work  
 Move Trail rig to SWMU 9.  
 Area C line.

JFA drilling 74GWVP96/JPS  
 @ 7:30 Hill  
 Sample to 20'

JHB

5/14/88

(144)

74GWVP96 / JPS H. 11

0-4' Sandy loam and gravel to 0.2'  
 2.1' Rec. then sandy clay, greenish  
 5 ppm brown, cobbles, clay to clay  
 4-8 mod hard.  
 4' Rec. At 5.5' becomes greenish gray  
 90 ppm @ 2' saprolite, sand and clay  
 8-12 rock frags throughout  
 4' Rec. mod hard to hard depending  
 200 ppm - on rock content, clay to  
 12-16 most around 12'  
 4' Rec. hydrocarbon odor.  
 300 ppm -  
 16-20'  
 4' Rec.  
 300 ppm -

JHB

(145)

Samples Collected

74GWVP96 / JPS H. 11 - 03

74GWVP96 / JPS H. 11 - 05

Set 2.5" well @ 20'  
 10' Screen sand to 8'  
 U Bent to  
 then grout  
 stickup 3'

JHB

(146)

74GWVP10a / JPS Hill

0-4'  
 2.2' Rec  
 15 ppm  
 4-8'  
 1.8' Rec  
 2 ppm  
 8-12'  
 3.4' Rec  
 150 ppm  
 12-16'  
 1.2' Rec  
 500 ppm  
 16-20'  
 2 ppm  
 1.8' Rec.

Sandy loam to 0.3'  
 Sandy Clay med gray brown  
 damp to dry, some stones  
 throughout mod hard

~6' becomes sandy clay  
 dark green gray, damp  
 soft  
 becomes gravelly @ 9'  
 wet zones between 11' and 12'  
 then sandy clay, no gravel,  
 soft, wet/moist some  
 silt



JHB

5/16/08

(147)

Sampler collected

74GWVP10a / JPS Hill - 04  
 74GWVP10a / JPS Hill - 05

Set well @ 20' T.D.  
 10' Screen  
 sand to 8'  
 Rest to 6'  
 Gravel  
 Stickup 3'



JHB

5/16/08

(148)

746WVP11a/JPS Hill

0-4' Sandy loam and Gravel  
 3.0' Rec. Brimstone gray, clay, broken  
 <1 ppm to 2.2'  
 4-8' Sandy Clay, light brown, some  
 2.0' Rec. silt, damp to clay, mod hard  
 <1 ppm  
 8-12' Greenish gray/brown saprolite  
 2.8' Rec. silty sand with some clay  
 <1 ppm mod hard, tightly packed  
 12-16' damp to moist at 14'  
 4' Rec. some high clay area @ 16' to  
 <1 ppm 16-8'

JHB

(149)

No Samples Collected.

Geopline refusal on 3/4 Barrel  
 Hane to Angel

Angel refusal @ 19.8'

Set well at 19.8', 15" Dia.  
 10' Screen  
 Sand to 8'  
 Bent to 6'  
 Grout  
 Stick up to 3'

JFA off-site 430

JHB

5/17/08 (1)  
Hot Humid  
88°F

On-site 630

JFA on-site 700

prep for fieldwork  
mobilization to well location  
74GWVP11b / JP5H11

Mark bearing locations along  
Antietam Road and right-of-way  
in morning

work at valve pit locations at  
the industrial area in the afternoon

JHB

②

74GWVP116 / JPS Hill

0-4'  
4' Rec.  
1 ppm  
Sandy loam and gravel  
to 0.6' then sandy clay  
and gravel and sand zones  
throughout, damp to dry, med soft  
gray / brown

4-8'  
4' Rec.  
1 ppm  
becomes light greenish brown at  
2.6', med hard, weathered rock  
damp,

8-12'  
4' Rec.  
1 ppm  
becomes soft and damp to moist  
@ 12.5'

12-16'  
3.3' Rec.  
1 ppm  
No hydrocarbon odors

JHB

5/17/88 ③

Samples collected

74SBVP116 / JPS Hill - 04  
74SBVP116 / JPS Hill - 05

Set well @ 20' T.D.  
10' Screen 1.5" Dia.  
Sand to 8'  
Bent. to 6'  
Grout  
Stickup to 3'

JHB

(4)

5/17/08 (5)

74GWVP10a / ~~5~~ DFM

No Samples Collected

0-4' Silt loam, dark brown,  
 damp, mod soft to 1.1'  
 ~10 ppm then light brown sandy clay  
 4-8' fine grained sand, mod salt-  
 3.8' Rec damp to 4.6'  
 ~30 ppm Greenish gray silty clay with  
 8-12' some sand to 11' then  
 4' Rec greenish gray clay with some silt  
 hard  
 ~90 ppm 12' Sandy silt with some clay  
 12-16' damp to moist, loose  
 4' Rec stratified, strong hydrocarbon  
 odor, greenish gray and white  
 ~3000 ppm  
 16-20' becomes olive green @ 18.3'  
 4' Rec + white  
 ~900 ppm

JHB

Geoprobe Retrieval @ 14' with  
 3/4" Sleeve, have to Auger.

Set well @ 21' Bgs  
 10' Screen - 1.5" 0.010" Slot  
 Sand to 9'  
 Bentonite to 7'  
 Grout  
 Stick-up to 3'

JHB

⑥

## 74GWVP10b / DFM

0-4'  
2.1' Sandy loam and gravel to  
1.5' Bgs, damp, dark brown, soft  
then sandy clay, olive brown  
4-8' damp, mod soft med grained sand  
3.8' Rec. some silt  
~25 ppm  
8-12' Gray rock, broken, hard from 4-5.2'  
4' Rec. clay, then sandy clay and rock  
140 ppm frags, grayish brown clay and gray  
rock damp to dry  
12-16'  
4' Rec. ~ 11.5' Gray green saponite  
~2000 ppm weathered rocks, clay and sand  
variegated colors from 14.3 to 16  
moist,  
16-20' after 17' Sandy silt with some  
4' Rec. clay, charcoal, moist  
500 ppm Strong hydrocarbon odor.

JHB

5/17/08 ⑦

## Samples Collected

74SBVP10b / DFM - 04  
74SBVP10b / DFM - 05

Geoprobe refusal with 3/4" casing  
have to drill with Augers

Encounter auger refusal @ 18'

Set 1.5" well @ 18' with  
10' Screen

Sand to 6'  
Berthoud to 4'  
Grout  
Stickup to 3'

JFA off-site 5:15pm

JHB



8

5/12/08 (9)  
Sunny Hot  
Humid

630am on-site  
prep for field work

JFA on-site 200

Water levels @ 746WVP10a/DFM

$Z = 18.02$

TD = 24'

746WVP10a/DFM

$I = 20.00$  from TPVC (Dry)

Finish well pads and stick-ups  
at these wells, get water  
mob to Tow Way Fuel Farm  
at 915

JHB

JHB

74GWVP19a

0-4' Sandy loam to + gravel to 4.5'  
 2.1' Rec. grayish brown, mud hard, damp  
 <1 ppm some cobbles @ 4.5'

4-8' @ 5.1 silty clay, dark brown  
 4' Rec. damp, mud hard, pebbles with  
 <1 ppm iron-staining, slightly mottled

8-12' becomes soft and moist @  
 3.0' Rec. 7.8'  
 <1 ppm @ 8.5 foot wet sand and

12-16' coarse gravel with silty clay  
 extends to 10.5'

2.2' Rec. @ 10.5 silty clay, spherulitic  
 <1 ppm structure, hard, damp, some  
 rock frags

16-20' cobbles @ 19.0' then spherulitic  
 3.4' Rec. brown and white clay and sand  
 <1 ppm damp to dry, hard, brittle

5/18/08 (11)

No samples collected

Set well @ 15' TO.  
 10' Screen 1.5"  
 Sand to 4'  
 Bentonite to 2'  
 Stickup 3' Ags

JHB

74GWVP196

0-4'  
3.3' Rec.  
10 ppm  
Sandy loam and gravel  
to 3.5' brownish orange,  
med soft, damp.

4-8'  
2.8' Rec.  
7000 ppm  
free product  
3.5' to 8' sandy clay  
mat, highly impacted, free  
product gravel throughout

8-12'  
3.8' Rec.  
7100 ppm  
8 to 12' silty clay, granitic  
gray, some gravel, damp  
plastic, med soft

12-16'  
4' Rec.  
4 ppm  
12' brown and green brown  
sandy clay, saprolitic, damp to  
moist, rock frags  
lighter in color with depth  
sandsier,

16-20'  
4' Rec.  
4 ppm



JHB

## Samples Collected

74SBVP196-03 1115 AL  
74SBVP196-05 1130 LL

Set well @ 15' Bgs

10' Screen 1.5" Dia  
Sand to 4'  
Bentonite to 2'  
Stick-up 3' Ags

Clean up decon rig and equipment  
JPA off-site 2:30



JHB

(14)

5/19/08 (15)  
Cloudy Hot  
Humid

Wake @ 630 am

JPA and Gammutoch on-site  
@ 700

prep for fieldwork

mobile to VP20 in 20 Tow Along  
Fuel Farm

JHB

JHB

16  
5/19/08

746WVP20

- 0-4' Sandy loam and gravel.  
2.9' Rec. brown, broken, mod hard, to 0.9'  
20ppm @ 3.5' then texture of coral frags,  
then clay  
4-8' gravel and sandy clay. (olive)  
mod hard, damp  
4' Rec. @ 3.5' Sandy clay some silt  
2ppm Avg. iron-stained, some gravel  
@ 5' Silty clay with some sand  
8-12' dark gray brown, very soft, damp  
4' Rec. to moist,  
Sppm Avg. becomes slightly stiffer @ 8'  
mod soft  
12-16' @ 13' sandy clay, mod hard  
@ 13' 500ppm verd-greenish, sand, green, gray, brown  
14' 1200ppm clays to moist, hydrocarbon odor  
3.5' Rec. (saprolitic structure)  
16-20'  
1.5' Rec.  
> 2000ppm



JHB

5/19/08 17

Samples collected

- 745BVP20 - 05 825 LL  
745BVP20 - 06 845 LL

Set 1.5" well to 20' Bgs  
10' Screen  
Send to 7'  
Bentonite to 5'  
grout  
stickings to 3' Ags

Mo. outside of Tow Way Fence  
along Forestal Road.



JHB

(18)

74GW VP1982

- 0-4' Sandy silt, branny, clay, looks  
to 0.3' then sand and gravel, light gray  
loose, clay, coral and shell frags  
to 3.5'
- 4-8' then sandy clay and gravel  
green gray, strong hydrocarbon  
odor @ 5'
- 8-12' sandy clay transitions into  
silty clay green/branny, very  
soft, deep to moist
- 12-16' becomes wet @ 13'  
very soft dark green gray
- 16-20' @ 15' brownish green  
weathered rock, saprolite  
structure, moist, hard, strong  
hydrocarbon odor some sand  
and clay rich zones, rock  
fragments.
- 0-4' 3.3' Rec.  
71 ppm
- 4-8' 3.2' Rec.  
1500 ppm
- 8-12' 3.2' Rec.  
75 ppm
- 12-16' 20' Rec.  
75 ppm
- 16-20' 3.6' Rec.  
7700 ppm

5/19/08 (19)  
Sunny 85°F

## Samples collected

74SBVP1982 - 03 1040  
74SBVP1982 - 05 1100

Set well @ 20' Total Depth

- Since boring is so sloppy will  
use prepack well screen.  
1.5' I.D. Dia.  
Add sand to 8'  
Bentonite to 6'  
Grout  
Stick up to 3' AGS

JHB

(20)

2458212

0-4'  
2.0' Rec  
4 ppm

Rock, gravel, some silt. and  
sand. clay

4-8'  
0.8' Rec  
1 ppm

more sandy clay at bottom of  
stone, greenish brown, wet

8-12'  
2.2' Rec  
1 ppm

greenish brown sandy clay  
saturated, soft, fine to med.  
grained sand

JHB

(21)  
5/11/08

No samples collected  
poor recovery, rock, and what  
was recovered was saturated.  
No hydrocarbon odors.

JHB

(22)

5/19/08 (23)

745B213

0-4'  
2.9' Rec  
21 ppm

Rocky, gray, loose with silt  
and sand, clay to 1/5  
sandy clay mixed with rock  
iron stained, compact, hard  
clay

4-8'  
2.8' Rec  
10 ppm  
6.5'

@ 2.2 Bredding sand, light brown  
loose, clay

8-12'  
1.8' Rec  
10-20 ppm  
throughout

@ 5' Sandy clay and clay  
mixed greenish gray  
wet at 6.5' 1" inch of  
weathered product at 6.5'



JHB

Samples collected

745B213-03



JHB



(24)

745B214

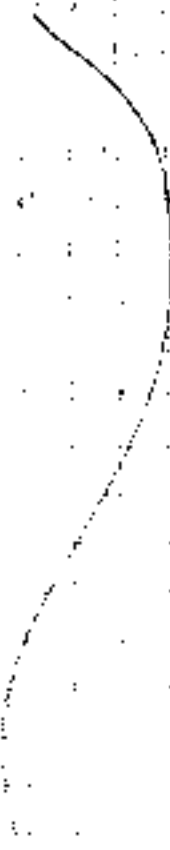
- 0-4' Sandy clay and rock mixed  
to 3.5', dry, hard, light  
brown, then sandy clay  
iron stained with less rock  
4-8' bedding sand and 4.5' and  
geoprobe refusal at 5'  
No hydrocarbon odors.



JHB

5/19/08 (25)

No samples collected  
geoprobe refusal at 5'



JHB

745B215

Samples collected

745B215-03 1400

0-4' Silty sand and gravel, loose  
 2.3' Rec. gray, dry @ 1.3 Sandy  
 4 ppm clay, mod hard, clay  
 gray brown

4-8' @ 5' become dark gray and  
 1.6' Rec. greenish brown, sandy clay  
 4 ppm with rocks. moist @ 7'

8-12' wet @ 9' saturated  
 2.7' Rec.  
 4 ppm

JHB

JHB

(28)

5/19/08 (29)

## Samples Collected

745B216

0-4'  
2.6' Rec.  
41 ppm

Silty Sand and Rock  
Dry, hard,

4-8'  
2.0' Rec.  
20-40 ppm

becomes sandy clay with rock  
@ 2.6' med soft, grayish  
black, moist  
@ 7' turns grayish black  
med soft, silty clay

8-12'  
3.6' Rec.  
200 ppm @ 11.4'  
20-40 ppm above

hydrocarbon stains @ 11.4'  
to 11.8' saprotic rock  
at 11.8' weathered rock  
and sand clay

JHB

745B216-03 1415  
745B216-05 1425  
745B216-05D 1425

JHB

(30)

7458217

0-4'  
2.8' Rec  
<1ppm

4-8'  
<1ppm

Silt and Sand mixed with  
gravel, loose, dry, hard  
grayish brown

then sandy clay with gravel or  
large cobble at 6'

Grainprobe refusal

marked 3X same thing  
each time.

No hydrocarbon odors

No Samples collected.

JHB

5/19/08

(31)

No Samples collected  
due to refusal

JHB

74SB218

0-4'  
3.3' Rec.  
45 ppm

4-8'  
4' Rec.  
770 @ 5'  
40 @ 6'  
8-12'  
4' Rec.  
50 ppm  
throughout

Rocks and sand, gray, hard  
dry to 0.8'  
then light brown sandy clay  
hard, brittle, broken, dry  
some rocks throughout  
0.4' Sandy silt with  
some clay, med. brown, mod  
hard, damp  
becomes greenish gray and  
strong odor @ 5'  
0.9' becomes silty sand,  
mod hard, damp to moist.  
sagittate structure



JHB

Samples collected

~~74SB218-01~~  
74SB218-03  
74SB218-05



JHB

(34)

745B219

0-4'

3' Rec

2' ppn

B. Rocks and sand fill

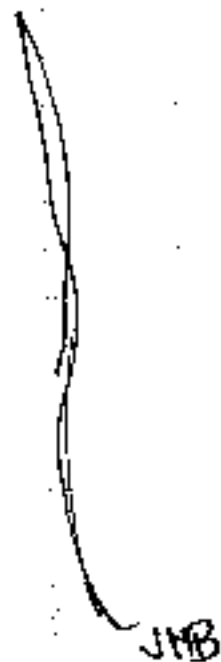
dry, hard loose some

sandy clay @ 2.0'

Geoprobe returned @ 3'

concrete

Tried 3X and unsuccessful



JMB

5/19/08

(35)

No Samples collected



JMB

(36)

745820

0-4'

3' Rec.

4 ppm

Silty Sand and gravel  
dry, looks hard  
some clay @ 2' med brown  
mixed in  
Gravel at 3'  
concrete  
Tried 2X

JAB

5/19/08

(37)

No Samples Collected

JAB

(38)



JHB

5/20/08 (39)  
Sunny 85°  
Humid

630 on-site

700 JPA on-site

Prep for field work summer 74

Mod to Fueling Pier



JHB



745B221

0-4'  
3.1' Rec  
4 ppm

Sand and Silt with some  
gravel to 0.6' then  
Sandy clay with gravel  
to 2.0', dark brown

4-8'  
2.2' Rec  
250 ppm

Sandy clay, red brown,  
soft, damp, some rock  
some bedding sand

Free product @ 5.5',  
weathered, dark brown,

8-12'  
220 ppm  
0.8' Rec

JHB

Samples Collected

745B221 - 00 855  
745B221 - 00D 855

745B221 - 02 920

745B221 - 02 D

745B221 - 02 MS

745B221 - 02 MSD ↓

Did Not collect deeper  
sample Free product @ 5.5'

JHB

(42)

745B222

0-4' Silt and sand mixed  
 2.3' Rec with gravel, light  
 <1 ppm brown, dry, loose  
 some clay @ 1.8'  
 4-8' @ 3.2' Breeding sand  
 2.8' Rec light brown, soft, loose, clay  
 750 ppm @ 6.5 Free product @ 6.5'  
 720 ppm 5.5 to 6.5 moist to wet  
 8-12'  
 2.0' Rec. 8-12' Greenish gray sandy  
 750 ppm clay, saturated, strong  
 hydrocarbon odor.

JAB

5/20/08

(43)

Samples Collected

745B222 - 03

Second subsurface not collected  
 with Free product @ 5.5'

JAB

7458223

0-4'  
3.2' Rec  
71 ppm

4-8'  
2.8' Rec  
7100 @ 6.5'  
410 above

8-12'  
1.5' Rec  
7200 ppm

Sandy loam to 0.2'  
then sandy clay, light brown,  
brakes, dry,  
sand and silt mixed with  
gravel @ 0.8' light gray  
brown, mod soft, dry  
bedding sand @ 3.0' extends  
to 5'  
mod brown, silty clay at  
5' along, mod soft  
hydrocarbon content @ 6.0'  
greenish black, moist

some greenish black  
sandy clay, saturated  
oil mixed with water

JHB

## Samples Collected

7458223 - 03

Second subsurface soil net  
collected due to free product @  
6'

JHB

(46)

5/26/08

(47)

745B224

## Samples Collected

745B224 - 04

745B224 - 05

0-4' Sandy clay and gravel  
 2.5' Rec to 6.9', grayish brown, mod  
 <1 ppm hard to mod. soft, dry

4-8' then greenish gray sand and  
 4' Rec silt, trace gravel to 7.2'  
 2 ppm mod hard, damp

8-12' then silty clay, very hard  
 3.9' Rec compact, saprolite structure  
 >40 ppm damp to 8.5'

9-9.5' then sandy clay, greenish  
 <20 ppm gray, mod hard, damp  
 rock frag throughout  
 saprolite structure  
 damp to moist @ 9.5'

JHB

JHB

7458225

0-4'  
2.6' Rec.  
21 ppm

Sandy loam to 0.3'  
then light gray sand and silt  
with gravel, dry, loose, hard.  
to 1.1 then med brown  
sandy clay, dry, med hard  
some gravel.  
to 7' dark brown, moist

8-12'  
4.0' Rec.  
21 ppm

10' silty clay, hard, damp  
some sand, med, brown.

JAB

## Samples Collected

7458225 - 04  
7458225 - 05

JHB

7458226

## Samples collected

0-4' Sand and Silt mixed with  
 gravel, loose, dry, and  
 2 ppm light gray brown to 3.2'  
 greenish gray sandy clay mixed  
 with gravel, med soft.  
 4-8' becomes very soft, drops to  
 10' Rec. mast @ 4.5' poor recovery  
 10 ppm  
 8-12' tight sandy clay, siltstone  
 4' Rec. structure @ 8.0, deep  
 >100 ppm strong hydrocarbon odor  
 become light brown @ 11.5'

JHB

7458226-04 1125  
 7458226-05 1135  
 7458226-05D 1135

JHB

745B269

## Samples Collected

745B269 - 04

1215

745B269 - 05

1230

0-4'  
2.2' Rec.  
4 ppm

Med brown, silty sand, loose  
dry; med. soft; gravel throughout  
to 0.8' then turns light  
gray, some

4-8'  
2.8' Rec.  
50 ppm

c. 4.5' dark brown sandy clay  
stones throughout, some odor, soft  
clay to mud,

8-12'  
3.5' Rec.  
>500 ppm

turns silty clay @ 10' very  
soft, green gray  
wet @ 11', strong hydrocarbon  
odor, brownish green, very  
soft

JHB

JHB

745B268

0-4' Sandy loam and Gravel  
 3.1' Rec. dry, <sup>gray</sup> brown, broken, med hard  
 5 ppm to 1.6'  
 then sandy clay med to dark  
 brown, Mod soft, damp  
 48' turns greenish gray @ 6'  
 750 ppm sandy clay mixed with root frags  
 3.5' Rec. strong hydrocarbon odor  
 8-12'  
 4' Rec. saprolite structure evident @  
 9'  
 700 ppm turns brown green @ 11' softer  
 moist

JHB

## Samples Collected

745B268-03 1400  
 745B268-05 1415

JHB



(56)

74SB267

0-4'

3.7' Rec.

5 ppm

4-8'

2.5' Rec.

750 ppm

8-12'

1.2' Rec.

&gt; 800 ppm

Sandy silt with some clay and  
gravel, light gray, hard, loose  
dry

clay starts to turn gray green  
@ 3'

becomes dark green gray @ 5'  
clay to moist, soft

Med brown color @ 6' with  
some sand, damp

greenish brown at 6.5'

@ 7.2' Free product, oily  
hydrocarbon, gravel and  
green sandy clay, wet

JHB

5/20/48

(57)

Samples Collected

74SB267-02

1425

74SB267-03

1435

JHB

(58)

74SB266

0-4' Sandy silt with mixed gravel  
3.6' Rec. loose, dry  
25 ppm sandy clay mixed in @ 3'

4-8' greenish brown sandy clay @ 5'  
1.5' Rec. some silt, damp, soft  
740 ppm Free product @ 6.5', wet  
strong odor

8-12'  
1.0' Rec.  
7400 ppm



JHB

5/20/08 (59)

Samples Collected

74SB266-03

Second sample not collected because  
of low recovery and free product @  
6.5'

No duplicate collected because of  
low recovery, will collect  
on next boring.



JHB

(60)

5/20/08 (61)

74SB265

- 0-4' Sandy Silt, brownish gray,  
 2.6' Rec. clay, loose, broken  
 <1ppm sandy clay mixed in around  
 3.0' damp, med soft.  
 4-8' @ 5.5' becomes greenish gray  
 1.8' Rec. sandy clay, damp, strong  
 >100ppm hydrocarbon odor  
 8-12' wet @ 9.5' large gravel  
 2.0' Rec. mixed with sandy clay  
 >200ppm



## Samples Collected

## Samples collected.

74SB265-03 1515  
 74SB265-03 Dup 1515  
 74SB265-04 1530

JPA off-site 3:30  
 Label Bottles and Ship Fedex 430  
 Baker off-site 5:30



(62)

5/21/08 (63)  
Sunny Hot  
Humid

630 on-site

200 JPA on-site

Pray for field work

mob to 743826Y

JHB

JHB

(64)

7458264

0-4'  
3.3' Rec.  
41ppm

4-8'  
3.1' Rec.  
41ppm

8-12'  
3.8' Rec.  
+300ppm  
C 9'

Sandy loam and gravel,  
dry, loose, mod soft  
gray brown

becomes light gray @ 2.5'  
then

Sandy clay @ 3.5'  
mod brown, mod soft, damp  
becomes greenish brown @  
6'

mixed with light gray sand  
@ 7' to 8'  
wet @ 9.0' very soft  
sandy clay

7  
JHB

5/21/08

(65)

Samples collected

7458264 - 03

800

7458264 - 04

810

JHB

(66)

74SB263

0-4'  
3.8' Rec  
41 ppm

Sandy loam and gravel,  
dry, broken, <sup>lt</sup> gray brown  
to 3.5'

then bedding sand, light brown,  
soft, loose, damp

4-8'  
2.5' Rec.  
41 ppm

to 7.2'  
then med brown, silty  
sand, little clay, loose  
soft

8-12'  
2.2' Rec.  
730 ppm 9'  
750 ppm 10'

now becomes greenish gray. <sup>Silty clay</sup>  
wet @ 11.0' hydrocarbon  
odor

H

JAB

5/21/88

(67)

Samples collected:

74SB263 - 03 . 825

74SB263 - 04 . 835

JAB

(68)

7458262

0-4'  
3.8' Rec  
4 ppm

4-8'  
2.2' Rec  
4 ppm

8-12'  
1.0' Rec  
7700 ppm

Sandy loam to s.s.  
Gray Bedrock, soft, broken, clay  
then silty sand light brown, dry  
loose, dry to 1.2' then  
Sandy clay mixed with gravel  
soft, damp need to drill down

mixed with bedding and fine  
4.5 to 8.5' lots of rocks  
fine s to 8.5' poor  
recovery  
wet @ 9.0' free product  
coating the entire screen from  
8-12'

JHB

5/21/08

(69)

Samples Collected

7458262 - 03 885

Did not collect second subsurface  
sample due to poor recovery  
and rocks and cobbles, also  
saturated with free product @ 9'

JHB

5/21/08

(70)

74SB261

0-4'  
3.6' rec.  
71 ppm

4-8'  
11.2' rec.  
5X

710 ppm  
8-12'  
10'  
7300 ppm

Sandy loam, dry, loose,  
braked to 0.6' then  
silty sand mixed with gravel  
loose, dry to 3.6'  
then bedding sandy tan, soft  
loose, to 6'  
sandy clay, greenish black  
soft damp to moist, lots  
of rocks and cobbles  
bad recovery 5X

8-12' shale covered with  
free product, wet

JHB

## Samples Collected

(71)

74SB261-00  
74SB261-03  
74SB261-03 Dup  
74SB261-03 MS  
74SB261-03 MSD

Seal subsurface sample not  
collected due to poor recovery  
free product and rocks at  
depth.

JHB



(72)

745B260

0-4'  
2.3' Rec.  
4 ppm

Sandy loam to 0.3'  
dry, broken, soft  
then silty sand, gray brown  
dry, loose, some gravel

4-8'  
1.8' Rec.  
40 ppm

Sandy clay @ 2.8'  
very soft, damp, greenish  
brown, lots of gravel throughout

8-12'  
7/00 above  
9.5'  
3.6' Rec.

med. brown @ 8.5'  
soft, damp, medium-grained  
sand. @ 9.5' clayey sand  
soft, wet, hydrocarbon  
stained greenish black,

JHB

5/21/08

(73)

Samples collected

745B260 - 03 1025

745B260 - 04 1040

JHB

(74)

745B259

0-4'  
3.2' Rec  
clippm

4-8'  
2.2' Rec.  
clippm

8-12'  
1.8' Rec.  
750ppm  
@ 9.5'

Sandy loam, grayish brown  
dry, med hard, to 0.4'  
then sandy clay with gravel  
dry, broken, med soft,  
coral frags @ 3.5'  
med brown sandy clay @ 4.5'  
black and tan sand throughout  
damp



wet @ 9.5' hydrocarbon  
staining, greenish black

JHB

5/21/08

(75)

Samples Collected

745B259 - 03 1115

745B259 - 04 1125

JHB

(76)

745B258

0-4'  
2.8' Rec.  
4 ppm

4-8'  
3.2' Rec.  
4 ppm

8-12'  
4.0' Rec.  
5 ppm

Silty Sand and gravel to  
4.5', some clay, very dry  
broken, gray brown  
then bedding sand tan  
loose, clay with rocks throughout  
6.5' med green brown sandy  
clay, damp, mod salt  
moist from 8-9.5'  
then weathered rock, argillite  
hard, rock flags, damp to  
dry

JHB

5/21/08

(77)

## Samples Collected

745B258-03 1145  
745B258-05 1155

JHB

5/21/08

(79)

(78)

7458257

0-4'  
3.5' Rec  
4 ppm

Silty sand and gravel to  
1.8' light gray, dry, loose

4-8'  
0.5' Rec  
4 ppm

then mixture of clay and gravel  
med brown, damp

8-12'  
0.6' Rec  
4 ppm

@ 3.5' med grained sand and  
coral frags, loose, soft,  
wet



JHB

Samples Collected -

7458257

No samples collected

Wet sand and coral @ 3.5'



JHB

5/21/08

(81)

(80)

745B256

0-4'  
3.6' Rec  
4 ppm

4-8'  
1.5' Rec  
2X  
4 ppm

8-12'  
2.2' Rec  
45 ppm

Sandy gravel with some  
clay, dry, broken, to  
gray brown,  
then med brown sandy  
clay with gravel @ 4.5'  
damp, med-grained sand

@ 7.5' silty clay, dark  
brown, very soft, sticky  
some sand throughout

JHB

Samples Collected

745B256 - 03 1220  
745B256 - 03D 1220  
745B256 - 04 1235

JHB

5/22/88

(83)

6:30 on-site

200 Drillers on-site

work on wells along  
Forestack Road. Did not collect  
any samples today, except groundwater.  
Clean up

View ~~from~~ summit 71, 78, 61, 62  
with help from Christ Kelly.  
Will need to locate bearings  
with GPS.

Prep samples from shipping.

JHB off-site 2:00 pm

JHB

JHB

84

JHB

5/28/08  
Cloudy, Humid  
85°F

85

JHB on-site 800 am.  
Drillers on-site 700 am  
check in get passes.

Prep for fieldwork, mts to  
J.P.S. Hill

JHB

(86)

7458270

0-4'  
2.7' Rec  
clippm

Sandy loam, and gravel to  
0.3', dry, hard  
then tan and red (maroon)  
clay, damp, mod hard

4-8'  
0.2' Rec  
clippm

becomes very soft at 4'  
poor recovery

8-12'  
4' Rec.  
clippm

discrete red cubes @ 8' and  
white clay, mod soft, damp  
to moist

stiffer @ 10.5', harder

JHB

5/28/0

(87)

Samples collected

7458270-04

8/005

7458270-05

1015

JHB



745B271

0-4'  
3.7' Rec  
4 ppm

Sandy loam and gravel to  
0.8' then tan and red  
clay, med hard, damp

4-8'  
4' Rec  
4 ppm

becomes softer and stickier  
@ 4', iron staining throughout  
med soft to soft

8-12'  
4' Rec  
4 ppm

Some brown to tan silt  
and sand throughout the  
red/white clay from 8' to 12'  
med soft, damp to moist  
variegated.

JHB

5/28/08

Samples collected

745B271-00 1030  
745B271-03 1040  
745B271-03 Dup  
745B271-03 MS  
745B271-03 MSD  
745B271-05 1050

JHB

5/28/08

(90)

745B272

0-4' Sandy loam and gravel to 1.2'  
 2.8' Rec. gray brown, soft, dry  
 clippn then dark brown, sandy clay  
 to 2.5', hard, dry  
 then med yellow brown silty clay  
 4-8' damp, med hard, iron staining  
 4' Rec. becomes clayey sand then  
 clippn 4.5' to 5.2' med brown, damp  
 then tan sandy clay, some  
 silt, hard, damp 5.2-8.4'  
 8-12' then saprolite, hard, olive  
 4' Rec. brown, and light gray, damp  
 clippn

silt  
layers

JHB

Samples collected

745B272-04 1105  
 745B272-05 1115

JHB

(92)

74SB273

0-4'  
4' Rec.  
cl ppm

Sandy clay and gravel, hard  
loose ~~dr~~ to 0.5'  
then sandy clay (saprinite)  
greenish brown, and white  
specks

4-8'  
4' Rec.  
cl ppm

iron-staining and dr to rust  
@ 3.5 to 4.2' more greenish  
gray color @ 4.2', hard

8-12'  
4' Rec.  
cl ppm

alternating layers of brown and  
greenish gray, hard, saprinitic  
structure. dr. rock fragments  
throughout

12-16'  
cl ppm

saprinite - dr to rust, iron  
staining throughout, rock fragments  
geoprobe record @ 14.5'

JHB

5/28/08

(93)

## Samples Collected

74SB273 -04 1125  
74SB273 -05 1135

Will Set well at this location  
using 4 1/4" HSA

Total Depth 20' with Augers  
use Geopack screens because  
of water and sediment in boring  
10' screen  
Sand to 8'  
Bentonite to 6'  
Gravel  
Shellup 74GW273

JHB

5/28/08

(95)

(94)

74SB274Samples Collected

- 0-4' sandy clay and gravel to  
 3.9' Rec 1.6', dry, hard, breaks  
 21ppm than silty clay, hard to  
 very hard, damp, brown to  
 gray @ 4'
- 4-8' becomes greenish gray sand  
 4' Rec. and rock flags, siltstone,  
 41ppm hard, damp to dry  
 iron staining
- 8-12' becomes reddish brown and white  
 4' Rec. clayey sand, quartz rock,  
 41ppm soft, damp

74SB274-03 1150

74SB274-05 1200

JHB

JHB

(96)

745B275

0-4'

Gravel and silt to 2.2'  
gray, hard  
then medium brown sandy  
clay, med hard, damp  
rocks, <sup>Fe</sup> staining.

4-8'

0 4.5' silty clay with  
some sand, med sandy,  
med. brown, damp

8-12'

Geoprobe refusal @ 8'  
light gray, rock, very hard  
dry



JHB

5/28/08

(97)

## Samples Collected

745B275-03 1215

745B275-03 Dup 1215

Did not collect second sub-  
surface sample due to refusal



JHB

(98)

74SB276

0-4'

3'

4 ppm

4-8'

Sandy loam and gravel  
to 1.5' then sandy clay  
med to dark brown, mod hard  
clay then

Graptolite refusal @ 3'  
light gray rock.

JHB

5/28/08

(99)

No samples collected from  
this boring 74SB276.

Rock refusal @ 3'

JHB

(100)



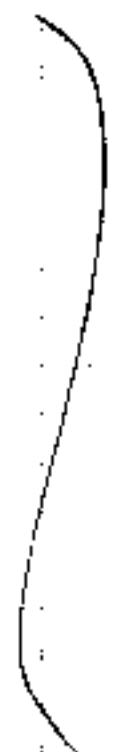
JHB

5/28/68

(101)

Finish well @ 2458 273  
Drillers off-site @ 5pm

Fedex pick-up not until 6:15pm  
then off-site.



JHB

(102)

JHB

5/29/88  
Cloudy 85°

(103)

On-site 630 pm.  
Drillers on-site 700  
prep for field work

Drillers JPA mob to 745B256  
and install a temporary well

74GW256 TD 20'  
10' Screen  
Sand to 8'  
Percutite to 6'  
Grout  
still go

10 am mobilize to Summ 78  
Begin some borings

JHB



**Field Scientist – Darrin Hupe**

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4/29/08

## SWRU 69 [Surface Soil Sampling]

Weather: Mostly sunny, windy, ~95°F

Sample Point	Time	Description	moist
69SB01-00	0850	Silty, some rocks/shells, Med. Br.	
00MS	"		
00MSD	"		
00D	0855		
69SB02-00	0940	Silty clay, roots, Med. to dk brown, moist.	
69SB03-00	0950	Sandy clay, Rock + shell frags, Med. Br., moist to wet.	
69SB04-00	1035	Clay, some S.H., roots, some rocks/shells, Med. Brown.	
69SB05-00	1110	Silty clay, roots, some sand, dark brown, moist	
69SB06-00	1120	clayey S.H., roots, Med. Br., moist	
69SB09-00	1135	S.H., some sand, lots of roots, DK Brown, moist to wet.	
69SB10-00	1345	Silty clay, lots of roots, some rock/shells, Med. Br., damp.	
69SB13-00	N/A	S.H., some sand/clay, roots, some rocks/shells, Med. Br., damp.	
69SB14-00	1415	clayey S.H., roots, rocks/shells, Med. to DK Br., Damp.	

①

4/29/08

Sample Point	Time	Description
69SB15-00	1425	S. Hy Sand, trace clay, roots, rocks/shells, Med. Br., Damp.
69SB16-00	1430	S. Hy sand, roots, rocks/shells, light Br., damp.
69SB17-00	1445	S.H., some sand, rocks/shells, Med. to dk Br., damp.
69SB18-00	1450	S. Hy Sand, rocks, Med. to light Br., Moist.
69SB19-00	1500	S. Hy Sand, rocks, Med. to light Br., Moist.
69SB20-00	1500	S. Hy Sand, rocks/shell, some coral, Med. to dk Br., damp.
69SB21-00	1520	Sand, rocks/shells, light Br. frag, damp.
69SB22-00	1530	
69SB23-00	1535	
69SB24-00	1550	
8145	"	
21450	"	
69SB22-00	1530	S. Hy Sand, rocks, Med. Br., damp.
69SB23-00	1535	" " " " "
69SB24-00	1550	" " " " "

②

4/30/08

SUMU 69: [Well Dave Loperman]

Weather: Mostly sunny, breezy, ~45°F

69GW11

TD: 19.46 (Hard Bottom)

SLW: 12.26

Time: 09:15

Time	Vol	Temp	Cond	D.R.	PH	ORP	Turb
0954	2	Start					
0957	7534	31.79	0.687	2.11	7.22	87	71K
1003	2	31.74	0.679	2.71	6.90	91	
1010	4	31.50	0.680	2.20	6.86	89	
1017	6	31.97	0.657	2.93	6.96	64	717
1025	8	32.03	0.577	1.83	6.90	63	227
1030	10	32.06	0.546	1.76	6.85	61	60

Ending SLW = 12.84

Pump Speed = Full

4/30/08

69GW12

TD: 18.10 (Hard Bottom)

SLW: 10.38

Time: 10:40

Time	Vol	Temp	Cond	D.R.	PH	ORP	Turb
1045	2	Start					
1053	2	29.40	0.716	2.10	6.81	69	71K
1100	4	29.49	0.723	1.94	6.76	55	
1106	6	29.42	0.711	1.87	6.76	40	
1113	8	29.48	0.459	1.82	6.74	29	279
1120	10	29.43	0.716	1.80	6.72	19	199
1126	12	29.45	0.774	1.04	6.80	8	41

Ending SLW = 10.45

Pump Speed = Full

3

4

4/30/08

696W08

TD: 19.45 (Hard Bottom)

SL: 8.95

Time: 1205

3rd

Time Vol Temp Cond. D.O. pH ORP Turb.

1208 - Start

1215	2	28.75	0.629	1.05	7.00	32	71K
1221	4	28.62	0.618	3.41	6.98	35	"
1227	6	28.52	0.554	3.38	6.95	37	845
1233	8	28.57	0.622	3.05	6.91	43	436
1239	10	28.49	0.613	3.17	6.94	43	971
1243	12	28.48	0.587	3.08	6.94	43	780
1250	14	28.39	0.484	3.00	6.94	42	528
1255	16	28.45	0.580	2.33	6.98	41	136
1304	18	28.29	0.609	2.92	6.96	41	89

Ending SL: 9.33

Pump Speed = Full

4/30/08

696W07

TD: 19.45 (Hard Bottom)

SL: 10.83

Time: 1458

3rd

Time Vol Temp Cond. D.O. pH ORP Turb.

1502 - Start

1510	2	29.96	0.661	6.15	7.29	40	71K
1518	4	29.63	0.630	7.15	7.14	51	"
1524	6	29.50	0.646	4.09	6.94	56	862
1531	8	29.45	0.633	3.65	6.85	67	318
1537	10	29.33	0.572	3.42	6.81	78	68

Ending SL: 11.50

Pump Speed = Full

5

6

4/30/08

696125

TD: 20.39 (Hard Bottom)

SWL: 8.33

Time: 1549

3rd

Time Vol Temp Cond DO pH ORP Turb

1552 - Start

1600 2 29.70 0.758 5.57 6.83 51 216

1606 4 29.50 0.759 5.39 6.75 57 37

1613 6 29.37 0.745 4.61 6.69 57 528

1619 8 29.19 0.740 4.20 6.62 48 51

5/1/08

SWL 69

[Well Sampling]

Weather: Partly cloudy, breezy, ~95°F

696107

SWL = 10.93 C 0938 TD = 19.45

2 Vol = 1.9 gal.

Time Vol Temp Cond DO pH ORP Turb

0941 - Start

0952 1 29.20 0.693 2.16 6.89 77 11

1000 2 28.80 0.685 1.84 6.87 78 7.8

1007 3 29.09 0.674 1.44 6.84 68 3.0

1013 4 29.07 0.668 1.39 6.81 74 1.5

1020 - Sample Taken

⑦

⑧

5/1/08

696W-08

TD = 19.05

SWL = 9.09 @ 1093

2 Well Vol. = 1.6 gal.

Time	Vol.	Temp.	Cond.	P.O.	pH	ORP	Turb.
1046	-	Start					
1054	1	28.54	0.676	2.01	6.91	52	2.7
1101	2	29.00	0.668	1.43	6.91	45	4.5
1109	3	28.18	0.660	1.37	6.88	42	3.2
1115	4	28.09	0.655	1.28	6.87	37	3.5

1125 - Sample Taken

5/1/08

696W-11

TD = 19.46

SWL = 1286 @

4 Well Vol. = 1.11 gal.

Time	Vol.	Temp.	Cond.	P.O.	pH	ORP	Turb.
1145	-	Start					
1152	1	30.11	0.620	1.24	6.81	45	1.9
1156	2	32.10	0.628	1.16	6.80	43	9.4
1201	3	32.20	0.668	1.19	6.80	41	5.7
1207	4	32.10	0.670	1.17	6.80	38	3.2

1215 - Sample Taken

" - MS/MSD

1220 - Dip

5/1/08

69GW12

TD = 18.10

SLR = 10.49 @ 1344

1 Net Vol. = 1.29 gal

Time	Vol.	Temp	Cond.	D.C.	pH	ORP	Turb.
1346	-	Start					
1353	1	29.49	0.714	1.28	6.75	-5	6.7
1358	2	29.12	0.714	1.48	6.75	-8	3.7
1409	3	29.00	0.712	1.28	6.73	-9	3.8
1413	4	29.	0.712	1.26	6.73	-8	3.3

1420. Sample Taken

5/1/08

69GW25

TD = 20.39

SLR = 8.81 @

1 Net Vol. = 1.9 gal

Time	Vol.	Temp	Cond.	D.O.	pH	ORP	Turb.
1451	1	28.71	0.745	2.05	6.51	43	17
1458	2	28.67	0.760	1.93	6.49	41	6.3
1506	3	28.70	0.748	1.50	6.57	57	3.2
1515	4	28.68	0.793	1.47	6.45	61	3.0

1520 - Sample Taken

(11)

(12)

5/2/08 [Well Development]

Weather: Mostly Sunny, Breezy, ~95°F

69GW26

TD = 21.44 (Hard Bottom)

SLH = 11.50

Time = 0854

Time	Vol.	Temp	Cond.	D.O.	pH	ORP	Turb.
0906	1	22.08	1.063	6.82	6.40	138	63
0910	2	26.84	1.057	5.71	6.54	136	15
0914	3	26.79	1.069	5.42	6.52	134	6
0920	4	26.93	1.074	5.13	6.49	134	27
0924	5	26.92	1.084	5.09	6.45	135	29
0929	6	26.95	1.089	5.01	6.42	133	27
0934	7	26.06	1.092	4.81	6.42	133	7
0939	8	26.02	1.094	4.73	6.41	132	7

Ending SLH = 19.83

Pump Speed = Full

5/2/08

69GW27

TD = 21.57 (Hard Bottom)

SLH = 13.28

Time = 1030

Time	Vol.	Temp	Cond.	D.O.	pH	ORP	Turb.
1035	Start						
1040	1	27.10	0.768	3.30	6.59	107	128
1043	2	26.94	0.788	5.32	6.63	112	53
1048	3	26.95	0.826	4.51	5.66	105	310
1051	4	27.00	0.848	5.07	6.69	105	13
1056	5	27.11	0.843	4.61	6.58	107	6
1100	6	27.15	0.826	4.39	6.50	93	2

1101 - Dry

Pump Speed = Full



5/2/08

SNMU 56 [Well Sampling]

56GW05

TD = 18.20

SLWL = 5.57

1 Net Vol. 2.13

Time Vol Temp Cond D.O. pH ORP Turb

0748 - Start

0750 1 27.19 0.707 1.50 6.82 14 15

0807 2 26.93 0.707 1.26 6.80 141 6

0819 3 26.94 0.706 1.16 6.79 137 26

0825 - Sample Taken

5/2/08

SNMU 56 [Well Development]

~~Well Development~~

56GW07

TD = 18.44 (Hard Bottom)

SLWL = 6.49

Time = 11.31

Time Vol Temp Cond D.O. pH ORP Turb

1136 - Start

1145 2 27.20 1.769 3.25 7.22 88 214

1153 4 26.20 1.838 1.44 7.12 70 6

1201 6 26.14 1.845 1.24 7.09 52 4

1209 8 25.98 1.847 1.21 7.09 43 981

1218 10 26.03 1.850 1.15 7.08 35 691

1226 12 25.92 1.852 1.30 7.12 15 273

1234 14 25.88 1.853 1.12 7.09 7 119

Ending SLWL = 7.17

Pump Speed = Full

1243 16 25.84 1.855 1.07 7.11 -2 44

(15)

(16)

5/2/08

566W06

TD = 18.41

SLH = 2.96

Time = 1306

gal.

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
1319	2						
1325	4	28.34	0.966	2.80	6.76	70	71K
1333	6	28.58	0.954	2.10	6.74	72	871
1341	8	28.59	0.946	1.76	6.72	73	71K
1347	10	28.59	0.943	1.40	6.70	74	987
1354	12	28.53	0.940	1.34	6.71	73	656
1358	13	28.60	0.938	1.23	6.70	73	217
1401	14	28.52	0.933	1.21	6.71	72	85

Ending SLH = 4.56

Pump Speed = Full

5/3/08

Weather: Overcast, breezy, ~80°F

SWMU69 [Well Sampling]

~~696W02~~

696W27

TD = 21.57

SLH = 12.91 @ 0813

1 Well Vol. = 1.4 gal

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
0810	3	26.48	0.822	2.13	6.57	93	6.5
0821	6	26.47	0.819	2.14	6.61	87	6.7
SLH = 14.62							
0824	1	26.48	0.817	2.43	6.60	88	4.6
0829	1.3	26.47	0.818	3.03	6.60	88	3.4
SLH = 15.63							
0834	1.6	26.50	0.820	3.08	6.60	89	2.8
0839	2	26.55	0.819	3.06	6.59	87	2.0
SLH = 16.53							

0850 - Sample Taken

Note: Sample Was clear but with a smid of silt/cement.

Pump Speed = 2/3

(17)

(18)

5/3/08

696126

TD = 21.44

SWL = 11.06 @ 0915

2 Well Vol. = 1.7 gal.

Time	Vol.	Temp.	Cond.	D.O.	pH	ORP	Turb.
0910	5	26.61	1.057	9.96	6.44	98	1.7
0922	4	26.62	1.059	4.63	6.43	98	1.3
SWL = 12.48							
0926	1	26.63	1.058	4.73	6.45	97	1.2
0933	1.3	26.64	1.060	4.50	6.44	94	0.7
SWL = 13.34							
0937	1.6	26.67	1.062	4.41	6.45	93	0.8
0944	2	26.67	1.060	4.39	6.43	93	0.6
SWL = 13.97							

0950 - Sample Taken

Pump Speed = little more than 1/2

5/3/08

SUMOSC In Well Sampling

566006

TD = 18.41

SWL = 2.67 @ 1052

2 Well Vol. = 2.6

Time	Vol.	Temp.	Cond.	D.O.	pH	ORP	Turb.
1107	5	28.78	0.951	0.91	6.70	71	2.5
1114	1	28.68	0.952	1.01	6.71	72	1.3
SWL = 3.45							
1120	1.5	28.66	0.944	0.74	6.69	71	7
1126	2	28.75	0.947	0.71	6.69	69	6.4
SWL = 3.58							
1132	2.5	28.72	0.947	0.67	6.69	68	5.3

1140 - Sample Taken

Pump Speed = 3/4

5/3/08

56 GW07

TD = 18.44

SWL = 6.42

2 Well Vol. = 2.0

Time	Vol.	Temp	Cond.	D.O.	pH	ORP	Turb.
1223	.5	26.63	1.857	1.21	7.14	51	79
1229	1	26.22	1.866	1.07	7.12	32	21
SWL = 6.89							
1234	1.5	26.00	1.872	0.82	7.08	16	9.6
1240	2	25.92	1.875	0.77	7.08	3	5.5
SWL = 6.9							
1246	2.5	25.92	1.876	0.79	7.09	4	3.0
1250	3	25.93	1.877	0.86	7.09	3	2.3
SWL = 6.9							
1255	3.5	25.93	1.877	0.89	7.10	2	2.1

1300 - Sample Taken.

Pump Speed = 3/4

5/3/08

SWW074 [Well Development]

74 GW05

TD = 16.59

SWL = 8.51

Time = 1257

Time	Vol.	Temp	Cond.	D.O.	pH	ORP	Turb.
1403	Start						
1410	1	29.34	1.021	1.87	7.05	-21	7.14
* Dry							

(21)

(22)

5/4/08

Weather: Mostly cloudy, windy, 20-25°F

# SWMU 74 [WCA Development/Sampling]

3 Existing Wells btwn the first & second refueling



	TD	SL	Time
1	14.64	5.15	0830
2	19.58	5.33	0830
3	18.98	5.24	Fuel smell 0835

- All flushments
- Date stamped on #1 is 3/95

5/4/08

# SWMU 74 [Development]

Existing Well #1

TD 14.64  
SL 5.15  
Time 0830

Time	Vol	Temp	Cond	DO	pH	ORP	Turb
0853	Start						
0901	2	30.33	0.252	1.76	6.79	104	61
0909	4	30.04	0.254	1.26	6.90	37	37
0916	6	29.89	0.258	1.10	6.75	7	30

Pump Speed = Full

(23)

(29)

5/4/08Existing Well 2

TD: 19.58

SL: 5.33

Time: 0833

sal.

Time	Vol.	Temp.	Cond.	pH	ORP	Turb.
0930	-	Start				
0934	2	32.73	1212	6.81	71	17
0947	4	32.47	1213	6.79	74	12
0953	6	32.77	1210	6.80	74	10

Pump Speed = Full

(25)

5/4/08Existing Well 3

TD: 18.98

SL: 5.24

Time: 0835

sal.

Time	Vol.	Temp.	Cond.	pH	ORP	Turb.
1006	-	Start				
1013	2	33.33	1418	7.03	72	5.8
1022	4	33.25	1320	6.97	77	1.1
1029	6	33.34	1374	6.94	77	1.4

Pump Speed = Full

Note: Noticeable Fuel smell when  
first pumping; less so when finished.

(26)

5/4/08

6  
746W28

\*\* - See below

TD: 22.76

SLR: 15.50

Time: 11:03

sol

Time Vol Temp Cond DO pH ORP Turb

1103 - Start

1111 - Dry

1111 0.0 28.67 180 9.2 7.23 11 C

\*\* - Back in the office, it was verified that wells 746W22/26 were misidentified in this field book, hence the corrections shown. It was deemed determined that it was easier to make the switch here rather than with the analytical & sample data. J. Burns will make sure the Lab makes the switch prior to sending the results. DNH

(27)

(6/30/08)

5/4/08

2  
746W26

\*\* - See previous pg

TD: 19.64

SLR: 17.72

Time: 11:25

sol

Time Vol Temp Cond DO pH ORP Turb

1133 - Start

1134 - Dry 29.03 0.012 247 7.54 2.4 11

(28)

5/4/08

VP18

~~746NVP-1B~~ 746NVP-1B

TD: 13.75

SWL: 8.98

Time: 11:58

Time	Vol	Temp	Cond	D.O.	PH	ORP	Turb
1208	-	Start					
1212	1	28.94	0.811	2.80	7.94	-9	11k
		SWL = 10.15					
1215	2	27.13	0.808	1.97	7.80	-6	"
		SWL = 10.94					
1219	3	27.04	0.817	1.48	7.51	-6	"
		SWL = 11.09					
1224	4	26.94	0.833	1.54	7.33	-12	"
		SWL = 11.15					
1227	5	26.70	0.845	1.71	7.24	-25	271
		SWL = 11.15					
1231	6	26.64	0.868	1.53	7.20	-31	67

Ending SWL = 11.15  
 Pump Speed = Full

5/4/08

746NVP-1A

TD: 13.5

SWL: 10.52

Time: 12:45

Time	Vol	Temp	Cond	D.O.	PH	ORP	Turb
1251	-	Start					
1252	1.5	28.54	0.692	1.54	6.79	11	193
		SWL = 10.62					
1301	3	28.08	0.690	1.48	6.84	4	121
		SWL = 10.62					
1307	4.5	27.89	0.641	1.38	6.77	9	116
1311	6	27.89	0.641	1.37	6.78	12	6

Ending SWL = 10.62  
 Pump Speed = Full

(25)

(30)



5/5/08

SWMO 74 [Well Sampling]

74GW282

TD: 19.64

SL: 17.60

1 Well Vol. = 0.3 gal

Time	Vol.	Temp	Cond	DO	pH	ORP	Turb
0820	27.80	0820	2.61	7.48	34	3	

0820 - Sample Taken

\* Parged Dry at 1134 - 5/4/08

\* Went Dry after 4 Well's

\* Initially could only fill 6 well's

\*\* Slight Foul Smell

(31)

5/5/08

74GW286

TD: 22.76

SL: 14.97

1 Well Vol. = 1.3 gal

Time	Vol.	Temp	Cond	DO	pH	ORP	Turb
0850	30.21	1.812	4.16	7.20	20	2.1	

0850 - Sample Taken

\* Parged Dry at 1114 - 5/4/08

\* Went Dry after 6 well's, 2 Amber & 2 more's

(32)

5/5/08

74 Existing Well #3

TD = 10.98  
SNL = 5.43  
1 Well Vol. 2.2 gal

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
1001	Start						
1011	1	32.47	1.320	1.24	6.91	21	4.2
1022	2	32.66	1.362	1.09	6.92	18	3.4
1033	3	32.40	1.365	0.87	6.91	16	3.5
SNL = 7.31							
1044	4	33.68	1.368	0.87	6.91	10	3

1045 - Sample Taken (74 HYD3)

1 - HS/ASP

1050 - Dup.

\* Filled PAH Bottles

\* Very faint Fuel Smell

Pump Speed = ~ 3/4

5/5/08

746VOS

TD = 16.59  
SNL = 8.53 C 12.55  
1 Well Vol. 1.3 gal

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
1260	3	30.50	1.014	2.14	7.05	-22	23
SNL = 9.5							
1310 - Sample Taken							
1325	20.12	10.15	1.60	7.01	-20	76	
SNL = 11.56							
1328	30.10	10.22	6.98	-19	175		
SNL = 12.87							

38

5/5/08

74GWVP1B

TD: 13.75

SL: 9.08C H18

1 Well Vol. 0.8 gal.

Time	Vol	Temp	Cond	DO	pH	ORP	Turb
------	-----	------	------	----	----	-----	------

1720 - Start

1724	1	27.01	0.894	2.47	7.37	-16	45
------	---	-------	-------	------	------	-----	----

(SL: 10.19)

1729	2	26.70	0.876	1.51	7.33	-28	25
------	---	-------	-------	------	------	-----	----

1734	3	26.71	0.852	1.44	7.26	-35	13
------	---	-------	-------	------	------	-----	----

(SL: 10.98)

1740	4	26.64	0.831	1.40	7.18	-38	9
------	---	-------	-------	------	------	-----	---

1745		26.63	0.828	1.37	7.14	-28	8
------	--	-------	-------	------	------	-----	---

(SL: 11.44)

1755 - Sample Taken

Pump Speed = 3/4

35

5/5/08

74GWVP1A

TD: 13.5

SL: 9.08C H18 13.52C 15.08

1 Well Vol. 0.5 gal.

Time	Vol	Temp	Cond	DO	pH	ORP	Turb
------	-----	------	------	----	----	-----	------

1509 - Start

1514	2	28.36	0.682	1.71	6.79	3	48
------	---	-------	-------	------	------	---	----

(SL: 10.60)

1518	4	28.28	0.681	1.73	6.79	3	10
------	---	-------	-------	------	------	---	----

1524	6	28.27	0.680	1.89	6.81	2.5	4
------	---	-------	-------	------	------	-----	---

1535 - Sample Taken

Pump Speed = 3/4

36

5/6/08

Weather: Partly cloudy, breezy ~ 85°F  
SWMU 74 [Well Sampling]

<sup>2</sup>  
74G128 - Dry after 6 hrs, 5/5

SWL = 17.39 @ 0748

Able to fill 1 non-preserved  
Amber, prior to going dry.

74G105

0805 - Obtained final non-preserved  
Amber, & both Metals.

5/6/08

74G109

TD: 19.60

SWL: 10.22

2 Well Vol = 1.5 gal

Time	Vol	Temp	Cond	P.C.	pH	ORP	Turb
0826	-	Start					
0832	3	28.20	0.444	3.81	7.47	-8	67
		SWL = 13.86					
0840	6	27.92	0.449	2.76	7.09	-27	19.3
		SWL = 17.18					

0850 - Sample Taken.

\* Initially could only fill 1 Amber & 6 Vol's.

\*\* Very slight fuel smell.

Pump Speed: 1/2

5/6/08

74GW34

TD: 17.86

SWL: 8.89

Well Vol. = 1.5 gal

Time	Vol.	Temp.	Cond.	D.O.	pH	ORP	Turb.
0920	Start						
0926	.3	26.76	1.145	5.31	7.09	43	5.7
		(SWL = 13.76)					
0953	.6	26.62	1.158	4.82	6.98	48	5.8
		(SWL = 14.44)					

0945 - Sample Taken

\* Initially could fill only 6 vials +  
1 1/4 Ambers.

Pump speed = 2/3

(3A)

5/6/08

74GWVP2B

TD: 17.48

SWL: 8.60

Well Vol. = 1.5 gal

Time	Vol.	Temp.	Cond.	D.O.	pH	ORP	Turb.
1040	Start						
1045	.3	26.79	0.736	6.07	7.52	33	249
		(SWL = 8.66)					
1050	.6	26.73	0.739	5.13	7.52	31	86
		(SWL = 8.66)					
1054	1	26.77	0.733	4.65	7.53	29	40
1059	1.3	26.69	0.739	4.61	7.54	26	26
		(SWL = 8.67)					
1103	1.6	26.65	0.733	4.57	7.51	27	16

1120 - Sample Taken

Pump Speed = 2/3

(3B)

5/6/08

2  
74GWVPA

TD = 12.65

SWL = 9.23

2 Well Vol. = 0.6 gal.

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
------	-----	------	------	------	----	-----	------

1147 - Start

1155	1	27.49	0.740	4.37	7.54	33	309
------	---	-------	-------	------	------	----	-----

1201	2	27.82	0.739	4.18	7.52	29	176
------	---	-------	-------	------	------	----	-----

(SWL = 9.50)

1206	3	26.62	0.737	4.01	7.49	33	65
------	---	-------	-------	------	------	----	----

1209	4	26.60	0.737	3.92	7.48	35	51
------	---	-------	-------	------	------	----	----

(SWL = 9.51)

1225 - Sample Taken

Pump Speed = 2/3

\* Mistakenly labeled "22" on labels. Lab caught this + Mr. Kines + I figured it out.

5/6/08

74GW57

TD = 12.99

SWL = 4.73

2 Well Vol. = 1.4 gal.

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
------	-----	------	------	------	----	-----	------

1321 - Start

1323	3	25.90	2.407	1.44	7.02	-27	71k
------	---	-------	-------	------	------	-----	-----

(SWL = 8.09)

1331	6	26.10	2.545	1.59	7.07	-35	323
------	---	-------	-------	------	------	-----	-----

(SWL = 9.39)

1336	1	26.47	2.529	1.94	7.04	-57	71k
------	---	-------	-------	------	------	-----	-----

(SWL = 10.14)

1350 - Sample Taken

Pump Speed = 1/2

40

42

5/7/08

# SWMUSG [Well Sampling]

56GW08

TD = 16.47

SWL = 5.47 @ 0715

2 Well Vol. = 1.8 gal

TIME Vol. Temp. Cond. D.O. pH ORP Turb.

0717 - Start

0724 1 27.23 4.096 1.95 6.63 30 421

1 SWL = 6.15

0730 2 27.33 4.153 1.21 6.63 21 189

2 SWL = 6.18

0733 3 27.40 4.165 1.07 6.62 19 27

0806 4 27.57 4.193 1.01 6.61 18 18

4 SWL = 6.16

0815 - Sample Taken

Pump Speed = 2/3

5/7/08

## Water Level Readings

	Level	Time
69GW25	9.17	0954
08	8.87	0956
07	9.28	0957
12	10.40	1000
11	12.78	1002
26	11.00	1008
27	12.61	1010

56GW01	2.55	1105
02	2.99*	1107
03	3.43	1110
04	2.35	1113
05	5.44*	1114
06	2.91	1116
07	6.48*	1118
08	5.47	0715

\* "possible" float detected in the top 100th of the column

43

44

5/28/08

Weather: overcast, breezy, ~80°F

SWMU 74 [Well Sampling]

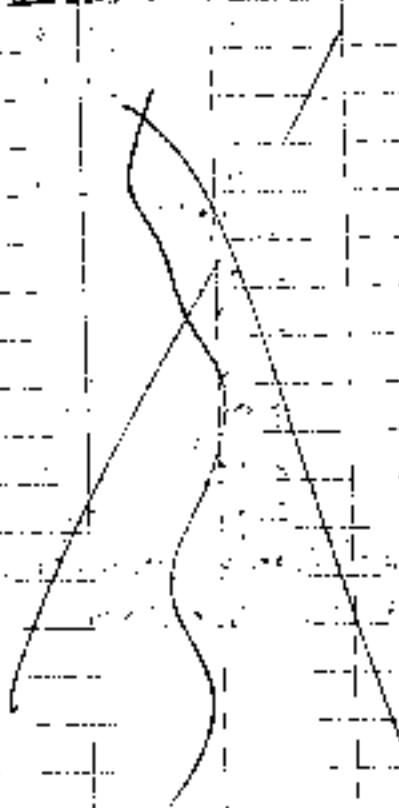
74GWVP19A:

TD = 17.74

SLR = completely dry @ 0945

~~2100m~~

No Water



5/28/08

74GWVP19B

TD = 17.58

SLR = 15.66 @ 0940

ILWV Vol = 0.3 gal.

Sample Taken @ 1005

Sample was clear w/ slight fuel  
odor.

- Initially could only fill 6 WA's &  
1/2 Amber
- "Very" slow Recharge.
- No available data for temperature  
Readings.



45

46



5/28/08

7464VP20

TD = 22.20

SHL = 13.85 @ 1051

2 Well Vol. = 1.4 gal.

Sample Taken @ 1115

Time	Temp	Cond	D.O.	pH	ORP	Turb.
1136	20.56	10.47	1.93	6.57	0.6	2.3

(Post) Sample.

Sample was clear w/ possible  
slight fuel odor.

- Very low recharge of 1' in 30 min.

5/28/08

7464VP1982

TD = 22.86

SHL = 9.16 @ 1202

2 Well Vol. = 2.2 gal.

Sample Taken @ 1225

- Sample was clear w/ slight  
fuel odor.
- Very low recharge of 1' in 40 min.

Time	Temp	Cond	D.O.	pH	ORP	Turb.
1244	30.20	7.201	1.65	6.95	-97	35

(Post) Sample.

(47)

(48)

(Existing Well)

5/28/08

(P)

UGW-04-VP-24

TD = 20.33

SUL = 9.50

2 Well Vol = 1.8 gal.

Time Vol Temp Cond DP PH ORP Turb  
1540 - Start

1553 1 30.03 1.42 0.73 6.93 -106 16

(SUL = 17.22)

1557 - Dry @ 2.2 gal.

- Low recharge of 1' in 7.5 min.

- Pump Water clear, w/ moderate amt  
of light sheen & fuel odor.

\* Will Sample Tomorrow

5/29/08

UGW-04-VP-24

SUL = 9.03 @ 0745

Sample Taken @ 0755

- Sample clear w/ moderate fuel odor.

5/29/08

Weather: Overcast, breezy, ~80°F

Area adjacent to VP-S6



TD	TD (ft)
MD-2	27
UGW-5	30
PW-2	19
PW-2	27
UGW-12	25

(S)

(Existing Well)

5/29/08

74GW-MW-2-VP-56

TD = 27.32

SL = 11.67 C 0926

2 Well Vol. = 2.6 gal

345

Time	Vol.	Temp	Cond.	pH	ORP	Turb.
0838	Start					
0843	0.3	24.92	1.483	1.23	6.99	-117 27
		SL = 12.05				
0848	0.9	30.32	1.395	0.90	6.88	-106 9
		SL = 12.50				
0853	0.7	30.29	1.344	0.78	6.85	-104 8
		SL = 12.85				
0858	1.0	30.41	1.316	1.02	6.82	-105 0.6
		SL = 13.32				
0903	1.3	30.45	1.307	1.12	6.81	-105 1
		SL = 13.53				

0920- Sample Taken.

- Pump Speed =  $\frac{3}{4}$
- Purge + Sample water clear, w/ very light sheen + light Fuel odor.

(51)

45

5/29/08

(Existing Well)

74GW-MW-12-VP-56

TD = 24.76 (Product Layer)

SL = 11.45 - 11.54 C 0956

2 Well Vol. = 2.2 gal

345

Time	Vol.	Temp	Cond.	pH	ORP	Turb.
1000	Start					
1050	1.0	(Developed 1 gal. to mid water of dark brown flocculent material)				
1050	Start low flow purge.					
		SL = 12.86				
1055	1.0	31.03	1.600	1.47	6.72	-85 86
		SL = 14.48				
1100	1.5	30.38	1.527	0.86	6.69	-82 6
		SL = 14.54				
1105	2.7	30.21	1.488	0.87	6.69	-83 4
		SL = 14.58				
1110	3.3	30.32	1.455	0.89	6.68	-83 3
1115	3.8	30.22	1.437	0.90	6.70	-84 3
		SL = 14.58				
1140	Sample Taken					
		- Purge + Sample clear w/ slight sheen + moderate Fuel odor.				
		* - MS/MSD				
1150	Dup					
		Pump Speed = $\frac{3}{4}$				
		* Due to product layer, sample tubing was placed inside 20" at 1 1/2" PVC Pipe w/ aluminum foil wrapped around for bottom, which was tied into the well below product layer.				

(52)

5/29/08

BTU: 1400 & 1545, went to check on wells that were thought to be dry during the last sampling event. Results:

ID	SUL	ID
746WVP09a	Dry	-
09b	Dry	-
10b	Dry	-
11a	Dry	-
11b	Dry	-
05a	23.02	25.05
05b	Dry	-
08a	19.25	26.72
08b	21.11	25.76
10b/DFM	Dry	-
06Bb	15.83	42.53
06Aa	24.26	24.38 [Dry]
06Ab	Dry	-
07H	22.27	12.81
746W151	6.86	11.73
* Installed this event.		
746W273	16.01	22.96
285	Dry	-

- At 1630 - Collected Total + Diss. Metals from 746WVP68a that were not collected last event.
- At 1650 - Collected Diss. Metals from 746W145; Analysis of this arrived at the lab 6/2/08.

5/30/08

Weather:

- At 0700 - collected Diss. Metals from 746WVP3a/9 - not obtained last event.
  - At 0710 - collected total + Diss. Metals, & 2 DRB Ambers from 746WVP1Ab/9.
  - At 0745 - collected total + Diss. Metals & 2 DRB Ambers from 746WVP1Ba/9.
- (At the time, could only collect 2 Ambers & 1 Metals - will obtain rest of end of day)
- \* Original (previous) sample dates & times to be used on labels for these 3 wells, as well as 746WVP68a & 746W145 mentioned on previous page.

57

Existing  
Well

5/30/08

74GWVP686

TD = 42.53

SL = 15.83

2 Well Vol. = 4.4 gal.

gals.

Time	Vol.	Temp.	Cond.	DO	PH	ORP	Turb.
0816	Start						
0821	1.0	27.90	18.94	1.95	6.46	50	10.5
							(SL = 16.33)
0826	1.8	27.59	18.97	1.14	6.44	58	7.7
							(SL = 16.33)
0831	2.8	27.60	18.99	0.91	6.42	62	7.3
0836	3.8	27.62	18.99	0.93	6.42	64	

0850 - Sample Taken.

Pump Speed = Full

- Purge & Sample water clear - no  
fuel odor.

- At 0933 collected Super's from 74GWVP054.

Sample Taken

5/30/08

74GW285

TD =

SL = [Dry]

2 Well Vol. =

74GW273

TD = 22.96 SL = 16.02 C 1006

1022 - Due to silty nature of water, I

developed 0.7 gels (ink) at (unit dry)

- low recharge rate of 1' in ~ 12 min.

1610 - SL = 16.05

1620 - Sample Taken

Sample clear, no fuel odor.

- No available water for parameter  
readings.

(55)

(56)

5/30/08

74GW256

TD= 23.17

SVL= 13.06

2 Well Vol. =

Sample Taken @ 1110

Time	Temp	Cond	DO	pH	ORP	Turb
1134	30.92	23.48	0.41	6.52	-324	26

(Post Sample)

- Purge & Sample water was cloudy, yellowish w/ slight sheen (from water) & very musty odor - not sure if it smells of fuel.

- Pump speed: 3/4

1200-1830: Assisted w/ Sample packing.

1550

~~1550~~ - ~~collected~~ Attempted to obtain last DRO Bottle from 74GWVP1Ba/4. Only got ~ 100 ml after 5 hrs of recharge. Will

try again tomorrow.

~~1600~~ - After 5+ hrs. of recharge, was only able to collect 1/2 of a WDA vol for 74GWVP05a.

(57)

5/31/08

Weather: Mostly cloudy, breezy, ~85°F

0730: Checked for water in 74GWVP19A. Still bone dry.

- Was able to f. H only 1/3 Amber

(DRO) from 74GWVP19D - After

0800 3 days recharge!

0800 - Able to obtain only ~ 100 ml

(DRO) from 74GWVP05a, after 16 hrs recharge.

0820 - Able to obtain only ~ 400 ml

from 74GWVP1Ba/9 (DRO) after

10 hrs. recharge.

(58)

5/31/08

746V246

TD = 14.09

SUL = 12.56

1 Well Vol. =

0905 Sample Taken. Developed + 1 gal.  
due to siltiness.

Time Vol. Temp. Cond. D.O. pH ORP Turb.

0933 Start

0938 1.0 30.12 9.545 2.62 7.06 34 91

(SUL = 13.80)

0943 2.2 29.89 9.567 2.91 7.09 33 37

(SUL = 14.08 (Dry))

- Dry @ 2.2 gals. but very fast recharge.

1000 - Sample Taken.

- Purge + Sample water clear, w/ no  
indication of fuel.

- Pump speed = Full.

5/31/08

746VLP088

TD = 25.76

SUL = 20.42 @ 1026

1 Well Vol. =

1050 - Sample Taken.

- Sample clear w/ no indication of fuel.

- Initially could only obtain 6 VOL'S  
+ 1 1/2 Ambers (DRO).

- No available water for parameters.

Pump Speed = 3/4.

5/31/08

74GW236

TD = 17.03

SL = 11.38

Well Vol. =

1140. Developed O.B. gals. due to silt.

Time	Vol.	Temp.	Cond.	DO	pH	ORP	Turb.
1148	Start						
1153	0.2	31.15	2.866	1.00	7.10	-130	15
	(SL = 12.44)						
1158	1.5	30.89	3.173	1.11	7.07	-176	15
	(SL = 14.45)						
1203	2.1	31.08	3.360	0.74	7.06	-209	10
	(SL = 13.93 (Had reduced pump speed))						
1208	3.0	31.08	3.107	0.91	7.07	-201	3
	(SL = 14.31)						
1213	3.8	31.05	3.255	0.88	7.07	-221	4
	(SL = 14.06)						
1218	4.5	31.00	3.254	0.81	7.08	-233	5
	(SL = 15.74)						

1230. Sample Taken

- Force + sample cloudy to clear, w/ musty odor + very light sheen.

- Pump Speed = 2/3.

5/31/08

1415 - Able to obtain ~ 300 ml from 74GWVPOB (ORP) after 3 1/2 hrs. recharge.

SNMU 71 [Developed]

6

71AW06

TD = 20.20

SL = 8.40

1434. Start

Well Vol. = 1.9 gals.

1505. Dry @ 4.0 gals.

- Good recharge rate of 1' in 4.3 min.

62



6/1/08

Weather: Overcast, slight breeze, ~80°F,  
with some heavy rain showers.

0722 - In order to induce the dry wells to produce, 2 gals of DI Water were placed in the wells & a 1 1/4 Ave slug was used for ~15 min. to surge. Will come back next morning to test results.

0725 - 74GWVP9b: Placed water in well, but found out that the slug will only descend ~2 ft. before getting hung up. Tried w/ 3 other wells on with same result. - Shift to pursue options.

0735 - 1130: Deliv of Fire @ Public Works Bld.

1200 - Surged for ~15 min. 74GWVP9b using a 3' section of slotted 1" PVC pipe. Note: This well was checked for water prior to adding the 2 gals. None found.

1245 - checked for water in 74GWVP9a: None. Unlike the previous well, after adding the 2 gals. of water, it was noticed that all but 10.5 inches remained. In 9b there was 8.3 ft. Surged what little there was.

1315 - Checked for water in 74GWVP10b: None.

Same procedure as above. Well had 0.2 ft. of water after adding 2 gals. Surged for ~15 min.

6/1/08

1330 - checked for water in 74GWVP11a: None. Well had 8" of water after adding 2 gals. Surged for ~5 min.

1347 - Checked for water in 74GWVP11b: None. Had 9.5" of water after adding 2 gals. Method level falling as I measured. Did not surge.

1405 - No water found in 74GWVP05b. After adding 2 gals, only 5" in well. Did not surge.

1416 - Found an 1" of water in 74GWVP06AA. After adding 2 gals, only 8" in well. Did not surge.

1424 - No water found in 74GWVP06Ab. After adding 2 gals, only 1" still in well. No surge.

1437 - No water found in 74GWVP10b/DFM. After adding 2 gals, only 10" in well. Did not surge.

(63)

(64)

6/2/08

Weather Mostly cloudy, breezy, ~ 85 °F

746WVP09b

TD = 22.30

SWL = 14.26 @ 0800

2 Well Vol. =

0811 - Start 0820 - Dry @ 1.3 gals.

\* To this well was added 2 gals. of DZ water yesterday & that was surged, in hopes of inducing flow. 1.3 gals. was pulled (dry) & a low

flow rate of 1' in ~ 30 min. was noticed. Will attempt to sample later.

746WVP00b

0835 - like 746WVP09b, this well returned the added water yesterday. Today, only B\* water. Not sampled.

6/2/08

0846 - checked for water in 746WVP285: None.

0850 - Obtained only ~ 100 ml (DRO) from

746WVP05a after 2 days recharge!

0900 - Could only obtain ~ 50 ml from (DRO)

746WVP18a after 2 days recharge!

0915 - Could only obtain ~ 200 ml (DRO) from

746WVP19B after 2 days recharge!

0918 - checked for water in 746WVP19A: None.



(63)

(64)

6/2/08

SWMU 71 [Sampling]

71GW06

TD = 20.24

SL = 7.32

2 Well Vol =

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
0937	Start						
0942	0.7	20.62	4.628	1.93	7.32	-168	32
(SL = 9.18)							
0947	1.2	20.16	4.635	1.68	7.29	-161	28
(SL = 10.40)							
0952	1.6	20.77	4.637	1.80	7.28	-130	57
(SL = 11.07)							
0957	1.9	20.42	4.634	1.77	7.27	-125	134
(SL = 11.87)							
1002	2.2	20.37	4.630	1.20	7.27	-110	330
1007	2.5	20.45	4.632	1.81	7.25	-101	443
(SL = 12.86)							
1012	3.0	20.54	4.631	2.00	7.25	-90	618
(SL = 13.57)							
1017	3.3	20.45	4.632	2.17	7.25	-77	580
(SL = 14.25)							

(67)

Cont. →

6/2/08

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
1022	3.5	20.60	4.642	2.21	7.26	-74	518
(SL = 14.83)							
1027	3.8	20.75	4.649	2.05	7.26	-75	452
(SL = 15.70)							
1037	4.5	20.87	4.650	2.01	7.28	-95	558
(SL = 17.64)							

11 Due to high Turbidity, well was  
purged dry at high speed. Will try  
again later to sample.

- 1100 - checked for water in 71GW04: 0.63" in well.  
1113 - Obtained Total + Diss. Metals from  
71GWVP003 Well completed.  
1130 - 1600: Assisted w/ sample packing.  
1639 - checked for water in 71GWVP006: 13"  
2 ft w/ 2 hrs recharging. No sample.  
1643 - checked 71GWVP106 6" water standing.  
1648 - checked 71GW205: Dry.

(68)

6/3/08

Develope  
Site 71 [Sampling]

ZIGWOB

TD = 20.43

SLT = 3.96 @ 0824

1 Well Vol. =

Time	Vol.	Temp.	Cond.	DO	pH	ORP	Turb.
0831	Start						
0835	Mostly clear after ~ 0.7 gals.						
0841	1.5	30.81	3.167	1.37	7.08	0.7	54B
	(SLT = 6.33)						
0847	3.0	31.09	3.172	1.47	7.06	-11	93
	(SLT = 7.95)						
0858	5.0	31.17	3.360	2.14	6.96	-11	205
	(SLT = 9.47)						
0906	6.0	31.07	3.406	1.13	6.92	-20	35
	(SLT = 10.55)						
0911	7.0	31.01	3.383	-0.06	6.98	-36	281
	(SLT = 10.87)						
0917	8.0	30.93	3.364	1.84	6.99	-46	10
	(SLT = 11.53)						

Pump Speed = Full

6/3/08

Weather: Overcast, breezy, ~85°F, some rain shower.  
ZIGWOB [Sampling]

Time	Vol.	Temp.	Cond.	DO	pH	ORP	Turb.
0920	Start						
	3.0	30.92	3.357	1.77	6.97	-48	10
0925	0.6	30.82	3.348	1.49	7.03	-50	6
	(SLT = 11.96)						
0930	1.5	30.76	3.281	1.50	7.06	-50	5
	(SLT = 12.13)						
0935	2.2	30.69	3.255	1.37	7.05	-61	4
	(SLT = 12.26)						
0940	3.0	30.67	3.251	1.35	7.04	-64	3
	(SLT = 12.40)						

1000. Sample Taken.

III - MS/MSD

DIO - Dup.

Pump Speed = Almost Full.

~ Purge + Sample water clear.

④

⑤

6/3/08

71GW06

TD = 20.24

SWL = 7.21 @ 1232

1 Well Vol. =

Time	Vol	Temp	Cond	DO	pH	ORA	Turb
1235	Start						
1245	Off to switch YSI Meters: DO problems.						
1328	2nd Start						
1333	0.3	29.96	4.650	0.54	7.41	-97	19
(SWL = 8.54)							
1338	0.5	29.52	4.644	0.46	7.44	-98	12
(SWL = 9.03)							
1343	0.8	29.63	4.639	0.49	7.43	-88	9
(SWL = 9.47)							
1348	1.0	29.58	4.632	0.54	7.41	-74	21
(SWL = 10.05)							
1353	1.3	29.74	4.637	0.75	7.42	-69	27
(SWL = 10.55)							
1358	1.6	29.63	4.636	0.75	7.42	-69	47
(SWL = 11.04)							
1408	2.2	29.20	4.621	0.87	7.42	-50	148
(SWL = 12.52)							

1420 - Sample Taken.

1435 20.20 4.640 6.63 7.51 -42 329  
(Post Sample)  
(SWL = 15.22)

(71)

6/3/08

71GW04

TD = 20.18 SWL = 18.91 @ 15.01

1400 - pumped 0.3 gals until Dry. Will check tomorrow.

6/4/08

1040: Due to high turbidity while sampling 71GW06 yesterday, I pulled the total metals bottle only. Turb = 8.0

1045: 71GW04 SWL = 19.25 TD = 19.85

(72)

6/4/08  
Weather Mostly Sunny, breezy, ~85°F

SWMUG1 [Developing]

GIGWO2

TD = 21.11

SWL = 710 @ 1113

Time	Vol	Temp	Cond	pH	ORP	Turb
1150-Start						
1153	3.5	26.12	1351	2.36	6.28	44
1151	5.0	25.60	1440	2.57	6.71	40
(SWL = 74.22)						
1150	7.0	25.54	1263	2.05	6.28	34
(SWL = 15.72)						
1200	9.0	25.53	1192	2.00	6.75	37
(SWL = 17.12)						
1217	12.0	25.57	1132	1.13	6.88	31
(SWL = 18.62)						
1221	13.0	25.50	1128	1.01	6.85	29
(SWL = 18.90)						
1231	15.0	25.63	1121	1.32	6.88	30
(SWL = 19.58)						
1242	17.0					over

(SWL = 20.12)

1248 - Dry. (18 sec.) Good recharge of 1 ft. in ~ 5 min. Pump Speed = Full.

6/4/08

GIGWO1

TD = 17.51

SWL = 5.03

Time	Vol	Temp	Cond	pH	ORP	Turb
1334-Start						
1344	2.0	st. 1	very turbid			
(SWL = 7.57)						
1348	Starting to clear after ~ 3.0 gals.					
1354	SWL = 7.85	Vol = 4.0 gal	Turb = over			
1401	SWL = 8.21	Vol = 6.0 gals	Turb = over			
1410	SWL = 8.48	Vol = 8.0 gals	Turb = over			
1419	SWL = 8.67	Vol = 10.0 "	Turb = 97%			
1429	SWL = 8.68	Vol = 12.0 "	Turb = 47%			
Time	Vol	Temp	Cond	pH	ORP	Turb
1440	14.0	25.87	1.940	1.15	7.45	46
(SWL = 8.67)						
1450	16.0					Turb = 36%
1502	18.0	25.45	1.850	0.62	6.96	22
(SWL = 8.50)						
1507	19.0	25.28	1.844	0.66	6.92	18
(SWL = 8.47)						

Pump Speed = Full

Fast recharge of 1 ft. in 1 min. 30 s

74

6/5/08

616W03

TD = 24.97

SLH = 2.42 C 0835

0846 Start

0855 Mostly clear C 2.0 gals SLH = 3.36

Time	Vol	Temp	Cond.	D.O.	pH	ORP	Turb.
0905	4.0	26.55	1.305	1.07	7.02	18	195
0915	6.0	26.55	1.305	1.07	7.02	18	195
0921	7.0	26.55	1.305	1.07	7.02	18	195
0925	8.0	26.55	1.305	1.07	7.02	18	195
0935	10.0	26.55	1.305	1.07	7.02	18	195
4	11	26.53	1.290	0.47	6.71	4	150
0939	14.0	26.48	1.291	0.45	6.71	5	94
0944	12.0	26.47	1.291	0.44	6.70	4	74
SLH = 3.20							

6/5/08

616W06

TD = 24.70

SLH = 2.11 C 1004

1010 Start

1020	Vol = 2.0 gals	(very thick up to now.)	SLH = 8.46
1030	Vol = 4.0 gals	SLH = 8.26	Turb = 963
1041	Vol = 6.0 gals	SLH = 8.24	Turb = 963
1051	Vol = 8.0 gals	SLH = 8.26	Turb = 585
1101	Vol = 10.0 gals	SLH = 8.26	Turb = 501
1110	Vol = 12.0 gals	SLH = 8.26	Turb = 255

Time	Vol	Temp	Cond.	D.O.	pH	ORP	Turb.
1120	14	26.87	1.122	1.40	6.80	23	180
1125	15	26.73	1.114	0.70	6.68	14	160
1130	16	26.70	1.102	0.83	6.68	12	135
1136	17	26.67	1.103	0.72	6.67	12	115
1141	18	26.66	1.113	0.69	6.67	10	83

75

76

6/10/08

Weather: Sunny, Breezy, ~85°F

By mistake, the partially filled bottles for wells: 74GNVP15a/9, 74GNVP05a & 74GNVP19B were not sent to the lab last week prior to an break - will attempt to obtain what I can this week

74GNVP19B

SWL = 15.53 @ 0924

- obtained 2 uppres. Amber after 8 days recharge

74GNVP05a

SWL = 23.79 @ 0938

- obtained ~400 uppres. Amber after 8 days recharge

0945 - checked 74GN2A5: No water

74GNVP15a/9

SWL = 23.53 @ 0954

- obtained 1 3/4 uppres. Amber after 8 days recharge

(7)

6/10/08

74GN09

SWL = 18.26 @ 1035 TD = 17.85

- on 6/3/08, this well was pumped dry after 0.3 gals. This well was not developed or purged.

\* Today

1045 - Sample Taken

- obtain 6 uppres. + 2 uppres. Ambers

(8)



6/10/09

SWMU 61 [Sampling]

610W05

TD = 24.07

SWL = 4.87 @ 111

1 Well Vol. =

Time	Vol. <sup>gals</sup>	Temp.	Cond.	DO	pH	ORP	Turb.
1114	Start						
1119	0.9	26.59	1.157	0.76	6.84	22	18
		(SWL = 5.70)					
1124	1.7	26.47	1.140	0.57	6.79	18	9
		(SWL = 5.73)					
1129	2.6	26.40	1.144	0.55	6.77	18	7
		(SWL = 5.70)					
1134	3.3	26.38	1.143	0.40	6.74	16.5	7
		(SWL = 5.70)					
1139	4.0	26.39	1.139	0.50	6.75	17.5	7

1150 - Sample Taken.

- Purge water cloudy first 0.5 gal. After that,

Purge + sample clear.

- Pump Speed = 3/4.

(79)

6/10/09

610W06

TD = 24.70

SWL = 7.22 @ 1211

1 Well Vol. =

Time	Vol. <sup>gals</sup>	Temp.	Cond.	DO	pH	ORP	Turb.
1211	Start						
1217	0.6	26.84	1.187	1.13	6.89	29	57
		(SWL = 7.93)					
1224	1.6	26.65	1.114	0.74	6.70	26	41
		(SWL = 7.95)					
1229	2.3	26.67	1.115	0.67	6.69	23	24
		(SWL = 7.96)					
1234	3.0	26.64	1.112	0.65	6.69	23	14
1239	3.7	26.65	1.112	0.59	6.67	21	11
		(SWL = 7.94)					
1244	4.2	26.64	1.113	0.64	6.68	22	10
1249	4.7	26.62	1.112	0.64	6.67	23	8
		(SWL = 7.94)					
1254	5.5	26.62	1.112	0.61	6.65	22	7

1300 - Sample Taken.

- Purge water cloudy first 0.3 gal., after which both purge + sample clear.

- Pump Speed = 3/4.

(80)

6/10/08

61GW03

TD = 24.97

SLR = 245' C 1331

1 Well Vol =

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
1335	Start						
1340	0.4	27.12	1459	0.75	6.87	-12	12
(SLR = 2.85)							
1345	1.0	26.80	1370	0.70	6.76	-8	5
(SLR = 2.95)							
1350	1.9	26.60	1336	0.35	6.72	-5	4
(SLR = 3.03)							
1355	2.7	26.49	1331	0.50	6.73	-1.0	3
(SLR = 3.04)							
1400	3.5	26.47	1315	0.46	6.70	0.4	2.5
1405	4.1	26.45	1318	0.40	6.70	0.5	2.0
(SLR = 3.02)							
1410	5.0	26.44	1317	0.38	6.69	0.6	1.5

1420 - Sample Taken

" - MS/MSD

1430 - Dup.

- Pump + Sample water clear

- Pump Speed = 2 3/4

(B1)

6/11/08

Weather: Mostly Sunny, ~85°F

SLMU 61 [Sampling]

61GW04

TD = 20.43

SLR = 6.20' C 0847

1 Well Vol =

Time	Vol	Temp	Cond	D.O.	pH	ORP	Turb
0840	Start						
0853	0.9	27.04	1539	0.92	6.76	-25	18
(SLR = 7.28)							
0858	1.7	26.94	1533	0.70	6.91	-27	15
(SLR = 7.21)							
0903	2.5	26.39	1531	0.90	6.90	-29	9
(SLR = 7.20)							
0908	3.3	26.37	1530	1.35	6.88	-39	7
(SLR = 7.22)							
0913	4.0	26.34	1529	0.74	6.87	-33	5.5
0918	4.8	26.37	1529	0.70	6.87	-34	5.0
0923	5.7	26.39	1530	0.65	6.87	-35	5.0
(SLR = 7.24)							

0935 - Sample Taken

- Pump + Sample water clear

- Pump Speed = 3/4

(B2)

6/11/03

61GW02

TD = 21.1

SWL = 7.10 @ 0950

2 Well Vol =

Time	Vol.	Temp	Cond.	pH	ORP	Turb.
0951	Start					
0956	0.4	25.77	1.341	2.63	7.02	28 10
						(SWL = 8.52)
1001	0.7	25.67	1.335	1.82	6.92	25 10
						(SWL = 9.30)
1006	1.0	25.66	1.311	1.62	6.87	29 8.5
						(SWL = 9.84)
1011	1.3	25.50	1.279	1.67	6.80	24 7
						(SWL = 10.26)
1016	1.6	25.46	1.246	1.65	6.86	23 6.5
						(SWL = 10.68)

1030 - Sample Taken.

- Purge Sample water clear.

- Pump Speed = 2/3

(23)

6/11/03

61GW01

TD = 17.51

SWL = 6.17 @ 1047

2 Well Vol =

Time	Vol.	Temp	Cond.	pH	ORP	Turb.
1050	Start					
1055	0.5	25.75	2.544	0.81	7.97	26 802
						(SWL = 7.27)
1100	1.0	25.46	2.580	0.68	6.99	15 371
						(SWL = 7.97)
1105	1.7	25.34	2.549	0.34	6.94	11 109
						(SWL = 7.53)
1110	2.2	25.32	2.414	0.87	6.98	12 56
1115	2.6	25.31	2.343	0.48	6.94	11 47
1120	3.2	25.37	2.287	0.34	6.92	8 42
						(SWL = 7.54)
1125	3.8	25.30	2.248	0.60	6.91	8 40
1130	4.2	25.32	2.238	0.78	6.92	8 41
1135	4.6	25.32	2.210	0.60	6.91	8 35
1140	5.0	25.45	2.180	0.50	6.90	8 28
						(SWL = 7.58)
1145	5.6	25.51	2.162	0.45	6.90	7 24

Cont.

(24)

6/11/08

61GW01

Time Vol. <sup>gals</sup> Temp. Cond. D.O. pH ORP Turb.

- continued from previous pg.

1150 6.0 25.57 2.144 0.51 6.92 7 20

(SLU = 7.58)

1155 6.3 25.46 2.140 0.94 6.92 8 15

1200 6.8 25.60 2.114 0.87 6.94 8 10

1205 7.3 23.59 2.110 0.79 6.93 8 9

(SLU = 7.62)

1215 - Sample Taken.

- purge water murky first few gals.  
Sample clear.

- pump speed = 2/3.

ES

**Geologist – Robert Roselius**

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SMWU 56

4/23/08 (SEC PG2)

— GEOTECHNICAL TECH, INC.

787.720.5869

ABRAHAM

NASSER

4/28/08

56 SBO1 4/28/08

EARTH RECOVERY AD

MONDAY

0-0.6 TOPSOIL (ALGONQUIS)

0.6-4.0 3.8 BKG LIGREY TO MARSON  
MATTUDD CLAY, LITTLE  
SILT, MED STIFF, MED

\* SBO1-00 @ 1125 (0-1) PLASTICITY

\* SBO1-01 @ 1135 (1-3)

4.0-8.0 3.6 BKG SAA (SAME AS ABOVE)  
SOME SURFACE WATER  
RUNNING INTO HOLE  
FROM RAIN LAST NIGHT

8.9 \* SBO1-04 @ 1135 1200 (7-9)

8.0-12.0 2.3 BKA SAA TO 10'  
WHITE TO BL W/ MARSON  
@ 10' - SOME YELLOW  
@ 11'

12-16 3.2 BKG SAA, MOIST

16-20 1.0 BKG SAA

20-24 1.6 BKG SAA W/ SOME LAMINATE  
BEDDING

56 SBO1 (CONT.)

24-28 1.5 BKG SAA END OF BORING

56  
• INSTALL GW01 ON 4/30/08 (pg 13)

TD 16' bgs (2" PVC)

SCREEN 6' to 16'

SAND TO 4' bgs

BENTONITE TO 2' bgs

YELLOW, SQUARE 4" x 4" PLD-TOP

2" STICKUP

ABRAHAM &amp; NASSER

ALH

GEOPROBE DIBB (JOE'S DT6610)  
66 DT

56SB02 4/28/08

0-4.0 4.0 OKG 0-0.6 TOPSOIL  
0.6-4.0 LT GRAY TO  
MAROON MOTTLED CLAY,  
SAND SILT, DAMP, MED

\* SB02-00 @ 1420 STIFF, <sup>MED</sup> PLASTICITY

4.0-8.0 3.8 OKG SAND W/ TRAPS F. SAND.

\* SB02-02 @ 1425 (7.5)

\* SB02-04 @ 1430 (7.9)

8.0-12.0 3.9 BKLG SAND

@ 9.5' SAND BUT LT GRAY TO  
DK MAROON W/ SAND SILT  
INCLUSION, DAMP

12.0-15.0 2.4 OKG ONLY 3' RUN

13-13.5 GREEN CLAY LITTLE SILT

14.8-15.0 " " " "

15.0-19.0 3.5 BKLG SAND 13.0 - CLAY SUBSTRATE  
IN SLOPE

END OF BORING. MOVE TO SB04.

RCL  
4/28/08



56 (2" PVC)

- INSTALL GW02 on 4/30/08 (1613)

TD - 16', pass  
 SCREEN 6-16'  
 SAND TO 4' bgs  
 CO-TO-116 TO 2' bgs  
 YELLOW SQUARE 4'x4' PUD-TOP  
 2" STICKUP



P.H.

56 SB04 (04/20/08)

0-4.0 3.9 ALL

0-0.2 TOPSOIL

0.2-4.0 LT GRAY W/

LITTLE MAROON CLAY

W/ LITTLE SILT, DAMP, MED.

\* SB04-00 @ 1500 STIFF, MED, FINE.

4.0-8.0 3.9 OK

SAA TO 5.0

5.0-6.5 MAROON CLAY W/

WEATHERED SILT "PIECES"

6.5-8.0 SAA 5.0 W/ LESS

LT GRAY, DAMP

\* SB04-03 (5-7) @ 1515

8-12 3.7 BR

8-9.5 LT GRAY, LITTLE

MAROON, DAMP

9.5-12 MAROON SILTY CLAY

W/ LITTLE LIGHT GRAY.

\* SB04-04 (7-9) @ 1530

12-16 1.3 —

SAA MOIST TO WET.

END OF DAY

B 4/29/08 (Tues)

56 SB04 (CONTINUING SAMPLING) 0745

DEATH RIGOR PLO

16-19 2.6 — only B' Rane  
MED GREY TO MEDIUM  
SILTY CLAY, w/ small (??)  
BLACK INCLUSIONS

GW has approx 4' bgs before start.

BUILD WELL & WILL OBSERVE SWL;  
AND CONTINUE SWL SAMPLING @ SB03 AND  
SB05 AND OBSERVING WELL  
SILTS FOR DEPTH ON SB04 SWL.

~~TD 1 R/L  
SCREEN 3-13' ALL  
BENTONITE 12' ABOVE (4.0 bgs) SAND  
SAND TO 6' bgs~~

INSTALL GW04 (2" PVC)

TD 16' bgs  
SCREEN 6-16'  
SAND TO 4' bgs  
BENTONITE TO 2' bgs  
YELLOW SQUARE 4"x4" PRO-TOP  
27' STICKUP

56 SB05 START @ 1000

0-4 4.0 BKG 1.4 TOTAL M. SUTY  
CLAY

1.4-4.0 Lt Grey & yellow  
w/ little morden

Silty clay; damp, med stiff

\* SB05-00 @ 1010

4-8 3.2 BKG SQA BLK/FRAGILE  
10.0-7.5 - SQA AFTER 7.5

\* SB05-03 + 1020 1020  
MS/MSO LENSE SAND  
GW @ B.O.

8-12 3.4 BKG SQA w/ INCREASE IN  
GRAIN SIZE / LITTLE FINE TO  
MED SAND) MOIST

\* SB05-05 @ 1030 (COLLECTED  
FROM 9-10' INTERVAL)

12-16 2.4 — SQA (WOT) SOFT

16-20 3.2 — SQA (WOT) 19.9-20 GREEN  
GREY CLAY.

SWL @ MW04 - 2.45' (WILL NOTIF AND  
@ 1040. MONITOR AND  
EXCEPT TO DROP.

12

1310 2/21/08 move to S605  
Auger 16' in prep for well  
construction tomorrow.

568-205 (2" PVC)  
 • COMPLETE MW CONSTRUCTION 4/30/04A  
 (SEE 16-13)

TD 16' bgs  
SCREEN 6-16'  
SAND TO 4' bgs  
BENTONITE TO 2' bgs  
YELLOW SAND 4" x 4" PRO TOP  
2 1/2' STICKUP

11

565B03 (S.M. 1110) 4/29/85  
 1.5-2.0 m/s 6' SE of Focal 2' move  
 1.5-2.0 m/s 6' SE of Focal 2' move  
 0-4.7 0-1.7 Tarsal (Grown) 0.0 Black Cat/sand  
 1.7-4.0 Lt Grey 0.0 Lt Grey/sand  
 4.0 Bk Cat

\* SB03-00 + DNP @ ~~1120~~<sup>1125</sup>  
\* SB03-02 @ 1140 (3-5)

4-8 38 OKG SAB CAROLINE TO GREENE  
w/ ORANGE/MAROON DAMP

\* 5803-04 @ 1145

8-12 3.5 BKG Die Probe von W/ Seite X  
durchschnittlich  
inclusions, dampf.

12-16 3.8 B.C. 12-14 - GREENISH GREY  
AND YELLOW ORANGE SILTY  
CLAY  
14-16 SAME AS 8-12  
DAMP.

1150 SCRAM ON SITE TO GET SAND AND  
LINEN.

• INSTALL GW03 (2" PVC)

ID 16'

SCREEN 6-16'

SAND TO 4' bgs.

DELTONITE TO 2' bgs.

YELLOW, SQUARE 4"x4" PRO-TOP

DRILLER'S ADVANCE DRILLS TO 16' bgs

@ SB05, INSTALL COLLARS @

PRO-MW SB03

1620 DEPART (DEPARTING)

1750 CAROL DEPARTS BASE

★ SEE A17 FOR  
NEW GW-2  
ID (i.e. PRO-TOP  
DROPPED, NO TO  
CMT PVC)

4/30/08 (WED.)

0730 @ GATE #1 (FROM AMELIC WORKS ROAD)

COMPLETE MW CONSTRUCTION @ GW05

- SEE PAGE 10 FOR SPECS.

MAKING TONS02 FOR MW CONSTRUCTION

SL	SWL	ID
0750 GW04	2:37 TOC	17.90 TOC
0800 GW05	EQUILIBRIUM (1)	18.25'
0805 GW03	"	18.22

(1) WELL CAPS TIGHT - DID NOT ALLOW

SWL TO EQUILIBRIUM, ALLOW EQUILIBRIUM

0930 COMPLETE GW02 WELL SEE

PAGE 6 FOR DETAILS (INT. CAPLID & SURFACE)

1030 GW02 17.13' ~~17.13~~ 18.3' VOID

1030 COMPLETE GW01 (NOT AT SURFACE) (SEE A6.3)

1035 GW01 3.41' 18.3'

1040 AGRONOMY HEADS TO DECON USA.

1035 AGRONOMY RETAINS FROM CRYTAL EQUIP.

START @ SB06, HELPER COMPLETING

GW01 & GW02 AT SURFACES.

56 SB06

0-4 4.0 DK6 0-0.5 TOPSOIL  
 0.5-4 LT GRAY TO  
 MAROON MOTTLED SILTY  
 CLAY, SOME COARSE SAND  
 SEVERAL SILTYSTONE PIECES  
 @ 3.5. STIFF, DAMP

SB06-00 @ 1440

SB06-01 + DWP @ 1445

4-8' 3.9 BK6 S&G GRADING TO  
 LT GRAY & ORANGE  
 @ 6.5', DAMP, STIFF

SB06-03 + MS/MSD @ 1505

8-12' 3.8 DK6 S&G GRADING TO INCREASE  
 GRAIN SIZE (SILT, L.F. SAND)  
 AND TO LT GRAY/MAROON  
 AT 11.5' (MIGHT NOT  
 @ 11.5')

12-16 2.4 — 18.6-19.6 S&G VERY SOFT  
 SILTY CLAY,  
 19.0-16 S&G STIFF  
 WBT

56  
 PREP TO <sup>56</sup>INSTALL GW06  
 UNDER 16' 56

• INSTALL GW06 (2" PVC)

TD 16' 693

SCREEN 6'-16'

SAND TO 4' 693

BENTONITE TO 2' 693

YELLOW, SQUARE 4"x4" PRO-TOE.

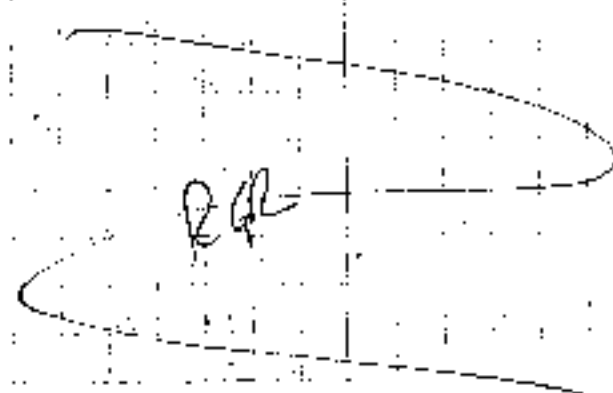
STICK UP 2'

1615  
 RA 1645

CREW HEADS TO DECOM W/  
 COMPLETE WELL @ SURFACE (PRO-TOE &  
 PAD) TONNAGE

1645 HEAD TO PWB

1750 DECOM RNS



16 5/1/08 (THURS)

0810 COMPLETE GWO6 (PRO-TOF/  
Grant), CLEANUP MOVE TO  
SB07

56 SB07

0-4' 2.8' BLA 0-0.7 TOPSOIL (ONE  
CHANNEL)  
2.8' BROWN SILT  
& CLAY TRANSFERRED  
1' SAND SAND  
SOFT (FILL)

0845 SB0700 @ 0845

SB0702 @ 0850 (2-5)

4-8' 3.3 BLA - FILL CLAY TO CHASS  
SAND (CANAL 4-4.4)

MOIST-WET, SOFT (CLAY MUD)

SB0703 @ 0905 (5-7)

8-12' 3.1 S&L GRABING TO  
LG GRAY & ORANGE CLAY w/  
LITTLE SILT (FILTY CLAY)  
@ 11.5' MED STIFF.

\* SATURATED (w/ GRAVEL  
SLIGHT SLUFF)

12-16' 1.5 S&L (LG GRAY/ORANGE SILTY  
CLAY, STIFF, MOIST)

17

PRO-A TO DEMO/CONSTANT GWO7  
@ 0915.

THE PRO-TOF @ GWO2 DISTURBED IN THE LID WOUND  
AND CLOSE, CUT APPROX 2' OF PVC - NEW WELL SPECS:  
TD SWL

1055 GWO2 18.11 11.35  
1105 GWO6 18.41 2.88 (SOME BUT  
ON BOTTOM 0.25')  
1110 GWO7 18.44 6.44  
56 NOT EXHAUSTED

COMPLETE GWO7 INSTALL @ 1110 (2" PVC)

TD - 16' 4.5

SCREEN 6' to 16'

SAND TO 4' bgs

PERMANENT TO 2' bgs

YELLOW, SQUARE 4"x4" PRO-TOF

ABRAHAM & NOBLE WILL COMPLETE ALL  
WELLS AT SURFACE (PODS/BOLLARDS)  
TODAY + WORKING @ GWO7 NOW.

COMPLETE PODS/BOLLARDS @ GWO7, GWO5  
GWO4, GWO2 & GWO1

1645 HEAD TO PNTS

JOE STAYS TO MONITOR MY CABIN FINISHES.

GWO1  
1810 - DEPART NAPP

5/2/08 FRI

0615 ON SITE CAMP 03 Riser  
0710 @ AIR FIELD, AERONAUT/NASSERPUMP TO CONCRETE WELLS @  
SURFACE GWS AND GW6

- CONCRETE WELLS AT SURFACE
- LOCATE VIBRA PITS (VP) 1 & 2
- MARK CLEARS FOR VP BENCH

1020 <sup>SB</sup> BELOW VP2A-VP2A

0-4 3.8 <sup>AK6</sup> 1.5 0-1.5 CLAY w/ SILT TO  
F. SAND, T. COARSE SAND  
BLUISH, Damp

1.5-4.0 CLAY, some SILT  
lt. GRAY and yellow  
friable / blocky. <sup>dry to</sup> damp

4-8 2.0 <sup>AK6</sup> F. SAND TO GRAVEL.  
DROWN, WET @ 7.5.

11  
8-12 1.9 3' RUN - REFUSOL @  
11'; SAND - F. SAND TO  
GRAVEL, SOME TO TOP.

DRIVE 2  $\frac{3}{8}$ " ID (1.3") CASING TO  
10.6' bgs - REFUSOL.1100 AERONAUT/NASSER DEPART TO GET  
PUMP Riser. KIT EQUIP STAGNA  
@ NASSER PWB.1325 BUILD GW VP2A WITH  $1\frac{1}{2}$ "  
PUMP Riser, SCREEN & RISER (GEOPROBE)  
<sup>LIGHT RAIN</sup>GW VP2A ( $1\frac{1}{2}$ " PUMP)

74 TO 10.6' bgs.  
SCREEN 10.5' - 5.5'  
SAND TO 4.5' bgs.  
ANTONITE TO SURFACE  
PUSH PUMP TOP, 1" DIAMETER ROD.

1500 STILL RAINING. DIRECT CLOW TO  
LOAD RIG (PER SECURITY; THEY WANT  
THE EQUIPMENT BY THE ENTRANCE  
GATE 55 OVER THE WEEK END SO  
THEY CAN WATCH IT.) DRILLERS ROAD  
TO HANGAR TO UNLOAD TRAILER SO  
THEY CAN LOAD THE RIG.

ASSIST JOB W/ SNG TEST

1520 DRILL CREW DEPARTS AIRFIELD  
Rear DEPARTS AIRFIELD TO PWB.

1635 DEPART NAVAL STATION.

5/3/08 SAT.

0615 DEPARTS NAVAL STATION. PREP/METTING

0735 ARRIVE AIRFIELD  
0815 VP2A 12.65 (TD) 8.50 (SWL) 8.50

— VP2B START @ 0820

0-4 3.4 BKG 0-0.5 TOXON

0.5-1.1 CLAY, LITTLE

SILT, L. CLAY & MUD, HARD, BLOCKY

Dry to Damp. 4.0

1.1-4.0 SILT TO GRAVEL

GRAY & BROWN, DRY.

3-4.0

4.0-8.0 2.4. BKG SRA (SILT TO GRAVEL) NOT  
@ 7.7'

VP2B-01 @ 0830 (1-3)

VP2B-03 @ 0840 (5-7) HARD MUD

8-12 0.8 — SRA Saturated

12-16 2.8 — 12-14 SRA (SILT TO COARSE  
SAND, T. GRAVEL (S. UNCL.)  
SATURATED

14-16 CLAY L. CLAY & MUD  
MOTTLED, DAMP



22 74

■ GWVP2B (1 1/2 per pack)

15' TD

SCREEN 5-15'

SAND 4' bags

BENTONITE TO SURFACE

HIGH PRO-TOP, 1+ DIAMETER PAD

0940 LEFT ROAD STABILIZER STUCK IN  
BENTON POSITION (WORKING ON IT).1050 GWVP2B 17.20(TD) 8.13(SWL)  
STILL WORKING ON STABILIZER.1055 STABILIZER REPAIRED (SWITCH) ←  
MOVE TO VP1B

— VP1B (SW OF PIT)

0-4 2.4 BKG 0-0.4 TOPSOIL  
0.4-4.0 SILT TO GRAVEL  
cages4-8 4.0 BKG Clay to Sand orange brown.  
Fine damp.VP1B-03 @ 1130 (51  
MC)

BEND SP SAMPLER - OFF SET.

0.3 BKG

23

B-11 SAME AS B-12, MED SORT, MOSTLY  
ONLY 3' RUN, ~~LINE~~ LINER FULL.  
VP1B-04 @ 1145 (7-8)

LEFASOL @ 12'

11-12 1.0 +  
SAND VERTMOVE TO VP1A - WILL SOIL SAMPLES  
AND EVALUATE FOR WELL

— VP1A (NORTH OF PIT)

0-0.3' TOPSOIL

0-4' 4.0 BKG 0.3-1.4' DE. CLAY TO GRAVEL  
mostly clay, brown  
damp.1.4-3.0 medium silty clay,  
blue clay, dry to damp3.0-4.0 SILT TO GRAVEL, LT CLAY  
+ Brown, damp

B-4-B 0.4 BKG Silt (3.0-4.0) LITTLE BROWN

B-12 0.9 BKG SAND TO GRAVEL, SUBSTRATED.  
VERY HARD TO PUSH. NEAR  
12' - ATTEMPT 12'-16' POTASS  
@ 12'

# 74 GW VPIA (11 1/2' PRE-PAK)

12' TD

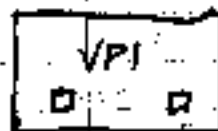
7-12' Screen

Gravel to 5' by air

Gravel to 3' by surface

PUGH PRE-TOP, 1" DIAMETER PAD

GW VPIA



APPROX  
IN

GW VPIB

Also For VP2 (i.e. A to NORTH,  
B to SOUTH)

MOVE TO GW VPIB TO BUILD WELL

- GW VPIA 1349 TD / 1049 SWL  
@ 1415

# GW VPIB

- WASH GRVEL TO 12' ALTHOUGH SCREEN  
RISER OR 1" RODS CANNOT GET TO  
BOTTOM - WATER LEVEL METER

Gravel - DELETED OFF OF SOMETHING  
PULL CORDING, LOST 1 SECTION IN  
HOLE, BENT FEMAL END, - TOP  
OF BOTTOM SECTION @ 3' by.

- ATTEMPT TO USE DUEL TUBE SAMPLER  
BECAUSE IT ALSO DROPPED @ 3' by.

CONSIDER/MAKE WILL ABANDON  
THIS LOCATION DUE TO DIFFICULTIES  
KNOW THAT VPIA IS INSTALLED

(LOCATED/SOLVENT LKBT)

ODOR, CANNING FROM DUEL TUBE  
SAMPLER PID - SOOT

- 18-24' FROM BOREHOLE OFFSET  
APPROX 4' SE FROM ORIGINAL

16S CALLED VPIB-04X (7-8' by)

HEAD TO PUGH, SAMPLE, MANUFACTURE  
1910 DEPART WATER STATION

5/4/08 Sun.

0620 ON SITE, P&P, DISCUSS REMAINING  
74 ACTIVITIES (WELL LOCATIONS)0715 @ DIA FIELD, P&P TO ANGLER @  
VP1B0805 BEGIN @ VP1B, SCREEN CUTTING  
W/ P10 - NO MD PIPE OR ODR

0825 SWL @ VP1A 10.53' (TOC)

0835 ANCHORED TO 12' @ VP1B, ANCHORS  
NOT STRAIGHT, DEFLECTED WHILE  
ANCHORING GROVERS, BUILD WELL  
- COUPLE OF COILS TO SURFACE74GW WINDING ANCHORING 3 1/2"  
VP1B (P&P FROM TURNING ANCHORS)  
12' TD bgs 1 1/2"

7-12' SCREEN

SAND TO 15' bgs

BENTONITE 3' bgs

CEMENT TO SURFACE

PUSH YELLOW PRO-TOP (LEARNING ONE  
TO GRAVEL! ANCHOR KICK-OFF)  
(NOT RECOMMENDED)

0940 VP1B 1374 (TD) 8.62 (SWL)

PREP TO MOVE TO 74SB57 TO INSTALL  
MW (18' W/ 8' SCREEN, CAPTURED W/ CHAIRS)REI SB57 SPACS. (11' TD DUE TO POTENTIAL  
SHALLOWER WATER TABLE & LNAFL; ALTHOUGH  
NO EVIDENCE OF PETROLIUM/JP-5 DRAINAGE  
BUT RISK MOVEMENT BY CHAIRS E.)

1015 BEGIN @ 74GW57

~~XXXXXXXXXX~~ (1 1/2" PRO-TOP)

11' TD bgs

SCREEN 6-11'

SAND TO 4' bgs

BENTONITE TO 2' bgs

PUSH PRO-TOP

- 1125 74GW57 12.7 (TD TOC) 4.8  
NO EQUIVOCATED - 4.50 (SWL TOC)1145 @ 74GW57 34X P&P TO SAMPLE  
& CURE WELL (P&P MARK DO NOT COLLECT  
SAMPLES UNLESS IMPACTS ARE OBSERVED).  
OFFSET FROM ORIGINAL SB34 (CLOSER  
TO P10 LINE) - USE DUGL TUBE SAMPLER.

BEGIN @ 1205

74SB34

0-5 5.0 BKG. 0-0.4 TOPSOIL  
 0.4-4.0 Clay w/ some  
 silt, lt gray & brown  
 mottled, damp, stiff  
 low plasticity. STIFF

4-8 5.0 BKG. SPA, BUT MED SOFT  
 5-10 MED plasticity  
 @ 8' & damp to moist.

10-13' 3.0 BKG ONLY 3' RUN, OVERPACKED  
 THE SLOVE, NARROWS AND  
 LITTLE CLAY MOTTLED w/ BLACK  
 inclusions. SOFT, MED  
 plasticity. (CLAY, LITTLE SILT,  
 DEBRIS IN SPAN 4-12) MOIST.

13-15.5' BKG SPA, moist to

PROP TO BUILD WELL w/ DESIGNATION  
 OF 74GW34 (PER MARK).  
 NO IMPACTS OBSERVED & NO SOIL  
 SAMPLES COLLECTED

~~1252~~ (1 1/2" PLB PACK)

TO 15' BKG

SCASSW 5-15'

SAND TO 3' BGS

CONTINUED TO 1'

PUSH PASTOP

CHARGE TO  
 (CURRENT TO SURFACE)  
 & PAD.

1350 17.57 (TOTC) NO WATER YET

@ 3' STICKING @ 14.5 TO (CHECK SURVEY  
 DATA) WHEN AVAILABLE.

— LOAD EQUIP TO MOVE TO NAVAL  
 STATION PROPERTY

1445 DEPART AIR FIELD, DID NOT GET  
 EVERYTHING, TANKER FULL, THEY  
 LEFT THE BALANCE TOMORROW  
 MORNING.

1540 DEPART NS

ROR

5/5/08 Monday

0620 Onsite, Allaron/Nasser  
 Gets/Brings Balance of  
 Equip from RR Field (onsite  
 @ 0720, said they started  
 @ 0620).

Prop, Head to 545808

0750 @ 545808, Plan to Drill

56 S808

0-4.0 3.9 Bkg 0-0.4 Topsoil  
 0.4-1.5 Silt to  
 Gravel, Gray & Brown, f  
 1.5-4.0 Clay with silt and  
 mason, yellow, mod hard  
 Gravelly to soft @ 3.0  
 (Fill)

56 S808-00 0820

01 0830

02 0835

4-8 4.0 Bkg Still fill clay w/ silt  
 to sand, olive, brown &  
 black. wet @ 5.0

Saturated @ 6.0'

8-12 4.0 — 8-9.4 SAA (Saturated  
 very soft)

9.4-12 - Clay w/ silt, soft  
 Gray and yellow orange w/ black

12-14 2.0 — SAA (including)

Drill for well to 14'

56 GWO8 (See pg 15 & 16  
 for last S808 56  
 entry)  
 (2" PVC)

TD 14' bgs

Screen 4-14'

Sand to 3' bgs

Continuing to 1' bgs

Push Pro-Top - Concrete to surface  
 & pad

1050 56 GWO8 16.70 (TOTL) 547 (SML)  
 TOTL

1125 Complete 56 GWO8 Pad etc move  
 to VP3 for soil sampling and  
 temp well installation.

VP-3 - V 74SB63 is ADJACENT  
TO VP-3. NO SAMPLES WILL  
BE COLLECTED. CONSULT CHRIS K.  
RE: SB63 STRATIGRAPHY & WATER  
RESOURCES. (water ~ 9-10')

REGUL. SOIL SAMPLING @ VP3B (SAND)  
WILL INST. INSTALL WORK @ VP3A  
(ADJACENT TO 74SB63)

## VP3B

0-4' 3.1 BKG 0-0.6 TOPSOIL  
0.6-4.0 CLAY TO FINE  
GRAVEL (FILL) LG GRAY,  
TAN & BROWN. DRY TO DAMP.

4-8' 3.7 BKG 4-4.4 S&A DRY TO DAMP  
PID 4-16A 4.4-8.0 S&T TO C. SAND, GRAY  
200' w/ P&T 000L.  
1-4' VP3B-03 @ 1155  
16-200 VP3B-04 @ 1200 + P&H.

8-12 4.0 200' BKG B-10 S&A <sup>DRY TO MOIST</sup> SANDY CLAY  
10-12 SILT (F. SAND, BROWN  
PID 2-4 10-11 GRASS TO  
1' BKG @ 12.

12-14 2.0 11' - BKG S&A  
116' FOR WELL.

74GW VP3B (1 1/2" PVC)

14' TD by

SCREEN 4-14

SAND TO 3'

DENTONITE TO OA, CEMENT PAD

1350 74GW VP3B 1710 (TD TOC) DRY (ALON  
TO ROCKING) 1610

1355 88GW 74VP3A INSTALL, APPROX 3' W  
OF 74SB63. WILL INSTALL TO 16' S&S  
GW VP3B APPEARS TO BE A LOW YIELD  
WELL.

74GW VP3A (1 1/2" PVC)

TD 16' by

SCREEN 16-16

SAND 4'

DENTONITE 2'

P&H PRO TOPS (@ VP3B ALSO) CEMENT TO SURFACE

1510 74GW VP3A 1843 (TD TOC) DRY,  
(ALLOW TO SET OVER NIGHT)

# VP11 (DESIGNATION) CHANGES

1525 HEAD TO VP4 (LABELED PIT 11)  
WILL USE 5' SAMPLER (CONT. OF  
4' LENSES)  
LINDER STUCK IN SAMPLER, FIGHT  
TO GET IT OUT.

1555 BEGIN @ VP11A (SOUTHERN SIDE  
OF PIT B on NORTH)

0-5 5.0 BKG 0-0.6 TOPSOIL  
0.6-5.0 CLAY SAND SILT,  
LT GRAY & MAROON MOTTLED  
SOFT, MED PLASTICITY, DAMP

5-10 4.6 BKG INCREASE IN GRAIN SIZE.  
@ 6.0' CLAY, SOME SILT,  
6.0-8.5 LITTLE F. SAND, SOFT, MED  
PLASTICITY, DAMP  
8.5-10.0 SAA BUT ORANGE  
TAN & LT GRAY, MED STIFF  
STIFF, MED PLASTICITY, DAMP

10-15 4.7 SAA TO 13.0' 12.4-12.5 BLOCK  
BKG to 13 SILT and CLAY  
4-12 @ 13-15' SAA BUT LT YELLOW/TAN &  
LT GRAY, w/ BLACK INCLUSIONS,  
DAMP MOTTLED

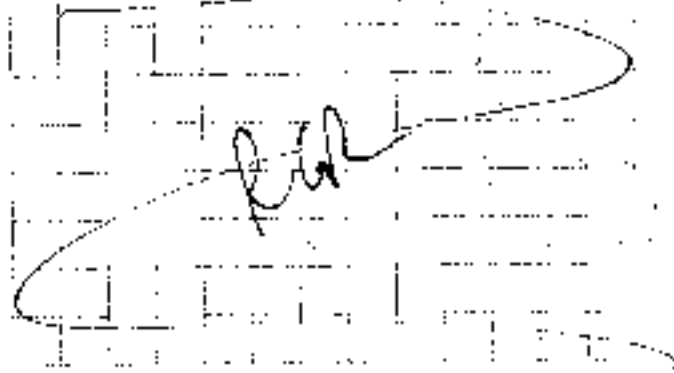
SLIGHT PETAO ODR w/ 4-12 PID READINGS

15-19 4.0 BKG ONLY 4' RUN, LINDER  
FULL.  
- SILT and CLAY, LENSES  
LT TAN w/ LITTLE ORANGE  
AND BLACK (INCLUSIONS) ALL  
LENSES, SLIGHT PETAO  
- NOTE BUT NO PID UITS  
(CHECK @ PWB). Damp +

ALLOW TO SET OVERNIGHT TO MONITOR  
GW.

1645 DEPART VP11 TO PWB

1740 DEPART NS.



5/6/08 THES

0620 ORBITG (GPR#3) Prep.

0700 74GWVP3B 15.58 SWL TOC  
16.10 TD TOC0703 746WVP3A 18.15 SWL TOC  
18.43 TD TOC- NASSER PAVING BALLARD'S @ SLOANB  
(MAYBE A FALSE POSITIVE)0715 WATER DRAIN 12" LGS IN  
74VP11A - MEASURE THICKEN  
BOREHOLE WILL BOLD WELL  
W/ 18' TD LGS TO RECORD FOR  
SEASONAL FLUCTUATIONS.

RH

14VP

■ 74GWVP11A (1 1/2" PVC)

TD 18' LGS

SCREEN B-18'

SAND TO 6' LGS RH

BENTONITE TO 4' LGS SURFACE

0800 MOVE TO VP11B (NORTH OF PITE)

— 74VP11B

0-5 2.6 BKL 0-0.2 TOPSOIL  
0.2-1.0 SILTY CLAY, MARLOW  
@ 1.0 GRAVEL (RAIL DID NOT  
RUN VIA RAILWAY)  
⇒ 4.4 to 5.0 - CLAY w/ SAND  
SILT, MARLOW w/ LITTLE  
LT GRAY, DRY TO DAMP.5-10' 4.6 BKL 5-8 CLAY AND SILT  
SILTY CLAY, BLOCKY  
LT GRAY w/ MARLOW MOTTLED,  
DRY TO DAMP, LOW PLASTICITY,  
MOD STIFF, DRY TO DAMP.  
8-10' SDA BUT LESS SILT,  
STIFF, MOD PLASTICITY.10-15' 5.0 BKL SDA MOD STIFF GRADUALLY  
SOFT-TO STIFF MARLOW 13", DAMP  
TO MOIST, MOD PLASTICITY.

74VP11A-03 @ 0830

74VP11A-04 @ 0835



36

PIP

15-20 SO BKHS-18.9 SOD. (mottled)  
 4-30: 18.9-20.0 SOD (clay/silt)  
 BUT DK GRAY & LT GRAY  
 laminated & mottled.  
 PETRO ODR (stained?)

0930 RAINING  
 0955 RAIN STOPS

PID

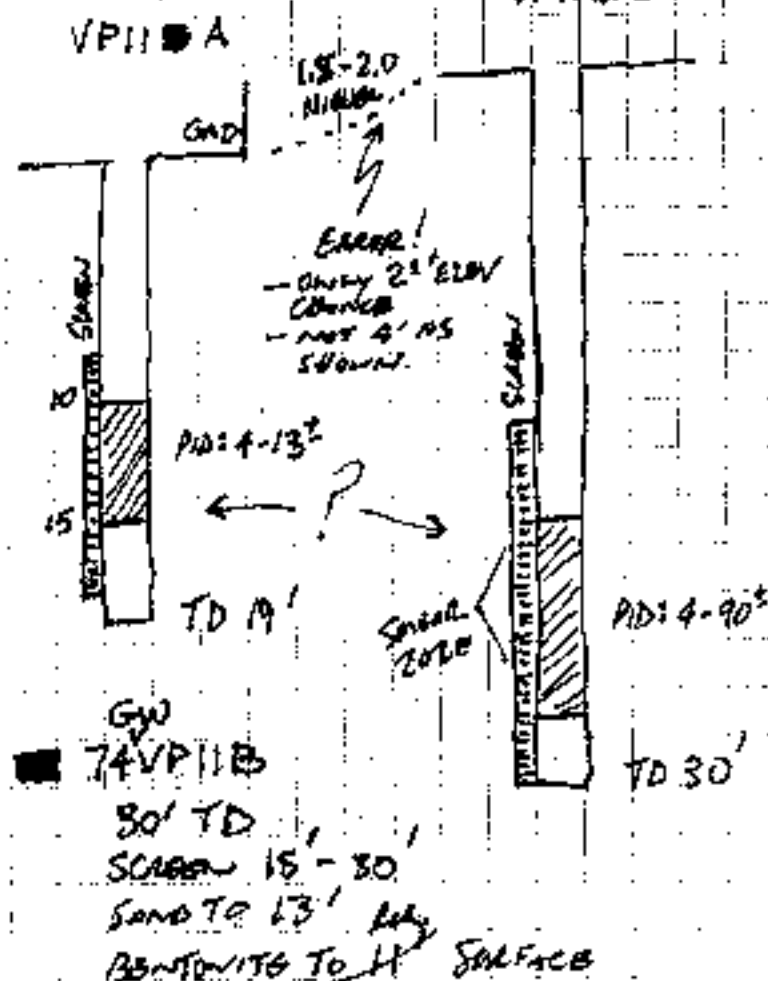
20-25 SO 5-90 SOD

25-30 S.O. <sup>RM</sup> 4-30 SOD.  
 25-27 SOD (PID 4-30)  
 27-30, Clay & silt, Lt GRAY,  
 TAN, Lt YELLOW,  
 laminated, MOD STIFF  
 MOD. PLASTICITY.

CONSULT w/ KUPFER, WILL BUILD WELL  
 w/ 30' TD TOC & 15' SCREEN.

PARANAN'S ORDERS MORE SAND & GRAVEL  
 WILL STAGE IT AT PARKING EAST OF  
 DEFENSE LOGISTICS AGENCY DRMO  
 BLDG. (ACROSS FROM VP11)

- VP11 BORING SIGN



1145 DRILLERS TO LUNCH, REGION NEXT AREA  
 w/ MULTIPLE VPS. DRILLERS LEAVE  
 1240 - MEETING w/ JUAN / UNLOAD EQUIP

1300 BORING - STOPS 1315

COMPLETE WELLS 74VP11A & B @  
SURFACE (PL-TOPS, APS.)

72GWVP11A 19.91' (TD) DRY  
72GWVP11B 32.07' (TD) 29.60' (SURTAC)  
NOT EXPLORATED

WELL NE OF VP1C

SUR TD  
142S 14.42 25.3 2.7 STICK UP.

1430 BGN @ VP1C

— VP1C/9

0-5 3.9 BGN 0-0.7 Tension & Brown F.

SUR, F SAND & CLAY.

FILL

0.7-5.0 - SILT, F SAND LITTLE

CLAY, B. LT CASY, TAN & ORANGE

DRY TO DAMP. (FILL)

5-10 5.0 DRG. FILL - SOD W/ LIMEY  
LENS < CLAY 5-5.5 & MAROON  
CLAY 7.5-7.9

FILL

@ 8.5 - BK GREY & OLIVE

SILT & F. SAND,

@ 9.5 MAROON CLAY W/

WHITE BEACH SAND &

SC. SHELLS (FOR JOE B.)

@ 9.9-10.0 (FILL)  
DRY TO DAMP.

10-15 5.0 DRG 10-10.5

20-300+ 10.5-15 - FILL

MAROON/CLAYS, OLIVE SILTS & SANDS  
AND LITTLE  
WHITE SHELLS / SLIGHT ODOR / LARGE PID RADIOLUS

15-19 4.0 90-100 SOD PLUS TAN SAND / SAND  
LOWER PID RADIOLUS < 20' MAROON  
SD 17.5'

19-24 5.0 19-21.2 SOD SATURATED

\* DRG 21.2 - 24 NATIVE - SILT & CLAY  
YELLOW ORANGE & TAN MOTTLED.

WELL BUILT WELL W/ 22' TD 10' SOD

494 G.W.

VPICa/9

TD 22' 1/2"

SCREEN 12-22'

SAND 149' 2 1/2"

BENTONITE 10 1/2" 2 1/2" SUEDE

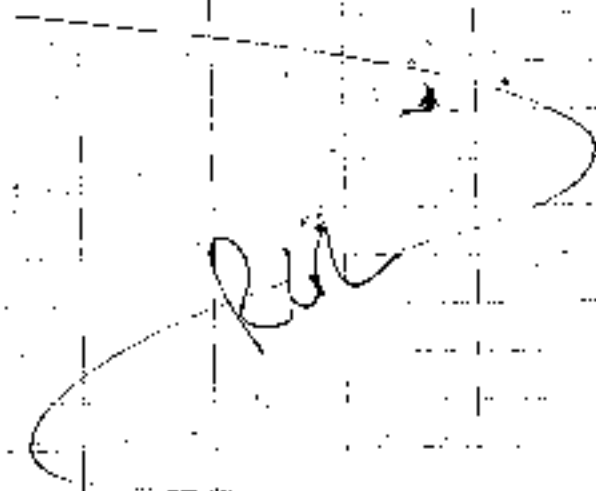
WILL GUNPLOT @ SHARPS TOPOREM

TD 23.75 (TOL.)

SEE PG 44

1625 DEPART FOR PWB

DEPART NS



5/7/08 WED.

0620 ON SITE

0650 @ SHARPS VPS - PREP/LOGG BOTTLES

DRILLER GETTING SAND/GRAVEL FROM THE

PR FIELD

0735 DRILLERS ARRIVE

-74VPICb/9

0-5 4.2 BKG 0-0.3 TOPSOIL

FILL → 0.3-4.0 FILL YELLOW 4 PLT TO  
TAN CLAY TO MED SAND. DND

74VPICb/9-02 @ OBOS (3-6)

10-14

5.0 BKG 4.0-9.6 SAND

FILL → 9.6-10.0 GREEN/GRAY W/  
LITTLE WH TO SHELLS/SAND, DND

74VPICb/9-04 (7-9) @ OBIS

10-15 34(\*) 10-13 LT GRAY/WHITE F. SAND  
TO FINE GRAVEL

FILL → 13-15 CLAY/INT OLIVE, MOTTLED  
15-17.4 SATURATED, SAME  
AS 10-13

FILL → 17.4-20 SAND AS 13-15  
PETRO ODOR

(\*) PID MALFUNCTION/PETRO ODOR

- WILL RUND WELL W/ 22' TD / 10' SCREEN

0835 DRIVER OFF TO STORE AREA FOR  
SAND DELIVERY.

# GW VP1C/9

22' TD

SCREEN 12-22'

SAND TO 10'

BENTONITE TO 8' <sup>fill</sup> 1' bags / surface  
PROTAP AND LOTAL SEE PG 44

WILL CONTINUE SAMPLING @ VP<sub>1</sub> AND

LIKELY COMPLETE WELLS @ GARFOLZ  
NEXT TUES.

0950 MOVE TO VP1Aa/9

# - VP1Aa/9

0-5 4.4 BKG 0-0.4 TOP SOIL  
0.4-2 WHITE SIFT SAND & SILT  
2-5 FILL ORANGE/BROWN  
CLAY & SILT, HARD, DRY TO  
PUMP.

FILL →

5-10 5.0 BKG FILL ORANGE/TAN SILT  
AND P. SAND.

FILL →

5-5.5 WHITE SAND/GRILL  
6.2-6.6 COARSE SAND &  
GRAVEL.

15-10° SILT/CLAY, GREY/  
OLIVE W/ WHITE MOTTLING  
(CALICHE? PER BRINER/MINOR)  
DAMP.

74VP1Aa/9-03 @ 1015 (5-7)

74VP1Aa/9-04 @ 1025 (7-9)

41  
10-15 5.0 60° - SLIGHT ODR, SAG (9-10)  
DAMP TO MOIST @ 12

15-20 5.0 60-560° - 15-16' SAG MOIST

560° @ 17'  
16-20 SILT/CLAY, TAN  
ORANGE W/ RUST & WHITE  
MOTTLING (LIKE NATIVE  
@ VP1Ca) DRY OLIVE  
GRAY @ 16.8-17'; 17.6-17.8  
AND 18.5-18.6; 19.0-19.1  
AND 19.6-20.0.

20-25 5.0 0.2 1/2° - CLEAVE SPUR IN SAMPLER  
24.8-25.0 - OLIVE, CLAY & SHT  
W/ WHITE MOTTLING, SLIGHT  
ODR.  
\* PID ACTING UP

74GWVP1Aa/9

TD 24' log  
SCABON 14-24'  
SAND TO 12'

BENTONITE TO SURFACE 1' log.  
PUSH PLATE, PAD.

Complete GP/PCa + b @ SURFACE  
TO (TDC) \* SUR (TDC) \*

74GWVP1Aa/9 26.35 DRY (WET 1240  
INSTRUMENT)

74GWVP1<sup>C</sup>b/9 24.11 1652 1237

74GWVP1Ca/9 23.75 2365 1235

\* NOT EQUILIBRATED \*

74GWVP1Bb/9a 26.35 DRY (WET 1245  
INSTRUMENT)

JOE'S CREW/MINGO INSTALLED

DRILL CREWS CLEANUP/PACK  
1305 DEPART VP/9 AREA, HEAD TO PWB,

RL

**Geologist – Chris Kupfer**

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6<sup>00</sup> Leave Hotel

4/28/08

6<sup>35</sup> on site - sort site papers &  
mob to sort rocks & prep for drilling

8<sup>45</sup> Driller on site - load equipment  
for initiating drilling.

9<sup>30</sup> cross base - get on SWMU #69 - Driller  
unload & build decol pad while  
Adam G. shoots boring locations.

10<sup>00</sup> Go w/ Adam & begin to flag boring  
locations for SWMU-74

Wait for Joe B. to return w/ utility map  
before beginning 74 borings

13<sup>00</sup> go over boring locations & utility  
clearances w/ Joe B.

13<sup>35</sup> Driller back (William) - set up on 74SBO1  
(1st boring adjacent to tank & aircraft  
refueling area)

13<sup>50</sup> Begin drilling w/ Geoprobe boring 74SBO1



4/28/08

## 74SB01 LOG

Depth	SSD	Ref(r)	Description
0-6"	0	2-5	top soil,
6'-1'	2.5 ppm		gray, fuel odor - collect ss(00)
1' - 4'	0		Gravel, clay, Brown - Fill.

4-4.5'	21 ppm	4'	Gray, soft sandy clay, fuel odor (Sample 02)
--------	--------	----	---

4.5'-8'	0		tight clay, trace sand ground, damp, no odor
---------	---	--	---

8-12'	0	4'	Gravel red & gray mottled @ 8' (collect sample '04') @ 8'
-------	---	----	--

End Boring @ 12' bgs

## 74SB02 LOG

0-6'	0		Gravelly clay, fill, dry to damp, little sand
------	---	--	--

6'-7'	0		more clay, less gravel collect SB02-03" from 6'-7' bgs
-------	---	--	--

7'-9'	0		stiff, brown, gray, red mottled clay
9-10'	0		(10' last zone, soft clay, sand, etc

4/28/08

1350

collect surface soil sample 74SB01-00

1355

collect surface soil sample 74SB01-02  
@ 3'-5'

1400

collect subsurface soil sample 74SB01-04  
@ 7'-9'

1415

End boring @ 12' bgs

1430

Begin boring 74SB02.

1450

collect sample 74SB02-03' (5-7')

1500

collect sample 74SB02-05 (9-10')

We will skip boring 74SB03 for now -  
needs concrete casing - will move  
on to 74SB04

1515

Begin boring 74SB04

1525

collect 74SB04-01 @ 3' bgs

1540

collect 74SB04-04 @ 8' bgs (7-9')  
← back to sp. prob. clay - rock, very hard, gray, brown



4/28/08 74SB04 LOG

Depth	PID	Loc.	Desc.
0-3'	0	3.5'	Brown, gravel & clay, damp
3'-5'	0	-	CLAY, stiff, golden Br.
5'-12'	0	8'	Friable Clay SILT, dry, red & Brown (golden) - grades more red w/ depth and more stiff, dry - no water in hole

Finish 74SB04 @ 12' bgs - no water

4/29/08 74SB05 LOG

0-4'	74	3'	Fill: Gravelly clay & silt, Fiel color 3-3.5'
4'-6.5'	25	2.5'	Gravelly Sand, little silt & clay, wet @ 3-6'
6.5'-14'	0	4'	Clayey silt, red & Brown <sup>gray</sup> silt. dry, med-low plasticity * less plast, more dry & more dense w/ depth to 14' very tight
@ 8'			

4/29/08

6<sup>20</sup> On site - go thru coolers & prep for  
drilling today on site 21

7<sup>20</sup> over @ Site 74 - meet w/ Jokers

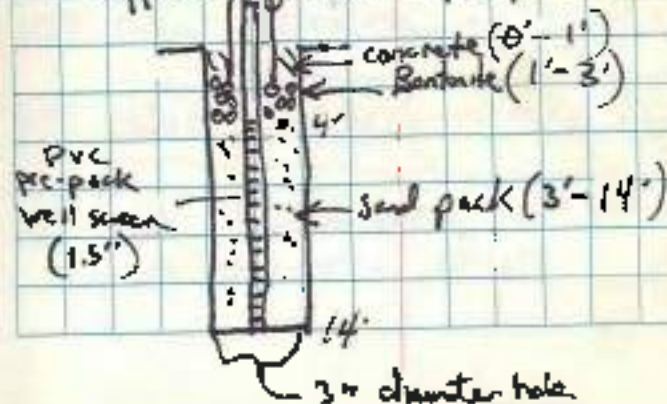
7<sup>15</sup> Begin Drilling 74SB05 - bit water

7<sup>50</sup> collect sample 74SB05-01 @ 3' and  
7<sup>55</sup> duplicate 74SB05-01 @ 3' (1-3')

8<sup>15</sup> collect sample 74SB05-02 from 3' ~~3.5'~~

8<sup>20</sup> Paul Joe - will install a pre-pack well  
here since my rig can't dig

8<sup>50</sup> Finish Boring 74SB05 - Driller will  
not back to staging area to get  
supplies to install a <sup>can</sup> pre-pack well (1.5" PVC)





4/29/08

## 74SB06 LOG

Date	PID	Res.	Description
0-3'	0	3'	Fill, Gravelly Clay sand, br
30-35'	177		most sandy zone, odor,
4'-45'	P		Clay silt, dry, tight, friable. golden Brown.
45-50'	59	3'	Gravelly Sand, wet, gray fuel odor
5'-10'	0	3'	Clay, golden Brown tight damp, little plasticity

no well, fear of speeling  
177 ppm deeper

4/29/08

915 call Joe - he passed me on to  
Mark to make the call - called  
Mark - bad reception - left v. msg. to  
call me back  
- well move on to 74SB06 boring

940 near to well & 5' south<sup>est</sup> because of standing  
water @ 74SB06 location (toward array)

945 Begin drilling 74SB06

950 spoke to Mark K. - he said to go  
ahead & set 74SB05 well - note  
that drillers did not have prepacked  
screen materials.

10<sup>00</sup> collect 74SB06-02 (3-5' bgs)

10<sup>05</sup> collect 74SB06-01 (1-3' bgs)

10<sup>10</sup> collect 74SB06-01 MS/MSO (1-2' bgs)

10<sup>30</sup> finish 74SB06 boring - will set back  
up on 74SB05 to set well.



4/29/08

## 745B07 LOG

Depth	PID	Res	Desc
0'	0	3.5'	Gravel, clay & Sand-Fill, Br Dry-Damp, poorly sorted
4'	0		clayey silt, stiff, dry, friable, golden brown
7'	0	4'	grades light brown and softer, little plasticity.
8.5'	0	4'	grades more stiff, clay Br, red, & gray mottling

End boring @ 12' - no water or  
foul odor

## 745B09 LOG

0'	0	3'	Gravel, sand, & clay fill med. Brown, dry
3'	0		silty clay, stiff, golden brown, slight plasticity
4.5'	0		grades softer & more plast.
7.8'	0	4'	grades med. Brown, must only more plastic at depth
10'	0	4'	silty sand w/ little clay, wet

end boring re

4/27/08

1300 Diners back from lunch

1320 Begin boring 745B07 (truck w/ stuck)

1350 collect sample 745B07-02 (3-9')

1335 collect sample 745B07-04 (7-9')

1350 Finish boring 745B07

\* - Skip Boring 745B08 since on  
concrete -

1400 mob onto 745B09 &amp; Begin drilling

1415 collect soil sample 745B09-02 (3-9')

1420 collect soil sample 745B09-05 (9-14')  
can

1430 Finish boring 745B09

1455 Begin boring 745B10

1445 collect soil sample 745B10-02 (3-9')

1500 collect soil sample 745B10-04 (7-9')



4/29/08

## 74SB10 LOG

Depth	PID	Rec	Desc
0	○	3.3'	Fill: Gravelly clay, dune, light Brown
5.5'	○	3.5	Silty clay, soft, plastic, moist, Plumb
6.5'	○		clay grades more dense stiff & golden Brown
9'	○	4'	Grades more dense and brown, red, gray mottling.

End Boring @ 12' w/ no water or  
fuel/odor detection

4/30/08

6<sup>30</sup> on site - get supplies together - mob over  
to site 74

7<sup>30</sup> Begin boring 74SB11 - refuel @ 4' -  
more South of tank across road ~ 5'

8<sup>15</sup> collect soil sample 74SB11-02 (3-5' bgs)

8<sup>25</sup> collect soil sample 74SB11-04 (7-8' bgs)

8<sup>50</sup> collect soil sample 74SB11-04D  
duplicate

8<sup>50</sup> talk to Mark K. - do a dup & ms/wad at  
next surface soil location (SB-13)

ms/wad  
for  
PAH/Diox

8<sup>55</sup> Begin boring 74SB12 (south side of road)

9<sup>15</sup> collect soil sample 74SB12-03 (6-7')

9<sup>20</sup> collect soil sample 74SB12-05 (9-10')

9<sup>45</sup> Begin boring 74SB13

9<sup>50</sup> collect soil sample (surface) 74SB13-00

9<sup>55</sup> collect " " " Duplicate 74SB13-00D

9<sup>50</sup> collect " " " ms/wad 74SB13-00



4/22/08 74SB11 LOG

Depth	PID	Res	Desc
0'	0	3.3'	FILL: Gravel, w/ little sand & clay, gray & brownish
4.1'	0	4'	CLAYey SILT, golden Brown, dense, friable, dry-lump.
6.5'	0	4'	grades more clay, more stiff, and red & gold mottling w/ depth
↓ 12'			
End Boring @ 12' - no PID hits & no water			

## 74SB-12 LOG

0'	0	2.0	Gravelly Clay Fills, Brown, dry
5'	0	3.8	Sandy gravel, Dry, loose fill
6'	0		CLAYey SILT, dry, friable Brown & red.
8'	0	4	grades more clay, and dense
↓			
12'	0		grades red, Brown and gray mottling @ 11'

end boring @ 12' - no water or PID hits

4/30/08

- 10.5' collect subsurface soil sample 74SB13-02 (35)
- 10.5' collect subsurface soil sample 74SB13-01 (79)

## 74SB13 LOG

Depth	PID	Res	Desc
0-0.5'	0		Fine, Gravel & silty clay, Brown
		4'	
0.5'	0		SILTY CLAY, med. soft, pliable, some plasticity, med-dark brown
	0		
6.5'	0	4'	CLAYey SILT, friable, dry, red & golden Brown dense.
↓			
12'	0	25'	grades more to silty clay dense, little plastic, red, gray Brown mottling

(end boring @ 12' - no water or PID hits)



4/30/08

## 74SB14 LOG

Depth

PID

Rec

Desc

0'

○

4'

CLAYey SILT, damp,  
little plant, med-dk Brown

3'

○

SILT, little clay & gravel  
dry, friable,

4'

5'

○

CLAYey SILT, med Brown,  
stiff, dense, friable,

6'

○

grades golden brown w/  
red mottling, more dense

4'

9'

○

SILT, little clay, friable  
dry, red, Br & grey - almost  
sparulitic appearance

12'

○

End Boring @ 12' w/ no water  
and no PID hits

4/30/08

10<sup>40</sup> Begin boring 74SB1411<sup>00</sup> collect soil sample 74SB14-02 (3-5')11<sup>10</sup> collect soil sample 74SB14-03 (5-7')11<sup>15</sup> Begin boring 74SB1511<sup>30</sup> collect soil sample 74SB15-02 (3-5')11<sup>40</sup> collect soil sample 74SB15-03 (5-7')Go do labeling of bottles & clean utilities  
near AST14<sup>10</sup> Begin boring 74SB1615<sup>00</sup> collect soil sample 74SB16-02 (3-5')15<sup>10</sup> collect soil sample 74SB16-04 (5-7')15<sup>15</sup> collect Duplicate soil sample 74SB16-04 D  
(PAH analysis also) \*15<sup>30</sup> Go back to label & pack samples - others  
will go back fill borings



4/30/08 745B15 LOG

Depth	PID	Rec.	Desc.
0'	0		Fill, gravel & sand, gray
		3.5	dry, poorly sorted
3'	0		
	0		SILTY CLAY, med brown, some plasticity, dense, damp
		4	
5'	0		CLAY, SILT, friable, dry, red, br. & gray mottling
		4	
9'	0		grades more red & friable, dry, saprolite-like

↓  
End boring @ 12' - no water  
or PID hits

4/30/08

745B16 LOG

Depth	PID	Rec.	Desc.
0'	0	4	CLAY, SILT, dk. Br, some plasticity.
			↓
4'	0		grades golden brown
		4	↓
5'	57cm		SILT, little clay, dry, friable brown & red
	27(6')		↓
8'	86cm	4	SILTY CLAY, some plasticity, tight, gray, red & brown mottling - odor

10' 15pp

12' 69pp

↓  
End Boring @ 12' - no water  
and did not vertically delineate  
fine carbon (per JWB)



5/1/08

## 745B28 LOG

Depth	PID	Rec	Description
0'			
	0	4'	Silty clay, med br. little plasticity, stiff, dense
2'	0		clayey, silty, dry, friable red & brown, & gray with.
		4'	
4.5'	23		
6'	56		
7'	182		
		4'	Grades more to silty clay, dense, stiff, dry, no plasticity, odor
8'	261		
9'	124		
10'	120		grades more clay at depth
11'	148		
12'	113 pm		

end Boring @ 12'

5/1/08

6<sup>00</sup> Leave hotel - go get codes, etc.7<sup>20</sup> on site7<sup>40</sup> Begin boring 745B288<sup>20</sup> collect soil sample 745B28-02 (3-5')8<sup>30</sup> collect soil sample 745B28-04 (7-9')8<sup>35</sup> mob onto and begin boring 745B299<sup>00</sup> collect soil sample 745B29-03 (5-7')9<sup>05</sup> collect soil sample 745B29-05 (9-10')9<sup>20</sup> mob onto and begin boring 745B30 (last  
one before draining ditch on clay tank side)9<sup>40</sup> collect soil sample 745B30-03 (6-7')9<sup>50</sup> collect soil sample 745B30-04 (8-9')10<sup>15</sup> mob onto and begin boring 745B3110<sup>20</sup> collect soil sample 745B31-02 (PAH also)  
(3-5')10<sup>50</sup> collect soil sample 745B31-03 (5-7')



5/1/08

## 745B29 LOG

Depth	PID	Rec	Description
0	0		CLAYEY SILT, dry, friable
1	0	4'	red, br, & gray mottling
2	0		↓
3	0		grades little more clay
4	0		w/ depth and some
6	4		plasticity
		4'	
7'	120'		
8'	60		
9'	169		
10'	120	4'	grades more to silty
11'	137		clay, same color as
12	55		above

end Boring @ 12' - no water  
encountered

5/1/08

## 745B30 LOG

Depth	PID	Rec	Description
0	0		SILTY clay, soft, plastic, buff br.
1	0		damp.
2	0		
3	0		
4	0	4'	- grades more dense, and
5	0		more clay w/ depth
6	65		- grades w/ red color
7	20		@ 6'
8	100	4'	soft, more plastic
9	68		zone 8-9,
10	167		same silty clay as
11	47		above, stiff &
12	15	4'	dense

end Boring @ 12' - no groundwater  
encountered.



# 5/1/08 74SB31 LOG

Depth	PID	Re	Description
0	0		Fill, Gravel and clay
1			damp, brown
2			
3		2.5'	3-3.5' clay & sand, wet, brown
4			CLAY, SILT, Dense,
5			Fracture, Brown & red, dry
6			cycles more clay (silty clay)
7			no plastic @ 5'
8		4'	
9			grades to red, brown & gray
10			nothing @ 9'
11			
12		4'	

Boring completed @ 12' - no groundwater encountered. NO fail after either.

10<sup>05</sup> while @. has backfill - having PID problems - go switch out of someone -

11<sup>00</sup> Begin boring 74SB32

11<sup>15</sup> collect soil sample 74SB32-02 (3-5')

11<sup>20</sup> collect soil sample 74SB32-03 (6-8')

11<sup>25</sup> collect duplicate soil sample 74SB32-03 D

11<sup>30</sup> Go label bottles while @. has cleanup, backfill & go to lunch

13<sup>00</sup> setup & begin boring 74SB33

13<sup>30</sup> collect soil sample 74SB33-01 (1-3')

14<sup>00</sup> collect soil sample 74SB33-02 (3-5')

14<sup>10</sup> collect surface soil sample 74SB34-00 MS/MSD sample also

14<sup>20</sup> Begin soil boring 74SB34



5/1/08 745B32 LOG

Depth	PID	Ree	Desc
0	0		Gravel, sand & clay, Dry Friable, loose

1

2

3

4

5

6

7

8

9

10

11

12

3'

CLAYEY SILT, med. stiff,  
little plast, red & brownSilty CLAY, med stiff,  
some plast, red, Br. & gray  
mottling

4'

4'  
End Boring @ 12' - NO water or fuel odor

745B33 LOG

5/1/08

Depth	PID	Ree	Description
0	0		

1

2

3

4

5

6

7

8

9

10

11

12

4'

4'

End Boring @ 12' - no groundwater  
Encountered or fuel odorCLAYEY SILT/  
SILTY CLAY, Red, Brown  
and gray mottling,  
soft, some plasticity,  
clump.



5/1/05

745B34 LOG

Clayey SILT, Stiff,  
little plasticity/fines  
dry, red & Brown

grades more clay

3' 0" depth

 $4' \quad 0 \quad 4'$ 

50

6'	0	Slty CLAY, some plasticity, med. st. fr.
7'	0	red & brown mottling

8'	0	4'
----	---	----

१'	०
----	---

10'	0
-----	---

11' 2

2'	0
----	---

2' 0 4 8  
Finish boring at 12' - no groundwater,  
encased

5 | 108

450 collect soil sample 745B34-01 (1.3')

1500 collected soil sample 74SB34-02 (3-B)  
(PAT analysis also)

Go back & label bottles while Dr. less  
back fill a great borings

3208 6' on site - get supplies  
745805 check with level in well  
w.d. = 6.1 bags (approx. 8' of water used)

720 Set up on boring 74 SB35 & begin drilling

750 collect soil sample 74SB35-01 (13')

800 collect soil sample 74SB35-03 (5-1)

820 mob onto and begin Boring 745B36

840 collect soil sample 745836-02 (3-5')

8<sup>45</sup> collect soil sample - 245836-05 (9-10')

890 confirm of Soc. D. center though I have water, don't  
 install a well - they'll decide later where  
 they want to install them



5/2/08

## 745B35 LOG

Depth	P12	Rac	Description
0	0		CLAYey SILT, med. stiff,
1	0		little plasticity, damp, red & Brown
2	0		
3	0		↓ grades more clay w/ depth
4	0	4'	↓
5	0		SILTY CLAY, some plasticity, med. stiff,
6	0		red, Brown & gray mottling
7	0		
8	0	4'	
9	0		
10	0		
11	0		
12	0	4	↓

End Boring @ 12' - no groundwater  
or fluid odor observed

## 745B36 LOG

5/2/08

Depth	P12	Rac	Description
0	0		CLAYey SILT, med. stiff.
1	0		little plasticity, damp, red & Brown
2	0		↓
3	0		↓
4	0	4'	Silty CLAY, some plasticity, med. stiff, red, Brown & gray mottling, damp
5	0		
6	0		grades more moist & plastic w/ depth
7	0		
8	0	4'	↓
9	0		
10	0		- Groundwater encountered (10-12')
11	0		very soft, stick, silty clay - no sand or distinctive water
12	0	4'	bearing zone observed

End Boring @ 12' (600 10-12')



5/2/08 745B37 LOG

Depth	PID	Rec.	Description
0	0		CLAYey SILT, Brown,
1	0		damp, friable, little plasticity
2	0		- grades to light Brown
3	0		- grades red, gray, Brown mottling & more friable
4	0	4'	↓
5	0		
6	0		↓
7	0		grades more dense & less friable
8	0	4'	grades back to friable
9	0		grades more dense & less friable
10	0		↓
11	0		
12	0	4'	↓

End Boring @ 12' - no GW or fuel odor

- 5/2/08
- 9<sup>00</sup> mob onto and begin boring 745B37
- 9<sup>20</sup> collect soil sample 745B37-01 (1-3')
- 9<sup>30</sup> collect soil sample 745B37-02 (3-5')
- 9<sup>35</sup> collect Duplicate soil sample 745B37-02 D (3-5')
- 9<sup>45</sup> mob onto and begin boring 745B38
- 10<sup>00</sup> collect soil sample 745B38-01 (1-3')
- 10<sup>05</sup> collect soil sample 745B38-02 (4-5')
- 10<sup>15</sup> mob onto and begin boring 745B39
- 10<sup>30</sup> collect soil sample 745B39-02 (3-5')
- 10<sup>40</sup> collect soil sample 745B39-04 (7-8')
- 10<sup>55</sup> mob onto and begin boring 745B40
- 11<sup>10</sup> collect soil sample 745B40-02 (3-5')
- 11<sup>20</sup> collect soil sample 745B40-04 (7-8')



5/2/08

## 745B38 LOG

Depth	PID	Rec	Description
0			CLAYey SILT, damp, little
1	0		plasticity, med. Brown

2	0		grades red & Bx. mottling and some fine
---	---	--	---

3	0		
---	---	--	--

4	0	4'	
---	---	----	--

5	0		grades gray, red, & brown mottling
---	---	--	------------------------------------

6	0		
---	---	--	--

7	0		
---	---	--	--

@ 6.5': grade little sand w/ the CLAYey SILT, poorly sorted

8	0	4'	
---	---	----	--

- sand grades out by 8'  
- grades more stiff and dense @ 8.5'

9	0		
---	---	--	--

10	0		
----	---	--	--

11	0		
----	---	--	--

12	0		
----	---	--	--

Boring completed at 12' - NO G.W. or fuel examined

## 745B39 LOG

5/2/08

Depth	PID	Rec	Description
0	0		CLAYey SILT, little
1	0		plasticity, damp, med. Brown

2	0		grades to red & brown mottling
---	---	--	--------------------------------

3	0		
---	---	--	--

4	0	4'	grades more dense w/ depth
---	---	----	----------------------------

5	0		
---	---	--	--

6	0		
---	---	--	--

7	0		
---	---	--	--

grades dk. red, brown, gray mottling

8	0	4'	
---	---	----	--

9	0		
---	---	--	--

grades a multi-colored mottling (brown, gray, bluish, tan) & more dense

10	0		
----	---	--	--

11	0		
----	---	--	--

12	0		
----	---	--	--

End Boring at 12' - no groundwater or fuel odor observed



5/2/68

## 74SB40 LOG

Depth	AD	Rec	Description
0'	0		
1'	0		Clayey Silt, dense, friable, dry red + brown mottling
2'	0		
3'	0		
4'	0	4'	
5'	0		Grades softer, less dense @ 5'; more plasticity
6'	0		
7'	0		
8'	0	4'	grades very soft @ 7.5' (8-9.2') Gravelly sand + clayey sand + silt, soft, golden brown
9'	0		@ 9.2': SILTY Clay, soft, med-high plasticity brown, gray + red mottling
10'	0		
11'	0		
12'	0	4'	grades more dense, less plastic

End Boring at 12'

5/2/68

1130 Drillers backfill borings and break for  
lunch while I go label bottles.

1300 Drills back set upon &amp; begin drilling 74SB41

1305 Starting to rain

1330 Collect soil sample 74SB41-02 (3-5')

1340 collect soil sample 74SB41-04 (7-9')

1345 Raining hard! - Go label bottles  
and try to wait at run to do  
another boring.1500 still raining hard! - send Drillers home  
go back & help out at machine today

1600 off site



5/4/08 74SB41 LOG

Depth	PID	Res	Description
0	0		CLAYEY SILT, ST. FF,
1			dense, damp, low plastic red & brown mottling
2	0		
3	0		grades red, brown & gray mottling
4	0	4'	
5	0		grades less stuff & softer & friable
6	0		a moist
7	0		
8	0	4'	very soft from 8-10'
9	0		possible water zone from 9.5-10' (very soft & moist)
10	0		@ 10' - SILTY CLAY, some plast, stiff, damp, red & brown mottling
11	0		
12	0	4'	

End Boring @ 12' - no fuel odor  
G-W - questionable

500 leave hotel for site

3/3/08

Kupoff/Groop meeting - methane bldg.

- Still doing 12' borings & no well even if I see gas at bottom.
- Do Oupes on borings ending in 1" & 6"
- Do SS & no/mud in borings ending in 1"
- collect all soil samples below 5' bps, but < 10' bps
- No mud SS - no/mud

7:40 on site

Drillers setup and begin boring 74SB42

8:05 collect soil sample 74SB42-03 (5-8')

8:10 collect soil sample 74SB42-04 (7-9')

8:25 Drillers setup and begin boring 74SB43

8:40 collect soil sample 74SB43-03 (5-8')

8:45 collect soil sample 74SB43-04 (7-9')

8:55 Drillers setup and begin boring 74SB44

9:15 collect soil sample 74SB44-04 (7-9')

9:20 collect soil sample 74SB44-05 (9-10')



5/3/08 745B42 LOG  
 Depth PID Rec Description  
 0' 0 CLAY SILT, red, Br.,  
 1' 0 & gray mottling, trace sand  
 fragments, damp

2' 0

3' 0

4' 0 3.7' grades more friable  
 w/ trace gravel

5' 0

6' 0

7' 0

8' 0

9' 0

10' 0

11' 0

12' 0

@ 7.5: more dense, less  
 friable, damp, little plast.  
 4' SILTY CLAY, some plast.  
 damp, stiff, red, Br., & gold  
 mottling,

4' End boring w/ no evidence of G.W. or  
 fuel odor

5/3/08 745B43 LOG  
 Depth PID Rec Description  
 0' 0 CLAY SILT, st. ff,  
 1' 0 damp, med. Brown  
 little plasticity.

2' 0

3' 0

4' 0

5' 0

6' 0

7' 0

8' 0

9' 0

10' 0

11' 0

12' 0

- CLAY SILT w/ Gravel (pre-  
 sized & smaller - poorly sorted)  
 damp, med. Br. mottling

4' SILTY CLAY, trace to little  
 gravel, damp, little plast,  
 stiff, red, Brown & gray  
 mottling.

4' End Boring re - no G.W. - fuel odor observed



5/3/08

## 74SB44 LOG

Depth	PID	Rec	Description
0	0		Gravel, sand, clay, Brown damp
1'	0		CLAYey SILT, tight, dense. dark Brown, little plast.
2'	0		
3'	0		
4'	0	4'	grades lighter, Brown @ 3.8' and more silt, less plasticity
5'	0		
6'	0		grades less silt, more plasticity
7'	0		
8'	0	4'	grades softer, more plast. damp
9'	0		CLAYey Gravel and Sand, poorly sorted, damp, friable
10'	0		
11'	0		CLAYey SILT, stiff, non-biode plast. light gray and odor nothing
12'	0	4'	End Boring at 12' w/ no G.W. or fuel odor observed.

5/3/08

930 Begin boring 74SB44 - refusal at 4' (concrete)  
move ~~20'~~ east

940 Mark K. cone operator relocates 74SB45

950 Begin soil boring 74SB45 - refusal again @  
5'

collect soil sample 74SB45 (new)  
955 Refusal (bedrock) @ 4-5'

(3 attempts total on 74SB45)  
- move onto 74SB46

1005 Bedrock refusal on 74SB46 @ 6' (rock)

1020 Begin soil boring 74SB47

1035 Refusal @ 7' - Bedrock (little G.W.  
at tip of refusal)

1055 Begin soil Boring 74SB48

1040 collect soil sample 74SB48-01 (1-3')

1045 collect soil sample 74SB48-01 D



5/3/58

## 745B46 LOG

Depth	PID	Rec	Description
0'	0		Top soil, sticky clay, silt, moist
1'	0		CLAYEY SAND GRAVEL
2'	0		↓
3'	0	2.5	grades with 3'
4'	0		↓
5'	0		CLAYEY SILT, w/ gravel, gray, moist
6'	0		Refusal @ 6' - Bedrock
7'			
8'			
9'			
10'			
11'			
12'			

5/3/58

## 745B47 LOG

Depth	PID	Rec	Description
0	0		Top soil
1	0		Gravelly Sand, light gray & brown, damp
2	0		↓
3	0	3.8'	
4	0		↓
5	0		Grades to weathered Bedrock gravel & sand
6	0	2'	light brown - primarily rock - no soil to sample
7	0		Refusal @ 7' - moist to wet at refusal
8			
9			
10			
11			
12			



5/3/08	745B48	LOG
Depth	PLD	Res Description
0	0	
1		Gravelly Sand, little
2	0	Clay, grain poorly sorted, moist
3	0	3'
4	0	- becomes wet gravelly sand, 0.3-4'
5	0	
6	0	CLAYEY SILT, Brown, damp (conf. layer)
7	0	Gravelly Sand, g. poorly sorted
8	0	4'
9		Boring completed @ 8' (Below water)
10		
11		
12		

5/3/08
1100 Begin boring 745B49
1110 collect soil sample 745B49-04 (7-9')
1115 collect soil sample 745B49-05 ( <del>8-9'</del> 9-11' <sup>OK</sup> )
1130 mob onto and Begin boring 745B50
1140 collect soil sample 745B50-03 (5-7')
1150 collect soil sample 745B50-04 (7-9')
1200 collect surface soil sample 745B51-00 (0-1')
1200 collect " " " 745B51-00 (mo/mo)
1210 collect Duplicate soil sample 745B51-00D
1200-1300 Drillers take lunch - handling supplies afterward
1315 Begin soil boring 745B51
1330 collect soil sample 745B51-03 ( <del>5-7'</del> <sup>OK</sup> )
collect soil sample 745B51.
Do not collect second sample - too shallow for water



5/3/08

## 745B49 LOG

Depth	P.O.	Rec	Description
0	0		SILTY CLAY, med.
1	0		stiff, med plast., damp tight
2	0		CLAYEY SILT, friable, dry, red, br, a gray mottling
3	0		GRACILLY SILT, poor sorted, loose, red & br
4	0	4'	CLAYEY SILT, friable red & brown, dry, stiff
5	0		
6	0		grades red, brown & gray mottling
7	0		SILTY CLAY, light, stiff some plast. red, br & gray
8	0	4'	mottling, dry
9	0		
10	0		
11	0		
12	0	4'	

End Boring at 12' - NO GW or foul odor

## 745B50 LOG

5/3/08

Depth	P.O.	Rec	Description
0	0		CLAYEY SAND & GRAVEL, damp
1	0		med. brown, little plasticity
2	0		1.5" CLAYEY SILT, friable, red & brown, stiff, dry, little gravel (< 1/8" size)
3	0		
4	0	4'	
5	0		Grades Golden Brown and no more gravel, stiff, some plasticity
6	0		
7	0		
8	0	4'	SILTY CLAY, stiff, some plasticity, damp, red, br, & gray mottling
9	0		
10	0		
11	0		
12	0	4'	

End Boring at 12' - NO GW or foul odor



5/3/08

## 74SB51 LOG

Depth	PID	Rec.	Description
0	0		CLAYEY SILT, Brown
1	0		dry, friable

2 0

3 0 3.5' Gray gravel (fill) - dry  
3.4'4 0 0.35' clayey silt, Br.  
sticky, moist

5 0

6 0 Gradly clay & sand,  
wet, loose @ 6'7 0 SILTY CLAY, dk gray  
3.0' & black, soft, moist,  
plastic

8 0

9 End Boring @ 8' due to gw  
encountered @ 6'

10

11

12

13<sup>45</sup> Begin boring 74SB52 - ~~03~~ <sup>04</sup> (5-7) 5/3/0814<sup>05</sup> collect soil sample 74SB52-04 (7-9) one14<sup>00</sup> collect soil sample 74SB52-03 (5-7)14<sup>10</sup> Begin boring 74SB5314<sup>15</sup> collect soil sample 74SB53-04 (7-9)14<sup>20</sup> collect soil sample 74SB53-05 (9-11)14<sup>25</sup> Begin boring 74SB5414<sup>35</sup> collect soil sample 74SB54-03 (5-7)14<sup>40</sup> collect soil sample 74SB54-04 (7-9)14<sup>45</sup> Begin boring 74SB5514<sup>50</sup> collect soil sample 74SB55-02 (3-5)14<sup>55</sup> collect soil sample 74SB55-03 (5-7)  
60 pick samples & do labels return bags



5/3/08

## 74SB52 LOG

Depth	PID	Rec.	Description
0	0		CLAYEY SILT w/ SAND,
1	0		little plant, soft, med.
2	0		Brown, med. density
3	0		
4	0	3.5"	Soil grades out to
5	0		just a <del>CLAYEY SILT</del>
6	0		Silty CLAY, med Brown
7	0		soft
8	0		clay gets very soft,
9	0	4'	moist to wet (G.W.) @ 7.5'
10	0		cons: SILTY CLAY, stiff, plate
11	0		red, gray & Brown mottling
12	0	4'	loose

End Boring @ 12'

5/3/08

## 71SB53 LOG

Depth	PID	Rec.	Description
0	0		CLAYEY SILT, med Br.
1	0		soft
2	0		
3	0		
4	0	4'	
5	0		
6	0		grades more red
7	0		& friable
8	0	4'	
9	0		
10	0		
11	0		
12	0	4'	

End Boring @ 12'



5/3/08

## 74SB54 LOG

Depth

PID

Rec

Description

0	0		
1	0		Clayey SILT, stiff dk. brown, damp
2	0		
3	0		✓
4	0	4'	grades golden Brown
5	0		0.5' grades Br & Black color, (small sand & gravel is black)
6	0		damp, friable, damp
7	0		grades more black w/
8	0	4'	depth
9	0		<b>DES</b> CLAY SILT, Brown & red, friable, slight plastic damp
10	0		
11	0		
12	0	4'	End Boring @ 12'

## 74SB55 LOG 5/3/08

Depth

PID

Rec

Description

0	0		
1			Clay silt, dry, friable brown, stiff, med. dense
2	0		
3	0		grades more plastic & soft
4	0	4'	grades of small gravel (trace) @ 4.5'
5	0		
6	0		
7	0		soft, water @ 7' (GW)
8	0	4'	End Boring @ 8'
9			
10			
11			
12			



5/3/08

145) Begin boring 745B56

1500 collect soil sample 745B56-03 (5-7')

1505 collect soil sample 745B56-04 (7-9')

1510 Begin Boring 745B57

1530 collect soil sample SB57-03 (5-7')

1540 collect soil sample SB57-04 (7-9')

end drilling for day - Drillers go  
great yesterday (rain day) & today's  
boring

I'll go start labels.

OK

\* Brief post field meeting: I'm to keep doing same  
12' borings. If I hit fuel & gw - then I'm  
to make a well, otherwise not

5/3/08 745B56 LOG

Depth	PID	Rec	Description
0			Clayey Silt, dry, friable,
1	0		some small sand & gravel
2	0		
3	0		3.5' softer & plastic @ 3'
			to a SILTY CLAY,
4	0		dk brown, plastic, trace
			small gravel, damp
5	0		
6	0		grades to little to some
			small gravel (see small)
7	0		@ 6', also, light brown &
			red
8	0	4'	
9	0		- CLAYEY SILT, <del>red</del>
			Brown
10	0		- SILTY CLAY, stiff.
			red, gray & brown
11	0		plastic
12	0	4'	↓

End Boring @ 12'



5/3/08 74SB57 LOG

Depth	PID	ex	Description
0	0		CLAY SILT, med. br.
1	0		little gravel
2	0		SILTY CLAY, med. stiff, <del>so</del> med plasticity.
3	0		3-3.5' - soft, more plastic (water?)
4	0	4'	4-4.5' - also softer (water?)
5	0		same silty clay as above (stiff)
6	0		
7	0		
8	0	4'	8-9' : soft zone (water?)
9	0		same dense, little plastic
10	0		Silty clay as above - 8'
11	0		
12'	0	4'	End boring @ 12' - possible GW @ 9'

5/4/08

630 on site - load supplies for day  
 700 call Abraham (lead driller) to tell my father (William) to come to Public Works Bldg - He did  
 730 call Abraham back - said William is on his way should be here in a hour.  
 - Mark K. is starting my next drilling locations on site (starting w/ boring 74SB63)  
 730 William (father) arrives - move over to site  
 - Mark finally up surveying in - find line.

755 Drillers setup on 4 begin boring 74SB63

810 call Joe: confirm not to stop when I hit sand-water producing zone @ 3'. He said that's just perched, and don't count that as where to stop boring.

820 collect soil sample 74SB63-03 (5-7')

835 collect soil sample 74SB63-04 (7-9')

840 Setup on 4 begin boring 74SB64

850 increase stick down boring - full of soil.

940 collect soil sample 74SB64-03 (5-7')

945 collect soil sample 74SB64-04 (7-9')

955 Abraham comes over to give him new sample

962 Resume drilling (restart boring)



5/4/08 74SB63 LOG

Depth	PID	Res	Description
0'	0		CLAY SILT dry, friable,
1'	0		little sand
2'	0		
3'	0		- SAND, fine gravel, wet
4'	0	3.5'	red brown
5'	0		- CLAY SAND to silt
6'	0		St. f., med. brown
7'	0		- grades more CLAY depth
8'	0	4'	- CLAY SILT, med. &
9'	0		golden brown, damp, fairly
10'	0		dense, tight
11'	0		- SAND, wet, small gravel,
12'	0		well sorted
			CLAY SILT, med. f. &
			golden brown, dry, tight &
			dense
		4'	End Boring at 12' - no fuel odor
			GW encountered

5/4/08 74SB64 LOG

Depth	PID	Res	Description
0			Topsoil (0-6")
1	0		(?) FILL, Gravel, Sand &
2	0		clay, poorly sorted, dry
3	0	3'	loose, gray brown
4	0		grades damp and
5	0		little med. clay SAND
6	0		GRAVELLY SILT, grades < pre-
7	0		sized, poorly sorted, trace clay
8	0	4'	light dk brown, loose
9	0		grades to little clay from trace
10	0		and color to green, white & gray.
11	0		damp.
12	0		grades back to Brown,
			End Boring at 10' - no obvious GW
			or fuel odor



5/4/08

## 74SB65 LOG

Depth	R.O	Rec	Desc.
0	0		Top soil - (0-6")
1	0		FILL: Gravelly SAND, poorly sorted, dry, loose, gray & Brown
2	0		
3	0		grades surface to little clay and Brown
4	0	3.5	
5	0		← SAND, fine grained, well sorted, dry, light to golden Brown
6	0		
7	0	3.5	
8	0		
9	0		
10	0	2	
11			End Boring 10' - temp to push probe No obvious GW or fuel odor
12			

5/4/08

9:55 mob onto &amp; Begin Drilling 74SB65

10:10 collect soil sample 74SB65-03 (5-7')

10:15 collect soil sample 74SB65-04 (7-9')

10:25 Begin Drilling 74SB66

10:30 liner joined

10:50 collect soil sample 74SB66-03 (5-7')

10:55 collect soil sample 74SB66-04 (7-9')

11:00 collect duplicate soil sample 74SB66-04D (7-9')

11:15 Begin Drilling 74SB67

11:35 collect soil sample 74SB67-03 (5-7')

11:40 collect soil sample 74SB67-04 (7-9')

11:45 Begin Drilling 74SB68

12:00 collect soil sample 74SB68-03 (5-7')

12:10 collect soil sample 74SB68-04 (7-9')

12:00 Drillers go to lunch

- 11 collect samples &amp; push samples - do labels

\* 12:30 confirm w/ Mark K. to keep Boring surface soils, just not  
days or hrs/weeks on & down



5/4/08

## 74SB66 LOG

Depth	PID	Rec	Description Top soil (0-6")
0	0		
1'	0	6"	CLAYEY SILT, dense, dry, red & brown.
2'	0		GRAVELLY SILT & SAND, poor w/ little clay, gravel - pea sized, grey & white
3'	0	3.2'	CLAYEY SILT, dense friable, clay - damp. golden brown
4'	0		grades
5'	0	3.4'	GRAVELLY SAND & SILT, little clay, poor w/ gravel, damp, brown & tan
6'	0		
7'	0		
8'	0	4	grades to some clay
9'	0		
10'	0		
11'	0		
12'	0	4	

End boring @ 12' - no obvious G.W.

## 74SB67 LOG

5/4/08

Depth	PID	Rec	Description Top soil (0-6")
0	0		
1	0		CLAYEY SILT, trace sand, dense, red brown, damp
2	0		grades w/ red brown @ 1' grades less stiff, like plastic @ 2'
3	0		
4	0	4	Softer from 4 - 4.5'
5	0		
6	0		softer 6 - 6.5'
7	0		grades light gray, black & brown mottling @ 6.5'
8	0	4	SILTY CLAY, soft, moist, some plasticity, trace small gravel, brown
9	0		
10	0		CLAYEY SILT, dense, stiff, dry, light brown dk. & mottling
11	0		
12	0	4	end boring at 12' - no obvious G.W.



5/4/08

## 745B68 LOG

Depth	PID	Rec	Description
0	0		- CLAYEY SILT w/ little to
1	0		some gravel, poorly sorted,
			dry, dense, stiff, red brown

2 0

3 0

- gravel grades out &  
grades golden brown

4 0

4'

SILTY CLAY, some  
plast, damp, golden  
brown

5 0

6 0

more plastic, softer w/  
black & gray mottling

7 0

CLAYEY SILT, stiff,  
little plast, damp

8 0

35'

8.5-9.5' CLAY, sandy SILT, wet,  
soft plastic (GW) brown

9 0

9.5' CLAYEY SILT, stiff, dry  
dense, gold, light brown  
mottling

10 0

11 0

12 0

End Boring at 12' - GW = 8.5-9.5'  
no fuel odor

## 745B69 LOG

5/4/08

Depth	PID	Rec	Description
0	0		- CLAYEY SILT, stiff, dry, brown
1	0		- Gravelly Sand, dry, loose (fill?)

2

0

3

0

3'

28' CLAY, little silt, high plasticity  
dk brown, damp, med. dense to  
sft w/ red mottling

4

0

5

0

6

0

7

0

grades some gray mottling w/ red &  
brown

8

0

4'

9

-

10

-

11

-

grades

11.5' moist, stick (FW?)

12

0

End Boring at 12' - no obvious gw or  
fuel odor



5/4/08 74SB70 LOG

Depth	PID	Rec	Description
0	0		Top soil (0-6")
1	0		CLAYEY SILT, trace gravel, stiff, red
2	0		brown, damp
3	0		red grades out
4	0	4'	SILTY CLAY, soft, some plasticity, damp
5	0		
6	0		grades dark brown to 7'
7	0		grades st. to 7'
8	0	4'	8-8.5" wet. silty clay, sticky, soft, can
9	0	8.5'	SILTY CLAY, stiff, some plasticity, dense
10	0		damp, red brown mottling
11	0		
12	0		

End Boring @ 12', no encounter  
for 8-8.5'

5/4/08

- 1330 Drillers back from lunch  
1335 Begin Boring 74SB69  
1345 collect soil sample 74SB69-03 (5-7')  
1350 collect soil sample 74SB69-04 (7-9')  
1400 Begin drilling boring 74SB70  
1415 collect soil sample 74SB70-03 (5-7')  
1420 collect soil sample 74SB70-04 (7-9')

Stop drilling for day per Mark - drillers  
will go start borings while I  
go do labels on bottles

OK



# 5/5/08 74SB71 LOG

Depth	P.L.D.	Res.	Desc.
0	0		Topsoil (0-6") & Gravel
1	0		CLAY, trace large gravel. Soft, very plastic, moist.
2	0		dk. Brown.
3	0	1.80	
4	0		Grades grades out
5	0		grades less soft, still some plasticity, damp, and med.
6	0		Brown color
7	0		
8	0	4'	2.5' soft, no visible water
9	0		Grades to gold, green, brown, and gray mottling
10	0		
11	0		CLAY SILT & SAND, little gravel, damp, gold, br, & gray mottling
12	0		

End Boring: No obvious GW or fuel odor observed.

8/5/08

630 on site - load coolers & supplies and  
hob over to SB71 - awaiting Dinkers

712 Dinkers arrive

720 collect surface soil sample 74SB71-00

725 Begin boring 74SB71

730 collect soil sample 74SB71-03 (5-7')  
735 collect soil sample 74SB71-04 (7-9')  
740 collect overburden soil sample 74SB71-04.D

(collect MS/ABD also) of 03 (4-6')

815 Begin soil boring 74SB72

825 collect soil sample 74SB72-03 (5-7')

830 collect soil sample 74SB72-04 (7-9')

845 Begin soil boring 74SB73

900 collect soil sample 74SB73-03 (5-7')

905 collect soil sample 74SB73-04 (7-9')



5/5/08 74SB72 LOG

Depth	PID	Rec	Description
0	0		Topsoil & gravel from (0-6')
1	0		CLAYEY SILT, STIFF, little to no plast, dense, damp.
2	0		med. Brown

2.5'

3

4

5

6

7

8

9

10

11

12

0.4' grades golden Brown  
SILTY CLAY, med stiff,  
damp, some plast.

0.9' CLAYEY SILT, soft,  
little sand. Br & dk Br.  
mottling, little plast.

2.5' SILTY CLAY, soft, med.  
plast, damp, gold, grey &  
Brown mottling

4'

End Boring @ 12' - No obvious GW or  
fuel odor

74SB73 LOG

5/5/08

Depth	PID	Rec	Description
0	0		Top soil (0-6')
1	0		CLAYEY SILT, light Brown & tan, soft, no plasticity
2	0		grades <sup>little to</sup> <del>more</del> plasticity and med. Br. color

3

4

5

6

7

8

9

10

11

12

1.5' becomes more dense  
and more silt in clay matrix

grades more silt and  
fine sand, dense, well  
sorted, light & dk Brown

grades less silt, still  
little to no plast, damp.  
med. dense

End Boring at 12' - no obvious GW or  
fuel odor



5/5/08

## 74SB74 LOG

Depth	PID	Rec	Desc.
0'	0		0-3" Top soil
1'	0		SILT, trace small gravel, dry, well sorted, light to med brown
2'	0		
3'	0		
4'	0	4'	13.5 grades little clay, dense, stiff, dry, friable
5'	0		
6'	0		
7'	0	3'	grades trace small (L pea sized) gravel, still dry friable & dense
8'	0		
9'	0		
10'	0	3'	
11'			End Boring 10' - very hard sift - crimped liner
12'			

No evidence of water or fuel odor in any.

5/5/08

## 913 Begin Boring 74SB74

- 935 collect soil sample 74SB74-03 (5-7')  
 940 collect soil sample 74SB74-04 (2-9')

## 955 Begin Boring 74SB75

- 10<sup>20</sup> collect soil sample 74SB75-03 (5-7')  
 10<sup>25</sup> collect soil sample 74SB75-04 (7-9')

10<sup>38</sup> Begin soil boring 74SB76

- 10<sup>55</sup> collect soil sample 74SB76-03  
 11<sup>00</sup> collect duplicate soil sample 74SB76-03 D  
 11<sup>05</sup> collect soil sample 74SB76-04

11<sup>15</sup> Begin drilling soil boring 74SB77

- 11<sup>30</sup> collect soil sample 74SB77-03 (5-7')  
 11<sup>40</sup> collect soil sample 74SB77-04 (7-9')

Dollars put cutting down hole & back  
 for lunch - I.H. go dry samples &  
 begin labeling.



5/5/08 745B75 LOG

Depth	PID	Rec	Description
0	0		Top Soil (0-6")
1	0		CLAYY SILT, s.s. & brn
2	0		0.5 SAND SILT, dry loose, gray Brn, dry
3	0		
4	0	4'	
5	0		SILTY SAND, small gravel, dry, loose, Br. & gray
6	0		
7	0		2' Grades little to some gravel (poorly sorted) below 7'; dry
8	0	3'	8' grades med. to golden Brown
9	0		
10	0	3	End Boring at 10' - dense silt no evidence of GW or fuel odor

~~11~~~~12~~

745B76 LOG

5/5/08

Depth	PID	Rec	Description
0	0		Top Soil (0-6")
1'	0		CLAYY SILT & Gravel, damp, brown,
2'	0		CLAYY SILT & SAND, little gravel (2 per. med) damp, friable, gray & Brown
3'	0		
4'	0	4'	↓
5'	0		SILT, golden Brown, dry, well sorted
6'	0		CLAYY SILT & SAND, little gravel (2 per. med) damp, friable, Dense, light & dk. gray
7'	0		
8'	0	4'	
9'	0		
10'	0		
11'	0		
12'	0	4'	↓

End Boring at 12' - no evidence of GW or fuel odor



5/5/08

## 745B77 LOG

Depth	PID	Rec.	Description
0	0		Top soil (0.5')
1	0		CLAY SILT & GRAVEL (fine) gray & Brown, Dry, loose.

2 0

3 0

4 0

5 0

6 0

7 0

8 0

9 0

10 0

11 0

12 0

0.38: (CLAY SILT, med. dense to  
soft, little plasticity, damp  
Brown

2.5-5' - very dense

more soft &amp; plastic Q.S.

grades less clay & more  
silt (golden Brown) from 9-11'

CLAY SILT, dense, stiff,  
little plasticity, damp, dk gray

and light gray

End Boring @ 12' - No evidence of GW  
or fuel odor

## 745B78 LOG

5/5/08

Depth	PID	Rec.	Description
0	0		GRAVEL & SAND (FILL)
1	0		Gray & Brown, Dry, loose, poorly sorted

2 0

3 0

4 0

5 0

6

7

8

9

10

11

12

2.5'

1'

Refused @ 5'  
no GW or fuel odor observed



5/5/08

745B79 LOG

Depth	P.O.	Rec.	Desc.
0'			Fill: clayey Gravel & sands, dry, loose, poorly sorted, gray & brown
1'	0		
2'	0		↓
3'	0		CLAYEY SILT, dense, dry-damp, light & golden brown
4'	0	4'	CLAY: med stiff, dense, high plasticity, black to dk green.
5'	0		↓
6'	0		
7'	0		2.5' grades little to some silt in the clay
8'	0	4'	ss CLAYEY SILT, soft, little plasticity, gold, brown & green, damp
9'	0		
10'	0		↓
11'	0		
12'	0	4	

End Boring @ 12' w/ no GW or fuel observed

5/5/08

13<sup>00</sup> Drillers back from lunch13<sup>00</sup> Begin Drilling 745B78 boring

13<sup>05</sup> collect soil sample 745B78-2  
 (collect soil sample 745B78-1)

13<sup>25</sup> Refused @ 5' on 745B78 - cell fill cell mark. he said to just move on instead of retesting

13<sup>32</sup> mob onto and begin boring 745B7913<sup>50</sup> collect soil sample 745B79-03 (5.7')13<sup>55</sup> collect soil sample 745B79-04 (7.9')14<sup>05</sup> mob onto and begin Boring 745B8014<sup>20</sup> collect soil sample 745B80-03 (5.7')14<sup>25</sup> collect soil sample 745B80-04 (7.9')14<sup>30</sup> Begin boring 745B8114<sup>40</sup> collect surface soil sample 745B81-0014<sup>45</sup> collect soil sample 745B81-03 (5.7')14<sup>50</sup> collect soil sample 745B81-04 (7.9')15<sup>10</sup> collect duplicate soil sample 745B81-04 (1)



# 5/5/08 745B80 LOG

Depth	P.M.	Des.
0	0	
1	0	FILL: Gravel sand & clay, gray Brown, dry, poorly sorted.
2	0	
3	0	CLAYEY SILT, med Brown, soft, damp, little to trace gravel.
4	0	Sand.
5	0	↓
6	0	
7	0	7-7.5 Gravelly Sand, loose, dry, black
8	0	7.5-8.5 CLAY, soft, plastic, damp to moist.
9	0	↓
10	0	- grades med Brown & very soft 10-11"
11	0	- CLAYEY SILT, w/ little gravel (small) stiff, damp.
12	0	4

End Boring @ 12' - no GW observed  
or fuel odor.

# 745B81 LOG 5/5/08

Depth	P.M.	Des.
0	0	
1	0	FILL: gravel, silt, and sand, loose, poorly sorted gray.
2	0	↓
3	0	3' - CLAYEY SILT, little to some sand & gravel, soft, damp, Brown, little plastic.
4	0	↓
5	0	
6	0	↓
7	0	Grades to CLAYEY SAND, w/ gravel black, damp.
8	0	3' (GW @ 8') SAND & GRAVEL, wet, loose, Brown, poorly sorted
9	0	
10	0	(10-10.5) CLAYEY SAND & GRAVEL, no plastic, black, damp
11	0	
12	0	3' P.M. CLAY, black, soft, plastic ↓

Boring completed at 12'. GW hit @ 8', no  
fuel odor observed.



5/6/08 745B82 LOG

Depth	PID	Rec	Description
0'	0		FILL: Gravel, silt, &
1'	0		clay, damp, gray & Brown
2'	0		↓
3'	0	35'	SAND, gold-br, fine-gr. well sorted
4'	0		
5'	0		↓
6'	0		CLAYey GRAVEL & SAND, moist, Brown & gray, gravel per spec.
7'	0		
8'	0	2'	Wet (4 to 10") CLAYey SILT & Fine sand, gray (GWI)
9'	0		
10'	0		CLAY, soft, plastic, dk gray to black, organic odor
11'	0		
12'	0	4'	↓

Boring completed at 12' - GW encountered, but no fuel odor exhibited

5/6/08

- 6:20 on site - land supplies
- \* Kick off meeting of meeting: 126 bottles for 3 borings
- collect 1 MS/MSD on each of my first 3 borings today (82, 83, 84)
  - collect 1 duplicate on my first boring today (82)
  - pick up normal QA/QC after that (Dip 086, etc)
- 
- 7:00 on site @ 745B82 - awaiting Driller
- 7:25 Driller on site
- 7:30 Begin soil Boring 745B82
- 7:50 collect soil sample 745B82-03 (5")
- (MS/MSD Location)
- 8:00 collect soil sample 745B82-04 (7-8")
- 8:05 collect Duplicate soil sample 745B82-04D (7-8")
- 8:20 mob onto & Begin boring 745B83
- 8:30 collect Soil Sample 745B83-02 (3-5")
- (MS/MSD Location)
- collect soil sample 745B83 - 6" interval sample
- 8:50
- \* Speak w/ site to confirm only considered GW if hit
- \* in 2nd core (4-8") if so, just collect 1 soil sample (802 - 3-5' interval) above it.



5/6/08

## 745B84 LOG

<u>Date</u>	<u>PID</u>	<u>Re</u>	<u>Description</u>
0'	0		0-6" Top soil - dirt
1'	0		Fill: Gravelly Silty Clay, med brown, damp
2'	0		↓
3'	0	3	[3-3.5'] SAND, Brown, dry, well sorted
4'	0		[3.5'] CLAYEY SILT: moist, soft, little gravelly, some plasticity
5'	0		
6'	0		
7'	0	3.0'	gravelly dk. gray to Black @ 7.5'
8'			End Boring @ 7.5' - refusal (rock)
9'			
10'			
11'			
12'			

5/6/08

9:05 my 8 rollers leave to go move some

Drums w/ bobcat

Joe told me to go help Robert  
at his drilling location until they arrive back.

- Help Robert w/ geology &amp; well const. specs.

9:30 Hard Rain

10:00 Rain done

11:15 Walker's boss called. Finished w/ Robert - they're  
taking quick lunch and will meet me back at  
boring SB83.

2:30 Drills back on site

12:35 Begin boring 745B84

1:30 collect soil sample 745B84-03 (5-7')

[collect MS/MSD sample also]

1:30-1:50 - Hard Rain

1:30 Begin Boring 745B85

1:50 collect soil sample 745B85-03 (5-7')

1:40 collect soil sample 745B85-04 (7-9')



# 5/6/08 745B83 LOG

Depth	PID	Rec.	Desc.
0'	0		FILL: Gravel, subclay,
1'	0		lax, dry, gray & brown

2'

3'

3'

[23.5] CLAY SAND, damp, moist, little gravel

5'

[45.5] SAND, little to some gravel, WET, brown

6'

[25.5] CLAY SAND, damp, little gravel, brown

7'

4'

[26] CLAY, very plastic, soft dk gray, damp - grades red/brown 7'

8'

End Boring at 8' - GW hit (45.55)

10'

11'

12'

# 745B85 LOG 5/6/08

Depth	PID	Rec.	Desc.
0'	0		Top soil (0-6")
1'	0		FILL: Gravel, Sand, & SILT dry, Lb to dk. Brown, fairly soft
2'	0		
3'	0	3'	[34] CLAY SILT, soft damp, little plast, little gravel, red brown
4'	0		
5'	0		
6'	0		CLAY SAND, damp-moist, little plast, soft, trace gravel
7'	0		
8'	0	2'	[27.8] CLAY, soft, plastic, golden brown
9'	0		[28.2]
10'	0		
11'	0		[100] Grades Black w/ organic odor, stiff soft & plastic
12'	0	4'	End Boring at 12' w/ no visible GW or Fuel odor

End Boring at 12' w/ no visible GW or Fuel odor



5/6/08 745B86 LOG

Depth	PID	Rec	Desc.
0'	0		Top Soil (0-6")
1'	0		Fine Gravel, Clay, & Sand, Black & Gray
2'	0		↓
3'	0		CLAYey SILT, soft, little gravel, clump,
4'	0	3'	Lt. Brown.
5'	0		
6'	0		gals. most 6-5
7'	0		0.9-7.4' GRAVELLY SAND, wet, NO odor.
8'	52	32	SAND & SILT, w/ clay, loose, Black, fuel odor
9'	0		clump
10'	0		?
11'	0		CLAY, soft, moist, plastic, sticky, organic odor
12'	0	1.5'	

End Boring @ 12' w/ fuel odor and  
GW encountered.

5/6/08

1400 Begin boring 745B86

1425 collect soil sample 745B86-03 (5-7')

1430 collect " " 745B86-03D (5-7')

\* (see Joe = he said even though fuel odor is below  
water, go ahead & collect sample  
since it has fuel odor

1450 Driller feels he macrocone stuck in hole  
again (8-12') - trying to get out

1440 collect soil sample 745B86-04 (7-9')  
for STD List + PAKS

1440 Driller will try taking a discrete sample from 8-12'  
by using reamer (for well installation) to 8', then lower  
macrocone into hole and sample from 8-12'

1500 Driller retrieves 8-12' sample

pick up samples - go to lab's while  
drillers go back fill borings



5/7/08

## MSB87 LOG

Depth	PID	Re	Description
0'	0		Fill: gravel sub clay, dry
1'	0		loose, porous, silty, brown
2'	0		CLAYEY SILT, trace to little gravel, no plast, damp, yellowish brown
3'	0		
4'	0	4'	
5'	0		CLAY grades to more clay, w/ some plast., damp-moist
6'	0		- CLAY, w/ little gravel, soft, plastic, moist, dk. br.
7'	0		9' gravel
8'	0	4'	- Layer SILT, trace gravel, soft, little plast, yellow Br.
9'	0		
10'	0		SILT/CLAY, soft, plastic, moist, organic odor
11'	0		
12'	0	4'	

End Boring at 12' w/ no obvious GW or fuel odor

5/7/08

6<sup>00</sup> onsite - load supplies & move out to SB877<sup>00</sup> Drills arrive7<sup>15</sup> Begin drilling MSB87 soil Boring7<sup>30</sup> collect soil sample 74SB87-03 (5-7')7<sup>35</sup> collect soil sample 74SB87-04 (7-9')7<sup>50</sup> Begin soil boring 74SB888<sup>10</sup> collect soil sample 74SB88-03 (5-7')

(no second sample due to shallow GW @ 7')

8<sup>20</sup> Begin soil boring 74SB898<sup>35</sup> collect soil sample 74SB89-03 (5-7')

(no second sample due to shallow GW @ 7')

8<sup>45</sup> Begin soil boring 74SB909<sup>00</sup> collect soil sample 74SB90-02 (5-5')no second sample - ~~Refusal~~ Refusal @ 6', a GW @ 5.5'



5/7/08

## 745B88 LOG

Depth	PID	Rec	Desc.
0	0		FILL: Gravel, sand, silt
1	0		clay, loose, poorly sorted, brown
2	0		↓
3	0		↓
4	0	3.8'	CLAY/SILT, little gravel, damp, little plastic, soft, red. to golden Brown
5	0		↓
6	0		↓
7	0		Becomes wet @ 7'-7.5'
8	0	2.8'	CLAY/SILT, little sand, damp, Brown
9			End Boring at 8' due to encountered GW
10			
11			
12			

## 745B89 LOG

5/7/08

Depth	PID	Rec	Desc.
0	0		FILL: Gravel, sand, silt
1	0		FILL: GRAYL, CLAY, sand, damp, brown
2	0		↓
3	0		↓
4	0	4'	CLAY/SILT, little gravel, damp, little plastic, red. brown
5	0		↓
6	0		↓
7	0	2.8'	7'-7.3' Gravelly SAND, wet, Brown
8	0	0.7.3'	CLAY, little gravel, damp, plastic. 0.7.4' - grades Black, organic odor
9			End Boring @ 8' due to GW encountered at 8.7' bgs
10			
11			no fuel odor exhibited in boring
12			



5/7/08 74SB90 LOG

Depth	PID	DESC
0'	0	FILL: CLAYEY SILT
1'	0	w/ Gravel, damp, poorly sorted gravel, Brown
2'	0	
3'	0	↓
3.5'	0	CLAY, trace to little gravel, soft, plastic, dk. Brown
4'	0	
5'	0	5.3'-5.7' GRAVELLY SAND, WET, gray, poorly sorted gravel
6'	0	2.8' 5.7' CLAYEY SAND, little gravel, soft, plastic, dk. gray
7'	0	End Boring @ 6' - refusal
8'	0	
9'	0	
10'	0	
11'	0	
12'	0	

9:15 collect surface soil sample 74SB91-00

9:18 Begin soil Boring 74SB91

9:30 collect soil sample 74SB91-03 (5-7')  
 9:35 collect duplicate soil sample 74SB91-03  
 collect ms/msd sample also

10:10 Begin soil boring 74SB92  
 refusal @ 2' - move 6' forward, parallel to road

10:30 collect soil sample 74SB92-03 (5-7')  
 10:40 collect soil sample 74SB92-04 (7-9')

10:55 Begin soil boring 74SB93

11:10 collect soil sample 74SB93-03 (5-7')  
 11:20 collect soil sample 74SB93-04 (7-9')

11:30 Begin soil boring 74SB94

11:50 collect soil sample 74SB94-03 (5-7')

12:00 collect soil sample 74SB94-04 (7-9')

12:30 Go Back & sort, we, & finish labeling bottles

1 cord



5/7/08 74SB91 LOG

Depth	PID	Rec	Description
0	0		Topsoil (0-6")
1'	0		FILL: GRAVEL, clay & silt, damp, brown, gray, dry
2'	0		
3'	0		32' CLAYEY SILT, little gravel, damp, little plastic
4'	0		
5'	0		5-5.3': soft, some plastic
6'	0		
7'	0		32.5' GRANULY SAND, wet, med brown, gravel partly sorted (up to 1" frags)
8'	0		
9'			End Boring @ 8' due to encountered GW
10'			
11'			
12'			

74SB92 LOG

3/7/08

Depth	PID	Rec	Description
0	0		FILL: gravel, sand, silt, dry, br., black & gray, partly sorted gravel
1	0		
2	0		
3	0		
4	0	3'	38' CLAYEY SILT, little gravel, soft, damp, med. brown
5	0		
6	0		55' SILTY CLAY, soft, plastic, true gravel, med brown
7	0		- grades red from 6.5' - 7.0'
8	0	4'	67' CLAYEY SILT, little to no plasticity, soft, dense, damp, golden brown
9	0		- soft from 8.5' - 9.5'
10	0		Dense again @ 9.5' & <del>finer</del> grades red-brown - 10' - 11'
11	0		grades gold brown w/ light gray mottling from 11' - 12'
12	0	4'	

End Boring @ 12' - no GW. or fuel odor observed.



5/7/08 745B93 LOG

Depth	PID	Rec	Description
0'	0		Top Soil (0-6")
1'	0		FILL: GRAVEL, Sand Silt, dry, gray to brown
2'	0		
3'	0	35'	CLAYEY SILT, Dense Hk to no plast., Silt, FF, solid brown
4'	0		SAND 4.5-5' Sand, Gravel, dry, light brown
5'	0		CLAYEY SILT, little gravel Silt, dry, friable, dense
6'	0		R & Black. grades some light gray meeting @ 6' of transition
7'	0		
8'	0	4'	
9'	0		
10'	0		
11'	0		
12'	0	4'	End Boring @ 12' w/ no GW observed or Foul odor

745B94 LOG 5/7/08

Depth	PID	Rec	Description
0'	0		Top Soil (0-6")
1'	0		FILL: GRAVEL, SILT, sand, loose, poorly sorted gravels, dry, Brown & gray
2'	0		
3'	0		
4'	0	4'	CLAYEY SILT, dense, dry to damp, friable, Brown
5'	0		5' - grades less clay and more fine sand and SILT
6'	0		Very dense, friable, dry, gray
7'	0		
8'	0	4'	
9'			Refused at 8'
10'			No evidence of GW or Foul odor
11'			
12'			

**Geologist – Jason Oliver**

---

mostly sunny 180's

5/13/68

0715 - on site - Report to Security for  
Parking permits / papers

0730 - Drilling on site looking up.  
move to back looking up  
vehicles

0815 - back to location - Begin  
drilling on 74 SB 95.

1200 - Drilling back from lunch  
off site.

1300 - Return from lunch - Report to 400

1600 - finish up 74 SB 125.

5-4 - 4 bags of 8000  
clean up.

1640 - Return to site - 10000 samples

1700 - 10000 samples for 10000

1730 - 10000 samples for 10000

74-SB95

0-2" top soil

2' - 2' - Coarse sand w/ some  
gravel / pebbles mixed in. light  
tan.

0-4'  
3.5'

2-3.5' brownish orange silty  
clay

3.5'-4' - light gray sand - "57  
size.

4.5'  
4.5'

4'-5' - light gray silty fine sand w/  
some clay

5-7' - light gray clayey silt w/  
some sand & carbonate fragments

8-9.5' dark brown / olive silty clay  
w/ some carbonate fragments

9.5'  
9.5'

10.5-11' dark brown / orange silty sand w/  
some gravel

2

50 5/13/88

11-12' ~~light gray~~ light gray silty clay w/  
some sand.

sample:

74-SB95-Q3 @ 10/10

for DRD, LRD, UCL, methods

74-SB95-Q4 @ 10/15

for DRD, LRD, UCL, methods

3



74 - SB 96

JD 5/13/08

- 0 - 12' - dark brown top soil  
12 - 16' - light tan medium sand  
16 - 21' - yellow ~~fine~~ ~~grain~~ sand  
21' - 24' - with some coarse sand  
mixed in light black color.  
24 - 41' - No Remains.

45' - 47' Red clay with some silt and  
some carbonates present

47' - 10' - coarse sand w/ some gravel  
& white carbonates - much.

10' - 12' Dark brown silty clay  
with some white carbonates present

Sampled 74 - SB 96 - 03 @ 1100  
for DRO - G.R.O., vol. metals

74 - SB 96 - 05 @ 1115  
for DRO G.R.O., vol. metals

QA/QC duplicate sample  
74 - SB 96 - 03 - 12.5

4

5

74-SB 121

5/13/08

0 - 4' Dark brown sandy top sand

4' - 3.8' Dark brown silty sand

With some Carbonates present

Some gravel interdispersed throughout

Sand gets coarser w/ depth.

3.8' - 4.2' Dark red silty clay

4.2' - 5.5' light brown/tan silty clay

5.5' - 6.5' red medium silty sand

6.5' - 12' red to tan silty clays

with some sand

- Sand layer @ 9.5' - 10' fine sand

in between w/ some silt

Sample

74-SB 121-00 @ 11.45

for DRC, ARD, UCL, & D20

74-SB 121-05 @ 12.15

QA/QC

74-SB 121-05 - dup @ 12.15

74-SB 121-05 MS/M2/D

@ 12.15

74-SB 122

50 5/13/68

0-4' 2-4' dark brown clay  
3.4' silty clay

4-8.5' light gray sand  
w/ some silt and some  
gravel

4'-8' 4-8.4' orange & gray <sup>silty</sup>  
3.4' clay, some sand & some  
limestone present

4-12' 4-12' dark gray silty clay  
3.4' some sand, some limestone  
present

Samples 74-SB122-03 <sup>1410</sup> @ ~~03~~  
for DRC, G.R.O., J.C.C., metals

74-SB122-04 @ ~~04~~ 125  
for DRC, G.R.O., J.C.C., metals

8

9

74 SB 123

0-4'  
3.8' 0-4.5' grey sand w/  
gravel & some cobble  
some carbonates present

4-8'  
3.8' 4.5-8.4' reddish orange  
silty clay (nutty).

8-12'  
3.8' 8.4-9' dark brown  
sand w/ some silt.

9-10' light orange silty  
clay w/ some sand  
some carbonates towards  
bottom of section.

10-12' light brown medium  
sand w/ some silt  
some carbonate & clay nodules  
present.

10

50 5/13/68

8-11 74 SB 123 - 03 @ 1445'  
for DR. GRC, VCC, & GOS

74 SB 123 - 05 @ 1500  
for DR. GRC, VCC, & GOS

11

74-SB 124

To 5/10/58

0-2' dark brown top soil  
 0.4' 1-2' light gray sand, m?  
 3.5' - 1' sand & some calcareous  
 loose present, some concretions

2-3.2' dark brown concs.  
 sand w/ some ~~gray~~ gray sand  
 present.

4-8' 4-4' dark brown clayey silt

3.9' 9-12' - dark brown medium sand  
 2-4-4' w/ some silt, some concretions  
 8-12' present.

3.9'  
 2-4-4'

74-SB 124-02 @ 1310  
 for D&C - 6-10 vol. net

74-SB 124-05 @ 1320  
 for D&C - 6-10 vol. net

74 SB 125

50- 5/13/08

0-4' 0-12" dark brown top soil  
3.5' 2'-2' light tan coarse  
fine grained sand & gravel -  
some shell material  
2'-5' light gray gravel -

4'-8' 3-6.5' light orange silty  
3.9' clay w/ some sparse  
pebbles  
fine grained

8-12' 6.5-9' light orange silty  
3.8' sand w/ some clay  
fine grained  
some carbonate fragments

9'-12' light orange medium  
sand w/ some silt &  
carbonates, sparse clay  
nodules - med. st.

Sample 74-SB 125 - 03 @ 1550  
for ORO-GRO, VCL, MUDS

74-SB 125 - 05 @ 1600  
for ORO-GRO VCL pairs

14

15



21 24

50 5/14/88

2700 on 5700 at 74-58126 - 1.3 in

2700 on 5700 at 74-58126 - 1.3 in

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2700 on 5700 at 74-58126 - 1.3 in

71 SB126

50. 5/17/68

0-1' 2"  
1-1' 2"  
2-1' 2"

0-2' dark brown silty top, soil  
 .8-1.5' light tan silty sand  
 w/ some gravel & calc. frags  
 1.5-2' gray gravel w/ some  
 sand

2-4.5' dark brown silty clay  
 w. some interbedded gravel  
 4.5'-6' light tan silty  
 sand w/ some gravel &  
 some calcareous

6-9' dark brown silty clay  
 w/ some sand/gravel  
 9-11' light reddish brown  
 medium sand w. sparse  
 gray sh-blue clay nodules  
 (moist clay) some gravel

Angles 71-SB126-02 @ 0815 G-  
 DRG-CRG. mms. 12m.

71-SB126-05 @ 0825 R-  
 DRG-CRG. mms. 12m.

2A/2C. 71-SB126-05 - Dog C: 0825

1819

74-58127

30

05-11-08

0-1' 0-6' Asphlt  
 1-2' 1'-8' light tan silty gravel  
 2-3' 8'-1' light brown silty clay  
 1-3' dark brownish sand  
 silty clay  
 3'-5' light brown silty sand  
 w/ some gravel

4-8' 5-7' light brown silty sand  
 w/ some clay nodules  
 some sparse gravel  
 7-9' weathered granite  
 1' thick

9-10' light tan silty sand w/  
 some gravel  
 10-11' weathered granite / basalt  
 11-12' light tan silty sand w/  
 some gravel

Sample 74-58127-03 @ 0255  
 for geo. & chem. anal.

74-58127-04 @ 0910  
 for geo. & chem. anal.

74-SB128

50 05/14/28

0-4'  
3.6'  
2.9'

0-4' brown, sandy, top soil  
4-1' dark brown silty sand  
w/ gravel

1-3' very light tan medium  
sand w/ sparse pebbles  
& gravel, some silt

3'-5' dark brown silty  
clay

5'-6' reddish tan silty clay.

6-9' tan medium silty sand  
w/ some clay some sparse  
gravel present.

8-12'

9-12' lighter tan silty sand  
w/ clay nodules/strips  
more clay present with depth

22

Sample 74-SB128-03 @ 0925  
for DR-620 jar, metals

74-SB128-05 @ 0940  
for DR-620 jar, metals

23

74-SB129

50 5/14/08

0-4'  
3.5'  
Boring

0-2' dark brown sandy mg sand

2-2' dark brown silty sand

wt sand & some cobbles

2-5' light tan silty

Sand wt some clay (brown)

moderate mudcracks - Shell fragments

Log: 74-SB129 - @ 1010  
for GRC-DRO, WCC, notes

4-8'  
3' Boring

5-7' brown medium silty sand

1" clay nodules (rare)

74-SB129 - @ 1025  
for GRC-DRO, WCC, notes

Revised @ 7' attempted

2nd push adjacent - same

revised at same depth

5-12'

24

25

74-SB130

0-1'  
2-8'  
fine

- 0-1' dark brown silty soil
- 1-2' light brown silty sand
- 2-3' fine gravel
- 3-4' 1.5' white sand w/ some

gravel/cobbles

- 4.5-1.8' dark brown black loess
- of asphalt

4-8'  
3-9'  
fine

- 1.8-2.4' bluish gray gravel
- 2.4-5' brown silty clay

with some gravel & cobble  
mixed in

8-12'  
3-9'  
fine

- 5'-8' dark brown / grey silty  
clay

8.5-9.4' brown silty sand with  
watered (pink/green) inclusions

- 9.4-12' medium brown silty  
sand w/ some gravel, some  
cobbles

26

50 -

5/1/68

Sample 74-SB130-03 @ 1045  
for GLO DRG, soil, water

74-SB130-05 @ 1100  
for GLO DRG, soil, water

27



11 2011

0.4'  
3.9' from

0-12" dark brown sandy reg soil  
12-2' light brown medium sand w/  
some gravel, sparse nodules  
2'-5' brownish gray fine silty  
sand, some clay, some gravel  
5-7.5' gravel & nodules in a  
fine silty sand matrix

5.5'  
3.8' from

7.5-10' light brown medium sand  
w/ some gravel & sparse nodules  
present. some clay gravel

8.12'  
3.1' from

10-11' medium fine silty brown  
sand - some clipped bedrock in  
in water at low.

(28)

30

5/11/05

Sample

74-SB141-00 t.h. @ 1330  
for GRD, DRG, JOL, nodules

74-SB141-03 t.h. @ 1345  
6 for GRD, DRG, JOL, nodules

74-SB141-05 @ 1400  
for GRD, DRG, JOL, nodules

QA/QC

74-SB141-03 - ms / u-sd @ 1345

74-SB141-05 - Dup @ 1400

29

74-SB 142

50

2/14/08

0-4'  
3.6'  
fine

0-3' dark brown sandy top soil

3-1.2' gray silty sand w/  
some gravel

1.2-3' light brown silty sand  
with some gravel and  
clay inclusions carbonate  
material present

4-8'  
3.9'  
fine

3-3.5' reddish brown silty clay  
w/ some gravel

3.5-5' brown silty sand  
w/ some gravel

5-12'  
7.1'  
fine

5'-7' brown silty sand,  
some clay, some carbonate  
present, special large angular  
cobbles & some gravel present  
throughout

7-9' dark reddish orange clayey  
silty w/ some cobbles & clay  
inclusions some carbonate

Refined @ 9' - 11.5' sand  
push to 9' w/ sand to  
may - (continue) closed @ 4'

30

Sample 74-SB 142-02 c.d. @ 1415  
for GRC-Dev. com. notes

74-SB 142-04 c.d. @ 1430  
for GRC-Dev. com. notes

31

74-SB 143

SD 5/14/08

0-4'  
3-5'  
sand

0-4' dark brown sandy fine sand

4-1' inter silty sand w/  
some gravel1-1.8 white fine sand w/  
some white cobbles & gravel1.8-2.2 bluish gray gravel  
# 57 angular -

4-8'

2-2-5' reddish brown silty  
clay w/ some sparse gravel4.5-8' light brown & tan silty  
sand & some clay including  
sparse gravel & some  
sparse cobbles

8-12'

- Refused @ 8.5' attempting to  
direct push to 8' to attempt  
8th is again - moving  
adjacent to existing hole in line  
with profile
- attempt 2nd direct push - 1.5' down  
in some vegetation

32Ingr 74-SB 143-02 @ 1450  
for 60-280-164, notes74-SB 143-04 @ 1505  
for 60-280-164, notes33

74-SB 144

SD 05/14/68

0-1'  
3' present

0-1.5' dark brown silty sand  
top soil - some gravel  
1.5-1.7' white sand w/ some  
white gravel - some coarse  
carbonate fragments

4-5'

1.7-2' grayish blue green  
argill. (21.8) sand  
coarse brown sand present

4-5' dark red silty clay  
5'-7.5' light brown & gray  
mottled clay some sand  
some silt, very sparse gravel

8-12'

7.5-8.5 dark brown silty clay  
8.5-10.4 coarse brown sand  
with some clay inclusion  
some carbonates present  
some gravel - some watered black  
10.4-12' light gray silty clay  
some sand/silt gravel

Sample # 74-SB 144 - 03 @ 1525  
for L.R.O. - D.R. - U.C.C. notes

74-SB 144 - 05 @ 1540  
for L.R.O. - D.R. - U.C.C. notes

50. 5/15/68

0600 on site at PWC first landing  
out.

0700 on site at 74-56146, searching for birds.

1300. Radio to park for lunch etc. 74-56153

1330. Return for lunch.

2:30pm Juggling - 74-56154.

1430. Juggling 155

1500. Juggling for day - ends at  
74-56156.

Return to PWC re wing samples  
and assist in feeding visitors  
Re Shigetsu (1/1/68)

1600. Leaving for tomorrow.

1700. Return for day

74- SB 146

SD 5/15/68

0-4'  
3.6  
sandy

0-2' dark brown sandy loam soil  
2-9' brown silty sand w/  
some gravel

8 1.2' white coarse sand w/  
some white gravel

1.2-2.5' gravel in sand matrix  
gravel = #57

2.3-3.7' orange silty clay

3.7-4' gravel in a fine line  
matrix asphalt.

-PTD hit 220 p.m.

4'-7.5' bluish green silty clay  
w/ sparse sand

7.5-8.0' light brown sandy silt

8.5-11.5' lighter brown sandy  
silt w/ some greenish blue  
clay inclusions

11.5-12' light tan silty clay

Drill: 74-SW146-02 @ 0800  
R. 020 DR. 1100, 1100

74-SW146-05 @ 0815  
R. 6.00 DR. 1100, 1100

2A/AL 74-SW146-08 - 2.0 @ 0830

8.12'

38

39



74-SB147

50. 5/15/68

0-1'  
3.5'  
Flow 8

0-1' dark brown silt, sand

ry soil

1-1.8 light brown medium

sand w/ some gravel

1.8-1.2 gravel w/ sand matrix  
#57.

1.2-2.5 light brownish-red

silty sand w/ some clay

2.5-4 bluish-brown silty

clay w/ some gravel

4-5' dark brown silty sand

w/ some gravel

5-7.5' bluish-green clay w/

some silt some sparse

some

7.5-9' bluish green sandy silty

clay

9-11' coarse brown sand w/ some

silt - sparse clay nodules -

some gravel

11-12 bluish green silty silt

w/ some some nod sand matrix

matrix

40

Sampled

74-SB147-03 @ 2.5m

for L.R. 1720 sec, mostly

74-SB147-04 @ 4.05

for L.R. 1720 - sec, mostly

41

74-SB148

30 5/15/58

0-5  
3/5  
2/5  
1/5  
0-5  
3/5  
2/5  
1/5

0-4' light brown sandy top soil  
4-11' dark brown organic rich  
top soil

11-16' light tan silty sand  
w/ some gravel & cobbles

16-22' brown sand &  
gravel - orange

22-26' light blue gravel & A  
w/ some sand in matrix

26-35' brown sandy silt  
w/ some weathered material  
inclusions (sandy silt)

47' light brown silty sand & gravel

7-8' light brown medium sand

8-12' black-green silty clay

epic. sand -

- saturated below 10' (wet)

Sample: 74-SB148-02 @ 2930  
for GR-DR-VR notes

74-SB148-04 @ 0445  
for GR-DR-VR notes

74 SB149

SD - 5/15/68

0-4" brown sand, top soil  
 4-1' dark brown silty sand  
 1-1.4' bluish silty sand  
 1.4-2.6' white sand (coarse) w/  
 gravel & some cobbles  
 some shell material & corals  
 2.6-3.2' dark brown clayey silt  
 w/ some gravel  
 3.2-5.6' white sand & gravel  
 5.6-4' bluish green clay w/  
 no inclusions  
 11-12' bluish green clay  
 sand some sparse gravel  
 - substrate @ 9'

10-11' white green clay w/  
 some sand  
 11-12' black & bluish green  
 gravelly clay -

sample 74-SB149: 04 @ 1020  
 for C.R. - D.R. v. 1, notes

74-SB150 - 06 @ 1035  
 for C.R. D.R. v. 1, notes

74-SB150

50-5/15/68

0.4'  
3.6'  
A. 4.0'

0.9' brown sandy clay soil  
7-3 light tan silty coarse  
sand w/ some gravel  
Carbonates, sparse bottom  
3-3.5' greenish bluish gray  
silty clay with orange  
some carbonates

4.8'

4-6' light brown sandy  
clay. Some bluish gray  
clay nodules & some gravel  
present  
saturated @ 4.8'

6-12' greenish blue & brown  
silty clay. Some sparse  
sand

Saturated @ 11.5'

2.12'  
4.0'  
Sandy

Sample taken above clay layers

Aug. 71-SB150-02 @ 1055 ft  
GR. DR. SOL. MUD

71-SB150-06 @ 1110 ft  
GR. DR. Junc. nodules.

46

47

74-SB152

50 5/15/89

3.6  
Sandy

- 0-4 - Red brown sandy top soil
- 4-1' brown sandy sand w/  
some gravel
- 1-2.8 - White gray sand w/  
brown red sand
- 2.8-3.8 light brown sandy  
silt w/ some clay - carbonaceous  
present - 8 sparse gravel
- 3.8-4.2 - brown sandy clay
- 4.2-4.8 dark red silty clay w/  
some gravel & sand.
- 4.8-6 brownish red silty  
clay sparse sand.
- 6-12 - blackish green silty clay  
gravel - mottled brownish present @  
~~10-12~~
- 10' @ 11'

Sample

Take some 1st clay layer  
74-SB152-03 @ 1125  
for G.R. 120 - mids, loc.

Take R. water line  
74-SB152-05 @ 1140  
for G.R. 120 - mids, loc.

4.8

8.1

74-58153

SD 518108

0-4'  
3.6' fine

0-4" dark brown silty clay

4-1 dark brown silty clay

1-2.7 silty & upper silty sand

w/ some gravel

2.7-8.5 brown silty clay w/

some black sanding

sampled 74-58153-02 @ 1150 -

for G.D.C. Vol. 1, 2, 3

4-8'  
4' fine

8.5-12 orange-brown

clayey sand - some weathered

bedrock inclusions

74-58153-04 @ 1205

for G.D.C. Vol. 1, 2, 3

8-12  
3.2' fine

samples taken above weathering

clay layers due to thickness

of homogeneous layers

54

51



SB - 154.

0-1  
3-1  
fine

- 0-1' dark brown sandy red soil
- 1-2' light brown sandy soil w/  
some gravel
- 1-1.3 white sand & gravel
- 1.3-1.7 - bluish green silty  
sand w/ gravel
- 1.7-2.2 - tan med. sand w/  
some gravel & carbonates
- 2.2-2.6 - gravel sp. matrix.  
#57
- 2.6-3.5' dark red / brown (clay)  
clay w/ some sand
- 3.5-4' dark bluish grey silty clay  
w/ some sand
- 4-10' brown silty clay w/ some  
greenish blue inclusions  
some carbonate spurs, some  
spurs sand
- 10-11' dark brown sand w/  
bluish grey gravel #57  
sand & gravel substrate @ 10'  
Refract @ 11'

5-12  
3' fine

52

30 - 5/15/68

S-16: 74 - SB154 - 04 @ 1400  
for DRD, DRD, SCL, notes

74 - SB154 - 05 @ 1410  
for DRD-DRD, SCL, notes

53

74-SB155

30- 5/15/88

- 0-4' 2" dark brown silty sand (top soil)  
 4-7' 1" light green + 57  
 7-1.5 light tan calciferous  
 sand & gravel  
 1.5-1.8 dark brown sand  
 1.8-3.5 light tan gravel &  
 sand, some bluish grey gravel  
 3.5-4' brown silty clay

Sample 74-SB155-04 @ 7420  
 for 680-020- JOLs, etc.

74-SB155-05 @ 7435

- ~~4.5-7.6~~  
 4.5-7.6 weathered bedrock -  
 Supersilty sand sand  
 7.6-9.5 brown silty clay  
 w/ fine sand  
 - P.D. bit ~ 120 ppm - 8'-8.5"  
 9.5-11' dark green silty clay  
 11-11.4 weathered diorite/basalt  
 11.4-12 bluish green clay w/  
 some brown inclusions -  
 some calcite @ bottom  
 - P.D. bit ~ 10' 110 ppm

54

55

74-SB 156

32. 5/15/08

0-3' dark brown sandy top soil

3-1' brown sand & gravel

some cobbles

1-2.7 light - medium sand w/  
gravel some shell fragments  
carbonates present

2.7-4' - Gravel - colored grey  
some cobbles

4-7.2' brown silty clay -  
some sand

- PED sandy 108 @ 7'

7.2-8' greenish blue silty clay w/  
some gravel & cobbles

8-8.7' light brown silty  
coarse sand with gravel

8.7-9.5 - bluish grey clay  
silt w/ some gravel & some  
carbonates

9.5-12 - bluish green sandy clay  
some silt - dry some sparse gravel

PED in (spike)

9' - 240 ppm

10' - 235 ppm

1' 90 ppm

1' - 750

56

Sample 74-SB 156 - 04 @ 1450

for geo. org. use, notes

74-SB 156 - 05 @ 1505

for geo. org. use, notes

OK/ul

6.

SB 156 - 05 - Dup. calc @

1525

52

30 5/11/08

0700 - on Sta. Loading cables/rods etc.

0730 - Shown new string for engine -

" 21.11.08 on Sta.

0800 - move to 71-SB161 - begin  
drilling.

0940 - Driller out to get water -

" 1000 - Return on SB161

1240 - Driller back for lunch.

58

59

74-SB161-

0-3' - brown sandy silt  
3-6' - black gray gravel  
silt, cobbles present

0-4'  
silt  
sandy

6-8' - white calcareous  
sand w/ some shell  
material & (carb.) some  
white gravel

4-8'  
silt  
sandy

6-9' - black-gray gravel  
w/ brown sand - silt  
some clayey silt lenses  
6-9' - brown sandy silt  
w/ some clay - some gravel  
& cobbles present

8-12'  
silt  
sandy  
(w/ some clay)

10-12' - light brown silty clay  
w/ some carbonate precipitate  
& weathered bedrock

60

30- shells

After @ 74-SB161-00 @ 0830

for the old mounds, etc.  
{ 74-SB161-00-Dup @ 0830 }

74-SB161-04 @ 0845

for the old mounds, etc.

74-SB161-05 @ 0900

QA/QC

74-SB161-04 - Dup @ 0945

74-SB161-05 - dup/mud @ 0900

74-SB161-06 - Dup - ~~0830~~  
0830

61

0-2' dark brown sandy top sand  
 2-1' light sand (coarse) some  
 gravel & clay  
 1-1.8' brown silty sand w/  
 some gravel, some silt  
 1.8-4.5' rust colored sandy  
 clay w/ some gravel

4.5-6.2' light brown silty  
 sand w/ some gravel  
 6.2-12' brownish orange silty fine  
 sand w/ some unclered  
 brackish (supersat) fluidizing  
 some indications toward depth.

sampled 71-28162-04 @ 1025  
 for GRC DR - metals, Vocs

71-28162-05 @ 1030  
 for GRC DR - metals, Vocs



74-SB 163

50 5/16/18

- 0-2' dark brown sandy top soil  
 2-1.4 light brown silty sand  
 w/ some gravel - few  
 cobbles  
 1.4-3.6' Rust colored clayey  
 silt - sparse gravel

3.6-5' reddish brown medium -  
 coarse sand w/ some gravel

5-8.5' fine brown silty sand  
 w/ some carbonates present -  
 possibly some weathered sandstone  
 8.5-8.7' bluish grey gravel

8.7-9.5' medium brownish sand  
 w/ weathered basalt &  
 calcareous inclusions -

- Refused @ 9.5'

Sample 74-SB163-03 C 1110  
 for ~~the~~ DRC rocks, sec

74-SB163-04 C 1125  
 for ~~the~~ DRC rocks, sec

64

65

74-SB 164

30 5/16/67

0-1.5' dark brown sandy silty soil  
- silty brown (loose) silt  
w/ some sand

1-1.5 - bluish green gravel  
" 57

1.5-6.2 silty clay -  
some spongy sand & gravel  
percent

6.2-7' coarse sand & gravel  
- brown sand / bluish green gravel

7-9' brown silty silt - some clay

9-9.8 - gravel w/ some clay  
medium bluish gravel / red clay

9.8-11.4 light brown silty sand  
w/ some clay & spongy  
inclusions

11.4-12 bluish green silty clay  
& spongy / weathered material

66

Depth 74-SB 164 - 04 @ 1130  
for LRO - 100.0, 50.0, 25.0, 12.5

74-SB 164 - 05 @ 1145  
for LRO - 100.0, 50.0, 25.0, 12.5

67

74 - SB 165

30 5/16/08

0-1.4 - silty sand, brown top  
silt

1.4-2.1 - light brown sand & gravel

2-3.4 - dark red / rust colored  
silty clay w/ some sand &  
gravel interbedded

3.4-4.8 - orange silty clay

4.8-5.4 - orange silty sand  
w/ some gravel

5.4-5.7 - solid black gray  
Rock - cored through - appears  
to be fractured green diorite

5.7-10.5 - orange sandy silt  
w/ some fine sand - sparse  
gravel - fractured (notice!)

10.5-11.5 - weathered diorite

11.5-12 - light orange clay &  
silt - some lenses

Sampled : 74-SB165 - 04 @ 1200  
for GRD-DRC, UCRS, metals

74-SB165 - 05 @ 1215  
for GRD-DRC, UCRS, metals

60

61

74-SB166

30-5/16/08

04'  
3'  
1'

- 0-3' brown sandy top sand
- 3-4.2 bluish gray gravel &  
brownish medium sand
- 4.2-5' light brown medium sand  
Some clay nodules
- 5-6' orange sandy clay

4.5'  
3.5'  
1'

- 4.5-11' brown sandy silt  
Some sparse gravel  
Some weathered basaltic tuff  
inclusions with depth  
Some bluish green clay inclusions  
(dispersed)

- Rejection @ 11'

5-12'

Plus 74-SB166 - 04 - @ 350  
for 600-0800 MCL's water

74-SB166 - 05 - @ 1405

GA/QL: 74-SB166 - 04 - Dog @ 1350

70

71

74-SB 167

50. 5/16/08

0.4  
3  
Gravel

100-particle floor, 6" W. soil thickness  
- granite rubble sand

2-2.5' light black gray gravel  
w/ sand.

2.5-3.6 coarse brown sand  
w/ some granite

3.6-4' dark brown sandy  
clay - sparse gravel

4-6'  
3.5  
Gravel

4-6' orange silty clay w/  
some sparse sand & some  
weathered bedrock (sillite)  
inclusions

8-12'

6-12' ~~orange~~ silty sand ~~with~~  
~~silty~~ silt - ~~granite~~ inclusions  
- clay & biotite ~~granite~~ inclusions  
increase in frequency with depth  
- increased flooring.

Sampled 74-SB 167-04 @ 1430  
for lab-DRO, VOLS, water

74-SB 167-05 @ 1445  
for lab-DRO, VOLS, water

74-SB 168

30- 5/16/08

0-1.5  
1.5-3.0  
3.0-4.5  
4.5-6.0  
6.0-7.5  
7.5-9.0  
9.0-10.5  
10.5-12.0

0-1.5 dark brown sandy m. silt

1.5-3.0 brown sandy silt.

3.0-4.5 w/ some gravel

4.5-6.0 gravel, white w/

brown sand, some silt

6.0-7.5 gravel & reddish brown

clay, some pebbles

7.5-9.0 dark reddish brown

silty clay, w/ some pebbles

some sand

9.0-10.5 orange silty clay w/

some sand

10.5-12.0 orange sandy silt w/

spare gravel and pebbles

between pebbles

Sample

74-SB168-04 @ 1500'

Gr - Dr - pebbles, silt

74-SB168-05 @ 1515'

Gr - Dr - pebbles, silt

74

75



74. SB 169

0-1.1 dark brown silty, top 50%  
0.4-1.3 fine s.s., gravel & few  
cobbles

1.3-4 brown coarse sand  
and gravel few cobbles

4-7 - orange silty clay  
w/ sparse sand  
7-12 - orange ~~fine sand~~ <sup>silty fine sand</sup>

w/ some clay - some  
sugilite inclusions (increase  
frequency w/ depth), sparse  
gravel - few clay lenses and  
nodules

50. 5/16/08

Sample 74-SB 169-04 @ 1325  
for C.R.O. - D.R.O., U.C.C., mites

74-SB 169-05 @ 1540  
for C.R.O. - D.R.O. - U.C.C., mites

76

77

74. SB 170

50 5/17/08

0-3' dark brown sandy fine sand  
3-7' light brown coarse sand  
7-1.5' light brown fine sand w/  
some gravel

1.5-2.4' light brownish orange  
silty clay w/ some gravel  
2.4-3' light brown fine sand w/  
some gravel

3-7' light brownish orange silty  
clay - w/ sparse sand -  
some grey-blue clay lenses

7-11 orange & grey ~~clay~~  
silt & clay - weathered bedrock  
(sandstone) present throughout

11-12 - orange grey silty clay  
gravel (R20) present

Expt: 74 SB 170-04 @ 0805  
for L.R. DR0 - 600 - 600 - 600

74 SB 170-05 @ 0810  
for L.R. DR0 - 600 - 600 - 600

Begin @ 0745, only have  
1 miller operating R20 today

74 - SB 171 -

50.

5/17/08

4.2' 5.5' 6.5' 7.5' 8.5' 9.5' 10.5' 11.5' 12.5' 13.5' 14.5' 15.5' 16.5' 17.5' 18.5' 19.5' 20.5' 21.5' 22.5' 23.5' 24.5' 25.5' 26.5' 27.5' 28.5' 29.5' 30.5' 31.5' 32.5' 33.5' 34.5' 35.5' 36.5' 37.5' 38.5' 39.5' 40.5' 41.5' 42.5' 43.5' 44.5' 45.5' 46.5' 47.5' 48.5' 49.5' 50.5' 51.5' 52.5' 53.5' 54.5' 55.5' 56.5' 57.5' 58.5' 59.5' 60.5' 61.5' 62.5' 63.5' 64.5' 65.5' 66.5' 67.5' 68.5' 69.5' 70.5' 71.5' 72.5' 73.5' 74.5' 75.5' 76.5' 77.5' 78.5' 79.5' 80.5' 81.5' 82.5' 83.5' 84.5' 85.5' 86.5' 87.5' 88.5' 89.5' 90.5' 91.5' 92.5' 93.5' 94.5' 95.5' 96.5' 97.5' 98.5' 99.5' 100.5'

0-2' dark brown sandy top soil  
2-6 light brown, coarse sand  
not sure ground  
6-9 ground bluish gray #57  
w/ some sand matrix  
9-12 dark red sandy  
silt w some clay & sand  
sparse granular distribution  
thinly bedded  
4-8' dark red clayey silt  
w/ some sand

8-12' - sand & orange clay -  
some silt - sparse sand

Suppl 74-SB171-00 @ 0845  
R. CRC DRO. SOLI. miter

74-SB171-04 @ 0900

74-SB171-05 @ 0913

QA/QC

74-SB171-05 - D.P. @ 0915

74-SB171-04 m/s/w/d @ 0900

80

81

74 SB172-

30

5/17/68

0-4' - dark red clayey silt  
with some gravel & sand  
interdispersed throughout

0-4'  
3.5'  
fine

4-10' - Red silty clay & silt  
sparsely sand, some brown  
clay nodules/lenses  
- damp - 8-9'

4-6'  
3.4'  
fine

10-12' - Red & white clay

8-12'  
3.9'  
fine

Sample:

74 SB172-04 @ 0945

for 60-80 pairs, 500

74 SB172 @ 1000

for 60-80 pairs, 500

74-58173

50° 5/17/08

0.4'  
3.6'  
clay

0.1-0.2' dark Red silty clay  
0.3-1.7' brown clayey silt  
w/ some argillite nodules  
& some sand

1.7-4' - reddish orange  
& bluish-grey variegated  
clays - some carbonate  
inclusions - some sand

2.8'  
3.8'  
clay

7.4-9.5' interbedded light  
tan & red clays -  
some sand - sparse gravel

0.2'  
3.6'  
clay

9.5-10' greenish-tan clay &  
argillite nodules inclusions,

11-12' greenish-tan argillite

Interbedded 74-58173-04 @ 1030  
R. GR. DR. silts, muds

74-58173-05 @ 1045  
R. GR. DR. silts muds

84

85

74-SB174

50 5/17/08

0-4'  
2.6'

0-3 dark brown sandy top soil  
 3-1.3 ~~sand~~ white & bluish-grey  
 sand & gravel - fine calcites  
 1.3-4. reddish orange silty  
 clay w/ interdispersed sand  
 & gravel

4-8'  
3.5'

4-6 white-light tan medium  
 sand  
 6-8 red silty clay  
 some brownish tan clay nodules

8-12'

8-12' bluish-grey silty clay  
 may be weathered interdispersed  
 greenish-blue  
 9' PSD spike 402 ppm  
 10' PSD spike 1104 ppm  
 11' PSD spike 1145 ppm  
 12' PSD spike 450 ppm

Sample 74-SB174-04 @ 1145  
 for GPO-DRC metals, Urea

74-SB174-05 @ 1200  
 for GPO-DRC metals, Urea

8687



74-SB175

30-05/17/68

0-3' dark brown sandy, top soil  
 3-1' brown silty clay w/ sand

0-4'  
 1-4'  
 1-4'

Gravel  
 1-4' (red & brown, irregular clays)

4-6.5' brownish red clayey silt  
 some sparse sand

4-8'  
 4-8'  
 4-8'

6.5-9' light tan clayey  
 silt w/ some sand, weathered  
 below / surface irregularities

9-9.4' greenish blue silty clay  
 (superficial weathered zone?)

8-11'  
 8-11'  
 8-11'

9.4-12' brownish tan fine sandy  
 silt w/ weathered pebbles  
 including some flint

Sample 74-SB175-04 @ 1440  
 for L.R.O. D.R.O. U.S.C. metals

74-SB175 05 @ 1455  
 for L.R.O. D.R.O. U.S.C. metals

88

89

74-SB176

30 5/17/08

04'

0-8' dark brown silty clay

w/ some gravel

8-26 brown silty clay w/

spars gravel

26-64 - brown sandy silt

with some gravel

Possibly some weathered basalt.

0.5

64-68 - bluish gray gravel

68-11 - brown sandy silt

w/ some weathered gravel

and weathered basalt fragments

11-12 - weathered basalt / scoria

sampled

74-SB176 - 04 @ 1520

for Lab. D.C. Co., note

74-SB176 - 05 @ 1535

QA/QC

74-SB176 - 05 - D.P. @ 1535

8-12  
59 ft

92

91

74-SB177

0-4  
3-4  
fine

0-1.5 dark brown silty sand to sand

1.5-3.1 dark brown sandy silt w/  
some clay - some gravel

3.1-6.4 orange-brown silty clay  
coarse sand

6.4-12.8 orange-brown clayey silt  
w/ sparse sand

4-8'

12.8-16.4 light brown silty medium sand  
w/ some gravel & some  
limpatic / small pebbles

8-12'

IO- 5/17/08

Depth

74-SB177-04 @ 1550  
for GRS, DRS, UCC, metals

74-SB177-05 @ 1605  
for GRS, DRS, UCC, metals

74- Spr

50- 5/18/08

2704 - on site - landing up

2735 - met up w/ drillers on pad

... will grab holes from yesterday ...

then move to Bell Hole / track

and start on 74-3B200

2740 - Begin on 74-3B200

2800 - finish on 74-3B200 all

that is needed through hole -

1230 - drilling / drillers out to land

1345 - drillers return from land

... move grating ...

1500 - finished - landing up for next

day - returned for day

74-SB200

0-1.6 - brown sandy top soil

1.6-1.8 - brown

1.8-1.6 - bluish-gray gravel - fine

& medium sand matrix

1.6-5.8 - brown silt and

clay w/ fine gravel

5.8-7.6 - bluish-green

silty clay - some sand

& gravel, interdispersed

7.6-12' medium gray sand

- saturated below 6.5'

0-4'  
2-4'  
fine sand

4-8'  
2-4'  
fine sand

8-12'  
3-5'  
fine sand

96

50

5/12/58

Sept 74-SB200 - 07 @ 084.5

for lake D.R. - water, 100%

74-SB200 - 05 @ 074.5

for lake D.R. - water, 100%

97

74-SB201

50 5/18/08

0.4  
3.1  
2.1

- 0.2 - brown silty sand & silt
- 2-2 - brown sandy silt w/  
fine gravel
- 2-3 - light brown sandy silt  
with gravel
- 3-5' - light brown & brown  
clayey silt & gravel
- 5-5.8 - dark brown silty clay

4.8  
3.1  
3.1

- 5.8-7.5 - brownish orange  
sandy silt w/ some clay  
& some gravel & cobbles
- 7.5-9.7 dark brown silty clay  
w/ gravel & bluish-green  
clay nodules  
ms-s @ 8'

9.12  
3.1  
2.1

- 9.7-12 - whitish gray medium  
sand w/ some silt & clay  
- saturated @ 10'

Sample

74-SB201-00 @ 0915  
for ALI, DR, mds, vdc

74-SB201-04 @ 0930  
for ALI, DR, mds, vdc

74-SB201-05 @ 0945  
CR, DR, mds, vdc

QA/QC

74-SB201-04-Dup @ 0930

74-SB201-05-rs/ms @ 0945



74-SB202

SD. 5/8/88

0-4'  
4-8'  
8-12'

- 0-4' brown sandy top soil
- 4-8' brown sandy silt
- 8-12' bluish-green gravel  
w/ some clay nodules &  
small pebbles - few  
cobbles at depth

4-8'  
8-12'  
12-16'

- 4-8' brown to orange  
sandy silt w/ some clay  
and gravel

8-12'  
12-16'  
16-20'

- 8-12' bluish-green  
sandy clay w/ some silt,  
few cobbles, some gravel
- 12-16' bluish-green  
- clay content increases w/ depth  
- moist @ 9'
- 16-20' whitish-grey medium sand  
- saturated @ 10.5'

Sample

74-SB202-04 @ 0955  
for UG-DBO, UG-DB, water

74-SB202-06 @ 1010  
for UG-DBO, UG-DB, water

74-SB 203

50- 5/18/08

0.1  
3  
fine

- 2-3' brown sandy top sand
- 3-3' light brown sand
- with 8 gravel
- few nodules (interdispersed)

- 3.8-4' light orange to brown
- silty sand w/ sand gravel
- few nodules (interdispersed)

4.0  
3.5  
fine

- 3.4-4' brown / red / white
- clay - may be. argillite
- 2-4 cm. black fish granules
- (possibly, some in water)

- 4'-10.5' greenish blue silty
- clay - some red clay nodules

8.1  
8  
fine

- 10.5-12' whitish gray med
- sand w/ sparse green clay
- inclusions - sparse pebbles

duplex 74-SB 203 - ed @ 1025  
LRO: DRO, VOLS, mtr

74-SB 203 - 05 @ 1035  
LRO: DRO, VOLS, mtr

74-SB 204

30 5/18/08

0-4'  
fine  
sandy

0-1.2' light brown silty sand  
top sand

1.2-2.8' light brown & silty  
sandy silt, w/ some clay-  
grained material

2.8-4.8' dark red granular  
sandy silt

4.8-7'  
fine  
sandy

4.8-7' ~~very~~ dark greyish-  
brown silty clay, w/ some  
grained material

7-8.5' greenish blue / white silty  
clay w/ some sand. <sup>some</sup>  
weathered to brown / greyish clay

8.5-12'  
fine  
sandy

8.5-12' light brown sandy  
silt - may be ~~some~~ speckled  
with red

Shells 74-SB 204-01 @ 11.00  
for G.W. D.R. notes, etc.

74-SB 204-05 @ 11.15  
for G.W. D.R. notes, etc.

104

105

74-SB 205

JO - 5/18/08

0-4'  
3-4'  
1-2'

0-2' dark brown sandy mudstone

2-4' brown silty silt

silt gravel

4-8.8' light orange fine

silty sand

inter A gravel for 4.6-4.8

4-8'  
3-4'  
1-2'

8.8'-10.4' light orange fine

silty sand w/ intercalated

gravel & some clay nodules

10.4-12' {sandy granite

{quartz cobbles}

fine silty silt w/ some sand

terminated at 10.5'

8-12'  
3-4'  
1-2'

duped

74-SB 205 - 04 @ 1145

GRS - DRG - muds, VCCs

74-SB 205 - 05 @ 1200

GRG - DRG - muds, VCCs

50 05/19/08

430 - on site - 1-day of.

0705 - on site - preparing - waiting for  
materials

- will finish line on 7-53:178 -

1200 - Break for lunch -

1200 - Return from lunch - Resume  
working on main road - 58201

1300 - finish final boring for day  
21

- Dr. Hoke granting.

- back to set of 1200 samples

1400 - samples 1200 - 1200 x 1200

1500 - about for day

74-58178 :

0-3 dark brown sandy top soil

3-4 brown sandy silt  
some clay

4-5.8 brown silty sand  
w/ some gravel

5.8-12 brown silty sand  
w/ some gravel, some  
wooden debris / separate nodules  
- gravel increasing w/ depth

0-4  
3-4  
3-4

4-5  
3-8  
3-8

8-12  
3-8  
3-8

110

50 5/14/08

Sample 74-58178-04 @ 2340

for LRO, DRC, Vols, etc.

74-58178-05 @ 2315

for LRO, DRC, Vols, etc.

111



74-SB179

- 0-2- dark brown sandy loam - silty  
 2-4- dark brown sandy silt  
 w/ some clay & gravel  
 4-6-3- brown silty clay  
 w/ some gravel  
 6-8-2- light brown med-fine  
 sand w/ some gravel  
 few angular inclusions > 1/4"

0-4'  
 2-6'  
 8-14'

2-8

8-12

112

50- 5/17/88

Sample

74-SB179-04 @ 0830  
 for the DR. core, north

74-SB179-05 @ 0845  
 for the DR. core, north

113

74-SB180

0-2 fine sandy top sand

2-4 gravel layer

4-1 brown silty sand

w/ fine clay & gravel

1-1.4 dark brown sandy silt

1.4-3 - orange-brown silty

clay - sparse sand inclusions

3-7.4 light brown med. fine

sand w/ some silt

7.4-12 light brown sand w/

some clay (silt - some water)

bedrock inclusions -

some gravel 710'

25-5/19/08

74-SB180-01 @ 0855

for test 220. meters, 1300

71-SB180-05 @ 0905

for test 220. meters, 1300

114

115

74-58181

1. 2' depth P 6' offset 1'
2. 2' depth P 4' offset 5'

0-4  
3-6  
4-6  
5-6

0-2 brown sandy silt  
2-5 greyish silty clay  
5-7.6 brownish orange  
silty clay  
7.6-9.1 brownish orange  
sandy silt - some gravel  
9.1-9.5 deep grey gravel

4-8  
5-8  
6-8  
7-8

4.5-8 light brown sandy silt -  
w/ some clay

8-10 light brown silty sand w/  
weathered brown calcareous

8-12  
9-12  
10-12

reference to 10'

116

30-5/19/08

Sample

74-58181-02 @ 0915

for LRC-DRC tests, URS

74-58181-04 @ 0925

for DRC-DRC tests, URS

74-58181-05 @ 0935

for URC, DRC, tests, URS

QA/QC

74-58181-05 - DUB @ 0935

74-58181-04 - DUB @ 0925

117

74-SB182-

5° S 19/08

0.2'

0.2' brown sandy top soil

2-5' dark grey gravel & silt

5-2.2' brownish orange silty  
clay w/ sparse sand / gravel

2.2-6.5' light brownish orange  
silty <sup>medium</sup> sand w/ sparse  
well-sorted red pebbles

6.5'

6.5-10' orange brown clayey silt  
w/ significant / well-sorted red pebbles

10-12' - light orange brown silty  
clay w/ significant pebbles

4.12'

74-SB182-04 @ 0950  
for C.A. D20 - sub 10 S20-3

74-SB182-05 @ 1005

74 - SB183

1 - layer @ 5' - depth 42.5'

0-1.3 dark brown sandy red-brown

1.3-2.1 micaceous brown silty

clay w/ some sand

2.1-74 clayey silt w/

some sand, significant

weathered sand

7.4-10' clayey weathered

beds & significant

some ~~layers~~ of brownish orange

silty clay

50 5/19/08

74-SB183-04 @ 102.5'

for C&G DE. COR. MARK

74-SB183-05 @ 103.5'

for C&G DE. COR. MARK

74 - SB1841

1. 1.5' - 3' - 1.5' (bed)  
 1. 1.5' - 3' - 1.5' (bed)

0.2' dark brown sandy top: sand

1.2' - 1.5' grayish brown #57

gravelly sand

5 - 2.8 light brown silty

sand w/ some gravel, few

clayey

2.8 - 5' orange-brown

silty clay - coarse sand

5 - 12 orange clayey silt

w/ some sand some

subtle parallel peak markings

clay content increases w/ depth

50 5/19/68

Sample 74-SB1841-01 @ 1050

60-80 mids, N10

74-SB1841-05 @ 1105

60-80 mids, N10



74-SB 200

0-4  
3  
p.c.

0-12 dark brown top sand

2-5 brown silty sand

5-1.5 fine sand w/ some  
gravel coarse rubble

1.5-5.2 gravel (bluish-gray)

W. brownish gray sand

5.2-6' gravel w/ <sup>heavy</sup> silty clay

6-8' orange-brown clay

8-8' (expansive?)

8.1-8.2 gravel 21A

8.2-10- light bluish gray

clayey silt w/ sand gravel

10-12 coarse sandy silt

some gravel

5-12  
3.0  
p.c.

124

SD

5/19/68

Sampled 74-SB 200 - @ 1280  
for GRL-DRG, white, SDCs

74-SB 206 - @ 1290  
for GRL-DRG, white, SDCs

22A/22C

74-SB 206 - DWS @ 1230

125

74-38207

0-15 - dark brown silty sand  
top 2:1

0-4  
3.8  
Rust

5-7 - 21% black green sand

7-1 - brown silty sand

1-1.5 - tan medium silty sand

1.5-5 - green w/ black

gang & orange clay in  
matrix

4.8  
3.8  
Rust

5-10' gravelly black-green  
sandy silt

Return @ 10'

8.16  
1.16  
Rust

126

30 5/19/08

Sample 74-38207-04 @ 1302  
for ARD, DRC, ATR, VOLS

74-38207-05 @ 1315  
for ARD, DRC, ATR, VOLS

127

74 - 363 208

- Refused - 2'
- Refused - 1.5'
- Refused - 2'
- Refused - 2.5'
- Refused - 2'
- Refused - 2.5'

0.4

moving - 0.1m - to 2.99

4.8

8.10

128

50 5/19/05

No Suphes cubes

129

74-SB209

0.4  
3.8  
Q<sub>1</sub>

- 0-1.2 dark brown sandy top sand  
1-1.2 light brown silt  
sand to fine gravel  
1.2-1.6 brown silt  
w/ some gravel - few pebbles  
1.6-2.8 bluish gray sandy silt  
- sparse gravel - some  
weathered nodules/spherules  
2.8-7.6 brown sandy silt  
to gravel - few pebbles  
7.6-10.4 mottled bluish gray  
silty silt & siltstone  
matrix - dip @ -9.5  
10.4-12 bluish gray sandy  
silt w/ some siltstone pebbles  
sandstone @ -11'

4.8  
3.8  
Q<sub>2</sub>

8.4  
3.8  
Q<sub>3</sub>

50 5/11/08

Depth

74-SB209-04 @ 1345

for GRC - DRG, notes, etc.

74-SB209-07 @ 1355

for GRC - DRG, notes, etc.

74-SB210.

50 5/19/06

0-2' brown sandy top soil  
2-4' light brown granular sand  
4-6' light brown w/ some  
orange granular silt,  
some sand lenses

6-8' sandy silt w/ gravel  
8-11' grayish green sandy  
silt w/ some gravel

6.1' PED wt 1040 spike  
7' - PED spike 1040  
8' - QIP spike 1149  
9' PED spike 780  
10' PED spike 380

11-12' light brownish orange  
sandy silt w/ some clay  
11' PED spike 780

Suplex 74-SB210-04 @ 1900  
for GLO-DBD, subsoil, 200s  
LL PAH's

74-SB210-05 @ 1910  
for GLO-DBD, subsoil, 200s  
LL PAH's

74-SB211

- 1. Refuse at 3'
- 1. Refuse at 7'
- 1. Refuse at 2.5'
- 1. Refuse at 7.5'

0-2 - brown sandy top soil

2-2 - brown sandy soil w/  
some clay & gravel

2-4 bluish green gravelly silt

4.5 - 7.5 brown sandy soil -  
some gravel & spherule bearing  
fine debris.

- PSD spha - 6 @ 8.5

- Refuse at 8.5

Sample 5-7 / 7-8.5

50 1/19/68

Sample 74-SB211-00 @ 1430

Sample 74-SB211-03 @ 1445

for GRC. DRA. Mads. 1043

74-SB211-04 @ 1500

QA/QC

74-SB211-03 - Dsp. 1445

74-SB211-04 - M/S/D

@ 1500

134

135



30 5/20/08

0630 : on site. set up / make  
0740 : put drilling on site.

- start @ SB 207

1100 - Drilling like track - end on  
SB 220 - / ground now also

1215 - Return from lunch - relocate

8. resume on SB 231.

1430 - move to front - end on 235.

1530 - Return to place - label / ice  
samples plus for next day.

1730 - finish work for day.

74-  
SB 227

④ 5/20/68

0-3 dark brown silty clay  
3-6 <sup>grayish</sup> sandy silt &  
gravel - some clay

0-4  
3.6  
Return

6.7 - 8.5 greenish blue  
silty sand w/ some gravel  
some other debris, but no  
PFO bits.

4-8  
3.4  
Return

8.5 - 9 brownish orange  
silty sand w/ some  
clay nodules & gravel

9-12 bluish gray - sandy  
silt w/ some clay &  
gravel

8-12  
4.6  
Return

PED. SPICES

7'	10
8'	10
9'	550
10'	421
11'	189
12'	20

13A

single

74-SB 227-04 @ 0800  
for GRS-ORC. notes, etc.

74-SB 227-05 @ 0815  
for GRS-ORC. notes, etc.  
LL PMS

131

74-58228-

0-4'  
2.5'  
Run

0-5' dark brown sandy top sand  
5-7.5' light green  
7.5-12.2' orange-brown silty  
clay  
12.2-6.2' orange-brown  
silty sand - 1/2 sand clay

4-8'  
2.6'  
Run

6.2-12' light green  
gravelly silt sand clay  
silt hydration silty  
P.L.D. silt (1/2 sand)

6'-0' 2'-0' 12'-13.6' 12'-20'  
7'-0' 9'-13.2' 11'-13'

- saturated @ 7.5'

8-12'  
3.6'  
Run

140

30 5/20/68

Sample 74-58228-04 @ 0825

R- GRD DR. med. silt, clay

74-58228-05 @ 0835

R- C.R.L. DR. med. silt, clay  
LL PHM

141

74-SB 229

0.4-1.4 brown sandy silt

1.4-1.7 brown sandy silt  
w/ silt

1.7-3.5 orange-brown silt w/  
silt, sand / gravel / cobble

3.5-7.4 orange-brown silt  
clay w/ silt sand / gravel

7.4-9.4 light brown clayey silt  
w/ sparse sand  
- Sphered R

9.4-9.7 light brown silt w/  
silt sand

9.7-12 black-green clayey  
silt w/ silt sand  
inclusions

142

50 5/20/08

Log 74-SB 229 - 04 @ 0905  
for LKO: DR. notes, etc.

74-SB 229 - 05 @ 0910  
for LKO: DR. notes, etc.

143

74-SB 230

0-4 dark brown sandy top soil

4-1-1-5 to - sand and

some gravel

1-1.5 - white sand & gravel

1.5-3.6 orange-brown

sandy clay

3.6-12' bluish green sandy

silt - Saturated @ 8'

PEO spin (ppt) - one sand lens

8' 5' & gravel @ top.

9' - 190

10' 1350

11' 15'

12' 7'

30 5/20/08

74-SB 230-04 @ 0930

for LRO DPO - points, etc.

74-SB 230-05 @ 0945

for LRO DPO - points, etc.

LL PAHS

144

145

74-SB 231

0.4  
3.2  
pump

0-5 - brown silty sand, light  
5-9.6 - light tan-white  
sand w/ some interdispersed  
silty gravel / shell fragments  
- pump @ 6'

9.6-12 - light orange  
brown silty sand w/  
silty gravel  
- separated @ 10'

0.4  
4.3  
3 pump

2-12  
3.4  
3 pump

146

50 5/20/08

dup 74-SB 231-00 C 1200  
for GRC DRG, notes, etc.

74-SB 231-04 @ 1210  
for GRC - DRG, notes, etc.

74-SB 231-05 @ 1220  
for GRC - DRG, notes, etc.

QA / QAL

74-SB 231-00 - Dup @ 1200

74-SB 231-04 MS/MSO @ 1210

74-SB 231-05 - Dup @ 1220

147



74-SB 232

0-4 : brown silt top 200  
 4-3.2 : brown ~~silt~~ sand w/  
 some silt - some gravel

3.2-7.4 light brown/tan  
 sand - some gravel -  
 some shell fragments -  
 sand gets finer w/ depth  
 "saturated @ 7'

7.4-10 bluish grey silt  
 & sand - sand increases  
 w. depth

10-12 : bluish grey sand / some  
 silt, some gravel &  
 shell fragments

SD 5/20/08

Depth 74-SB232 - 04 @ 12.5  
 for GR. DR. notes, UCCS

74-SB232 - 05 @ 13.5  
 for GR. DR. notes, UCCS

74-SB 233

SD 5/20/08

- 0-2 dark brown sandy top soil  
 2-7 gravel & brn silt  
 7-14 fine silty sand & gravel  
 14-15 orange-brown  
 silty sand w/ some shell  
 fragments & gravel  
 15-25 lighter tan sand -  
 sparse gravel  
 25-35 brown silty sand  
 35-42 black gray sand  
 w/ some silt some gravel  
 & shell fragments

0-14  
 3  
 14

4-15  
 3  
 15

35-42  
 3  
 42

Sample

74-SB233-04 @ 1315

for CLO. DRO, metals, etc.

74-SB233-05 @ 1325

for CLO. DRO - metals, etc.

74- SB 234

SD 5/20/08

0-4 - dark brown sandy red soil

4-8 - tan sand & gravel

8-10 - reddish brown

silty clay w/ traces of  
gravel (inter) spaces

9-11 - gray & brown

silty clay

11-12 bluish - black silty

clay gravel

- saturated @ 10.8'

Sample

74- SB 234 - 04 @ 1342

for L.R.C. - ORC - water lines

74- SB 234 - 05 @ 1350

for L.R.C. - ORC - water, 1003

152

153

74-SB235

30 5/20/08

0-2 dark brown sandy to silty  
 2-6 dark brown silty  
 sand w/ some gravel  
 6-8 light tan sand  
 w/ some gravel to some silt

9-10 light tan clayey  
 sand  
 10-12 light bluish silty  
 clay - started @ 10'  
 11-12 light bluish fine  
 silty sand -

Sample 74-SB235-04 @ 1405  
 for GRG-DRC - sand, silt, clay

74-SB235-05 @ 1415  
 for GRG-DRC - sand, silt, clay

154

155

ending in 1 (in 91, 10, 11).

Surface Sample 10/10/10 1. 0.00

on 10/10/10

Ending in 6 (in 46, 106, 116)

~~not~~ Duplicate 10/10/10 2 0.00

All 2 Subdivisions

for

DRO. 420 -

Vol 3 notes

LL on 10/10/10

10-1 - 00

1-3 - 01

3-5 - 02

5-7 - 03

7-9 - 04

9-11 - 05

~~11-12 - 06~~

156

## CURVE TABLES

### HOW TO USE CURVE TABLES

Table I contains Tangents and External to a 1° curve. Tan and Ext. to any other radius may be found nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

### EXAMPLE

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P. = 23° 20' to the R. at Station 542 + 72.

Ext. in Tab. I opposite 23° 20' = 120.87

120.87 : 12 = 10.07. Say a 10° Curve.

Tan. in Tab. I opp. 23° 20' = 1183.1

1183.1 : 10 = 118.31

Correction for A. 23° 20' for a 10° Cur. = 0.16

118.31 + 0.16 = 118.47 = corrected tangent.

(If corrected Ext. is required find in same way)

Ang. 23° 20' = 23° 33' 10" = 2.3333 = L. C.

2° 18' = def. for sta.	542	I. P. = sta.	542 + 72
2° 48' = " "	1 50	Tan. =	1 118.47
2° 54' = " "	548	B. C. = sta.	541 + 53.53
2° 54' = " "	1 50	L. C. =	2 33.33
2° 40' = " "	543	E. C. = sta.	543 + 86.86
	86.86		

100 - 53.53 = 46.47 × 3 (def. for 1 ft. of 10° Cur.) = 139.41 =

2° 18' = def. for sta. 542.

Def. for 50 ft. = 2° 30' for a 10° Curve.

Def. for 86.86 ft. = 1° 50' for a 10° Curve.



30. 5/24/68

0640 - on site looking - 2 per day

0730 - meet drillers on pad / strings over

Riffi + Jachin

0750 - set up on plot - SB 236



74-SB236

Sc 5/21/88

0-4- dark brown, sandy top soil  
4-3- brown medium sand w/  
some gravel & shell/fragments

0-4  
3-5  
fine

fragments  
3-4.5- light tan - white  
medium sand w/ some  
indistinct clay nodules

4-8  
3-4  
fine

4.5-6 light tan silty clay  
6-7.5- light tan medium sand  
- moist @ 7'

8-9.5- light tan - white  
medium sand w/ some  
clay nodules

8-12  
3-5  
fine

9.5-10.7- light grayish-blue  
medium sand w/ some silt  
- Salinized @ 10'  
- some gravel/shell material

After

74-SB236 - M @ 0800  
for Lab - DRG - UCL, etc.

74-SB236 - OS @ 0810  
for Lab - DRG - UCL, etc.

QA/QC

74-SB236 - OS - Dup @ 0810

74-SB237

50. 5/21/68

0-3- Dark brown sandy ~~top~~ sand  
 3-1.5- ~~Dark~~ brown sandy  
 silt & gravel w/ some sand  
 some red clay nodules

1.5-1.7- Dark brown gravel

1.7-9.5 light tan

sand w/ some shell

fragments & sparse coral

- Saturated @ 7.5'

9.5-11 - color transition from light

bluish gray sand w/ some

silt shell fragments

- bluish gray clay nodules

depth : 74-SB237 - CH @ 1845  
 of L.R. DR. notes, etc.

74-SB237. 05 @ 0900  
 of L.R. DR. notes, etc.

74- SB 238-

30 5/21/08

1- subunit @ .5'

0.3- dark brown sandy silt sand

.3- 1.3- tan fine silty sand  
w/ some gravel

1.3- 1.7- dark brown black  
silty sand w/ gravel

1.7- 2.2- orange-brown  
silty sand w/ gravel

2.2- ~~2.4~~ 4' - light tan medium  
sand w/ some silt & clay,  
some shell fragments -

4- 6.5- light brown/tan medium  
sand w/ some silt & clay,  
some shell fragments a few  
- subunit @ 6.5'

6.5- 8' gray silty sand  
w/ sparse coral & shell material  
- some clay nodules

with re-push in 3' lifts  
for better recovery -

~~subunit~~

dup 74 SB 238 - 04 @ 0940

for CRO-DEU metals, UCCs

74-SB238- 05 @ 0950

for CRO DEU metals, UCCs



8-10 bluish-gray med sand w/ some shell & coral material

10-12 bluish-gray clayey silt

74- SB 239.

50- 5/21/08

0-4  
3.6  
fine

0-1.2' brown silty top soil  
1.2-1' brown fine silty sand  
1-1.5' brown gravelly sand  
1.5-1.7' bluish-gray gravelly  
1.7-4.8' light tan med. fine  
sand w/ some gravel (shell/  
and coral fragments  
- some lenses of med. orange-  
sand)

4-7  
2.8  
fine

4.8- 5.2' - orangeish brown  
coarse sand and gravel  
w/ some shell fragments

7-10  
3.2  
fine

5.2- 7.8' light tan clayey  
silt w/ lenses of light  
tan med. fine sand

10-12  
2.0  
fine

8-12' bluish-gray clayey silt

Amplified

74- SB 239 - 04 @ 1000  
for CRO. ORO. notes, sec.

74- SB 239 - 05 @ 1010  
for CRO. ORO. notes, sec.

74-SB 240.

SD 5/21/08

0-.2' brown silt, sand top 30%

.2-1 dark brown /lt orange fine

silty sand w/ some gravel

1-1.7- med lighter tan silt

w/ some shell fragments &

some gravel

1.7-2- gravel (bl-ol-gray)

21 A

2-3.3' brown silty s-s

w/ some shell fragments & coral

(20% gravel, 4-8% shell - 2.17 to 4)

(20% gravel 4-8% sand - 2.17 to 4)

with some siltstone gravel (in shell)

3.5-4.5' light brown med-

coarse sand w/ some shell

fragments

saturation @ 8'

4.5-12' - light bluish gray med

sand some silt,

- shell fragments

11-12' fine light gray silty

sand

depth 74-SB 240-04 @ 1040

for GRD-DR, Vels, mids

74-SB 240-05 @ 1050

for GRD-DR, Vels, mids

0.4  
3.3

4.5  
0  
9.8

8.12  
1.8  
6.3

74-SB 241

30 5/21/08

- 0-5 dark sandy top soil  
 5-8 brown sand & gravel  
 8-2 orange-brown  
 clayey silt w/ some gravel  
 2-2.3 dark/black sand w/  
 some gravel  
 2.3-5.5 tan silty sand  
 w/ some clay - some  
 gravel in lenses  
 5.5-7 light tan fine  
 silty sand & clay  
 7-10' light tan med.  
 coarse sand w/ some  
 shell fragments & coral.  
 10-12 bluish-grey coarse  
 sand w/ some silt -  
 shell fragments throughout

- Saturation @ 6.5'

Sample

74-SB 241-00 @ 1400  
 for GRV DRU - metals, UCLs

74-SB 241-04 @ 1410  
 for GRV DRU - metals, UCLs

74-SB 241-05 @ 1420  
 for GRV DRU - metals, UCLs

QA/QC

74-SB 241-04-DP @ 1410

74-SB 241-05 - m<sup>3</sup>/m<sup>3</sup> @  
 1420



74. SB 242

IO. 5/21/2008

1. Refused @ 4'
2. Refused @ 4 1/2'
3. Refused @ 4'
4. Refused @ 4'
5. Refused @ 4'

all  
3' 6"  
long

- 0 - 2" dark brown sandy top soil
- 2 - 1.1. brown silty sand w/  
some gravel
- 1.1 - 2. light brown silty sand  
with some gravel
- 2 - 4. dark tan silty sand w/  
some clay, some gravel
- (untested) Refused @ 4'

Samples

~~74. SB 242~~  
~~1. Refused @ 4'~~  
~~2. Refused @ 4 1/2'~~  
~~3. Refused @ 4'~~  
~~4. Refused @ 4'~~  
~~5. Refused @ 4'~~

No Samples collected  
No PIP instruction

4  
3

8  
7

**Geologist – Ed Kleinkauf**

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①

05/12/00

① TRAVEL TO PUERTO RICO

② GET SET UP IN CONDO

③ SHOPPING AND DINNER

④ MEETING w. JOE BURAWA  
AND JOHN MALINOWSKI  
ON SITE WORK

②

05/13/08

0630 : @ PUBLIC WORKS  
DEPARTMENT BUILDING

GETTING EQUIPMENT AND  
SUPPLIES TOGETHER.

\* DRILLER / HELPER FOR  
MY RIG :

ABRAHAM - DRILLER  
NASSER - HELPER

GEO PROBE TRACK RIG

\* OTHER TRACK RIG :

DOMINGO - DRILLER  
EDWIN - HELPER

\* CREWS USUALLY TAKE  
LUNCH BETWEEN 1200  
AND 1300 H.

③

05/11/08

\* FINISH AT SITE 1530 -  
1600 H.

\* LEAVE BASE ABOUT  
1700 - 1730 H.

\* WORKING @ VALVE PITS.  
INSTALLING MONITOR-  
ING WELLS.

\* THIRD GEO PROBE RIG IS  
TRUCK MOUNTED.

JUAN - DRILLER  
? - HELPER

④

05/13/08

74-VP1Ab

MONITORING WELL

NO ANALYTICAL SAMPLES

0-0.3' BROWN f/AM SAND  
SPANG SILT + CLAY (FILL)

0.3-0.8 - SAME - (FILL)

0.8-5.0 WHITE/TAN/LT. BROWN  
f/AM SAND + LITTLE  
SILT; DRY5.0-8.8 BROWN SILT/CLAYEY  
SILT; TR. SAND;  
SLIGHTLY MOIST8.8-10 GREEN/WHITE CLAYEY  
SILT/SILT, TR. f  
SAND; SLIGHTLY MOIST

10-14 - SAME -

\* CONTINUALLY GETTING CAVE  
OR LEFT OVER SOIL FROM RUN.

⑤

05/13/08

P1D

0-5'	0	0-11'	0	0-22'
0	0-6'	0	2.4-17'	
0-1'	0	0-12'	58	
0	0-7'	0	0-18'	
0-2'	0	0-13'	185	
0	0-8'	3.4	1733-19	
0-3'	0	40-114'	234	
0	0-9'	0	1.4-20	
0-4'	0	0-15'	0	
0	0-10'	0	0-21	
0-5'	0	0-16'	0	

\* MOVED BORING/PROBE DOWN  
TO 15'

14-18 - SAME -

\* STILL PROBLEM WITH  
CAVE, GOING TO CASING  
① CASING TO 15'  
② GOING TO SAMPLE 15-19'

⑥

05/13/08

\* HARD MATERIAL, TOUGH  
GETTING TO 18'

15-18' - SAME - [VERY HARD]

\* SLIGHT GLOSS TO SAMPLE  
SURFACE.

18-20' -- SAME -- (VERY HARD)

20-21.5' - SAME -

21.5-22' BROWN SILTY CLAY  
HARD.

\* WELL INSTALLED @ 22'  
10' SCREEN  
SAND 2' ABOVE SCREEN  
BENTONITE  
CONCRETE @ SURFACE  
W/ COVER.

⑦

05/13/08

74-VP1 B<sub>a</sub>

0-4' BROWN SILTY CLAY  
TR. f SAND (FILL)

f GRAVEL/ROCK  
FRAGS @ 2'

\*\* JOE B TOOK OVER

⑧

05/14/08

0125' @ DRILL SITE

⑨

05/14/08

74 - VP 2a

MONITORING WELL  
ANALYTICAL SAMPLES0 - 4' BROWN SILTY CLAY,  
TR. F. SAND  
V.S. MOIST (G.M.)

4 - 5' — SAME —

5 - 6' LIGHT BROWN / BROWN /  
TAN FINE SAND + SOME  
SILTY CLAY / CLAY + SILT;  
DRY6 - 11' BROWN / LT. BROWN / TAN  
SILT, TR. F. SAND;  
DRY → V.S. MOIST11 - 14' GREEN / WHITE SILT /  
CLAY, SILT, TR. F.  
SAND

14 - 17' — SAME —



(10)

05/14/08

PED

0-0	0	0-11	2246	13-22
0	0-6	0	2315-17	19.3
0-1	0	0-12	1139	112-23
0	0-7	0	231-18	9.7
0-2	0	0-13	517	0-24
0	0-8	116	716-19	
0-3	0	0-14	113.3	
0	0-9	806	308-20	
0-4	0	917-15	17.3	
0	0-10	496	454-21	
0-5	0	1185-16	48.6	

17-20' - SAME -

20-22' - SAME -  
GWS @ 20'22-24' BROWN/WHITE/TAN  
SILT/CLAYEY SILT  
TAN f SAND.

(11)

05/14/08

ANALYTICAL SAMPLES74-VP2a/9-08 @ 0840<sup>h</sup>74-VP2a/9-10 @ 0850<sup>h</sup>

\* TROUBLE GETTING CASING  
DOWN FOR WELL INSTALLA-  
TION. DRIVEN TO 16'.  
PULLED CASING & GROUND IN  
WITH TUST PLUG AND  
RODS.

\* SEEMS ABRAHAM HAS  
TROUBLE @ DEPTH. THINK  
HE DOESN'T GET THING  
LEVEL ENOUGH @ START

WELL INSTALLED @ 22'  
10' SCREEN  
SAND 2' ABOVE SCREEN  
BENTONITE  
CONCRETE @ SURFACE  
w/ COVER

⑫

05/14/08

74-VP26

MONITORING WELL

NO ANALYTICAL SAMPLES

0-0.7 DK. BROWN SILTY CLAY  
TR. f SAND (FILL)0.7-1 BROWN SILTY CLAY  
TR. f SAND (FILL)1-7 BROWN SILTY CLAY  
TR. f SAND7-8 GRAY/LT. GREEN CLAYEY  
SILT/SILT, TR. f/fine  
SAND; TR. f COARSE  
ROCK FRAGS & T

8-9.5 -- SAME --

9.5-12 GREEN SILT/CLAYEY  
SILT, TR. f SAND  
SLIGHT ODR

⑬

PID

0-0	0	26-11	0
0	0-6	224	8.8-17
0-1	0	0-12	0
0	0-7	0	155-18
0-2	0	0-13	49
0	0-8	0	0-19
0-3	0	0-14	0
0	0-9	0	0-20
0-4	0	0-15	
0	0-10	63	
0-5	0	0-16	

12-14.5 -- SAME --

14.5-16 LT. GREEN/BROWN/  
WHITE SILT/CLAYEY  
SILT

16-18 -- SAME --

18-20 GREEN/BROWN CLAYEY  
SILT/SILT; HOIST

(14)

05/14/08

WELL SET @ 22'  
 10' SCREEN  
 SAND 2' ABOVE SCREEN  
 BENTONITE  
 CONCRETE @ SURFACE  
 W/ COVER

\* CASING WENT TO 20'  
 HOLE OPEN. PUSHED PILE  
 ~ 4' TO SEE WHAT CONDITION  
 ARE.

(15)

05/14/08

74 - SB160

PID

0 - 10' GRAY/BROWN/  
 MED. GRAY f.c  
 SAND/CLAYEY  
 SILT/F. GRAVEL  
 ROCK FRAGS.  
 (FILL)

0 - 0  
 0  
 0 - 1  
 0  
 0 - 2  
 0  
 0 - 3  
 0

\* SAMPLES COLLECTED:

74 - SB160 - 04

@ 4 INCH

74 - SB160 - 05

@ 4 INCH

0 - 4  
 0  
 0 - 5  
 0  
 0 - 6  
 0  
 0 - 7  
 0  
 0 - 8  
 0  
 0 - 9  
 0  
 0 - 10

(16)

05/14/08

74-SB159

PID

0-2' GRAY/LT. GRAY/WHITE  
f. SAND, LITTLE/  
SOME SILT (FILL)

0-0

0

0-1

0

2-3' BROWN SILTY CLAY/  
CLAY + SILT, TR. f  
SAND (FILL?)

0-2

0

0-3

0

3-9.7' - SAME -

0-4

0

9.7-10' GRAY SILT/  
CLAYEY SILT  
TR. f SAND

0-5

0

0-6

0

0-7

0

0-8

0

0-9

0

0-10

\* SAMPLES COLLECTED

74-SB159-03

@ 1415<sup>H</sup>

74-SB159-05

@ 1425<sup>H</sup>

(17)

05/14/08

74-SB158

PID

0-7' BROWN/TAN  
SILTY CLAY/  
CLAY + SILT, TR.  
f SAND

0-0

0

0-1

0

0-2

0

0-3

0

0-4

0

0-5

0

0-6

0

0-7

0

0-8

0

0-9

0

0-10

7-10' GRAY SILT +  
CLAY, TR./LITTLE  
ROCK FRAGS/  
GRAVEL

\* SAMPLES COLLECTED:

74-SB158-03

@ 1450<sup>H</sup>

74-SB158-04

@ 1500<sup>H</sup>

(18)

05/14/08

74-SB157

PID

0-4' BROWN SILTY CLAY,  
TR FINE SAND, TR  
F ROCK FRAGS (FILL)

0-0'

0

0-1'

0

4-6 - SAME -

0-2'

0

6-8 BROWN SILTY CLAY  
CLAY + SILT

0-3'

0

0-4'

0

8-10' GREEN SILT + CLAY

0-5'

0

0-6'

0

\* SAMPLES COLLECTED \*

0-7'

0

74-SB157-04

e. 1540"

0-8'

74-SB157-05

e. 1600"

0

0-9'

0

0-10'

(19)

05/15/08

0630

e.

PID

(20)

05/15/08

74-VPO8a

MONITORING WELL  
ANALYTICAL SAMPLES0-5' BROWN / DR. BROWN SILTY  
CLAY / CLAY + SILT, TR.  
FINE SAND, GR. GRAVEL /  
ROCK FRAGS (FILL)5-10' LOW RECOVERY (~18")  
MOSTLY SIDEWALL  
TRIMMINGS10-15' NO REAL RECOVERY  
SHAVINGS15-20' BROWN SILTY CLAY /  
CLAY + SILT20-24.5' - SAME - MORE  
SILT, HARD @ 24.5'

(21)

05/15/08

PID

0 - 0'	-	-	11	0	0 - 22
0	-	6	-	0 - 17	0
0 - 1'	-	-	12	0	0 - 23
0	9.8	7	-	0 - 18	0
0 - 2'	-	-	13	0	0 - 24
0	-	8	-	0 - 19	0
0 - 3'	-	-	14	0	
0	-	9	-	0 - 20	
0 - 4'	-	-	15	0	
0	-	10	131	0	21
0 - 5'	-	8.2	16	0	

WELL SLIT @ 24.5'  
10' SCREEN  
SAND 12' ABOVE SCREEN  
BENTONITE  
CONCRETE @ SURFACE  
w/ COVER

\* SAMPLES COLLECTED

74-VPO8a - 07

2,0405"

74-VPO8b - 10

0.04204

(23)

09/15/08

7A - VP086

MONITORING WELL

NO ANALYTICAL SAMPLES

0 - 4.5' BROWN/TAN f/fc SAND  
SOME SILT & CLAY, TR  
f. GRAVEL, DAY. (FILL)

4.5 - 5' BROWN/REDDISH BROWN  
SILTY CLAY/CLAY +  
SILT, TR f SAND DAY

5 - 8' - SAME -  
LESS TO NO SAND

8 - 10' GREEN CLAYEY SILT/  
SILT + CLAY

10 - 15.5' - SAME -

15.5 - 17' BROWN/TAN/YELLOWISH  
BROWN SILT/CLAYEY  
SILT

(CONTINUED) ON  
PAGE (24)

(23)

09/15/08

P.I.D.

0 - 6'	0	15 - 11'	0	0 - 22'
0	0 - 6'	0	0 - 17'	0
0 - 1'	0 -	114 - 12'	0	0 - 23'
0	0 - 7'	518	0 - 18'	0
0 - 2'	0	360 - 13'	0	0 - 24'
0	480 - 8'	262	0 - 19'	
0 - 3'	56	204 - 14'	0	
0	0 - 9'	129	0 - 120'	
0 - 4'	15	0 - 15'	0	
0	0 - 10'	0	0 - 21'	
0 - 5'	0	0 - 16'	0	

WELL SET @ 24'

10' SCREEN

SAND 2' ABOVE SCREEN

BENTONITE

CONCRETE @ SURFACE

W/COVER



(29)

05/15/08

74-VPOB (continued)

17-18' BROWN SILTY CLAY/  
CLAY + SILT18-19.5' BROWN/TAN/LT. GRAY  
CLAYEY SILT, TR. &  
SAND, TA. ROCK FRAGS.19.5-20' BROWN/REDDISH BROWN  
CLAYEY SILT20-24' BROWN/TAN/LT. GRAY  
CLAYEY SILT/SILT  
+ CLAY...

CLAYEY ZONE C. 2.2' (1-3')

(29)

05/15/08

74-VPO7a

74/21

MONITORING WELL  
ANALYTICAL SAMPLESAA REPLACES 74-SB151  
MOVED PIN FLAG CLOSER  
TO VALVE PIT

PIP

0-4' BROWN SILTY CLAY/  
CLAY + SILT, LITTLE  
SOME fm/lt. SAND  
TA. & ROCK FRAGS.

\* GUN 4'

4-8' - SAME

8-10' BLUE/GRAY CLAY/  
SILTY CLAY

\* SAMPLES COLLECTED

74-VPO7a - 00  
0.133574-VPO7a - 01  
0.1350

DUP/MS/MSD

0-0
0
0-1
0
0-2
0
0-3
0
0-4
0
0-5
0
0-6
0
0-7
0
0-8
0
0-9
0

(26)

05/15/08

74-VP07a (CONTAINER)

	PID
WELL INSTALLED & 10'	0-0'
7' SCREEN	0
SAND 1' ABOVE SCREEN	0-1
ANTONITE	0
CONCRETE & SURFACE	0-2
W/ COVER	0
	0-3
	0
	0-4
	0
	0-5
	0
	0-6
	0
	0-7
	0
	0-8
	0
	0-9
	0
	0-10

(27)

05/15/08

74-~~VP~~VP07b

PID

MONITORING WELL	0-0'
NO ANALYTICAL SAMPLES	0
	0-1
0-1.5' Brown Silt CLAY/	0
CLAY & SILT TR/	0-2
LITTLE FINE SAND	0
	0-3
1.5-5' WHITE/AT TAU	0
SILT/CLAYEY	0-4
SILT LITTLE	0
FC SAND/ROCK	0-5
FRAGILE	0
	0-6
* GAGE 4'	0
	0-7
5-6' - SAME -	0
	0-8
6-8' RED/RODDISH	0
BROWN/GLOSS	0-9
CLAY/SILT CL	0
	0-10
8-10' Blue CLAY/	
SILT CLAY	

(28)

74-VP7b (continued)

\* Well set @ 10'

7' screen

Sand 1' Above screen

Bentonite

Concrete @ surface

w/ cover

(29)

05/16/08

0645. a. PWD

Supplies

ICE. Prod. Security Office

GW Levels

74-VP08a — 10' GW

74-VP08b — 10' GW

74-VP7a — 4.3' (bgs)

74-VP7b — 3.6' (bgs)

74-VP7c — 9' GW

74-VP7d — 30' GW

\* PROBLEMS w/ P.I.D. "Clean  
Screen" message. Erratic  
readings (not sure I  
had yesterday).

Needs filter

Observed Joe's P.I.D.

\* GOT MINE WORKING  
Still needs filter

(30)

05/10/08

74 - VP6a

MONITORING WELL

ANALYTICAL SAMPLES

0-0.8' BROWN SILTY CLAY/  
CLAY + SILT, TR. f.s.  
SAND, ROOTS (TOP SOIL FILL)

0.8-4' WHITE/TAN f/s - SAND  
TR. SILT

4-10' BROWN SILTY CLAY,  
TR. S. SAND

10-13' - SAME -

13-18' GRAY CLAYEY SILT

18-20' TAN/LT BROWN/YELLOWISH  
BROWN CLAYEY SILT

\* SAMPLES COLLECTED

74 - VP6a - 05 @ 0915H

74 - VP6a - 09 @ 0955H

(31)

05/10/08

P.I.D.

0 - 0	0	0 - 11	0
0	0 - 6	0	0 - 17
0 - 1	0	0 - 12	0
0	0 - 7	0	0 - 18
0 - 2	0	0 - 13	0
0	0 - 8	0	0 - 19
0 - 3	0	0 - 14	0
0	0 - 9	0	0 - 20
0 - 4	0	0 - 15	
0	0 - 10	0	
0 - 5	0	0 - 16	

WELL INSTALLED @ 20

15' SCREEN

SAND 2' ABOVE SCREEN

BENTONITE

CONCRETE @ SURFACE

W/ COVER

(32)

05/14/08

74-VP 5a

MONITORING WELL

ANALYTICAL SAMPLES

0-1' BROWN SILT + CLAY,  
LITTLE FM/Fc SAND (TENSILE/FILL)1-5' BROWN/MEDIUM BROWN  
FC SAND AND SILT + CLAY  
DAY

5-9' BROWN CLAY/SILT-CLAY

9-10' TAN/LT. BROWN/YELLOWISH  
BROWN SILT/CLAYEY  
SILT, TR. F SAND, SLIGHTLY  
MOIST

10-23' - SAME -

\* SAMPLES COLLECTED

74-VP 5a - 04

0 12104

74-VP 5a - 09

0 12104

(33)

05/14/08

P.E.D.

0 - 0	0 - 6	0 - 12	0 - 15
0	0	0	0
0 - 1	0 - 7	0 - 13	0 - 19
0	0	0	0
0 - 2	0 - 8	0 - 14	0 - 20
0	0	0	0
0 - 3	0 - 9	0 - 15	0 - 21
0	0	0	0
0 - 4	0 - 10	0 - 16	0 - 22
0	0	0	0
0 - 5	0 - 11	0 - 17	0 - 23
0	0	0	

\* WELL INSTALLED TO 23'  
15' SCREENSAND 2' ABOVE SCREEN  
BENTONITECONCRETE @ SURFACE  
w/ COVER

(34)

05/16/08

74 - VPS 6

MONITORING WELL

NO ANALYTICAL SAMPLES

0-5' BROWN SILTY CLAY  
TR. & SAND, TR. &  
ROCK FRACS (FILL)

5-6.5' — SAME —

6.5-8.5' Dk. Brown / Brown  
SILTY CLAY

8.5-10' BROWN / YELLOWISH  
BROWN SILT / CLAYEY  
SILT -

10-16' — SAME —

16-17' BROWN CLAY / SILTY  
CLAY

17-20' BROWN / YELLOWISH BROWN  
SILT / CLAYEY SILT

(35)

05/16/08

P.I.D.

0-0	0-1	0-11	0
0	0-6	0	0-17
0-1	0	0-12	0-18
0	0-7	0	0-19
0-2	0	0-13	0
0	0-8	0	0-20
0-3	0	0-14	0
0	0-9	0	0
0-4	0	0-15	0
0	0-10	0	0
0-5	0	0-16	0

\* WELL INSTALLED @ 20'  
10' SCREEN

SAND 2' ABOVE SCREEN

BENTONITE

CONCRETE @ SURFACE

w/COVER

(36)

05/16/08

GW LEVELS

Well	Time	GW	Flow
VP8a	1540 <sup>H</sup>	--	26.65
VP8b	1543	--	25.72
VP9a	1547	6.22	11.69
VP7a	1550	6.89	12.17
VP6a	1555	--	22.16
VP6b	1559	9.5	30 <sup>(v)</sup>
VP5a	1604	--	25.02 GSW
VP5b	-	-	- NEW

\* MEASURED FROM TOP OF  
PVC CASING

(37)

05/17/08

0630 e. PWD

\* LOADING SURFACES

\* EXISTING WELL @ VP6B

① GW @ 15.55

Flow @ 42.50



(38)

05/17/08

74-VP6C.b

MONITORING WELL

ANALYTICAL SAMPLES

0-1' BROWN f.c. SAND / ROCK  
FRAGS, SILTY CLAY,  
DRY (FINE)

1-5' BROWN, SILTY CLAY / CLAY  
+ SILT, TR. f. SAND; DRY.  
THIN ROCK FRAG. ZONES  
DRY → V.S. MOIST.

5-8' BROWN / REDDISH, BROWN  
SILTY CLAY; DRY →  
V.S. MOIST.

8-9.5' BROWN / TAN / YELLOWISH  
BROWN CLAYEY SILT,  
TR. f./f.c. SAND

9.5-11' GREEN / WHITE SILT /  
CLAYEY SILT.

(39)

05/17/08

P.I.D.

0-6'	0	0-9'	0	0-18'
0	0-5'	0	0-14'	0
0-1'	0	0-10'	0	0-19'
0	0-6'	0	0-15'	0
0-2'	0	0-11'	0	0-20'
0	0-7'	0	0-16'	
0-3'	0	0-12'	0	
0	0-8'	0	0-17'	
0-4'	0	0-13'	0	

11-13.5' BROWN SILT / CLAYEY  
SILT, TR. f.c. / f.c.  
SAND, TR. ROCK FRAGS  
\* G.W. @ 13.5'

13.5-16.5' GREEN / WHITE SILT /  
CLAYEY SILT

16.5-20' BROWN / RED / REDDISH  
BROWN SILT / CLAYEY  
SILT.

(40)

05/17/08

\* SAMPLES COLLECTED:

74-VPCb-04 @ 0835<sup>h</sup>74-VPCb-07 @ 0855<sup>h</sup>

\* WELL INSTALLED @ 20'

10' SCREEN

SAND TO 2' ABOVE SCREEN

BENTONITE

CONCRETE @ SURFACE

w/COVER

(41)

05/17/08

74-VPCa

MONITORING WELL

NO ANALYTICAL SAMPLES

0-1.5' BROWN/LT. BROWN  
SILTY CLAY AND FC  
SAND AND F. GRAVEL  
ROCK FRAGS; DR. FILL

1.5-5' LT. BROWN CLAYEY SILT;  
SOME F.F. SAND; DRY  
(FILL)

5-6.5' — SAME —

6.5-9' BROWN SILTY CLAY

9-10' GREEN/WHITE SILT/  
CLAYEY SILT  
GW @ 9.0'  
THIN F.F. SAND SEAMS

10-11' — SAME —

(42)

05/11/08

PID

0-0'	0	0-9	0	0-18
0	0-5	0	0-19	0
0-1	0	0-10	0	0-19
0	0-6	0	0-15	0
0-2	0	0-11	0	0-20
0	0-7	0	0-16	
0-3	0	0-12	0	
0	0-8	0	0-17	
0-4	0	0-13	0	

11-14.5' BROWN/MEDIUM BROWN  
CLAYEY SILT, TA-F  
SAND.

14.5-15' GREEN SILT/CLAYEY  
SILT; occ. + SAND;  
AREAS/SEAMS.

15-18.5' - SAME -

18.5-20' BROWN/REDDISH BROWN  
CLAYEY SILT AND  
FC SAND.

(43)

05/17/08

\* DR. BROWN C. T. A. 1  
SILT CLAY

\* WELL INSTALLED @ 20'  
10' SCREEN  
SAND TO 2' ABOVE SCREEN  
BENTONITE  
CONCRETE @ SURFACE  
w/ COVER

(44)

05/17/08

74-VP6Ba

MONITORING WELL  
ANALYTICAL SAMPLES

\* EXISTING WELL @ SITE  
TO BE USED AS 74-VP6Ba

0-1' TOPSOIL

1-5' Brown/Lt. Brown/Tan  
fne/sd SAND, little  
CLAYEY SILT; DAY

5-6.5' Brown Silty CLAY/  
CLAY

6.5-10.5' Brown/TAN/Lt. Brown  
SILT/CLAYEY SILT,  
Tn. f SAND. CLAYEY  
Zone @ 9' (~5-4")

\* GW @ 9'

(45)

05/17/08

PID

0-0'	0	0-9'	0
0	0-5	0	0-14
0	0	0	0-10
0	0-6	0	0-15
0-2	0	0	0-11
0	0-7	0	
0-3	0	0	0-12
0	0-8	0	
0-4	0	0	0-13

10.5-14.5' Brown/TAN/Yellowish  
Brown SILT/CLAYEY  
SILT

14.5-15' CLAYEY

\* SAMPLES COLLECTED:  
74-VP6Ba-03 @ 1210"  
74-VP6Ba-04 @ 1220"

\* Well installed @ 15'  
10' SCREEN, SILE 2' ABOVE  
SCREEN, PENTONITE, CONTRAIL  
@ SURFACE w/COVER

(46)

05/17/08

74 - VP6Aa

MONITORING WELL

ANALYTICAL SAMPLES

0-3.5'	BROWN SILTY CLAY, TA. F. SAND/ROCK FRAGS; DRY (FILL?)
3.5-5'	LT. BROWN/TAN SILT/ CLAYEY SILT, TA. F. SAND
5-10'	- SAME -
10-13'	- SAME -
13-16'	- SAME -
16-20'	- SAME -
* SOFTEN @ 16-19'	
20-22'	BROWN CLAYEY SILT/ SILT + CLAY, TA. ROCK FRAGS.

(47)

05/17/08

P.I.D.

0-0	0	0-11	0	0-22
0	0-4	0	0-17	
0-1	0	0-12	0	
0	0-7	0	0-18	
0-2	0	0-13	0	
0	0-8	0	0-19	
0-3	0	0-14	0	
0	0-9	0	0-20	
0-4	0	0-15	0	
0	0-10	0	0-21	
0-5	0	0-16	0	

\* SAMPLERS COLLECTED @  
 74 - VP6Aa - C4 @ 15.15"  
 74 - VP6Aa - 07 on  
 05/18/08 @ 0900<sup>h</sup>

\* WENT TO AUGER LOG @  
 ~19', DOWN TO 22'

05/18/08

0600: @ PWD

- \* TALKED TO ABRAHAM ABOUT GOING TO AUGERS. MKD CREW USING AUGERS FOR WELLS. STILL HAVE 2 WELLS. GOING TO GET AUGERS AND ADAPTERS/EQUIPMENT FROM KING. JOE B STILL MAY NEED AUGERS FOR WELLS.
- \* TOOK PORGE. H<sub>2</sub>O DRUM TO STORAGE AREA. FOR JPK.
- \* DISCUSSIONS W/ JOE B. ON REST OF WORK. TRY TO GET THESE 2 WELLS DONE. AND THEN GO ONTO SOIL BORINGS ALONG PIPING ALONG ROAD.
- \* GETTING SET UP TO AUGER ON TA-VPGA2.

05/18/08

~ 0815/0820 DOWN TO 5'  
W/ AUGERS. RIG STOPPED AND WOULDN'T RESTART. NO SOUND WHEN KEY TURNED.

0855. BACK TO DRILLING  
\* CLEANED BATTERY TERMINALS AND CABLE CLAMP. FUELED RIG (~ 5 GALLONS)

\* HARD DRILLING. ~ 15 MIN/  
5 FEET.

\* GOING TO 15' W/ AUGERS. STILL HARD DRILLING. APPEAR TO BE SOME MATERIAL. NO PID READINGS FROM CUTTINGS.

\* ADDED 2-3 GALLONS OF ROTABLE WHE TO DRILL TO 24" AND LUBRICATE @ ~ 12-13'

(50)

02/10/08

- \* @ 16' MATERIAL CHANGED. SOFTER
- \* 20 MINUTES TO GO FROM 15-20 FEET COPT HARDER AGAIN @ ~ 19'
- \* DOWN TO 22' in 15 minutes HARD; GRINDING SOUND.
- \* WELL TO AG. SOL. @ 22'
  - 10' FORCER
  - 5' SCREEN
  - 10' RISER
  - 6 BAGS OF SAND
  - 1 BAG BENTONITE
  - 3 BAGS CEMENT + GRAVEL
- \* FINISHED SETTING WELL w/ COVER
- \* LEFT EQUIPMENT @ SITE
- \* BACK TO STAGING AREA AND PWID.

(51)

05/19/08

- 0645 : @ PWID
- \* LOADING EQUIPMENT AND SUPPLIES.
- 0735 : @ DRILL SITE GETTING READY
- \* DOWN 1-1 1/4 HOURS WHILE SOIL BORING LOCATIONS WERE CHECKED AND CLEARED.



(52)

05/19/08

T4 - VPGA b

MONITORING WELLS  
NO ANALYTICAL SAMPLES

- 0-2' BROWN / MOD. BROWN  
SILTY CLAY (FILL)
- 2-10' BROWN / REDDISH BROWN /  
RED CLAYEY SILT /  
SILT.
- \* QUARTZ (MILK), FRAGMENTS  
0-8'
- 10-13' - SAME -
- 13-15' BROWN / YELLOWISH BROWN /  
TAN SILT / CLAYEY  
SILT / TR. F SAND /  
ROCK FRAGS / MOIST
- 15-16' - SAME -
- 16-16.5' GREEN / WHITE SILT / CLAYEY  
SILT, TR. F SAND, HARD  
MOIST

(53)

05/19/08

P.I.D

13 - 0'	1.3	0 - 4'	0
8.4	4.7 - 5	0	0 - 14
14.2 - 1	3.4	0 - 10	0
27.7	0 - 6	0	0 - 15
8.2 - 2	0	0 - 11	0
8.5	0 - 7	0	0 - 16
4.4 - 3	0	0 - 12	0
1.8	0 - 8	0	
1.3 - 4	0	0 - 13	

11/10/08  
11/10/08  
11/10/08

- \* WELL SET TO 16.5'  
10' SCREEN  
SAND TO 2' ABOVE SCREEN  
BLASTONITE  
CONCRETE @ SURFACE  
w/COVER

(54)

03/19/08

74-SB185

FID

SOIL BORING

ANALYTICAL SAMPLES

\* NO. WELL NEEDED  
FOR ~1000 FT.0-0.5' Brown fm SAND,  
LITTLE SILT (FILL,  
TOPSOIL).0.5-2' WHITE fm/fc  
SAND

2-7' - SAME -

7-8' DK. BROWN/BLACK  
SILTY CLAY

8-10' WHITE fm/fc SAND

10-12' BROWN SILTY CLAY

\* SAMPLES COLLECTED  
74-SB185-03 @ 10.35"  
74-SB185-05 @ 10.45"

0-0  
0  
0-1  
0  
0-2  
0  
0-3  
0  
0-4  
0  
0-5  
0  
0-6  
0  
0-7  
0  
0-8  
0  
0-9  
0  
0-10  
0  
0-11  
0  
0-12

(55)

03/19/08

74-SB186

FID

0-6" FINE (GIVE APC.)  
(FILL)

0.5-4' BROWN SILTY CLAY

4-8' GR/BROWN SILTY  
CLAY8-10' BROWN/TAN CLAYEY  
SILT

0-0  
0  
0-1  
0  
0-2  
0  
0-3  
0  
0-4  
0  
0-5  
0  
0-6  
0  
0-7  
0  
0-8  
0  
0-9  
0  
0-10  
0  
0-11  
0  
0-12

\* SAMPLES COLLECTED

74-SB186-03 @ 11.00"

74-SB186-05 @ 11.00"

(56)

05/19/08

74-56187

P.I.D.

0- <del>0.5</del> <sup>3</sup> '	ROCK FRAGS SILTY CLAY (FILL)	0-0
		0
		0-1
3-5'	GRAY/BROWN SILTY CLAY, FC SAND/ ROCK FRAGS.	0
		0-2
		0
		0-3
5-8'	BROWN/GRAY SILTY <del>SAND</del> CLAY	0
		0-4
		0
8-10'	BROWN/TAN CLAYEY SILT/SILT, TR f SAND	0-5
		0
		0-6
		0
10-12'	GREEN/GRAY/WHITE SILT/CLAYEY SILT	0-7
		0
		0-8
		0
		0-9
* SAMPLES COLLECTED:		0
74-56187-03 @ 1130"		0-10
74-56187-04 @ 1145"		0
		0-11
		0
		0-12

(57)

05/19/08

74-56188

P.I.D.

0-1'	DK. BROWN fm. SAND/SILT (ROCK, FILL.)	0-0
		0
		0-1
		0
1-4'	TAN/LT. BROWN fc SAND, some SILT/CLAYEY SILT	0-2
		0
		0-3
		0
4-5'	- SAME -	0-4
		0
5-6'	BROWN/DK. BROWN CLAYEY SILT/SILT + CLAY,	0-5
		0
		0-6
		0
6-7'	DK. BROWN/GRAY SILT/CL	0-7
		0
		0-8
7-8'	BROWN/GRAY/RED SILTY CLAY	0
		0-9
		0
8-12'	- SAME -	0-10
		0
* SAMPLES COLLECTED:		0-11
74-56188-02 @ 1330"		0
74-56188-05 @ 1345"		0-12

(58)

05/19/08

74-SB189

PID

0-1'	TOPSOIL/FILL	0 - 0
1-3'	RED SILTY CLAY, DAY	0 - 1
3-4'	BROWN SILTY CLAY /CLAY SILT; DAY	0 - 2
4-10'	RED / GRAY / BROWN SILTY CLAY; SINKING	0 - 3
10-11.5'	BROWN / TAN / YELLOW ISH BROWN SILT / CLAYEY SILT	0 - 4
11.5-12'	GREEN / GRAY / WHITE SILT / CLAYEY SILT	0 - 5
* SAMPLES COLLECTED		0 - 6
74-SB189-03 @ 1350'		0 - 7
74-SB189-05 @ 1400'		0 - 8
		0 - 9
		0 - 10
		0 - 11
		0 - 12

(59)

05/19/08

74-SB191

PID

0-1.5'	BROWN SAND, SILTY CLAY (TOPSOIL/FILL)	0 - 0
1.5-4'	RED SILTY CLAY DAY	0 - 1
4-5'	WHITE / C. SAND + GRAVEL + ROCK FRAGS; DAY	0 - 2
5-8'	RED / GRAY / TAN SILTY CLAY	0 - 3
8-10'	WHITE / TAN FINE SAND	0 - 4
10-11.5'	RED / GRAY SILTY CLAY	0 - 5
11.5-12'	BROWN / YELLOW / GRAY BROWN CLAYEY SILT	0 - 6
* SAMPLES COLLECTED		0 - 7
74-SB191-00 @ 1435'		0 - 8
74-SB191-03 + DUNE @ 1515'		0 - 9
74-SB191-05 + M3/MSD @ 1515'		0 - 10
		0 - 11
		0 - 12

(60)

05/19/09

74-SB190

PID

0-4' BROWN f.c. SAND/  
f.c. GRAVEL + ROCK  
FRAGS / SILTY CLAY  
DAY (FILL)

0-1

0-2

0-3

0-4

0-5

0-6

0-7

0-8

0-9

0-10

0-11

0-12

0-13

0-14

0-15

0-16

0-17

0-18

0-19

0-20

0-21

0-22

4-5' RED / BROWN - SAME -

5-7' RED / BROWN SILTY  
CLAY, f.c. SAND, DAY

7-8' RED / GRAY SILTY CLAY  
DAY

8-11.5' - SAME -

11.5-12' GRAY / BROWN SILTY  
CLAY, f.c. SAND

\* SAMPLES COLLECTED

74-SB190-03 & 1410

74-SB190-05 & 1425

(61)

05/19/08

74-SB192

PID

0-1.5' SAND / SILT / CLAY  
(FILL)

0-1

0-2

0-3

0-4

0-5

0-6

0-7

0-8

0-9

0-10

0-11

0-12

0-13

0-14

0-15

0-16

0-17

0-18

0-19

0-20

0-21

0-22

1.5-4' RED SILTY CLAY;  
DAY (FILL?)

4-5' WHITE f.c. SAND  
f.c. GRAVEL + ROCK  
FRAGS; DAY

5-8' RED / GRAY / TAN  
SILTY CLAY

8-12' - SAME -  
SOME OCCASIONAL  
RED f.c. SAND SEAMS  
(THIN)

\* SAMPLES COLLECTED

74-SB192-03 & 1400

74-SB192-05 & 1615

(62)

05/20/08

0630' @ PWD

\* AFTER TRIMMING TO  
PWD.

LAPERS OR SAMPLES

(63)

05/20/08

74-SA 193

PID

0 - 2'	BROWN FC SAND AND ROCK FRAGS/ GRAVEL, SAND SILT + CLAY, DAY	0 - 0
		0
		0 - 1
		0
		0 - 2
2 - 3'	REDDISH BROWN SILT + CLAY	0
		0 - 3
		0
3 - 4'	BROWN SILTY CLAY	0 - 4
		0
4 - 7.5'	RED / GRAY / REDDISH BROWN SILTY CLAY VIS. MOIST	0 - 5
		0
		0 - 6
		0
7.5 - 8'	ROCK STRUCTURE WEATHERED, FC SAND	0 - 7
		0
		0 - 8
8 - 9'	- SAME -	0
		0 - 9
		0
9 - 12'	- SAME -	0
* SAMPLES COLLECTED:		0 - 10
	74-SA 193-03 E & BOC	0
	74-SA 193-05 E & BAS	0 - 11
		0
		0 - 12

(64)

05/20/08

74-SB194

PED

0 - 2' Brown f.c. SAND  
3.5' AND ROCK FRACS/  
GRAVEL; some  
SILT + CLAY; thin  
(FILL).

3.5 - 5'  
~~2-3'~~ REDDISH BROWN  
SILTY CLAY

3 - 4' BROWN SILTY CLAY

12'  
4 - ~~5'~~ RED / GRAY / REDDISH  
BROWN SILTY  
CLAY; v.s. MOIST  
occasional coarse

~~7.5 - 8'~~ Red sand. FILL

\* 10'5' Brown / TAN / WHITE  
Yellowish Brown  
CLAY + SILT / SILT + CLAY  
wet

\* SAMPLES COLLECTED  
74-SB194-07 @ 0875  
74-SB194-08 @ 0910

0 - 0

0

0 - 1

0

0 - 2

0

0 - 3

0

0 - 4

0

0 - 5

0

0 - 6

0

0 - 7

0

0 - 8

0

0 - 9

0

0 - 10

0

0 - 11

0

0 - 12

(65)

05/20/08

74-SB195

PED

0 - 3' Brown f.c. SAND  
SILTY CLAY (FILL)

3 - 7' Brown SILTY  
CLAY

7 - 11' Brown / LIGHT  
GRAY SILTY CLAY

\* wet @ 10'

11 - 12' GRAY CLAY +  
SILT

\* SAMPLES COLLECTED  
74-SB195-03 @ 0930  
74-SB195-05 @ 0940

0 - 0

0

0 - 1

0

0 - 2

0

0 - 3

0

0 - 4

0

0 - 5

0

0 - 6

0

0 - 7

0

0 - 8

0

0 - 9

0

0 - 10

0

0 - 11

0

0 - 12



(66)

05/10/08

74-SB196

PTD

0-1'	Brown fr. SAND, LITTLE / SOME CLAY + SILT (Fill)	0-0
1-4'	BROWN SILTY CLAY	0-1
4-7'	BROWN / GRAY / RED SILTY CLAY	0-2
7-8'	Brown / Tan / Yellowish BROWN CLAY / SILT / SILT + CLAY	0-3
8-10.5'	- SAME -	0-4
10.5-11.5'	GRAY SILT + CLAY	0-5
11.5-12'	Brown / Yellowish Brown Tan CLAYEY SILT	0-6
* SAMPLES COLLECTED :		0-7
74-SB196-03 + INP @ 1020		0-8
74-SB196-05 @ 1030		0-9
		0-10
		0-11
		0-12

(67)

05/20/08

74-SB197

PTD

0-1'	Brown fr. SAND / S GRAVEL + ROCK FRAGS, SOME SILT + CLAY	0-0
1-2'	BROWN SILTY CLAY / CLAY + SILT	0-1
2-4'	Brown / Reddish Brown / GRAY SILTY CLAY	0-2
4-8'	- SAME -	0-3
8-12'	Brown / Yellowish Brown / Tan CLAYEY SILT / SILT	0-4
* SAMPLES COLLECTED :		0-5
74-SB197-03 @ 1055		0-6
74-SB197-05 @		0-7
		0-8
		0-9
		0-10
		0-11
		0-12

(68)

03/20/08

74-20213

PTD

0-1	BROWN S.C. SAND,	0-0
	SILT+CLAY (FILL)	0
		0-1
1-2	BROWN SILTY CLAY	0
	(FILL)	0-2
2-4	BROWN/REDDISH	0
	BROWN CLAY	0-3
	SILT+CLAY (FILL)	0-4

\* REFUSAL @ 2-3

\* REFUSAL @ 5

\* REFUSAL @ 6

\* REFUSAL @ 8

\* LITTLE RECOVERY  
SAND + ROCK  
FRAGS

(69)

05/20/08

74-20244

0-4	BROWN SILTY CLAY,
	FG SAND, & ROCK
	FRAGS (FILL)
4-5	-- SAND -- (?)
5-9	"VOID" ROCK +
	SANDS - DISPERSED
	UNDER LOW WEIGHT

9-12 SAND, ROCK FRAGS  
SATURATED (FILL)

\* LOW RECOVERIES

\* MOVED

0-8' LITTLE TO NO  
RECOVERY  
LOT OF ROCK FRAGS  
(FILL)

(70)

05/21/08

0630 @ PWD

- \* DISCUSSIONS w/ JIM B ON WORK
- \* TOOK JPK AROUND TO SHOW WELLS
- \* RIG DIED AGAIN AND WOULDNT RESTART. CLEANED BATTERY TERMINALS AND CABLE ENDS. HAD TO JUMP START
- \* FINISHED OFF JOE'S LOGGING + SAMPLES [4125A + 5125A]
- \* BACK @ PWD. GETTING FED EX SHIPMENT READY
- \* LABELS

(71)

05/21/08

74-50245

PID

- |        |                       |      |
|--------|-----------------------|------|
| 0-4'   | DOWN TO SAND /        | 0-0  |
|        | 5 GRAES + ROCK        | 0    |
|        | FRAGS / SILT +        | 0-1  |
|        | CLAY, DAY (FW)        | 0    |
| 4-8'   | - SAME -              | 0-2  |
|        | LARGE PIECES          | 0    |
|        | OF COAL               | 0-3  |
| 8-11'  | - SAME -              | 0-4  |
|        |                       | 0    |
| 11-12' | DK GRAY FC            | 0-5  |
|        | SAND + ROCK           | 0    |
|        | FRAG, LITTLE          | 0-6  |
|        | SILT + CLAY           | 0    |
|        |                       | 0-7  |
|        |                       | 0    |
|        | * REFUSAL @ 10' MOVED | 0-8  |
|        | * GWD 8               | 0    |
|        |                       | 0-9  |
|        | * LOW RECOVERIES      | 0    |
|        |                       | 0-10 |
|        | * SAMPLES COLLECTED   | 0    |
|        | 74-50245-03 @ 0133    | 0-11 |
|        | 74-50245-05 @ 0805    | 0    |
|        |                       | 0-12 |

(72)

5/21/08

74-SA246

P.T.D

(73)

74-SA247

P.T.D

0-4'	LT. BROWN/TAN/ WHITE f.c. SAND, + ROCK FRAGS/GRAND TR./LITTLE SILT/ SILT & CLAY; DRY (FILL.)	0-0	0-0.5'	Black TOPSOIL (FILL.)	0-0
		0-1			0-1
		0-2	0.5-1'	White f.c. SAND, f.c. SILT (FILL.)	0-2
		0-3			0-3
4-8'	- SAME -	0-4	1-2'	Brown f.c. SAND + ROCK FRAGS, LITTLE SILTY CLAY (FILL.)	0-4
8-10.5'	- SAME -	0-5			0-5
10.5-12'	GRAY f.c. SAND + ROCK FRAGS/ GRAVEL (FILL.)	0-6	12-4'	White/TAN/Beige f.c. SAND AND ROCK FRAGS, LITTLE SILT AND CLAY (FILL.)	0-6
		0-7			0-7
		0-8			0-8
		0-9	4-8'	- SAME -	0-9
		0-10	* GW @ 7.5'		0-10
		0-11	8-12'	DK. GRAY f.c. SAND + ROCK FRAGS, LITTLE SILT & CLAY	0-11
		0-12	* 74-SA247-07 @ 0900'		0-12
			* LOW RECOVERY		

\* SAMPLES COLLECTED -  
74-SA246-03-DUP  
@ 0825  
74-SA246-05  
@ 0835

(74)

05/21/08

74-53248

P.I.D.

0-4' WHITE/TAN/LT.  
BROWN fm/fc  
SAND, FA. SILENT  
ROCK FRAGS  
DIRT (FILL)

0 - 1

0 - 1

0 - 1

0 - 1

0 - 2

0 - 2

4-8' - SAME

0 - 3

\* GW @ ~ 8'

0 - 3

0 - 4

8-10' - SAME

0 - 4

0 - 5

10-12' DK GRAY ROCK  
FRAGS + FC SAND  
FA. SILT CLAY

0 - 5

0 - 6

0 - 6

0 - 7

\* LOW RECOVERIES

0 - 7

0 - 8

\* SAMPLES COLLECTED

0 - 8

74-53248-03 @ 0955

0 - 9

0 - 9

0 - 10

0 - 10

0 - 11

0 - 11

0 - 12

(75)

05/21/08

75-53249

P.I.D.

0-4' WHITE/TAN/LIGHT  
BROWN fm/fc  
SAND AND ROCK  
FRAGS, LITTLE  
SILT + CLAY (FILL)

0 - 1

0 - 1

0 - 1

0 - 1

0 - 2

0 - 2

4-8' - SAME

0 - 3

0 - 3

8-10' - SAME

0 - 4

0 - 4

10-12' GRAY/DK GRAY  
fm/fc SAND  
AND ROCK FRAGS  
(FILL ?)

0 - 5

0 - 5

0 - 6

0 - 6

\* GW @ 8'

0 - 7

0 - 7

\* LOW RECOVERIES

0 - 8

0 - 8

\* SAMPLES COLLECTED

0 - 9

75-53249-03 @ 1010

0 - 9

0 - 10

0 - 10

0 - 11

0 - 11

0 - 12

(76)

05/21/08

74-5B250

P.T.D.

0-4'	WHITE/TAN F/S- SAND, LITTLE Rock FRAGS, LITTLE SILT + CLAY (FILL)	0-0
		0
		0-1
		0
		0-2
4-8'	- SAME -	0
		0-3
8-10'	- SAME -	0
		0-4
10-12'	DR. GRAY/GRAY Rock FRAGS AND SAND (FILL)	0
		0-5
		0
		0-6
		0
* G.W. @ 80'		0-7
* LOW RECOVERIES		0
		0-8
* SAMPLES COLLECTED		0
74-5B250-03		0-9
Q 1025		0
74-5B250-05		0-10
Q 1030		0
		0-11
		0-12

(77)

05/21/08

74-5B251

P.T.D.

0-4'	WHITE/TAN/LT Brown F/S- SAND, LITTLE SILT + CLAY DRY (FILL)	0-0
		0
		0-1
		0
		0-2
		0
4-8'	- SAME -	0-3
		0
8-10'	- SAME -	0-4
		0
10-12'	DR. GRAY/GRAY SAND AND Rock FRAGS	0-5
		0
		0-6
		0
* G.W. @ 80'		0-7
* LOW RECOVERIES		0
* DRILLED AND SAMPLED 2 LOCATIONS FOR QUANTITY		0-8
		0-9
* SAMPLES COLLECTED		0
74-5B251-00 @ 1120		0-10
74-5B251-03 + DUP @ 1130		0
74-5B250-05 @ 1140		0-11
Q 1145		0
		0-12

(78)

05/21/08

74-SB 252

P I D

0-4'	WHITE/TAN/LY. SAND	0-0
	f/f SAND, L. CLAY	0
	SILT. (CLAY)	0-1
	CLAY (FILL)	0
		0-2
1-8'	- SAME -	0
		0-3
8-10'	- SAME -	0
		0-4
10-12'	DK. MED. GRAY	0
	f.c. SAND AND	0-5
	ROCK FRAGMENTS	0
		0-6
	* LOW RECOVERIES	0
		0-7
		0-8
	* SAMPLES COLLECTED	0
	74-SB 252-03 @ 1310'	0-9
		0
		0-10
		0
		0-11
		0
		0-12

(79)

05/21/08

74-SB 253

P I D

0-4'	WHITE/TAN/LY.	0-0
	BROWN f/f SAND,	0
	LITTLE SILT, +	0-1
	CLAY; DAY (FILL)	0
		0-2
4-8'	- SAME -	0
		0-3
8-11'	- SAME -	0
		0-4
11-12'	DK. GRAY/GRAY	0
	f.c. SAND AND	0-5
	ROCK FRAGS.	0
		0-6
	* LOW RECOVERIES	0
		0-7
		0-8
	* SAMPLES COLLECTED	0
	74-SB 253 @ 1330'	0-9
		0
		0-10
		0
		0-11
		0
		0-12



(80)

05/21/08

74-SB254

PTD

0-1' Brown / TAN Fc  
SAND AND ROCK  
FRAGS, LITTLE  
SOME SILTY CLAY  
Dry (fill)

1-4' Brown silty CLAY,  
TR/LITTLE Fc  
SAND + ROCK FRAGS  
Dry. → V. MOIST  
(fill)

4-8' — SAME —

8-10.5' — SAME —

10.5-11.5' Brown SILTY  
CLAY

\* G.W. @ 18.5'

11.5-12' Green SILTY  
CLAYEY SILT

\* LOW RECOVERABLE

\* SAMPLES COLLECTED

74-SB254 - 03 @ 1400

0-0  
0-1  
0-2  
0-3  
0-4  
0-5  
0-6  
0-7  
0-8  
0-9  
0-10  
0-11  
0-12

(81)

05/21/08

74-SB255

PTD

0-1' Brown Fc SAND,  
LITTLE ROCK FRAGS,  
SOME SILTY CLAY,  
Dry (fill)

1-2' ~~Brown~~ DRABISH  
Brown Fc  
SAND, SOME SILT  
+ CLAY (fill)

2-3' Brown Fc SAND  
AND ROCK FRAGS,  
SOME LITTLE  
SILTY CLAY (fill)

3-4' Brown/YELLOW  
Brown SILTY  
CLAY, TR/LITTLE  
Fc SAND, TR  
ROCK FRAGS,  
Dry (fill)

0-0  
0-1  
0-2  
0-3  
0-4  
0-5  
0-6  
0-7  
0-8  
0-9  
0-10  
0-11  
0-12

(82)

05/21/08

74-SB 255 (CONT.)

4-8' BROWN/YELLOWISH  
BROWN SILT/CLAYEY  
SILT. TR. / COARSE F./S-  
SAND

8-10.5' — SAME —

10.5-12' GREEN/WHITE  
SILT/CLAYEY SILT  
WET

\* G.W. @ 18.5'

\* LOW RECOVERIES...

\* SAMPLES COLLECTED  
74-SB 255 03 @ 14.30"

(83)

05/22/09

06.30' @ PWD

\* WORKING ON WELL - ALONG  
MAIN ROAD BY MARINE  
AREA. TUGS ARE  
IN RELATION TO PIPELINE  
(UNAV) AND WELLS  
RUNNING TO DOCKS/PIERS

\* NO SAMPLES COLLECTED  
FROM THESE WELLS  
DO TO EXISTING LOCATIONS

\* CREW GETTING THE  
EQUIPMENT AND SUPPLIES  
CLEARED/ORGANIZED  
FOR NEXT DESTRUCTION.  
CHECKING ON WHAT  
NEEDS TO BE ORDERED/  
BROUGHT OUT FROM  
SAN JUAN.

(84)

05/22/08

- \* ADDITION WITH GETTING  
LAST SAMPLES LABELED,  
ICED, PACKED
- \* FED EX ARRIVED  
ABOUT 1600<sup>H</sup> FOR LAST  
SAMPLE'S SHIPMENT
- \* HEADED TO SAN JUAN

(85)

05/23/08

- \* 0630 OFF TO AIRPORT
- \* PHILADELPHIA FOR  
CONNECTING FLIGHT
- \* IN PITTSBURGH ~ 1500<sup>H</sup>

**Field Scientist – JP Kumar**

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PAGE

REFERENCE

DATE

MAY 12, 08 - TRAVELED TO PUERTO RICO

05/12 - 05/13

2100 TEAM MET IN LORDO TO DISCUSS SAMPLING  
PLANS. WELLS HAVE BEEN CONSTRUCTED WITH  
ROUTED SAND - NOT PRE-MIXED FILTER.  
RISERS WITH PROTECTIVE CEMENT & TEMP  
CONCRETE PILES.

MAY 13, 08

0630 ARRIVED AT NAM

GET SECURITY PAPERS FOR VEHICLES

0730 AT PUBLIC WORKS DEPT. BLDG (BEHIND SECURITY  
BLDG). EQUIPMENT STORAGE FOR  
COLLECTED EQUIPMENT. ADAM HALEY (AG)  
& JPI DRIVE TO WELLS OUTSIDE AIRFIELD  
FENCE TO START DEVELOPMENT

GWV3A

1843

W.L.: 9.92

TD

1843

1000

WELL PUMPED DRY IN < 10 MIN, APPROX 1 GAL  
(SEE RECORDS IN AG'S NOTEBOOK)

GWV3B

GWV3B (SEE A.G. FOR W.L. & TD)

CLEAR, FAINT FUEL ODDOR. VALVE PIT MURDER  
HAS STANDING WATER - WELL DROPT 11 MIN / 1.5 GAL

05/12 - 05/13

JPR

05/13/08

MOVED ON TO SWMUG WELLS  
OF 40 SWMUG WELL BOTTOM

GWVPIA

WL: 15.23' TD: 19.92'

WELL RAN DRY ~ 0.5 GAL. FUEL ODM

GWVPIB WL: TD: <sup>SEE</sup> (AG) NOD  
WATER TURBID. WELL RAN DRY ~ 1.5 GAL

GWVPICa WL: TD: <sup>SEE</sup> (AG) NOD  
WATER CLEAR. MILD FUEL ODM. WELL DRY ~ 1 GAL.

GWVPICb WL: 14.28' TD: 24.1'  
STRONG ODM OF ANAEROBIC ACTIVITY  
WELL RAN DRY AFTER ~ 1 1/3 GAL.

GWVPIAa WL: 21.35' TD: 26.23'  
FUEL ODM  
WELL RAN DRY - 1 GAL (15 MIN)

PH	TEMP	SILICATE	DO	TURB	ORP
7.5	29.6°C	2.77 mg/L	3.3 mg/L	35	30 mV

AG. LEFT SITE

05/13

*[Signature]*

4

4

5

05/13/08

GWNVP1B6 WL: 23.45' TD: 26.34'

PH TEMP SEC D.O. TUES DEP

7.65 29.9 137 38 22 - 58

WELL PUMPED DRY 1/2 GAL IN 8 MIN

VP1 B6 - WELL PRO 12 STILL CURING.

1230 P.L.G.: 9 MWDS IS INCLUDED FOR  
SAMPLING. NEEDS TO BE DEVELOPED.  
WELL HAS RUSTY LOCK. NEED BOLT CUTTERS.

AIRFIELD AIR

RETURN TO AIR AREA WELLS TO CHECK WELLS

GWNVP3A WL: 14.9 (TD: 18.13) HAD PUMPED DRY

GWNVP3B WL: 12.5 (TD: 16.10) HAD PUMPED DRY

BOTTOM OF SUMMUS HILL

GWNVP11A WL: 18.9 (TD: 19.92) - HAD PUMPED DRY

GWNVP11B WL: 25.2 (TD: 32.2) HAD PUMPED DRY

GOT BOLT CUTTERS FROM DRILLER (ABRAHAM)

SHIPPED LOCK

9 MWDS: WL: 10.9' TD: 28.7' (PLATE SAYS 21')

REDDISH/BROWN FINE SEDIMENT. STRONG AEROSOL

SMELL

1420 START PUMPING. MOVING INTAKE UP DOWN  
TO CLEAN SCREEN

05/13

JPK

05/13/08

JPK



6

7  
05/13/08

	PH	Temp	Sp. Con
15min (1.5 gal)	6.3	29.1	61.2
25min (2.5 gal)	6.0	28.9	62
(2.5 gal) 30min	5.9	28.5	69

CONTINUED PUMPING 5 gal ADDLN.  
 WATER STILL TURBID  
 JOB (S-BURROW) - BECAUSE OF ADJACENT  
 MANGROVE SWAMPS EXPECT TURBID WATER.  
 SSB DEV. IF OTHER PMA STABLE.

BACK AT SURF TO CHECK W.L.

GWVPI Ca WL: 22.3' (TD: 29.74') HAD PUMPED  
 17.13'

GWVPI Cs WL: 14.18' (TD: 24.1') RECON (14-24')  
 HAD PUMPED DAY

GWVPI Bb WL: 25.7' (TD: 35.34') HAD PUMPED DAY  
 FROM 23.45'

GWVPI Ba TD: 23.2' NO WATER NO J-PLUG  
 (PLASTIC CAP)

GWVPI Bb/g TD: 23.22' NO WATER.

1700 RETURNED TO PWD

1730 LEFT BASE

05/13

JPR

05/13/08

JPR

## GW VPI Ca

- 1 XIL UNK
- 1 XIL ON  $\frac{1}{3}$
- 1 XIL P
- 1 XIL P
- VOA - 3 VIALS
- GR - 3 VIALS
- SUNP ME
- TE ME

May 14, 08

5/14/08

9

0645 AT BASE LOADED SAMPLE JAR FOR  
VP3A & VP3B

MARK (HACKING) CALLS TARGET 9M WDS  
CONTINUE DEVELOPMENT IN DRAINAGE FORBID

SETUP AT GWVP3A. NO NEED TO RUSH OUT  
RECORD STAB PARA (HAD RUSHED DAY YESTERDAY)

GWVP3A: WL: 15.7'

0830 STARTED SAMPLING

ONLY COLLECTED 1+Y. AMBER (UNPR) - IL  
WELL DRYING OUT

AT GWVP3B: WL: 11.87'

0930 STARTED SAMPLING VP3B

YIELDS ONLY 2X 1-L AMBER W/IL

MOVED TO SUMMIT (TOP OF HILL)

GWUPICb - WL: 14.2'

1030 STARTED SAMPLING STEADY FUEL ODO

ADEQUATE VOL ALL SAMPLES

GWVPI Ca - WL: 21.16' (TD 23.75')

CHECK GWVPI B<sub>1/2</sub> - Dry

GWVPI B<sub>1/2</sub> - Dry

05/14

JAA

GWVPC<sub>4</sub> + DUP

1030 5/14/08

12:45

1 L UN

1 L UN ✓

1 L PR ✓

1 L PR ✓

3 UOA GEO ✓

3 UOA VOA ✓

1 RASOC ✓

1 PLASTIC FILM ✓

05/14/08 JPK

5/14/08

JOHN MALINOWSKI (J.M.) & AL VISIT

- WANTS DUP FROM 1C6

12:15 START SAMPLING GWVPC<sub>4</sub>

(YIELDED ONLY ~ 1/3 L. Amber bottles were dried)

1330 BACK NEAR AIRFIELD

VP3B: 1536' W-L (TD: 1610')

VP3A: 11772' W-L (TD: 1843')

TRY VP3B COLLECTED ADD ~ 200ML AMBER (PRES) - WEL DRIED

1430 BACK AT PW. TAPE & ICE SAMPLES. HELP WITH CANS FOR RICE

1700 LEFT RICE

DK/14

JPK

✓ VP 3A

LLPAH, 2 ✓

ME: F ✓ UN ✓

VOC ✓ GEO ✓

DRO (2) 5/18/08

✓ VP-3B

LLPAH, 2 ✓

ME: F ✓ UN ✓

VOC ✓ GEO ✓

DRO (2) 7/8

DRO (2) 7/8

VP-1Ca

LLPAH (2) 13/4

ME: F ✓ UN ✓

VOC ✓ GEO ✓

DRO (2) 1/2 ① + ②

5/18/08

5/18/08

5/18/08

5/18/08

5/18/08

5/18/08

5/18/08

MAY 15 08

MAY 15 08

0620 At BASE

DISCUS SAMPLING PLANS FOR DAY W/ JB

WELLS NEARBY LLPAHs:

- VP3A 2.3D - F ADEQUATE VOLUME

- VP1A 1.1B - 3D LLPAH

- VP1A 1.1B - 3D LLPAH

- 74GW74 \* 2.24 - 1/2 LLPAH

- ALONG PRELINE. \* = GOOD PRODUCER!

JB: FINISH PARTIALS FIRST

0730 VP3A WL: 16.79'

GIVE SOME TIME

VP3B WL: 13.9'

FOR RECON

74-GW74 (MIDDLE OF FIELD?)

- JB: WORKING

WL: 9.15' TD: 26.9'

0940 START PUMPING MUDDY. CLEARS AFTER 1 GAL

MOVING UP/DOWN. 2 GAL - TURBIDITY

CLEARING

TEST	PLT	Sp. CON
3 GAL	30	7.6
3.5 GAL	29.5	7.6
4 GAL	29.4	7.5
(W/2 MIN) FINAL	DD: 2.2	ORP: -67

TURB: 33

05/15

05/15

05/16/08

1100 START SAMPLING 74-6W74  
 (SEE FINAL FIELD READINGS PREVIOUS PAGE) ←

1150 RETURNED SAMPLES TO AW BLDG.  
 MADE NOTES OF SAMPLES. NOTED LCPATH FOR  
 J.M. ICED COLON.

1220 BACK AT SUMMIT AREA  
 VP1A: WL: 23.4' (TD: 23.76') - INADEQUATE  
 VP1A<sub>1/4</sub>: DRY  
 VP1A<sub>1/4</sub>: WL: 23.6'  
 VP1B<sub>1/4</sub>: 24.68'  
 VP1B<sub>1/4</sub>: 26.9' WL (TRACE) (TD: 27.2')

1240 H.K. CALLS. DISCUSS SAMPLE VOLS & OPTIMUM  
 SEQUENCE.  
 CALLED A.G. HAS SAMPLED VP-11A.  
 PROCEED TO VP-11B  
 VP-11B: WL: 16.3'  
 SETUP FOR SAMPLING

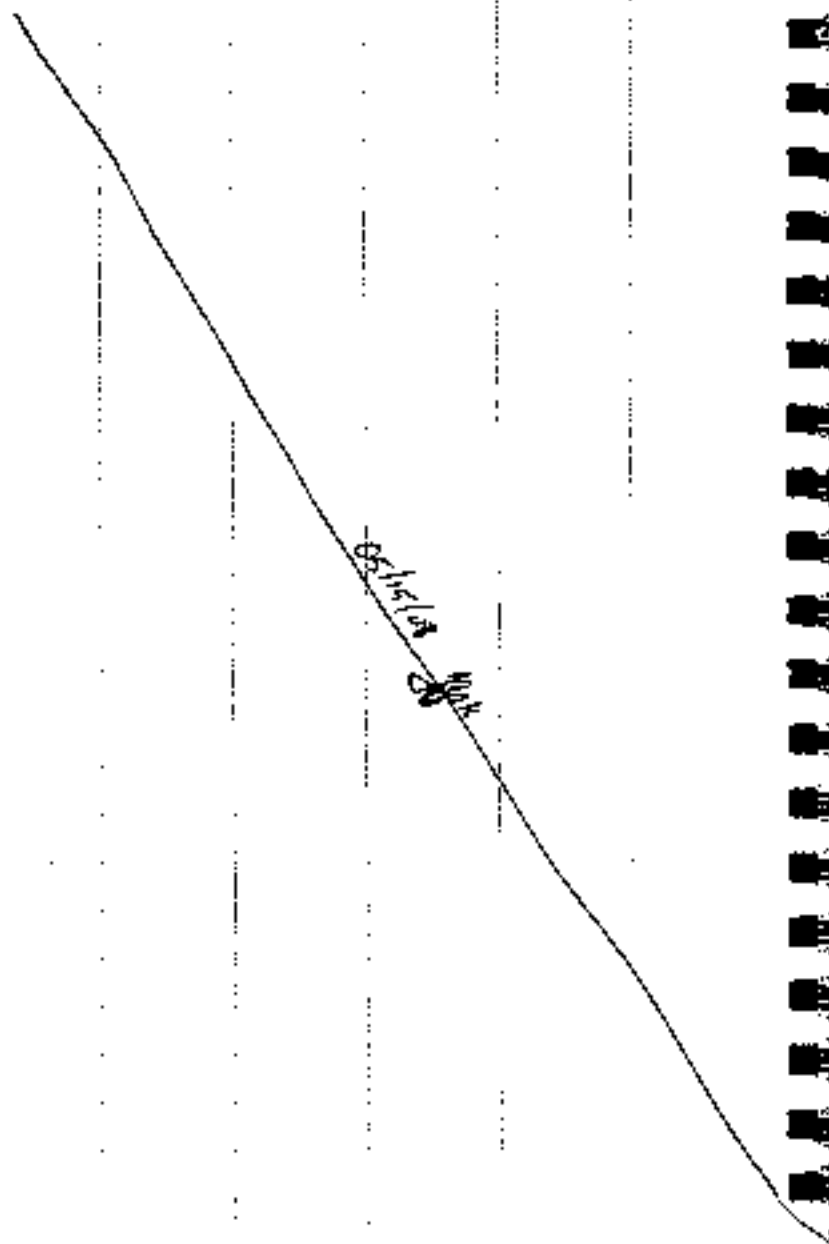
1400 START SAMPLING VP-11B. ALLOCATE VOL FOR  
 ALL SAMPLES ←

1440 AT 74-8W NO TURNING 19.2' WL  
 23' TD

05/16

JMK

16

17  
05/15/08

START PUMPING. BROWN/GREEN COLOR  
NO VISIBLE PARTICULATES. VEH. ODOOR  
DROPPED UP  $\sim \frac{1}{3}$  GAL.

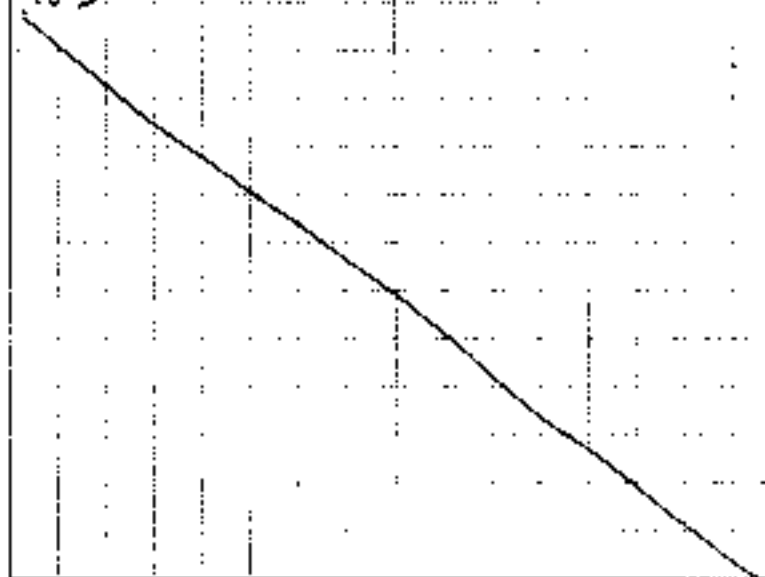
VPICA WL: 23.1'

WL METER MALFUNCTION. CLEAN TOP

15:30 RETURNED TO PW WITH VP-11B

SAMPLES PLACED ON ICE. MADE LIST  
ON COVER.

16:30 LEFT BASIN



05/15

Mark

VPIAa

JOCs ✓

GRO ✓

LLPAHs 1+1

T-Me ✓

F-Me ✓ 1/2 S/N 105

DRO 1

NIP-1A

VOCs

GRO

T-Me

F-Me

A-G HAS  
COLLECTED

LLPAH 1+1

DRO 1

1 on 5/18

05/16/08 JPE

MAY 16, 08

0650 AT BASE AFTER GAS IN EOI SUR  
D.HUPE CALIBRATES DO ON VS1  
DISCUSS SAMPLING PLAN WITH JB/JA

0730 VPBA - APPROX 5/8 AMBER (DRO)

VP-11A - COMPLETE LLPAH AMBER  
- START DRO AMBER

VPICa - CHECK RECOR WL = 22'  
- GOT FINE METALS + 1/2 DRO AMBER

VP-1Aa - WL = 22.8' (TD = 26.23') - GROSS

0840 START SAMPLING VPI-1Aa

COLLECTED VOCs, GRO, 1-L LLPAH AMBER  
TPT & FINE ME DROED UP

VPI-AB/9 WL = 22.66' (TD = 22.24')  
NOT DROED YET (LATER)

0945 COLLECTED GRO, VOCs 5/8 LLPAH AMBER

VPI-Ba WL = 26.7' (TD = 27.2')  
NOT ENOUGH VAREN (LATER)

GOT GAS ON BASE

05/16

JPE



VP1 B24

VOC ✓

GRO ✓

LLPAME 1 + 1

T. ME ✓ 5/18

F ME 4 5/18

DEO (1 + 1)

1/18 (5/18)

05/16/08

JFK

05/16/08

TO FUEL IN ROAD. 2 WELLS - VP30/234  
VP30/234 - 12.5' (HL) 22.78' (TD)

11:30 Develop VP30/234

VISUALLY CLEAR AFTER 1/2 GAL (12 MIN)

TURBIDITY: 4 NTU

IN/AG STOP BY. NO NEW LULU KEEP PUMPING

TOOK SAMPLES COLLECTED TODAY

11:50 GW VP30/234 HL: 12.82' TD: 22.85'

DEVELOP VP30/234 UNTIL VISUALLY CLEAR

TURBIDITY: 12 NTU

WELL DRY APPROX 1.5 GAL

MOVED TO RIGHT PARK. WELLS VP20/224

VP20: HL: 20.5' TD: 24.9'

STATION FULL DOOR. OIL VISIBLE ON FLOOR

TYPICAL GRAY/GREEN SEDIMENT

CALLED D. ROPE FOR INTERMEDIATE PROBE

COATS, PROBE, NO DETECTABLE FLOWING FLUID

FLOWING PRODUCE

13:05 DEVELOP VP-2A

VISCIOUS DARK GRAY/GREEN LIQUID

APPROX 1 GAL PUMPED WELL DIED

05/16

JFK

05/16/08

JFK

05/16/08

VP-2B: WL 2055' TD: 24.38'

SOME FUEL ODD

CALLED MAX. TO APPROX. FUEL PRODUCE

1400 CALLED BACK WITH INSTRUCTIONS ON IPW.

MET WITH J.B. WENT TO LOW STAGING AREA

1500 BACK AT VP2 AREA TO DEVELOP VP 2a

BEGUN TURNING. CIRCLE AROUND 1/2 GUL.

SPORADIC FUEL STOPS. FUEL ODD!

MOVE DOWN ROAD TOWARDS PWD TO ID.  
WELL FOR SAMPLING

VP08A: DRY

VP08B: DRY

VP07A: WL 6.2' TD: 11.68'

VP07B: WL 6.9' TD: 12.47'

SETUP TUBING.

HEAD BACK TO PWD TO DENSIT SAMPLES

ICE CALLEE &amp; MAKE LOG

1700 LEFT BASE

05/16

JFK

05/17/08

JMK

MAY 17, 08

25

0630 ON BASE

OVERCAST

DISCUSS PLANT N/T.B. LIGHT RAIN EARLY  
PARTIALS FIRST, THEN DENSE 9 AM HOURS.

VP3A COLLECTED DRO ANAERO

VP11A WL: 18'5" COULD NOT LOCATE DRO

VP11CWL WL: 21'9" COLLECTED 1/4 AMBATED

VP11B<sub>6/9</sub> WL: 24' COLLECTED 1 AMBATED LLRAINVP1B<sub>6/9</sub> WL: 26'4" (TP 23'2") - INADEQUATE  
FOR DEVVP1A<sub>6/4</sub> WL: 21'7" (TB: 23'22")VP1A<sub>6</sub> WL: 24'42" COLLECTED 1/2 DRO

1015 SETUP FOR PUMPING VP1A<sub>6/9</sub> STAINING  
TURNING FILLER WITH SAND & GROSS PUMP  
REMOVED TURNING & SHOCK TO CLEAR OUT  
CLOGGED TWICE MORE. DRIED OUT

1120 PUMP VP1B<sub>6/9</sub>. CLEAR WATER SQUATS.  
DRIED.

UPDATED J.M. ON SAMPLES - STAINING

05/17

JMK

VP 3a/g (05/17/08 1130)

VOCs ✓  
 GRO ✓  
 LLPAHs ✓ 1 + 1 5/8  
 T. Me ✓  
 F. Me ✓  
 DRO 1 + 1 5/8

JP 3b/g

VOCs ✓  
 GRO ✓  
 LLPAHs ✓ 1 + 1  
 T. Me ✓  
 F. Me ✓  
 DRO 1 + 1 5/8

A.G. F. S. M.

05/17/08

05/17/08

1130 Proceed To Sample VP 3a/g

	TEMP	SPL	DO	pH	ORP	TURB
INITIAL	30.7	7.4	3.3	6.4	-30.1	10
3MIN	29.1	4.4	2.5	6.3	-44	5
5MIN	29.2	4.1	2.2	6.4	-42	5.2

EST FLOW: 250 mL/min. W.L. FALLING

COLLECTED VOCs, GRO, 1X LLPAH AMBER.

TOTAL FILT ME; 1X LL DEO AMBER.

JB/JM STOP BY WITH LIST OF NEW LLPAH SAMPLES.

SETUP AT GW VP 3b/g. W.L: 14.80: 22.85

	TEMP	SPL	DO	pH	ORP	TURB
INIT	29.4	4.0	2.1	6.8	-84	3.5
3MIN	29	2.5	1.9	6.9	-82	3.2
5MIN	28.9	2.1	1.7	6.9	-73	3.3
6MIN	29	1.8	2.2	6.9	-62	3.2

EST FLOW ~ 250 mL/min

COLLECTED VOCs, GRO, 2X LL PAH, TOT 800L + 1/4 L DRO. WEL DREP.

AG ARRIVES WITH BOTTLES FOR 74-84. NO LLPAHs

1505 74-84 W.L. 19.95 (PER JB'S LIST)

05/17

JJB

74-84 5/17/08 1605

VOCs

GRO

TME

F Me

DRO Amber 1+1<sup>1/4</sup>

05/17/08

JP

05/17/08

1505 START SAMPLING. COLLECT VOCs, GRO,  
TME & F Me. DRO  $\frac{1}{2}$  ONLY. NO LPAH.

AG TAKES ALL FULL SAMPLE BOTTLES TO PH  
PREPARES ADDITIONAL BOTTLES FOR SAMPLING

1545 HEADED TO VP2 WELLS  
VP2a: WL: 20.5'. INT PEGGE - NO LAYER  
PUMPED  $\frac{3}{4}$  GAL. CLEANSING VISUALLY.

1630 VP2b WL: 20.65'.  
PUMPED  $\frac{1}{2}$  GAL. WATER CLOUDIER THAN 2a.

BACK AT PHD. REVIEW & FILL OUT CHECKLIST  
ICED SAMPLES. MADE LIST FOR CLOSER.

1710 LEFT BASE

CONTINUED ON CHECKLIST. PREPARED LABELS.

05/17

JP

VP1 A6/9

VOCs ✓  
 GRO ✓  
 LLPAHs 1+1  
 Me To  
 Me F  
 DRO 1+1

05/18/08

MAY 18, 08

31

0630 ON BASE

0705 RESUME DEVELOPING 9 MW 025. MOVING INTAKE  
 UP/DOWN. SHALLOW PORTION CLEARING UP.  
 LIGHT RAIN

PROCEEDED TO PARTIALS

VP11A - DRO AMBER FILLED

VP1 C6/9 - DRO AMBER FILLED

VP1 B4/9 - PAH, DRO AMBER FILLED. ALL SAMPLES  
 B VOL. COMPLETED

VP1 B1/9 - DRO AMBER FILLED. ALL SAMPLES B VOL.  
 COMPLETED

VP1 B1/9 - TIRE AIR NG.

TL - GW 84 - DRO AMBER FILLED. ALL SAMPLES  
 COMPLETED

VP1 A6/9 - WL: 22.6' TO 23.8'

1130 STARTED SAMPLING VP1 A6/9

COLLECTED VOCs, GRO, STARTED LLPAH. DRUGS.

VP1 B4/9 - WL: 26.8' TO 27.2'

(INADEQUATE)

RETURN TO PWD - DEW OF FULL BOTTLES.

ICE COOLER. PREPARED LIST

1300 BRK AT VP1 B1. SETUP TO SAMPLE

05/18

JPR

VP26 (05/12/08 1345)

VOCs ✓  
 GRO ✓  
 LLPAHs 1+1  
 TOR Me ✓  
 F. Me ✓  
 DROD+1  
 3/4

05/12/08  
 JME

05/12/08

1315 START SAMPLING VP26

TEMP	SECOD	DO	PH	TURB	DEP
30	1.4	1.7	7.1	49	-100

COLLECTED VOCs, GRO, 1 X LLPAH, TOR Me,  
 3/4 X L DRO. DRIED OUT

RETURN TO PWD UNLOAD &amp; PRESS SAMPLES

UNLOAD CR - GO TO PURCHASE WATER/REAGENTS

1500 LEFT BASE

UPDATED CHECKLIST

05/18

JME



VP2a/g 05/19/08 0845

VOLs  
GRO ✓  
LLPAH 1+1 ✓  
Me TO ✓  
Me FH ✓  
DRO 1+1 ✓

05/19/08 JPK

MAY 19, 08

35

0635 ON BAC  
UNLOAD WATER/DRINKS  
LOAD EQUIPMENT & PARTIALS  
GAVE CHECKLIST TO M. DISCUSS WITH JB/JM  
PLAN FOR 9 MWZS TOMORROW

STAPPED FOR LAB  
RAN AT HAWAII

0730 BAC AT SWIFTY FOR PARTIALS  
VPI BWs ADDED TO DRO  
VPI ABs ADDED TO LLPAH

VP2a/g W.L. 205  
0845 STARTED SAMPLING VP2a/g

	TEMP	Sp. CON	D.O.	PH	TURB	ORP
INITIAL	28.5	1.84	2.4	7.3	66	-110
10 MIN	29.1	1.83	2.6	7.28	33	-110
15 MIN	29.7	1.83	2.5	7.3	21	-111

GOOD STABILITY. FLOW APPROX 200 mL/min  
COLLECTED VOCs, GRO, LLPAHs, DRO,  
TOT & F Me. ALL VOLs.

1000 RETURNED SAMPLES TO PH  
RECONCILED SAMPLES COLLECTED SO FAR  
WITH BOTTLES & CONC W/ J.M.

05/19

JPK

VP1 Ba/g

5/19/08

1250

VOCs ✓  
 GRO ✓  
 LLPAA START  
 Me T  
 Me F  
 DRO 1 + 1

VP10a / JPS Hill

5/19/08

1430

VOCs ✓  
 GRO ✓  
 LLPAA IT 1  
 Me T ✓  
 Me F ✓  
 DRO (1)

05/19/08

JPS

05/19/08

SWAP CAP W/ J.M.'S SUP  
 M.K. HOPS SET UP FOR GUS SAMPLING  
 HEADS BACK TO SURV 9. BRIEF PAW

VP1 Ba/g WL: 26.2' (TD: 27.2')

1230 START SAMPLING

VOCs, GRO, START LLPAA. DRO.

1320 TO JPS HILL (JB - VERY LITTLE LATER  
 ALL MIXED LLPAA)

VP9c / JPS HILL DRY

VP9b DRY

VP10B DRY

VP10A WL: 13.8' TD: 22.6'

VP11A WL: 21.7' TD: 21.8'

NO NEED TO DENSE UP. TAKE FIELD RECORDS

VP11B: 22.8' TD (DRY) IF AVAILABLE

1430 START SAMPLING VP10a

TEMP	SOUND	DO	PH	TURB	DEP
27.5	1.5	2.1	7.0	10.2	-70

SHOWS - (FUEL ODD) VISUALLY CORRE

COLLECTED ALL SAMPLES. VOLS.

RETURNED TO DND TO ICE &amp; LADGE

7:25 LEFT RUC

05/19

JPS

1-L in 5 min = 1000 ml  
 $\frac{1000 \text{ ml}}{5 \text{ min}} = 200 \text{ ml/min}$

9 MW02S 05/20/08 920

VOCs	S, D	MS, MSD
	6" 6" 6" 6"	
Geo	S D	MS MSD
LLPAH	S D	MS MSD
	2" 2" 2" 2"	
To Me	S D	MS MSD
	1" 1" 1" 1"	
Fal Me	S D	MS MSD
	1" 1" 1" 1"	
Deo	S D	MS MSD
	2" 2" 2" 2"	

05/20/08

*[Signature]*

MAY 20, 08

0625 ON BASE

JA/JS - COLLECT SAMPLE, DUB MS, MSD  
 FOR ALL ANALYTICAL AT 9 MW02S.  
INCLUDE LLPAHs

LOADED UP BOTTLES, I.C.

0800 9 MW02S 20 PM (NOTE: BOTTLE CAPS  
 START LOW FLOW PURGING & NEEDS LOCK)

INITIALLY TURBID, CLEARS AFTER 1/4 GAL

TURBIDITY READINGS STILL > LIMIT ON LAMOTHE

	TEMP	SPLOW	DO	pH	ORP
10 min (1/2 gal)	28.4	72.2	1.0	6.5	-97

20 min (1 gal)	28.3	72.5	0.8	6.4	-80
----------------	------	------	-----	-----	-----

40 min (2 gal)	28.37	72.4	0.7	6.4	-90
----------------	-------	------	-----	-----	-----

FLOW RATE @ 200 mL/min WL: 12.5'

0920 START SAMPLING

COLLECTED ALL SAMPLES & VOLUMES  
 + DUP + MS + MSD

1130 END SAMPLING WL: 13'

05/20

*[Signature]*

41  
05/20/07

BACK TO PWD TO LABEL 2 TAP SAMPLES  
ICED & MADE LIST FOR COCK

BACK AT SUMMIT TO FINISH PARTIAL  
VP1 Ba/g - NOT ENOUGH FOR LIPAN  
VP1 Bb/g - ALMOST FILLED DAD (3/4)  
VP1 Ab/g - ALMOST FILLED LEAN (3/4)

CHECK JPS HILL  
VP 9a & 9b DRY  
VP 10b DRY  
VP 11A : TRACE (0.1%)  
VP 11B DRY

ATTEMPT TO SAMPLE VP 5A (BOTTOM  
OF JPS HILL)

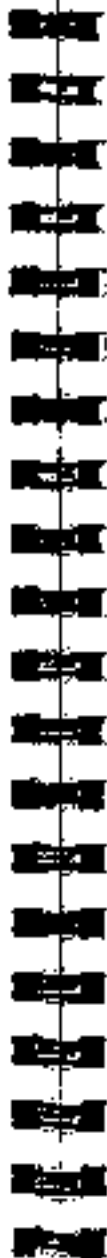
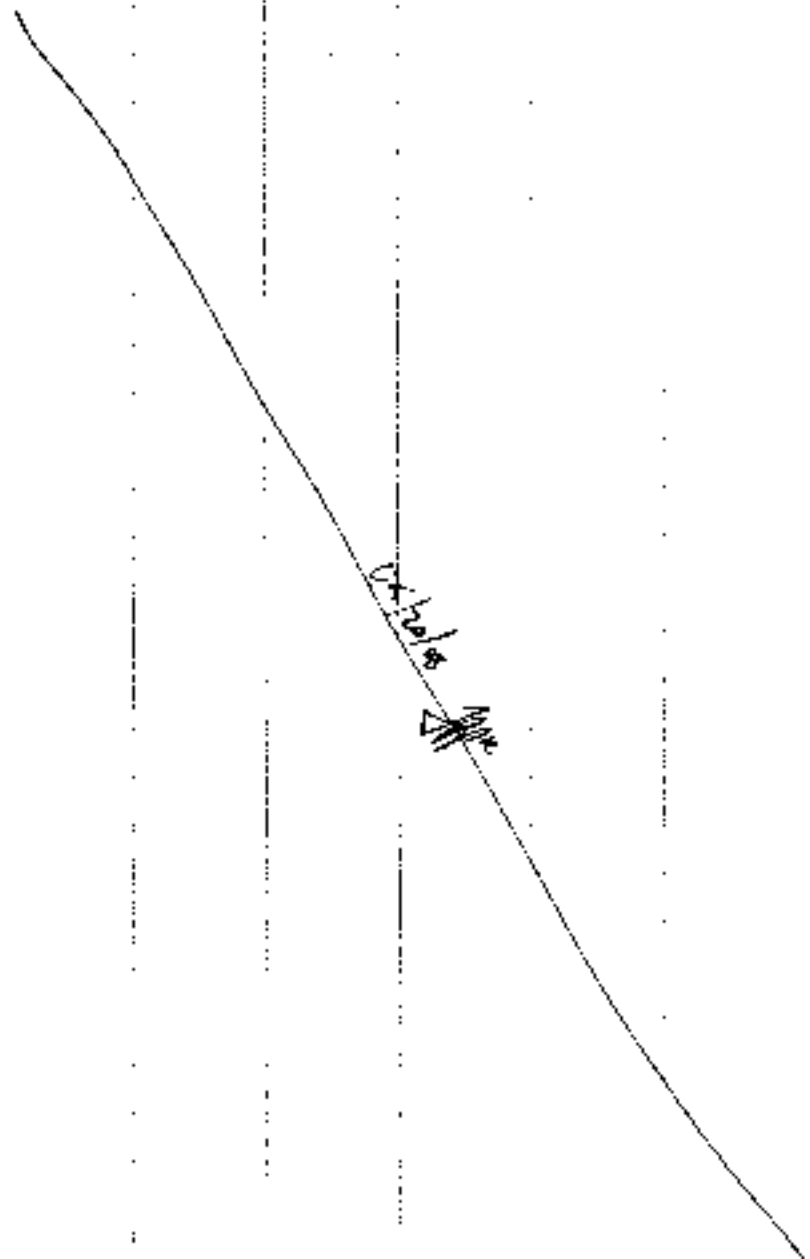
VP 5A: WL 24-25' TD 25'  
COLLECTED 2 VIALS OF VOL -  
TURBID EFFERVESCENCE (HC (REACTIVE))

VP 5B DRY TD 22'  
PROCEED FURTHER TO 746W/45E/51

05/20

JMK

42



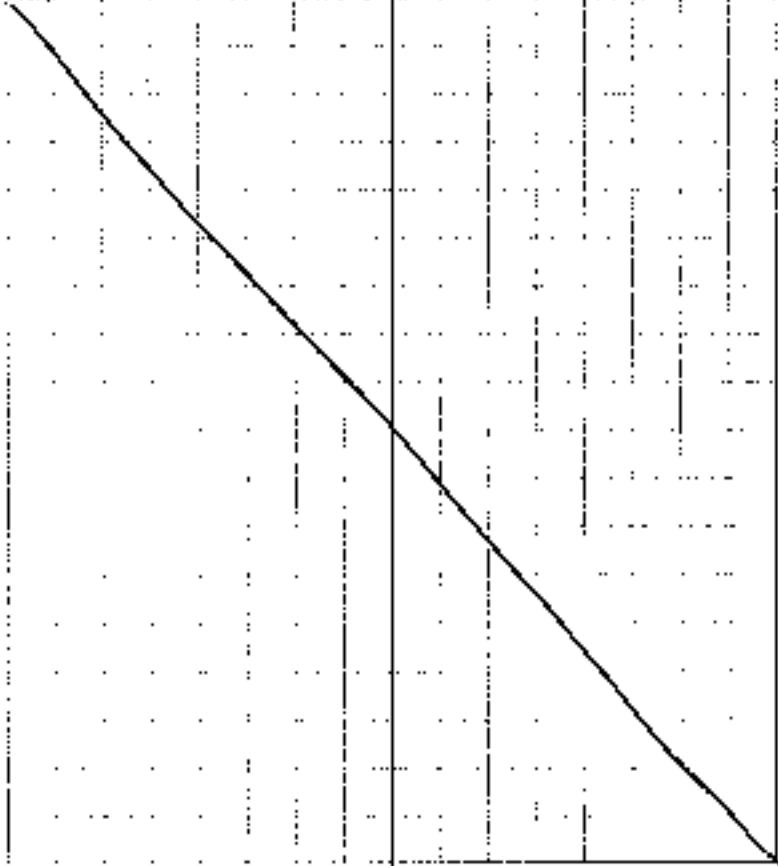
43  
05/20/82

74 GW 145' WL: 20.55' TD: 22.15'

74 GW 151' WL: 6.45' TD: 11.7'

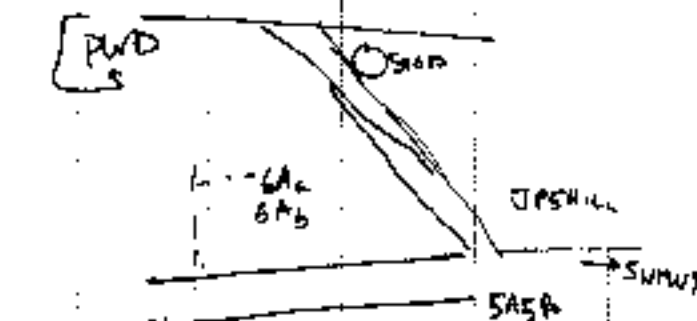
TARGET FOR TOMORROW

17:05 LEE 7 BNC



05/20

APK



OLD GATE

6Bb (new)

VP6

6Ba

(new)

6Ca  
6Cb

- PHOTOS - 1 74 VP6Ba  
2 - 74 VP6Bb  
3 - TOWARD HOWE FROM VP6Bb  
4 - DOWN - TOWARD 6Ca  
6Cb

05/21

JFK

MAY 21, 08

0635 AT BASE

HAS RAINED OVERNIGHT

GO OVER LIST OF NEW WITH JPB. FOR AG.  
ED TO SHOW LOCATIONS. SOME IN WOODS

05/21/08

CONTINUED

NEXT PAGE →

05/21

JFK

✓ VP151 05/21/08 0850  
 COMPLETE  
 VOCs ✓  
 GRO ✓  
 To Me ✓  
 F. Me ✓  
 DRO 1+1 ✓

VP145 05/21/08 0930

VOC ✓  
 GRO ✓  
 T. Me  
 F. Me  
 DRO ①+1  
 3/4

✓ VP07 05/21/08 1030  
 COMPLETE  
 VOCs ✓  
 GRO ✓  
 To Me ✓  
 Fil Me ✓  
 DRO 1+1 ✓

05/21

JPK

VP151 WL: 6.5'

START SAMPLING. TURBID EFFLUENCE  
 RAISE TUBING ~ 6-10"  
 REDUCED FLOW RATE. CIRCLES UP.  
 COLLECTED COMPLETE SET OF SAMPLES

VP145 WL: 19.95' TD: 22'  
 VISUALLY CLEAR. MINOR BUBBLING  
 ONLY VOCs, GRO, 3/4 L AMBER.  
 DRO 1+1

VP07 WL: 7.15' TD: 12.18'  
 VISUALLY CLEAR. MINOR BUBBLING  
 YIELDED ALL SAMPLES & VOLUMES

HEAD BACK, GET ICE FROM SECURITY  
 GET GAS.

HEAD TO FINISH PARTIALS ON AGA LIST

VP6CA - UNABLE TO FIL DRO  
 VP6CB - FILLED DRO BOTTLE

05/21

JPK



74VP6Ba 05/21/08 1500

NOG  
GROW  
TOM  
FUM  
DEO ①+1  
24

05/21/08

74VP6Ba

05/21/08

SWING BY SWMU 9 AREA

VP1Ba/g - INCOMPLETE LPAH

DEEP OFF SAMPLES. Get 100.

BACK TO JPS WIL.

VP9a

VP9b

VP10b Dry

VP11A

VP11B

74VP6Ag

NO TUBING

Dry

TD: 24.35'

74VP6Ab

NO TUBING

TRACE

20.1'

TD: 18.75'

74VP6Bc

U.L.

15'

TD: 17.5'

74VP6Bd

(EXISTING 2" B RENAME)

U.L: 15.65'

TD: 42.5' (SOFT SOIL)

05/21

JPS

05/21/08

D. J. H.

05/21/08

1500 Start Sampling VP6B  
Yielded only V06B, 3/4 L DRO  
GR0 4

1530 Set up tubing in VP6B  
Pumped Approx 5 min. Water usually  
clear

Called to check if Dips needed.

Check 74 VP05A: WL: 24.5'  
TD: 25'

74 VP05B: Dry

1630 Back at PWD, No new samples.  
Prepared List of Full 2 Partials.  
Help Toss up Soil Sample Jar

1710: Left Bldg

05/21

D. J. H.

05/22/08  
JMK

MAY 22, 08

0635 ON BASE

0700 INSTRUCTIONS FOR LAST DAY - NPAUP

1. COMPLETE PARTIALS
2. VISIT AMFIELD PARCELS - REA M.K.
3. MAKE COMPREHENSIVE LIST OF GW SAMPLES & BOTTLES

PARTIALS

74GW146 - COMPLETED DRO AMBER  
- TOTAL METALS  
WELL DRIED

74GWVPL6 BN - COULD NOT FILL DRO

0830 PROCEEDED TO GATE 1 WITH AG  
SECURITY CLEARED

SWMWSA - TOUR PHOTOS OF DRAINAGE  
& APEX

SWMWSA - PHOTOS OF GWAP, P. AREA  
EASTERN TEMP WELL  
DRAINAGE DITCH IS DRY

1000 BACK AT PLOTS. UNLOAD CAR, STORE  
EMPTY BOTTLES, GW EQUIPMENT  
DISPOSE PARTIALS IN PURGE WATER ROW

05/22

JMK

05/22/08

JDA

05/22/08

PREPARED CAMP LIST DA GV SAMPLES  
2 BOTTLES FRIED. CAMP JB

1400 JN ASKED TO REMOVE TUBING IF WELLS  
ARE DONE SAMPLING. (WATER & STOP  
CAN INFLUENTIARY CAP IS NOT DOWN)

PROCEEDED TO CHECK ALL WELLS  
REMOVED TUBING DA MADE SURE CAP  
SECURED.

1600 RETURNED TO PWD

1715 LEFT CAMP FOR SAN JUAN.

MAY 23, 08 - TRAVEL BACK TO PITTSBURGH

05/22 - 05/23 JDA

**Geologist – Mark DeJohn**

---

NAPR

Tuesday May 27, 2008. Today's Tasks

Mobilization

Weather Cond. 2.0-3.0 P. sunny, mod.  
NE wind, Near 90°F (in PR)

0630 Arrive at PIT for travel to  
NAPR

0700 Depart PIT for SJU via CLT.

1315 Arrive at SJU. Get rental car  
and head to Palmas Del Mar.

1510 Arrive at Palmas

~~M. J. E. P.  
5/27/2008~~

5/27

M. J. E. P.

- Wed. May 26, 2006. Today's Tasks -  
 SWMU 74 Borings  
 Weather Conditions -  
 AM: Cloudy, mod. NE wind, low 80's  
 PM: Rain early, cloudy and NE wind 80's
- 0645 Arrive at PWD. Prepare for the day.
- 0705 I relocate to diller's staging/decont. area. The drillers are preparing for the day.
- 0835 JB on site. Gives instructions.
- 0915 Relocate to "JP-5 Hill" area of SWMU 74.
- 0940 Setup w/ William at SB279 while Abraham moves to SB285.
- 1015 Back at SB285. Abraham is ready.
- 1045 ~~1015~~ Setup at SB284.
- 1115 Set up at SB283.
- 1155 Sample hole. I relocate to William while Abraham fixes sampler.
- 1203 At 74SB278 (William).
- 1215 Relocate to 74SB277. Refusal at 2-ft; move two feet; retry.
- 1245 Checkup on Abraham. They have been on lunch break. Will try to

MMH

5/28

- (cont.) retrieve sample & straighten sampler.
- 1320 Light rain, showers w/ lightning.
- 1406 Abraham sets up at 74SB285 to install a well at ~20 ft.
- William sets up at 74SB280.
- 1425 William sets up at 74SB281.
- 1436 William sets up at 74SB282.
- 1555 Borings completed. Cleanup time & hole grout.
- 1613 I relocate to 74SB285 to check Abraham's progress.
- 1623 Moderate rain showers begin. Abraham is in the process of completing the well.
- 1630 Well completed at 74SB285 to 20-ft. bag 10-ft of 10-slot screen w/ sand to 7-ft; bentonite to 5-ft. bags.
- 1630 Return to PWD.
- 1740 Depart PWD - done for the day.
- Notes on today's work:  
 The intern Mike Crowley (ML) is on this trip. He assisted me at SB280-SB282.

5/28

MMH



4

NARR  
66 DT

74SB285

Time	Depth (ft-lp)	ID	Recovery (ft)	PID	
				PS	BG
1020	0-4	S-1	3.8	0	0
				0	0
				0	0
				0	0
1023	4-8	S-2	3.4	0	0
				0	0
				0	0
				0	0
1030	8-12	S-3	3.5	0	0
				0	0
				0	0

74SB279

5400

Time	Depth	ID	Recovery	PID	
				PS	BG
0944	0-4	S-1	4.0	0	0
				0	0
				0	0
				0	0
0948	4-8	S-2	3.4	0	0

MHO

5/28

NARR

5

(C)	Description	
1	GRAVEL, trace ch; gray; damp	0.5
2	CLAY, trace silt; dk brown; damp	
3	weathered BEDROCK (supralite); lt brown	2.4
4	tan; damp; soft	02-
5		
6		
7	as above, but hard	
8		
9	soft	
10		05-
11	hard	
12	supralite (lt. brown; damp)	
13		
14		

	Description	
1	GRAVEL (F/C), same fl. sand, 1 1/2 x 1/2; gray; dry	0.6
2		
3	CLAY, trace silt; brown; damp	
4	little sand & silt; gray & brown; damp	
5		

5/28

MHO

6

NAPR

745B279

Continued

Time	Depth	ID	Recovery	PID	
				PS	BG
				0	0
				0	0
				0	0
0957	0-12	S-3	3.4	0	0
				0	0
				0	0
				0	0

745B284

66DT

Time	Depth	ID	Recovery	PS	BG
1043	0-4	S-1	4.0	0	0
				0	0
				0	0
				0	0
1048	4-8	S-2	3.2	0	0
				0	0
				0	0
				0	0
1055	0-12	S-3		0	0
				0	0
				0	0
				0	0

MED

5/20

NAPR

7

		Description	
6		Weathered BEDROCK (sapphirite), tan; brown; damp	03-
7			
8			
9		As above	
10			05-
11			
12			

		Description	
1		FLGSRAVEL, little silt; dk brown; damp	0.4
2		CLAY, trace silt; red-brown; damp	
3			2.7
4		Weathered BEDROCK; tan; lt brown; damp	02-
5			
6			
7			
8			
9		* gravel; gray; dry (9.1-9.4)	
10			05-
11			
12			

5/20

MED

8

7458283

NAPR  
66 DT

Time	Depth	ID	Recovery	PS	BG
1020	0-4	S-1	3.5	0	0
				0	0
				0	0
				0	0
1132	4-7	S-2			

7458278

5400

Time	Depth	ID	Recovery	PS	BG
1205	0-4	S-1	3.2	0	0
				0	0
				0	0
				0	0
1212	4-7	S-2	3.0	0	0
				0	0
				0	0

MKD

5/28

NAPR

9

Description

1 F/C GRAVEL, little clay, trace F/C sand;  
2 mainly gray/dry

8 Refusal @ 7.0 ft

Description

1 F/C GRAVEL, little F/C M; gray/brown; damp  
2 weathered BAsRock (spp. 1.28); tan/brown  
3 gravelly zone; gray

8 Refusal @ 7.0 ft

5/28

MKD

10 277

NARR

74SB278

continued

Time	Depth	ID	Recovery	PS	DG
1209				0	0
1225	0-4	0-4	3.1	0	0
				0	0
1230	4-6	4-6	1.9	0	0
				0	0

74SB280

5400

Time	Depth	ID	Recovery	PS	DG
1412	0-4	5-1	4.0	0	0
				0	0
				0	0
1416	4-8	5-2	3.7	0	0
				0	0
				0	0
1420	8-12	5-3	3.5	0	0
				0	0
				0	0
				0	0

MAG

5/28

NARR

11

5400

Description

- 1 f/c Gravel, some silt, trace clay; gray to brown; damp
- 2
- 3
- 4 CLAY, some f gravel, trace silt; brown; dry
- 5
- 6
- 7 Refusal @ 6 ft

02-

Description

- 1 f/c Gravel, some silt, gray; damp
- 2 CLAY, little silt, trace f gravel; dk brown; damp
- 3
- 4 trace silt; olive drab; rusty (mottled); moist
- 5
- 6
- 7
- 8
- 9
- 10 gravelly zone
- 11
- 12 weathered BED ROCK (supra-lt); tan, gray; brown; damp

0.9

02-

05-

11.6

5/28

MAG

12

NAPR

745B281 5400

Time	Depth	ID	Recovery	PS	BG
1430	0-4	S-1	4.0	0	0
				0	0
				0	0
				0	0
1434	A-B	S-2	3.2	0	0
				0	0
				0	0
				0	0
1440	8-12	S-3	4.0	0	0
				0	0
				0	0
				0	0

745B282

5400

Time	Depth	ID	Recovery	PS	BG
1540	0-4	S-1	2.4	0	0
				0	0
				0	0
				-	-
1545	4-8	S-2	3.2	0	0
				0	0
				0	0
				0	0

MAD

5/28

13

NAPR

5400

	Description	
1	F/C GRAVEL, little f/c sand; gray; damp	1.6
2	CLAY, trace f sand; olive drab; rust	
3	(mottled); damp	
4		0.2
5	some f/c gravel; brown; gray (gravel); damp	
6		
7	little silt; brown; gray or brown; black;	
8	damp	
9		
10	weathered BEDROCK (silty, non tuffaceous);	9.2
11	brown; rust w/ black vert fracture traces;	
12	damp	

0.5  
0.5D  
0.5M  
0.5M

	Description	
1	C GRAVEL, trace f gravel; silt; gray; damp	1.0
2	CLAY, little silt, trace f gravel; gray;	
3	damp	
4	weathered BEDROCK (tuffaceous) gray;	7.0
5	brown; damp	0.2
6		
7		
8		

5/28

MAD

14

NAPR

Continued

745B232

Time	Depth	ID	Recovery	PS	BG
1550	B-12	S-3	1.6	0	0
				0	0
				-	-
				-	-

(cont.) Joe Burawa (JB) provided direction today (including locating the well).  
 + sampling; analyses according to work plan unless otherwise noted.  
 For example; shallow refusal at several borings limited subsurface soil samples to one.  
 - I more or less managed two rigs (operated by Abraham [64DT] and William [5400])

MKG

5/28

NAPR

15

Description

9	As above
10	
11	f/c gravel zone; gray clay
12	

OS

MKG  
 5/28/2008

5/28

MKG

- Thurs. May 29, 2008. Today's Tasks -  
SWMU 74 Temp. Well Installation  
Weather Conditions -  
AM: Cloudy, mod NE wind, low 80's  
PM: M. Cloudy, mod. E wind, high 80's
- 0650 Arrive at PWD. Prep. for the day.
- 0711 JB says wells (Temp.) to be placed  
at 236, 246, and 256. William will  
install 236; 246 and Mingo 256, while  
JB does some GPS work.
- 0717 Check on drillers. They are decon'ing  
I check out locations for above wells
- 0747 William complete well at SB285  
this morning. I instructed him  
regarding the next well locations.
- 0756 At SB236. Mingo's rig is set up  
for well installation.
- 0759 Begin collection of soil samples in  
preparation of well installation.
- 0803 William; Abraham arrive w/ 66DT.
- 0813 Setup at 74SB246.
- 0827 Begin direct push
- 0851 Attempted to drive 2.5-inch casing  
to 15-ft, but got refusal at 13-ft.  
Switch to augers.

MKD

5/29

- 0956 Auger refusal at 13-ft. I  
instructed Abraham to install well  
there w/ 5 ft. 5 screen
- 1037 Well completed to bentonite seal.  
Prep. to make intall protective  
casing.
- 1100 Abraham sets up DT66 at  
SB236, while William decon's  
augers & tools.
- 1135 Install ~~2.5~~ 2.5-inch casing  
for temporary well
- 1219 Well 74GW236 completed. Lunch  
break for driller. I prep. for the  
SWMU 71 sampling.
- 1320 Drilling return to decon area to  
prep. for SWMU 71.
- 1329 Relocate to the commissary area  
(SWMU 71).
- 1335 Setup at 71SB11
- 1507 Refusal at 29-ft and sample  
stuck in liner. No evidence of  
water in samples. Will leave bore  
hole open over night; gauge water  
in the morning.
- 1512 Setup at 71SB05.

5/29

MKD



18

NAPR

7453 74GW246 Abraham/William

Time	Depth	ID	Recovery	Well Details
0815	0-4	S-1	2.4	
0818	4-8	S-2	1.6	
0822	8-12	S-3	1.5	
0825	12-15.5	S-4	2.5	

M/K

5/29

NAPR

19

on 66DT

	Description	
1	F Gravel, little F sand, trace c gravel;	
2	clay, gray; damp (FILL)	
3		
4	F SAND, trace c sand; coral frag; trace;	3.5
5	damp (MARINE)	
6		
7	wet	
8		8.0
9	C GRAVEL, some F gravel, trace F sand;	
10	clay, dk gray; wet (BEDROCK)	
11	appears as broken Gabbro	
12		
13		
14		
15		
16	Refusal at 15.5-ft	

5/29

M/K

20

NAPR

74GW256

Mingo on 66DT

Time	Depth	ID	Recovery	Well Details
0802	0-4	S-1	3.0	
0805	4-8	S-2	0.7	
0810	8-12	D-N	-	
0815	12-16	S-3	3.0	
0820	16-20	S-4	4.0	

24'

MAY

5/29

NAPR

21

## Description

1	SILT w/ grass; dk brown; damp
2	P/C SAND some f gravel, trace clay; brown;
3	gray layers; damp
4	trace f/c gravel
5	Gravel, trace f gravel; f/c sand; gray;
6	dry
7	
8	
9	
10	
11	
12	12.0
13	CLAY trace f/c sand, olive drab w/ red zones;
14	moist
15	
16	
17	
18	
19	19.0
20	PEAT; dk & brown; moist

5/29

MAY

22

NAIR

74GW236

Time	Depth	ID	Recovery	Well Details
------	-------	----	----------	--------------

1119	0-4	S-1	1.4	
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1122	4-8	S-2	2.4	
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1125	8-12	S-3	2.1	
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1130	12-16	S-4	4.0	
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15m

MAD

5/29

NAIR

23

Description

1	F SAND, trace f gravel; tan brown; damp
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2	
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3	
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4	F SAND, trace silt; tan w/ brown layers; damp
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24

NAPR

715B11

Time	Depth	ID	Recovery	PS	P.D.	B.G.
1340	0-4	S-1	2.1	0	0	0
				0	0	0
				0	0	0
1344	4-8	S-2	3.2	0	0	0
				0	0	0
				0	0	0
1349	8-12	S-3	4.0	0	0	0
				0	0	0
				0	0	0
				0	0	0
1355	12-16	S-4	3.6	0	0	0
				0	0	0
				0	0	0
				0	0	0
1400	16-20	S-5	4.0	0	0	0
				0	0	0
				0	0	0
				0	0	0
1408	20-23	S-6	3.0	0	0	0
				0	0	0

NMR

5/29

NAPR

25

	Description	Well
1	F/c GRAVEL, little clay; f/c sand;	
2	gray; dry (10' on top)	
3		
4		
5	P. SAND, some 1/2 gravel, trace clay;	
6	brown;	
7		04
8		00
9	CLAY, trace silt; red-brown; dry;	
10	hard	
11		
12	weathered BEDROCK	17.0
13	F/c gravel zone (12-15')	
14	reddish-brown; gray; damp	
15	F gravel zone.	07
16		
17	mainly gravelly (f/c); gray w/	
18	zones of brown; yell-brn; damp	
19		
20		
21		
22		

5/29

NMR

26

NAPR

715B11 Cont.

Time	Depth	ID	Recovery	PS	PID	BG
1416	23-26	S-7	3.0	0	0	0
				0	0	0
				0	0	0
1426	26-29	S-8	3.0	-	-	-

715B05

Time	Depth	ID	Recovery	PS	PID	BG
1522	0-4	S-1	3.7	0	0	0
				0	0	0
				0	0	0
1528	4-8	S-2	3.6	0	0	0
				0	0	0
				0	0	0
1531	8-12	S-3	3.0	0	0	0
				0	0	0
				0	0	0

MGO

5/29

NAPR

27

	Description	Well
23	mottled SILT zones; gray; orange-brown; damp	
24	As above w/ white mottles	
25		
26		
27	Liner stuck in sampler;	
28	very frinkled when removed could	
29	not cut open	
	Refusal 29-ft	

	Description	Well
1	GRAVEL, trace silt; gray; brown; damp	
2	CLAY, same silt, trace f gravel; brown; damp	
3		
4	little gravel, red-brown	
5	CLAY, same f gravel; silt; brown; damp	
6		
7	greenish-brown; moist	
8		
9	trace f gravel; sand; olive drab; wet	
10		
11	moist	

5/29

MGO

28

NAPR

715B05 Continued


Time	Depth	ID	Recovery	PS	PID	BG
1537	12-16	S-4		-	-	-
1537	12-16	S-4	3.1	0	0	0
				0	0	0
				0	0	0

MAY

5/29

NAPR

29

	Description	Well
12	brown little f gravel; brown; damp	
13	CLAY, some f/c gravel, little f/c sand; gray; wet	
14		
15	weathered bedrock; gray, yell. brn; dk brown; damp	
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

5/29

30

NAPR

- 1520 Sampler refusal @ 4 ft on concrete.  
Move ~ 5-ft to the south.
- 1540 Boring complete. Water shallow compared  
w/ 2005 (40 ft). Driller cleanup.
- 1550 Driller departs site. I prep samples.
- 1623 Return to PWD. Ice down samples  
and prep for tomorrow.
- 1720 Depart PWD - Done for the day.

MRD

5/29

31

~~MRD~~  
~~5/29/08~~

5/29

MRD



Friday May 30, 2008. Today's Tasks -  
SWMU 71

Weather Conditions -

AM: P. sunny, mod. E wind, low 80's

PM: P. sunny, mod. E wind, high 80's

0635 Arrive at PWD. Prepare for the day.

0652 Relocate to SWMU 71 to measure

DTW in boreholes

0655 71SB11 collapsed at 2' bgs. SB05  
plugged by rig.

0715 Meet drillers at decon area

0726 Drillers at SWMU 71 with me.

0735 Begin augering for 71MW05

0829 Begin well installation

1010 Well at SB05 completed (flush  
mount cover) Named 71MW05

1013 Relocate to 71SB04

1026 Begin borehole at 71SB04

1116 Refusal at 23.5-ft bgs. Borehole  
open and dry. Will leave open for  
a time to observe for any water

1130 Setup at 71SB06

1205 Refusal at 22-ft bgs. Driller lunch  
break. I process samples

1245 I depart SWMU to grab a sandwich

MRD

5/30

1315 Return to SWMU 71. Gauge water  
in open boreholes. 6" of water in  
SB06; 3" of water in SB04.

1340 Talked to MEK. I will install wells  
using 15-ft of screen because  
water bearing zone was not observed.  
Drillers need to decon augers.

1353 I return to PWD to ice samples.

1423 Return to SWMU 71. Drillers preparing  
to auger.

1519 Augered to 15-ft; very hard  
augering the last 5-ft. The driller  
said that augers would work better  
than direct push of large casing.

1525 Resume augering (15 to 20-ft)

1605 I scouted out quarry (hill) locations  
71SB10 is located in a drainage  
gully that is steep & deep. The  
rig would not be able to access and  
it wouldn't be good to regulate the  
ditch. I proposed to move it to the  
East. MEK concurred. Since the  
proposed location is within a ditch  
receiving runoff from above,  
MEK: I concurred on collecting

5/30

MRD

34

NAPR

715Bq4

Time	Depth	ID	Recovery	PS	SG
1027	0-4	S-1	2.4	0	0
				0	0
				0	0
1030	4-8	S-2	4.0	0	0
				0	0
				0	0
1035	8-12	S-3	3.8	0	0
				0	0
				0	0
1041	12-16	S-4	3.9	0	0
				0	0
				0	0
1046	16-20 <sup>19</sup>	S-5	2.9	0	0
				0	0
				0	0
1053	19-22	S-6	3.0	0	0
				0	0
1105	22-25	S-7		0	0
MAD			5/30		

NAPR

35

	Description	Well
1	SILT, trace f gravel; clay; brn; damp	
2	F/C GRAVEL, some clay; gray; dry	
3	F SAND, little clay; f/c gravel; brn; damp	
4	CLAY, some f/c gravel; red-brown; damp 5.1	
5	<del>CLAY, some f/c gravel; red-brown; damp 5.1</del>	
6	CLAY, trace f sand; red-brown; damp	
7		
8	f/c gravel zone	
9	f/c gravel zone	
10	f/c gravel zone	
11		
12	weathered BEDROCK (sapprolite); green-brown; damp 11.9	
13		
14	light green	
15	green-brown	
16		
17	non-sapprolite; light green; dry 08-	
18	brown zone	
19		
20	light green; dry	
21		
22	Refusal @ 23.5 ft	
23		

5/30

MAD

36

NAPR

715806

Time	Depth	ID	Recovery	PS	BG
1134	0-4	8-6	2.6	-	-

1138	4-8	4.9-2	4.0	0	0
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1142	8-12	5-3	4.0	0	0
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<del>1147</del>	<del>12-16</del>	<del>5-4</del>		0	0
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1147	12-16	5-4		0	0
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1155	16-20	5-5	4.0	0	0
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1202	20-22	5-6	2.0	0	0
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NAKD

5/30

NAPR

37

Description	Well
1 F/C GRAVEL, little sand; clay; gray-brown; dry	1.5
2	
3	3.5
4 CLAY, fine F/C sand; red-brown; damp	5
5	
6 F gravel zone	
7 F gravel zone	
8	10.5
9 no gravel	
10 F/C gravel zone; gray	
11	
12	12.5
13 weathered BEDROCK; gray; yellow- brown; damp	
14	
15	
16	
17	
18	
19	
20	20
21	
22 Refusal at 22.0-ft	

OK  
add  
0.9 m/sd

5/30

NAKD

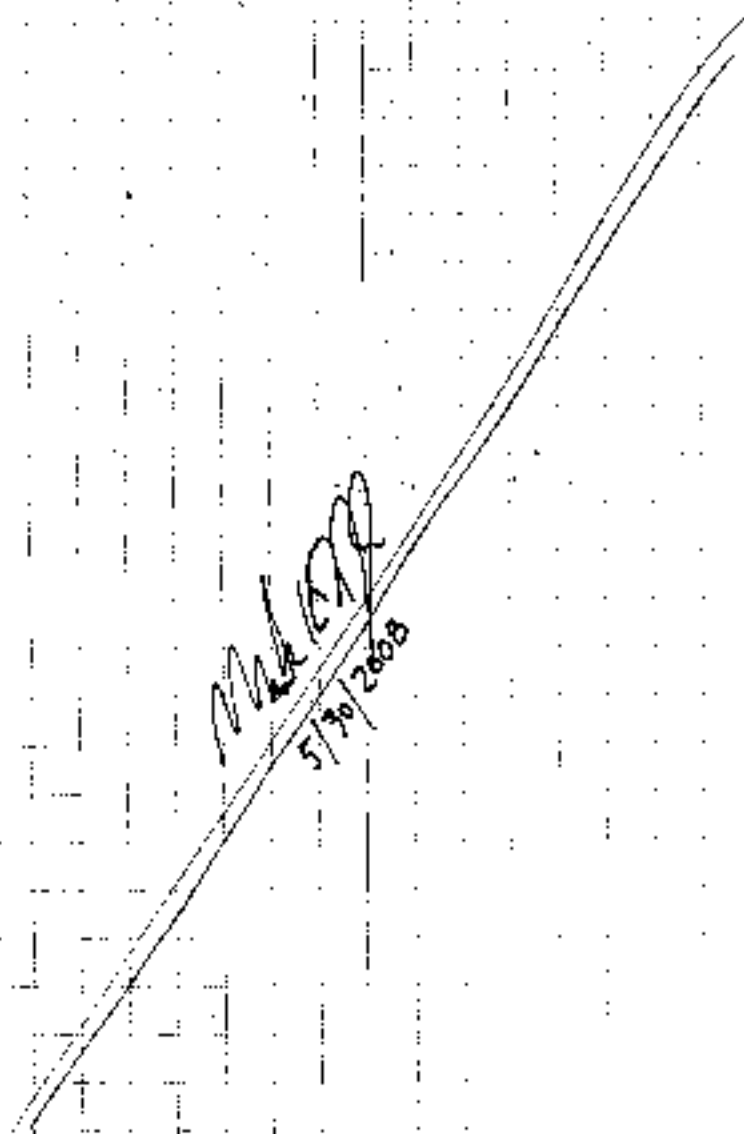
- (cont.) one surface soil from the gully to ascertain if ~~are~~ contamination from the two suspected source areas effused down gradient locations
- 1612 JB stopped by earlier this afternoon to let me know that the bulldozer (from SWMUs 61; 62) will mob to SWMU 71. They dozer will be able to clear & regrade hill locations tomorrow morning.

- 1617 Augering completed to 20 ft. Stop for the day. Well will be completed in the morning. Drillers depart SWMU - done for the day. I return to PWD.

- 1714 Scaped out access to hill at SWMU 71. It looks like the power line ROW will work w/ some clearing. There are some fairly steep areas, but long enough grade; should be okay.
- 1745 Depart PWD - done for the day

MMD

5/30



5/30

MMD

Sat. May 31, 2008. Today's Tasks -

SWMU 71 Well Installation

Weather Conditions -

AM: M. cloudy, mod E wind, low 80's

PM: Cloudy, mod E wind, high 80's

0648 Arrive at PWD. Prepare for the day.

0715 Relocate to SWMU 71. Drillers on site, beginning well installation.

Dozer operator also on site.

0726 JB: Mingo on site to give operator clear instructions.

0940 Access to hill borings cleared

0944 ~~TM~~ TIMW06 completed. Drillers relocate to decon augers.

0950 TIMW05 is dry

0956 T1SB04 DTW = 19.3' TD = 20.3'  
Water was ~ 20' on 5/30

1051 Begin augering at SB04 for well installation.

1157 TIMW06 DTW = 8.51' (TIPK), Ivan Negron on site.

12:12 Driller lunch break. Jean was also going to scope out SWMU 61 &amp; 62 w/ drillers.

1350 Drillers back on site. Begin well

MKS

5/31

(cont.) installation

1422 I setup for well development while installation of TIMW06 continues.

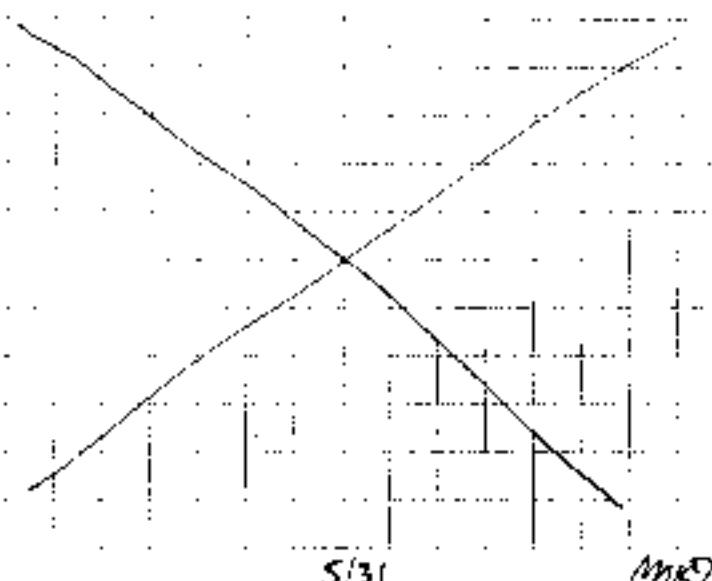
1440 DNH on site

1519 DNH off site. Well pumped dry, but is recharging quickly.

1535 Well MW04 completed driller cleanup and get water for decon. I've been monitoring recharge at MW06 for a K estimate

1429 TIMW06 is dry. Relocate to PWD.

1705 Depart PWD - Done for the day



5/31

MKS

42

NAPR

71MW06

Well Development

DTW = 8.40' (T/PVC)

TD = 20.20' (T/PVC)

Well Vol. = 1.9 gal

Time Gallons

DNH to record development

ET (hr)	DTW	ET	DTW
3	20.25	8m	19.00
30	20.24	8m 30s	18.91
45	20.15	9m	18.85
60	20.10	9m 30s	18.77
90	20.02	10m	18.69
120	19.93	11m 10s	18.51
150	19.85	12m	18.40
180	19.76	13m	18.26
3m 30s	17.69	14m	18.11
4m	19.60	15m	17.98
4m 30s	19.53	20m	17.31
5m	19.44	25m	16.68
5m 30s	19.39	30m	16.08
6m	19.30	40m	15.08
6m 30s	19.22	50m	14.62
7m	19.14	60m	14.24
7m 30s	19.06		

WHD

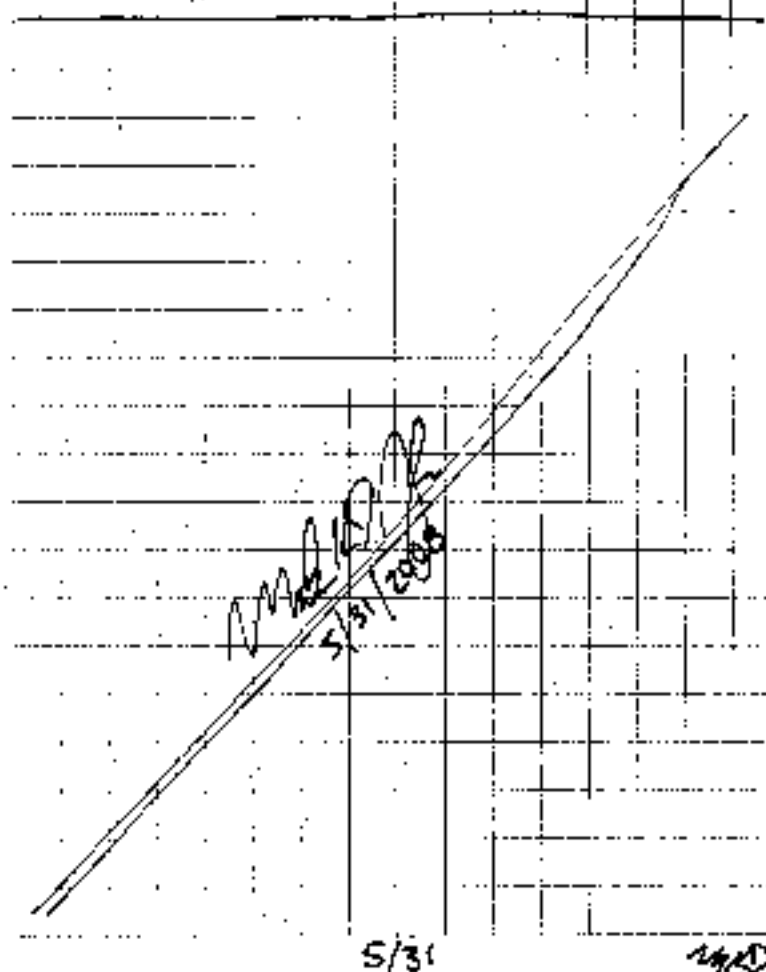
5/31

NAPR

43

1-2 Feet of sediment in well

1434 Begin pumping



5/31

WHD

44

NAPR

Sun. June 1, 2008. Today's Tasks -

SWMU 71

Weather Conditions - acc on rain

AM: Cloudy, <sup>variable</sup> NE wind, low 80's

PM: Cloudy, acc rain, lt NE wind 80's

0655 Arrive at PWD. Prepare for the day.

0713 71MW04 DTW = 19.76' (T/PVC)

TD = 20.18' (T/PVC)

0719 71MW06 DTW = 8.08' (T/PVC)

0721 71MW05 DTW = Dry

TD = 15.17' (T/PVC)

0726 Drillers arrive at SWMU 71.

0740 Begin augering for the installation of 71GB11.

0748 A small electric cable was hit at 71GB11 at approximately 1-ft bgs (probably for dammissary sign).

Moved approx. 10-ft to the southeast.

0840 AG stopped by. He said that the PWD bldg electrical room caught on fire.

0913 I drove to PWD &amp; returned to SWMU 71. The entire bldg is filled w/ black smoke including equip room &amp; sample packing room.

MKS

6/1

NAPR

45

0917 71MW04 DTW = 19.71'

1000 Still augering; weathered bedrock is hard

1123 Auger refusal at 17.5'. We will leave hole open to check for water later

1144 71MW04 DTW = 19.65'

1149 71GB11 is open to ~16' bgs; trace of water at bottom.

1150 Lunchbreak

1300 Prepare for soil borings

1310 Setup at 71GB10

1356 Boring completed. Mobilizing up h.11 to 71GB0

1407 71MW04 DTW = 19.60'

1430 Discuss access w/ driller. There are portions (?) of access that are too steep for the 66 DT.

1445 Relocate to PWD. Help recognize in Bldg 1205

1605 Depart - done for the day

N. J. K. R.

6/1/2008

6/1

MKS



46

NAPR

719B1P

PID

Time	Depth	ID	Recovery	PS	BG
1322	0-4	S-1	2.2	-	-
				-	-
				0	0
				0	0
1329	4-8	S-2	2.0	-	-
				-	-
				0	0
				0	0
1333	8-12	S-3	3.4	-	-
				0	0
				60	0
				510	0
				6	6

NAPR

6/1

NAPR

47

Description

1	CLAY, trace f/c gravel; brown; moist	00
2	F GRAVEL, some clay; gray-brown; dry	
3	trace C Gravel	
4		
5		
6	F/C GRAVEL, little clay; gray; dry	05
7		
8		
9	CLAY, trace f/c gravel; red-brown; dry	0.0
10		6.0
11	weathered BEDROCK; lt brown; damp; kerosene odor	06
12	Probe refusal	

NAPR  
6/1/2008

6/1

NAPR

Mon. June 2, 2008. Today's Tasks -

SWMU 71 well / SWMU 61 boring & well

Weather Conditions -

AM: M. cloudy; lt SE wind, low 80's

PM: Cloudy, rainy, gusty wind, mid 80's

0705 Arrive at the Security Bldg (our temp work/storage area).

0730 71SB11 is dry. Drillers to backfill

0730 71MW05 is dry

0739 71MW04 DTW = 19.28' still rising

0744 Setup GGT rig at 71SB08 to install an additional well considering SB11 & MW05 are dry.

0821 Prepare to auger to 20 ft bgs.

1035 71MW08 completed. Cleanup time.

1045 71MW04 DTW = 19.24'

1047 Driller decon. I do supply run

1113 Relocate to SWMU 61

1131 At SWMU 61.

1148 Setup at 61SB08

1220 I collect 61SB08-00 (0-1') for App IX VOC, SVOC, PAH, & metals

1257 Setup at 61GW01

1320 Heavy rain shower

1416 Rain over, resume work

MAD

6/1

1430 Collect 61SB01-00, COP, COMS, and COMSD for App IX VOCs, SVOCs, PAH, and metals

1445 William to build well pad (stickup w/ ballers)

1520 61MW01 completed. More rain showers

1525 Mob off SWMU. Drillers to decon area, I to Security. Mc: SB also on site & mob. Rain showers cause early end to the day.

1635 71MW08 DTW = 4.10' (T/PVC)

1638 71MW04 DTW = 19.16'

1641 71MW05 is dry

1710 DNL: I report Security bldg.

6/1

MAD

S0

715308

NAPR

PID

Time	Depth	ID	Recovery	PS	BG
0748	0-4	S-1	3.2	-	-

0753	4-8	S-2	4.0	0	0
------	-----	-----	-----	---	---

0757	8-12	S-3	3.0	-	-
------	------	-----	-----	---	---

0805	12-16	S-4	4.0	0	0
------	-------	-----	-----	---	---

0813	16-20	S-5	3.0	0	0
------	-------	-----	-----	---	---

19-20	A-N	-	0	0
-------	-----	---	---	---

Screen - 5-20' bgs

Casing - 0-5' bgs

Sand - 10-3' Berkeley 1-3' bgs

MMD

6/2

NAPR

5.1

Description

1	SILT; dk brown; moist	
2	F/C GRAVEL, some clay, trace f sand;	
3	gray; dry (FILL)	
4	CLAY, trace f gravel; c sand; brown;	3.5
5	damp (BIDUNE)	
6	trace c sand; brown; moist; high	
7	plasticity	
8		
9	little f/c gravel; c sand; brown; moist;	
10	high plasticity	
11		11.0
12	weathered BEDROCK; brown, rust; gray;	
13	damp	
14	clayey zone	
15	gravelly zone	
16		
17		
18	rust zone (last 17.9-18.2'	
19	gray; hard - more massive	
20		

6/2

MKT

52

NAPR

615B08

Time	Depth	ID	Recovery	PS	PID	BG
1150	0-4	S-1	2.7	-	-	-
				0	0	0
				0	0	0
				0	0	0
1153	4-8	S-2	3.3	-	-	-
				0	0	0
				0	0	0
				0	0	0
1156	8-12	S-3	4.0	0	0	0
				0	0	0
				0	0	0

MK9

6/2

NAPR

53

Description

- 1 CLAY, some f/c gravel w/ f-sand mat; brown; damp (RESIDUAL)
- 2
- 3
- 4 CLAY, trace f gravel; c sand; brown; moist
- 5
- 6
- 7
- 8 Little f gravel; c sand; brown; moist
- 9 wetter B.R.
- 10 trace c sand; orange-brown; moist
- 11 some f sand; orange-brown; wet
- 12 Bottom 12.0'

6/2

MK9

S4

615B01

aka

NAPR

616W01

Time	Depth	ID	Recovery	PS	BG
1303	0-4	S-1	2.7	-	-
				0	0
				0	0
				0	0
1307	4-8	S-2	3.5	0	0
				0	0
				0	0
1311	8-12	S-3	4.0	0	0
				0	0
				0	0
1320	12-14	A-N	-	-	-

MAD

6/2

NAPR

S5

	Description
1	CLAY, little silt, little clay, dense
2	clay; brown w/ tan layers; damp
3	(RESIDUAL) 01
4	02
5	some clay
6	6.0
7	CLAY, little silt, trace of sand; brown
8	moist (wet 5.9-6.2) (RESIDUAL)
9	wet B'
10	trace sand; silt; brown; wet
11	moist
12	mottled - brown; yellowish w/ black
13	(gravel); moist
14	

MAD  
6/2/2008

6/2

MAD

56

NAPK

Tues. June 3, 2008: Today's Tasks -

SWMU 61 porings &amp; wells

Weather Conditions

AM: P. sunny, H SE wind, mid 80's

PM: M. cloudy, rainy, mid 80's

0650 Arrive at Security Bldg.

0725 Relocate to the decon area. Driller's ready to go

0733 Relocate to SWMU 61 w/ driller

0820 William setup at GW02

0845 Begin augering for 61GW02

0923 61GW01 DTW = 6.35' (T/PUC)

0954 61GW02 open borehole  
TD = 17.7'  
DTW = 16.0'

0950 MKD collects 61SB07-00 [late entry]

1007 Prepare to install well at 61GW02

1100 Driller is completing well pad  
(stickup & bollards)

1137 Setup at 61SB07

1215 Driller lunch break

1220 MKD lunch break &amp; supply run

1338 Return to SWMU 61. Driller has  
61SB11 samples waiting for me.

1400 Setup at 61SB1

MKD 6/3

NAPK

57

1500 MKD collects 61SB12. Heavy  
rain begins

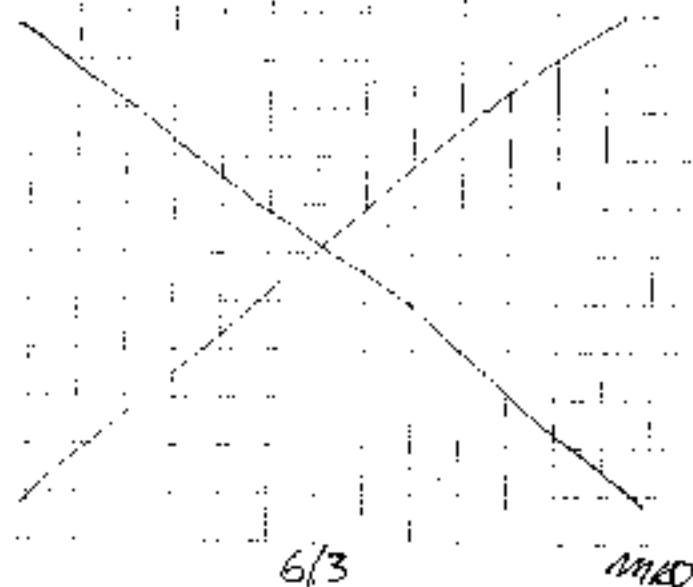
1510 MKD collects 61SB11

1535 Rain over process samples. My  
driller is finishing pad at GW011603 I return to Security Bldg. Driller  
to decon area.

1700 Report Security Bldg

2000 Look at 71MW04 & MW06 recovery  
data to determine if a 2" can be  
estimated.

2030 Done for the day



58

NAIR

615802/GW02

Time	Depth	ID	Recovery	PS	BG
0824	0-4	S-1	4.0	0	0
				0	0
				0	0
				0	0
0828	4-8	S-2	4.0	0	0
				0	0
				0	0
				0	0
0835	8-12	S-3	4.0	0	0
				0	0
				0	0
				0	0
0842	12-16	S-4	4.0	0	0
				0	0
				0	0
				0	0

PID

BG

0940 16-18 A-N

NAIR

6/3

59

	Description	OB	Well
1	CLAY, little f/c gravel, brown; damp	0.0	
2	CLAY, trace f/c and silt; orange-brown; damp	0.1	
3	orange-brown; damp		
4	w/ mottled zones (Residual)		
5			
6			
7	moist (2-8.5')		
8		15	
9	little silt; orange-brown; gray mottled; damp		
10		45	
11		1.0	
12	weathered BEDROCK; orange-brown; gray; tan; damp		
13			
14			
15		17.5	
16			
17			
18			

6/3

NAIR



60

BAPR

61SBO7

PID

Time	Depth	ID	Recovery	PS	BG
1141	0-4	S-1	4.0	0	0
				0	0
				0	0
				0	0
1145	4-8	S-2	4.0	0	0
				0	0
				0	0
				0	0
1152	8-12	S-3	4.0	0	0
				0	0
				0	0
				0	0

MKT

613

NAPR

61

Description

1	Clay, trace silt; orange-brn & brown; sl mottled; damp (RESIDUAL)	01
2		
3	little silt, trace & sand; orange-brn & brown; sl mottled; damp	
4		
5		
6	some silt; orange-brn, black & gray; mottled; moist	
7		
8		01
9	some f sand; brown; wet	
10		8.9
11	weathered BEDROCK; orange-brn & black and gray; moist	
12	BoH @ 12.0 ft	

613

MKT

62

NAPR

615811

PID

Time	Depth	ID	Recovery	PS	BG
1335	0-4	S-1	2.4	-	-
				0	0
				0	0
				0	0
1340	4-8	S-2	4.0	0	0
				0	0
				0	0
1345	8-12	S-3	4.0	0	0
				0	0
				0	0
1358	12-16	S-4	4.0	0	0
				0	0
				0	0

Description

1	CLAY, little gravel; dk brown; moist	00
2	trace silt; brown; damp (RESIDUAL)	01
3		
4	brown; gray-mottled; moist	
5		
6	little silt; brown; gray; damp	
7		
8		
9	trace clay; brown; gray (mottled);	
10	damp	05
11		
12	weathered BEDROCK; orange-brown, gray,	11.2
13	tan & black; mottled; moist	
14	clayey zone (gray)	
15		
16	BoHe 16.0'	

MMS

6/3

6/3

MMS

64

NAPR

615312

Time	Depth	ID	Recovery	PS	BG
------	-------	----	----------	----	----

1408	0-4	S-1	3.8	0	0
------	-----	-----	-----	---	---

				0	0
--	--	--	--	---	---

				0	0
--	--	--	--	---	---

				0	0
--	--	--	--	---	---

				0	0
--	--	--	--	---	---

1412	4-8	S-2	4.0	0	0
------	-----	-----	-----	---	---

				0	0
--	--	--	--	---	---

				0	0
--	--	--	--	---	---

				0	0
--	--	--	--	---	---

1415	8-12	S-3	4.0	-	-
------	------	-----	-----	---	---

Heavy rain begins

				-	-
--	--	--	--	---	---

				-	-
--	--	--	--	---	---

				-	-
--	--	--	--	---	---

				-	-
--	--	--	--	---	---

NAPR

65

Description

1 CLAY, some silt; trace f gravel; brown; moist

2 SILT, little f sand; clay; brown; damp

3 CLAY, trace f gravel; brown; damp

4 CLAY, trace f gravel; brown; damp

5 little silt; rust; brown; damp

6

7 dh brown; moist

8 trace silt; gray; rust; brown;

9 mottled; damp

10 (RENDUM)

11

12

Bottom 12.0 ft.

  
 6/3/2008

6/3

MID

MID

6/3

Wed. June 4, 2008. Today's Tasks-

SWMU #1 well & borings

Weather Conditions-

AM: P. sunny, occ. shower, lt E wind, low 80's

PM: M. cloudy, mod SE wind, high 80's

0645 Arrive at security bldg. Prepare for the day.

0715 Relocate to decon area. Drillers are preparing for the day.

0720 Relocate to SWMUG 1

0815 Setup at 61SB10

0839 Setup at 61GW04

0905 MKD collects 61SB10-00 while driller preps to auger

0943 61GW04 is located near a foundation. Floor remnant. An odor (solvent?) was noted in sandy fill material sample collected there (61SB04-01)

1030 Begin installation of 61GW04

0910 [Late Entry] MRC collects 61SB04-00

1145 Well completed. Prep. for next boring

1200 Lunch break. I run some errands

1259 Setup at 61SB09

1345 MKD collects 61SB09-00; 00D. Driller

6/4

6/4

(cont.) cleans up and moves to decon. area.

1404 Relocate to Security Bldg.

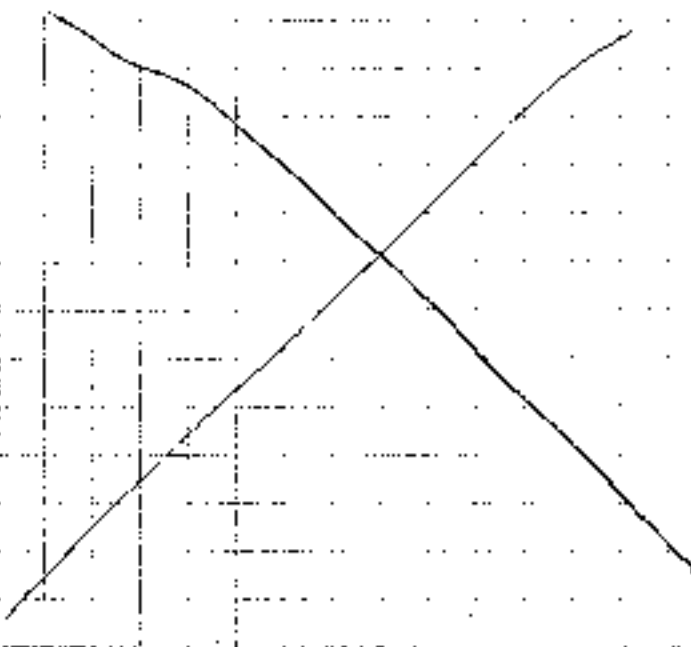
Several tasks to complete:

- ship out samples

- Reorganize our new room in security

- Move over equipment and supplies from fire smoke damaged room

1700 Depart security bldg after FedEx pickup. Done for the day.



6/4

MKD

68

NAPR

615810

Time	Depth	ID	Recovery	PS	BG
0824	0-4	S-1	3.2	-	-
				0	0
				0	0
				0	0
0827	4-8	S-2	4.0	0	0
				0	0
				0	0
				0	0
0832	8-12	S-3	4.0	0	0
				0	0
				0	0

MAD

6/4

NAPR

69

## Description

1	CLAY, some silt; dk brown; moist (Residual)	00
2	CLAY, some f/c gravel; silt; green-gray, damp	01
3	CLAY, fine f/c gravel; silt; silty brown; damp	
4		
5	CLAY, dense silt; brown; damp	
6		
7		
8	moist	
9		
10	Weathered BEDROCK; gray; orange-brown; damp (silty sand in nature)	8.9 05 06D 05MS 05MSD
11	BoHe 12.0 ft	
12		
13		
14		
15		
16		

6/4

MAD

70

NAPR

G1GW04

Time	Depth	ID	Recovery	P.S.	P.P.	P.G.
0840	0-4	S-1	2.9	-	-	-
				132	0	0
				0	0	0
				0	0	0
0844	4-8	S-2	3.3	-	-	-
				0	0	0
				0	0	0
0851	8-12	S-3	3.5	0	0	0
				0	0	0
				0	0	0
				0	0	0
0858	12-16	S-4	3.3	-	-	-
				0	0	0
				0	0	0
				0	0	0
1005	16-17	A-N	-	-	-	-

M100

G/4

NAPR

71

Description	Well
1 SILT, some clay; dk brown; moist	00
2 F/C SAND; some F gravel; gray; damp; chemical odor (FILL)	01
3 E.GRAVEL; gray; dry	3.8
4 SILT, little trace clay; F gravel brown (weathered); damp (R.R. return)	5.0
5 CLAY, little silt, trace sand; gray; moist	7
6 brown; gray; mottled; moist	
7 trace sand; silt; brown; gray (mottled)	
8 wetter 8.7, 8.9	9.9
9 weathered BEDROCK; orange-brown and brown; damp (silty)	05
10 gray-brown; wet saturated 13-14"	
11 orange-brown; brown; gray; damp	
12	
13	
14	
15	
16	
17	
18	
19	
20	

G/4

M100

72

NAPR

615809

Time	Depth	ID	Recovery	PS	BGS
1304	0-4	S-1	2.9	-	-
				0	0
				0	0
				0	0
1308	4-8	S-2	4.0	0	0
				0	0
				0	0
				0	0
1312	8-12	S-3	4.0	0	0
				0	0
				0	0
				0	0
1319	12-16	S-4	4.0	0	0
				0	0
				0	0
				0	0

MKS

6/4

NAPR

73

	Description	
1	CLAY, some silt; dk brown; damp	0.0
2	trace f gravel	2.0
3	F/C GRAVEL, trace f sand; gray; dry	0.1
4		4.0
5	CLAY, trace silt; gray; rust mottled;	
6	damp	
7		
8		
9	CLAY, gray; rust mottled; trace va	
10	w/ black vert fracture traces; damp	05-
11		
12		12.2
13	weathered BEDROCK; orange-brown;	
14	gray; damp - moist @ 14'	
15		
16	moist @ 15.5'	
	BOHE 16.0'	

6/4

MKS



74

NAPR

Thur. June 5, 2008. Today's Tasks -

Demob activities

Weather conditions -

AM: P. sunny, mod E wind, mid 80's

PM: M. cloudy, mod E wind, showers, mid 80's

0645 Arrive at Security Bldg. Various tasks this morning including:

- IDW sample prep

- Sample shipping

- Securing equipment &amp; supplies

0830 Relocate to driller decan area

0900 Relocate to drum storage area.

0925

0930 Collect 74IDW01. Composite from soil drums for TCLP VOC, Metal analysis, as well as ignitability, corrosivity, and reactivity (cyanide; sulfide)

0935 Collect 74IDW02. Composite from water drums for App IX VOC, RCRA metals as well as ignitability, corrosivity, and reactivity (cyanide; sulfide)

0945 Collect MNAIDW01; from one drum for TCLP VOC, RCRA metals and reactivity (cyanide; sulfide)

MIRD

6/5

NAPR

75

0955 Rebase back to security bldg.

Prep samples for shipping.

1030 organize &amp; pack equipment

1210 Lunch break

1245 Return to security bldg. Continue demob

1340 Depart NAPR for Nat'l Car Rental

1500 Arrive at National

1600 Head to Hotel in San Juan

NAPR  
6/5/2008

6/5

MIRD



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB01

COORDINATES: EAST: 931758.4

NORTH: 808208.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				4/28/08	0.0 - 12.0	Hot and Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	2.5 63%		74SB01-00 (0-1')	2.5	Clay, gray, fuel odor		
2								
3						Gravel, Clay, brown, fill		
4	4.0			74SB01-02 (3-5')				
5	D-2	4.0 100%		74SB01-04 (7-9')	21	Sandy Clay, gray, soft, fuel odor		
6								
7						Clay, trace sand and gravel, tight clay, damp no odor		
8	8.0					Grades red & gray, mottled at 8.0'		
9	D-3	4.0 100%			<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB01

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB01

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB01

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB02

COORDINATES: EAST: 931677.3

NORTH: 808149.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/28/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A			<1	Gravelly Clay (fill), little sand, dry to damp		
2								
3								
4								
4.0	D-2	N/A		74SB02-03 (5-7')	<1	More clay, less gravel		
5								
6								
7								
8	D-3	N/A		74SB02-05 (9-11')	<1	Clay brownish gray, red, mottled, stiff		
8.0								
9								
10								
						Wet zone, softer clay, some sand and silt		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB02 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB02

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB02

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB04

COORDINATES: EAST: 931513.2

NORTH: 808035.2

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/28/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.5 88%		74SB04-01 (1-3')	<1	Gravel and Clay, brown, damp		
2								
3								
4								
4.0	D-2	4.0 100%		74SB04-04 (7-9')	<1	Clay, yellow brown, stiff		
5								
6								
7								
8.0	D-3	4.0 100%			<1	Clayey Silt, red/golden brown, friable, dry grades more red with depth		
8								
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB04 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB04

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB04

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO. 74SB05

COORDINATES: EAST: 931435.9

NORTH: 807972.4

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				4/29/08	0.0 - 12.0	Hot and Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.0 75%		74SB05-01 74SB05-01D (1-3')	74	Fill ,Gravelly Clay & Silt, fuel odor		
2								
3								
4								
4.0	D-2	2.5 63%			25	Gravelly Sand, little Silt & Clay, wet @5-6'		
5								
6								
7								
8.0	D-3	4.0 100%			<1	Clayey Silt, red & brown, gray mottled, dry, med-low plasticity		
8								
9								
10								
						less plasticity, more dry and dense, very tight		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO. 74SB05 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB05

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB05

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB06

COORDINATES: EAST: 931351.0

NORTH: 807918.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				4/28/08	0.0 - 10.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b> No well, fear of spreading 177PPM DEEPER								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3 75%		74SB06-01	177	Fill ,Gravel, Clayey Sand, brown		
2				74SB06-01MS		Sandy, moist, hydrocarbon odor		
3				74SB06-01MSD (1-3')				
4				74SB06-02 (3-5')				
5	D-2	3.0 75%			59	Clayey Silt, golden brown, tight, friable, dry		
6						Gravelly Sand, gray, fuel odor, wet		
7								
8								
9	D-3	3.0 75%			<1	Clay, golden brown, tight, little plasticity, damp		
10								
END OF BORING at 10.0'								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB06 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB07

COORDINATES EAST: 931270.0

NORTH: 807859.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/29/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.0 75%		74SB07-02 (3-5')	<1	Gravel, Clay and Sand, (Fill), brown, dry to damp moist to wet		
2								
3								
4								
4.0	D-2	4.0 100%		74SB07-04 (7-9')	<1	Clayey Silt, golden brown, friable, stiff, dry grades light brown and softer, little plasticity		
5								
6								
7								
8	D-3	4.0 100%			<1	Clay, brownish red with gray, more stiff, mottling damp		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB07 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB07

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB07

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB09

COORDINATES: EAST: 931112.0

NORTH: 807735.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/29/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%		74SB09-02 (3-5')	<1	Gravel, Sand and Clay, (Fill), medium brown, dry		
2								
3								
4	4.0				<1	Silty Clay, golden brown, stiff, slight plasticity, grades more softer and more plasticity damp to dry		
5								
6								
7	D-2	4.0 100%			<1	Grades medium brown ,moist, and more plastic with depth		
8								8.0
9								
10	D-3	4.0 100%		74SB09-05 (9-11')	<1	Silty Sand with little Clay, wet		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB09 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB09

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB09

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB10

COORDINATES: EAST: 931030.2

NORTH: 807699.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/29/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.3 63%		74SB10-02 (3-5')	<1	Gravelly Clay, (Fill), light brown, damp		
2								
3								
4								
4.0	D-2	3.5 100%		74SB10-04 (7-9')	<1	Silty Clay, brown, soft, plastic, moist		
5								
6								
7								
8	D-3	4.0 100%			<1	Clay, golden brown, grades more dense, stiff, damp		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB10 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB10

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB10

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB11

COORDINATES: EAST: 930915.1

NORTH: 807670.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				4/30/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.3 83%		74SB11-02 (3-5')	<1	Gravel with little sand and clay, (Fill), gray and brown, dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB11-04 74SB11-04D	<1	Clayey Silt, golden brown, friable, dry to damp		
5								
6								
7								
8.0	D-3	4.0 100%		74SB11-04MS 74SB11-04MSD (7-9')	<1	Clay, more stiff, red/gold, mottling with depth		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB11 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB11

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	Continued from Sheet 1	
12							
12	12.0	100%				END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB11

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB12

COORDINATES: EAST: 930823.3

NORTH: 807660.2

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/30/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.0 50%			<1	Gravelly Clay, (Fill), brown, dry		
2								
3								
4								
4.0	D-2	3.8 95%		74SB12-03 (5-7')	<1	Sandy Gravel, dry, loose		
5								
6								
7								
8	D-3	4.0 100%		74SB12-05 (9-11')	<1	Clayey silt, brown/red, friable, dry		
9								
10								
						Grades more clay, dense		
						Grades red/brown/gray		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB12 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB12

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	<i>Continued from Sheet 1</i>	
12		100%				Mottling at 11.0'	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB12

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB13

COORDINATES: EAST: 930725.7

NORTH: 807638.2

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				4/30/08	0.0 - 12.0	Sunny and Hot	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%		74SB13-00	<1	Gravel and Silty Clay, (Fill), brown		
2				74SB13-00D				
3				74SB13-00MS				
4				74SB13-00MSD (0-1')				
5	D-2	4.0 100%		74SB13-02 (3-5')	<1	Silty Clay, medium to dark brown, moderately soft plastic, damp		
6								
7								
8				74SB13-04 (7-9')				
9	D-3	2.5 63%			<1	Clayey Silt, red and golden brown, friable dense, dry		
10								
						Silty Clay, reddish brown and gray, dense, little plasticity, mottling, damp		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB13 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB13

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.5 63%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB13

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB14

COORDINATES: EAST: 930628.2

NORTH: 807616.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/30/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	4.0 100%		74SB14-02 (3-5')	<1	Clayey Silt, medium to dark brown, little plasticity damp		
2								
3						Silt with little Clay and Gravel, friable, dry		
4						4.0		
5	D-2	4.0 100%		74SB14-03 (5-7')	<1	Clayey Silt, medium brown, stiff, dense friable		
6								
7						Grades golden brown, with red mottling, more dense		
8						8.0		
9	D-3	4.0 100%			<1	Silt with little clay, friable, red/brown/gray, saprolitic structure, dry		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB14 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB14

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB14

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB15

COORDINATES: EAST: 930530.6

NORTH: 807594.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/30/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.5 88%		74SB15-02 (3-5')	<1	Gravel and Sand, (Fill), gray, poorly sorted, dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB15-03 (5-7')	<1	Silty Clay, medium brown, some plasticity dense, damp		
5								
6								
7								
8.0	D-3	4.0 100%			<1	Clayey Silt, red/brown and gray, friable, dry mottling		
9								
10								
						Grades more red and friable, dry, saprolite-like		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB15 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB15

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB15

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB16

COORDINATES: EAST: 930437.4

NORTH: 807563.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				4/30/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	4.0 100%		74SB16-02 (3-5')	<1	Clayey Silt, dark brown, some plasticity		
2						Grades golden brown		
3								
4						4.0		
5	D-2	4.0 100%		74SB16-04 74SB16-04D (7-9')	57	Silt, little clay, brown and red, friable, dry		
6								
7								
8						8.0		
9	D-3	4.0 100%			69	Silty Clay, gray/ reddish brown, some plasticity mottling, hydrocarbon odor		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB16 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB16

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			69	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB16

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB22

COORDINATES: EAST: \_\_\_\_\_

NORTH: \_\_\_\_\_

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2"				5/3/08	0.0 - 16.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<u><b>SAMPLE TYPE</b></u> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<u><b>DEFINITIONS</b></u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.4 68%		74SB22-00 (0-1')	<1	Silty clay, moderate stiffness, damp, becomes medium brown silty clay with sand, damp, stiff, gravel		
2								
3								
4								
4.0	D-2	4.0 100%		74SB22-03 74SB22-03D 74SB22-03MS 74SB22-03MSD (5-7')	>200	Clay, soft, damp to moist, medium brown, hydrocarbon staining, some sand		
5								
6								
7								
8	D-3	4.0 100%		74SB22-04 (7-9')	>300	Sandy clay, moderate softness, damp to moist  Clay, light blue, soft		
9								
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB22 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB22

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			>300	Continued from Sheet 1	
12							
13	D-4	4.0 100%			>300	Sandy clay, light blue, some silt, soft, damp moist	
14							
15							
16							
16	16.0					END OF BORING at 16.0'	
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB22

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB23COORDINATES: EAST: 930372.0NORTH: 807548.1

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2"				5/3/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.7 68%		74SB23-02 (3-5)	<1	Silty clay, medium brown, moderate soft, damp, roots at 0.8', light brown, silty clay some sand and rocks, damp to moist		
2								
3								
4								
4.0	D-2	2.7 68%		74SB23-03 (5-7)	40	Clay with Silt, brown, soft, moist		
5								
6								
7								
8.0	D-3	4.0 100%			>200	Clay with Sandy Clay, light blue, moderately soft moist to damp		
8								
9								
10								
					50	Clay with some silt, light blue and medium brown, wet		

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB23 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB23

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB23

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB24COORDINATES: EAST: 930436.5NORTH: 807702.0

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2"				5/3/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.2 80%			<1	Silty Clay, dark brown, moderately stiff, damp Gravel from 0.8' to 1.5'		
2								
3								
4								
5	D-2	3.6 90%		74SB24-03 (5-7')	<1	Sand, brown, loose, well sorted, damp to moist well sorted		
6								
7								
8								
9	D-3	4.0 100%		74SB24-05 (9-11')	<1	becomes light brown at 8.4, very stiff, damp, trace sand		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB24 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB24

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	<i>Continued from Sheet 1</i>	
12						Clay, red and light blue/gray, damp	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB24

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB25COORDINATES: EAST: 930448.2NORTH: 807663.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2"				5/3/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.3 58%			<1	Silty clay, dark brown, stiff, rocks, damp		
2						becomes lighter brown at 1.5', dry		
3								
4						4.0		
5	D-2	1.2 30%		74SB25-04 (7-9')	<1	Cobble pushed at 5.2'		
6								
7						Sandy Clay, light brown, moderate stiff, damp pebbles throughout		
8						8.0		
9	D-3	4.0 100%		74SB25-05 (9-11')	<1	becomes dark red sandy clay and lt. brown silty clay		
10						some light blue clay throughout, stiff, plastic, damp fine grained sand		

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB25 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB25

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB25

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB27COORDINATES: EAST: 930339.1NORTH: 807603.7

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2"				5/3/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Silty clay, medium to dark brown, moderately stiff damp		
2								
3						Rock throughout at 3.0'		
4						Sandy Clay, dark brown, damp		
5	D-2	4.0 100%		74SB27-03 (5-7')	<1  75 149 232	Silty Clay, reddish light brown, soft, damp		
6								
7						hydrocarbon impact at 6.2'		
8						8.0		
9	D-3	4.0 100%		74SB27-05 (9-11')	>200       v	Sandy Clay, dark red, and Clay, blue gray intermixed, damp, clay is stiff		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB27 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB27

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			20	<i>Continued from Sheet 1</i>	
12						becomes soft, moist at 11.5'	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB27

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB28

COORDINATES: EAST: 936678.2

NORTH: 804758.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/1/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%		74SB28-02 (3-5')	<1	Silty clay, medium brown, little plasticity, stiff dense		
2								
3								
4								
4.0	D-2	4.0 100%		74SB28-04 (7-9')	23  56 182 261	Silty Clay, reddish brown, dense, stiff, dry, no plasticity		
5								
6								
7								
8	D-3	4.0 100%				Grades more clay with depth		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB28 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB28

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			148	<i>Continued from Sheet 1</i>	
12					113		
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB28

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB29

COORDINATES: EAST: 936774.7

NORTH: 804727.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/1/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Clayey Silt, red/brown/gray, friable, dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB29-03 (5-7')	4  120  60	Grades little more clay with depth, and some plasticity		
5								
6								
7								
8	D-3	4.0 100%		74SB29-05 (9-11')	169  120	Silty Clay, reddish brown, damp to dry		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB29 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB29

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			137	<i>Continued from Sheet 1</i>	
12		100%			55		
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB29

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB30

COORDINATES: EAST: 936772.6

NORTH: 804728.4

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/1/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%			<1	Silty Clay, medium brown, soft, plastic, damp		
2								
3								
4								
4.0	D-2	4.0 100%		74SB30-03 (5-7')	65	Grades more dense, and more clay with depth,		
5								
6								
7								
8.0	D-3	4.0 100%		74SB30-04 (7-9')	100	Grades with red color at 6.0'		
9								
10								
	D-3	4.0 100%			68	Soft, more plastic zone 8-9.0'		
	D-3	4.0 100%			167	Same silty clay as above, stiff, dense		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB30 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB30

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			47	<i>Continued from Sheet 1</i>	
12					15		
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB30

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB31

COORDINATES: EAST: 930525.0

NORTH: 807207.0

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/1/08	0.0 - 12.0	Sunny and Hot	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.5 63%		74SB31-02 (3-5')	<1	Gravel and Clay, (Fill), brown		
2						Clayey Sand, brown, wet		
3						Clayey Silt, brown/red, friable, dry		
4						4.0		
5	D-2	4.0 100%		74SB31-03 (5-7')	<1	Silty Clay, reddish brown, damp		
6								
7								
8						8.0		
9	D-3	4.0 100%			<1	some gray color and mottling at 9.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB31 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB31

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB31

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB32

COORDINATES: EAST: 930597.6

NORTH: 807106.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/1/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.0 75%		74SB32-02 (3-5')	<1	Gravel ,Sand and Clay, friable, loose, dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB32-03 74SB32-03D (5-7')	<1	Clayey Silt, red and brown, medium stiff, little plasticity ----- Silty clay, red/brown/gray, medium stiff, little plasticity, mottling from 6.0' to 12.0'		
5								
6								
7								
8.0	D-3	4.0 100%			<1			
8								
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB32 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB32

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB32

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB33COORDINATES: EAST: 930655.7NORTH: 807033.5

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/1/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft., %)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%		74SB33-01 (1-3')	<1	Clayey Silt/Silty Clay, red/brown and gray, mottling, soft, some plasticity, damp from 0.0 - 12.0'		
2								
3								
4								
4	D-2	4.0 100%		74SB33-02 (3-5')	<1			
5								
6								
7								
8	D-3	4.0 100%			<1			
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: William RodriguezBAKER REP.: Chris KupferBORING NO.: 74SB33 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB33

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB33

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB34

COORDINATES: EAST: 930708.8

NORTH: 806966.5

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/1/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%		74SB34-00	<1	Clayey Silt, red and brown, stiff, little plasticity, friable, dry		
2				74SB34-00MS				
3				74SB34-00MSD				
4				74SB34-01				
5	D-2	4.0 100%		74SB34-02	<1	Grades more clay with depth		
6				(3-5')				
7								
8								
9	D-3	4.0 100%			<1	Silty clay, some plasticity, medium stiff, red and brown mottling to 12.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB34 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB34

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB34

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB35

COORDINATES: EAST: 930781.6

NORTH: 807026.9

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/2/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%		74SB35-01 (1-3')	<1	Clayey Silt, red and brown, medium stiff little plasticity, damp		
2								
3								
4								
4.0	D-2	4.0 100%		74SB35-03 (5-7')	<1	Grades more clay with depth		
5								
6								
7								
8.0	D-3	4.0 100%			<1	Silty Clay, some plasticity, medium stiff red/brown/gray mottling until 12.0'		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB35 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB35

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB35

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB36

COORDINATES: EAST: 930861.1

NORTH: 807083.6

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/2/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%		74SB36-02 (3-5')	<1	Clayey Silt, red and brown, medium stiff, little plasticity, damp		
2								
3								
4								
4	D-2	4.0 100%			<1	Silty Clay, reddish brown and gray, some plasticity moderately stiff, mottling, damp		
5								
6								
7								
8	D-3	4.0 100%		74SB36-05 (9-11')	<1	Grades more moist, plastic with depth		
9								
10								
						Groundwater encountered at 9.5 feet, very soft sticky		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB36 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB36

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB36

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB37

COORDINATES: EAST: 930943.1

NORTH: 807151.5

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/2/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%		74SB37-01 (1-3')	<1	Clayey Silt, brown, damp, friable, little plasticity		
2						becomes light brown		
3								
4						4.0	becomes red/gray/brown, mottled, more friable	
5	D-2	4.0 100%		74SB37-02 74SB37-02D (3-5')	<1			
6								
7								
8						8.0	becomes less dense and friable	
9	D-3	4.0 100%			<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB37 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB37

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB37

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB38

COORDINATES: EAST: 931021.8

NORTH: 807196.9

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/2/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%		74SB38-01 (1-3')	<1	Clayey Silt, brown, little plasticity, damp		
2						becomes red and brown, mottled, slightly friable		
3								
4						4.0	74SB38-02 (3-5')	
5	D-2	4.0 100%			<1	becomes gray/red/brown		
6						At 6.5' grade, little sand with clayey silt, poorly sorted		
7								
8						8.0	Sand grades out by 8.0'	
9	D-3	4.0 100%			<1	becomes more stiff and dense at 8.5'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB38 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB38

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB38

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB39

COORDINATES: EAST: 931097.4

NORTH: 807263.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/2/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1						Clayey Silt, medium brown, little plasticity, damp		
2						becomes reddish brown, mottled		
3								
4	4.0			74SB39-02 (3-5')	<1			
5								
6								
7								
8	8.0			74SB39-04 (7-9')	<1	becomes dark red/brown/gray, mottled		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB39 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB39

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
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26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB39

SHEET 2 OF 2



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB40

COORDINATES: EAST: 931164.8

NORTH: 807330.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/2/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	4.0 100%		74SB40-02 (3-5')	<1	Clayey Silt, reddish brown, dense, friable some mottling, damp to dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB40-04 (7-9')	<1	Grades softer, less dense at 5.0', more plasticity		
5								
6								
7								
8.0	D-3	4.0 100%			<1	Grades very soft at 7.5'		
8								
9								
10								
						Clayey Sand and Silt, golden brown, soft, moist to wet		
						Silty Clay, brownish red and gray, soft medium to high plasticity, some mottling		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB40 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB40

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			69	<i>Continued from Sheet 1</i>	
12		100%				Grades more dense, less plasticity	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB40

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB41

COORDINATES: EAST: 931230.7

NORTH: 807413.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/2/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	4.0 100%		74SB41-02 (3-5')	<1	Clayey Silt, reddish brown, stiff, low plasticity mottled, damp	
2							
3						becomes red/brown/gray, mottled	
4							
5	D-2	4.0 100%		74SB41-04 (7-9')	<1	becomes less stiff, softer, friable, moist	
6							
7							
8						Very soft from 8.0 to 10.0'	
9	D-3	4.0 100%			<1	Possible water zone from 9.8 to 10.0' (very soft and moist)	
10						Silty Clay, reddish brown, stiff, damp	

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB41 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB41

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB41

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB42

COORDINATES: EAST: 931322.8

NORTH: 807464.5

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.7 93%			<1	Clayey Silt, red/brown/gray, mottling, trace sand fragments, damp		
2								
3								
4								
4.0	D-2	4.0 100%		74SB42-03 (5-7')	<1	becomes more friable with trace gravel		
5								
6								
7								
8.0	D-3	4.0 100%		74SB42-04 (7-9')	<1	At 7.5' more dense, less plasticity		
8								
9								
10								
						Silty Clay, reddish brown and gray, some plasticity stiff, mottling, damp		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB42 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB42

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB42

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB43

COORDINATES: EAST: 931390.2

NORTH: 807538.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.8 95%			<1	Clayey Silt, medium brown, stiff, little plasticity damp		
2								
3								
4								
4.0	D-2	4.0 100%		74SB43-03 (5-7')	<1	Clayey Silt with gravel (pea-sized or smaller poorly sorted) red/brown, mottling, damp		
5								
6								
7								
8.0	D-3	4.0 100%		74SB43-04 (7-9')	<1	Silty Clay, reddish brown and gray, trace to little gravel, stiff, mottling, damp		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB43 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB43

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			69	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB43

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB44

COORDINATES: EAST: 931477.4

NORTH: 807585.5

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%			<1	Gravel , sand and clay, brown, damp		
2						Clayey Silt, dark brown, tight, dense, little plasticity		
3								
4						4.0	becomes lighter brown at 3.8' and more silt, less plasticity	
5	D-2	4.0 100%			<1			
6								
7								
8						8.0	74SB44-04 (7-9') becomes softer, more plasticity, damp	
9	D-3	4.0 100%			<1	Clayey Gravel and Sand, poorly sorted, damp		
10						Clayey Silt, stiff, no to little plasticity		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB44 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB44

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	<i>Continued from Sheet 1</i>	
12						light reddish gray and brown, mottling	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB44

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB45

COORDINATES: EAST: 931610.0

NORTH: 807553.3

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	5	Sunny and Hot	NA
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1						Refusal at 4', 5' and 5' at 3 separate holes (concrete and bedrock)		
2								
3								
4								
5	5.0							
6						Refusal at 5' multiple attempts		
7								
8								
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB45 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB46

COORDINATES: EAST: 931686.9

NORTH: 807493.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 6.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	2.5 63%		N O  S A M P L E	<1	Clayey silt, black, moist		
2						Clayey Sand and Gravel, grayish brown		
3						wet at 3.0'		
4						4.0		
5	D-2	2.0 50%		E S  C O L L E	<1	Clayey silt with gravel, gray, moist		
6						GEOPROBE REFUSAL at 6.0'		
7								
8						8.0		
9				C T E D				
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB46 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB47

COORDINATES: EAST: 931843.4

NORTH: 807306.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 7.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.8 95%		N O  S A M P L E	<1	Top soil		
2						Gravelly Sand, light gray/brown, damp		
3								
4						4.0		
5	D-2	3.0 75%		E S  C O L L E	<1	Weathered bedrock, gravel and sand, light brown, primarily rock		
6								
7								
8						8.0		
9				C T E D		GEOPROBE REFUSAL at 7.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB47 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB48

COORDINATES: EAST: 932003.0

NORTH: 807184.2

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/3/08	0.0 - 8.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.0 75%		74SB48-01 74SB48-01D (1-3')	<1	Gravelly Sand, little clay, gravel poorly sorted, moist		
2								
3								
4								
4.0						Becomes wet, gravelly, sand at 3.0 to 4.0'		
5	D-2	4.0 100%			<1			
6								
7								
8								
8.0						Clayey Silt, brown, damp		
						Gravelly Sand, poorly sorted		
						END OF BORING at 8.0'		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB48 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB49

COORDINATES: EAST: 932003.0

NORTH: 807184.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Silty Clay, medium stiff ,medium plasticity damp		
2	D-1	4.0			<1	Clayey Silt, red/brown/gray, friable, damp mottling		
3		100%						
4	4.0					Gravelly Silt, reddish brown, poorly sorted, loose		
5						Clayey Silt, red/brown, friable, stiff, dry		
6	D-2	4.0			<1	Grades red/gray/brown mottling		
7		100%						
8	8.0			74SB49-04 (7-9')		Silty Clay, reddish gray and brown, tight, stiff mottling, dry		
9								
10	D-3	4.0		74SB49-05 (9-11')	<1			
		100%						

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB49 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB49

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB49

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB50

COORDINATES: EAST: 932100.1

NORTH: 807167.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Clayey Sand and Gravel, medium brown, little plasticity, damp		
2						Clayey Silt, red/brown, friable, stiff		
3						dry, little gravel (pea-sized)		
4						4.0		
5	D-2	4.0 100%		74SB50-03 (5-7')	<1	Grades golden brown and no more gravel, stiff some plasticity		
6								
7								
8						8.0		
9	D-3	4.0 100%			<1	Silty Clay, stiff, some plasticity, damp red/brown/gray mottling		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB50 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB50

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
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28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB50

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB51

COORDINATES: EAST: 932216.3

NORTH: 807175.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/3/08	0.0 - 8.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.4 85%		74SB51-00 (0-1')	<1	Clayey Silt, brown, dry, friable		
2								
3						Gravel, (Fill) gray, dry		
4						4.0	Clayey Silt, brown, sticky, moist	
5	D-2	3.0 75%		74SB51-03 (5-7')	<1			
6						Gravelly Clay, sand, wet, loose at 6.0'		
7						Silty Clay, dark gray and black, soft, moist plastic		
8						8.0	END OF BORING at 8.0'	
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB51 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB52

COORDINATES: EAST: 932307.6

NORTH: 807149.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Clayey Silt with Sand, medium brown, little plasticity, soft, medium density		
2	D-1	3.5 88%			<1			
3								
4	4.0							
5				74SB52-03 (5-7')		Clayey Silt, medium brown, soft		
6	D-2	4.0 100%			<1			
7								
8	8.0			74SB52-04 (7-9')		Clay gets very soft, moist to wet at 7.5'		
9								
10	D-3	4.0 100%			<1	Silty Clay, reddish gray, stiff, plastic mottling, damp		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB52 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB52

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB52

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB53

COORDINATES: EAST: 932397.7290

NORTH: 807094.6190

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5'				5/3/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Clayey Silt, medium brown, soft		
2								
3								
4								
4.0								
5	D-2	4.0 100%		74SB53-04 (7-9')	<1	becomes more red and friable		
6								
7								
8								
8.0								
9	D-3	4.0 100%		74SB53-05 (9-11')	<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB53 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB53

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB53

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB54

COORDINATES: EAST: 932490.6

NORTH: 807037.6

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	4.0 100%			<1	Clayey Silt, dark brown, stiff, damp		
2						Grades golden brown		
3								
4						4.0		
5	D-2	4.0 100%		74SB54-03 (5-7')	<1	At 4.5' grades brown and black, small sand and gravel is black, damp, friable		
6						Grades more black with depth		
7								
8						8.0	74SB54-04 (7-9')	
9	D-3	4.0 100%			<1	becomes brown and red, friable light plasticity, damp		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB54

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB54

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB54

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB55

COORDINATES: EAST: 932593.2

NORTH: 807013.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 8.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	4.0 100%		74SB55-02 (3-5')	<1	Clayey Silt, brown, friable, stiff, dry medium density	
2							
3						Grades more plastic and soft	
4							
5	D-2	4.0 100%		74SB55-03 (5-7')	<1	At 4.5' Grades with small gravel (trace)	
6							
7							
8						At 7.0' soft, wet	
9						END OF BORING at 8.0'	
10							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB55 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB56

COORDINATES: EAST: 932692.5

NORTH: 806998.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%		74SB56-03 (5-7')	<1	Clayey Silt, friable, small sand and gravel, dry		
2								
3								
4	4.0				Silty Clay, dark brown, softer, plastic trace small gravel, damp			
5	D-2	4.0 100%		74SB56-04 (7-9')	<1	Grades to little to some small gravel(pea sized) At 6.0' light brown and red		
6								
7								
8	8.0							
9	D-3	4.0 100%			<1	Clayey Silt, red and brown		
10						Silty Clay, stiff, red/gray/brown plastic		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB56 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB56

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB56

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB57

COORDINATES: EAST: 932795.0

NORTH: 806955.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Clayey Silt, medium brown, little gravel	
2						Silty Clay, medium stiff, medium plasticity	
3						soft, more plastic	
4							
5	D-2	4.0 100%		74SB57-03 (5-7')	<1	At 4.0 to 4.5' also softer	
6							
7							
8						8.0 to 9.0' soft zone	
9	D-3	4.0 100%			<1	Some density, little plastic	
10							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB57 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB57

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB57

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB58

COORDINATES: EAST: 932866.0

NORTH: 806888.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/3/08	0.0 - 12.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%			<1	Silty Clay, light brown and red, some sand and pebbles, damp,		
2								
3								
4								
4.0	D-2	3.4 85%		74SB58-03 (5-7')	<1	Sandy Clay, moderately hard at 4.2' becomes dark brown, soft, damp to moist		
5								
6								
7								
8	D-3	3.8 95%		74SB58-04 (7-9')	<1	Clayey Sand, medium to dark brown, soft, wet		
9								
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB58 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB58

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8 95%			<1	<i>Continued from Sheet 1</i>	
12						Silty Clay, tan and red, moderate stiff, damp, trace light blue clay throughout	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
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21							
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23							
24							
25							
26							
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28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB58

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB59

COORDINATES: EAST: 932914.1

NORTH: 806795.6

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary     C = Core D = Direct Push    P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	4.0	D-1	3.0 75%			<1	Sandy clay, brown, soft, moist	
2							Silty Clay, reddish brown, moderate soft, damp	
3								
4								
5	8.0	D-2	3.5 88%		74SB59-04 (7-9')	<1	Becomes light brown at 4.5', moderate soft to soft damp to moist	
6								
7								
8								
9		D-3	2.1 53%		74SB59-05 (9-11')	<1	Becomes lighter brown, some sand at 9.0'	
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB59 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB59

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.1 53%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
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28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB59

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB60

COORDINATES: EAST: 932968.3

NORTH: 806713.3

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/3/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Brown silty clay, damp, moderate soft pebbles		
2	D-1	2.4			<1	Becomes medium brown at 1.5'		
3		60%						
4	4.0							
5						Clay with some Silt, tan and red, stiff, hard, dry		
6	D-2	4.0			<1			
7		100%						
8	8.0			74SB60-04 (7-9')		Silty Clay, dark brown, some sand, soft, damp		
9								
10	D-3	2.2		74SB60-05 (9-11')	<1			
		55%						

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB60 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB60

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.2			<1	Continued from Sheet 1	
12							
12	12.0	55%				END OF BORING at 12.0'	
13							
14							
15							
16							
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18							
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23							
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26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB60

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB61

COORDINATES: EAST: 932999.0

NORTH: 806624.8

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/3/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.4 85%		74SB61-00 (0-1')	<1	Sandy Clay and Gravel, light brown, moderately hard, damp to dry		
2						Gravel and rock, (Fill), sand and pebbles, light green, loose, dry		
3						Silty Clay, soft, dark brown and gray		
4						4.0	wet from 4 to 5 feet	
5	D-2	4.0 100%		74SB61-03 (5-7')	5 to 10	becomes moist silty clay at 5 feet, dark brown and medium gray, soft and plastic to 12.0'		
6								
7								
8						8.0		
9	D-3	2.8 70%		74SB61-04 74SB61-04D (7-9')	<1			
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB61 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB61

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.8 70%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
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29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB61

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB62

COORDINATES: EAST: 933039.2

NORTH: 806526.4

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/3/08	0.0 - 10.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.3 58%		74SB62-03 (5-7')	<1	Sandy loam from 0.0' - 2.0'		
2						medium brown, damp, moderate stiff		
3						cobble at 1.1'		
4						Sand and clay from 1.2' to 5.0', wet from 3.5' to 5.0'		
5	D-2	3.2 80%		<1	Sandy Clay, medium dark brown, moderately			
6					soft, dry			
7					At 8.0' becomes soft, saturated, light green and brown			
8								
9								
10	D-3	1.4 35%			<1			
GEOPROBE REFUSAL at 10.0'								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB62

SHEET 1 OF 1



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB63

COORDINATES: EAST: 933066.8

NORTH: 806423.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/4/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%			<1	Clayey Silt, friable, little sand, dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB63-03 (5-7')	<1	Sand, medium brown, some fine gravel, wet		
5								
6								
7								
8	D-3	4.0 100%		74SB63-04 (7-9')	<1	Clayey Sand, medium brown, stiff, grades more clay with depth, moist		
9								
10								
						Clayey Silt, medium and golden brown friable, dense, tight, damp		
						Sand, small gravel, well sorted, wet		
						Clayey Silt, medium brown and golden brown, tight and dense, dry		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB63 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB63

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	Continued from Sheet 1	
12							
12	12.0	100%				END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB63

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB64

COORDINATES: EAST: 933139.5

NORTH: 806341.4

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/4/08	0.0 - 10.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.0 75%			<1	Top Soil (0.0 to 0.6')		
2						Gravel, Sand and Clay, (Fill) poorly sorted		
3						gray and brown, loose, dry		
4						becomes damp and a little more clay		
5	D-2	4.0 100%		74SB64-03 (5-7')	<1	Gravelly Silt, some sand, gravel less than peasized		
6						poorly sorted, trace clay, light/ dark brown, loose		
7						Grades to little clay, from trace and color to green		
8						white and gray, damp		
9	D-3	2.0 50%			<1	Grades back to brown		
10								
						END OF BORING at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB64 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB65

COORDINATES: EAST: 933243.2

NORTH: 806271.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/4/08	0.0 - 10.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%			<1	Gravelly Sand, (Fill), gray and brown, poorly sorted, loose, dry		
2								
3								
4						4.0	becomes brown with some clay	
5	D-2	3.5 88%		74SB65-03 (5-7')	<1	Sand, light to golden brown, fine grained well sorted, loose, dry		
6								
7								
8						8.0	74SB65-04 (7-9')	
9	D-3	2.0 100%			<1			
10						10.0		
						END OF BORING at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB65 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB66

COORDINATES: EAST: 933323.5

NORTH: 806211.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/4/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.2 80%		74SB66-03 (5-7')	<1	Clayey Silt, red and brown, dense, dry		
2						Gravelly Silt and Sand, with little clay		
3						gray/white, gravel less than peasized		
4						4.0		Clayey Silt, golden brown, dense, friable, dry-damp,
5	D-2	4.0 100%		74SB66-04 74SB66-04D (7-9')	<1	Gravelly Sand and Silt, little clay, pea sized gravel, damp, brown and tan		
6								
7								
8						8.0		
9	D-3	4.0 100%			<1	Grades to some clay to 12.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB66 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB66

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
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27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB66

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB67

COORDINATES: EAST: 933404.5

NORTH: 806148.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/4/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%		74SB67-03 (5-7')	<1	Clayey Silt, trace sand, dense, red brown, damp, grades medium brown at 1.0'		
2						Grades less stiff and plasticity at 2.0'		
3								
4						4.0		Softer from 4.0 to 4.5'
5	D-2	4.0 100%		74SB67-04 (7-9')	<1	Softer from 6.0 to 6.5'		
6						Grades light gray/black/brown, mottling at 6.5'		
7								
8						8.0		Silty Clay, brown, soft, moist, some plasticity trace small gravel
9	D-3	4.0 100%			<1	Clayey Silt, dense, stiff, dry, light brown and dark brown mottling		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB67 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB67

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB67

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB68

COORDINATES: EAST: 933483.1

NORTH: 806085.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/4/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1	Clayey Silt with little to some gravel, red/brown poorly sorted, dense, stiff, dry		
2								
3								
4						Gravel grades out and becomes golden brown		
5	D-2	3.5 88%		74SB68-03 (5-7')	<1	Silty Clay, some plasticity, damp, golden brown		
6						More plastic and softer with black and gray mottling from 6.0 to 7.0'		
7								
8						Clayey Silt, stiff, little plasticity, damp		
9	D-3	4.0 100%			<1	Clayey Sand and Silt, soft plastic, wet brown		
10						Clayey Silt, light brown, stiff, dense, mottling, damp to dry		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB68 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB68

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB68

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB69

COORDINATES EAST: 933564.6

NORTH: 806027.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/4/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%			<1	Clayey Silt, brown, stiff, damp		
2						Gravelly Sand, loose, dry		
3								
4						4.0		Clay, dark brown, little silt, high plasticity medium density to soft, damp
5	D-2	4.0 100%		74SB69-03 (5-7')	<1			
6								
7								
8						8.0		74SB69-04 (7-9')
9	D-3	1.0 25%			<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB69 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB69

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.0			<1	<i>Continued from Sheet 1</i>	
12		25%				At 11.5 moist, sticky	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB69

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB70

COORDINATES: EAST: 933643.9

NORTH: 805966.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/4/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Top Soil		
2	D-1	4.0			<1	Clayey Silt, trace gravel, stiff, red/brown, damp		
3		100%				Red grades out		
4	4.0					Silty Clay, soft, some plasticity, damp		
5				74SB70-03				
6	D-2	4.0		(5-7')	<1	Grades dark brown from 6.0 to 7.0'		
7		100%				Grades stiff at 7.0'		
8	8.0			74SB70-04		At 8.0 to 8.5' becomes wet, sticky, very soft		
9				(7-9')				
10	D-3	4.0			<1	At 8.5' becomes red/brown, stiff, some plasticity, dense, mottling, damp		
		100%						

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB70 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB70

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	Continued from Sheet 1	
12							
12	12.0	100%				END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB70

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB71

COORDINATES: EAST: 933718.8

NORTH: 805905.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/4/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	1.8 45%		74SB71-00 (0-1')	<1	Gravel		
2						Clay, dark brown, trace large gravel, soft, very plastic, moist		
3								
4						4.0		
5	D-2	4.0 100%		74SB71-03 74SB71-03MS 74SB71-03MSD (5-7') 74SB71-04 74SB71-04D (7-9')	<1	becomes harder, some plasticity, damp		
6								
7								
8						8.0		
9	D-3	4.0 100%			<1	Grades to gold, green, brown, and gray mottling		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB71 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB71

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	<i>Continued from Sheet 1</i>	
12		100%				Clayey Silt and Sand, little gravel gold/brown/gray mottling	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB71

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB72

COORDINATES: EAST: 933792.0

NORTH: 805842.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Top soil and gravel		
2						Clayey Silt, medium brown, stiff, little plasticity, damp		
3								
4	4.0					becomes golden brown		
5						Silty Clay, medium stiff, damp, some plasticity		
6				74SB72-03 (5-7')	<1			
7						Clayey Silt, soft, little sand, brown and dark brown mottling, little plasticity		
8	8.0			74SB72-04 (7-9')				
9						Silty Clay, soft medium plasticity, damp gold/gray/brown mottling to 12.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB72 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB72

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
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29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB72

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB73

COORDINATES: EAST: 933870.4

NORTH: 805781.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary    C = Core D = Direct Push    P = Piston N = No Sample						<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	4.0	D-1	4.0 100%			<1	Top soil	
2							Clayey Silt, light brown and tan, soft, no plasticity	
3							Grades to little plasticity and medium brown color	
4							Becomes more dense and more silt in clay matrix	
5	8.0	D-2	4.0 100%		74SB73-03 (5-7')	<1	Grades more silt, and fine sand, dense, well sorted light and dark brown	
6								
7								
8								
9		D-3	4.0 100%			<1	Grades less silt, stiff, little to no plasticity, damp medium dense	
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB73 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB73

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB73

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB74

COORDINATES: EAST: 933944.8

NORTH: 805716.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/5/08	0.0 - 10.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%		74SB74-03 (5-7')	<1	0.3' Top soil		
2						Silt, trace small gravel, light to medium brown, well sorted, dry		
3								
4						4.0		becomes dense, stiff, little clay, friable, dry
5	D-2	3.0 75%		74SB74-04 (7-9')	<1			
6								
7								
8						8.0		trace of small pea sized gravel, stiff, dry friable, dense
9	D-3	2.0 50%			<1			
10						10.0		very hard, silt
						GEOPROBE REFUSAL at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB74 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB75

COORDINATES: EAST: 934025.2

NORTH: 805654.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 10.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1	Clayey Silt, stiff, brown		
2						Sandy Silt, dry, loose, gray/brown		
3								
4						4.0		
5	D-2	3.0 75%		74SB75-03 (5-7')	<1	Silty Sand, small gravel, dry, loose, brown/gray		
6						Grades little to some gravel, poorly sorted, below 7.0', dry		
7								
8						8.0		
9	D-3	2.0 100%			<1	becomes medium to golden brown		
10						10.0		
						GEOPROBE REFUSAL at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB75 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB76

COORDINATES: EAST: 934100.7

NORTH: 805592.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5'				5/5/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1	Clayey Silt and Gravel, damp, brown		
2						Clayey Silt and Sand, little gravel (peasized)		
3						damp, friable, gray/brown		
4						4.0		
5	D-2	4.0 100%		74SB76-03 74SB76-03D (5-7')	<1	Silt, golden brown, well sorted, dry		
6						Clayey Silt and Sand, little gravel, damp		
7						friable, dense, light/dark gray		
8						8.0		
9	D-3	4.0 100%			<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB76 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB76

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
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27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB76

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB77

COORDINATES: EAST: 934176.0

NORTH: 805535.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1	Clayey Silt and Gravel (Fill), gray/brown dry, loose		
2								
3								
4	4.0		74SB77-03 (5-7')	<1	Clayey Silt, medium dense to soft, little to some plasticity, damp, brown			
5								
6								
7	D-2	4.0 100%		74SB77-04 (7-9')	<1	Very dense, more soft and plastic at 8.0'		
8						8.0		
9								
10	D-3	4.0 100%			<1	less clay and more silt, golden brown from 9.0 to 11.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB77 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB77

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	<i>Continued from Sheet 1</i>	
12		100%				Clayey Silt, dense, stiff, little plasticity, damp dark gray	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB77

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB78

COORDINATES: EAST: 934268.0

NORTH: 805480.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 5.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.5 63%		N O S A M P L	<1	Gravel and Sand (Fill), grayish brown loose, dry, poorly sorted to 5.0'		
2								
3								
4								
4	4.0	D-2	1.0 25%		E S	<1		
5	5.0							
6				C O L L E C T E D		GEOPROBE REFUSAL at 5.0'		
7								
8								
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB78 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB79

COORDINATES: EAST: 934359.8

NORTH: 805450.3

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1	Clayey Sand and Gravel, (Fill) gray/brown, loose, poorly sorted, dry		
2								
3						Clayey Silt, light gold and brown, dense damp to dry		
4						4.0		
5	D-2	4.0 100%		74SB79-03 (5-7')	<1	Clay, black to dark green, medium stiff plastic, damp		
6								
7								
8						8.0	74SB79-04 (7-9')	Grades little to some silt in the clay
9	D-3	4.0 100%			<1	Clayey Silt, gold and brownish green, soft, little plasticity, damp to 12.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB79 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB79

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB79

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB80

COORDINATES: EAST: 934513.9

NORTH: 805438.5

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/5/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1	Sand and Gravel, (Fill), gray/brown, dry, poorly sorted		
2								
3								
4								
4.0	D-2	4.0 100%		74SB80-03 (5-7')	<1	Clayey Silt, medium brown, soft, damp, little to trace gravel and sand		
5								
6								
7								
8	D-3	4.0 100%		74SB80-04 (7-9')	<1	Gravelly Sand, black, loose, dry		
9								
10								
						Clay, soft, plastic, damp to moist		
						Grades medium brown and very soft 10.0 to 11.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB80 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB80

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	<i>Continued from Sheet 1</i>	
12						Clayey Silt, little gravel (small), stiff, damp	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB80

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB81

COORDINATES: EAST: 934611.9

NORTH: 805415.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/5/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.0 75%		74SB81-00 (0-1')	<1	Gravel, Silt and Sand, (Fill), gray, loose poorly sorted		
2								
3						Clayey Silt, little to some sand and gravel soft, damp, brown, little plasticity		
4						4.0		
5	D-2	3.0 75%		74SB81-03 74SB81-03MS 74SB81-03MSD (5-7')	<1	Clayey Sand, with gravel, black, damp		
6								
7								
8						8.0		
9	D-3	3.0 75%		74SB81-04D (7-9')	<1	Sand and Gravel, brown, loose, poorly sorted wet		
10						Clayey Sand and Gravel, black, no plasticity black, damp		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB81 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB81

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0 75%			<1	<i>Continued from Sheet 1</i>	
12						Clay, black, soft, plastic	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB81

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB82

COORDINATES: EAST: 934717.6

NORTH: 805383.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/6/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Gravel, Silt and Clay, (Fill) gray and brown, damp		
2	D-1	3.5			<1			
3		88%				Sand, golden brown, fine-grained, well sorted		
4	4.0							
5				74SB82-03 74SB82-03MS 74SB82-03MSD				
6	D-2	2.0		(5-7')	<1	Clayey Sand and Gravel, grayish brown gravel (pea sized), moist		
7		50%						
8	8.0			74SB82-04 74SB82-04D				
9				(7-9')		Clayey Silt, gray, some fine sand, wet		
10	D-3	4.0			<1	Clay, dark gray/black. soft, plastic, organic odor		
		100%						

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB82 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB82

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB82

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB83

COORDINATES: EAST: 934816.0

NORTH: 805356.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/6/08	0.0 - 8.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%		74SB83-02 74SB83-02MS	<1	Sandy Clay and Gravel, (Fill), gray and brown loose, dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB83-02MSD (3-5')	<1	Clayey Sand, gray, little gravel, damp to moist		
5								
6								
7								
8								
8.0								
9						Grades red/brown at 7.0'		
10						GEOPROBE REFUSAL at 8.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB83 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB84

COORDINATES: EAST: 934909.3

NORTH: 805322.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/6/08	0.0 - 7.5	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%			<1	Silt		
2						Gravelly Silt and Clay, (Fill) medium brown, damp		
3						Sand, brown, well sorted, dry		
4						4.0		Clayey Silt, soft, little gravel, some plasticity damp
5	D-2	3.0 75%		74SB84-03 74SB84-03MS 74SB84-03MSD (5-7')	<1			
6								
7						Grades dark gray to black at 7.5'		
8						8.0		GEOPROBE REFUSAL at 7.5'
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB84 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB85

COORDINATES: EAST: 935006.6

NORTH: 805289.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/6/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%		74SB85-03 (5-7')	<1	Gravel ,Sand and Silt, (Fill), light to dark brown poorly sorted, dry		
2								
3								
4	4.0	D-2	2.0 50%	74SB85-04 (7-9')	<1	Clayey Silt, medium brown, soft, little plasticity little gravel, damp		
5								
6								
7	8.0	D-3	4.0 100%		<1	Clayey Sand, damp-moist, little plasticity, soft, trace gravel		
8								
9								
10						Clay, soft, plastic, golden brown		
						Grades black with organic odor, stiff, soft plastic		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB85 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB85

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	Continued from Sheet 1	
12							
12	12.0	100%				END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB85

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB86

COORDINATES: EAST: 935111.4

NORTH: 805255.3

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/6/08	0.0 - 12.0	Sunny and Hot	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b> Fuel Odor.								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.0 75%			<1	Gravel, Clay and Sand, (Fill) black and gray		
2								
3						Clayey Silt, soft, little gravel, damp, light brown		
4						4.0		
5	D-2	3.2 80%		74SB86-03 74SB86-03D (5-7')	<1	Grades moist at 6.5'		
6								
7						Gravelly Sand, no odor, wet		
8						8.0		
9	D-3	1.5 38%			52	Sand and Silt, some clay, loose, black, fuel odor		
10						<1		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB86 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB86

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.5 38%			<1	<i>Continued from Sheet 1</i>	
12						Clay, soft, moist, plastic, sticky, organic odor	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB86

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB87

COORDINATES: EAST: 935208.3

NORTH: 805238.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/7/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%		74SB87-03 (5-7')	<1	Sand and Gravel with Clay, (Fill), brown, loos poorly sorted, dry		
2						Clayey Silt, medium brown to gold		
3						trace to little gravel, no plasticity, damp		
4						4.0		
5	D-2	4.0 100%		74SB87-04 (7-9')	<1	Grades to more clay, with some plasticity, damp to moist		
6						Clay, little gravel, soft, plastic, moist, dark		
7						brown and gray		
8						8.0		
9	D-3	4.0 100%			<1	Clayey Silt, trace gravel, soft, little plastic organic odor, moist		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB87 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB87

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB87

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB88

COORDINATES: EAST: 935298.3

NORTH: 805200.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/7/08	0.0 - 8.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Gravel, Sand and Silt, (Fill), brown, some clay, loose, poorly sorted		
2								
3								
4	4.0					Clayey Silt, little gravel, damp, little plastic soft, medium to golden brown		
5	D-2	2.8 70%		74SB88-03 (5-7')	<1	Becomes wet at 7.0 to 7.5'		
6								
7								
8	8.0					little sand, gravel, damp, brown		
9						GEOPROBE REFUSAL at 8.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB88 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB89

COORDINATES: EAST: 935377.1

NORTH: 805186.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/7/08	0.0 - 8.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1			
2						Gravel, Clay and Sand, (Fill), brown, damp		
3								
4						4.0		Clayey Silt, little gravel, damp, little plasticity, medium brown
5	D-2	2.8 70%		74SB89-03 (5-7')	<1			
6						Gravelly Sand, brown, wet		
7						Clay, little gravel, damp, plastic		
8						8.0		Grades black, organic odor
9						END OF BORING at 8.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB89 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB90

COORDINATES: EAST: 935536.3

NORTH: 805138.3

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/7/08	0.0 - 6.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%		74SB90-02 (3-5')	<1	Clayey Silt, some gravel, (Fill), brown damp, poorly sorted gravel		
2								
3								
4								
4	4.0					Clay, dark brown, trace to little gravel, soft, plastic		
5	D-2	4.0 100%			<1	Gravelly Sand, gray, poorly sorted, wet		
6								
7								
8								
8	8.0					Clayey Sand, little gravel, little plastic		
9						GEOPROBE REFUSAL at 6.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB90 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB91

COORDINATES EAST: 935586.7

NORTH: 805113.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/7/08	0.0 - 8.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.7 93%		74SB91-00 (0-1')	<1	Gravel, Clay and Silt, (Fill), brownish gray, damp		
2								
3								
4								
5	D-2	3.2 80%		74SB91-03 74SB91-03D 74SB91-03MS 74SB91-03MSD (5-7')	<1	Soft, some plasticity		
6								
7								
8								
9						Gravelly Sand, medium brown, wet poorly sorted		
10						END OF BORING at 8.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB91 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB92

COORDINATES: EAST: 935686.8

NORTH: 805080.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/7/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%			<1	Gravel, Sand, Silt, (Fill), brownish black, dry poorly sorted		
2								
3								
4						4.0		
5	D-2	4.0 100%		74SB92-03 (5-7')	<1	Clayey Silt, medium brown, little gravel, soft, damp		
6								
7								
8						8.0		
9	D-3	4.0 100%		74SB92-04 (7-9')	<1	Silty Clay, soft, plastic, trace, gravel, medium brown		
10								
						Grades red from 6.5 - 7.0'		
						Clayey Silt, little to no plasticity, dense, damp golden brown, soft from 8.5 - 9.5'		
						Dense again at 9.5'		
						Grades red/brown 10.0 - 11.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB92 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB92

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	<i>Continued from Sheet 1</i>	
12		100%				Grades golden brown with light gray mottling from 11.0 - 12.0	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB92

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB93

COORDINATES: EAST: 935781.0

NORTH: 805059.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/7/08	0.0 - 12.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.5 88%			<1	Gravel, Sand, Silt, (Fill), grayish brown, dry		
2								
3						Clayey Silt, golden brown, dense, little to no plasticity, stiff		
4						4.0	some sand and gravel, light brown, dry	
5	D-2	4.0 100%		74SB93-03 (5-7')	<1	Clayey Silt, brownish black, little gravel and silt, friable, dense, dry		
6								
7								
8						8.0	some, light gray mottling at 6.0' with brown matrix to 12.0'	
9	D-3	4.0 100%			<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB93 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB93

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB93

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB94

COORDINATES: EAST: 935867.2

NORTH: 805033.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/7/08	0.0 - 8.0	Sunny and Hot	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1	Gravel, Silt and Sand, (Fill), loose, poorly sorted brown and gray, dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB94-03 (5-7')	<1	Clayey Silt, brown, dense, friable, damp to dry  Grades less clay, becomes gray, very dense, friable, some fine sand		
5								
6								
7								
8	8.0			74SB94-04 (7-9')				
9						GEOPROBE REFUSAL at 8.0'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB94 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB95COORDINATES: EAST: 935965.2NORTH: 805004.0

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/13/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%			<1	Sandy loam		
2						Sand with some gravel/cobbles, tan, mixed in light brownish orange silty clay		
3								
4						some light gray gravel #57 size at 4'		
5	D-2	3.8 95%		74SB95-03 (5-7')	<1	Silty Sand, light gray, fine sand, some clay		
6								
7						Clayey Silt, light gray, some sand and carbonate deposits		
8						8.0		
9	D-3	3.7 93%		74SB95-04 (7-9')	<1	Silty Clay, dark brown and olive, some carbonate deposits		
10						Silty Sand, dark brown/orange, some gravel		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB95 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB95

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.7 93%			<1	<i>Continued from Sheet 1</i>	
12						Silty Clay, light gray, some sand	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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22							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB95

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB96

COORDINATES: EAST: 936061.0

NORTH: 804974.9

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/13/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A			<1	Light tan medium sand		
2						Gravel size 21A with some coarse sand mixed in		
3						light bluish color		
4						No recovery		
4.0								
5	D-2	N/A		74SB96-03 74SB96-03D (5-7')	<1	Red clay with some silt and some carbonates present		
6								
7								
8								
8.0								
9	D-3	N/A		74SB96-05 (9-11')	<1	Coarse sand with some gravel and white carbonates present		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB96 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB96

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						Dark brown silty clay with some white carbonates present	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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29							
30							

DRILLING CO.: \_\_\_\_\_

DRILLER: \_\_\_\_\_

BAKER REP.: Joe Burawa

BORING NO.: 74SB96

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB97

COORDINATES: EAST: 936039.6

NORTH: 805117.8

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary     C = Core D = Direct Push    P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	4.0	D-1	3.3 83%			<1	Dark brown, soft, damp	
2							Gravel from 0.5' to 1.3' gray, loose, dry	
3							Silty Clay, red and tan, moderate hard, stiff damp	
4								
5	8.0	D-2	4.0 100%		74SB97-03 (5-7')	<1	Becomes silty clay with some sand at 4.5', light brown, stiff, damp	
6								
7								
8								
9		D-3	4.0 100%			<1	Becomes more plastic at 9.0', damp	
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB97 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB97

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB97

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB98

COORDINATES: EAST: 935978.6

NORTH: 805216.4

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	3.4 85%			<1	Dark brown, soft	
2						Sand and Gravel, light gray, loose, dry	
3							
4						Sandy Clay, dark brown, very hard, dry	
5	D-2	4.0 100%		74SB98-03 (5-7')	<1	Silty Clay, red and tan, moderate hard, stiff, some sand, damp	
6							
7							
8							
9	D-3	4.0 100%		74SB98-04 (7-9')	<1	At 8.5' becomes medium brown and tan moderate soft, plastic, damp	
10							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB98 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB98

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB98

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB99

COORDINATES: EAST: 935956.1

NORTH: 805314.6

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	2.5 63%			<1	Dark brown, soft, dry	
2						Sand, brown, some silt and gravel, (Fill), dry	
3							
4						Gravel, loose, dry, large rocks	
5	D-2	4.0 100%		74SB99-03 (5-7')	<1	Silty Clay, tan and red, moderate hard, stiff	
6							
7							
8							
9	D-3	3.7 93%		74SB99-04 (7-9')	<1	Sandy Clay and Clay, clay is light gray	
10						to white, the sandy clay is maroon red, damp to moist	

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB99 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB99

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.7 93%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
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28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB99

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB100

COORDINATES: EAST: 935914.4

NORTH: 805405.6

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	1.5 38%		74SB100-03 (5-7')	<1	Dark brown, soft, damp,		
2						Gravel, brownish gray, some sand and clay, hard, dry		
3								
4						4.0		
5	D-2	4.0 100%		74SB100-04 (7-9')	<1	Silty Clay, tan and red, moderate hard to hard, damp, trace of sand		
6								
7								
8						8.0		
9	D-3	0.5 13%			<1	Becomes lighter in color at 8.0', tan and medium brown, damp, little softer		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB100 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB100

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	0.5 13%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
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18							
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DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB100

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB101

COORDINATES: EAST: 935874.2

NORTH: 805492.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.2 55%		74SB101-00 (0-1')	<1	Gravel		
2						Sand, brownish gray, some clay		
3						Gravel, light gray, loose, dry to 4.2'		
4						4.0		
5	D-2	3.8 95%		74SB101-03 74SB101-03D 74SB101-03MS 74SB101-03MSD (5-7')	<1	Silty Clay, tan and red, some sand, moderately hard, damp to dry		
6								
7								
8						8.0		
9	D-3	4.0 100%		74SB101-04 (7-9')	<1	At 7.5' dark red, silty clay with some white clay damp, damp plastic, moderate soft		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB101 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB101

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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23							
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25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB101

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB102

COORDINATES: EAST: 935874.2

NORTH: 805588.7

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.0 75%			<1	Sand and Gravel, grayish brown, damp to dry, medium grained sand, some silt		
2								
3								
4								
4.0	D-2	4.0 100%		74SB102-04 (7-9')	<1	Silty Clay, red and tan, small pebbles, tight, moderate hard, damp		
5								
6								
7								
8	D-3	4.0 100%		74SB102-05 (9-11')	<1	Clay, light gray, mixed with red Sandy Clay, dry, very stiff, dark purple nodules in sandy clay		
9								
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB102 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB102

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB102

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB103

COORDINATES: EAST: 935788.3

NORTH: 805682.3

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Sand and Gravel, grayish brown, loose, cobbles damp to dry		
2								
3								
4	4.0							
5						Silty Clay, red and tan, moderate hard, some sand, damp		
6				74SB103-03 (5-7')				
7								
8	8.0							
9				74SB103-04 (7-9')		Clay, light gray, mixed with Sandy Clay, maroon, plastic, damp, moderate soft, some mottling		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB103 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB103

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
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DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB103

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB104

COORDINATES: EAST: 935749.4

NORTH: 805773.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	4.0	D-1	3.1 78%			<1	Silt Loam, medium brown, damp	
2							Sand and Gravel, brownish gray, loose, damp to dry	
3								
4								
5	8.0	D-2	2.8 70%		74SB104-03 (5-7')	<1		
6								
7								
8							Clay, red and white, white clay with maroon sandy clay, medium soft to soft, damp to moist	
9		D-3	3.6 90%		74SB104-04 (7-9')	<1	some pebbles to 12.0'	
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB104 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB104

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.6 90%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
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28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB104

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB105

COORDINATES: EAST: 935705.9

NORTH: 805867.5

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	2.1 53%			<1	Brown, soft, damp		
2						Sand and Gravel, dry, loose, cobbles to approximately 6.0'		
3								
4						4.0		
5	D-2	3.5 88%		74SB105-03 (5-7')	<1			
6								
7						Silty Clay, brown, damp, becomes stained black to 7.0' then red/brown silty clay, moderate hard damp		
8						8.0		
9	D-3	1.8 45%		74SB105-04 (7-9')	<1	Sandy Clay, red(maroon), mixed with Clay, light gray, soft, moist		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB105 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB105

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.8 45%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
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29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB105

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB106

COORDINATES: EAST: 935664.8

NORTH: 805959.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/5/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	2.0 50%		74SB106-01 (1-3')	<1	Silt Loam, brown, soft damp	
2						Sand and Gravel, loose, dry, shell layer	
3						from 0.8 to 1.2' then sand and gravel again	
4							
5	D-2	0.6 15%			<1		
6							
7							
8						Sandy Clay, maroon, and white/light gray	
9	D-3	3.0 75%		74SB106-04 (7-9')	<1	Clay, soft, damp, some silt	
10							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB106 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB106

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0 75%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
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28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB106

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB107

COORDINATES: EAST: 935623.5

NORTH: 806053.4

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/6/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	4.0	D-1	2.7 68%			<1	Silt Loam, dark brown, soft	
							Sand, brown, some gravel, loose, dry	
2							Sand and Gravel, gray, loose, dry	
3								
4	8.0	D-2	4.0 100%	74SB107-03 74SB107-03D (5-7')	<1	Silty Clay, reddish brown, with light brown		
5						Sandy Clay, moderate stiff, hard, damp to dry		
6						Clay, white/light gray and maroon, stiff damp to moist		
7								
8		D-3	4.0 100%	74SB107-05 (9-11')	<1			
9								
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB107 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB107

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
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30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB107

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB108

COORDINATES: EAST: 935573.0

NORTH: 806141.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/6/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.0 75%			<1	Silt loam, brown, damp		
						Sand and Gravel, brown, loose, dry		
2						Silty Clay, light brown		
						Sand and Gravel		
3	Sandy Clay, dark brown, moderately soft, dry							
4	4.0							
5	D-2	4.0 100%		74SB108-03 (5-7')	<1	Silty Clay, light brown and reddish brown, stiff, damp		
6								
7						Clay, light gray and maroon, damp to moist		
						softer, some sand to 12.0'		
8	8.0							
9	D-3	4.0 100%		74SB108-04 (7-9')	<1			
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB108 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB108

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
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29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB108

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB109

COORDINATES: EAST: 935528.7

NORTH: 806182.0

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/6/08	0.0 - 12.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.5 88%			<1	Brown, soft, some sand, damp		
2						Sand and Gravel		
3						Silty Clay, brown, some sand, rocks, damp		
4						Clay, white and red, moderately hard, some silt damp		
5	D-2	4.0 100%			<1			
6								
7								
8						At 8.5' becomes light gray and maroon clay, very plastic, damp to 12.0'		
9	D-3	4.0 100%		74SB109-04 (7-9')	<1			
10				74SB109-05 (9-11')				

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB109 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB109

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB109

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB110

COORDINATES: EAST: 935346.3

NORTH: 806154.5

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/6/08	0.0 - 12.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	4.0 100%			<1	Silt Loam, brown, moderately hard, damp		
2						Clay, brown, lean, moderate hard and stiff, damp		
3								
4	4.0				Clayey Sand, light brown, moderate soft to soft, fine to medium grained sand			
5	D-2	4.0 100%			<1			
6								
7								
8	8.0			74SB110-04 (7-9')		Sandy Clay, reddish brown, soft, some pebbles occasional cobbles, damp		
9	D-3	4.0 100%			<1			
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB110 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB110

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB110

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB111

COORDINATES: EAST: 935232.3

NORTH: 806145.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/7/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	2.6 65%		74SB111-00 (0-1')	<1	Silt Loam mixed with Sand, dark brown, moderate soft, damp	
2						Sand, some stones, loose, dry, soft	
3						Sandy Clay, light brown, some pebbles, moderately hard, damp	
4							
5	D-2	2.9 73%		74SB111-03 74SB111-03D 74SB111-03MS 74SB111-03MSD (5-7')	<1		
6							
7							
8							
9	D-3	3.1 78%		74SB111-05 (9-11')	>500	Silty Clay, brown, at approximately 9.3' becomes more reddish in color, damp, moderate hard	
10						some sand	

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB111 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB111

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.1 78%			5 to 10	<i>Continued from Sheet 1</i>	
12						Clayey Sand, greenish gray, soft, wet	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB111

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB112

COORDINATES: EAST: 935129.4

NORTH: 806121.1

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/7/08	0.0 - 12.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.7 93%			<1	Sandy loam, dark brown, damp to dry, moderate hard		
2						Sandy Silt, light brown, some clay, moderate hard		
3						cobble from 2.8 to 3.2'		
4						4.0		
5	D-2	4.0 100%			<1	Sandy Clay, medium brown, moderately hard, damp		
6								
7								
8						8.0		
9	D-3	4.0 100%		74SB112-04 (7-9')	<1	Silty Clay, hard, stiff, damp		
10				74SB112-05 (9-11')		Clayey Sand, medium brown, moderately soft, damp		

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB112 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB112

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB112

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB113

COORDINATES: EAST: 935028.2

NORTH: 806102.1

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/7/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample						<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	4.0	D-1	3.5 88%			<1	Silt Loam, dark brown, damp, moderate hard, pebbles, roots	
2							Sandy Clay, medium brown, damp to dry moderate hard	
3								
4							harder with more clay at 3.5'	
5	8.0	D-2	1.7 43%			500	Sand,light gray, loose, dry, shells throughout	
6								
7								
8							Clay, dark green/gray, some sand, hydrocarbon odor	
9		D-3	3.4 85%		74SB113-04 (7-9')	1300	Alternating zones of silty clay and sandy clay from 8.0 to 12.0', dark green/gray, pebbles, saprolitic damp to moist	
10					74SB113-05 (9-11')			

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB113 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB113

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.4 85%			1100	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB113

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO. 74SB114COORDINATES: EAST: 935633.6NORTH: 806314.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/13/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	2.6 65%			<1	Silt Loam and Gravel, hard, dry		
2						Sandy Clay, brown, brittle, dry		
3								
4						4.0		
5	D-2	3.8 95%			<1	Silty Clay, brown, moderate soft, mottled, damp to moist		
6								
7								
8						8.0	Sandy Clay, brownish green, soft, damp to moist	
9	D-3	3.7 93%		74SB114-04 (7-9')	500			
10				74SB114-05 (9-11')				

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO. 74SB114 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB114

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.7 93%			500	<i>Continued from Sheet 1</i>	
12						Clayey Sand, medium greenish/black, very soft, wet	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
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27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB114

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB115

COORDINATES: EAST: 935667.3

NORTH: 806409.1

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/13/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	2.0 50%			<1	Silty Loam and Gravel, dry, loose, hard	
2							
3							
4							
4.0	D-2	4.0 100%		74SB115-03 (5-7')	<1	Sandy Clay, dark brown, hard, some organics, dry,	
5							
6							
7							
8	D-3	4.0 100%		74SB115-05 (9-11')	<1		
8.0							
9							
10						Clay, maroon and light gray, some silt, mottled heavily, moderate soft, damp to moist	

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB115 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB115

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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20							
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22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB115

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB116COORDINATES: EAST: 935698.0NORTH: 806506.7

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/13/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.7 93%			<1	Sandy Loam and Gravel, hard, loose, dry		
2								
3								
4								
4.0						Sandy Clay, reddish brown, soft to medium soft		
5	D-2	4.0 100%			<1	Some mottling at 8.0 to 9.5'		
6								
7								
8								
8.0								
9	D-3	4.0 100%		74SB116-04 (7-9')	<1	Becomes softer and moist at 9.5', more clay, red, white		
10								
				74SB116-05 74SB116-05D (9-11')				

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB116 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB116

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	<i>Continued from Sheet 1</i>	
12						Wet saprolite at 11.0'	
12	12.0	100%				END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB116

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB117

COORDINATES: EAST: 935734.7

NORTH: 806605.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/13/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	1.9 48%			<1	Sandy Loam, some gravel, loose, dry		
2								
3								
4								
4.0	D-2	4.0 100%		74SB117-03 (5-7')	<1	Sandy Clay, dark brown and red, hard, roots, dry		
5								
6								
7								
8	D-3	4.0 100%		74SB117-04 (7-9')	<1	Silty Clay, medium orange brown, moderately hard, some sand, damp to moist		
8.0								
9								
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB117 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB117

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	<i>Continued from Sheet 1</i>	
12						Clayey Sand, medium gray, some pebbles, wet	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
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DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB117

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB118

COORDINATES: EAST: 935764.6

NORTH: 806703.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/13/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.9 73%			<1	Sandy Loam and Gravel, loose, dry		
2								
3								
4								
5	D-2	4.0 100%		74SB118-03 (5-7')	<1	Silty clay, light brown, hard, damp  Reddish brown at 7.0'		
6								
7								
8								
9	D-3	3.5 88%		74SB118-05 (9-11')	300	Sandy Clay, moderate hard, damp saprolitic structure		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB118 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB118

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.5 88%			>50	<i>Continued from Sheet 1</i>	
12						Saturated at 11.5 to 12.0' dark green and white moderate hard	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
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30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB118

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB119COORDINATES: EAST: 935783.7NORTH: 806804.0

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/13/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Sandy Loam and Gravel, loose, dry		
2	D-1	2.5 63%			<1			
3								
4							4.0	
5	D-2	4.0 100%			<1	Silty clay, medium brown, hard, broken, damp to dry		
6								
7						Gravel from 6.8 to 7.4', light gray, loose, dry		
8						8.0	Sandy Clay, moderate hard, some silt, damp	
9	D-3	4.0 100%		74SB119-04 (7-9')	<1			
10				74SB119-05 (9-11')				

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB119 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB119

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
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29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB119

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB120

COORDINATES: EAST: 935791.9

NORTH: 806900.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/14/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Sandy Loam and Gravel, loose, dry		
2						Sandy Clay, light brown, moderate hard, dry to damp, some silt		
3								
4								
5	D-2	4.0 100%		74SB120-04 (7-9')	<1	Gravelly zone from 4.8 to 5.1', light gray		
6						Sandy Clay, light brown, hard, dry		
7								
8								
9	D-3	4.0 100%		74SB120-05 (9-11')	<1	Silty Sand, grayish brown, loose, dry		
10						Sand, light brown, moderately hard, damp		

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB120 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB120

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	Sandy Clay, light brown, moderate hard, some silt damp	
12		100%					
13						END OF BORING at 12.0'	
14							
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28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB120

SHEET 2 OF 2



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB121

COORDINATES: EAST: 936203.4

NORTH: 804917.5

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/13/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A		74SB121-00 (0-1')	<1	Sand, dark brown		
2						Silty Sand, dark brown, with some carbonate present		
3						some gravel interdisperses throughout sand gets		
4						coarser with depth		
4.0	D-2	N/A			<1	Silty clay, dark red		
5						becomes light tan/brown		
6						Silty Sand, red, medium grained		
7								
8	D-3	N/A		74SB121-05 74SB121-05D 74SB121-05MS 74SB121-05MSD (9-11')	<1	Silty Clay, some sand, red and tan		
9								
10								
						Sand layer at 9.5 - 10.0' pink sand, light brown, some silt		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB121 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB121

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB121

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB122

COORDINATES: EAST: 936298.6

NORTH: 804886.5

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/13/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.4 85%			<1	Sand, dark brown		
2						Sand, some silt, light gray		
3								
4						4.0		
5	D-2	3.9 98%		74SB122-03 (5-7')	<1	Silty Clay, orange and gray, some sand, and some carbonates present		
6								
7								
8						8.0		
9	D-3	3.9 98%			<1	becomes dark gray		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB122 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB122

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9 98%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB122

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO. 74SB123COORDINATES: EAST: 936398.6NORTH: 804854.7

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/13/08	0.0 - 12.0	83° Mostly Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.8 95%			<1	Sand and Gravel, gray, some cobbles, some carbonates present		
2								
3								
4								
4.0								
5	D-2	3.8 95%		74SB123-03 (5-7')	<1	Silty Clay, reddish orange, mottled		
6								
7								
8								
8.0								
9	D-3	3.8 95%		74SB123-05 (9-11')	<1	Sand, some silt, dark brown		
10						Silty Clay, some sand, some carbonates towards bottom of section, light orange		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO. 74SB123 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB123

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8 95%			<1	<i>Continued from Sheet 1</i>	
12						Sand, light brown medium grained, some silt some carbonate and clay present	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB123

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB124

COORDINATES: EAST: 936485.9

NORTH: 804825.5

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/13/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%		74SB124-02 (3-5')	<1	Dark brown		
2						Sand and Gravel, light gray, some cobbles present, some carbonates		
3						Sand, dark brown, some gravel, coarse grained		
4						4.0		
5	D-2	3.9 98%			<1	Clayey Silt, dark brown		
6								
7								
8						8.0		
9	D-3	3.9 98%		74SB124-05 (9-11')	<1	Sand, dark brown, medium grained, some silt, some carbonates present		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB124 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB124

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9 98%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB124

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB125

COORDINATES: EAST: 936584.7

NORTH: 804792.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/13/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%			<1	Dark brown		
2						Sand and Gravel, coarse grained, carbonate shell materials, light tan		
3						Gravel, light gray		
4						4.0		
5	D-2	3.9 98%		74SB125-03 (5-7')	<1	Silty Clay, light orange, some sparse cobbles		
6						Silty Sand, light orange, some clay, some carbonates present		
7								
8								8.0
9	D-3	3.8 95%		74SB125-05 (9-11')	<1	Sand, light orange, medium grained, some silt and carbonates, sparse clay, moist		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB125 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB125

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8 95%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
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28							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB125

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB126

COORDINATES: EAST: 936678.2

NORTH: 804758.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/14/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>		<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>
1		D-1	3.9 98%		74SB126-02 (3-5')	<1	Sand, dark brown	
2							Sand, light tan, coarse grained, some cobbles and carbonates	
3							Gravel, gray, some sand	
4							Silty Clay, dark brown, some interdispersed gravel	
5		D-2	3.9 98%		<1	Silty Sand, light tan, some gravel, and some carbonates, light tan		
6						Silty clay, dark brown, some sand and gravel		
7								
8						D-3	3.0 75%	
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB126 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB126

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0 75%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB126

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB127COORDINATES: EAST: 936772.6NORTH: 804728.4

ELEVATION: SURFACE: \_\_\_\_\_

Rig: <u>Geoprobe 5400 Truck Rig</u>					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%			<1	Asphalt and Sandy Gravel		
2						Silty Clay, light brown becomes dark brownish red		
3								
4						Silty Sand, brown, some gravel		
5	D-2	3.7 93%		74SB127-03 (5-7')	<1	Silty Sand, brown, some clay nodules and some sparse gravel		
6								
7								
8						Saprolite, greenish brown		
9	D-3	N/A			<1	Silty Sand, light tan, some gravel, saprolite		
10								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB127 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB127

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB127

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB128COORDINATES: EAST: 936884.7NORTH: 804699.7

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/14/08	0.0 - 12.0	83° Mostly Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.6 90%			<1	Sand, brown		
						Silty Sand, dark brown, some gravel		
2						Sand, light tan, medium grained, sparse cobble and gravel, some silt		
3								
4	4.0				Silty Clay, dark brown			
5	D-2	3.9 98%		74SB128-03 (5-7')	<1	becomes reddish tan		
6								
7								
8						8.0		
9	D-3	N/A		74SB128-05 (9-11')	<1			
10						Silty Sand, light tan, clay nodules/strips more clay present with depth		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB128 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB128

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB128

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB129

COORDINATES: EAST: 936973.0

NORTH: 804669.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 7.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A		74SB129-02 (3-5')	<1	Sand, dark brown		
2						Silty Sand, light brown, some gravel and cobbles		
3								
4						4.0		becomes silty sand with some clay, brown nodule inclusions, shell fragments, light tan
5	D-2	N/A		74SB129-03 (5-7')	<1	becomes medium grained silty sand, brown, with clay nodules		
6								
7								
8						8.0		GEOPROBE REFUSAL at 7.0'
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB129 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB130

COORDINATES: EAST: 937065.9

NORTH: 804633.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/14/08	0.0 - 12.0	83° Mostly Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Sand, dark brown		
2						Silty Sand, light brown, some gravel		
3						Sand, white, some gravel/cobbles chunk of asphalt		
4						Gravel, blue gray		
5	D-2	3.9 98%	74SB130-03 (5-7')	<1	Silty Clay, brown, some gravel and cobbles			
6					Silty Clay, dark brown/gray			
7								
8	D-3	3.9 98%	74SB130-05 (9-11')	<1	Silty Sand, brown, weathered rock, green inclusions			
9					Silty Sand, reddish brown, some gravel, some cobbles			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB130 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB130

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9 98%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB130

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB131COORDINATES: EAST: 937027.1NORTH: 804530.7

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	4.0 100%		74SB131-00 (0-1')	<1	Silty Sand and Gravel		
2						Sandy Clay, medium brown, moderately hard, some stones, dry		
3								
4						4.0		becomes silty clay from 3.1 to 3.3'
5	D-2	4.0 100%		74SB131-03 74SB131-03D 74SB131-03MS 74SB131-03MSD (5-7')	<1	More clay, rich, grayish brown, at 7.5'		
6								
7								
8								8.0
9	D-3	4.0 100%		74SB131-05 (9-11')	<1			
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB131 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB131

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	<i>Continued from Sheet 1</i>	
12						Sandy clay continued some silty areas, moist to wet at 11.8'	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB131

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB132

COORDINATES: EAST: 937016.5

NORTH: 804429.8

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	4.0 100%			<1	Silt loam, dark brown, moderately hard, dry		
2						Silt and Sand, brown, moderately hard, loose		
3								
4						4.0		
5	D-2	4.0 100%			<1			
6								
7								
8						8.0		
9	D-3	4.0 100%		74SB132-04 (7-9')	<1	Clayey Sand and Silt, brown, dry		
10						Sand and Silt, brown, dry		

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB132 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB132

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	<i>Continued from Sheet 1</i>	
12						From 11.0 to 12.0', clay, very dry throughout	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB132

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB133

COORDINATES: EAST: 937007.9

NORTH: 804333.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.2 80%			<1	Sandy Loam, medium dark brown, hard, dry		
2						Sandy Silt, grayish brown, some gravel, loose, moderately hard, dry		
3								
4						4.0		
5	D-2	2.7 68%		74SB133-04 (7-9')	<1	Sandy Clay, medium greenish gray, saprolite moderate hard, fine to medium grained sand dry		
6								
7								
8						8.0		
9	D-3	3.3 83%		74SB133-05 (9-11')	<1			
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB133 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB133

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.3				<i>Continued from Sheet 1</i>	
12		83%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB133

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB134

COORDINATES: EAST: 936982.3

NORTH: 804226.4

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.1 78%			<1	Silt Loam, dark brown, moderately soft, dry		
2						Gravel, gray, loose, dry		
3						Sandy Silt, grayish brown, some gravel, loose, dry		
4						4.0		
5	D-2	3.8 95%			<1	Silty Clay, medium brown, some silt, moderately hard, damp to dry		
6								
7								
8						8.0		
9	D-3	4.0 100%		74SB134-04 (7-9')	<1			
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB134 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB134

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1	<i>Continued from Sheet 1</i>	
12						Sandy zone from 11.1 to 11.5', damp	
12	12.0	100%				END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB134

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB135

COORDINATES: EAST: 937058.2

NORTH: 804111.1

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%			<1	Sandy Loam and gravel to 0.4', dry		
2						broken, moderate soft to 0.4' sandy clay		
3						medium brown, damp to dry, moderate soft		
4						At 1.9' dark brown, silty clay, moderate hard		
5	D-2	4.0 100%	74SB135-03 (5-7')	<1	At 4.6' light green gray sandy clay, saprolite, moderate hard, some iron staining, damp to dry			
6								
7								
8								
9	D-3	4.0 100%		74SB135-05 (9-11')	<1	Becomes sandy silt, saprolite, very dry, moderate soft, gray		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB135 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB135

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB135

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB136COORDINATES: EAST: 937036.5NORTH: 804016.1

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Sandy loam and gravel to 0.5', moderately soft, dry		
2						Sandy Clay, greenish gray, moderately hard, broken, damp to dry		
3								
4						4.0		
5	D-2	4.0 100%		74SB136-03 74SB136-03D (5-7')	<1	Occasional cobble throughout at 4.5'		
6						Silty clay, dark brown, moderate hard, damp		
7								
8						8.0		
9	D-3	3.9 98%		74SB136-05 (9-11')	<1			
10						Mixed with limestone gravel from 10.4 to 12.0' damp		

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB136 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB136

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9 98%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB136

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB138

COORDINATES: EAST: 936998.1

NORTH: 803802.3

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Sandy loam and gravel		
2								
3								
4	4.0							
5								
6								
7								
8	8.0							
9								
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB138 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB138

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.7 93%			<1	<i>Continued from Sheet 1</i>	
12						Layer of quartz gravel at 11.4' to 11.7' then sandy clay again	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB138

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB139

COORDINATES: EAST: 936983.2

NORTH: 803700.5

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.8 95%			<1	Silt loam, dark brown, damp	<div style="text-align: center;"> <div style="width: 100%; height: 100%; border: 1px solid black; position: relative;"> <div style="position: absolute; top: 0; left: 0; right: 0; height: 100%; border-left: 1px solid black; border-right: 1px solid black;"></div> </div> </div>	
2						Silty Clay, dark brown, some gravel from 2.1 to 2.3', damp		
3								
4						4.0		
5	D-2	4.0 100%		74SB139-03 (5-7')	<1	Sandy Clay, some gravel, more clay from 7.2 to 9.1', damp to dry, moderate softness to 12.0'		
6								
7								
8						8.0		
9	D-3	3.4 85%		74SB139-05 (9-11')	<1			
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB139 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB139

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.4 85%			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB139

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB140

COORDINATES: EAST: 937241.1

NORTH: 804236.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.6 90%			<1	Silt Loam and Gravel, brown, broken, dry		
2						Sandy Clay, grayish brown, broken, some stones		
3						dry		
4						4.0	Saprolite, gray/green weathered into sandy clay, compact and hard	
5	D-2	1.7 43%			<1			
6								
7								
8						8.0	74SB140-04 (7-9')	
9	D-3	3.0 75%			<1			
10						74SB140-05 (9-11')		
						Sandy Silt, soft, loose, some rock fragments, dry		

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB140 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB140

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0 75%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB140

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB141

COORDINATES: EAST: 937356.2

NORTH: 804247.3

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/14/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%		74SB141-00 (0-1')	<1	Sandy, dark brown		
2						Sand, meedium grained,some gravel, sparse cobbles		
3						light tan		
4						4.0		Silty Sand, brownish gray, fine grained, some clay, some gravel
5	D-2	3.8 95%		74SB141-03 74SB141-03MS 74SB141-03MSD (5-7')	<1	Gravel and cobble at 6'		
6						Sand, light brown, medium grained, some gravel and sparse cobbles present, some blue gravel		
7								
8								8.0
9	D-3	3.0 75%		74SB141-05 74SB141-05D (9-11')	<1	Silty Sand, brown, some chips, bedrock in the bottom of core		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB141 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB141

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0 75%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB141

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB142

COORDINATES: EAST: 937403.3

NORTH: 804157.2

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 9.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%		74SB142-02 (3-5')	<1	Sandy, dark brown		
2						Silty Sand, gray, some gravel		
3						Silty Sand, light brown, some gravel and clay inclusions, carbonate materials present		
4						4.0		Silty Clay, reddish brown, some gravel
5	D-2	3.9 98%		74SB142-04 (7-9')	<1	Silty Sand, brown, some gravel		
6						Silty Sand, brown, some clay, some carbonate, saprolite large angular cobbles, some gravel		
7								
8						8.0		
9	D-3	1.0 25%				Clayey Silt, dark reddish orange, some cobbles and clay nodules, some carbonate		
10						REFUSAL at 9.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB142 SHEET 1 OF 1



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB143

COORDINATES: EAST: 937450.1

NORTH: 804066.3

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 8.5	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.5 88%		74SB143-02 (3-5')	<1	Sandy Top Soil, dark brown		
2						Silty Sand, brown, some gravel		
3						Sand, white, fine grained, some white cobbles and gravel		
4						Gravel #57 angular, bluish gray		
5	D-2	N/A		74SB143-04 (7-9')	<1	Silty Clay, reddish brown, some sparse gravel		
6						Silty Sand, red and light brown, some clay inclusions, sparse gravel and some sparse carbonates		
7								
8								
8.0	D-3							
8.5								
9						REFUSAL at 8.5'		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB143 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB144

COORDINATES: EAST: 937494.2

NORTH: 803972.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	3.0 75%			<1	Silty Sand, dark brown, some gravel	
2						Sand, white, some white gravel, some coarse carbonates present	
3						Gravel, grayish blue, angular #21A, some coarse brown sand present	
4							
5	D-2	N/A		74SB144-03 (5-7')	<1	Silty Clay, dark red	
6						Clay, light brown and gray, mottled, some sand some silt, very sparse gravel	
7							
8							
9	D-3	N/A		74SB144-05 (9-11')	<1	Silty Clay, brown,	
10						Sand, brown, coarse grained, some clay inclusions some carbonates present, some gravels, some weathered bedrock	
						Silty Clay, light gray, some sand, some gravel	

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB144 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB144

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB144

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB146

COORDINATES: EAST: 937586.3

NORTH: 803784.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.6 90%		74SB146-02 74SB146-02D	220	Sandy, dark brown		
2						Silty Sand, brown, some gravel		
3						Sand, white, coarse grained, some white gravel		
4						Gravel, some sand matrix, gravel #57		
5	D-2	3.9 98%	(3-5')	<1	Silty Clay, orange, some gravel and asphalt mixed in			
6					Silty clay, bluish green, with sparse sand			
7								
8								
9	D-3	N/A		74SB146-05 (9-11')	<1	Sandy Silt, light brown		
10						Sandy Silt, light brown with some greenish blue clay inclusions		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB146 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB146

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						Silty Clay, light tan	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB146

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB147

COORDINATES: EAST: 937620.5

NORTH: 803686.5

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Silty Sand, dark brown		
2						Sand, medium brown, medium grained, some gravel		
3						Gravel with sand matrix #57		
4						Silty Sand, light brownish-red, some clay		
4.0					Silty Clay, bluish brown, some gravel			
5	D-2	3.8 95%		74SB147-03 (5-7')	<1	Clayey Sand, dark brown, some gravel		
6						Clay, bluish green, some silt, some sparse sand		
7								
8				74SB147-04 (7-9')		Sandy Clay, bluish green, trace silt		
8.0								
9	D-3	3.0 75%			<1	Sand, brown, coarse grained, some silt, sparse clay nodules, some gravel		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB147

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB147

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	<i>Continued from Sheet 1</i>	
12						Clayey Silt, bluish green, some sand, more sand towards the bottom	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB147

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB148

COORDINATES: EAST: 937651.4

NORTH: 803587.9

ELEVATION: SURFACE:

<b>Rig:</b> Truck Rig 5600					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.5 88%		74SB148-02 (3-5')	N/A	Sandy Top Soil, light brown		
2						Silty Sand, light tan, some gravel and cobble		
3						Sand and Gravel, brown, angular Gravel 21A with some sand in matrix, light blue		
4						Sandy Silt, brown, some weathered bedrock inclusions (saprolitic)		
5	D-2	3.5 88%		74SB148-04 (7-9')	N/A	Silty Sand, light brown, some gravel		
6								
7								
8	8.0					Sand, light brown, medium grained		
9	D-3	3.4 85%			N/A	Silty Clay, bluish green, sparse sand		
10						Saturated below 10.0' (wet)		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB148 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB148

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.4 85%			N/A	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB148

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB149

COORDINATES: EAST: 937663.6

NORTH: 803484.6

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.6 90%			<1	Sand, brown		
2						Silty Sand, dark brown to black		
3						Sand and Gravel, white, medium grained, some cobbles, shell material, and carbonates		
4						Clayey Silt with Gravel, dark brown		
5	D-2	3.5 88%		74SB149-04 (7-9')	<1	Clay, bluish green, some red inclusions		
6						Clayey Sand, bluish green, some sparse gravel		
7								
8								
9	D-3	3.8 95%			<1	Saturated at 9.0'		
10						Clay, bluish green, some sand		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB149 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB149

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8 95%		74SB149-06 (11-13')	<1	<i>Continued from Sheet 1</i>	
12						Gravelly Clay, black and bluish green	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB149

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB150

COORDINATES: EAST: 937662.5

NORTH: 803380.9

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.6 90%		74SB150-02 (3-5')	<1	Sandy Top Soil, brown		
2						Silty Sand, light tan, some gravel, coarse grained carbonates towards the bottom, light tan		
3								
4	4.0			Gravel, bluish gray and reddish orange, some cobbles				
5	D-2	N/A			<1	Sandy Clay, light gray, some bluish green clay nodules and some gravel		
6						Moist at 6.0'		
7								
8	8.0					Silty Clay, greenish blue/brown, some sand		
9	D-3	4.0 100%			<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB150 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB150

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0		74SB150-06 (11-13')	<1	<i>Continued from Sheet 1</i>	
12		100%				Saturated at 11.5'	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB150

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB152

COORDINATES: EAST: 937619.9

NORTH: 803184.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.6 90%			<1	Sandy Top Soil, dark brown		
2						Silty Sand, brown, some gravel		
3						Gravel, bluish gray, some brown medium sand		
4						Sandy Silt, light brown, some clay, carbonates present and sparse gravel		
5	D-2	N/A	74SB152-03 (5-7')	<1	Sandy Clay, brown			
6					Silty Clay, dark red, some gravel and sand			
7					Silty Clay, brownish red, sparse sand			
8					Silty Clay, possible weathered bedrock, bluish green to 12.0'			
9	D-3	N/A	74SB152-05 (9-11')	<1				
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB152

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB152

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						Moist at 11.0'	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB152

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB153

COORDINATES: EAST: 937601.1

NORTH: 803084.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.6 90%		74SB153-02 (3-5')	<1	Sandy Top Soil, dark brown		
2						Sandy Clay, dark brown		
3						Silty Sand, black and white, some gravel		
4								4.0
5	D-2	4.0 100%		74SB153-04 (7-9')	<1	Silty Clay, brown with some bluish streaks		
6								
7								
8						8.0		
9	D-3	3.9 98%			<1	Clayey Sand, orangish brown, some weathered bedrock inclusions		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB153 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB153

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9			<1	Continued from Sheet 1	
12		98%					
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB153

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB154

COORDINATES: EAST: 937588.4

NORTH: 802983.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/15/08	0.0 - 11.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	3.7 93%			<1	Sandy Top Soil, dark brown	
						Sand, medium brown, medium grained, some gravel	
2						Sand and Gravel, white	
3						becomes bluish green at 1.5'	
4	4.0					becomes tan at 2.0'	
						Gravel matrix #57	
5	D-2	4.0 100%		74SB154-04 (7-9')	<1	Clay, dark red, some sand,	
6							
7						Silty Clay, brown, some greenish blue inclusions	
8						some carbonates sparse, some sparse sand	
9	D-3	3.0 75%		74SB154-05 (9-11')	<1		
10						Sand, dark brown, some bluish gray gravel #57	

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB154 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB154

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0 75%			<1	<i>Continued from Sheet 1</i>	
12						REFUSAL at 11.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB154

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB155

COORDINATES: EAST: 937566.3

NORTH: 802884.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary     C = Core D = Direct Push    P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	4.0	D-1	3.4 85%			<1	Silty Sand, dark brown		
2							Sand and gravel, light tan		
3							some dark brown sand at 1.5'		
4							some bluish gray gravel at 2.0'		
5	8.0	D-2	3.5 88%		74SB155-04 (7-9')	<1	Silty Clay, brown		
6							Saprolite, greenish gray, weathered bedrock, some sand		
7									
8							Silty Clay, brown, some sand		
9		D-3	N/A		74SB155-05 (9-11')	<1	becomes dark green		
10									
						110			

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB155 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB155

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						Saprolite bluish green clay with brown inclusions, some cobbles	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB155

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB156

COORDINATES: EAST: 937541.2

NORTH: 802786.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/15/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.7 93%			<1	Sandy Topsoil, dark brown		
2						Sand and Gravel, brown, some carbonates		
3						becomes light with some shell fragments		
4						carbonates present		
4	4.0					Gravel, bluish gray, some cobbles		
5	D-2	3.8 95%				Silty Clay, brown, some sand		
6								
7								
8								
8	8.0			74SB156-04 (7-9')	108	Sandy Clay, greenish blue, some gravel and cobbles		
9	D-3	3.9 98%		74SB156-05 74SB156-05D (9-11')	240  235	Silty Sand, light brown, some gravel, coarse grained		
10						Clayey Silt, bluish gray, some gravel and some carbonates		
						Sandy Clay, bluish green, some silt, some sparse gravel, dry		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB156 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB156

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9 98%			90	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB156

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB157

COORDINATES: EAST: 937514.2

NORTH: 802688.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 10.0	85° Sunny	
Length	5'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A			<1	Silty Clay, (Fill), brown, trace fine sand, trace fine rock fragments		
2								
3								
4								
5								
5.0	D-2	N/A		74SB157-04 (7-9')	<1	Silt and Clay, green		
6								
7								
8								
9								
10	10.0			74SB157-05 (9-11')				
END OF BORING at 10.0'								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB157 SHEET 1 OF 1



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB158

COORDINATES: EAST: 937447.9

NORTH: 802495.3

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 10.0	83° Partly Cloudy	
Length	5'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A			<1	Silty Clay, brown/tan, trace of fine sand		
2								
3								
4								
5								
5.0						Silt and Clay, gray, trace little rock fragments and gravel		
6	D-2	N/A		74SB158-03 (5-7')	<1			
7								
8								
9								
10								
10.0						END OF BORING at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB158 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB159

COORDINATES: EAST: 937429.4

NORTH: 802396.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 10.0	85° Sunny	
Length	5'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A			<1	Sand, gray/light gray/white, fine grained little/some silt		
2								
3								
4								
5								
6	D-2	N/A		74SB159-03 (5-7')	<1	Silty clay/silt and clay, brown, trace fine sand		
7								
8								
9								
10								
10.0				74SB159-05 (9-11')		Silt/Clayey Silt, gray, trace fine sand		
						END OF BORING at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB159 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB160

COORDINATES: EAST: 937421.5

NORTH: 802295.4

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/14/08	0.0 - 10.0	85° Partly Cloudy	
Length	5'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A			<1	Sand and Clayey Silt, gray/brown/medium gray some fine gravel and rock fragments		
2								
3								
4								
5								
5.0	D-2	N/A		74SB160-04 (7-9')	<1			
6								
7								
8								
9								
10	10.0			74SB160-05 (9-11')				
END OF BORING at 10.0'								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB160 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB161

COORDINATES: EAST: 939628.4

NORTH: 804992.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	MC Sampler	Casing	Augers	Core Barrel				
Length	2.5"				5/16/08	0.0 - 12.0	83° Mostly Sunny	
Type	4'							
Hammer Wt.	Acetate							
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%		74SB161-00 74SB161-00D (0-1')	<1	Sandy, brown		
2						Sand and Gravel, bluish gray, cobbles present		
3						Sand, white, some shell material and coral, some white gravel		
4						4.0		
5	D-2	3.8 95%			<1			
6								
7						74SB161-04 74SB161-04D (7-9')		Gravel, bluish gray, some brown sand, some clay silt layers, dry
8						8.0		
9	D-3	3.0 75%		74SB161-05 74SB161-05D 74SB161-05MS 74SB161-05MSD (9-11')	<1	Sandy Silt, brown, some clay, some gravel and cobbles present		
10						Silty Clay, light brown, some carbonate and weathered bedrock		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB161 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB161

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0 75%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB161

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB162

COORDINATES: EAST: 939576.3

NORTH: 804895.3

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/16/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.6 90%			<1	Sand, dark brown		
2						Sand, light gray, coarse grained, some gravel and clay		
3						Silty Sand, brown, some gravel, some silt		
4						Sandy Clay, rust colored, some gravel		
5	D-2	N/A		74SB162-04 (7-9')	<1	Silty Sand, light brown, some gravel		
6								
7								
8								
9	D-3	N/A		74SB162-05 (9-11')	<1	Silty Sand, orangish brown, some weathered bedrock, saprolite inclusions, more inclusions with depth		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB162 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB162

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB162

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB163COORDINATES: EAST: 939524.1NORTH: 804813.2

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/16/08	0.0 - 9.5	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.8 95%			<1	Sand, dark brown		
2						Silty Sand, light brown, some gravel and a few cobbles		
3						Clayey Silt, rust colored, sparse gravel		
4						4.0		
5	D-2	3.9 98%		74SB163-03 (5-7')	<1	Sand, reddish brown, medium to coarse grained, some gravel		
6						Silty Sand, brown, fine grained, some carbonates some weathered saprolite		
7						74SB163-04 (7-9')		
8						8.0		Gravel, bluish gray
9	D-3	1.5 38%			<1	Sand, brown, medium grained, some weathered bedrock, carbonate inclusions		
10						9.5		REFUSAL at 9.5'

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB163 SHEET 1 OF 1



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB164

COORDINATES: EAST: 939483.4

NORTH: 804719.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/16/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Sand, dark brown		
2						Clayey Silt, brown, some sand		
3						Gravel, bluish gray		
4						Silty Clay, orange, some sparse sand and gravel		
4.0								
5	D-2	4.0 100%			<1			
6								
7								
8								
8.0				74SB164-04 (7-9')		Sand and Gravel, brown sand and bluish gray gravel, medium grained sand		
9	D-3	3.8 95%			<1	Sandy silt, brown, some clay		
10						74SB164-05 (9-11')	Silty Sand, light brown, some clay and saprolite inclusions	

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB164 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB164

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8 95%			<1	<i>Continued from Sheet 1</i>	
12						Silty Clay and saprolite/weathered, bluish green	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB164

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB165

COORDINATES: EAST: 937070.7

NORTH: 802804.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/16/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	4.0	D-1	3.8 95%			<1	Silty Sand, brown becomes lighter brown	
2							Silty Clay, dark red, some sand and gravel interdispersed	
3								
4								
5	8.0	D-2	3.7 93%		74SB165-04 (7-9')	<1	Silty Clay, orange, some sand and gravel	
6							Solid bluish gray rock coral from 6 to 6.5'	
7								
8								
9		D-3	3.8 95%		74SB165-05 (9-11')	<1	Sandy Silt, orange, some fine sand, sparse gravel	
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB165 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB165

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8 95%			<1	<i>Continued from Sheet 1</i>	
12						Clay, light orange, some silt	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB165

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB166

COORDINATES: EAST: 939390.3

NORTH: 804447.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/16/08	0.0 - 11.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Sand, brown		
2						Sand and Gravel, brownish medium sand, bluish gray		
3						Sand, light brown, medium grained, some clay nodules		
4						Sandy Clay, orange		
4.0	D-2	3.5 88%		74SB166-04 74SB166-04D (7-9')	<1			
5								
6						Sandy Silt brown, some sparse gravel		
7						Saprolite, bluish green, some weathered bedrock		
8.0	D-3	3.0 75%		74SB166-05 (9-11')	<1			
9						Some bluish green clay inclusions disperse		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB166 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB166

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0			<1	<i>Continued from Sheet 1</i>	
12		75%				GEOPROBE REFUSAL at 11.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB166

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB167COORDINATES: EAST: 939325.1NORTH: 804370.0

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/16/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.0 75%			<1	Sand and Gravel, light bluish gray		
2								
3								
4	4.0					Sand, brown, coarse grained, some granite pieces		
5	D-2	3.8 95%		74SB167-04 (7-9')	<1	Sandy Clay, dark brown, sparse gravel		
6								
7								
8	8.0					Silty Clay, brown, some sparse sand, some weathered bedrock, saprolite inclusions		
9	D-3	3.0 75%		74SB167-05 (9-11')	<1	Sand and Silt, saprolite inclusions, orange		
10								
						bedrock saprolite inclusions increases with depth		
						Localized fracturing		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB167 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB167

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0 75%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB167

SHEET 2 OF 2



**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB169

COORDINATES: EAST: 939136.0

NORTH: 804344.0

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/16/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.5 88%			<1	Sandy, dark brown		
2						Sand and Gravel, fine grained sand, few cobbles		
3								
4	4.0				Sand and Gravel, brown, few cobbles			
5	D-2	3.9 98%		74SB169-04 (7-9')	<1	Silty Clay, orange, some sparse sand		
6								
7								
8	8.0							
9	D-3	3.0 75%		74SB169-05 (9-11')	<1	Silty Clay, orange, some saprolite inclusions sparse gravel, few clay nodules		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB169 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB169

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0				<i>Continued from Sheet 1</i>	
12		75%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB169

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB170

COORDINATES: EAST: 939036.3

NORTH: 804354.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/17/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.4 85%			<1	Sand, dark brown		
2						Sand, light brown, coarse grained		
3						Sand, light brown, fine grained, some gravel		
4						Silty Clay, light brown/orange, some gravel		
5						Sand, light brown, fine grained, some gravel		
6	D-2	3.9 98%		74SB170-04 (7-9')	<1	Silty Clay, light brown/orange, some sparse sand, some gray blue clay lenses		
7								
8								
9	D-3	3.9 98%		74SB170-05 (9-11')	<1	Silt and Clay, orange and gray, weathered bedrock saprolite present throughout		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB170 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB170

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9				<i>Continued from Sheet 1</i>	
12		98%			<1	Silty Clay, orange and gray, some red gravel	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB170

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB171

COORDINATES: EAST: 938807.9

NORTH: 804360.2

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>	
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>					
<b>Size (ID)</b>	2.5"				5/17/08	0.0 - 12.0	83° Mostly Sunny		
<b>Length</b>	4'								
<b>Type</b>	Acetate								
<b>Hammer Wt.</b>									
<b>Fall</b>									
<b>Remarks:</b>									
<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million				
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>		
1	D-1	3.0 75%			<1	Sandy, dark brown			
2						Sand, light brown, coarse grained, some gravel			
3									
4								Gravel, bluish gray, some sand matrix,	
4	4.0				<1	Sandy Silt, dark red, some sand and sparse gravel throughout			
5									
6	D-2					3.5 88%		74SB171-04 74SB171-04MS 74SB171-04MSD	Clayey Silt, dark red, some sand
7									
8	8.0			(7-9')	<1	Clay, red and orange, some silt, sparse sand			
9									
10	D-3						3.5 88%	74SB171-05 74SB171-05D (9-11')	

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB171 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB171

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.5				<i>Continued from Sheet 1</i>	
12		88%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB171

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB172

COORDINATES: EAST: 938710.6

NORTH: 804371.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/17/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.4 85%			<1	Clayey Silt, reddish brown, some gravel and sand throughout		
2								
3								
4								
4.0	D-2	3.9 98%		74SB172-04 (7-9')	<1	Silty Clay and Silt, red, some brown clay nodules and lenses		
5								
6								
7								
8	D-3	3.9 98%		N/A	<1	Clay, red and white, stiff		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB172 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB172

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9				<i>Continued from Sheet 1</i>	
12		98%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB172

SHEET 2 OF 2



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB173

COORDINATES: EAST: 938609.7

NORTH: 804394.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/17/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.6 90%			<1	Silty Clay, dark red		
2						Clayey Silt, red, some organic material and some sand		
3								
4						4.0		Clay, reddish orange and bluish gray, some carbonate inclusions, sparse sand
5	D-2	3.8 95%			<1			
6								
7								
8						8.0		74SB173-04 (7-9')
9	D-3	3.6 90%			<1			
10						74SB173-05 (9-11')		some saprolite bedrock inclusions, greenish gray

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB173

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB173

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.6				<i>Continued from Sheet 1</i>	
12		90%			<1	Saprolite, greenish gray, hard	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB173

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB174

COORDINATES: EAST: 938513.3

NORTH: 804377.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/17/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.6 90%			<1	Sandy, dark brown		
2						Sand and Gravel, white/bluish gray, few cobbles		
3								
4	4.0				Silty Clay, reddish orange, interdispersed sand and gravel			
5	D-2	3.5 88%			<1	Sand, white/light tan, medium grained		
6								
7								
8	8.0			74SB174-04 (7-9')		Silty Clay, red, some brownish tan clay inclusions		
9	D-3	N/A			408			
10						74SB174-05 (9-11')		Silty Clay, bluish green, weathered bedrock, saprolite, greenish-blue throughout
					1104			

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB174 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB174

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			1145	<i>Continued from Sheet 1</i>	
12					450		
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB174

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB175

COORDINATES: EAST: 938418.2

NORTH: 804365.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/17/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%			<1	Sandy, dark brown		
2						Silty Clay, brown, some gravel		
3						Clay, red and brown, stiff		
4								
5	D-2	3.8 95%		74SB175-04 (7-9')	<1	Clayey Silt, brownish red, some sparse sand		
6								
7								
8						Clayey Silt, light tan, some sand, weathered bedrock/saprolite inclusion		
9	D-3	3.8 95%		74SB175-05 (9-11')	<1			
10						Silty Clay and Saprolite, greenish blue, some brownish tan fine sand,		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB175 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB175

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB175

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB176

COORDINATES: EAST: 938333.0

NORTH: 804306.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/17/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A			<1	Silty clay, dark brown, some gravel becomes brown with sparse sand		
2								
3								
4	4.0	D-2	N/A		74SB176-04 (7-9')	Sandy Silt, brown, some gravel, some weathered bedrock		
5								
6								
7	D-3	3.9 98%		74SB176-05 74SB176-05D (9-11')	<1	Gravel, bluish gray, hard		
8						8.0		
9								
10						Sandy Silt, brown, some interdispersed gravel and weathered bedrock fragments		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB176 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB176

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9				<i>Continued from Sheet 1</i>	
12		98%			<1	Saprolite, greenish gray, hard	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB176

SHEET 2 OF 2



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB177

COORDINATES: EAST: 938246.1

NORTH: 804265.5

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/17/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Silty Sand, dark brown		
2						Sandy Silt, dark brown, some clay and some gravel		
3						Silty Clay, orangish brown, sparse sand		
4						4.0		
5	D-2	N/A		74SB177-04 (7-9')	<1	Clayey Silt, orange brown, sparse sand		
6								
7								
8						8.0		
9	D-3	N/A		74SB177-05 (9-11')	<1	Silty Sand, light brown, medium grained, some gravel and some saprolite and bedrock inclusions		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB177 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB177

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB177

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB178

COORDINATES: EAST: 938165.0

NORTH: 804217.3

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.8 95%			<1	Sandy, dark brown		
2								
3								
4						4.0		Sandy Silt, brown, some clay
5	D-2	3.8 95%		74SB178-04 (7-9')	<1	Silty Sand, brown, some gravel		
6								
7								
8						8.0		Silty Sand, brown, some gravel, some weathered
9	D-3	3.8 95%		74SB178-05 (9-11')	<1	bedrock/saprolite inclusions, some gravel increasing with depth		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB178 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB178

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB178

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB179

COORDINATES: EAST: 938078.1

NORTH: 804175.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Sandy, dark brown		
2						Sandy Silt, dark brown, some clay and gravel		
3						Silty Clay, brown, sparse gravel		
4						4.0		
5	D-2	N/A			<1	Sand, light brown, medium to fine grained, some gravel, few saprolite inclusions		
6								
7								
8								8.0
9	D-3	N/A			<1			
10								74SB179-05 (9-11')

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB179

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB179

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
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27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB179

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB180

COORDINATES: EAST: 937988.4

NORTH: 804124.8

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.8 95%			<1	Sandy, brown		
2						Gravel, hard, loose		
3						Silty Sand, brown, some clay and gravel		
4						Sandy Silt, dark brown		
4.0						Silty Clay, orangish brown, sparse sand inclusions		
5	D-2	3.8 95%			<1	Sand, light brown, medium to fine grained, some silt		
6								
7								
8								
8.0				74SB180-04 (7-9')				
9	D-3	N/A			<1	some clay and bedrock inclusions		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB180 SHEET 1 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB180

COORDINATES: EAST: 937988.4

NORTH: 804124.8

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.8 95%			<1	Sandy, brown		
2						Gravel, hard, loose		
3						Silty Sand, brown, some clay and gravel		
4						Sandy Silt, dark brown		
4.0						Silty Clay, orangish brown, sparse sand inclusions		
5	D-2	3.8 95%			<1	Sand, light brown, medium to fine grained, some silt		
6								
7								
8								
8.0				74SB180-04 (7-9')				
9	D-3	N/A			<1	some clay and bedrock inclusions		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB180 SHEET 1 OF 2



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB181

COORDINATE EAST: 937896.4

NORTH: 804087.3

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 10.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%		74SB181-00 (0-1')	<1	Sandy, brown		
2						Gravel, bluish gray, hard		
3						Silty Clay, brownish orange		
4						Sandy Silt, brownish orange, some gravel		
4.0	D-2	3.8 95%		74SB181-04 74SB181-04MS 74SB181-04MSD (7-9')	<1	Gravel, bluish gray, hard		
5						Sandy Silt, light brown, some clay		
6								
7								
8	D-3	2.0 50%		74SB181-05 74SB181-05D (9-11')	<1	Silty Sand, light brown, some weathered bedrock inclusions		
9								
10								
10.0						REFUSAL at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negrón

BAKER REP.: J. Oliver

BORING NO.: 74SB181 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB182COORDINATES: EAST: 937806.7720NORTH: 804044.9150

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.6 90%			<1	Sandy, brown		
2						Gravel, bluish gray, hard		
3						Silty Clay, bluish gray, sparse sand and gravel		
4						Silty, light brownish orangish, medium to fine grained sand with sparse weathered rock inclusions		
5	D-2	3.9 98%		74SB182-04 (7-9')	<1			
6								
7								
8						Clayey Silt, orangish brown, saprolite/weathered rock inclusions		
9	D-3	N/A		74SB182-05 (9-11')	<1			
10						Silty Clay and Saprolite, light orangish brown		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB182 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB182

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB182

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB183

COORDINATES: EAST: 937721.1

NORTH: 804007.3

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.9 98%			<1	Sandy, dark brown		
2						Silty Clay, orangish brown, sparse sand		
3								
4						4.0		Clayey Silt, orange brown, some sand, weathered bedrock inclusions
5	D-2	3.9 98%		74SB183-04 (7-9')	<1			
6								
7								
8						8.0		
9	D-3	N/A		74SB183-05 (9-11')	<1	Saprolite, greenish gray, clayey weathered bedrock, some layers of brownish orange silty clay		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB183 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB183

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB183

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB184

COORDINATES: EAST: 937627.5

NORTH: 803951.3

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.6 90%			<1	Sandy, dark brown		
						Gravel/stone, grayish blue, hard		
2						Silty Sand, light brown, some gravel, few cobbles		
3								
4	4.0							
5	D-2	3.6 90%		74SB184-04 (7-9')	<1	Silty Clay, orangish brown, sparse sand		
6								
7								
8								
9	D-3	N/A		74SB184-05 (9-11')	<1	Clayey Silt, orange, some sand, some saprolite/ weathered rock inclusions		
10						Clay content increases with depth		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB184 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB184

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB184

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB185

COORDINATES: EAST: 937189.6

NORTH: 804608.6

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID) Length Type Hammer Wt. Fall</b>	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>		<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>
1		D-1	N/A			<1	Sand, (Fill), brown, fine grained, little silt	
2								
3								
4								
4.0		D-2	N/A		74SB185-03 (5-7')	<1	Sand, white, fine to coarse grained	
5								
6								
7								
8		D-3	N/A		74SB185-05 (9-11')	<1	Silty Clay, dark brown/black	
8.0								
9								
10								
							Sand, white, fine to coarse grained	
							Silty Clay, brown	

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB185 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB185

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB185

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB186COORDINATES: EAST: 937284.2NORTH: 804599.2

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A			<1	Sand and Gravel, (Fill), low recovery		
2								
3								
4								
4.0	D-2	N/A		74SB186-03 (5-7')	<1	Silty Clay, brown		
5								
6								
7								
8	D-3	N/A		74SB186-05 (9-11')	<1	becomes more tan in color		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB186 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB186

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB186

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB187COORDINATES: EAST: 937387.2NORTH: 804613.0

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<u><b>SAMPLE TYPE</b></u> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<u><b>DEFINITIONS</b></u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	N/A		74SB187-03 (5-7')	<1	Silty clay, (Fill), rock fragments		
2								
3								
4						4.0		Silty Clay, grayish brown, some fine to coarse sand rock fragments
5	D-2	N/A		74SB187-04 (7-9')	<1			
6								
7						Silty Clay, grayish brown		
8						8.0		
9	D-3	N/A			<1	Clayey Silt and Silt, brown and tan, trace fine sand		
10						becomes greenish gray and white		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB187 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB187

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB187

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB188COORDINATES EAST: 937484.0NORTH: 804617.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A		74SB188-03 (5-7')	<1	Sand, Silt, (Fill), dark brown		
2						Sand, tan and light brown, some silt, fine to coarse grained		
3								
4						4.0		
5	D-2	N/A		74SB188-04 (7-9')	<1	Clayey Silt and Silt, brown/dark brown, some clay		
6								
7						Silty Clay, dark brown/gray		
8						8.0		
9	D-3	N/A			<1	Silty Clay, brownish gray and red		
10								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB188 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB188

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB188

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB189

COORDINATES: EAST: 937584.1

NORTH: 804620.9

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A			<1	Fill, dark brown		
2						Silty Clay, red, dry		
3								
4						Silty Clay/Clay, brown, dry		
5	D-2	N/A		74SB189-03 (5-7')	<1	Silty Clay, reddish gray and brown, moist		
6								
7								
8								
9	D-3	N/A		74SB189-05 (9-11')	<1	Silt/Clayey Silt, brown/tan/yellowish brown		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB189 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB189

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						Silt, green/gray/white, some clay	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB189

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB190

COORDINATES: EAST: 937683.5

NORTH: 804620.6

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID) Length Type Hammer Wt. Fall</b>	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	N/A		74SB190-03 (5-7')	<1	Silty Clay, (Fill), brown, some fine sand, some fine gravel and rock fragments, dry		
2								
3								
4								
4.0	D-2	N/A		74SB190-03 (5-7')	<1	Silty Clay, reddish brown, some fine sand, dry		
5								
6								
7								
8	D-3	N/A		74SB190-05 (9-11')	<1			
8.0								
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB190 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB190

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						becomes grayish brown and moist	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB190

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB191COORDINATES: EAST: 937783.8NORTH: 804619.6

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<u>SAMPLE TYPE</u> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A		74SB191-00 (0-1')	<1	Sandy, (Fill), brown		
2						Silty Clay, red, dry		
3								
4						4.0		
5	D-2	N/A		74SB191-03 74SB191-03D (5-7')	<1	Sand, white, fine to coarse grained, fine gravel rock fragments, dry		
6						Silty Clay, red/gray/tan		
7								
8						8.0		
9	D-3	N/A		74SB191-05 74SB191-05MS 74SB191-05MSD (9-11')	<1	Sand, white and tan, fine to coarse grained		
10						Silty Clay, reddish gray		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB191 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB191

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						Clayey Silt, brown to brownish yellow	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB191 SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB192COORDINATES: EAST: 937878.8NORTH: 804607.2

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	N/A			<1	Sand, (Fill), brown, some silt, some clay		
2						Silty Clay, red, dry		
3								
4						4.0		
5	D-2	N/A		74SB192-03 (5-7')	<1	Sand, white, fine to coarse grained, fine gravel rock fragments, dry		
6						Silty Clay, red/gray/tan		
7								
8						8.0		
9	D-3	N/A		74SB192-05 (9-11')	<1	Silty Clay, some occasional red fine		
10						coarsed sand seams, thin, red/gray/tan		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB192 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB192

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB192 SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB193

COORDINATES: EAST: 937983.8

NORTH: 804590.0

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A			<1	Gravel, (Fill), brown, some silt and clay, rock fragments, dry		
2						Silt and Clay, reddish brown		
3						Silty Clay, brown		
4						4.0		
5	D-2	N/A		74SB193-03 (5-7')	<1	becomes reddish brown, moist		
6								
7								
8						8.0		
9	D-3	N/A		74SB193-05 (9-11')	<1	Saprolite, greenish gray, some sand and clay		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB193 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB193

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
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26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB193

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB194COORDINATES: EAST: 938080.3NORTH: 804565.3

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	N/A			<1	Sand and Gravel, (Fill), brown, some silt and clay, rock fragments, dry		
2								
3						Silty Clay, brown		
4						4.0	becomes reddish brown	
5	D-2	N/A		74SB194-03 (5-7')	<1	becomes moist, reddish gray, occasional coarse seam		
6								
7								
8						8.0		
9	D-3	N/A		74SB194-05 (9-11')	<1			
10						Clayey Silt and Clay, yellowish brown/tan, wet		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB194

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB194

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB194

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB195COORDINATES: EAST: 938176.2NORTH: 804535.0

ELEVATION: SURFACE: \_\_\_\_\_

Rig: <u>Geoprobe 6620 DT Track Rig</u>					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A			<1	Silty Clay, (Fill), brown, some fine grained sand		
2								
3								
4	4.0					Silty Clay, brown		
5	D-2	N/A		74SB195-03 (5-7')	<1	becomes brown and white		
6								
7								
8	8.0							
9	D-3	N/A		74SB195-05 (9-11')	<1	becomes wet		
10								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB195 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB195

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						becomes gray	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB195

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB196

COORDINATES: EAST: 938272.3

NORTH: 804498.8

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	N/A			<1	Sand, (Fill), brown, fine grained sand, some clay and silt		
2						Silty Clay, brown		
3								
4						4.0		
5	D-2	N/A		74SB196-03 74SB196-03D (5-7')	<1	Silty Sand, brown/gray/red		
6								
7								
8						8.0		
9	D-3	N/A		74SB196-05 (9-11')	<1	Clayey Silt/Silt and Clay, tan/yellowish brown		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB196 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB196

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						becomes gray	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
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DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB196

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB197COORDINATES: EAST: 938372.5NORTH: 804456.3

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<u>SAMPLE TYPE</u> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<u>DEFINITIONS</u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A			<1	Sand and Gravel, brown, some silt and clay, and rock fragments, some silt and clay, brown		
2						Silty Clay/Clay and Silt, brown		
3						Silty Clay, brown/reddish brown/gray		
4	4.0							
5	D-2	N/A		74SB197-03 (5-7')	<1			
6								
7								
8	8.0							
9	D-3	N/A		74SB197-05 (9-11')	<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB197 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB197

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB197

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB200COORDINATE EAST: 937295.3NORTH: 802893.8

ELEVATION: SURFACE: \_\_\_\_\_

Rig: <u>Geoprobe 5400 Truck Rig</u>					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/18/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%			<1	Sandy, brown		
2						Gravel, bluish gray, fine to medium sand matrix		
3								
4						4.0		Silt and Clay, brown, some gravel
5	D-2	3.8 95%		74SB200-04 (7-9')	<1			
6						Silty Clay, bluish green, some sand and gravel		
7								
8						8.0		
9	D-3	3.8 95%		74SB200-05 (9-11')	<1			
10						Sand, medium gray, medium grained, saturated below 9.5'		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB200

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB200

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB200

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB201

COORDINATES: EAST: 937221.0

NORTH: 802967.5

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/18/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.9 98%		74SB201-00 (0-1')	<1	Silty Sand Topsoil, brown		
2						Sandy Silt, brown, some gravel		
3								
4						4.0	Clayey Silt and Gravel, light brown and brown	
5	D-2	3.7 93%		74SB201-04 74SB201-04D (7-9')	<1	Silty Clay, dark brown		
6								
7						Sandy Silt, brownish orange, some clay, some gravel and cobbles		
8						8.0		
9	D-3	3.7 93%		74SB201-05 74SB201-05MS 74SB201-05MSD (9-11')	<1	Silty Clay, dark brown, some gravel, bluish green clay nodules, moist at 8.0'		
10						Sand, white and gray, medium grained, some silt some clay, saturated at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB201 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB201

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.7 93%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB201

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB202

COORDINATES: EAST: 937146.7

NORTH: 803031.0

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/18/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.4 85%			<1	Sandy Topsoil, brown		
2						Sandy Silt, brown		
3						Gravel, bluish gray, some clay nodules, sand matrix, few cobbles		
4						4.0		
5	D-2	3.8 95%			<1			
6						Sandy Silt, brownish orange, some clay and gravel		
7								
8						8.0		74SB202-04 (7-9')
9	D-3	3.6 90%			<1	Moist at 9.0'		
10						74SB202-05 (9-11')		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB202

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB202

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.6 90%			<1	<i>Continued from Sheet 1</i>	
12						Sand, white and gray, medium grained	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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27							
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29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB202

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB203

COORDINATES: EAST: 937080.3

NORTH: 803087.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/18/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%			<1	Sandy, brown		
2						Sandy Silt and Gravel, light brown, few cobbles interdispersed		
3								
4						Silty Sand, light orangish brown, some gravel few cobbles interdispersed		
4.0								
5	D-2	3.9 98%		74SB203-04 (7-9')	<1	Clay, brown/red/white, saprolite inclusion		
6								
7								
8						Silty Clay, greenish blue, some red clay inclusions		
8.0								
9	D-3	3.8 95%		74SB203-05 (9-11')	<1			
10						Sand, white and gray, medium grained, sparse gravel clay inclusions		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB203 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB203

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
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29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB203

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB204

COORDINATES: EAST: 937000.7

NORTH: 803162.0

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/18/08	0.0 - 12.0	83° Mostly Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>		<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft., %)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>
1		D-1	3.6 90%			<1	Silty Sand, light brown	
2								
3								
4								
4.0								
5		D-2	3.9 98%		74SB204-04 (7-9')	<1	Gravelly/Sandy Silt, dark red	
6								
7								
8								
8.0								
9		D-3	3.8 95%		74SB204-05 (9-11')	<1	Silty Clay, green/blue/white, some sand, some weathered bedrock, saprolite inclusions	
10								
							Sandy Silt, light brown, saprolite inclusions	

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB204 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB204

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB204

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB205

COORDINATES: EAST: 936923.7

NORTH: 803228.8

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/18/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%			<1	Sandy Topsoil, dark brown		
2						Sandy Silt, brown, some gravel		
3								
4	4.0				Silty Sand, light orange, fine grained, layer of gravel from 4.6 to 4.8'			
5	D-2	3.8 95%		74SB205-04 (7-9')	<1			
6								
7								
8	8.0							
9	D-3	3.8 95%		74SB205-05 (9-11')	<1	some inderdispersed gravel and clay nodules		
10						Saprolite, some gravel, quartz cobbles, some sand, saturated at 10.5'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB205 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB205

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
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30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB205

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB206

COORDINATES: EAST: 802210.8

NORTH: 937443.2

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Topsoil, dark brown		
2						Silty Sand, brown		
3						Sand, tan, some gravel, cobble		
4						4.0		Bluish gray cobble
5	D-2	3.8 95%			<1	Gravel, some brown silty clay		
6						Clay, orangish brown		
7						74SB206-04		
8						74SB206-04D		
9	D-3	3.8 95%		(7-9)	<1	Asphalt and Gravel		
10						Clayey Silt, light bluish gray, some gravel		
						Sandy Silt, orange, sparse gravel		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB206 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB206

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB206

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB207COORDINATES: EAST: 937531.6NORTH: 802149.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 10.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Silty Sand Topsoil, dark brown		
2						Gravel, bluish gray		
3						Silty Sand, brown, fine to medium grained		
4						4.0		
5	D-2	3.8 95%		74SB207-04 (7-9')	<1	Gravel, bluish gray, orange clay in matrix		
6								
7								
8						8.0		
9	D-3	2.0 50%		74SB207-05 (9-11')	<1	becomes sandy silt matrix		
10						10.0		
						REFUSAL at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB207 SHEET 1 OF 1



**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB209COORDINATES: EAST: 937692.1NORTH: 802015.7

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Truck Rig 5600					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/19/08	0.0 - 12.0	83° Mostly Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.8 95%			<1	Sandy Topsoil, dark brown		
2						Silty Sand, light brown, some gravel becomes brown with a few cobbles		
3						Sandy Silt, bluish gray, sparse gravel, weathered bedrock inclusions		
4						4.0		
5	D-2	3.8 95%			<1	Sandy Silt, brown, some gravel, few cobbles		
6								
7								
8						8.0	74SB209-04 (7-9')	
9	D-3	3.8 95%			<1	Silty Clay, bluish gray, mottled		
10						Damp at 9.5' Sandy Silt, bluish gray, some saprolite inclusions Saturated at 11.0'		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB209 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB209

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i> saturated at 11'	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB209

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB210

COORDINATES: EAST: 937778.0

NORTH: 801952.6

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/18/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.6 90%			<1	Sand, brown		
2						Gravelly Sand, light brown		
3						Gravelly Silt, light brown with gray, some sand lenses		
4								4.0
5	D-2	3.9 98%		74SB210-04 (7-9')	1040	Sandy silt, light brown, some gravel		
6						Sandy Silt, grayish green, some gravel		
7								
8								8.0
9	D-3	N/A		74SB210-05 (9-11')	78			
10								380

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB210 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB210

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			780	<i>Continued from Sheet 1</i>	
12					780	Sandy Silt, light brownish orange, some clay	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB210

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB211

COORDINATES: EAST: 937856.4

NORTH: 801888.3

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 8.5	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.7 93%		74SB211-00 (0-1')	<1	Sandy Topsoil, brown		
2						Sandy Silt, brown, some clay and gravel		
3						Gravelly Silt, bluish green		
4						4.0		
5	D-2	3.6 90%		74SB211-03 74SB211-03D (5-7')  74SB211-04 74SB211-04MS 74SB211-04MSD (7-9')	<1	Sandy Silt, brown, some gravel and weathered bedrock		
6								
7								
8								
8	8.0	D-3			6	REFUSAL at 8.5'		
8	8.5							
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB211 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB212COORDINATES: EAST: 937940.8NORTH: 800867.2

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID) Length Type Hammer Wt. Fall	2.5"				5/19/08	0.0 - 12.0	88° Humid	
	4'							
	Acetate							
<b>Remarks:</b> Poor recovery, rock and what was recovered was saturated. No hydrocarbon odor.								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	S-1	2.0 50%		N O  S A M P	<1	Rock, (Fill), some gravel, some silt and sand, dry		
2								
3								
4								
4.0	S-2	0.8 20%		L E S  C O L L	<1	Sandy Clay, greenish brown, soft, fine to medium grained sand, saturated		
5								
6								
7								
8	S-3	2.2 55%		E C T E D	<1			
9								
10								

DRILLING CO.: GeoEnviro Tech, Inc.DRILLER: William RodriguezBAKER REP.: Mark DeJohnBORING NO.: 74SB212 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB212

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-3	2.2				<i>Continued from Sheet 1</i>	
12		55%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB212

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB213COORDINATES: EAST: 938019.0NORTH: 800935.1

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/19/08	0.0 - 12.0	88° Humid	
	4'							
	Acetate							
<b>Remarks:</b>								
<u><b>SAMPLE TYPE</b></u> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample						<u><b>DEFINITIONS</b></u> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million		
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	2.9 73%			<1	Rock, (Fill), gray, loose, some silt and sand, dry to 1.5'		
2						Sandy Clay, iron stained, mixed with rock		
3						compact, hard, damp		
4						Sand, light brown, loose, dry		
5	D-2	2.8 70%		74SB213-03 (5-7)	10	Sandy Clay, greenish gray, somemixed clay		
6						wet at 6.5', one inch of weathered product		
7						at 6.5'		
8								
9	D-3	1.8 45%			10 to 20			
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB213 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB213

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.8				<i>Continued from Sheet 1</i>	
12		45%			10 to 20		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB213

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB214COORDINATES: EAST: 938082.8NORTH: 801018.0

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/19/08	0.0 - 5.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary    C = Core D = Direct Push    P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	N/A			<1	Sandy Clay and rock mixed to 3.5', (Fill), brown		
2								
3								
4								
4.0	D-2	N/A			<1	becomes, hard, light brown, iron stained, less rock		
5.0						Bedding sand at 4.5', no hydrocarbon odor		
5	GEOPROBE REFUSAL at 5.0'							
6								
7								
8								
9								
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB214 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB215COORDINATES: EAST: 938151.1NORTH: 801127.6

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.3 58%			<1	Silty Sand and Gravel, gray, loose, dry		
2						Sandy Clay, brownish gray, moderate hard, damp		
3								
4						4.0		
5	D-2	1.6 40%		74SB215-03 (5-7')	<1	Sandy Clay and Rock, dark gray and greenish brown		
6								
7								
8						8.0		Moist at 7.0'
9	D-3	2.7 68%			<1	Wet at 9.0'		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB215 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB215

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.7				<i>Continued from Sheet 1</i>	
12		68%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB215

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO. 74SB216COORDINATES: EAST: 801211.8NORTH: 938213.6ELEVATION: SURFACE: 

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	2.6 65%		74SB216-03 (5-7')	<1	Silty Sand and Rock, hard, dry		
2						Sandy Clay, grayish black, some rock, moderate		
3						soft, moist		
4						4.0		
5	D-2	2.0 50%		74SB216-05 74SB216-05D (9-11')	20 to 40	Silty Clay, becomes greenish black, moderate soft		
6								
7								
8						8.0		
9	D-3	3.6 90%						
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP. Joe BurawaBORING NO. 74SB216 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB216

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.6 90%			200	<i>Continued from Sheet 1</i>	
12						Hydrocarbon stains from 11.4 to 11.8', saprolite rock at 11.8' weathered rock and sandy clay	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB216

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB217

COORDINATES: EAST: 801299.3

NORTH: 938268.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 6.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks: Moved 3 times, same result.								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.8 70%		N O  S A M P L	<1	Sandy Clay, brown, with gravel, dry dry, hard grayish brown then sandy clay with gravel at 3.0'		
2								
3								
4								
4.0	D-2	2.0 50%		E S  C  O L L E C T E D	<1	Sandy Clay, brown, with gravel, dry		
5								
6								
6.0								
						Large cobble at 6.0'		
7						GEOPROBE REFUSAL at 6.0'		
8								
9								
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB217 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB218

COORDINATES: EAST: 938328.2

NORTH: 801383.5

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.3 83%			<5	Sand and Rocks, gray, hard, dry		
2						Sandy Clay, light brown, hard, brittle, broken		
3						some rocks throughout, dry		
4								
4.0								
5	D-2	4.0 100%		74SB218-03 (5-7')	>700	Sandy Silt, medium brown, some clay, moderate hard, damp, becomes greenish gray and strong odor around 5.0'		
6								
7								
8								
8.0								
9	D-3	4.0 100%		74SB218-05 (9-11')	50	Silty Sand, moderate hard, damp to moist, saprolitic structure		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB218 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB218

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			50		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB218

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB219COORDINATES: EAST: 937999.2NORTH: 800856.7

ELEVATION: SURFACE: \_\_\_\_\_

Rig: <u>Geoprobe 6620 DT Track Rig</u>					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID) Length Type Hammer Wt. Fall	2.5"				5/19/08	0.0 - 3.0	85° Sunny	
	4'							
	Acetate							
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%		N	<1	Sand and Rocks, (Fill), hard, loose, dry		
2				O		some sandy clay at 2.0'		
3				S A M				
4				P		GEOPROBE REFUSAL at 3.0'		
5				L				
6				E				
7				S				
8				C				
9				O				
10				L				
				L				
				E				
				C				
				T				
				E				
				D				

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB219 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB220

COORDINATES: EAST: 938066.6

NORTH: 800943.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/19/08	0.0 - 3.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%		N	<1	Silty Sand and Gravel, gray, loose, hard, dry		
2				O		some clay at 2.0', medium brown mixed in		
3				S A M				
4				P		GEOPROBE REFUSAL at 3.0'		
5				L				
6				E				
7				S				
8				C				
9				O				
10				L				
				E				
				C				
				T				
				E				
				D				

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB220 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB221

COORDINATES EAST: 938127.2

NORTH: 800999.8

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.1 78%		74SB221-00 74SB221-00D (0-1')	<1	Sand and Silt, brownish gray, some gravel		
2						Sandy Clay, dark brown, some gravel		
3								
4								
4.0				74SB221-02 74SB221-02D				
5	D-2	2.2 55%		74SB221-02MS 74SB221-02MSD (3-5')	>50	Sandy Clay, medium brown, soft, damp, some rock		
6						some bedding sand		
7						Free product at 5.5', weathered, dark brown		
8								
8.0								
9	D-3	0.8 20%			>200			
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB221 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB221

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	0.8 20%			>200	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB221

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB222

COORDINATES: EAST: 938187.4

NORTH: 801084.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.3 58%			<1	Silt and Sand, light brown, some mixed gravel loose, dry		
2						some clay at 1.8'		
3						Sand, light brown, soft, loose, dry		
4						4.0		
5	D-2	2.8 70%		74SB222-03 (5-7')	20 50	Free product at 6.5', moist to wet		
6								
7								
8								8.0
9	D-3	2.0 50%			>50	Sandy Clay, greenish gray, saturated, strong hydrocarbon odor		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB222 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB222

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.0				<i>Continued from Sheet 1</i>	
12		50%			>50		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB222

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB223

COORDINATES EAST: 938245.7

NORTH: 801171.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.2 80%			>1	Sandy Loam to 0.2'		
2						Sandy Clay, light brown, broken, dry		
3						Sand and Silt, light grayish brown, mixed with gravel, moderately soft		
4						Bedding Sand, light brown, loose and dry		
5	D-2	2.8 70%		74SB223-03 (5-7')	<10  >100	Silty Clay, medium brown, moderately soft, damp		
6						hydrocarbon impact at 6.0'		
7						greenish black, moist		
8						8.0		D-3
9	oil mixed with water							
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB223 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB223

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.5				<i>Continued from Sheet 1</i>	
12		38%			>200		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB223

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB224

COORDINATES: EAST: 938306.7

NORTH: 801255.8

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.5 63%			<1	Sandy Clay and Gravel, grayish brown, moderate hard to moderate soft, dry		
2								
3								
4								
4.0								
5	D-2	4.0 100%			2	Sand and Silt, greenish gray, trace gravel		
6								
7								
8								
8.0				74SB224-04 (7-9')		Silty Clay, very hard, compact saprolite structure, damp		
9	D-3	3.9 98%			20	Sandy Clay, greenish gray, moderate hard, damp, rock fragments throughout, saprolite structure, damp to moist at 9.0'		
10								
				74SB224-05 (9-11')	>40			

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB224 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB224

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.9				<i>Continued from Sheet 1</i>	
12		98%			>40		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB224

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB225

COORDINATES EAST: 938364.7

NORTH: 801340.0

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.6 65%			<1	Sandy Loam to 0.3'		
2						Sand and silt, light gray, some gravel, loose, dry		
3						Sandy Clay, medium brown, moderately hard, some gravel, dry		
4						4.0		
5	D-2	2.2 55%			<1	At 7.0' dark brown, moist		
6								
7								
8						8.0		74SB225-04 (7-9')
9	D-3	4.0 100%			<1	Silty Clay, medium brown, some sand, damp		
10								74SB225-05 (9-11')

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB225 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB225

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB225

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB226COORDINATES: EAST: 938411.1NORTH: 801404.5

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft., %)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	4.0 100%			2	Sand and Silt, medium to light gray brown, some mixed gravel, loose, dry		
2								
3								
4								
4	4.0					Sandy Clay, greenish gray, some mixed gravel, moderate soft, becomes very soft, damp to moist at 4.5'		
5								
6								
7								
8	D-2	1.0 25%		74SB226-04	10			
9								
10								
9	D-3	4.0 100%		(7-9')	>100	Saprolite, greenish gray, tight, damp, strong hydrocarbon odor		
10				74SB226-05 74SB226-05D (9-11')				

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB226 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB226

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			>100	Becomes light brown at 11.5'	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB226

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB227

COORDINATES: EAST: 937941.0

NORTH: 801822.3

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.6 90%			<1	Sand, dark brown		
2						Sandy Silt and Gravel, orangish brown, some clay		
3								
4						4.0		
5	D-2	3.9 98%			<1			
6								
7								
8						8.0		
9	D-3	3.6 90%		74SB227-04 (7-9')	10	Silty Sand, bluish green, some odor detected but no PID readings		
10								
				74SB227-05 (9-11')	550	some clay nodules and gravel, brownish orange		
					421	Sandy Silt, bluish gray, some clay and gravel		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB227

SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB227

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8 95%			189	<i>Continued from Sheet 1</i>	
12					20		
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB227

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB228

COORDINATES: EAST: 938023.9

NORTH: 801764.0

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.5 88%			<1	Sandy, dark brown		
						Gravel, bluish gray, loose, hard		
2						Silty Clay, orangish brown		
3								
4	4.0							
5	D-2	3.6 90%		74SB228-04 (7-9')	<1	Silty Sand, orangish brown, some clay		
6								
7								
8						8.0		
9	D-3	3.6 90%		74SB228-05 (9-11')	132	Gravelly Silt and Clay, bluish green with hydrocarbon staining, saturated		
10						156		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB228

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB228

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.6 90%			18	<i>Continued from Sheet 1</i>	
12					20		
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB228

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB229

COORDINATES: EAST: 938109.0

NORTH: 801704.1

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.6 90%			<1	Sandy, dark brown		
						Gravelly Sand, brown, some silt		
2						Silt, orangish brown, some sand/gravel/cobbles		
3								
4	4.0							
5	D-2	3.8 95%		74SB229-04 (7-9')	<1	Silty Clay, orangish brown, some sand and gravel		
6								
7						Saturated at 7.0'		
8						8.0		
9	D-3	3.8 95%		74SB229-05 (9-11')	<1	Sand, light brown, some gravel		
10						Clayey Silt, bluish green, some saprolite inclusions		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB229 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB229

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB229

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB230

COORDINATES: EAST: 938145.2

NORTH: 801593.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.6 90%			<1	Sandy, dark brown		
2						Sand and Gravel, light tan becomes white in color		
3						Silty Clay, orangish brown		
4								4.0
5	D-2	3.4 85%		74SB230-04 (7-9')	<1	Saturated at 8.0'		
6								
7								
8								8.0
9	D-3	N/A		74SB230-05 (9-11')	190 1350	Sandy Silt, bluish green		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB230 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB230

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			15	<i>Continued from Sheet 1</i>	
12					7		
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB230

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB231

COORDINATES: EAST: 939622.2

NORTH: 798940.5

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.2 80%		74SB231-00 (0-1')	<1	Silty Sand, brown		
2						Sandy Clay and Gravel, grayish brown		
3								
4						4.0		
5	D-2	3.3 83%		74SB231-04 74SB231-04MS 74SB231-04MSD (7-9')	<1	Sand, light tan/white, some interdispersed sparse gravel/shell fragments		
6						Damp at 6.0'		
7								
8						8.0		
9	D-3	3.4 85%		74SB231-05 74SB231-05D (9-11')	<1			
10						Silty Sand, orangish brown, some gravel Saturated at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB231 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB231

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.4 85%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB231

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB232

COORDINATES: EAST: 939711.4

NORTH: 799000.7

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%			<1	Sand, brown		
2						Sand, brown, some silt, some gravel		
3								
4						4.0		
5	D-2	3.4 85%		74SB232-04 (7-9')	becomes finer grained, lighter brown, and shell frags			
6								
7					Saturated at 7.0'			
8					8.0	Silt and Sand, bluish gray, sand increases with depth		
9	D-3	3.4 85%		74SB232-05 (9-11')	<1			
10						Sandy Silt, bluish gray, some gravel and shell fragments		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB232 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB232

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.4 85%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB232

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB233

COORDINATES: EAST: 939793.5

NORTH: 799061.9

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.3 83%			<1	Sand, dark brown		
2						Gravel, gray, some brown silt		
3						Silty Sand and Gravel, brown, fine grained sand		
4						becomes orangish brown, some shells, some gravel		
5	D-2	3.3 83%		74SB233-04 (7-9')	<1	Sand, medium tan, medium grained, sparse gravel		
6								
7								
8						8.0		Silty Sand, brown
9	D-3	3.5 88%		74SB233-05 (9-11')	<1	Sand, bluish gray, some silt, some gravel and shell fragments		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB233 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB233

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.5				<i>Continued from Sheet 1</i>	
12		88%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB233

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB234

COORDINATES EAST: 939866.7

NORTH: 799138.0

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.2 80%			<1	Sandy, dark brown		
2						Sand and Gravel, tan		
3								
4	4.0				Silty Clay, reddish brown, with lenses and gravel interdispersed			
5	D-2	3.6 90%			<1			
6								
7								
8	8.0			74SB234-04 (7-9')				
9	D-3	3.0 75%			<1	becomes grayish brown		
10						74SB234-05 (9-11')		Saturated at 10.8'

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB234 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB234

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0				<i>Continued from Sheet 1</i>	
12		75%			<1	Silt and Gravel, reddish brown	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB234

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB235

COORDINATES: EAST: 939930.5

NORTH: 799222.6

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.0 75%			<1	Sandy, dark brown		
2						Silty Sand, light brown, some gravel		
3								
4						4.0		
5	D-2	2.9 73%		74SB235-04 (7-9')	<1	Sand, light tan, some gravel and some silt		
6								
7								
8						8.0		
9	D-3	3.0 75%		74SB235-05 (9-11')	<1	Clayey Sand, light tan		
10						Silty Clay, light blue Saturated at 10.0'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB235 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB235

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0				<i>Continued from Sheet 1</i>	
12		75%			<1	Silty Sand, light blue, fine grained sand, wet	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB235

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB236

COORDINATES: EAST: 939991.1

NORTH: 799304.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%			<1	Sandy, dark brown		
2						Sand, brown, medium grained, some gravel, shell and coral fragments		
3								
4						4.0		becomes white/tan with clay nodules
5	D-2	3.4 85%		74SB236-04 (7-9')	<1	Silty Clay, light tan		
6								
7						Sand, light tan, medium grained		
8						8.0		Moist at 7.0'
9	D-3	3.0 75%		74SB236-05 74SB236-05D (9-11')	<1	becomes light bluish gray, some silt		
10						some shell and coral		
						Saturated at 10'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB236 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB236

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.0				<i>Continued from Sheet 1</i>	
12		75%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB236

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB237

COORDINATES: EAST: 940047.9

NORTH: 799386.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/21/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft., %)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.6 90%			<1	Sandy, dark brown		
2						Sandy Silt, brown, some sand and gravel, some clay inclusions		
3						Gravel, dark brown		
4						4.0		
5	D-2	3.6 90%		74SB237-04 (7-9')	<1	Light tan sand with some shell fragments and sparse coral		
6						Saturated at 7.5'		
7								
8								8.0
9	D-3	2.9 73%		74SB237-05 (9-11')	<1	becomes light bluish gray, some silt shell fragments, bluish gray clay nodules		
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB237

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB237

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.9				<i>Continued from Sheet 1</i>	
12		73%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB237

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB238

COORDINATES: EAST: 940107.0

NORTH: 799466.5

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.5 88%			<1	Sandy, brown		
2						Silty Sand, brown, fine grained sand, some gravel		
3								
4						4.0		
5	D-2	3.4 85%			<1	Sand, light tan, some silt and clay some shell fragments		
6								
7						Saturated at 6.5'		
8						8.0		
9	D-3	3.7 93%		74SB238-04 (7-9')	<1	Sand, bluish gray, some silt and coral		
10						Clayey Silt, bluish gray		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB238

SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB238

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.7 93%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB238

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB239

COORDINATES: EAST: 940146.4

NORTH: 799550.1

ELEVATION: SURFACE:

Rig: Truck Rig 5600					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.6 90%			<1	Silty Topsoil, brown		
2						Silty Sand, brown, fine grained		
3						Gravelly Sand, brown		
4						4.0		
5	D-2	2.8 70%			<1	Sand, brown/tan, fine to medium grained, some gravel/shell and coral fragments becomes reddish orange at 5'		
6						Sand and Gravel, orangish brown, some shells coarse grained sand		
7								
8						8.0		
9	D-3	2.8 70%		74SB239-04 (7-9')	<1	Clayey Silt, blue/gray, some lenses of light tan medium to fine sand		
10						74SB239-05 (9-11')		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB239

SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB239

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-4	2.8				<i>Continued from Sheet 1</i>	
12		70%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB239

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB240COORDINATES: EAST: 940223.1NORTH: 799635.0

ELEVATION: SURFACE: \_\_\_\_\_

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b> <b>Length</b> <b>Type</b> <b>Hammer Wt.</b> <b>Fall</b>	2.5"				5/21/08	0.0 - 12.0	83° Mostly Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab for CTO-225. P</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.3 83%			<1	Silty Sand, brown		
2						Silty Sand and Gravel, dark brown/orange, fine grained		
3						Sand, brown, fine grained, some shell fragments and sparse gravel		
4						Gravel, bluish gray		
5	D-2	1.0 25%		74SB240-04 (7-9')	<1	Silty Sand, brown, some shell fragments and coral		
6								
7								
8						8.0		
9	D-3	3.8 95%		74SB240-05 (9-11')	<1	Sand, tan, medium to coarse grained, some shell fragments, saturated at 8.0'		
10						become bluish gray, some silt		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB240 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB240

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			<1	Fine light gray silty sand	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB240

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626COORDINATES: EAST: 940294.6ELEVATION: SURFACE: BORING NO.: 74SB241NORTH: 799736.2

<b>Rig:</b> Geoprobe 5400 Truck Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/21/08	0.0 - 12.0	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>		<b>Elevation (Ft. MSL)</b>
1	D-1	3.5 88%		74SB241-00 (0-1')	<1	Sandy Topsoil, dark brown		
2						Sand and Gravel, brown		
3						Clayey Silt and Gravel, orangish brown		
4						Silt and Gravel, dark brown/black		
5	D-2	3.4 85%		74SB241-04 74SB241-04D (7-9')	<1	Silty Sand, dark brown, some clay and gravel		
6						saturated at 6.5'		
7						becomes light tan		
8								
9	D-3	3.3 83%		74SB241-05 74SB241-05MS 74SB241-05MSD (9-11')	<1	Sand, light tan, coarse grained, some shell fragments and coral		
10						becomes bluish gray		

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Juan NegronBAKER REP.: J. OliverBORING NO.: 74SB241 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB241

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.3 83%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB241

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB242

COORDINATES: EAST: 940355.0

NORTH: 799851.4

ELEVATION: SURFACE:

Rig: Geoprobe 5400 Truck Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 4.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%		N	<1	Sandy, dark brown		
2				O		Silty Sand, brown, some gravel		
3				S		becomes light brown		
4				A				
5				M				
6	4.0			P		becomes dark brown, some clay, some gravel		
7				L				
8				E		REFUSAL at 4.0'		
9				S				
10				C				
				O				
				L				
				L				
				E				
				C				
				T				
				E				
				D				

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Juan Negron

BAKER REP.: J. Oliver

BORING NO.: 74SB242 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB243

COORDINATES: EAST: 940413.3

NORTH: 799941.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/20/08	0.0 - 2.3	83° Mostly Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	N/A		N	<1	Silty Clay, (Fill), brown, some sand		
2				O				
3				S		becomes reddish brown and gray		
4				A				
5						GEOPROBE REFUSAL at 2.3'		
6				M				
7				P				
8				L				
9				E				
10				S				
				C				
				O				
				L				
				E				
				C				
				T				
				E				
				D				

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB243 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB244

COORDINATES: EAST: 940391.2

NORTH: 800008.1

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/20/08	0.0 - 12.0	83° Mostly Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A		N O  S A M P L	<1	Silty Clay, (Fill), brown, some fine sand, rock fragments		
2								
3								
4								
4.0	D-2	N/A		E S  C O L L E	<1	"VOID" rods and barrel dropped under own weight		
5								
6								
7								
8	D-3	N/A		C T E D	<1	Sand, rock fragments, saturated		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB244 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB244

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB244

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB245

COORDINATES: EAST: 940309.5

NORTH: 800065.1

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A			<1	Sand, (Fill), brown, fine gravel and rock fragments, some silt and clay, dry		
2								
3								
4								
4.0	D-2	N/A		74SB245-03 (5-7')	<1			
5								
6								
7								
8	D-3	N/A		74SB245-05 (9-11')	<1			
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB245 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB245

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						becomes dark gray	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB245

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB246COORDINATES: EAST: 940230.3NORTH: 800122.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	N/A			<1	Sand, (Fill), light brown/tan/white fine rock fragments, trace gravel, little silt and clay dry		
2								
3								
4								
4.0						Groundwater at 8.5'		
5	D-2	N/A		74SB246-03 74SB246-03D (5-7')	<1			
6								
7								
8								
8.0								
9	D-3	N/A		74SB246-05 (9-11')	<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB246 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB246

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						becomes gray fine sand and rock fragments	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB246

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB247

COORDINATES EAST: 940148.8

NORTH: 800179.8

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1				<1	Topsoil, (Fill), black		
2						Sand, (Fill), white, trace silt, fine grained		
3						becomes brown with rock fragments		
4						4.0		
5	D-2			74SB247-03 (5-7')	<1	Groundwater at 7.5'		
6								
7								
8						8.0		
9	D-3				<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB247 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB247

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB247

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB248

COORDINATES EAST: 940069.0

NORTH: 800235.4

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1				<1	Sand, (Fill), white/tan/light brown, trace silt rock fragments		
2								
3								
4								
4.0	D-2			74SB248-03 (5-7')	<1	Groundwater at 8.0'		
5								
6								
7								
8	D-3				<1	Silty Clay, dark gray, rock fragments ,some sand		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB248 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB248

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB248

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB249

COORDINATES: EAST: 939989.9

NORTH: 800292.4

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1				<1	Sand, (Fill), white/tan/light brown rock fragments, little silt and clay		
2								
3								
4								
4.0	D-2			74SB249-03 (5-7')	<1	Groundwater at 8.0'		
5								
6								
7								
8	D-3				<1	becomes gray		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB249 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB249

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB249

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB250COORDINATES: EAST: 939907.8NORTH: 800347.7

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1				<1	Sand, (Fill), white/tan, little rock fragments fragments, little silt and clay		
2								
3								
4								
4.0	D-2			74SB250-03 (5-7')	<1	Groundwater 8.0'		
5								
6								
7								
8	D-3			74SB250-05 (9-11')	<1	Rock Fragments and Sand, (Fill), dark gray		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74SB250 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB250

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB250

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB251

COORDINATES: EAST: 939827.6

NORTH: 800404.8

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1			74SB251-00 (0-1')	<1	Sand, (Fill), white/tan/light brown little silt and clay, dry		
2								
3								
4								
4.0								
5	D-2			74SB251-03 74SB251-03D (5-7')	<1	Groundwater at 8.0'		
6								
7								
8								
8.0								
9	D-3			74SB251-05 74SB251-05MS 74SB251-05MSD (9-11')	<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB251 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB251

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	<i>Continued from Sheet 1</i>	
12						Sand and Rock Fragments, gray	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB251

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB252

COORDINATES: EAST: 939747.3

NORTH: 800462.9

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID) Length Type Hammer Wt. Fall</b>	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
	4'							
	Acetate							
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>		<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>
1		D-1	N/A		74SB252-03 (5-7')	<1	Sand, (Fill), white/tan/ light brown, little silt and clay, fine grained, dry	
2								
3								
4								
4.0		D-2	N/A		74SB252-03 (5-7')	<1		
5								
6								
7								
8		D-3	N/A			<1	Groundwater at 8.5'	
8.0								
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB252 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB252

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	N/A			<1	<i>Continued from Sheet 1</i>	
12						Sand and Rock Fragments, dark/medium gray, fine grained	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB252

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB253

COORDINATES: EAST: 939665.1

NORTH: 800522.2

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1				<1	Sand, (Fill), white/tan/light brown, little silt and clay, fine grained, dry		
2								
3								
4								
4.0	D-2			74SB253-03 (5-7')	<1	Groundwater at 8.0'		
5								
6								
7								
8	D-3				<1			
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB253 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB253

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	<i>Continued from Sheet 1</i>	
12						Sand and Rock Fragments, gray, fine to coarse grained	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB253

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB254

COORDINATES: EAST: 939584.0

NORTH: 800584.8

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1				<1	Sand, (Fill), brown/tan, fine grained, rock fragn little/some silt and clay, dry		
2								
3								
4								
4.0	D-2			74SB254-03 (5-7')	<1	Silty Clay, (Fill), brown, little fine sand and rock fragments, dry to moist		
5								
6								
7								
8	D-3				<1	Groundwater at 8.5'		
9								
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB254 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB254

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	<i>Continued from Sheet 1</i>	
12						Silt/Clayey Silt, green	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB254

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB255

COORDINATES: EAST: 800639.1

NORTH: 939503.4

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1				<1	Sand, (Fill), brown, fine grained, little rock fragments, some silty clay, dry		
2						becomes orangish brown		
3								
4						4.0		
5	D-2			74SB255-03 (5-7')	<1	Silty Clay, (Fill), brown/yellowish brown, little fine sand, trace of rock fragments, dry		
6								
7								
8						8.0		
9	D-3				<1	Groundwater at 8.5'		
10						Clayey Silt, brown/yellow, trace fine sand becomes green/white, wet		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB255 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB255

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3				<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13	files for CTO-225. Please edit and return as soon						
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB255

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB256COORDINATES: EAST: 939419.8NORTH: 800700.6

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.6 90%			<1	Sandy Gravel and Clay, grayish brown, broken, dry		
2								
3								
4								
4.0	D-2	1.5 38%		74SB256-03 74SB256-03D (5-7')	<1	Sandy Clay, medium brown, some gravel, medium grained sand, damp		
5								
6								
7								
8	D-3	2.2 55%		74SB256-04 (7-9')	<1	Silty Clay, dark brown, very soft, sticky some sand throughout		
8.0								
9								
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB256 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB256

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.2				<i>Continued from Sheet 1</i>	
12		55%			<5		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB256

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB257COORDINATES: EAST: 939337.7NORTH: 800758.8

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.5 88%		N O  S A M P L	<1	Silty Sand and Gravel, light gray, loose, dry		
2								
3								
4								
4.0	D-2	0.5 13%		E S  C O L L E	<1	Sand and Coral, wet		
5								
6								
7								
8	D-3	0.6 15%		C T E D	<1	Sand, medium grained, soft, loose, coral fragments, wet		
9								
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB257 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB257

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	0.6				<i>Continued from Sheet 1</i>	
12		15%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB257

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB258COORDINATES: EAST: 939257.6NORTH: 800814.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Silty Sand and Gravel, grayish brown, some clay, very dry		
2	D-1	3.7			<1			
3		93%						
4	4.0							
5				74SB258-03 (5-7')		Sand, tan, loose, some rocks, dry		
6	D-2	4.0			<1	Silty Clay, medium green brown, moderately soft moist		
7		100%						
8	8.0							
9				74SB258-05 (9-11')		Saprolite, greenish gray, hard, damp to dry		
10	D-3	4.0			<5			

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB258 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB258

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			<5		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB258

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB259COORDINATES EAST: 939173.2NORTH: 800875.2

ELEVATION: SURFACE: \_\_\_\_\_

Rig: <u>Geoprobe 6620 DT Track Rig</u>					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.2 80%			<1	Sandy Loam, grayish brown, moderately hard, dry		
2						Sandy Clay and Gravel, brown, moderately soft,		
3						coral fragments, dry		
4						4.0		
5	D-2	2.2 55%		74SB259-03 (5-7')	<1	Sandy Clay, medium brown, black and tan		
6						sand throughout, damp		
7								
8						8.0		
9	D-3	1.8 45%		74SB259-04 (7-9')	750	Wet at 9.5'; hydrocarbon staining, greenish black		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB259 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB259

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.8				<i>Continued from Sheet 1</i>	
12		45%			750		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB259

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB260COORDINATES: EAST: 939093.9NORTH: 800933.8

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.3 58%			<1	Sandy Loam, dark brown, soft, dry		
2						Silty Sand, gray brown, loose, some gravel, dry		
3						Sandy Clay, greenish brown, very soft, damp gravel throughout		
4								
5	D-2	1.8 45%		74SB260-03 (5-7')	<10			
6								
7								
8						8.0		
9	D-3	3.6 90%		74SB260-04 (7-9')	>100	Sand, brown, soft, medium grained, wet		
10						Clayey Sand, greenish black, soft wet		

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB260 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB260

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.6 90%			>100	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
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23							
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26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB260

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB261COORDINATES EAST: 939009.5NORTH: 800994.4

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.6 90%		74SB261-00 (0-1')	<1	Sandy Loam, dark brown, loose, broken, dry		
2						Silty Sand, brown, some gravel, loose, dry		
3								
4						4.0		Sand, tan, soft, loose
5	D-2	1.2 30%		74SB261-03 74SB261-03D 74SB261-03MS 74SB261-03MSD (5-7')	>10			
6						Sandy Clay, greenish black, soft, rocks and cobbles throughout, damp to moist		
7								
8						8.0		
9	D-3	1.0 25%			>300	Free product and water at 9'		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB261 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB261

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.0 25%			>300	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
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26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB261

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB262COORDINATES EAST: 938931.0NORTH: 801049.7

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.8 95%			<1	Sandy Loam, dark brown		
2						Silty Sand, gray brown, soft, broken, loose, dry		
3						Sandy Clay, medium to dark brown, some gravel, soft, damp		
4						4.0		
5	D-2	2.2 55%		74SB262-03 (5-7')	<1	Mixed with bedding sand from 4.5' to 8.5' rocks from 5.0 to 8.5' poor recovery		
6								
7								
8						8.0		
9	D-3	1.0 25%			>700	Wet at 9.0' with free product		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB262 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB262

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.0 25%			>700	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB262

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB263

COORDINATES: EAST: 938844.6

NORTH: 801112.5

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.8 95%			<1	Sandy Loam and Gravel, light grayish brown broken, dry		
2								
3								
4								
4.0						Sand, light brown, soft, loose, damp		
5	D-2	2.5 63%		74SB263-03 (5-7')	<1			
6								
7								
8								
8.0				74SB263-04 (7-9')		Silty Sand, medium brown, little clay, loose, soft		
9	D-3	2.2 55%			>30	becomes greenish gray		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB263 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB263

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.2				<i>Continued from Sheet 1</i>	
12		55%			>50	Wet at 11.0' hydrocarbon odor	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB263

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB264

COORDINATES EAST: 938765.2

NORTH: 801165.7

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/21/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.3 83%			<1	Sandy Loam and Gravel, gray brown, loose, dry		
2						becomes light gray at 2.5'		
3								
4						4.0		
5	D-2	3.1 78%		74SB264-03 (5-7')	<1	Sandy Clay, brown, moderately soft, damp		
6						becomes greenish brown at 6.0'		
7								
8						8.0		
9	D-3	3.8 95%		74SB264-04 (7-9')	>300			
10						Sandy Clay, gray brown, very soft, wet		

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB264 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB264

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.8				<i>Continued from Sheet 1</i>	
12		95%			>300		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB264

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB265COORDINATES: EAST: 938682.5NORTH: 801223.5

ELEVATION: SURFACE: \_\_\_\_\_

Rig: <u>Geoprobe 6620 DT Track Rig</u>					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.6 65%			<1	Sandy Silt, brownish gray, loose, dry		
2								
3								
4								
4.0								
5	D-2	1.8 45%		74SB265-03 74SB265-03D (5-7')	>100	Sandy Clay, greenish gray, damp		
6								
7								
8								
8.0								
9	D-3	2.0 50%			>200	Wet at 9.0', large gravel mixed with sandy clay		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB265 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB265

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	2.0				<i>Continued from Sheet 1</i>	
12		50%			>200		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB265

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB266COORDINATES: EAST: 938599.3NORTH: 801282.4

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description		Elevation (Ft. MSL)
1	D-1	3.6 90%			<5	Sandy Silt, brown, some gravel, loose		
2								
3						some clay at 3'		
4						4.0		
5	D-2	1.5 38%		74SB266-03 (5-7')	>40	Sandy Clay, greenish brown, some silt, soft, damp		
6								
7						Free product at 6.5', wet, strong odor		
8						8.0		
9	D-3	1.0 25%			>400			
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB266 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB266

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.0 25%			>400	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB266

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB267COORDINATES: EAST: 938520.5NORTH: 801339.0

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.7 93%		74SB267-02 (3-5')	5	Sandy Silt, light gray, some clay and gravel, hard, loose, dry		
2								
3								
4								
5	D-2	2.5 63%		74SB267-03 (5-7')	>50	Clay, grayish green, hard		
6								
7								
8								
9	D-3	1.2 30%			>800	becomes dark green/gray at 5.0', damp to moist		
10						becomes medium brown at 6.0' some sand greenish brown at 6.5'		
						Sandy Clay, green, gravel, wet free product, oily hydrocarbon		

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB267 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB267

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	1.2 30%			>800	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
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23							
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26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB267

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB268COORDINATES: EAST: 938327.3NORTH: 801468.8

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Sandy Loam and Gravel, gray/brown, moderately hard, broken, dry		
2								
3								
4	4.0							
5								
6				74SB268-03 (5-7')				
7								
8	8.0							
9								
10				74SB268-05 (9-11')				

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB268 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB268

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			>700		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
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26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB268

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB269COORDINATES: EAST: 938256.2NORTH: 801517.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/20/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.2 55%			<1	Silty Sand, medium brown, loose, dry gravel throughout to 0.8' , becomes light gray		
2								
3								
4								
4.0								
5	D-2	2.8 70%		74SB269-04 (7-9')	50	Sandy Clay, dark brown, stones throughout, some odor, soft, damp to moist		
6								
7								
8								
8.0								
9	D-3	3.5 88%		74SB269-05 (9-11')	>500	Silty Clay, greenish gray, very soft, damp to n		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB269 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB269

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	3.5 88%			>500	<i>Continued from Sheet 1</i>	
12						Wet at 11.0', strong hydrocarbon odor, brownish green, very soft	
13						END OF BORING at 12.0'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB269

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB270COORDINATES: EAST: 936908.7NORTH: 803491.6

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/28/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1						Sandy Loam and Gravel, gray brown, hard, di		
2						Clay, tan and red, moderately hard, damp		
3								
4	4.0					Becomes very soft at 4.0', poor recovery		
5								
6								
7								
8	8.0			74SB270-04 (7-9')				
9						becomes darker red and white, moderate soft, damp to moist		
10				74SB270-05 (9-11')				
						becomes stiffer at 10.5'		

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB270 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB270

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB270

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB271

COORDINATES EAST: 936873.6

NORTH: 803388.0

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/28/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.7 93%		74SB271-00 (0-1')	<1	Sandy Loam and Gravel, gray brown		
2						Clay, tan and red, moderately hard, damp		
3								
4						4.0		
5	D-2	4.0 100%		74SB271-03 74SB271-03D 74SB271-03MS 74SB271-03MSD (5-7')	<1	Becomes softer and sticky at 4.0', iron staining throughout, moderate soft to soft		
6								
7								
8						8.0		
9	D-3	4.0 100%		74SB271-05 (9-11')	<1	some brown to tan silt, and sand throughout the red/white clay from 8.0 to 12.0', moderate soft, damp to moist, variegated		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB271 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB271

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB271

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB272COORDINATES: EAST: 936774.5NORTH: 803386.0

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/28/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	2.8 70%			<1	Sandy Loam and Gravel, gray brown, soft, dry		
2						Sandy Clay, dark brown		
3						Silty Clay, medium yellow brown, hard dry		
4						4.0		
5	D-2	4.0 100%		74SB272-04 (7-9')	<1	Clayey Sand, medium brown, damp		
6						Sandy Clay, tan, some silt, hard, damp		
7								
8						8.0		
9	D-3	4.0 100%		74SB272-05 (9-11')	<1			
10						Saprolite, olive brown, hard, damp		

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB272 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB272

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB272

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB274

COORDINATES EAST: 936558.2

NORTH: 803388.9

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/28/08	0.0 - 12.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	3.9 98%			<1	Sandy Clay and Gravel, gray brown, hard, dry		
2						Silty Clay, brown to gray, hard to very hard, damp		
3								
4						4.0		
5	D-2	4.0 100%		74SB274-03 (5-7')	<1	Sand, greenish gray, rock fragments, hard, iron staining, damp to dry		
6								
7								
8						8.0		
9	D-3	4.0 100%		74SB274-05 (9-11')	<1	Clayey Sand, reddish brown and white, quartz sand, soft, damp		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB274 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB274

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB274

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB275COORDINATES: EAST: 936454.6NORTH: 803392.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	2.5"				5/28/08	0.0 - 8.0	85° Sunny	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	D-1	N/A			<1	Gravel and Silt, gray, hard		
2						Sandy Clay, medium brown, moderately hard iron staining, damp		
3								
4								
5	D-2	N/A	74SB275-03 74SB275-03D (5-7')	<1	Silty Clay, medium brown, some sand, moderately soft, damp			
6								
7								
8					Bedrock, light gray, very hard, weathered			
9						GEOPROBE REFUSAL at 8.0'		
10								

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez-RodriguezBAKER REP.: Joe BurawaBORING NO.: 74SB275 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB276

COORDINATES: EAST: 936354.4

NORTH: 803416.4

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/28/08	0.0 - 3.0	85° Sunny	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	D-1	3.0 75%		NO SAMPLES COLLECTED	<1	Sandy Loam and Gravel, gray brown		
2						Clay, medium to dark brown, moderate hard, damp		
3						light gray bedrock at 3'		
4						GEOPROBE REFUSAL at 3.0'		
4.0								
5								
6								
7								
8								
9								
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez-Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB276 SHEET 1 OF 1

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB277COORDINATES: EAST: 936292.1NORTH: 803502.4

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/28/08	0.0 - 6.0	80° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	S-1	3.1 78%		74SB277-02 (3-5')	<1	Gravel, gray to brown, some silt, trace clay, damp		
2								
3								
4								
4	4.0					Clay, brown, some fine gravel, trace silt, dry		
5	S-2	1.9 48%			<1	GEOPROBE REFUSAL at 6.0'		
6								
7								
8								
8	8.0							
9								
10								

DRILLING CO.: GeoEnviro Tech, Inc.DRILLER: William RodriguezBAKER REP.: Mark DeJohnBORING NO.: 74SB277 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB278

COORDINATES EAST: 803580.8

NORTH: 803580.8

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/28/08	0.0 - 7.0	80° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	S-1	3.2 80%			<1	Gravel, gray/brown, little silt, damp		
2						Saprolite, tan/brown, weathered bedrock		
3								
4						Gravel, gray		
5	S-2	3.0 75%		78SB278-03 (5-7')	<1			
6								
7								
8						GEOPROBE REFUSAL at 7.0'		
9								
10								

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB278 SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB279

COORDINATES EAST: 936170.6

NORTH: 803666.3

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/28/08	0.0 - 12.0	80° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	S-1	4.0 100%			<1	Gravel, gray, some fine grained sand, little silt, dry		
2								
3								
4								
4.0						Sand, gray brown, coarse grained, some silt, damp		
5	S-2	3.4 85%		74SB279-03 (5-7')	<1			
6								
7								
8								
8.0						Saprolite, tan/light brown, damp		
9	S-3	3.4 85%		74SB279-05 (9-11')	<1			
10								

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB279 SHEET 1 OF 2



## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB279

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-3	3.4 85%			<1	Continued from Sheet 1	
12						END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB279

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB280COORDINATES EAST: 936107.3NORTH: 803748.3

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/28/08	0.0 - 12.0	80° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	S-1	4.0 100%		74SB280-02 (3-5')	<1	Gravel, gray, some silt, fine grained, damp		
2						Clay, dark brown, little silt, trace fine gravel, damp		
3								
4						4.0		
5	S-2	3.7 93%			<1	becomes olive, trace silt, mottled, moist		
6								
7								
8						8.0		
9	S-3	3.5 88%		74SB280-05 (9-11')	<1	gravelly zone from 9.5 to 10'		
10								

DRILLING CO.: GeoEnviro Tech, Inc.DRILLER: William RodriguezBAKER REP.: Mark DeJohnBORING NO.: 74SB280 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB280

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-3	3.5				<i>Continued from Sheet 1</i>	
12		88%			<1	Saprolite, tan/gray/brown, damp	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB280

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB281COORDINATES EAST: 936068.3NORTH: 803833.3

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/28/08	0.0 - 12.0	80° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

**Remarks:**

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary    C = Core D = Direct Push    P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	4.0	S-1	4.0 100%		74SB281-00 (0-1')	<1	Gravel, gray, little fine grained sand, damp		
2							Clay, olive, trace fine sand, mottled, damp		
3									
4					74SB281-02 (3-5')				
5	8.0	S-2	3.2 80%			<1	some gravel, brown/gray (gravel), damp		
6								little silt, brown/gray & brown/black, damp	
7									
8									
9		S-3	4.0 100%		74SB281-05 74SB28-05D 74SB281-05MS 74SB281-05MSD (9-11')	<1	Bedrock, brown/rust with black vertical fracture traces, weathered, damp		
10									

DRILLING CO.: GeoEnviro Tech, Inc.DRILLER: William RodriguezBAKER REP.: Mark DeJohnBORING NO.: 74SB281 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB281

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-3	4.0				<i>Continued from Sheet 1</i>	
12		100%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB281

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB282COORDINATES: EAST: 936074.7NORTH: 803935.2

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/28/08	0.0 - 12.0	80° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	S-1	2.4 60%		74SB282-02 (3-5')	<1	Gravel, gray, coarse grained, trace silt, damp		
2						Clay, gray, little silt, trace fine gravel, damp		
3								
4						4.0		
5	S-2	3.2 80%			<1	Saprolite, gray, damp		
6								
7								
8								8.0
9	S-3	1.6 40%		74SB282-05 (9-11')	<1			
10								

DRILLING CO.: GeoEnviro Tech, Inc.DRILLER: William RodriguezBAKER REP.: Mark DeJohnBORING NO.: 74SB282 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB282

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-3	1.6 40%				<i>Continued from Sheet 1</i>	
12						fine to coarse grained gravel zone, gray, damp	
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB282

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB283COORDINATES: EAST: 936086.1NORTH: 804040.9

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2.5"				5/28/08	0.0 - 7.0	80° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	S-1	3.5 88%		74SB283-02 (3-5)	<1	Gravel, gray, fine grained, little clay, trace fine sand dry		
2								
3								
4								
4.0	S-2	3.0 75%			<1	GEOPROBE REFUSAL at 7.0'		
5								
6								
7								
8								
9								
10								

DRILLING CO.: GeoEnviro Tech, Inc.DRILLER: William RodriguezBAKER REP.: Mark DeJohnBORING NO.: 74SB283 SHEET 1 OF 1



**Baker**

Baker Environmental

**TEST BORING RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB284

COORDINATES EAST: 936084.3

NORTH: 804128.1

ELEVATION: SURFACE:

<b>Rig:</b> Geoprobe 6620 DT Track Rig					<b>Date</b>	<b>Progress (Ft.)</b>	<b>Weather</b>	<b>Depth to Water (Ft.)</b>
	<b>MC Sampler</b>	<b>Casing</b>	<b>Augers</b>	<b>Core Barrel</b>				
<b>Size (ID)</b>	2.5"				5/28/08	0.0 - 12.0	80° Cloudy	
<b>Length</b>	4'							
<b>Type</b>	Acetate							
<b>Hammer Wt.</b>								
<b>Fall</b>								
<b>Remarks:</b>								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
<b>Depth (Ft.)</b>	<b>Sample Type &amp; No.</b>	<b>Sample Rec. (Ft.,%)</b>	<b>SPT</b>	<b>Lab ID</b>	<b>PID (ppm)</b>	<b>Visual Description</b>	<b>Elevation (Ft. MSL)</b>	
1	S-1	4.0 100%		74SB284-02 (3-5')	<1	Gravel, dark brown, fine grained, little silt, damp		
2						Clay, reddish brown, trace silt, damp		
3								
4						4.0		
5	S-2	3.2 85%			<1	Bedrock, tan/light brown, weathered, damp		
6								
7								
8								8.0
9	S-3	NA		74SB284-05 (9-11')	<1	gravelly zone, gray, dry from 9.1' to 9.4'		
10								

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB284 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB284

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-3	N/A			<1	Continued from Sheet 1	
12							
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB284

SHEET 2 OF 2

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB285COORDINATES: EAST: 936088.2NORTH: 804222.3

ELEVATION: SURFACE: \_\_\_\_\_

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	2"				5/28/08	0.0 - 12.0	80° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								
Remarks:								
<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	S-1	3.8 95%		74SB285-02 (3-5')	<1	Gravel, gray, fine grained, trace clay, damp		
2						Clay, dark brown, trace silt, damp		
3								
4						4.0		Saprolite, light brown and tan, hard, damp
5	S-2	3.4 85%			<1			
6								
7								
8						8.0		
9	S-3	3.5 88%		74SB285-05 (9-11')	<1	becomes softer		
10								

DRILLING CO.: GeoEnviro Tech, Inc.DRILLER: William RodriguezBAKER REP.: Mark DeJohnBORING NO.: 74SB285 SHEET 1 OF 2

## TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB285

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-3	3.5				<i>Continued from Sheet 1</i>	
12		88%			<1		
12	12.0					END OF BORING at 12.0'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: GeoEnviro Tech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB285

SHEET 2 OF 2

**Well Construction Records**

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB05

COORDINATES: EAST: 931435.9

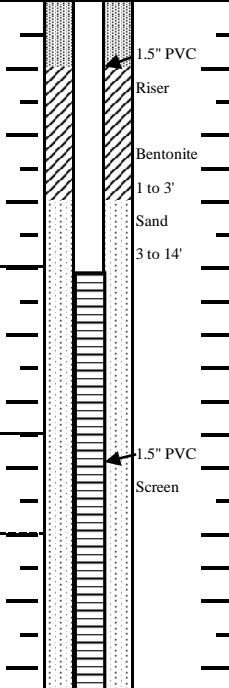
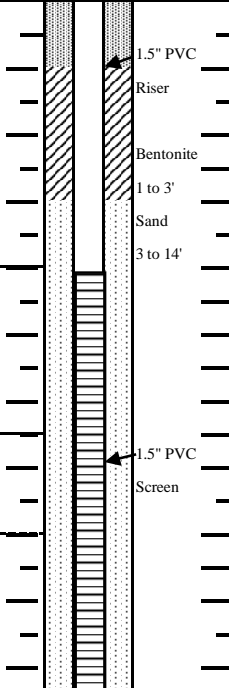
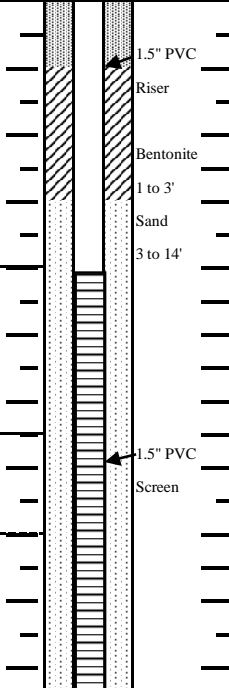
NORTH: 807972.4

ELEVATION: SURFACE: 124.58

TOP OF PVC CASING: 127.13

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	4/29/2008	0.0 - 14.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	4.0
						Schedule 40 PVC Screen	1.5"	4.0	14.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.0 75%		74SB05-01	74.0	Gravelly Clay & Silt, (Fill), fuel odor			
2				74SB05-01D (2-3')					
3									
4				74SB05-02 (3-4')					
5	D-2	2.5 63%			25.0	Gravelly Sand, little Silt & Clay, wet at 5-6'			
6									
7									
8	D-3	4.0 100%			<1	Clayey Silt, red & brown, gray mottled, dry, med-low plasticity			
9						less plasticity, more dry and dense, very tight			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB05

SHEET 1 OF 2

**Baker**

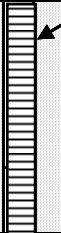
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB05

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0			<1	Continue from page 1		
12		100%						
13						Bottom of Well @ 14.0'		
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Chris Kupfer

BORING NO.: 74SB05

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB09

COORDINATES: EAST: 931112.0

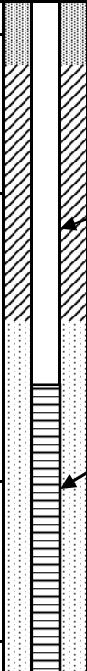
NORTH: 807735.4

ELEVATION: SURFACE: 126.30

TOP OF PVC CASING: 129.25

Rig:	Geoprobe 66DT				Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/4/2008	0.0 - 16.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	6.0
						Schedule 40 PVC Screen	1.5"	6.0	16.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.0 75%		74SB09-02 (3-5')	<1	Gravel, Sand and Clay, (Fill), medium brown, dry			
2									
3									
4	D-2	4.0 100%			<1	Silty Clay, golden brown, stiff, slight plasticity, grades more softer and more plasticity, damp to dry			
5									
6									
7	D-3	4.0 100%		74SB09-05 (9-11')	<1				
8						Grades medium brown ,moist, and more plastic with depth			
9									
10						Silty Sand with little Clay, wet			

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 74SB09

SHEET 1 OF 2



**Baker**

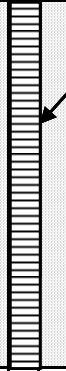
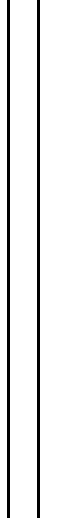
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB09

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1	 1.5" PVC Screen Sand 5 to 16'	
12	12.0	D-3 4.0 100%			<1			
13								
14	A	NA						
15								
16	16.0					Bottom of Well @ 16'		
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74SB09

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB137

COORDINATES: EAST: 937011.02

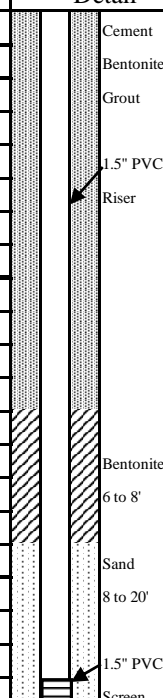
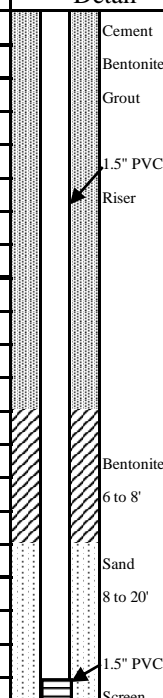
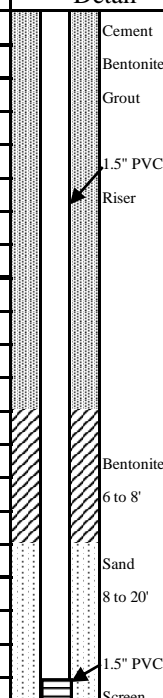
NORTH: 803929.06

ELEVATION: SURFACE:

TOP OF PVC CASING:

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/15/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.7 93%			<1	Sandy Loam and gravel to 0.7'			
2						Sandy Clay, greenish gray dry to damp moderate hard, stones			
3									
4									
5	D-2	4.0 100%		74SB137-03 (5-7')	<1	Silty Clay, dark brown, moderate hard, damp, occasional stones			
6									
7									
8									
9	D-3	4.0 100%		74SB137-04 (7-9')	<1	Sandy Clay, medium brown, gray, damp to dry, moderate soft			
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB137

SHEET 1 OF 2

**Baker**


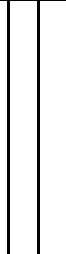
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB137

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continue from page 1		
12								
13	D-4	4.0 100%			<1	Saprolite, greenish gray, weathered rock, rock fragments, sand and clay, moist inside, moderate hard		
14								
15								
16						Some iron staining		
17	D-5	4.0 100%			<1	No hydrocarbon odor		
18								
19								
20								
21						Bottom of Well @ 20'		
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74SB137

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB145

COORDINATES: EAST: 937527.59

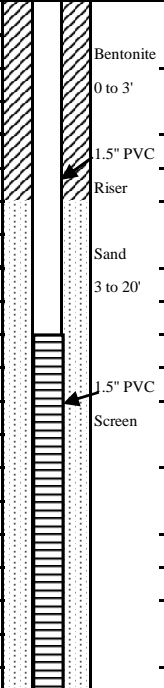
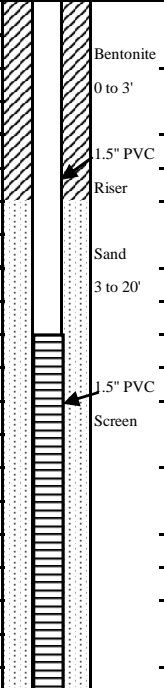
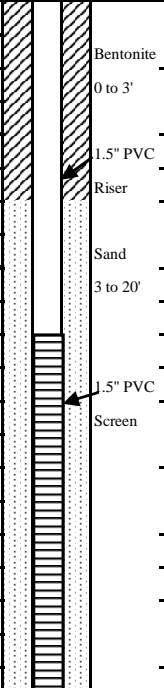
NORTH: 803887.09

ELEVATION: SURFACE: 112.34

TOP OF PVC CASING: 114.87

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/16/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	5.0
						Schedule 40 PVC Screen	1.5"	5.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Silty Clay (Fill), brown, trace fine sand, roots			
2									
3									
4						Sand, white/tan, fine-grained trace silt, dry			
5	D-2	4.0 100%			<1	Silty Clay, brown, trace fine sand			
6									
7									
8									
9	D-3	4.0 100%		74SB145-05 (9-11')	<1				
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB145

SHEET 1 OF 2

**Baker**


Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB145

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continue from page 1		
12								
13	D-4	N/A			<1	Clayey Silt, gray		
14								
15								
16								
17	D-5	N/A		74SB145-09 (17-19')	<1	becomes tan/yellowish brown		
18								
19								
20								
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB145

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

COORDINATES: EAST: 937646.68

ELEVATION: SURFACE: 109.75

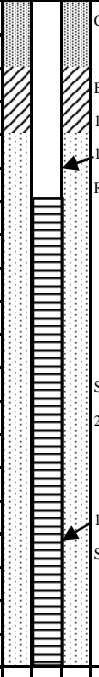
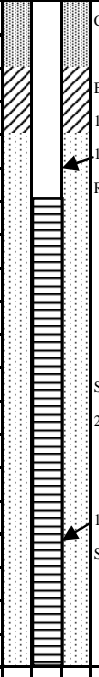
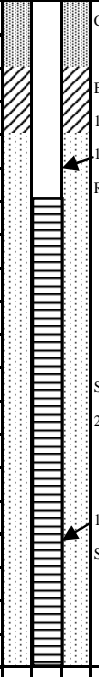
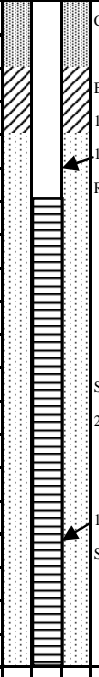
BORING NO.: 74SB151

NORTH: 803297.46

TOP OF PVC CASING: 112.37

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/15/2008	0.0 - 10.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	3.0
						Schedule 40 PVC Screen	1.5"	3.0	10.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	N/A		74SB151-00 (0-1')	<1	Silty Clay, brown, little to some fine sand, trace rock fragments			
2				74SB151-01					
3				74SB151-01D					
4				74SB151-01MS 74SB151-01MSD (1-3')					
5	D-2	N/A			<1	water at 4'			
6									
7									
8									
9	D-3	N/A			<1	Clayey Silt, blue/gray			
10									
						Bottom of Well at 10'			

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74SB151

SHEET 1 OF 1

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB22

COORDINATES: EAST: 930389.63

NORTH: 807625.80

ELEVATION: SURFACE: 134.04

TOP OF PVC CASING: 137.06

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/3/2008	0.0 - 16.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	8.0
						Schedule 40 PVC Screen	1.5"	8.0	16.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%		74SB22-00 (0-1')	<1	Silty clay, dark brown, moderate stiff, damp medium brown, silty clay with sand stiff, some gravel, damp			
2									
3									
4									
5	D-2	3.0 75%		74SB22-03 74SB22-03D 74SB22-03MS 74SB22-03MSD (5-7') 74SB22-04 (7-9')	>200	Clay, medium brown, soft damp to moist, hydrocarbon staining, some sand			
6									
7									
8									
9	D-3	2.0 50%			>300	Sandy Clay, moderate soft damp to moist			
10									
						Some light blue clay at 10.0' soft			

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB22

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB22

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston   N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	12.0	D-3	2.0 50%			>300	Continue from page 1		
12							Same sandy clay, with light blue clay, some silt, soft, damp to moist		
13									
14									
15									
16	16.0	D-4	4.0 100%			>300	Bottom of Well @ 16'		
17									
18									
19									
20									
21									
22									
23									
24									

DRILLING CO.: JFA Geological & Environmental ScientistsBAKER REP.: Joe BurawaDRILLER: Domingo Gonzalez - RodriguezBORING NO.: 74SB22SHEET 2 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB236

COORDINATES: EAST: 939989.73

NORTH: 799305.42

ELEVATION: SURFACE: 111.21

TOP OF PVC CASING: 113.95

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	3.25"	--	5/29/2008	0.0 - 15.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	5.0
						Schedule 40 PVC Screen	1.5"	5.0	15.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	S-1	1.4 35%			<1	Sand, tan/brown, fine-grained fine gravel, damp			
2						Tan; damp			
3									
4						4.0			
5	S-2	2.4 60%		74SB236-04 (7-9')	<1	trace silt, tan with brown layers, damp			
6									
7									
8						8.0			
9	S-3	2.1 53%		74SB236-05 74SB236-05D (9-11')	<1				
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB236

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB236

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						<i>Continue from page 1</i>		
12	12.0	S-3 2.1 53%			<1	Wet	Sand 3 to 15'	
13								
14		S-4 4.0 100%			<1	SIIT; trace clay; gray; moist	1.5" PVC Screen	
15								
16	16.0					Bottom of Well at 15' PEAT, dark brown, damp		
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Mark DeJohnBORING NO.: 74SB236SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB246

COORDINATES: EAST: 940226.79

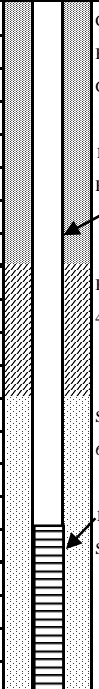
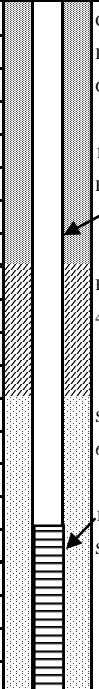
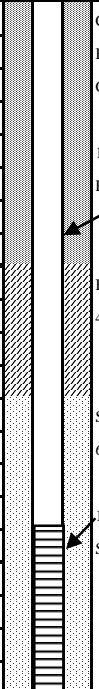
NORTH: 800121.97

ELEVATION: SURFACE: 110.66

TOP OF PVC CASING: 112.32

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	3.25"	--	5/29/2008	0.0 - 13.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	8.0
						Schedule 40 PVC Screen	1.5"	8.0	13.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	S-1	2.4 60%			<1	Gravel, gray, fine, little fine sand, trace coarse gravel and clay gray, damp			
2									
3									
4									
4.0	S-2	1.6 40%		74SB246-03 74SB246-03D (5-7')	<1	Sand, fine-grained. trace coarse sand and coral fragments, tan, damp  Wet			
5									
6									
7									
8	S-3	1.5 38%		74SB246-05 (9-11')	<1	Gravel, coarse, some fine gravel, trace coarse sand and clay, dark gray, wet			
9									
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP. Mark DeJohn




BORING NO. 74SB246

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74SB246

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-3	1.5 38%			<1	<i>Continue from page 1</i>		
12						Bedrock, broken Gabbro hard		
13	S-4	2.5 63%			<1	Bottom of Well at 13'		
14								
15								
16						Geoprobe refusal at 15.5'		
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Mark DeJohnBORING NO.: 74SB246SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB256

COORDINATES: EAST: 939419.05

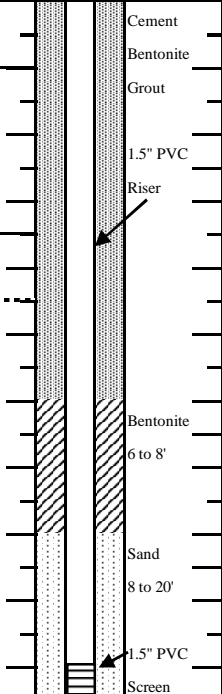
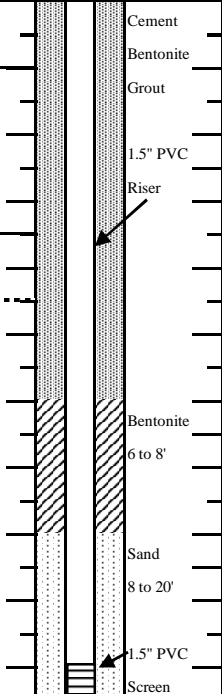
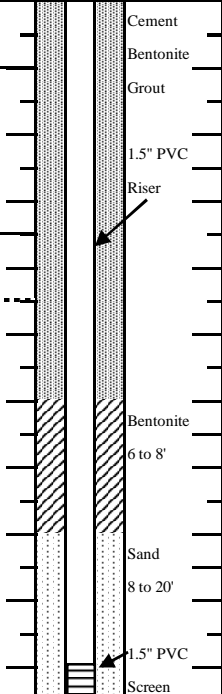
NORTH: 800695.98

ELEVATION: SURFACE: 110.87

TOP OF PVC CASING: 114.33

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	3.25"	--	5/29/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	S-1	3.0 75%			<1	Silt Loam, dark brown damp; some gravel			
2						Sand, fine and coarse grained trace clay; brown and gray layering			
3						some gravel, damp			
4						Gravel, fine and coarse, gray, hard			
5	S-2	0.7 18%		74SB256-03 74SB256-03D (5-7')	<1	Gravel, coarse, trace fine			
6						gravel and fine coarse sand, gray dry			
7									
8									
9	S-3	0.0 0%		74SB256-04 (7-9')	<1				
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB256

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB256

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-3	0.0 0%			<1	Continue from page 1		
12								
13	S-4	3.0 75%			<1	Clay; trace fine gravel and fine coarsed sand, gray, dry		
14								
15								
16								
17	S-5	4.0 100%			<1			
18								
19								
20						Peat; dark brown; moist		
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB256

SHEET 2 OF 2

# Baker

Michael Baker Jr., Inc.

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB26

COORDINATES: EAST: 930366.80

NORTH: 807549.01

ELEVATION: SURFACE: 134.16

TOP OF PVC CASING: 137.15

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/3/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.0 75%		74SB26-02 74SB26-02D (3-5')	<1 60.0	Silty Clay, dark brown, some gravel, stiff, damp			
2									
3						At 2.5' becomes dark gray, soft damp, less gravel			
4									
5	D-2	4.0 100%		(3-5')	>200	Clay, stiff, medium gray damp			
6									
7						Silty Clay, light brown and red, moderate soft, damp, plastic			
8									
9	D-3	4.0 100%		74SB26-05 (9-11')	>300				
10									

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB26

SHEET 1 OF 2

**Baker**


Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB26

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary    C = Core D = Direct Push    P = Piston    N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	12.0	D-3	4.0 100%			>300	Continue from page 1 Some blue gray clay at 11.0'		
12									
13	D-4	4.0 100%			100-500	Silty clay, some sand, moderate stiff, damp to moist			
14									
15									
16									
17	A	N/A			N/A				
18									
19									
20									
21						Bottom of Well @ 20'			
22									
23									
24									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB26

SHEET 2 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB273

COORDINATES: EAST: 936677.62

NORTH: 803390.71

ELEVATION: SURFACE: 117.50

TOP OF PVC CASING: 120.31

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/28/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Sandy Clay, some gravel, hard, loose dry			
2						saprolitic structure			
3						greenish brown and white specks			
4						Iron staining and dry to moist			
4.0	D-2	4.0 100%		74SB273-04 (7-9')	<1	At 3.5' to 4.2' more greenish gray color at 4.2' hard			
5									
6									
7									
8	D-3	4.0 100%		74SB273-05 (9-11')	<1	Rocky alternating layers of brown clay, greenish gray, hard, saprolite structure, damp, rock fragments throughout			
8.0									
9									
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB273

SHEET 1 OF 2

**Baker**

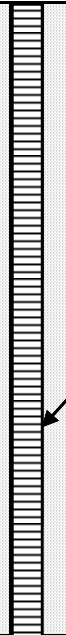
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB273

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston   N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	12.0	D-3	4.0 100%			<1	Continue from page 1		
12									
13	16.0	D-4	N/A			<1	Saprolite, damp to moist, iron staining throughout, rock fragments		
14									
15									
16									
17	20.0	D-5	N/A			<1			
18									
19									
20									
21							Bottom of Well at 20'		
22									
23									
24									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74SB273

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB285

COORDINATES: EAST: 936088.66

NORTH: 804221.65

ELEVATION: SURFACE: 133.99

TOP OF PVC CASING: 136.64

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/27/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.1 78%		74SB285-02 (3-5')	<1	Gravel, fine, trace clay, gray damp			
2						Clay, trace silt, dark brown, damp			
3						Saprolite, weathered bedrock light brown to tan, damp, soft			
4	4.0								
5	D-2	3.7 93%			200.0				
6									
7									
8	8.0								
9	D-3	4.0 100%		74SB285-05 (7-9')	200.0	softer at 9'			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB285

SHEET 1 OF 2

**Baker**

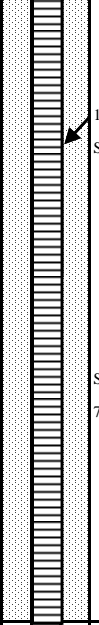
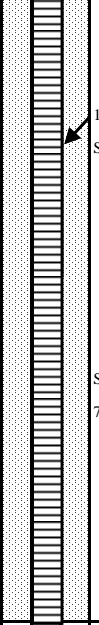
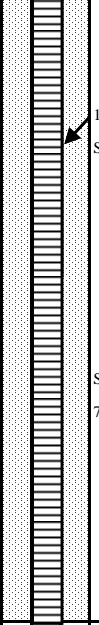
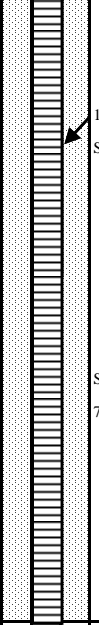
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB285

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continue from page 1 Harder at 11'		
12								
13	D-4	N/A			<1			
14								
15								
16								
17	D-5	N/A			<1			
18								
19								
20								
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: William Rodriguez

BAKER REP.: Mark DeJohn

BORING NO.: 74SB285

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB34

COORDINATES: EAST: 930669.29

NORTH: 806990.06

ELEVATION: SURFACE: 126.77

TOP OF PVC CASING: 129.13

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/3/2008	0.0 - 12.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	5.0
						Schedule 40 PVC Screen	1.5"	5.0	15.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	5.0 100%		74SB34-00	<1	Sandy Loam			
2				74SB34-00MS		Clay, light gray, with silt, mottled damp, stiff, low plasticity			
3				74SB34-00MSD (0-1')					
4				74SB34-01 (1-3')					
5	D-2	5.0 100%		74SB34-02 (3-5')	<1	medium stiff, medium plasticity damp to moist, light gray to maroon			
6									
7									
8									
9									
10						little silt, moist, maroon and little gray, mottled			

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74SB34

SHEET 1 OF 2

**Baker**

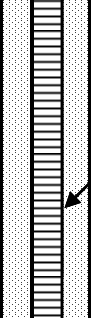
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB34

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1		
12	D-3	3.0 100%		N/A	<1			
13	13.0							
14								
15	A	N/A		N/A				
15.5						Bottom of Well @ 15.5'		
16								
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74SB34

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB57

COORDINATES: EAST: 932795.00

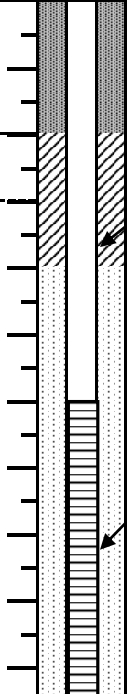
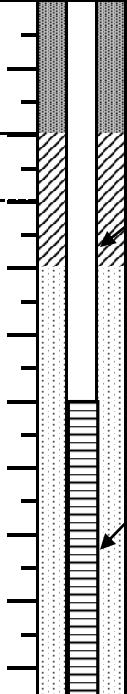
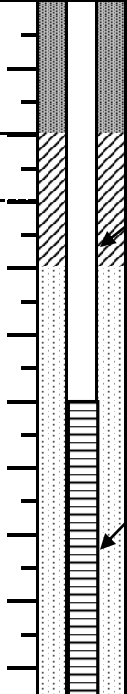
NORTH: 806955.00

ELEVATION: SURFACE: 112.69

TOP OF PVC CASING: 115.33

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/4/2008	0.0 - 11.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	6.0
						Schedule 40 PVC Screen	1.5"	6.0	11.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Clayey Silt, medium brown some gravel			
2									
3						Silty Clay, brownish red, medium stiff, medium plasticity			
4						soft, more plastic			
5	D-2	4.0 100%		74SB57-03 (5-7')	<1	At 4.0 to 4.5' also softer			
6									
7									
8						8.0 to 9.0' soft zone			
9	D-3	4.0 100%		74SB57-04 (7-9')	<1	Some density, little plastic			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74SB57

SHEET 1 OF 2

**Baker**



Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB57

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0				Continue from page 1		
12	12.0	100%			<1	Bottom of well @ 11.0'		
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74SB57

SHEET 2 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB74

COORDINATES: EAST: 933946.18

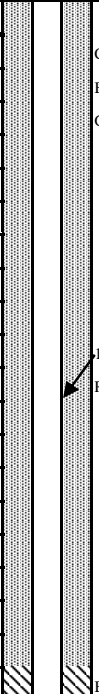
NORTH: 805713.62

ELEVATION: SURFACE: 111.11

TOP OF PVC CASING: 113.89

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/28/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	14.0
						Schedule 40 PVC Screen	1.5"	14.0	24.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Sandy Clay			
2						Silt, trace small gravel, dry, well sorted, light to medium brown			
3									
4						Grades little clay, dense, stiff, dry friable			
5	D-2	3.0 75%		74SB74-03 (5-7')	<1				
6									
7									
8						Grades trace small pea sized gravel stiff, dry, friable, dense			
9	D-3	2.0 50%			<1				
10						Very hard, silt			

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB74

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB74

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						<i>Continue from page 1</i>		
12	12.0	D-3 2.0 50%			<1			
13						Sandy Clay, medium to light brown, pebbles throughout, light gray precipitate, moderate hard		
14		D-4 N/A			<1			
15								
16	16.0							
17						visibly moist to wet from 16.0 to 17.0' and 20. to 21.5'		
18		D-5 N/A			<1			
19								
20	20.0							
21								
22		D-6 N/A			<1			
23								
24	24.0							
25						Bottom of Well at 24'		
26								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74SB74

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB84

COORDINATES: EAST: 934910.54

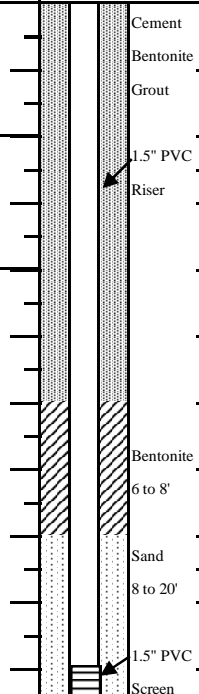
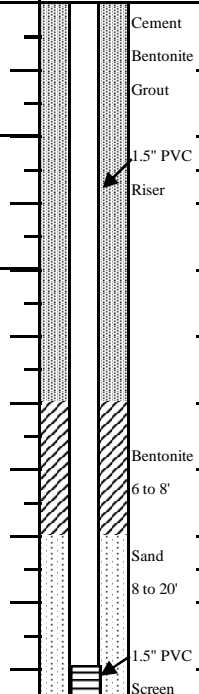
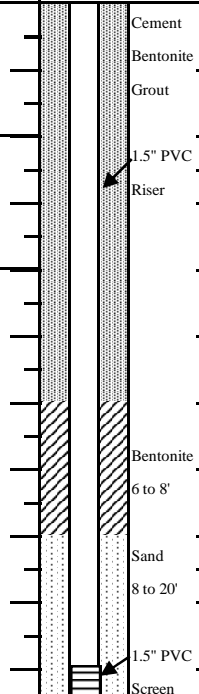
NORTH: 805325.28

ELEVATION: SURFACE: 108.29

TOP OF PVC CASING: 111.49

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/14/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<div>SAMPLE TYPE</div> <div>S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample</div>						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Riser						1.5"	0	10.0	
Schedule 40 PVC Screen						1.5"	10.0	20.0	
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	4.0	D-1	2.2 55%			<1	Sandy loam and gravel		
2									
3									
4									
5	8.0	D-2	2.8 70%		74SB84-03 (5-7')	15to30	Silty Clay, greenish black, very soft, moist, some sand		
6									
7									
8									
9		D-3	4.0 100%			<1			
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74SB84

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB84

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%			<1	Continue from page 1		
12								
13	D-4	3.0 75%			<1	Clay, with some silt very soft, sticky, moist		
14								
15								
16								
17	D-5	3.4 85%			<1			
18								
19								
20								
21						Bottom of Well @ 20'		
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74SB84

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP1Ab/9

COORDINATES: EAST: 935196.05

NORTH: 806138.41

ELEVATION: SURFACE: 117.03

TOP OF PVC CASING: 119.32

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/13/2008	0.0 - 22.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	7.0
						Schedule 40 PVC Screen	1.5"	7.0	22.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.1 78%		N	<1	Sand, fine grained some silt & clay, brown			
2				S					
3				A					
4				M					
4.0				P		Sand, little silt, dry, white/tan, light brown			
5	D-2	3.7 93%		E	<1				
6				S					
7				C		Clayey Silt, trace fine sand, slightly moist, brown			
8				O					
8.0				L					
9	D-3	4.0 100%		E	<1				
10				D		becomes green/white at 9'			

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP1Ab/9

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1Ab/9

<b>SAMPLE TYPE</b>						<b>DEFINITIONS</b>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						<i>Continue from page 1</i>		
12	12.0	D-3 4.0 100%			<1	becomes very hard at 12'		
13								
14		D-4			3.4 4.0			
15								
16	16.0				<1			
17					2.4 58.0			
18		D-5						
19					185.0 1733.0			
20	20.0				234.0 1.4			
21		D-6			<1			
22						Silty Clay, brown , hard		
23						Bottom of Well at 22'		
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP1Ab/9

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP1Ba/9

COORDINATES: EAST: 935077.91

NORTH: 806095.08

ELEVATION: SURFACE: 116.42

TOP OF PVC CASING 119.37

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/13/2008	0.0 - 22.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	12.0
						Schedule 40 PVC Screen	1.5"	12.0	22.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Sandy Loam, brown			
2						Sand, fine grained, some silt, white/light brown			
3									
4									
5	D-2	4.0 100%			<1				
6									
7									
8						Clayey Silt, trace of fine sand slightly moist, brown			
9	D-3	4.0 100%		74GWVP1Ba/9-05 74GWVP1Ba/9-05D (9-11)	<1				
10						becomes green/white			

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74VP1Ba/9 SHEET 1 OF 2

**Baker**

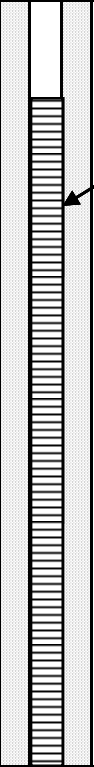
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1Ba/9

<b>SAMPLE TYPE</b>						<b>DEFINITIONS</b>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1		
12	12.0	D-3 4.0 100%			<1			
13								
14		D-4 4.0 100%			3.4 4.0			
15								
16	16.0				<1			
17				74GWVP1Ba/9-09	2.4			
18		D-5 4.0 100%		(17-19)	<1			
19					185.0			
20	20.0				~1733 234.0 1.4			
21		D-6 N/A						
22	22.0					Silty Clay, hard, brown		
23						Bottom of Well at 22'		
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Birawa

BORING NO.: 74VP1Ba/9

SHEET 2 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP1Bb/9

COORDINATES: EAST: 935060.06

NORTH: 806107.46

ELEVATION: SURFACE: 115.77

TOP OF PVC CASING: 118.57

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/28/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	14.0
						Schedule 40 PVC Screen	1.5"	14.0	24.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.5 88%			<1	Silt Loam, dark brown			
2						Sandy Clay, brown, pebbles, damp to dry			
3						Silty Clay, dark brown, dry moderate hard			
4						Clayey Sand, light brown, moderate soft, dry to damp			
5	D-2	4.0 100%			<1				
6									
7									
8						Sandy Clay, greenish gray moderately hard, some silt, damp			
9	D-3	4.0 100%			60.0				
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74VP1Bb/9

SHEET 1 OF 2

**Baker**

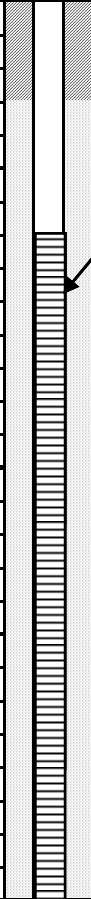
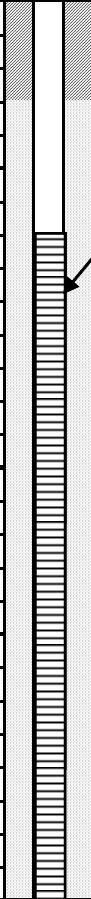
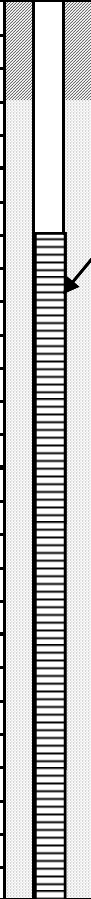
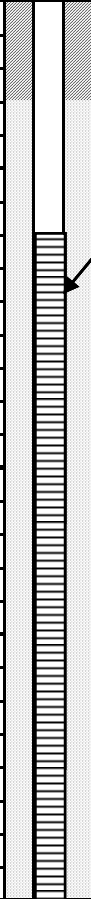
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1Bb/9

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%			20.0	Continue from page 1		
12								
13	D-4	4.0 100%			>200	Silty Clay, brown, stiff, damp to moist		
14								
15								
16	D-5	4.0 100%			>300	Silty Clay, brown to greenish gray, moist soft, hydrocarbon odor		
17								
18								
19								
20	D-6	4.0 100%			>300	Sandy Clay, very soft to soft, moist to wet, swelling clay		
21								
22								
23								
24								
25						Bottom of Well at 24'		

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74VP1Bb/9

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP1Ca/9

COORDINATES: EAST: 935276.7

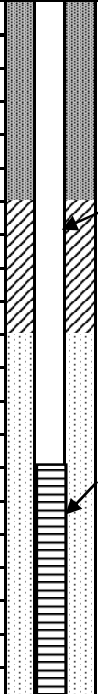
NORTH: 806137.2

ELEVATION: SURFACE: 114.75

TOP OF PVC CASING: 117.34

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/6/2008	0.0 - 24.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	12.0
						Schedule 40 PVC Screen	1.5"	12.0	22.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	N/A			<1	Sand, brown, silt, fine sand, clay			
2						SILT, fine sand, little clay, tan and brown, dry to damp			
3									
4									
5									
5.0									
6	D-2	N/A			<1	SILT, fine sand, little clay, tan and brown, dry to damp, fill, light gray			
7						SILT, fine sand, dark gray and olive			
8									
9						Maroon CLAY, white beach sand			
10						FILL, dry to damp			
10.0									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP1Ca/9

SHEET 1 OF 2

**Baker**

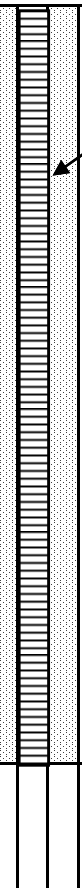
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1Ca/9

<b>SAMPLE TYPE</b>						<b>DEFINITIONS</b>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	5.0 100%			30 to 800	Continue from page 1		
12						FILL, maroon clay, olive silts and sand, slight odor		
13								
14								
15	15							
16	D-4	4.0 100%			90 to 900	FILL, maroon clay, olive silts and sand, slight odor		
17								
18								
19								
19.0								
20	D-5	5.0 100%			50+  <1	FILL, maroon clay, olive silts and sand, slight odor, saturated		
21								
22						NATIVE, SILT and CLAY, yellow and orange/tan, mottled		
23						Bottom of Well at 22'		
24	24.0							

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP1Ca/9

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP1Cb/9

COORDINATES: EAST: 935255.2

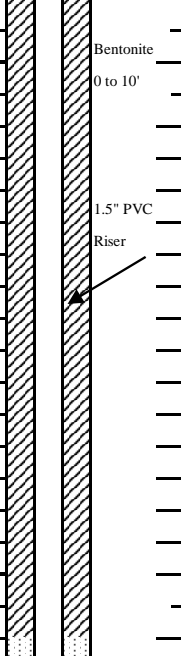
NORTH: 806149.9

ELEVATION: SURFACE: 116.30

TOP OF PVC CASING: 118.79

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/7/2008	0.0 - 22.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks: PID Malfunction, petro odor throughout last 10 feet

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	12.0
						Schedule 40 PVC Screen	1.5"	12.0	22.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.2 84%		74GWVP1Cb/9-02 (3-5')	<1	Sandy Clay, dark brown			
2						Clay (Fill), yellow and tan, some medium sand, dry to damp			
3									
4									
5	D-2	5.0 100%		74GWVP1Cb/9-04 (7-9')	<1				
6									
7									
8									
9									
10						Sand, greenish gray, some small white shells, damp			

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP. Robert Roselius

BORING NO. 74VP1Cb/9

SHEET 1 OF 2

**Baker**

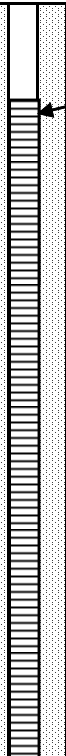
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1Cb/9

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston   N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11		D-3	3.4 68%			<1	Continue from page 1		
12							Gravel, light gray to white fine grained		
13							Clay and Silt, olive gray mottled		
14									
15									
16		D-4	5.0 100%			<1	becomes wet at 15'		
17							petroleum odor noted		
18									
19									
20									
21		A	N/A			<1			
22									
23							Bottom of Well at 22'		
24									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP1Cb/9

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP2a/9

COORDINATES: EAST: 935874.3757

NORTH: 806831.834

ELEVATION: SURFACE: 119.62

TOP OF PVC CASING:

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/14/2008	0.0 - 24.0	85° Sunny	
Length	4'	--	5"	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	12.0
						Schedule 40 PVC Screen	1.5"	12.0	22.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	N/A			<1	Silty Clay (Fill), trace fine sand, visible moisture, brown			
2									
3									
4									
5	D-2	N/A			<1	Sand, light brown/tan, fine grained some silty clay; dry			
6									
7									
8									
9	D-3	N/A			<1	Silt, light brown/tan, trace fine sand, dry to visible moist			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP2a/9

SHEET 1 OF 2

**Baker**

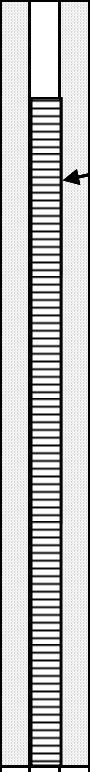
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP2a/9

<b>SAMPLE TYPE</b>						<b>DEFINITIONS</b>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						<i>Continue from page 1</i>		
12	12.0	D-3	N/A		<1	Silty clay, trace fine sand		
13						green/white, saprolitic structure		
14		D-4	N/A		1.6			
15				74GWVP2a/9-08 (15-17')	806.0			
16	16.0				917.0			
17					496.0			
18		D-5	N/A		~1185			
19					~2246			
20	20.0			74GWVP2a/9-10 (19-21')	~2375			
21		D-6	N/A		~1139			
22	22.0				271.0			
23					517.0			
24	24.0				716.0			
					13.3			
					30.9			
					17.3			
					45.2			
					48.6			
					13.0			
						Bottom of Well at 22'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP2a/9

SHEET 2 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP2b/9

COORDINATES: EAST: 935854.9962

NORTH: 806837.5166

ELEVATION: SURFACE: 119.70

TOP OF PVC CASING:

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/14/2008	0.0 - 22.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	12.0
						Schedule 40 PVC Screen	1.5"	12.0	22.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	N/A		N	<1	Silty Clay, dark brown, trace fine sand, (Fill)			
2				S					
3				A					
4				M					
4.0	D-2	N/A		P	<1	Clayey Silt, trace fine sand trace fine gravel, rock fragments gray/light green			
5				L					
6				E					
7				S					
8	D-3	N/A		C	<1				
8.0				O					
9				L					
10				E					

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP2b/9

SHEET 1 OF 2

**Baker**

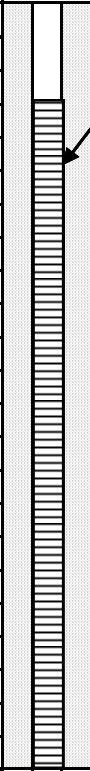
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP2b/9

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary    C = Core D = Direct Push    P = Piston    N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	12.0	D-3	N/A			72.6	Continue from page 1 Silty Clay, trace fine sand, green, slight odor		
12						22.4			
13	16.0	D-4	N/A			<1	becomes light green/brown white		
14									
15									
16									
17	20.0	D-5	N/A			8.8	becomes moist		
18						155.0			
19						49.0			
20						<1			
21	22.0	D-6	N/A			<1			
22									
23							Bottom of Well at 22'		
24									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP2b/9

SHEET 2 OF 2

# Baker

Michael Baker Jr., Inc.

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP05a

COORDINATES: EAST: 937104.9

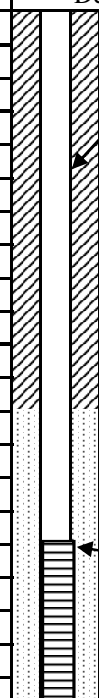
NORTH: 804638.3

ELEVATION: SURFACE: 124.35

TOP OF PVC CASING: 126.84

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/16/2008	0.0 - 23.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	8.0
						Schedule 40 PVC Screen	1.5"	8.0	23.0
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1		D-1	4.0 100%			<1	Silty Clay (Fill), trace fine sand brown		
2							Sand, fine grained, some silty clay dry, brown/medium brown		
3									
4	4.0								
5		D-2	4.0 100%		74GWVP05a-04 (7-9')	<1	Silty Clay, brown, dry		
6									
7									
8	8.0								
9		D-3	4.0 100%			<1	trace fine sand, slightly moist, tan/light brown/yellowish brown		
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP05a

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP05a

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1		
12	D-3				<1			
13								
14	D-4				<1			
15								
16								
17								
18	D-5			74GWVP05a-09 (17-19')	<1			
19								
20								
21								
22	D-6				<1			
23								
24						Bottom of Well at 23'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP05a

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP05b

COORDINATES: EAST: 937093.3

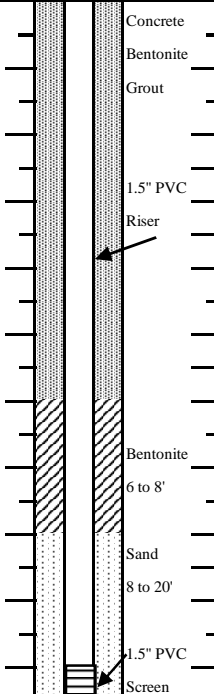
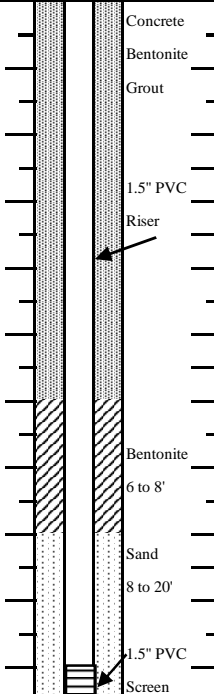
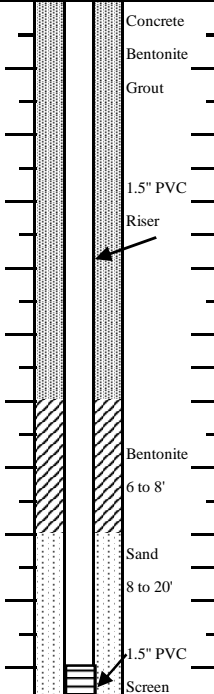
NORTH: 804655.1

ELEVATION: SURFACE: 123.92

TOP OF PVC CASING: 126.51

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/16/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1			N	<1	Silty Clay (Fill), trace fine sand trace fine rock fragments, brown			
2				O					
3				S					
4				A					
5	D-2			M	<1	becomes dark brown			
6				P					
7				L					
8				E					
9	D-3			C	<1	becomes brown/yellowish brown			
10				T					

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP05b

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP05b

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3				<1	Continue from page 1		
12								
13								
14	D-4				<1	becomes brown		
15								
16								
17	D-5				<1	becomes brown/yellowish brown		
18								
19								
20								
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP05b

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP6Aa

COORDINATES: EAST: 938049.2

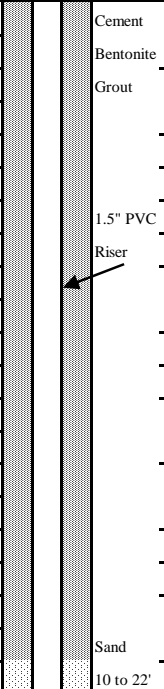
NORTH: 804219.2

ELEVATION: SURFACE: 124.21

TOP OF PVC CASING: 127.81

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/17/2008	0.0 - 22.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	12.0
						Schedule 40 PVC Screen	1.5"	12.0	22.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1				<1	Silty Clay (Fill), trace fine sand, rock fragments, dry, brown			
2									
3									
4									
4.0	D-2			74GWVP6Aa-04 (7-9')	<1	light brown/tan			
5									
6									
7									
8	D-3				<1				
8.0									
9									
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP6Aa

SHEET 1 OF 2

**Baker**

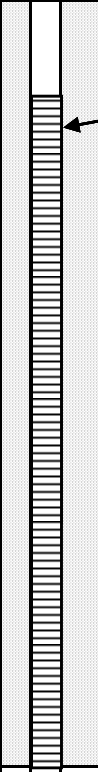
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP6Aa

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1		
12	D-3				<1			
13								
14	D-4			74GWVP6Aa-07 (13-15')	<1			
15						SOFTER from 16.0 to 19.0'		
16								
17								
18	D-5				<1			
19						Clayey Silt, trace rock fragments, brown		
20								
21	A	N/A				Bottom of Well at 22'		
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP6Aa

SHEET 2 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP6Ab

COORDINATES: EAST: 938092.6

NORTH: 804252.3

ELEVATION: SURFACE: 122.61

TOP OF PVC CASING: 125.26

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/19/2008	0.0 - 16.5	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<div>SAMPLE TYPE</div> <div>S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample</div>						WELL INFORMATION				
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)	
Schedule 40 PVC Riser						1.5"	0	6.5		
Schedule 40 PVC Screen						1.5"	6.5	16.5		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	4.0	D-1	N/A		N	1.3	Silty Clay, brown/medium brown  Clayey Silt, reddish brown, some silt, dry			
2					O	0.4				
3					S	14.2				
4					A	27.7				
5		D-2	N/A		M	8.2	quartz fragments at 8.0'			
6					P	8.5				
7					L	6.4				
8					E	1.8				
9		D-3	N/A		E	1.3				
10					S	1.9				
					C	4.7				
					O	3.4				
					L	<1				
					E	<1				
					D	<1				

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP6Ab

SHEET 1 OF 2

**Baker**

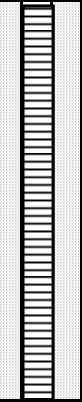
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP6Ab

<b>SAMPLE TYPE</b>						<b>DEFINITIONS</b>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	N/A			<1	Continue from page 1		
12						Brown/reddish brown/red		
13	D-4	N/A			<1	brown/yellowish brown/tan		
14						rock fragments, moist		
15						Sand, rock fragments, moist		
16	A	NA			<1	Silty Clay, green/white trace		
16.5						fine sand, hard, moist		
17						Bottom of Well at 16.5'		
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP6Ab

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP6Ba

COORDINATES: EAST: 938922.0

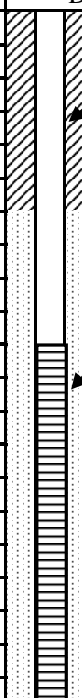
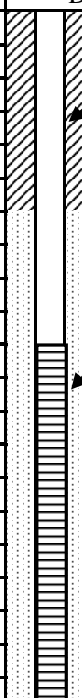
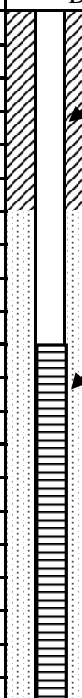
NORTH: 804368.9

ELEVATION: SURFACE: 113.53

TOP OF PVC CASING: 115.94

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/17/2008	0.0 - 15.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	5.0
						Schedule 40 PVC Screen	1.5"	5.0	15.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	N/A			<1	Sandy Clay, dark brown			
2						Sand, brown/light brown/tan			
3						little clayey silt, fine grained, dry			
4									
5	D-2	N/A		74GWVP6Ba-03 (5-7')	<1	Silty Clay, brown			
6									
7				74GWVP6Ba-04 (7-9')		Clayey Silt, brown/tan/light			
8						trace fine sand, clayier zone at 9.0'			
9	D-3	N/A			<1	Wet at 9.0'			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf



BORING NO.: 74VP6Ba

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP6Ba

<b><u>SAMPLE TYPE</u></b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b><u>DEFINITIONS</u></b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1		
12	D-3	N/A			<1			
13								
14	A	N/A			<1			
15						Bottom of Well at 15'		
16								
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74VP6BaSHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP6Ca

COORDINATES: EAST: 939451.0

NORTH: 804630.1

ELEVATION: SURFACE: 119.35

TOP OF PVC CASING: 121.98

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/17/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary    C = Core D = Direct Push    P = Piston N = No Sample						WELL INFORMATION						
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)			
Schedule 40 PVC Riser						1.5"	0	10.0				
Schedule 40 PVC Screen						1.5"	10.0	20.0				
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)			
1	4.0	D-1			N	<1	Silty Clay (Fill), brown/light brown fine sand and fine gravel, rock fragments, dry					
2					O							
3					S		Clayey Silt, light brown, some fine sand, dry					
4					A							
5		D-2			M	<1						
6					P							
7					L							
8					E							
9		D-3			S	<1	Silty Clay, brown					
10					C							
					T	<1	Wet at 9.0'					
					E							
					D	<1	Clayey Silt, green/white thin fine sand seams					

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP6Ca

SHEET 1 OF 2

**Baker**

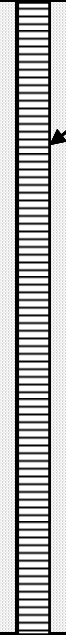
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP6Ca

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3				<1	Continue from page 1		
12								
13	D-4				<1	brown		
14						trace fine sand		
15						green		
16								
17	D-5				<1			
18						brown/red		
19								
20								
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP6Ca

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP6Cb

COORDINATES: EAST: 939448.0

NORTH: 804654.3

ELEVATION: SURFACE: 118.46

TOP OF PVC CASING: 121.29

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/17/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	N/A			<1	Sand (Fill), brown fine grained, rock fragments, dry			
2						Silty Clay, trace fine sand, dry, thin rock fragment zones, dry to visibly moist			
3									
4									
5	D-2	N/A		74GWVP6Cb-04 (7-9')	<1	brown/reddish brown, dry to visibly moist			
6									
7									
8									
9	D-3	N/A			<1	Clayey Silt, brown/tan/yellow trace fine sand			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP6Cb

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP6Cb

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11								
12	12.0	D-3	N/A		<1	Continue from page 1 green/white		
13								
14		D-4	N/A	74GWVP6Cb-07 (13-15')	<1	Wet at 13.5' green/white		
15								
16	16.0							
17								
18		D-5	N/A		<1	Silt, brownish red, damp to moist		
19								
20	20.0							
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NunezBAKER REP.: Ed KleinkaufBORING NO.: 74VP6CbSHEET 2 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP07b

COORDINATES: EAST: \_\_\_\_\_

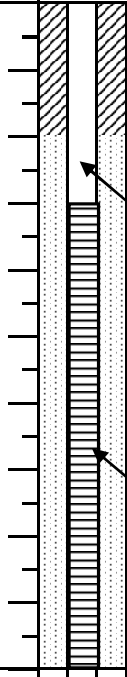
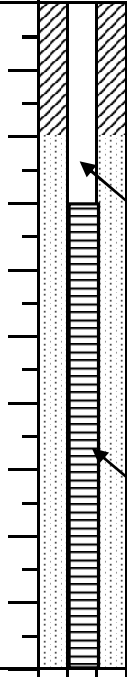
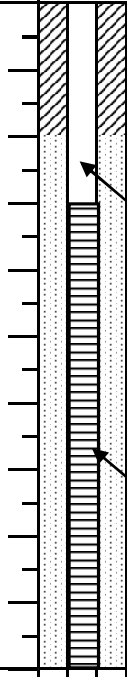
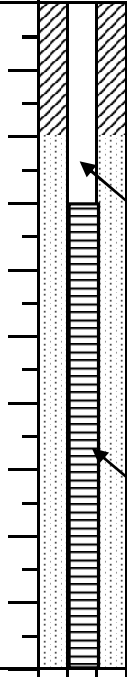
NORTH: \_\_\_\_\_

ELEVATION: SURFACE: \_\_\_\_\_

TOP OF PVC CASING: \_\_\_\_\_

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/15/2008	0.0 - 10.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<div>SAMPLE TYPE</div> <div>S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample</div>						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Riser						1.5"	0	3.0	
Schedule 40 PVC Screen						1.5"	3.0	10.0	
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	4.0	D-1	N/A		N	<1	Silty clay, trace fine sand, brown		
2					S		Silt, clayey silt, trace fine coarse		
3					A		sand, rock fragments, tan		
4					M				
5	8.0	D-2	N/A		E	<1	Groundwater at 4'		
6					S		Silt, clayey silt, trace fine coarse		
7					C		sand, rock fragments, tan		
8					O				
9		D-3	N/A		L	<1	Silty clay, red/brown/blue		
10					L				
					E		Silty clay, blue		
					C				
					T				
					E				
					D				
							Bottom of well at 10'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP07b

SHEET 1 OF 1

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP08a

COORDINATES: EAST: 937489.3

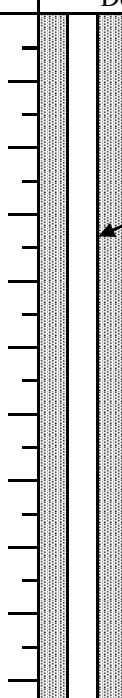
NORTH: 802589.1

ELEVATION: SURFACE: 115.24

TOP OF PVC CASING: 117.84

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/16/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<div>SAMPLE TYPE</div> <div>S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample</div>						WELL INFORMATION					
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)		
Schedule 40 PVC Riser						1.5"	0	14.5			
Schedule 40 PVC Screen						1.5"	14.5	24.5			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
1	4.0	D-1	N/A			<1	Silty Clay (Fill), trace fine sand trace fine gravel, rock fragments, brown/dark brown				
2											
3											
4											
5		D-2	N/A			<1	Low recovery (~18")				
6											
7											
8											
9		D-3	N/A			<1					
10											

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP08a

SHEET 1 OF 2

**Baker**

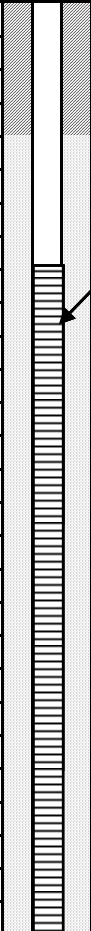
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP08a

<b>SAMPLE TYPE</b>						<b>DEFINITIONS</b>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1     Silty Clay, brown     more silt		
12	12.0	D-3	N/A		<1			
13								
14		D-4	N/A	74GWVP08a-07 (13-15')	<1			
15								
16	16.0				731.0 8.2			
17								
18		D-5	N/A		<1			
19								
20	20.0			74GWVP08a-10 (19-21')				
21								
22		D-6	N/A		<1			
23								
24	24.0							
	24.5	A	NA					
25						Bottom of Well at 24.5'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP08a

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP08b

COORDINATES: EAST: 937477.3


NORTH: 802616.0

ELEVATION: SURFACE: 114.34

TOP OF PVC CASING: 116.98

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/15/2008	0.0 - 24.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary    C = Core D = Direct Push    P = Piston N = No Sample						WELL INFORMATION				
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)	
Schedule 40 PVC Riser						1.5"	0	14.0		
Schedule 40 PVC Screen						1.5"	14.0	24.0		
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	4.0	D-1	N/A		N O	<1	Silty Clay (Fill), brown/reddish brown, trace fine sand, dry		Concrete Bentonite Grout	
2										
3										
4										
5	8.0	D-2	N/A		E S	<1	less to no sand			
6										
7										
8										
9		D-3	N/A		C T E D	5.6	Clayey Silt, green			
10						15.0				
								Bentonite	10 to 12'	

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP. Ed Kleinkauf

BORING NO. 74VP08b

SHEET 1 OF 2

**Baker**

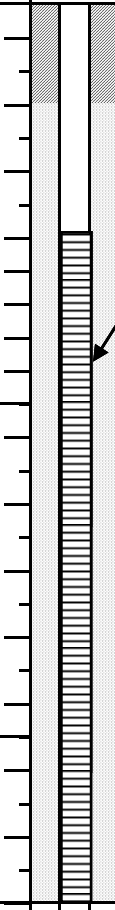
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP08b

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston   N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	12.0	D-3	N/A			75.0	Continue from page 1		
12						~1164			
13	D-4	N/A			518.0 320.0 262.0 204.0 129.0				
14									
15									
16					<1	Brown/tan/yellowish brown			
17	D-5	N/A				Silty Clay, brown			
18					trace fine sand				
19					<1	brown/tan/light gray trace of rock fragments			
20									
21	D-6	N/A				red/brown			
22					<1	Clayey Silt, gray/brown/red			
23									
24									
25							Bottom of Well at 24'		

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nunez

BAKER REP.: Ed Kleinkauf

BORING NO.: 74VP08b

SHEET 2 OF 2

# Baker

Michael Baker Jr., Inc.

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Naval Activity Puerto Rico - SWMU 74			BORING NO.:	74VP9a/JP5 HILL
PROJ. NO.:	111626			NORTH:	804180.9
COORDINATES:	EAST:	937074.7		TOP OF PVC CASING:	140.04
ELEVATION:	SURFACE:	137.04			

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/28/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.8 95%		N	2 to 5	Silty Loam, some gravel			
2				O		Sandy Clay, medium brown, dry, broken			
3				S					
4				A					
5	D-2	4.0 100%		M	20 to 30				
6				P					
7				L					
8				E		Saprolite, medium green, sandy clay, damp			
9	D-3	2.8 70%		C	200.0				
10				T					

DRILLING CO.: JFA Geological & Environmental Scientists  
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa  
 BORING NO.: 74VP9a/JP5 HILL SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP9a/JP5 HILL

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1  Becomes moist at 14.0'		
12	12.0	D-3 2.8 70%			200.0			
13								
14		D-4 2.7 68%			500.0			
15								
16	16.0					Bottom of Well at 20'		
17								
18		D-5 3.2 80%			500.0			
19								
20	20.0							
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74VP9a/JP5 HILL

SHEET 2 OF 2

# Baker

Michael Baker Jr., Inc.

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP9b/JP5 HILL

COORDINATES: EAST: 937104.9

NORTH: 804227.2

ELEVATION: SURFACE: 136.39

TOP OF PVC CASING: 139.27

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/16/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			5.0	Sandy Loam and Gravel			
2						Sandy Clay, greenish brown, cobbles, damp to dry, moderate hard			
3									
4									
5	D-2	4.0 100%		74GWVP9b/JP5-03 (5-7')	90.0	Saprolite, greenish gray rock fragments throughout			
6									
7									
8									
9	D-3	4.0 100%		74GWVP9b/JP5-05 (9-11')	200.0	Moderate hard to hard depending on rock content			
10									

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

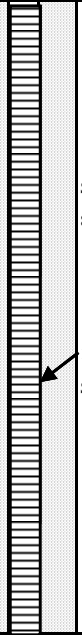
BORING NO.: 74VP9b/JP5 HILL SHEET 1 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP9b/JP5 HILL

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%			200.0	Continue from page 1		
12								
13	D-4	4.0 100%			300.0	Damp to moist at 12.0'		
14						Hydrocarbon odor		
15								
16								
17	D-5	4.0 100%			300.0			
18								
19								
20								
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: JFA Geological & Environmental ScientistsBAKER REP.: Joe BurawaDRILLER: Domingo Gonzalez - RodriguezBORING NO.: 74VP9b/JP5 HILLSHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP10a/DFM

COORDINATES: EAST: 937510.5

NORTH: 802451.0

ELEVATION: SURFACE: 117.68

TOP OF PVC CASING: 120.67

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/28/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	11.0
						Schedule 40 PVC Screen	1.5"	11.0	21.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.5 88%		N O	~10	Silty Loam, dark brown, damp moderate soft			
2				S		Sandy Clay, light brown, fine grained sand, moderate soft, damp			
3				A					
4				M					
5	D-2	3.8 95%		P	~30				
6				L					
7				E		Silty Clay, some sand, greenish gray, hard			
8				S					
9	D-3	4.0 100%		C	~90				
10				T					

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 74VP10a/DFM

SHEET 1 OF 2

**Baker**





Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP10a/DFM

<b>SAMPLE TYPE</b>						<b>DEFINITIONS</b>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%			~90	Continue from page 1		
12						Sandy Silt, some clay damp to moist		
13	D-4	4.0 100%			>3000	Saprolite, strong hydrocarbon odor, greenish gray and white		
14								
15								
16								
17	D-5	4.0 100%			~900	Becomes olive green and white at 18.3'		
18								
19								
20								
21	A	NA						
22						Bottom of Well at 21'		
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74VP10a/DFM

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP10a/JP5 HILL

COORDINATES: EAST: 937020.6

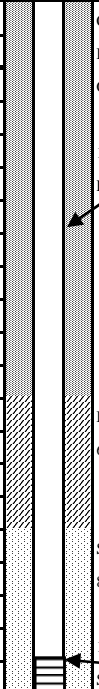
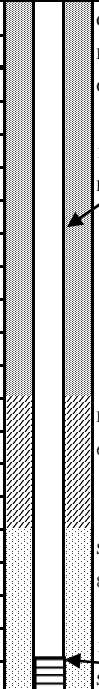
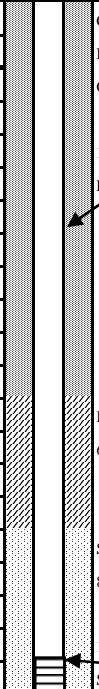
NORTH: 803895.4

ELEVATION: SURFACE: 131.93

TOP OF PVC CASING: 134.86

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/16/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			15.0	Sandy Loam			
2						Sandy Clay, medium gray brown, damp to dry, some stones throughout, moderate hard			
3									
4									
5	D-2	4.0 100%		74GWVP10a/JP5-04 (7-9')	2.0				
6						dark green and gray, soft, damp			
7									
8									
9	D-3	4.0 100%		74GWVP10a/JP5-05 (9-11')	150.0	some gravel			
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

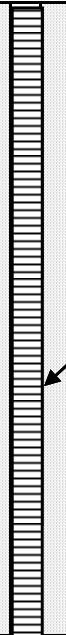
BORING NO. 74VP10a/JP5 HILL

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP10a/JP5 HILL

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston   N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	12.0	D-3	3.4 85%			150.0	Continue from page 1 wet at 11.5		
12									
13	D-4	1.2 30%			500.0	gravel, soft, wet/moist, some silt			
14									
15									
16									
17	D-5	2.0 50%			2.0				
18									
19									
20									
21						Bottom of Well at 20'			
22									
23									
24									

DRILLING CO.: JFA Geological & Environmental ScientistsBAKER REP.: Joe BurawaDRILLER: Domingo Gonzalez - RodriguezBORING NO.: 74VP10a/JP5 HILLSHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP10b/DFM

COORDINATES: EAST: 937519.3

NORTH: 802433.4

ELEVATION: SURFACE: 120.30

TOP OF PVC CASING: 123.02

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/17/2008	0.0 - 18.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	8.0
						Schedule 40 PVC Screen	1.5"	8.0	18.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Sandy Loam and Gravel damp, dark brown, soft			
2						Sandy Clay, olive brown, damp, moderately soft, medium grained sand, some silt			
3									
4									
5	D-2	4.0 100%		74GWVP10b/DFM-04 (7-9')	<1	cobble, broken, hard, gray			
6									
7									
8						rock fragments, grayish brown clay and gray rock, damp to dry			
9	D-3	4.0 100%		74GWVP10b/DFM-05 (9-11')	<1				
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 74VP10b/DFM

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP10b/DFM

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						<i>Continue from page 1</i>		
12	12.0	D-3 4.0 100%			140.0	Saprolite, clay and sand gray, green		
13								
14		D-4 4.0 100%			>2000	Variated colors from 14.5 to 16.0', moist		
15								
16	16.0							
17								
18		D-5 4.0 100%			500.0	some clay, moist strong hydrocarbon odor		
19						Bottom of Well at 18'		
20	20.0							
21								
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74VP10b/DFM

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP11a

COORDINATES: EAST: 936104.6

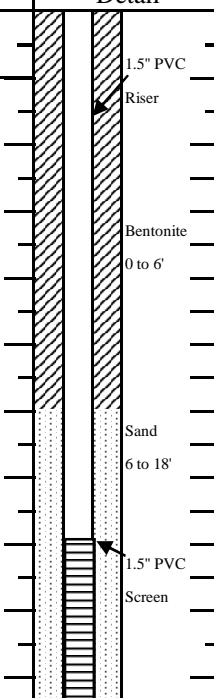
NORTH: 804976.2

ELEVATION: SURFACE: 116.19

TOP OF PVC CASING: 118.64

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/6/2008	0.0 - 19.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	8.0
						Schedule 40 PVC Screen	1.5"	8.0	18.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	5.0 100%			<1	Sandy Clay, dark brown			
2						Clay, some silt, mottled, soft medium plasticity, damp, light gray maroon			
3									
4									
5									
6	D-2	4.6 92%		74GWVP11a-03 (5-7')	<1	trace fine sand soft, medium plasticity, damp			
7									
8						medium plasticity, damp moderate stiff, orange, light gray, tan			
9									
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP11a SHEET 1 OF 2



**Baker**

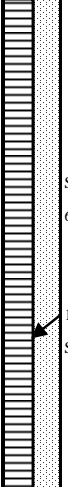
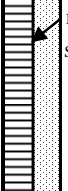
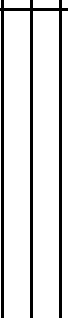
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP11a

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon    A = Auger T = Shelby Tube    W = Wash R = Air Rotary    C = Core D = Direct Push    P = Piston    N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11		D-3	4.7 94%			<1	Continue from page 1 silt and clay lenses damp, orange, tan, light gray, stiff, blocky  mottled black inclusions		
12									
13									
14									
15									
16		D-4	4.0 100%			<1	Bottom of Well at 18'		
17									
18									
19									
20							GEOPROBE REFUSAL at 19.0'		
21									
22									
23									
24									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP11a

SHEET 2 OF 2

# Baker

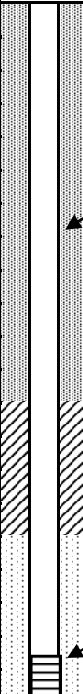
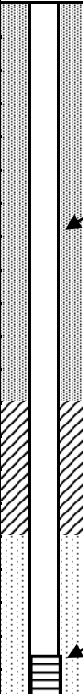
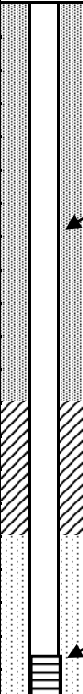
Michael Baker Jr., Inc.

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Naval Activity Puerto Rico - SWMU 74		
PROJ. NO.:	111626	BORING NO.:	74VP11a/JP5 HILL
COORDINATES:	EAST: 936932.1	NORTH:	803622.8
ELEVATION:	SURFACE: 127.78	TOP OF PVC CASING:	130.78

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/16/2008	0.0 - 19.8	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<div>SAMPLE TYPE</div> <div>S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample</div>						WELL INFORMATION					
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)		
Schedule 40 PVC Riser						1.5"	0	9.8			
Schedule 40 PVC Screen						1.5"	9.8	19.8			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
1	4.0	D-1	3.0 75%		N	<1	Sandy Loam and Gravel, brownish gray, dry, broken				
2					S		Sandy Clay, light brown, some silt, damp to dry, moderate hard			Concrete	
3					A					Bentonite	
4					M					Grout	
5	8.0	D-2	2.0 50%		E	<1	Silty Sand, some clay, moderate hard, tightly packed				
6					S						1.5" PVC Riser
7					C						Bentonite
8					O						6 to 8"
9		D-3	2.8 70%		C	<1	Saprolite, greenish gray/brown				
10					T						Sand
					E						8 to 19.8"
					D			1.5" PVC Screen			

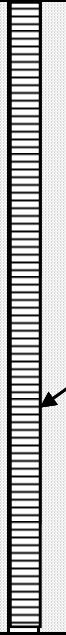
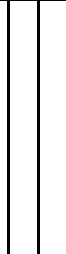
DRILLING CO.: JFA Geological & Environmental Scientists  
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa  
 BORING NO.: 74VP11a/JP5 HILL SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP11a/JP5 HILL

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1  Damp to moist at 14.0'		
12	12.0	D-3 2.8 70%			<1			
13								
14		D-4 4.0 100%			<1			
15								
16	16.0							
17								
18		D-5 4.0 100%			<1			
19								
20	20.0							
21						Bottom of Well at 19.8'		
22								
23								
24								

DRILLING CO.: JFA Geological & Environmental ScientistsBAKER REP.: Joe BurawaDRILLER: Domingo Gonzalez - RodriguezBORING NO.: 74VP11a/JP5 HILLSHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP11b

COORDINATES: EAST: 936103.4

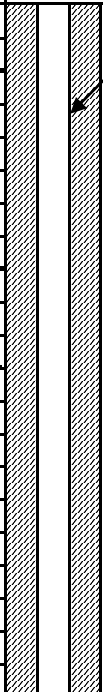
NORTH: 804997.4

ELEVATION: SURFACE: 117.77

TOP OF PVC CASING: 120.35

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/6/2008	0.0 - 30.0	85° Sunny	
Length	5'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	15.0
						Schedule 40 PVC Screen	1.5"	15.0	30.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	2.6 52%				Sandy Clay, dark brown			
2						Silty Clay, maroon, some gravel GRAVEL			
3									
4									
5	D-2	4.6 92%				Clay, some silt, maroon with little little gray, dry to damp			
6						Clay and Silt, blocky, mottled, damp light gray and maroon, low plasticity			
7									
8									
9						stiff, medium plasticity			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP11b

SHEET 1 OF 2

**Baker**

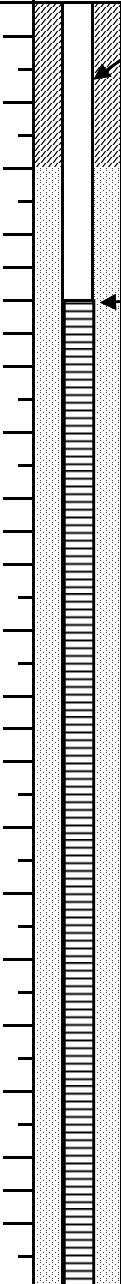
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico SWMU 74

SO NO.: 111626

BORING NO.: 74VP11b

SAMPLE TYPE						DEFINITIONS													
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston   N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background													
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)										
11	15.0	D-3	5.0 100%			<1	Continued from Sheet 1												
12																			
13																			
14																			
15																			
16	20.0	D-4	5.0 100%			<1				mottled, light gray, dark gray									
17																			
18																			
19																			
20																			
21																			
22	25.0	D-5	5.0 100%			<1													
23																			
24																			
25																			
26																			
27																			
28	30.0	D-6	5.0 100%			30+  <1										light gray, tan, medium stiffness, medium plasticity			
29																			
30																			
Bottom of Well at 30'																			

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP11b/JP5 HILL

COORDINATES: EAST: 936934.1

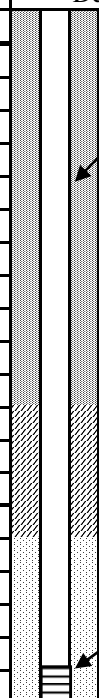
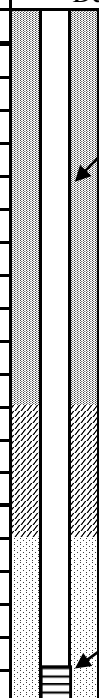
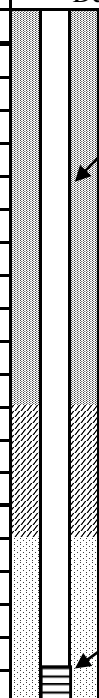
NORTH: 803588.9

ELEVATION: SURFACE: 126.80

TOP OF PVC CASING: 129.75

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/17/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Sandy Loam and Gravel			
2						Sandy Clay and Gravel, sand zones throughout, damp to dry, moderate soft, gray/brown			
3									
4									
5	D-2	4.0 100%		74GWVP11b/JP5-04 (7-9')	<1				
6									
7									
8						Saprolite, light greenish brown, moderate hard, damp			
9	D-3	4.0 100%		74GWVP11b/JP5-05 (9-11')	<1				
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

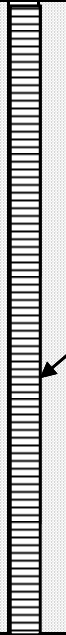
BAKER REP.: Joe Burawa

BORING NO.: 74VP11b/JP5 HILL SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP11b/JP5 HILL

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						<i>Continue from page 1</i>		
12	12.0	D-3 4.0 100%			<1			
13						Becomes soft and damp to moist at 12.5'		
14		D-4 3.3 83%			<1			
15								
16	16.0							
17						No hydrocarbon odor		
18		D-5 2.2 55%			<1			
19								
20	20.0							
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: JFA Geological & Environmental ScientistsBAKER REP.: Joe BurawaDRILLER: Domingo Gonzalez - RodriguezBORING NO.: 74VP11b/JP5 HILLSHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP1982

COORDINATES: EAST: 938186.3

NORTH: 801645.1

ELEVATION: SURFACE: 111.85

TOP OF PVC CASING: 114.84

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/19/2008	0.0 - 20.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.3 83%			>1	Sandy Silt, brown, dry, loose			
2						Sand and Gravel, light gray			
3						loose, dry, coral and shell fragments			
4						Sandy Clay and Gravel, green gray, strong hydrocarbon odor			
5	D-2	3.2 80%		74GWVP1982-03 (5-7)	~500				
6									
7									
8									
9	D-3	3.2 80%		74GWVP1982-05 (9-11)	>5	green/brown, very soft, damp to moist			
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74VP1982 SHEET 1 OF 2



**Baker**

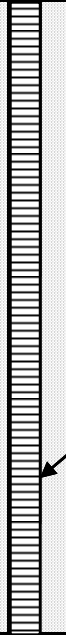
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1982

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						<i>Continue from page 1</i>		
12	12.0	D-3 3.2 80%			>5			
13						wet at 13'		
14						very soft, dark green/gray		
15		D-4 2.0 50%			>5			
16	16.0					Saprolite, hard, moist		
17						strong hydrocarbon odor		
18						some sand and clay zones		
19						rock fragments, brownish green		
20	20.0	D-5 3.6 90%			>700			
21						Bottom of Well at 20'		
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74VP1982

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

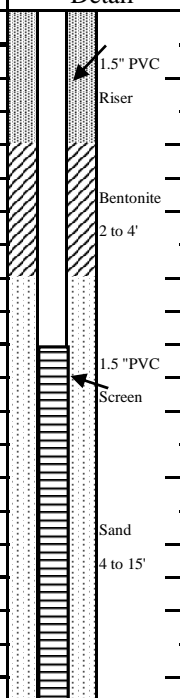
BORING NO.: 74VP19a

COORDINATES: EAST: 938430.4333

NORTH: 802214.6478

ELEVATION: SURFACE:

TOP OF PVC CASING:

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	3"	--	4.25"	--	5/18/2008	0.0 - 18.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>WELL INFORMATION</b>			
					Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
					Schedule 40 PVC Riser	1.5"	0	5.0
					Schedule 40 PVC Screen	1.5"	5.0	15.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	D-1	2.1 53%		N	<1	Sandy Loam		
O				Sandy Clay, brown, dry				
2				S				
3				A				
4	M							
5	P							
6	L							
7	E							
8	S							
9	C							
10	O							
	L							
	L							
	E							
	C							
	T							
	E							
	D							

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74VP19a

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP19a

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continue from page 1		
12	12.0	D-3 3.0 75%			<1			
13								
14	D-4	2.2 55%			<1			
15								
16	16.0					Bottom of Well at 15'		
17								
18	D-5	3.4 85%			<1			
19						Cobbles at 19.0' then saprolite, brown and white clay and sand, damp to dry, hard, brittle		
20	20.0					END OF BORING at 20.0		
21								
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74VP19a

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

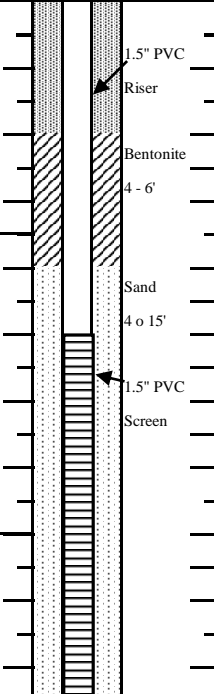
BORING NO.: 74VP19b

COORDINATES: EAST: 938426.9220

NORTH: 802182.7165

ELEVATION: SURFACE:

TOP OF PVC CASING:

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/18/2008	0.0 - 15.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>WELL INFORMATION</b>			
					Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
					Schedule 40 PVC Riser	1.5"	0	5.0
					Schedule 40 PVC Screen	1.5"	5.0	15.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	D-1	4.0 100%			10.0	Sandy Loam and Gravel brownish orange, moderate soft damp		
2								
3								
4								
4	4.0					Sandy Clay, moist, free product, gravel throughout		
5	D-2	4.0 100%		74GWVP19b-03 (5-7')	>3000			
6								
7								
8								
8	8.0							
9	D-3	4.0 100%		74GWVP19b-05 (9-11')	>1000	Silty Clay, some gravel greenish gray, damp plasticity, moderate soft		
10								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74VP19b

SHEET 1 OF 2

**Baker**

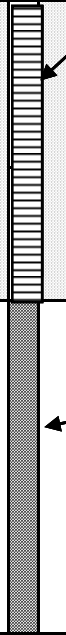
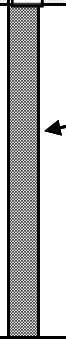
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP19b

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%			>1000	Continue from page 1		
12						Saprolite, damp to moist, rock fragments lighter in color with depth, sandier, brown and green		
13	D-4	4.0 100%			<1			
14								
15								
16	16.0					Bottom of Well at 15'		
17	D-5	4.0 100%			<1			
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 74VP19b

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP1a

COORDINATES: EAST: 931542.86

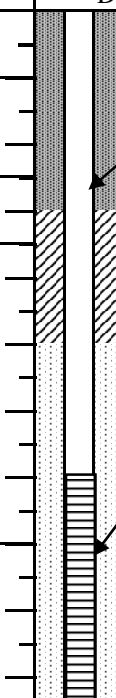
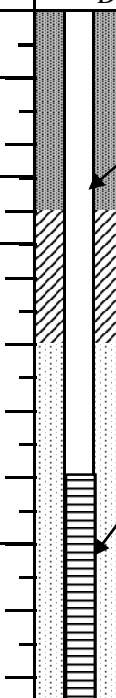
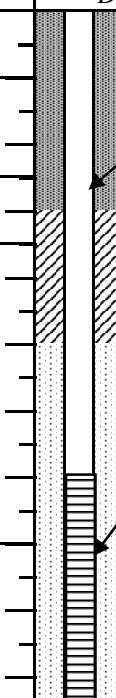
NORTH: 807652.44

ELEVATION: SURFACE: 124.10

TOP OF PVC CASING: 126.42

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/3/2008	0.0 - 12.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	7.0
						Schedule 40 PVC Screen	1.5"	7.0	12.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.0 100%			<1	Sandy Loam			
2						Clay, some gravel, brown, damp			
3						Silty Clay, blocky, dry to damp, maroon			
4						Silt, some gravel, light gray to brown, damp			
5	D-2	0.4 10%			<1				
6									
7									
8									
9	D-3	0.9 23%			<1	Sand, some gravel, saturated, very hard to push near 12.0'			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP1a

SHEET 1 OF 2

**Baker**


Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1a

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	0.9 23%			<1	Continue from page 1		
12						12.0		
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP1a

SHEET 2 OF 2

# Baker

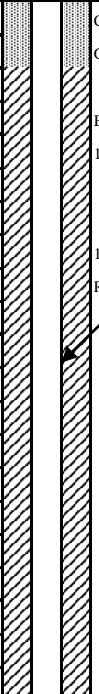
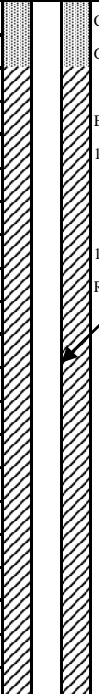
Michael Baker Jr., Inc.

## TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Naval Activity Puerto Rico - SWMU 74			BORING NO.:	74VP1Aa/9
PROJ. NO.:	111626			NORTH:	806118.58
COORDINATES:	EAST:	935187.63		TOP OF PVC CASIN	119.23
ELEVATION:	SURFACE:	116.53			

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/7/2008	0.0 - 24.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	14.0
						Schedule 40 PVC Screen	1.5"	14.0	24.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	4.4 88%			<1	Sandy Clay			
2						Sand, white, some silt, shells			
3						Clay, some silt, hard, dry to damp, orange/brown			
4									
5	D-2	5.0 100%		74GWVP1Aa/9-03 (5-7)	<1	Sand, fine grained, orange/tan			
6						Sand and Gravel, coarse grained			
7									
8									
9									
10						Silt, gray/olive, some clay white mottling, damp			

DRILLING CO.: GeoEnviroTech, Inc.  
 DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius  
 BORING NO. 74VP1Aa/9 SHEET 1 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1Aa/9

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.1 82%			60+	Continue from page 1		
12						slight hydrocarbon odor		
13								
14								
15	D-4	5.0 100%			560+			
16								
17						becomes tan and orange		
18								
19								
20	D-5	0.2 4%			0.5+			
21								
22								
23								
24						Bottom of Well at 24'		
25								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP1Aa/9

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP1b

COORDINATES: EAST: 931542.96

NORTH: 807622.73

ELEVATION: SURFACE: 124.16

TOP OF PVC CASING: 126.22

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/3/2008	0.0 - 12.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	7.0
						Schedule 40 PVC Screen	1.5"	7.0	12.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.4 85%			<1	Sandy Clay			
2						Silt, some gravel, (Fill)			
3									
4									
5	D-2	2.4 60%		74GWVP1b-03 74GWVP1b-03D (5-7')	<1	Clay, orange, some coarse gravel damp			
6									
7									
8									
9	D-3	0.8 20%			<1	Clay with coarse sand, orange brown, medium soft, moist			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP1b

SHEET 1 OF 2

**Baker**


Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP1b

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						<i>Continue from page 1</i>		
12	12.0	D-3 0.8 20%			<1	moderately soft, wet		
13						Bottom of Well at 12'		
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP1b

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP20

COORDINATES: EAST: 938238.8502

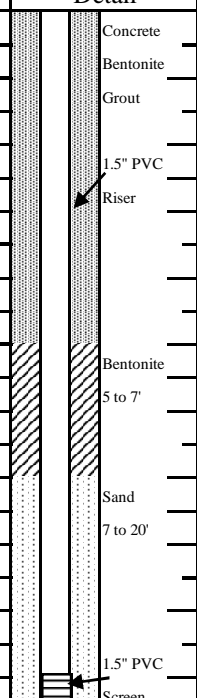
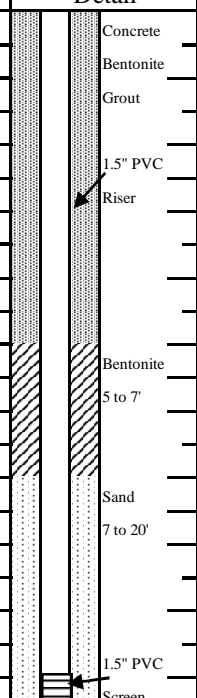
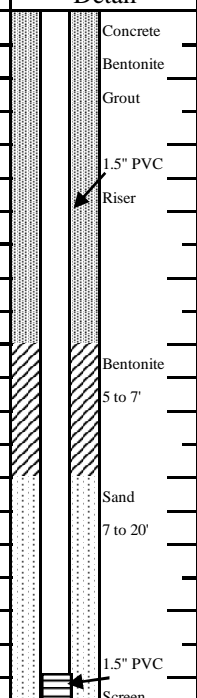
NORTH: 801733.884

ELEVATION: SURFACE:

TOP OF PVC CASING:

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/19/2008	0.0 - 20.0	85° Cloudy	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	10.0
						Schedule 40 PVC Screen	1.5"	10.0	20.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	2.9 73%			20.0	Sandy Loam and Gravel, brown, broken, moderate hard			
2						Coral Fragments and Gravel some sandy clay, olive			
3									
4						Sandy Clay, some silt, iron stained, some gravel			
5	D-2	4.0 100%			2.0	Silty Clay, some sand dark gray, brown, very soft, damp to moist			
6									
7									
8						STIFF, moderate soft			
9	D-3	4.0 100%		74GWVP20-05	5.0				
10									

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74VP20

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP20

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	4.0 100%		74GWVP20-06 (11-13')	5.0	Continue from page 1		
12								
13	D-4	3.5 88%			500.0 >1200	Sandy Clay, moderate hard, medium grained sand, green, gray, brown, damp to moist, hydrocarbon odor saprolitic structure		
14								
15								
16								
17	D-5	1.5 38%			>2000			
18								
19								
20								
21						Bottom Of Well At 20'		
22								
23								
24								

DRILLING CO.: JFA Geological &amp; Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 74VP20

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP2a

COORDINATES: EAST: 935874.4

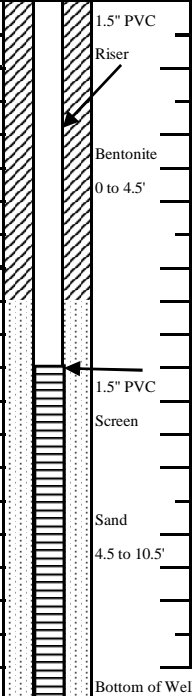
NORTH: 806831.2

ELEVATION: SURFACE: 119.62

TOP OF PVC CASING: 122.13

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	4/28/2008	0.0 - 24.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	5.5
						Schedule 40 PVC Screen	1.5"	5.5	10.5
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	3.8 95%			<1	Clay, with silt to fine sand, trace coarse sand, brown, damp			
2						Clay, some silt, friable, blocky, dry to damp, light gray to maroon			
3									
4									
5	D-2	2.0 50%			<1	Sand and Gravel, fine grained, brown			
6									
7									
8						wet at 7.5'			
9	D-3	1.9 48%			<1				
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP2a

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP2a

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background					
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail				Elevation (Ft. MSL)
11	D-3				<1	Continue from page 1					
12						GEOPROBE REFUSAL at 11.0'					
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NasserBAKER REP.: Robert RoseliusBORING NO.: 74VP2aSHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP2b

COORDINATES: EAST: 935855.5

NORTH: 806837.3

ELEVATION: SURFACE: 119.70

TOP OF PVC CASING: 122.27

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	3"	--	4.25"	--	4/28/2008	0.0 - 16.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				
Remarks:								
<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample					<b>WELL INFORMATION</b>			
					Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
					Schedule 40 PVC Riser	1.5"	0	5.0
					Schedule 40 PVC Screen	1.5"	5.0	15.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	D-1	3.4 85%		74GWVP2b-01 (1-3')	<1	Sandy Clay, dark brown		
2						Clay, little silt, hard, blocky		
3						light gray to maroon		
4						4.0		
5	D-2	2.4 60%		74GWVP2b-03 (5-7')	<1	becomes wet at 7.5'		
6								
7								
8						8.0		
9	D-3	0.8 20%			<1			
10								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP2b

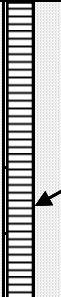
SHEET 1 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP2b

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3	0.8 20%			<1	Continue from page 1		
12								
13	D-4	2.8 70%			<1			
14						Clay, mottled, light gray to maroon, damp		
15								
16	16.0					Bottom of Well at 15'		
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NasserBAKER REP.: Robert RoseliusBORING NO.: 74VP2bSHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP3a

COORDINATES: EAST: 933061.97

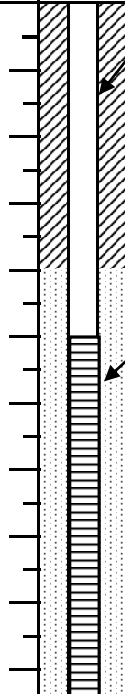
NORTH: 806425.08

ELEVATION: SURFACE: 112.45

TOP OF PVC CASING: 114.94

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/5/2008	0.0 - 16.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<div>SAMPLE TYPE</div> <div>S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample</div>						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Riser						1.5"	0	6.0	
Schedule 40 PVC Screen						1.5"	6.0	16.0	
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	4.0	D-1				<1			
2									
3									
4									
4.0									
5		D-2				<1			
6									
7									
8									
8.0									
9		D-3				<1			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP3a

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74SB109

COORDINATES: EAST: 935532.1

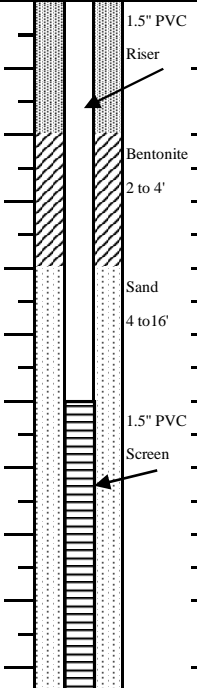
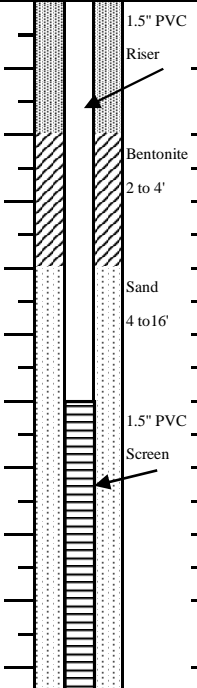
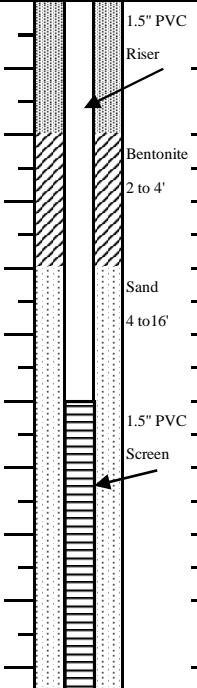
NORTH: 806188.5

ELEVATION: SURFACE: 109.37

TOP OF PVC CASING: 112.55

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/5/2008	0.0 - 12.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<b>SAMPLE TYPE</b> S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston N = No Sample						WELL INFORMATION			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	6.0
						Schedule 40 PVC Screen	1.5"	6.0	16.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1	N/A			<1	Silt, loam and gravel			
2						Silty clay, reddish tan, hard, dry			
3									
4									
4.0	D-2	N/A		74SB109-04 (7-9')	<1	Soft silty clay, mottled, beige/red			
5									
6									
7									
8	D-3	N/A		74SB109-05 (9-11')	<1	Clay, light blue, red silty clay some sand throughout, medium soft, damp to moist			
9									
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74SB109

SHEET 1 OF 2

**Baker**

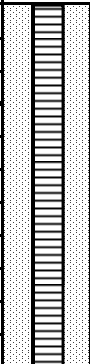
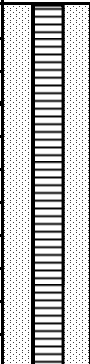
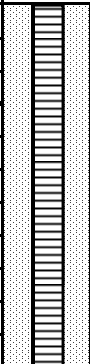
Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74SB109

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon   A = Auger T = Shelby Tube   W = Wash R = Air Rotary   C = Core D = Direct Push   P = Piston   N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	12.0	D-3	N/A			<1	Continue from page 1		
12									
13	16.0	D-4	N/A			<1	More plasticity, softer hydrocarbon odor		
14									
15									
16									
17	24						Bottom of well at 16'		
18									
19									
20									
21									
22									
23									
24									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74SB109

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP3a

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3				<1	Continue from page 1		
12								
13	D-4				<1			
14								
15								
16								
17						Bottom of Well at 16'		
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP3a

SHEET 2 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP3b

COORDINATES: EAST: 933062.89

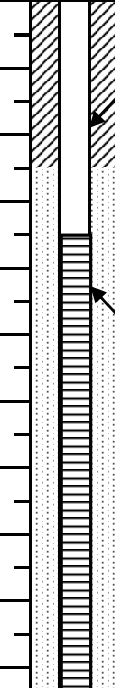
NORTH: 806398.16

ELEVATION: SURFACE: 112.72

TOP OF PVC CASING: 115.27

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/5/2008	0.0 - 14.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

Remarks:

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	4.0
						Schedule 40 PVC Screen	1.5"	4.0	14.0
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	D-1				<1	Clay, trace gravel, light gray, brown, tan, dry to damp			
2									
3									
4						Clay, trace gravel, light gray, brown, tan, dry to damp			
5	D-2			74GWVP3b-03 (5-7')	200+	Silt, coarse sand, petro odor			
6									
7									
8						Silt, coarse sand, petro odor			
9	D-3			74GWVP3b-04 (7-9')	<1	damp to moist			
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP3b

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

PROJ. NO.: 111626

BORING NO.: 74VP3b/9

COORDINATES: EAST: 935548.8

NORTH: 806196.3

ELEVATION: SURFACE: 109.61

TOP OF PVC CASING: 112.77

Rig: Geoprobe 66DT					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"	--	4.25"	--	5/3/2008	0.0 - 12.0	85° Sunny	
Length	4'	--	5'	--				
Type	--	--	HSA	--				
Hammer Wt.	--	--	--	--				
Fall	--	--	--	--				

**Remarks:**

<u>SAMPLE TYPE</u> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<u>WELL INFORMATION</u>			
						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Schedule 40 PVC Riser	1.5"	0	7.0
						Schedule 40 PVC Screen	1.5"	7.0	12.0
Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1		D-1	3.1 78%			<1	Sandy Clay, dark brown		
2							Clay (Fill), light gray, fine gravel, dry to damp		
3									
4	4.0								
5		D-2	3.7 93%			200.0			
6									
7							Silt, light gray, petroleum odor some sand, dry		
8	8.0								
9		D-3	4.0 100%		74GWVP3b/9-05 (9-11')	200.0	becomes damp to moist		
10									

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP3b/9

SHEET 1 OF 2

**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Naval Activity Puerto Rico - SWMU 74

SO NO.: 111626

BORING NO.: 74VP3b/9

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	D-3				10 to 11	Continue from page 1		
12								
13	A	NA		74GWVP3b/9-07				
14								
15						Bottom of Well at 14'		
16								
17								
18								
19								
20								
21								
22								
23								
24								

DRILLING CO.: GeoEnviroTech, Inc.

DRILLER: Abraham Nasser

BAKER REP.: Robert Roselius

BORING NO.: 74VP3b/9


SHEET 2 OF 2



**Baker**

Michael Baker Jr., Inc.

**TEST BORING AND WELL CONSTRUCTION RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 74SO NO.: 111626BORING NO.: 74VP3b

<b>SAMPLE TYPE</b> S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample						<b>DEFINITIONS</b> SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level ps/bg = point source/background			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
11	D-3				<1	Continue from page 1			
12						Silty, fine sand, brown			
13									
14						Bottom of Well at 14'			
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

DRILLING CO.: GeoEnviroTech, Inc.DRILLER: Abraham NasserBAKER REP.: Robert RoseliusBORING NO.: 74VP3bSHEET 2 OF 2

**Chain-of-Custody Forms**

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Serial Number 304547


## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

**THE LEADER IN ENVIRONMENTAL TESTING**

8480 2694 7400

 **TestAmerica Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: [www.bestathletic.com](http://www.bestathletic.com)

Phone: (912) 354-7858

Fax: (822) 352-0186

74-001

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE		PROJECT NO	PROJECT LOCATION (STATE) P/R	MATRIX TYPE	REQUIRED ANALYSIS												PAGE	OF
TAL (LAD) (PHO) (C) MANAGER		PO NUMBER	CONTRACT NO.	COMPOSITE (I) OR BRAB (I) INDICATE	ACIDIC (I) WATER	SOLID (I) SEMI (I) LIQ (I)	APP LX VOCs	APP LX SVOCs	APP LX PAHs	APP LX Metals (Total)	APP LX Metals (Dissolved)	APP LX GRO	APP LX DRO	APP LX Pesticides	APP LX PCBs	TOC		
CLIENT (SITE) PM		CLIENT PHONE	CLIENT FAX													STANDARD REPORT DELIVERY		
CLIENT NAME		CLIENT EMAIL													EXPEDITED REPORT DELIVERY (SURCHARGE):			
CLIENT ADDRESS														DATE DUE				
COMPANY CONTRACTING THIS WORK (if applicable)														NUMBER OF CONTAINERS SUBMITTED PER SHIPMENT				
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED												REMARKS		
DATE	TIME																	
4/28/08	1350	745B01-00		G	X		3		✓	1		3	✓				✓ = Same container	
	1355	745B01-02		G	X		3		✓	1		3	✓				✓ = Same container	
	1525	745B01-04		G	X		3		✓	1		3	✓				✓ = Same container	
	1450	745B01-03		G	X		3			1		3	1					
	1500	745B02-05		G	X		3			1		3	1					
	1525	745B04-01		G	X		3			1		3	1					
	1540	745B04-04		G	X		3			1		3	1					
4/28/08		74TB01		G	X							3						
RECEIVED BY: (signature) DATE: 4/29/08 TIME: 1800																		
RECEIVED BY: (signature) DATE: 4/29/08 TIME: 0700																		
RECEIVED BY: (signature) DATE: 4/29/08 TIME: 0900																		
LABORATORY USE ONLY																		
RECEIVED FOR LABORATORY BY: (signature)		DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS											
		4/29/08	0900	YES <input type="radio"/>		676-36289	Temp (°C): 0.4, 1.4, 1.8, 2.2, 3.6, 3.8											

Serial Number 005102

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7535

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 La Roche Avenue  
Savannah, GA 31404

Website: www.testamericas.com  
Phone: (912) 354-7530  
Fax: (912) 352-0155

74-002

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 1	3 <sup>OF</sup>
TALILAS PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO.	CAPTURE (G) OR DROPS (G) IN DATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NON-AQUEOUS LIQUID (OIL, SOLVENT, ...)	App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7463	CLIENT FAX												JATF DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakarcorp.com		EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>										DATE DUE		
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108				PRESERVATIVE										NUMBER OF COPIES SUBMITTED PER SHIPMENT		
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																

SAMPLE		SAMPLE IDENTIFICATION	CAPTURE (G) OR DROPS (G) IN DATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NON-AQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
4/29/08	0750	745B 05 - 01	G	✓				3			1		3	1				
	0755	745B 05 - 01D	G	✓				3			1		3	1				
	0815	745B 05 - 02	G	✓				3			1		3	1				
	1005	745B 06 - 01	G	✓				3			1		3	1				
	1010	745B 06 - 01MS	G	✓				3			1		3	1				
	1000	745B 06 - 02	G	✓				3			1		3	1				
	1330	745B 07 - 02	G	✓				3			1		3	1				
	1335	745B 07 - 04	G	✓				3			1		3	1				
	1415	745B 09 - 02	G	✓				3			1		3	1				
	1420	745B 09 - 05	G	✓				3			1		3	1				
	1445	745B 10 - 02	G	✓				3			1		3	1				
4/29/08	1500	745B 10 - 04	G	✓				3			1		3	1				

RELINQUISHED BY SIGNATURE	DATE	TIME	RELINQUISHED BY SIGNATURE	DATE	TIME	RELINQUISHED BY SIGNATURE	DATE	TIME
			<i>Mark E. Kimes</i>	5/1/08	1500			
RECEIVED BY SIGNATURE	DATE	TIME	RECEIVED BY SIGNATURE	DATE	TIME	RECEIVED BY SIGNATURE	DATE	TIME
<i>Mark E. Kimes</i>	4/29/08	0700						

## LABORATORY USE ONLY

RECEIVED BY LABORATORY BY: (Signature)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO. 640-36360	LABORATORY REMARKS
<i>Joe Houdy</i>	5/2/08	0914				

Serial Number 005103

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7535

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah  
 5102 LaRoche Avenue  
 Savannah, GA 31404

Website: www.testamercainc.com

Phone: (912) 354-7358

Fax: (912) 352-0165

74-002

☐ Alternate Laboratory Name/Location
Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 2	3 <sup>OF</sup>
TAL (LARI) PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) VOC/ATE AQUEOUS (WATER) SOLID OR SEMISOLID VR PCMVOL-GC/MS (LARD/OIL, SOLVENT, ...) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH CRO TPH DRG App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412-337-7465	CLIENT FAX												DATE DUE 26 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.				PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME															
4/30/08	0815	74 SB 11-02		G	✓		3			1		3	1			
		74 SB 11-04		G	✓		3		✓	1		3	✓			
		74 SB 11-04D		G	✓		3		✓	1		3	✓			
		74 SB 11-04 MS/MSD		G	✓				✓	1			✓			
		74 SB 12-03		G	✓		3			1		3	1			
		74 SB 12-05		G	✓		3			1		3	1			
		74 SB 13-00		G	✓		3			1		3	1			
		74 SB 13-00D		G	✓		3			1		3	1			
		74 SB 13-00 MS/MSD		G	✓		3			1		3	1			
		74 SB 13-02		G	✓		3			1		3	1			
		74 SB 13-04		G	✓		3			1		3	1			
4/30/08	1100	74 SB 14-02		G	✓		3			1		3	1			
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	
<i>[Signature]</i>		4/28/08	0700	<i>[Signature]</i>		5/1/08	1500	<i>[Signature]</i>				<i>[Signature]</i>				
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
<i>[Signature]</i>		5/2/08	0914	<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>				
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAMPLING LOG NO.		LABORATORY REMARKS						
<i>[Signature]</i>		5/2/08	0914					681-36360								

Serial Number 005104

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

6617 8652 7535

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah  
5102 LaFolche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com

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Fax: (912) 352-0165

74-002

☐ Alternate Laboratory Name/Location

Phone:

Fax:

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 3	OF 3
TA & AP PROJECT MANAGER Kathy E. Smith	PO NUMBER	CONTRACT NO.	COMPOSITE (DI OR GRAB) (MANDATE) AQUEOUS (WATER) SOLID OR SEMISOLID AQS VOLATILE LIQUID (IDL, SOLVENT, ...) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH CRD TPH DRD App IX Pesticides App IX PCBs TDC	STANDARD REPORT DELIVERY <input checked="" type="checkbox"/> DATE DUE 28 Day TAT EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/> DATE DUE _____ NUMBER OF COOLERS SUBMITTED PER SHIPMENT: _____											
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX													
CLIENT NAME Michael Baker Jr., Inc.	CLIENT EMAIL mkimes@mbakercorp.com														
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.			PRESERVATIVE												

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (DI OR GRAB) (MANDATE)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AQS	VOLATILE LIQUID (IDL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
4/30/08	1110	74SB14-03	G	✓			3			1	3	1						
	1130	74SB15-02	G	✓			3			1	3	1						
	1140	74SB15-03	G	✓			3			1	3	1						
	1500	74SB16-02	G	✓			3			1	3	1						
	1510	74SB16-04	G	✓			3		✓	1	3	✓						
	1515	74SB16-04D	G	✓			3		✓	1	3	✓						
		74TB02	G	✓			3				3							

RELINQUISHED BY: SIGNATURE	DATE	TIME	RELINQUISHED BY: SIGNATURE	DATE	TIME	RELINQUISHED BY: SIGNATURE	DATE	TIME
				4/30/08	1500			
RECEIVED BY: SIGNATURE	DATE	TIME	RECEIVED BY: SIGNATURE	DATE	TIME	RECEIVED BY: SIGNATURE	DATE	TIME
	4/28/08	0700						

RECEIVED FOR LABORATORY USE		LABORATORY USE ONLY		LABORATORY REMARKS	
SIGNATURE	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	LABORATORY REMARKS
	5/2/08	0914		680-36360	

Serial Number 005106

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ TestAmerica Savannah  
5102 LaRue Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 350-7050  
Fax: (912) 350-0165

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

74-003

TestAmerica

FedEx Airbill No.:

8617 8652 8005

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION STATE: PR		MATRIX TYPE		REQUIRED ANALYSES										PAGE 1	OF 3																					
TALLIES: PROJECT MANAGER Kathy E. Smith		PG. NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>																						
CLIENT SITE/FM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DUE: 28 Day TAT																						
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com																EXPEDITED REPORT DELIVERY <input type="checkbox"/>																					
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																		DATE DUE																					
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																		NUMBER OF COPIES SUBMITTED PER SHIPMENT:																					
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (C) OR GRADE (G) INDICATE		ACROLEIN (MATERIAL)		SCUD (C) SEM SOLID		AIR		NONAQUEOUS LIQUID (L) SOLVENT (S)		App IX VOCs		App IX SVOCs		LL PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		T2H GRO		TPH DRG		App IX Pesticides		App IX PCBs		TOC		PRESERVATIVE		NUMBER OF CONTAINERS SUBMITTED		REMARKS	
DATE	TIME																																						
5/1/08	0940	74SB30-03		G	✓								3			1		3	1																				
	0950	74SB30-04		G	✓								3			1		3	1																				
	1040	74SB31-02		G	✓								3		✓	1		3	1																				
	1050	74SB31-03		G	✓								3			1		3	1																				
	1115	74SB32-02		G	✓								3			1		3	1																				
	1120	74SB32-03		G	✓								3			1		3	1																				
	1130	74SB32-03D		G	✓								3			1		3	1																				
	1250	74SB33-01		G	✓								3			1		3	1																				
	1400	74SB33-02		G	✓								3			1		3	1																				
	1410	74SB34-00		G	✓								3			1		3	1																				
	1410	74SB34-00MS/MSD		G	✓								3			1		3	1																				
5/1/08	1450	74SB34-01		G	✓								3			1		3	1																				
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME																								
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME																								
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL AD		SAVANNAH LOG NO.		LABORATORY REMARKS																													
fn		5/5/08	0609					68-2419																															



Serial Number 005107

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

Blotter Box 52 Box 5

TestAmerica Savannah  
5106 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericane.com

Phone: (912) 354-7858

Fax: (912) 352-0165 74-003

Alabama Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 2	OF 3	
TAL/LAB PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.														STANDARD REPORT OCCURRED <input checked="" type="checkbox"/>		
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DUE 28 Day TAT		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com																EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																		DATE DUE	
COMPANY CONTRACTING THIS WORK (If applicable) Michael Baker Jr., Inc.								PRESERVATIVE										NUMBER OF COPIES SUBMITTED PER SHIPMENT:	
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (C) OR ORG (O) VOCATE		ADJES (W) WATER		SOLIDS (S) SOLID		NON-ADJES (N) NON-ADJES		SOLIDS (S) SOLID		NON-ADJES (N) NON-ADJES		NUMBER OF CONTAINERS SUBMITTED		REMARKS	
DATE	TIME																		
5/1/08	1500	74SB34-02		G	X				3					1		3	1		
	0820	74SB28-02		G	X				3					1		3	1		
	0830	74SB28-04		G	X				3					1		3	1		
	0900	74SB29-03		G	X				3					1		3	1		
5/1/08	0905	74SB29-05		G	X				3					1		3	1		
5/2/08	0750	74SB35-01		G	✓				3					1		3	1		
	0800	74SB35-03		G	✓				3					1		3	1		
	0840	74SB36-02		G	✓				3					1		3	1		
	0845	74SB36-05		G	✓				3					1		3	1		
	0920	74SB37-01		G	✓				3					1		3	1		
	0930	74SB37-02		G	✓				3					1		3	1		
5/2/08	0935	74SB37-02D		G	✓				3					1		3	1		
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS											
5/5/08		0909	YES <input type="radio"/>		NO <input type="radio"/>		60-36419												



Serial Number 005110

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ TestAmerica Savannah  
5702 LaRoche Avenue  
Savannah, GA 31404

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Phone: (812) 354-7855  
Fax: (812) 357-0165

74-003

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 8005

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION STATE: PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 3 OF 3	
TALILAB PROJECT MANAGER Kathy R. Smith		P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRADES (G) NO DATE AQUEOUS (WATER) SOLID OR SEMISOLID App IX SVOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRD TPH DRG App IX Pesticides App IX PCBs TOC	PRESERVATIVE											STANDARD REPORT DELIVERY <input checked="" type="checkbox"/> DATE CIL 28 Day TAT EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/> DATE DUE
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX													NUMBER OF COPIES SUBMITTED FOR SHIPMENT
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com														
CLIENT ADDRESS 100 Alreide Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.														
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED		REMARKS										
DATE	TIME															
5/2/08	1000	74SB38-01		G	✓	3		1		3	1					
	1005	74SB38-02		G	✓	3		1		3	1					
	1030	74SB39-02		G	✓	3		1		3	1					
	1040	74SB39-04		G	✓	3		1		3	1					
	1110	74SB40-02		G	✓	3		1		3	1					
5/2/08	1120	74SB40-04		G	✓	3		1		3	1					
5/2/08		74TB03		G	✓	3				3						
RETURNED BY: (SIGNATURE)		DATE	TIME	RETURNED BY: (SIGNATURE)		DATE	TIME	RETURNED BY: (SIGNATURE)		DATE	TIME					
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME					
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="checkbox"/> NO <input type="checkbox"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS									
Yh		5/5/08	0804			600-54419										

Serial Number: 005195

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRocha Avenue  
Savannah, GA 31404

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74-004

☐ Alternate Laboratory Name/Location

Phone  
Fax

TestAmerica

PedEx Airbill No.:  
8617 8652 7991

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION STATE: FR		MATRIX TYPE SOLID		REQUIRED ANALYSIS LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRG App IX Pesticides App IX PCBs TOC										PAGE 1	7 OF
TA LAB PROJECT MANAGER Kathy E. Smith		PG. NUMBER	CONTRACT NO.		COMPOSITE ID OR DATE INDICATE		STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>										DATE DUE <u>28 Day</u> PAT	
CLIENT (SIC) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		LIQUIDUS (WATER)		EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>										DATE FAX	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com		NON-AQUEOUS LIQUID (L. SOVENT, ...)		NUMBER OF COOLERS SUBMITTED PER SHIPMENT												
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108				AIR		PRESERVATIVE												
COMPANY CONTACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																		
SAMPLE		SAMPLE IDENTIFICATION				NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME																	
5/3/08	830	74VP2B-01		G	X	3			1		3	1						
	840	74VP2B-03		G	X	3			1		3	1						
	1130	74VP1B-03		G	X	3			1		3	1						
	1130	74VP1B-03D		G	X	3			1		3	1						
	1145	74VP1B-04		G	X	3			1		3	1						
	1645	74VP1B-04X		G	X	3			1		3	1						
5/2/08	1330	74SB41-02		G	X	3			1		3	1						
	1340	74SB41-04		G	X	3			1		3	1						
5/3/08	1215	74SB22-00		G	X	3		✓	1		3	✓						
	1245	74SB22-03		G	X	3		✓	1		3	✓						
	1245	74SB22-03D		G	X	3		✓	1		3	✓						
	1245	74SB22-03 MS		G	X	3			1		3							
REQUISITIONED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	REQUISITIONED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME			
						5/5/08	1500											
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME			
		4/28/08	0700															
LABORATORY USE ONLY																		
RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	CUSTODY INTACT		CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS										
JK		5/6/08	0915	YES <input type="radio"/>			6074426	Cooler times: 0.4   0.6										
				NO <input type="radio"/>				0.4   0.4   0.5   0.6   1.4   1.7   0.6   0.6   0.6   0.6   0.4										

Serial Number 005194

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 252-0165

74-004

Alternate Laboratory Name/Location

Phone:  
Fax:

TestAmerica

FedEx Airbill No.:

8617 8652 7991

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX Type	REQUIRED ANALYSIS										PAGE 2	7 <sup>0</sup>
TA LAB PROJECT MANAGER Kathy E. Smith		P.C. NUMBER	CONTRACT NO.												STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE <del>28</del> Day TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS 100 Alreside Dr., Moon Township, PA 15108															DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															NUMBER OF COOLERS SUBMITTED PER SHIPMENT	

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (G) OR GRAB (G) / MATE	ACIDUS MATE	SOLID OR SEMISOLID	AIR	HOMOCENTRIC LIQUID (OIL SOLVENT...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME							App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GED	TPH PRO	App IX Pesticides	App IX PCBs	TOC	
5/3/08	1245	74SB22-03 MSD	G	X				3					3					
	1245	74SB22-03 ms/msd	G	X						✓	1		X	✓				
	1300	74SB22-04	G	X				3		✓	1		3	✓				
	1145	74SB23-02	G	X				3		✓	1		3	✓				
	1155	74SB23-03	G	X				3		✓	1		3	✓				
	1015	74SB24-03	G	X				3		✓	1		3	✓				
	1020	74SB24-05	G	X				3		✓	1		3	✓				
	0945	74SB25-04	G	X				3		✓	1		3	✓				
	0950	74SB25-05	G	X				3		✓	1		3	✓				
	0905	74SB26-02	G	X				3			1		3	1				
	0905	74SB26-02 D	G	X				3			1		3	1				
	0915	74SB26-05	G	X				3			1		3	1				

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
			Mark E. Kimes	5/6/08	1500			
RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
	5/20/08	0700						

RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY IN FACT		CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Kh		5/6/08	0915	YES <input type="radio"/> NO <input type="radio"/>			60-304	

Serial Number 005193

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

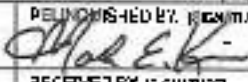
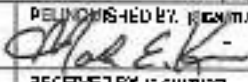
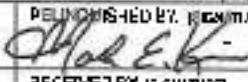
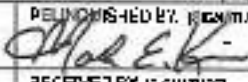





FedEx Airbill No.:  
8617 8652 7991TestAmerica Savannah  
5702 LaRiviere Avenue  
Savannah, GA 31404Website: www.testamericacorp.com  
Phone: (912) 354-7068  
Fax: (912) 352-0115

74-004

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 3	OF 7
TA LAB PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.	COMPOSITE (C), OR GRADES (G) W/ADAMS POURABLE (W/ITER) SOLID OR SEMISOLID AIP	MICROBIOLOGIC LIQUID (ML, ACQUENT...)	APP IX VOCs	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GNO	TPH DRO	APP IX Pesticides	APP IX PCBs	TOC	STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7463	CLIENT FAX			APP IX VOCs	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GNO	TPH DRO	APP IX Pesticides	APP IX PCBs	TOC	DATE DUE -28 Day-TAT
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com				APP IX VOCs	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GNO	TPH DRO	APP IX Pesticides	APP IX PCBs	TOC	EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108						APP IX VOCs	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GNO	TPH DRO	APP IX Pesticides	APP IX PCBs	TOC	DATE DUE
COMPANY CONTRACTING THIS WORK (if appl waste) Michael Baker Jr., Inc.				PRESERVATIVE											NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME															
5/3/08	0835	745B27-03			G	X		3			1		3	1		
	0845	745B27-05			G	X		3			1		3	1		
	0805	745B42-03			G	X		3			1		3	1		
	0810	745B42-04			G	X		3			1		3	1		
	0840	745B43-03			G	X		3			1		3	1		
	0845	745B43-04			G	X		3			1		3	1		
	0915	745B44-04			G	X		3			1		3	1		
	0920	745B44-05			G	X		3			1		3	1		
	1045	745B48-01			G	X		3			1		3	1		
	1050	745B48-01P			G	X		3			1		3	1		
	1110	745B49-04			G	X		3			1		3	1		
	1115	745B49-05			G	X		3			1		3	1		
RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	
		4/28/08	0700			5/5/08	1500									
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	
		4/28/08	0700													
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO	SIGNATURE LAB NO	LABORATORY REMARKS									
		5/6/08	0915			60-56426										



Serial Number 005192

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaPoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7058  
Fax: (912) 352-0165

74-004

Alternate Laboratory Name/Location

Phone:  
Fax:

TestAmerica

FedEx Airbill No.:  
8617 8652 7991

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 4	T <sup>th</sup>																	
TX. LAB PROJECT MANAGER Kathy E. Smith		PO. NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>																		
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DIF -28 Day-TAT																		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com																EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>																	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																		DATE LAB																	
COMPANY CONTRACTING THIS WORK (if app. date) Michael Baker Jr., Inc.								PRESERVATIVE										NUMBER OF COPIES SUBMITTED PER SHIPMENT																	
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (C) OR SHAB (S) INDICATE		CONCIOUS WATER		SOLUBLE OR SEMI-SOL		AIR		NONAQUEOUS LIQUID (IL, SOLVENT, ...)		App IX VOCs		App IX SVOCs		LL PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GRO		TPH DRO		App IX Pesticides		App IX PCBs		TOC		REMARKS	
DATE	TIME																																		
5/3/08	1140	745B50-03		G		X						3								1		3		1											
	1150	745B50-04		G		X						3								1		3		1											
	1200	745B51-00		G		X						3								1		3		1											
	1330	745B51-0003		G		X						3								1		3		1											
	1400	745B52-03		G		X						3								1		3		1											
	1405	745B52-04		G		X						3								1		3		1											
	1415	745B53-04		G		X						3								1		3		1											
	1420	745B53-05		G		X						3								1		3		1											
	1435	745B54-03		G		X						3								1		3		1											
	1440	745B54-04		G		X						3								1		3		1											
	1450	745B55-02		G		X						3								1		3		1											
V	1455	745B55-03		G		X						3								1		3		1											
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME
LABORATORY USE ONLY																																			
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT		CUSTODY SEAL NO.		SAVANNAH LOG NO		LABORATORY REMARKS																									
KL		5/6/08	0915	YES <input type="radio"/>		NO <input type="radio"/>		680-3426																											



Serial Number 005190

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 0652 7991

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7859  
Fax: (912) 352-0165

74-004

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 6	OF 7
TALILASH PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.	COMPOSITE (C) OR GFAS (F) / MATRIX AQUEOUS (W) / SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL SOLVENT, ...) App IX VOCs App IX SVOCs T.L. PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE	
COMPANY CONTRACTING THIS WORK (If applicable) Michael Baker Jr., Inc.				PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME															
5/3/08	1450	74SB61-04		G	X		3			1		3	1			
	1450	74SB61-04D		G	X		3			1		3	1			
	1400	74SB62-03		G	X		3			1		3	1			
5/4/08	0820	74SB63-03		G	X		3			1		3	1			
	0825	74SB63-04		G	X		3			1		3	1			
	0940	74SB64-03		G	X		3			1		3	1			
	0945	74SB64-04		G	X		3			1		3	1			
	1010	74SB65-03		G	X		3			1		3	1			
	1015	74SB65-04		G	X		3			1		3	1			
	1050	74SB66-03		G	X		3			1		3	1			
	1055	74SB66-04		G	X		3			1		3	1			
	1100	74SB66-04D		G	X		3			1		3	1			
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	
						5/5/08	1500									
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
		4/28/08	0700													
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO		LABORATORY REMARKS						
Kb		5/6/08	0915					680-8426								

Serial Number 005189

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRocha Avenue  
Savannah, GA 31406

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☐ Alternate Laboratory Name/Location

Phone:  
Fax:

# TestAmerica

FedEx Airbill No.:

8617 0652 7991

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION STATE: PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 7 OF 7
TAI (LAB) PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.												STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE <del>28</del> Day-TAI
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															NUMBER OF COPIES SUBMITTED PER SHIPMENT

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR OTHER (O): ANALYZE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (NGL SOLVENT...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5/4/08	1135	74SB67-03	G	X			3			1		3	1					
	1140	74SB67-04	G	X			3			1		3	1					
	1200	74SB68-03	G	X			3			1		3	1					
	1210	74SB68-04	G	X			3			1		3	1					
	1345	74SB69-03	G	X			3			1		3	1					
	1350	74SB69-04	G	X			3			1		3	1					
	1415	74SB70-03	G	X			3			1		3	1					
✓	1420	74SB70-04	G	X			3			1		3	1					
		74TB04	G	X			3					3						
		74TB05	G	X			3					3						
		74TB06	G	X			3					3						

RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
	5/5/08	1500						
RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
	4/28/08	0700						

LABORATORY USE ONLY					
RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	LABORATORY REMARKS
KL	5/6/08	0915		600-36426	



Serial Number 005187

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7980

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
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Savannah, GA 31404

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Phone: (912) 354-7858

Fax: (912) 352-0165

74-005

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 1	8 OF
TAL (LAB) PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRADE (G) INCRUSTATE AQUEOUS (WATER) SOLID ON SEMISOLID AIR HOMOGENEOUS LIQUID OIL SOLVENT App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC	App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		DATE DUE <u>22 Day TAT</u>											
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com			EXPEDITED REPORT DELIVERY (SURCHARGE)											
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.			DATE DUE											
SAMPLE				PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
DATE	TIME	SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
5/5/08	720	74SB71-00		G	X		3		1	3	1					
	750	74SB71-03		G	X		3		1	3	1					
	750	74SB71-03 MS		G	X		3		1	3	1					
	750	74SB71-03 MSD		G	X		3		1	3	1					
	750	74SB71-03 MS/MSD		G	X				1		1					
	755	74SB71-04		G	X		3		1	3	1					
	800	74SB71-04 D		G	X		3		1	3	1					
	825	74SB72-03		G	X		3		1	3	1					
	830	74SB72-04		G	X		3		1	3	1					
	900	74SB73-03		G	X		3		1	3	1					
	905	74SB73-04		G	X		3		1	3	1					
	955	74SB74-03		G	X		3		1	3	1					
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAVANNAH LOG NO.		LABORATORY REMARKS						
KL		5/7/08	1233					680-36489		0.2/0.2/0.4/0.6/1.2/3.2/0.6/1.1/0.4/0.4/0.4/0.6/0.6						

Serial Number 005186

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7980

TestAmerica Savannah  
5102 LaRoche Avenue  
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74-005

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT/REFERENCE NAPM 7 Site Investigation	PROJECT NO 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 2	OF 8
TAL/ABI PROJECT MANAGER Kathy E. Smith	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAIN (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...) APP IX VOCs App IX SVOCs T.L. PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC	App IX SVOCs	T.L. PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>		
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX		DATE DUE 28 Day TAT											
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E-MAIL mkimes@mbakercorp.com			EXPECTED REPORT DELIVERY (B/L CHARGE) <input type="checkbox"/>											
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108				DATE DUE											
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.			PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT:		

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAIN (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5-5-08	940	74SB74-04	G	X			3			1		3	1					
	1020	74SB75-03	G	X			3			1		3	1					
	1025	74SB75-04	G	X			3			1		3	1					
	1055	74SB76-03	G	X			3			1		3	1					
	1100	74SB76-03D	G	X			3			1		3	1					
	1105	74SB76-04	G	X			3			1		3	1					
	1130	74SB77-03	G	X			3			1		3	1					
	1140	74SB77-04	G	X			3			1		3	1					
	1350	74SB79-03	G	X			3			1		3	1					
	1355	74SB79-04	G	X			3			1		3	1					
	1420	74SB80-03	G	X			3			1		3	1					
✓	1425	74SB80-04	G	X			3			1		3	1					

RELINQUISHED BY: SIGNATURE	DATE	TIME	RELINQUISHED BY: SIGNATURE	DATE	TIME	RELINQUISHED BY: SIGNATURE	DATE	TIME
			Michael E. Ki	5/6/08	1500			
RECEIVED BY: SIGNATURE	DATE	TIME	RECEIVED BY: SIGNATURE	DATE	TIME	RECEIVED BY: SIGNATURE	DATE	TIME
	4/22/08	0700						

## LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO	SAVANNAH LOG NO	LABORATORY REMARKS
KL	5/7/08	1233			610-36489	



Serial Number 005185

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7980

TestAmerica Savannah  
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74-005

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 3	OF 8			
TAL (LAB) PROJECT MANAGER Kathy E. Smith	E.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) SAMPLE	ADHESIVE (WATER)	SOLID OR SEMISOLID	AIR	W/CONTAMINANT (OL SOLVENT)	App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TDC	STANDARD REPORT DELIVERY
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX																DATE DUE 28 Day TAT
CLIENT NAME Michael Baker Jr., Inc.	CLIENT EMAIL mkimes@mbakercorp.com																	EXPEDITED REPORT DELIVERY (SURCHARGE)
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																		DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																		NUMBER OF COULERS SUBMITTED PER SHIPMENT

PRESERVATIVE

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) SAMPLE	ADHESIVE (WATER)	SOLID OR SEMISOLID	AIR	W/CONTAMINANT (OL SOLVENT)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5-5-08	1440	74SB81-00	G	X				3			1		3	1				
	1450	74SB81-03	G	X				3			1		3	1				
	1450	74SB81-03MS	G	X				3					3					
	1450	74SB81-03MSD	G	X				3					3					
	1450	74SB81-03MS/MSD	G	X							1			1				
	1500	74SB81-04	G	X				3			1		3	1				
	1510	74SB81-04D	G	X				3			1		3	1				
	845	74SB97-03	G	X				3			1		3	1				
	850	74SB97-04	G	X				3			1		3	1				
	910	74SB98-03	G	X				3			1		3	1				
	920	74SB98-04	G	X				3			1		3	1				
✓	940	74SB99-03	G	X				3			1		3	1				

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
			Mark E. Kimes	5/6/08	1500			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	4/28/08	0700						

LABORATORY USE ONLY					
RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY #/TACT	CUSTODY SEAL NO.	LABORATORY REMARKS
KH	5/7/08	1233	YES <input type="radio"/> NO <input type="radio"/>	670-3489	

Serial Number 005184

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7980

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5102 LaFayette Avenue  
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Phone: (912) 354-7868

Fax: (912) 352-0165

74-005

☐ Atlanta Laboratory Name/Location

Phone:

Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAFR 7 Site Investigation		PROJECT NO. J11626	PROJECT LOCATION (STATE) PR		MATH TYPE		REQUIRED ANALYSIS										PART 4	OF 8					
TAL (LAB) PROJECT MANAGER Kathy B. Smith		PU. NUMBER	CONTRACT NO.		DATE		<input type="checkbox"/> App IX VOCs <input type="checkbox"/> App IX SVOCs <input type="checkbox"/> LL PAHs <input type="checkbox"/> App IX Metals (Total) <input type="checkbox"/> App IX Metals (Dissolved) <input type="checkbox"/> TPH GRO <input type="checkbox"/> TPH DRO <input type="checkbox"/> App IX Pesticides <input type="checkbox"/> App IX PCBs <input type="checkbox"/> TOC										STANDARD REPORT DELIVERY						
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		DATE												DATE DUE 28 Day LAT						
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com		DATE												EXPEDITED REPORT DELIVERY (SURCHARGE)							
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		DATE												DATE DUE									
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.		DATE												NUMBER OF COOLERS SUBMITTED PER SHIPMENT									
SAMPLER		SAMPLE IDENTIFICATION		COMPOSITE (X) OR GRAVIMETRIC ( )		ACQUISITION ( )		SOLID OR SEMISOLID		PRESERVATIVE		NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME																						
5-5-08	920	745B99-04		G		X						3											
	940	745B100-03		G		X						3											
	950	745B100-04		G		X						3											
	1010	745B101-00		G		X						3											
	1020	745B101-03		G		X						3											
	1030	745B101-03D		G		X						3											
	1050	745B101-03MS		G		X						3											
	1050	745B101-03 MSD		G		X						3											
	1050	745B101-03 ms/msd		G		X						X											
	1105	745B101-04		G		X						3											
	1240	745B102-04		G		X						3											
	1245	745B102-05		G		X						3											
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME								
						5/6/08	1500																
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME								
		5/6/08	0700																				
LABORATORY USE ONLY																							
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY IN CHARGE		CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS															
KL		5/7/08	1233	YES <input type="radio"/> NO <input type="radio"/>			680-3697																

Serial Number 005183

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7980

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
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74-005

☐ Alternate Laboratory Name/Location

Phone  
Fax

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE), PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 5	OF 8
AN. LAB; PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.	COMPOSITE (S) OR CRUSH (S) INDICATE AQUEOUS (WATER) SOLID OR SEMI-SOLID NON-HALOGENATED LIQUID OIL SOLVENT (L) LUBRICANT App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH BRO App IX Pesticides App IX PCBs TOC	App IX VOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH BRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY		
CLIENT(SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		DATE CUE 28 Day TAT											
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com			EXPEDITED REPORT DELIVERY (SLACKING)											
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		DATE CUE														
COMPANY CONTRACTING THIS WORK (IF APPLICABLE) Michael Baker Jr., Inc.				PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME															
5-5-08	1320	74SB103-03		G	X		3			1		3	1			
	1330	74SB103-04		G	X		3			1		3	1			
	1515	74SB104-03		G	X		3			1		3	1			
	1525	74SB104-04		G	X		3			1		3	1			
	1535	74SB105-03		G	X		3			1		3	1			
	1545	74SB105-04		G	X		3			1		3	1			
	1600	74SB106-01		G	X		3			1		3	1			
	1610	74SB106-04		G	X		3			1		3	1			
	1155	74VP3B-03		G	X		3		1	1		3	1			
V	1200	74VP3B-04		G	X		3		1	1		3	1			
5-6-08	0830	74VP11A-03		G	X		3			1		3	1			
5-6-08	0835	74VP11A-04		G	X		3			1		3	1			
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY HAND YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO. 680-36489		LABORATORY REMARKS						



Serial Number 005182

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8052 7980

TestAmerica Savannah  
5402 Lafayette Avenue  
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74-006

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE KAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE		ACQUIRED ANALYSIS										PAGE 6	OF 8
TAL (AE) PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) WORKOFF AQUEOUS (WATER) SOLID OR SEMISOLID NONAQUEOUS LIQUID OR SOLVENT APP IX VOCs APP IX SVOCs LL PAHs APP IX Metals (Total) APP IX Metals (Dissolved) TPH GRO TEH DRO APP IX Pesticides APP IX PCBs TOC	PRESERVATIVE											STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX													DATE DUE <u>28-day TAT</u>	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com														EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																DATE DUE _____	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS			
DATE	TIME																
5-6-08	0750	74 SB 82-03		G	X		3			1		3	1				
	0750	74 SB 82-03 MS		G	X		3					3					
	0750	74 SB 82-03 MSD		G	X		3					3					
	0750	74 SB 82-03 MS/MSD		G	X					1			1				
	0800	74 SB 82-04		G	X		3			1		3	1				
	0805	74 SB 82-04 D		G	X		3			1		3	1				
	0850	74 SB 82-02		G	X		3			1		3	1				
	0850	74 SB 83-02 MS		G	X		3					3					
	0850	74 SB 83-02 MSD		G	X		3					3					
	0850	74 SB 83-02 MS/MSD		G	X					1			1				
	0740	74 SB 107-03		G	X		3			1		3	1				
5-6-08	0740	74 SB 107-03 D		G	X		3			1		3	1				
REQUISITIONED BY: (signature)		DATE	TIME	RECEIVED BY: (signature)		DATE	TIME	REQUISITIONED BY: (signature)		DATE	TIME	RECEIVED BY: (signature)		DATE	TIME		
				Mark E. Kimes		5/16/08	1500										
RECEIVED BY: (signature)		DATE	TIME	RECEIVED BY: (signature)		DATE	TIME	RECEIVED BY: (signature)		DATE	TIME	RECEIVED BY: (signature)		DATE	TIME		
		5/16/08	0700														
LABORATORY USE ONLY																	
RECEIVED FOR LABORATORY BY (signature)		DATE	TIME	CUSTODY INITIALS YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAVANNAH LOG NO 600-26789		LABORATORY REMARKS							
Kk		5/17/08	1233														

Serial Number 005180

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

0617 8652 7980

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah  
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74-006

☐ Alternate Laboratory Name/Location

Phone:

Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION STATE: PR	WASH TYPE		REQUIRED ANALYSIS										PAGE 7	OF 8
TAL (LAB) PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) SAMPLE AQUEOUS (WATER) SOLID OR SLURRY AIR	NON-AQUEOUS LIQUID (NL) SOLVENT, J APP IX VOCs	APP IX SVOCs	APP IX PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GRO	TPH DRO	APP IX Pesticides	APP IX PCBs	TOC	STANDARD REPORT DELIVERY	DATE DUE 28 Day-TAT	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												EXPEDITED REPORT DELIVERY (SURCHARGE)	DATE DUE	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E MAIL mkimes@mbakercorp.com													NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME																
5/6/08	0755	74SB107-05			G	X	3		1		3	1					
5/6/08	0820	74SB108-03			G	X	3		1		3	1					
5/6/08	0830	74SB108-04			G	X	3		1		3	1					
5/5/08		74TB07			G	X	3				3						
5/5/08		74TB08			G	X	3				3						
5/6/08		74TB09			G	X	3				3						
5/6/08		74TB10			G	X	3				3						
5/5/08	0850	74GW22			G	X	3	2	1	1	3	2					
	1310	74GW05			G	X	3	2	1	1	3	2					
	1050	74GWHYD3D			G	X	3	2	1	1	3	2					
	1045	74GWHYD3MSD			G	X	3	2	1	1	3	2					
5/5/08	1045	74GWHYD3			G	X	3	2	1	1	3	2					
RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME		
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME		
RECEIVED FOR LABORATORY BY SIGNATURE		DATE	TIME	CUSTODY INITIAL		CUSTODY SEAL NO		SAVANNAH LOG NO		LABORATORY REMARKS							
KEL		5/7/08	1233	YES <input type="radio"/> NO <input type="radio"/>				680-36447									

Serial Number 005179

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7980

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah  
5102 La Roche Avenue  
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Fax: (612) 352-0185

74-006

☐ Alternate Laboratory Name/Location

Phone:

Fax:

PROJECT REFERENCE WAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSES										PAGE 8	8 <sup>th</sup>
TAL/LAB PROJECT MANAGER Kathy E. Smith		ED NUMBER	CONTRACT NO	COMPOSITE (C) OR GRAB (G) WASTEWATER AQUEOUS (WATER) SOLID OR SEMI-SOLID AIR NON-AQUEOUS LIQUID (OL, SOLID, LIQ) App IX VOCs App IX SVOCs T.J. PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day LAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.				PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME															
5/5/08	1045	74GW HYD3MS		GX		3	2	1	1	3	2					
5/6/08	1225	74GW VP1A		GX		3		1	1	3	2					
	1120	74GW VP2B		GX		3		1	1	3	2					
	0945	74GW34		GX		3		1	1	3	2					
5/6/08	0850	74GW09		GX		3	1			3				MORE BOTTLES LATER		
5/5/08	1455	74GW VP1B		GX		3		1	1	3	2					
5/5/08	0800	74GW26		GX		3		1	1	3	2					
RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	
RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAMPLING LOG NO.		LABORATORY REMARKS						
KH		5/16/08	1233					680-36489								



Serial Number 005178

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7970

THE LEADER IN ENVIRONMENTAL TESTING

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Fax: (912) 352-0165

74-CC 6

Alternate Laboratory Name/Location

Phone:

Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR	REQUIRED ANALYSIS										PAGE 1	OF 5
TAL LAB PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTACT NO.	COMPOSITE (C) OR SPILL (S) / TACUATE ACQUIES (W) / TACUATE SOLID OR SEMI-SOLID NR	App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH CRO	TPH BRO	App IX Pesticides	App IX PCBs	TDL	STANDARD REPORT DELIVERY <input type="checkbox"/>
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.													DATE DUE
PRESERVATIVE															NUMBER OF CONTAINERS SUBMITTED PER SHIPMENT:
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME														
5/6/08	1300	74 SB 84-03		G	X		3		1		3	1			
	1300	74 SB 84-03 MS		G	X		3				3				
	1300	74 SB 84-03 MSD		G	X		3				3				
	1300	74 SB 84-03 MS/MSD		G	X				1			1			
	1350	74 SB 85-03		G	X		3		1		3	1			
	1400	74 SB 85-04		G	X		3		1		3	1			
	1425	74 SB 86-03		G	X		3		1		3	1			
	1430	74 SB 86-03D		G	X		3		1		3	1			
✓	1440	74 SB 86-04		G	X		3	1	1		3	1			
	1500	74 SB 109-04		G	X		3		1		3	1			
	1515	74 SB 109-05		G	X		3		1		3	1			
✓	1535	74 SB 110-04		G	X		3		1		3	1			
RETURNED BY: (SIGNATURE)		DATE	TIME	RETURNED BY: (SIGNATURE)		DATE	TIME	RETURNED BY: (SIGNATURE)		DATE	TIME	RETURNED BY: (SIGNATURE)		DATE	TIME
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="checkbox"/> NO <input type="checkbox"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS					
KL		5/8/08	0916					60-3657		1.1/1.3/0.7/0.4/0.4/0.6/1.1/0.6/0.9					

Serial Number 005171

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

FedEx Airbill No.:

6617 8652 1970

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 LaRocca Avenue  
Savannah, GA 31404

Website: www.testamericainc.com

Phone: (912) 854-7858

Fax: (912) 352-0165

74-006

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 2 OF 5				
TAL/LAB/PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.		COMPOSITE (C) OR 3MB (S) ADVANTAGE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	PUMMEL/EGUS LIQUID (UL, SOLVENT, ...)	App IX VOCs	App LX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY	
CLIENT SITE/PM Mark Kines		CLIENT PHONE 412.337.7465	CLIENT FAX																	DATE DUE 48 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkines@mbakercorp.com		EXPEDITED REPORT DELIVERY (SURCHARGE)																	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.		DATE DUE																	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																				NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
SAMPLE		SAMPLE IDENTIFICATION																			
DATE	TIME																				
5/6/08	1545	74SB110-05		G	X			3					1		3	1					
5-6-08	1350	74GW57		G	X			3					1	1	3	2					
5-6-08	0850	74GW09		G	X							1	1		2						
5-6-08	0945	74GW34		G	X								1	1							
5-5-08	0800	74GW26		G	X								1			1					
5-7-08	0730	74SB87-03		G	X			3					1		3	1					
	0810	74SB88-03		G	X			3					1		3	1					
	0835	74SB89-03		G	X			3					1		3	1					
	0900	74SB90-02		G	X			3					1		3	1					
	0915	74SB91-00		G	X			3					1		3	1					
	0930	74SB91-03		G	X			3					1		3	1					
5-7-08	0935	74SB91-03D		G	X			3					1		3	1					
REINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	REINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	REINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)	
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)	
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES ( ) NO ( )		CUSTODY SEAL NO		SAVANNAH LOG NO.		LABORATORY REMARKS											
Kh		5/14/08	0916					60-3517													

Serial Number 005170

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

74-006

Alternate Laboratory Name/Location

Phone:  
Fax:

TestAmerica

FedEx Airbill No.:

8617 8452 7970

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE WAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION STATE/PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 3 OF 5
TAL LAB/ PROJECT MANAGER Kathy E. Smith		PC NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DUE 28 Day TAT
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com														EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (C) OR GRAB (G) INDICATE		AQUEOUS (A) OR SOLID (S) OR SEMI-SOLID		AR		PRESERVATIVE		NUMBER OF CONTAINERS SUBMITTED		REMARKS			
DATE	TIME																
5-7-08	0930	74SB91-03MS		G	X												
	0930	74SB91-03MSD		G	X												
	0930	74SB91-03MS/MSD		G	X												
	1030	74SB92-03		G	X												
	1040	74SB92-04		G	X												
	1110	74SB93-03		G	X												
	1120	74SB93-04		G	X												
	1150	74SB94-03		G	X												
	1200	74SB94-04		G	X												
	0800	74SB111-00		G	X												
	0825	74SB111-03		G	X												
5-7-08	0825	74SB111-03D		G	X												
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME		
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME		
RECEIVED FOR LABORATORY BY:		DATE	TIME	CUSTODY INTACT		CUSTODY	SAVING NO.	LABORATORY REMARKS									
				YES <input type="radio"/>		SP4160	680-26517										
				NO <input type="radio"/>													

Serial Number: 005169

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7970

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com

Phone: (912) 354-7050

Fax: (912) 202-0165

74-CC6

☐ Alternate Laboratory Name/LocationPhone:  
Fax:

PROJECT REFERENCE		PROJECT NO	PROJECT LOCATION	MATRIX TYPE		REQUIRED ANALYSES										PAGE			
NAPR 7 Site Investigation		111626	(STILL) PR													4			
TAL (LAB) PROJECT MANAGER		P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAV (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AR	NONAQUEOUS LIQUID (OIL SOLVENT)	App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TDC	
Kathy E. Smith																			
CLIENT(SITE) PM		CLIENT PHONE	CLIENT FAX																
Mark Rimes		412.337.7465																	
CLIENT NAME		CLIENT E-MAIL																	
Michael Baker Jr., Inc.		mkimes@mbakercorp.com																	
CLIENT ADDRESS																			
100 Airside Dr., Moon Township, PA 15108																			
COMPANY CONTRACTING THIS WORK (if applicable)																			
Michael Baker Jr., Inc.																			
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED															REMARKS
DATE	TIME																		
5-7-08	0825	745B111-03MS		G	X			3						3					
	0825	745B111-03MSD		G	X			3						3					
	0825	745B111-03MS/MSD		G	X							1			1				
	0815	745B111-05		G	X			3		✓		1		3	✓				
	0855	745B112-04		G	X			3				1		3	1				
	0905	745B112-05		G	X			3				1		3	1				
	0925	745B113-04		G	X			3		✓		1		3	✓				
	0935	745B113-05		G	X			3		✓		1		3	✓				
	0805	745B VPICb/9-02		G	X			3				1		3	1				
	0815	745B VPICb/9-04		G	X			3				1		3	1				
	1015	745B VPICa/9-03		G	X			3				1		3	1				
5-7-08	1025	745B VPICa/9-04		G	X			3				1		3	1				
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME
				Mod E. [Signature]		5/7/08	5/7/08												
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME
[Signature]		5/28/08	0700																
LABORATORY USE ONLY																			
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT		CUSTODY SEAL NO.		SAVANNAH LAB NO.		LABORATORY REMARKS									
Kh		5/4/08	0916	YES <input type="radio"/>				680-8617											
				NO <input type="radio"/>															



Serial Number 005166

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7970

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah  
5100 LaFochre Avenue  
Savannah, GA 31404

Website: www.testamerica.com  
Phone: (912) 354-7850  
Fax: (912) 352-0165

74-006

☐ Alternate Laboratory Name/LocationPhone  
Fax

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 5	5 <sup>OF</sup>
CALL AND PROJECT MANAGER Kathy E. Smith	P.O. NUMBER	CONTRACT NO.		App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY	<input checked="" type="checkbox"/>	
CLIENT (SITE) PM Mark Kines	CLIENT PHONE 412.337.7465	CLIENT FAX											DATE DUE 20-Day FAT		
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E-MAIL mkines@mbakercorp.com												EXPEDITED REPORT DELIVERY (SURCHARGE)	<input type="checkbox"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108													DATE DUE _____		
COMPANY CONTRACTING THIS WORK (if applicable): Michael Baker Jr., Inc.													NUMBER OF COOLERS SUBMITTED PER SHIPMENT		

PRESERVATIVE

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (G) OR GRAB (G) IN VOLUME	AQUEOUS IN VOLUME	SOLID OF SUBSTANCE	AR	NONAQUEOUS LIQUID (G) IN VOLUME	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5-7-08		74TB11	6	X				3					3					
5-7-08		74TB12	6	X				3					3					

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
			<i>Michael E. K.</i>	5/8/08	5:17/08			
RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
<i>[Signature]</i>	5/8/08	0700						

## LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
<i>KL</i>	5/8/08	0916			601-36517	

Serial Number 005165

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

TestAmerica Savannah  
b: 02 La Roche Avenue  
Savannah, GA 31404Website: www.testamericainc.com  
Phone: (912) 354-7856  
Fax: (912) 352-0165

74-007

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7969

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSES										PAGE 1	OF 2	
TAL II AIR PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO												STANDARD REPORT DELIVERY <input type="radio"/>		
CLIENT SITE PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28-Day TAT		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY <input type="radio"/>		
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE		
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
SAMPLE				CONFIRMATION OF ORIGIN (INDICATE) AQUEOUS (WATER) SOLID OR SEMISOLID AIR		PRESERVATIVE										REMARKS	
DATE	TIME	SAMPLE IDENTIFICATION				NUMBER OF CONTAINERS SUBMITTED											
5/13/08	1010	74-SB95-03		G	X	3		1		3	1						
	1015	74-SB95-04		G	X	3		1		3	1						
	1100	74-SB96-03		G	X	3		1		3	1						
	1100	74-SB96-03D		G	X	3		1		3	1						
	1115	74-SB96-05		G	X	3		1		3	1						
	1145	74-SB121-00		G	X	3		1		3	1						
	1215	74-SB121-05		G	X	3		1		3	1						
	1215	74-SB121-05D		G	X	3		1		3	1						
	1215	74-SB121-05MS		G	X	3				3							
	1215	74-SB121-05MSD		G	X	3				3							
	1215	74-SB121-05MS/MSD		G	X	3		1 dm		3	1						
	1010	74VP1Ba/9-05		G	X	3		✓	1	3	✓						
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME		
		5/13/08	1500			5/13/08	1500			5/13/08	1500			5/13/08	1500		
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME		
		5/6/08	1500			5/6/08	1500			5/6/08	1500			5/6/08	1500		
LABORATORY USE ONLY																	
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAVANNAH LOG NO		LABORATORY REMARKS							
Kh		5/19/08	0927					670-36711		0.4/0.6/0.6							

Serial Number 005164

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7969

TestAmerica Savannah  
5102 LaRue Avenue  
Savannah, GA 31404Website: [www.testamericame.com](http://www.testamericame.com)  
Phone: (912) 354-7858  
Fax: (912) 352-0165

74-007

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE/CITY)	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 2	OF 2			
TAL LAB PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.												STANDARD REPORT DELIVERY				
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT				
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE)				
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE				
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															NUMBER OF COOLERS SUBMITTED PER SHIPMENT				
SAMPLE				SAMPLE IDENTIFICATION				COMPOSITE IS DR GRAB (G) INDICATE				PRESERVATIVE				REMARKS			
DATE	TIME			COMPOSITE IS DR GRAB (G) INDICATE	ACQUIS (WATER)	SOLID OR SEMI-SOLID	AF	NONAQUEOUS LIQUID (OL SOLVENT, L)	APP IX VOCs	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GRO	TPH DRO	APP IX Pesticides	APP IX PCBs	TOC	
5/13/08	1010	74-VP1Ba/9-05D		G	X				3			✓	1	3	✓				
	1100	74-VP1Ba/9-09		G	X				3			✓	1	3	✓				
	1140	74-VP3b/9-05		G	X				3			✓	1	3	✓				
	1200	74-VP3b/9-07		G	X				3			✓	1	3	✓				
		74TB13		G	X				3					3					
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME
						5/13/08	1500												
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME
		5/6/09	1500																
RECEIVED FOR LABORATORY BY:		DATE	TIME	CUSTODY #/TACT		CUSTODY SEAL NO.	SAVANNAH LOG #C.	LABORATORY REMARKS											
K		5/14/08	0829	YES <input type="radio"/> NO <input type="radio"/>			610-36711												

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7958

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
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Website: www.testamericainc.com  
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Fax: (912) 352-0165

74-008

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 1	OF 3
LAB/PROJECT MANAGER Kathy E. Smith	PO NUMBER	CONTRACT NO.	COMPOSITE (G) OR GFAB (G) W/DATE ADDITIONAL WATER SOLID OR SEMISOLID AIR NON-AQUEOUS LIQUID (G) SOLVENT	App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRD	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY	
CLIENT(SITE) FW Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE <u>28 Day TAT</u>	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT EMAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108														DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.				PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT	

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (G) OR GFAB (G) W/DATE ADDITIONAL WATER SOLID OR SEMISOLID AIR NON-AQUEOUS LIQUID (G) SOLVENT	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME													
5/13/08	1430	74SB114-04	G X	3			1		3	1				
	1440	74SB114-05	G X	3		✓	1		3	✓				✓ - LL PAHs & DRO from same container
	1500	74SB115-03	G X	3			1		3	1				
	1510	74SB115-05	G X	3			1		3	1				
	1520	74SB116-04	G X	3			1		3	1				
	1530	74SB116-05	G X	3			1		3	1				
	1530	74SB116-05D	G X	3			1		3	1				
	1550	74SB117-03	G X	3			1		3	1				
	1600	74SB117-04	G X	3			1		3	1				
	1610	74SB118-03	G X	3			1		3	1				
	1630	74SB118-05	G X	3			1		3	1				
	1630	74SB119-04	G X	3			1		3	1				

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
				5/14/08	1600			
RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
	5/6/08	1500						

## LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
KL	5/15/08	0917			60-36766	0.6/0.6/1.3/1.1



Serial Number 005161

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamerica.com  
Phone: (912) 324-7858  
Fax: (912) 352-0166

74-008

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

TestAmerica

FedEx Airbill No.:

8617 8652 7958

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	METHOD TYPE		REQUIRED ANALYSIS										PAGE 2	OF 3								
TAL/AB PROJECT MANAGER Kathy E. Smith		PO. NUMBER	CONTRACT NO.	COMPOSITE (C) OR SEPARATE (S) AQUEOUS (WATER) SOLID OR SEMISOLID		APP IX SVOCs		APP IX SVOCs LL PAHs		APP IX Metals (Total)		APP IX Metals (Dissolved)		TPH GRO		TPH DRG		APP IX Pesticides		APP IX PCBs		TOC		STANDARD REPORT DELIVERY <input type="radio"/>	
CLIENT (SITE) FN Mark Ximes		CLIENT PHONE 412.337.7465	CLIENT FAX	CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com																		DATE DUE <del>26</del> Day LAT	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																								EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>	
COMPANY CONTRACTING THIS WORK (if applicable): Michael Baker Jr., Inc.																								DATE DUE _____	
SAMPLE		SAMPLE IDENTIFICATION																						NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
DATE	TIME																							REMARKS	
5/13/08	1640	74SB119-05		G	X			3			1		3	1											
5/14/08	0750	74SB120-04		G	X			3			1		3	1											
	0800	74SB120-05		G	X			3			1		3	1											
	0815	74SB126-02		G	X			3			1		3	1											
	0825	74SB126-05		G	X			3			1		3	1											
	0825	74SB126-05D		G	X			3			1		3	1											
	0855	74SB127-03		G	X			3			1		3	1											
	0910	74SB127-04		G	X			3			1		3	1											
	0925	74SB128-03		G	X			3			1		3	1											
	0940	74SB128-05		G	X			3			1		3	1											
	1010	74SB129-02		G	X			3			1		3	1											
	1025	74SB129-03		G	X			3			1		3	1											
RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE	
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE	
RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	RECEIVED FOR LABORATORY BY: SIGNATURE	
LABORATORY USE ONLY																									
CLERK/INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY REAL NO		SAVANNAH LOG NO		LABORATORY MARKS																			
5/15/08		0917		680-3676		0.6/0.6/1-3/1-1																			



Serial Number 005159

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com

Phone: (912) 354-7856

Fax: (912) 352-0165 74-009

THE LEADER IN ENVIRONMENTAL TESTING

847-8652-7997

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR	MATRIX (V-E)	REQUIRED ANALYSIS										PAGE / 5
TA (LAB) PROJECT MANAGER Kathy R. Smith		PG. NUMBER	CONTRACT NO	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID A/R	NONAQUEOUS LIQUID (OIL SOLVENT...) App IX VOCs	App IX SVOCs	T.L. PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (9) (PM) (ARGE)
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.													DATE DUE
NUMBER OF CONTAINERS SUBMITTED															NUMBER OF COO FRs SUBMITTED PER SHIPMENT
SAMPLE		SAMPLE IDENTIFICATION			REMARKS										
DATE	TIME														
5/14/08	1330	745B141-00			G	X		3		1		3	1		
	1345	745B141-03			G	X		3		1		3	1		
	1345	745B141-03 ms			G	X		3		1		3	1		
	1345	745B141-03 msD			G	X		3		1		3	1		
	1345	745B141-03 ms/msD			G	X		3		1		3	1		
	1400	745B141-05			G	X		3		1		3	1		
	1400	745B141-05D			G	X		3		1		3	1		
	1415	745B142-02			G	X		3		1		3	1		
	1430	745B142-04			G	X		3		1		3	1		
	1450	745B143-02			G	X		3		1		3	1		
	1505	745B143-04			G	X		3		1		3	1		
✓	1525	745B144-03			G	X		3		1		3	1		
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
[Signature]		5/6/08	1500	[Signature]		5/15/08	1600	[Signature]				[Signature]			
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
[Signature]		5/6/08	1500	[Signature]				[Signature]				[Signature]			
LABORATORY USE ONLY															
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES ( ) NO ( )	CUSTODY REAL NO	SAVANNAH LOG NO.	LABORATORY REMARKS								
KL		5/16/08	0902			600-36606	0.2   0.8   0.7   0.7   0.7   1.1   1.3   0.8   0.3   0.8								

Serial Number 305157

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7947

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-3165

74-009

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAEP 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 2	for																
TAL (LAB) PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.		COMPOSITE (G) CH GMS (S) MDCOE		LI. PATH		App IX SVOCs		App IX SVOCs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GED		TPH DRG		App IX Pesticides		App IX PCBs		TOC		STANDARD METHOD DELIVERY							
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		ACQUOUS (WATER)		SOLID (UP) SEMI-SOLID		AIR		NONAQUEOUS (LIQ) (G) SOLVENT (L)		App IX VOCs		App IX SVOCs		LI. PATH		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GED		TPH DRG		App IX Pesticides		App IX PCBs		TOC		DATE DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com		DATE DUE		EXPEDITED REPORT DELIVERY (RUSH CHARGE)		DATE DUE		NUMBER OF COOLERS SUBMITTED PER SHIPMENT		REMARKS																						
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																																
SAMPLE		SAMPLE IDENTIFICATION																																
DATE	TIME																																	
5/14/08	1540	74SB144-05		G		X		3				1		3		1																		
	1540	74SB157-04		G		X		3				1		3		1																		
	1600	74SB157-05		G		X		3				1		3		1																		
	1450	74SB158-03		G		X		3				1		3		1																		
	1500	74SB158-04		G		X		3				1		3		1																		
5/13/08	1410	74SB122-03		G		X		3				1		3		1																		
	1425	74SB122-04		G		X		3				1		3		1																		
	1445	74SB123-03		G		X		3				1		3		1																		
	1500	74SB123-05		G		X		3				1		3		1																		
	1310	74SB124-02		G		X		3				1		3		1																		
	1320	74SB124-05		G		X		3				1		3		1																		
	1550	74SB124-08		G		X		3				1		3		1																		
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME			
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME			
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOS NO.		LABORATORY REMARKS																								

Serial Number 005155

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8614 8652 7947

TestAmerica Savannah  
5102 La Roche Avenue  
Savannah, GA 31406

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0185

74-009

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) ETR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 3	3 <sup>DE</sup>
TAL (LAB) PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.		BOC TX VOCs	App IX SVOCs	IL PAHs	App TX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY <input type="checkbox"/>	
CLIENT SITE/FIRM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE OF E 28 Day IAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL akimes@mbakercorp.com													EXPECTED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE OF E	
COMPANY CONTRACTING THIS WORK (if applicable): Michael Baker Jr., Inc.															NUMBER OF OCCASIONS SUBMITTED FOR SHIPMENT	

SAMPLE		SAMPLE IDENTIFICATION	COMBUSTIBLE (C) OR SOLUBLE (S) IN WATER	ADJUTANT (WATER)	SOLUBLE IN WATER	AQ	HUMIDITY (H) LIQUID (L) SOLID (S)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5/13/08	1600	74SB125-05	G	X			3			1	3	1						
5/14/08	1450	74SB159-03	G	X			3			1	3	1						
	1425	74SB159-05	G	X			3			1	3	1						
	1345	74SB160-04	G	X			3			1	3	1						
	1355	74SB160-05	G	X			3			1	3	1						
5/15/08	0800	74SB146-02	G	X			3			1	3	1						
	0800	74SB146-020	G	X			3			1	3	1						
	0815	74SB146-05	G	X			3			1	3	1						
	0850	74SB147-03	G	X			3			1	3	1						
	0905	74SB147-04	G	X			3			1	3	1						
	0930	74SB148-02	G	X			3			1	3	1						
	0945	74SB148-04	G	X			3			1	3	1						

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
				5/15/08	1600			
RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
	5/16/08	1500						

## LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTOMER INTACT YES <input type="checkbox"/> NO <input type="checkbox"/>	CUSTOMER GAL NO	SAVANNAH LOG NO	LABORATORY REMARKS
KL	5/16/08	0602			600-76506	



Serial Number 005154

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7947

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7808  
Fax: (912) 352-0165

74-009

Alternate Laboratory Name/Location:

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE, PR)	WATER TYPE	REQUIRED ANALYSIS										PAGE 4	5 <sup>th</sup>
TAI (LAB) PROJECT MANAGER Kathy R. Smith	P.O. NUMBER	CONTRACT NO.												STANDARD REPORT DELIVERY <input type="radio"/>	
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15106														DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable): Michael Baker Jr., Inc.														NUMBER OF COOLERS SUBMITTED FOR SHIPMENT	

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRADE (G) ANALYZE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	MONOQUEOUS LIQUID (OL SOLVENT)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5/15/08	1020	74SB149-04	G	X			3		1		3	1						
	1035	74SB149-06	G	X			3		1		3	1						
	1055	74SB150-02	G	X			3		1		3	1						
	1110	74SB150-06	G	X			3		1		3	1						
	1125	74SB152-03	G	X			3		1		3	1						
	1140	74SB152-05	G	X			3		1		3	1						
	1150	74SB153-02	G	X			3		1		3	1						
	1205	74SB153-04	G	X			3		1		3	1						
	0905	74VP08a-07	G	X			3		1		3	1						
	0920	74VP08a-10	G	X			3		1		3	1						
5/14/08	1030	74WVP1Cb 18m	GX				3		2	1	1	3	2					
5/14/08	1030	74WVP1Cb D	GX				3		2	1	1	3	2					Duplicate

RELINQUISHED BY: SIGNATURE: KS 5/14/08	DATE: 5/15/08	TIME: 1600	RELINQUISHED BY: SIGNATURE:	DATE:	TIME:
RECEIVED BY: SIGNATURE:	DATE: 5/6/08	TIME: 1500	RECEIVED BY: SIGNATURE:	DATE:	TIME:

LABORATORY USE ONLY					
RECEIVED FOR LABORATORY BY: (PRINT NAME)	DATE	TIME	CUSTODY/INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	LABORATORY REMARKS
KL	5/16/08	0902		SAVANNAH LOT NO. 600-2306	

Serial Number 005152

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 La Roche Avenue  
Savannah, GA 31404

Website: www.testamericacorp.com

Phone: (912) 354-7858

Fax: (912) 352-0163

74009

☐ Alternate Laboratory Name/Location

 Phone:  
Fax:

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617-8652-7947

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 5	DE 5	
TAL (LAB) PROJECT MANAGER Kathy E. Smith		P.D. NUMBER	CONTRACT NO.												STANDARD REPORT DELIVERY		
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7463	CLIENT FAX												DATE CUE 28 Day-TAT		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkjames@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE)		
CLIENT ADDRESS 100 Airside Dr., Noon Township, PA 15108															DATE CUE		
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															NUMBER OF COOLERS SLEMITTED PER SHIPMENT		
SAMPLE		SAMPLE IDENTIFICATION		CONTAINER TYPE (e.g., 1000 mL BOTTLE, 1000 mL CAN, 1000 mL BOTTLE, 1000 mL CAN, 1000 mL BOTTLE, 1000 mL CAN)		PRESERVATIVE										REMARKS	
DATE	TIME					NUMBER OF CONTAINERS SUBMITTED											
5/14/08	0830	AGW VP3A		GX		3	1	1	1	3	1						
5/14/08	0930	AGW VP3B		GX		3	2	1	1	3	1						
5/14/08	1215	AGW VP1Ca		GX		3	1	1		3							
5/13/08	1500	74ER11		GX		3	2	1	+	3	2						
5/14/08	0705	74ER12		GX		3	2	1	+	3	2						
5/15/08	511308	74TB15		GX		3				3							
5/15/08		74TB16		GX		3				3							
5/15/08	511308	74TB17		GX		3				3							
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME		
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME		
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SFAI NO.	SAVANNAH LOG NO.	LABORATORY REMARKS									
RL		5/16/08	0602				680-313 06										

Serial Number 005151

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

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74-010

Alternate Laboratory Name/Location

Phone:  
Fax:

TestAmerica

FedEx Airbill No.:

8617 8652 7936

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		ACQUIRED ANALYSIS										PAGE 1	OF 6
LAB/PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.		COMPOSITE IC OR GAS/IS/ANALYZE AQUEOUS (WATER) SOLID OR SEMISOLID AIR VOLATILES/ORGANICS/SOLVENTS APP IX VOCs APP IX SVOCs LL PAHs APP IX Metals (Total) APP IX Metals (Dissolved) TPH CRO UPH DRO APP IX Pesticides APP IX PCBs TOC	PRESERVATIVE											STANDARD REPORT DELIVERY	
CLIENT/SITE: FW Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com												EXPEDITED REPORT DELIVERY (SURCHARGE)				
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108														DATE DUE				
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															NUMBER OF COOLERS SUBMITTED PER SHIPMENT			
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS			
DATE	TIME																	
5-15-08	0830	745B131-00			G	X		3		1	3	1						
	0845	745B131-03			G	X		3		1	3	1						
	0845	745B131-03D			G	X		3		1	3	1						
	0845	745B131-03 MS			G	X		3			3							
	0845	745B131-03 MSD			G	X		3			3							
	0845	745B131-03 MS/MSD			G	X				1		1						
	0900	745B131-05			G	X		3		1	3	1			1.1	1.16/2.9/1.1		
	0925	745B132-04			G	X		3		1	3	1			1.4	1.1/1.5/3.6		
	0935	745B132-05			G	X		3		1	3	1			1.1			
	0950	745B133-04			G	X		3		1	3	1			TEMP.			
	1000	745B133-05			G	X		3		1	3	1						
V	1030	745B134-04			G	X		3		1	3	1						
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME			
						5/16/08	1430											
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME			
		5/6/08	1500															
LABORATORY USE ONLY																		
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YFS (C) NO (O)	CUSTODY SEAL NO	SAVANNAH LOG NO.	LABORATORY REMARKS											
KL		5/17/08	0945			60-36850												



Serial Number 005148

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7936

TestAmerica Savannah  
5102 LaRocca Avenue  
Savannah, GA 31404

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Fax: (912) 352-0765

74-010

Atlanta Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 2	OF 6
TA LAB: PROJECT MANAGER Kathy E. Smith		PO. NUMBER	CONTRACT NO.	COMPOSITE (S) OF (TRANS) MATRICES AQUATIC (WATER) SOIL OR SEMI-SOLID AIR	NON-TOXIC LIQUID (OIL SOLVENT...) APP: IX VOCs	APP: IX SVOCs	LL: PAHs	APP: IX Metals (Total)	APP: IX Metals (Unsoluble)	APP: IX PCBs	APP: IX Pesticides	APP: IX PCBs	TOC	STANDARD REPORT DELIVERY		
CLIENT (SIC) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX											DATE IN R <del>28 Day</del> FAX		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com												EXPEDITED REPORT DELIVERY (SURCHARGE)		
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.												DATE CUE		
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										PENALTY	
DATE	TIME															
5-15-08	1045	74SB134-05			G	X		3			1		3	1		
	1100	74SB135-03			G	X		3			1		3	1		
	1110	74SB135-05			G	X		3			1		3	1		
	1125	74SB136-03			G	X		3			1		3	1		
	1125	74SB136-03D			G	X		3			1		3	1		
	1140	74SB136-05			G	X		3			1		3	1		
	1155	74SB137-03			G	X		3			1		3	1		
	1205	74SB137-04			G	X		3			1		3	1		
	1225	74SB138-03			G	X		3			1		3	1		
	1235	74SB138-04			G	X		3		✓	1		3	✓		✓ same bottle
	1310	74SB139-03			G	X		3			1		3	1		
	1320	74SB139-05			G	X		3			1		3	1		
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
		5/6/08	1500			5/6/08	1430									
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
		5/6/08	1500													
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SFAI, NO.	SAVANNAH LOG NO.	LABORATORY REMARKS									
KLM		5/11/08	0945			600-36860										



Serial Number 005150

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7936

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74-010

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE MAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										Page 4	OF 6
TA LAB PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.	COMPOSITE (IG OR GRAB) (INDICATE) AQUEOUS (WATER) SOLID OR SEMISOLID AIR MHAQUEOUS LIQUID (CL, SOLVENT, ...) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Unanalyzed) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC	PRESERVATIVE										STANDARD REPORT DELIVERY DATE DUE 28 Day EAT	
CLIENT SITE PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												EXPEDITED REPORT DELIVERY (SURCHARGE) DATE DUE ..	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													NUMBER OF COPIES SUBMITTED PER SHIPMENT.	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																
SAMPLE		SAMP. IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME															
5-15-08	1350	74-VP07a-01 MS 74SB151-01MS			G	X		3						3		
	1350	74-VP07a-01 MSD 74SB151-01MS			G	X		3						3		
	1350	74-VP07a-01 MS/MSD 74SB151-01MS/MSD			G	X				1			1			
5-16-08	0830	74SB161-00			G	X		3		1		3	1			
	0830	74SB161-00D			G	X		3		1		3	1			
	0845	74SB161-04			G	Y		3		1		3	1			
	0845	74SB161-04D			G	X		3		1		3	1			
	0900	74SB161-05 MS			G	X		3				3				
	0900	74SB161-05 MSD			G	X		3				3				
	0900	74SB161-05 MS/MSD			G	X				1			1			
	0900	74SB161-05			G	Y		3		1		3	1			
	1015	74SB162-04			G	X		3		1		3	1			
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS						

Serial Number 305147

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
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74-010

☐ Alternate Laboratory Name/Location

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Fax:

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7936

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO 111626	PROJECT LOCATION ISTAC/PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 5	OF 6
TAL (LAB) PROJECT MANAGER Kathy E. Smith	PO NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) ANALYSE AQUEOUS (WATER) SOLID (S) OR SEMI (N) AIR MEMBRANE FILTRATION (OL, SOLVENT, I) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY	
CLIENT (SITE) PM Mark Rimes	CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day - IAT	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (S) (H) (C) (R) (E) (T)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108														DATE DUE _____	
COMPANY CONTRACTING THIS WORK (If applicable) Michael Baker Jr., Inc.			<b>PRESERVATIVE</b>										NUMBER OF COPIES SUBMITTED PER SHIPMENT		

SAMPLE		SAMPLE IDENTIFICATION	DATE	TIME	COMPOSITE (C) OR GRAB (G) ANALYSE	AQUEOUS (WATER)	SOLID (S) OR SEMI (N)	AIR	MEMBRANE FILTRATION (OL, SOLVENT, I)	NUMBER OF CONTAINERS QUANTIFIED										REMARKS
DATE	TIME																			
5-16-08	1030	74SB162-05			G	X				3			1		3	1				
	1110	74SB163-03			G	X				3			1		3	1				
	1125	74SB163-04			G	X				3			1		3	1				
5-14-08	1215	74GWVP1Ca			G	X							1		1					
5-15-08	1400	74GWVP11B			G	X				3		2	1	1	3	2				
5-16-08	0840	74GWVP1Aa			G	X				3		1	1	1	3					
5-16-08	0945	74GWVP1Bb/9			G	X				3					3					
5-15-08	1100	74GW74			G	X				3			1	1	3	2				
5-15-08	1107	74GWVP11A			G	X				3		1	1	1	3					
5-15-08	1400	74ER13			G	X				3			1		3	2				
5-16-08	0730	74ER14			G	X				3			1		3	2				
5-15-08		74TB18			G	X				3					3					

RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
<i>[Signature]</i>	5/6/08	1500	<i>[Signature]</i>	5/16/08	1430	<i>[Signature]</i>		

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INDOCT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO. 600-30510	LABORATORY REMARKS
<i>[Signature]</i>	5/16/08	0945				





Serial Number 005140

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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74-011

Alternate Laboratory Name/Location

Phone  
Fax

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPM 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE)PR	MATRIX Type	REQUIRED ANALYSES										PAGE 1	8 <sup>th</sup>
TAL (LAB) PROJECT MANAGER Kathy E. Smith		NO NUMBER	CONTRACT NO	COMPOSITE (G) OF GRAIN (GRAIN) AQUEOUS (WATER) SOLID OR SEMI-SOLID AIR NON-AQUEOUS LIQUID (OIL, SOLVENT, ...) App IX VOCs App IX SVOCs LL PARS App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH RAO App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY	
CLIENT (S) / PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day - TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE	
COMPANY CONTRACTING THIS WORK (If applicable) Michael Baker Jr., Inc.				PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME															
5/16/08	1130	74SB164-04		G	X		3			1		3	1			
	1145	74SB164-05		G	X		3			1		3	1			
	1200	74SB165-04		G	X		3			1		3	1			
	1215	74SB165-05		G	X		3			1		3	1			
	1350	74SB166-04		G	X		3			1		3	1			
	1350	74SB166-04D		G	X		3			1		3	1			
	1405	74SB166-05		G	X		3			1		3	1			
	1430	74SB167-04		G	X		3			1		3	1			
	1445	74SB167-05		G	X		3			1		3	1			
	1500	74SB168-04		G	X		3			1		3	1			
	1515	74SB168-05		G	X		3			1		3	1			
✓	1525	74SB169-04		G	X		3			1		3	1			
DELIVERED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	DELIVERED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
						5/19/08	0430									
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAVANNAH LOG NO		LABORATORY REMARKS						
KL		5/20/08	0900					682-36891		5/14/07 2-9/3.1/2.4/1.0.3/1.4.2/1.5/1.6/4.7/0.6						

Serial Number 005144

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617.862 7925

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Savannah, GA 31404Website: www.testamv.com  
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74-011

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation	REQUEST NO 11626	PROJECT LOCATION STATE: PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 2	8 <sup>CF</sup>	
LAB/PROJECT MANAGER Kathy E. Smith	PG. NUMBER	CONTRACT NO.	COMPOSITE (C) OR AQUEOUS (WATER) SOLID OR SEMI-SOLID API	NON-AQUEOUS LIQUID (OIL, SOLVENT, ...)	App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH CRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY	
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX													DATE DUE <u>28 Day TAT</u>	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E MAIL mkimes@mbakercorp.com														EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable): Michael Baker Jr., Inc.																NUMBER OF COOLERS SUBMITTED PER SHIPMENT

PRESERVATIVE

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE	AQUEOUS	SOLIDS	API	NOYAB	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5/16/08	1540	74SB169-05	G	X			3				1		3	✓			analyses added per Baker KS states	
	1210	74SBVP05a-04	G	X			3				1		3	✓				
	1220	74SBVP05a-09	G	X			3				1		3	✓				
	0915	74SB145-05	G	X			3				1		3	✓				
	0955	74SB145-09	G	X			3				1		3	✓				
	0845	74SBVP96/JPS Hill-03	G	X			3		✓		1		3	✓			Analyses from ✓ = Same sample container	
	0900	74SBVP96/JPS Hill-05	G	X			3		✓		1		3	✓				
	1030	74SBVP10a/JPS Hill-04	G	X			3		✓		1		3	✓				
	1045	74SBVP10a/JPS Hill-05	G	X			3		✓		1		3	✓				
5/17/08	0820	74SB170-04	G	X			3		✓		1		3	✓				
	0805	74SB170-05	G	X			3				1		3	1				
	0845	74SB171-00	G	X			3				1	1pm	3	1				

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
				5/19/08	1030			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

## LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY TAGS YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
KL	5/20/08	0900			620-36591	

Serial Number 005143

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

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74-011

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7925

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE	REQUIRED ANALYSIS										PAGE 3	8 OF
TAL (LAB) PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO		COMPOSITE (COLOR CHANGING) MAGNATE NOBLEOUS (PAPER) SQUAT (OR) SENSITIVE ID AIR	NONAQUEOUS LIQUID (CL. SOLVENT...) APP TX VOCs	APP TX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals* (Dissolved)	TPH CRO	TPH DRO	APP IX Pesticides	APP IX PCBs	TOC	STANDARD REPORT DELIVERY	
CLIENT SITE/PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX													DATE DUE <del>28 Day</del> TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com		EXPEDITED REPORT DELIVERY (SURCHARGE)													
CLIENT ADDRESS 100 Airside Dr., Mount Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.		DATE DUE													
PRESERVATIVE																NUMBER OF COPIES SUBMITTED PER SHIPMENT	
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME																
5/17/08	0900	74SB171-04			G	X		3		1		3	1				
	0900	74SB171-04 MS			G	X		3		1		3	1				
	0900	74SB171-04 MSD			G	X		3		1		3	1				
	0900	74SB171-04 MS/MSD			G	X		3		1		3	1				
	0915	74SB171-05			G	X		3		1		3	1				
	0915	74SB171-05 D			G	X		3		1		3	1				
	0945	74SB172-04			G	X		3		1		3	1				
	1000	74SB172-05			G	X		3		1		3	1				
	1030	74SB173-04			G	X		3		1		3	1				
	1045	74SB173-05			G	X		3		1		3	1				
	1115	74SB174-04			G	X		3		1		3	1				
✓	1200	74SB174-05			G	X		3		✓	1	3	✓				✓ = analyses from the same sample container
REQUISITIONED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	REQUISITIONED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME		
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME		
LABORATORY USE ONLY																	
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY FEEL NO		SAVANNAH LOG NO.		LABORATORY REMARKS							
KL		5/20/08	0900					600-3891									



Serial Number 005142

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7925

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74-011

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION STATE/PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 4	8 <sup>of</sup>
TAL (LAB) PROJECT MANAGER Kathy E. Smith		PC NUMBER	CONTRACT NO	COMPOSITE (C) OR ORIGIN (O) INDICATE AQUEOUS (WATER) SOLID OR SEMI-SOLID AA NON-AQUEOUS LIQUID (OIL, SOLVENT...) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC	App IX VOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY	DATE DUE 28 Day TAT	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		PRESERVATIVE										EXPEDITED REPORT DELIVERY (SUNCLAMP)	DATE DUE
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME															
5/17/08	1440	74SB175-04		G	X	3		1	3	1						
	1455	74SB175-05		G	X	3		1	3	1						
8/15/08	1520	74SB176-04		G	X	3		1	3	1						
1535	1335	74SB176-05		G	X	3		1	3	1						
	1535	74SB176-05 D		G	X	3		1	3	1						
	1550	74SB177-04		G	X	3		1	3	1						
	1605	74SB177-05		G	X	3		1	3	1						
	1445	74SB VP 106/DFM -04		G	X	3	✓	1	3	✓					✓ = analyses from same sample container	
	1500	74SB VP 106/DFM -05		G	X	3	✓	1	3	✓						
	0845	74SB VP 116/JPS Hill -04		G	X	3 <sup>ES</sup>	Stalox	1	3	1						
	0900	74SB VP 116/JPS Hill -05		G	X	3		1	3	1						
	1515	74SB VP 6A -04		G	X	3		1	3	1						
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
LABORATORY USE ONLY																
FIELD VLD FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEALING		SAVANNAH LOG NO. 610-76571		LABORATORY REMARKS						
KL		5/26/08	0900													

Serial Number 005141

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7925

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74-011

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAFR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGL 5	8 <sup>th</sup>
TAL (LAB) PROJECT MANAGER Kathy K. Smith	P.C. NUMBER	CONTRACT NO.	COMPOSITE (C) OR COMPOSITE (O) INDICATE	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GRO	TPH DRO	APP IX Pesticides	APP LX PCBs	TOC	STANDARD REPORT DELIVERY		
CLIENT (S) NAME Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX	AGUEUS (WATER)	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GRO	TPH DRO	APP IX Pesticides	APP LX PCBs	TOC	DATE DUE 28 Day TAT		
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E MAIL mkimes@mbakercorp.com		SOLID OR SEMISOLID	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GRO	TPH DRO	APP IX Pesticides	APP LX PCBs	TOC	EXPEDITED REPORT DELIVERY (SURCHARGE)		
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108			DATE	PRESERVATIVE										DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.			TIME	NUMBER OF CONTAINERS SUBMITTED										NUMBER OF COOLERS SUBMITTED PER SHIPMENT	

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR COMPOSITE (O) INDICATE	AGUEUS (WATER)	SOLID OR SEMISOLID	AIR	KNOX/JEOL/LIQUID (OIL SOLVENT)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5/17/08	1210	74SBVP6Ba-03	G	X			3			1		3	1					
	1220	74SBVP6Ba-04	G	X			3			1		3	1					
	0835	74SBVP6Cb-04	G	X			3			1		3	1					
	0855	74SBVP6Cb-07	G	X			3			1		3	1					
5/18/08	0845	74SB200-04	G	X			3			1		3	1					
	0900	74SB200-05	G	X			3			1		3	1					
	0915	74SB201-00	G	X			3			1		3	1					
	0930	74SB201-04	G	X			3			1		3	1					
	0930	74SB201-04D	G	X			3			1		3	1					
	0945	74SB201-05	G	X			3			1		3	1					
	0945	74SB201-05MS	G	X			3					3						
	0945	74SB201-05MSD	G	X			3					3						

RELINQUISHED BY (SIGNATURE):	DATE	TIME	RELINQUISHED BY (SIGNATURE):	DATE	TIME	RELINQUISHED BY (SIGNATURE):	DATE	TIME
RECEIVED BY (SIGNATURE):	DATE	TIME	RECEIVED BY (SIGNATURE):	DATE	TIME	RECEIVED BY (SIGNATURE):	DATE	TIME

## LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Km	5/20/08	0600			680-76891	

Serial Number 005138

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamerica.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

74-011

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7925

REQUEST/REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 6	8 <sup>th</sup>													
CLIENT PROJECT MANAGER Kathy R. Smith		PROJECT NO.	CONTRACT NO.		COMPOSITE/CR GRAB/INDICATE ACIDULS/MATERIAL SOLID OR SEMISOLID AIR		NONVOLATILES LIQUIDICAL SOLID (L) App IX VOCs		App IX SVOCs		LI. PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH CRO		TPH DRO		App IX Pesticides		App IX PCBs		TOC		STANDARD REPORT DELIVERY DATE DUE 28 Day TAT				
CLIENT SITE PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX																								EXPEDITED REPORT DELIVERY (SUNCHARGE) DATE DUE				
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com																										NUMBER OF COPIES SUBMITTED PER SHIPMENT			
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																															
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																															
SAMPLE		SAMPLE IDENTIFICATION																													
DATE	TIME																														
5/18/08	0900	745B VP6 Aa -07		G		X		3		1		3	1																		
	0945	745B 201-05 MS/MSD		G		X		3		1		3	1																		
	0955	745B 202-04		G		X		3		1		3	1																		
	1010	745B 202-05		G		X		3		1		3	1																		
	1020	745B 203-04		G		X		3		1		3	1																		
	1035	745B 203-05		G		X		3		1		3	1																		
	1100	745B 204-04		G		X		3		1		3	1																		
	1115	745B 204-05		G		X		3		1		3	1																		
	1145	745B 205-04		G		X		3		1		3	1																		
	1200	745B 205-05		G		X		3		1		3	1																		
	1115	745B VP19b -03		G		X		3		✓	1		3	✓																	
✓	1130	745B VP19b -05		G		X		3		✓	1		3	✓																	
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAVANNAH LOG NO		LABORATORY REMARKS																					
KEL		5/20/08	0900					600-36841																							

Serial Number 005137

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7925

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 7	8 OF
LAB PROJECT MANAGER Kathy E. Smith	PO NUMBER	CONTRACT NO.	COMPOSITE (G) OR GRAB (G) IN DATE AQUEOUS (WATER) SOLID OR SEMI-SOLID AIR NON-AQUEOUS LIQUID (OR SOLID) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY	
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT EMAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SUNCHARGE)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108														DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.			PRESERVATIVE										NUMBER OF COOLERS SUBMITTED FOR SHIPMENT		

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (G) OR GRAB (G) IN DATE AQUEOUS (WATER) SOLID OR SEMI-SOLID AIR NON-AQUEOUS LIQUID (OR SOLID) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME													
5/14/08	1107	74GWVP1Ca	GX											
5/14/08	0830	74GWVP3a	GX											Good broken 5/21/08
5/16/08	0840	74GWVP1Aa	GX											
5/16/08	0945	74GWVP1Bb/9	GX											
5/17/08	1430	74GWVP3b/9	GX											
5/17/08	1130	74GWVP3a/9	GX											dissolved metal acid broken 5/21/08
5/17/08	1505	74GW84	GX											
5/18/08	1230	74GWVP06	GX											
5/18/08	1345	74GWVP10a/DFM	GX											
5/18/08	1315	74GWVP2b/9	GX											
5/18/08	1130	74GWVP1Ab/9	GX											
5/16/08		74TB21	GX											

RELINQUISHED BY (signature)	DATE	TIME	RECEIVED BY (signature)	DATE	TIME	RELINQUISHED BY (signature)	DATE	TIME
				5/19/08	1630			
RECEIVED BY (signature)	DATE	TIME	RECEIVED BY (signature)	DATE	TIME	RECEIVED BY (signature)	DATE	TIME

RECEIVED FOR LABORATORY BY (signature)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Bk		5/20/08	0900			680-36891	

Serial Number 005136

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

TestAmerica Savannah  
5192 LaRoche Avenue  
Savannah GA 31404

Website: www.testamericainc.com  
Phone: (912) 854 7858  
Fax: (912) 352-0185

74-011

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7925

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 8	OF 8
TALILARY PROJECT MANAGER Kathy B. Smith		PO. NUMBER	CONTRACT NO.	COMPOSITE (1) OR OTHER (1) MISC. (1) AQUEOUS (1) WATER (1) SOLID (1) SEMI-SOLID (1) AIR (1) NON-AQUEOUS LIQUID (1) SOLID (1)	App IX VOCs	App IX SVOCs	IL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY	
CLIENT (SITE) PM Mark Rimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE <u>28 Day TAT</u>	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mrimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15103															DATE DUE _____	
COMPANY CONTRACTING THIS WORK (If applicable) Michael Baker Jr., Inc.					<b>PRESERVATIVE</b>										NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME															
5/17/08		74TB22			G-X		3					3				
5/18/08		74TB23			G-X		3					3				
5/17/08		74TB24			G-X		3					3				
5/17/08	0700	74ER15			G-X		3		1		3	2				
5/18/08	0730	74ER16			G-X		3		1		3	2				
5/19/08	0715	74ER17			G-X		3		1		3	2				
REUNCLISHED BY (SIGNATURE)		DATE	TIME	REUNCLISHED BY (SIGNATURE)	DATE	TIME	REUNCLISHED BY (SIGNATURE)		DATE	TIME	REUNCLISHED BY (SIGNATURE)		DATE	TIME		
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME		
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES ( ) NO ( )	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS									
K.R.		5/20/08	0900			680-36891										



Serial Number 005135

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

TestAmerica Savannah  
5102 LaRue Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 554-7858  
Fax: (912) 352-0165

74-012

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7914

PROJECT REFERENCE NAEP 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 1	5 <sup>th</sup>																		
TAI LAB PROJECT MANAGER Kathy E. Smith		PO. NUMBER	CONTRACT NO.		NATRX TYPE		<input type="checkbox"/> App IX SVOCs <input type="checkbox"/> LL PAHs <input type="checkbox"/> App IX Metals <input type="checkbox"/> (Total) <input type="checkbox"/> App IX Metals <input type="checkbox"/> (Dissolved) <input type="checkbox"/> TPH GRO <input type="checkbox"/> TPH DRG <input type="checkbox"/> App IX Pesticides <input type="checkbox"/> App IX PCBs <input type="checkbox"/> TOC										STANDARD REPORT DELIVERY																			
CLIENT (SPE, FW) Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		DATE DUE 28 Day TAT												EXPEDITED REPORT DELIVERY (UNCHARGE)																			
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com		DATE REC _____												NUMBER OF COOLERS SUBMITTED PER SHIPMENT																				
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108					PRESERVATIVE																															
COMPANY CONTRACTING THIS WORK (2 spots max) Michael Baker Jr., Inc.																																				
SAMPLE		SAMPLE IDENTIFICATION			COMPOSITE (C) OR GRAB (G) INDICATE		ACQUISITION (WATER)		SOLID OR SEMI-SOLID		AIR		HOMOCYCLIC LIQUID OR SOLID (L)		APP IX VOCs		APP IX SVOCs		LL PAHs		APP IX Metals (Total)		APP IX Metals (Dissolved)		TPH GRO		TPH DRG		APP IX Pesticides		APP IX PCBs		TOC		REMARKS	
DATE	TIME																																			
5/19/08	1050	745B184-04			G	X										3						1														
	1105	745B189-05			G	X										3						1														
	1330	745B188-03			G	X										3						1														
	1345	745B188-04			G	X										3						1														
	1350	745B189-03			G	X										3						1														
	1400	745B189-05			G	X										3						1														
	1410	745B190-03			G	X										3						1														
	1425	745B190-05			G	X										3						1														
	1435	745B191-00			G	X										3						1														
	1515	745B191-03			G	X										3						1														
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RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	
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SIGNATURE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	
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SIGNATURE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	
SIGNATURE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	
SIGNATURE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	
SIGNATURE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	
SIGNATURE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	
SIGNATURE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CHARGE		DATE	TIME	CUSTODY IN CH																				

Serial Number 005134

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7914

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamercainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0155

74-012

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE)PR		MATRIX TYPE	REQUIRED ANALYSIS										PAGE 2	5 OF		
LAB PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO.													STANDARD REPORT DELIVERY			
CLIENT SITE PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX													DATE OUT 28 Day TAT			
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com														EXPEDITED DELIVERY (SURCHARGE)			
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																DATE DUE			
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.						PRESERVATIVE										NUMBER OF COPIES SUBMITTED PER SHIPMENT:			
SAMPLE		SAMPLE IDENTIFICATION			COMPOSITE (W) OR GRAVE (G) INDICATE	ADJUTANT (WATER)	SOLID OR SEMI-SOLID	AIR	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																		
5/19/08	1545	745B191-05 MS			G	X			3					3					
	1545	745B191-05 MSD			G	X			3					3					
	1545	745B191-05 MS/MSD			G	X					1			1					
	1600	745B192-03			G	X			3					3	1				
	1615	745B192-05			G	X			3					3	1				
	0800	745B178-04			G	X			3					3	1				
	0815	745B178-05			G	X			3					3	1				
	0830	745B179-04			G	X			3					3	1				
	0845	745B179-05			G	X			3					3	1				
	0855	745B180-04			G	X			3					3	1				
	0905	745B180-05			G	X			3					3	1				
↓	0915	745B181-00			G	X			3					3	1				
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME				
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME				
LABORATORY USE ONLY																			
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SCALE NO.		SAVANNAH LOG NO.		LABORATORY REMARKS									
Kb		5/21/08	0952					60-36925											

Serial Number J05133

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7914

TestAmerica Savannah  
6202 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamercinc.com  
Phone: (912) 354-7958  
Fax: (912) 352-0185

74-012

Alabama Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) LR	MATRIX TYPE	REQUIRED ANALYSES										PAGE 3	OF 5
LAB PROJECT MANAGER Kathy E. Smith	PO NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAVIMETRIC (G) AQUEOUS (WATER) SOLID OR SEMISOLID AIF MONOLICULOUS LIQUID OR SOLVENT (L) APP IX VOCs	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GRO	TPH DRO	APP IX Pesticides	APP IX PCBs	TOC	STANDARD REPORT DELIVERY		
CLIENT SITE PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SUNDTIME)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108														DATE DUE	
COMPANY CONTRACTING THIS WORK (If applicable) Michael Baker Jr., Inc.			PRESERVATIVE										NUMBER OF COPIES SUBMITTED PER SHIPMENT:		

SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME														
5/19/08	0925	745B181-04					3		1		3	1			
	0925	745B181-04 MS					3				3				
	0925	745B181-04 MS/D					3				3				
	0925	745B181-04 MS/MSD							1			1			
	0935	745B181-05					3		1		3	1			
	0935	745B181-05 D					3		1		3	1			
	0950	745B182-04					3		1		3	1			
	1005	745B182-05					3		1		3	1			
	1025	745B183-04					3		1		3	1			
	1035	745B183-05					3		1		3	1			
	1035	745B185-03					3		1		3	1			
	1045	745B185-05					3		1		3	1			

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
				5/20/08	1630			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

## LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
KL	5/21/08	0852			600-76925	



Serial Number 005132

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7914

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7808  
Fax: (912) 352-0155

74-012

☐ Atlanta Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAP 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION STATE/R		MATRIX TYPE	REQUIRED ANALYSIS										PAGE 4 OF 5
TAL (LAE) PROJECT MANAGER Kathy E. Smith		PC NUMBER	CONTRACT NO.													STANDARD REPORT DELIVERY
CLIENT (SITE) FM Mark Kimes		CLIENT PHONE 12.337.7465	CLIENT FAX													DATE NAF28 Day TAT
CLIENT NAME Michael Baker Jr., Inc.		CLIENTE-VA1 mkimes@mbakercorp.com														EXPEDITED REMEDIATION DELIVERY (SURCHARGE)
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																NUMBER OF COOLERS SUBMITTED PER SHIPMENT
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (C) OR GRAB (G) INDICATE	LIQUID (L) OR SOLID (S)	PRESERVATIVE										REMARKS
DATE	TIME			AQUEOUS (A) OR SOLID OR SEMISOLID	AIR	NUMBER OF CONTAINERS SUBMITTED										
5/19/08	1100	74SB186-03		G	X	3	1	3	1							
	1110	74SB186-05		G	X	3	1	3	1							
	1130	74SB187-03		G	X	3	1	3	1							
	1140	74SB187-04		G	X	3	1	3	1							
	1230	74SB206-04		G	X	3	1	3	1							
	1230	74SB206-04D		G	X	3	1	3	1							
	1240	74SB206-05		G	X	3	1	3	1							
	1300	74SB207-04		G	X	3	1	3	1							
	1310	74SB207-05		G	X	3	1	3	1							
	1345	74SB209-04		G	X	3	1	3	1							
	1355	74SB209-05		G	X	3	1	3	1							
✓	1400	74SB210-04		G	X	3	✓	1	3	✓					✓ = analyses from same container	
RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	CUSTODY INACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS						
KL		5/21/08	0852					68-36125								

Serial Number 005131

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5107 La Roche Avenue  
Savannah, GA 31404

Website: www.testamercainc.com  
Phone: (912) 554-7958  
Fax: (912) 352-0165

TestAmerica

FedEx Airbill No.:

8617-8652 7914

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) OR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 5	OF 5
LAB/ABJ PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.	COMPOSITE (S) OR ORGAS (INDICATE) AQUEOUS (WATER) SOLID (SEMISOLID) AIR NONAQUEOUS LIQUID (OIL SOLVENT, ...) APP TX VOCs APP IX STOCs LL PCBs App IX Metals (Total) App IX Metals (Dissolved) TPH GRP TPH DRD App IX Pesticides App IX PCBs TOC	App IX VOCs	App IX STOCs	LL PCBs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRP	TPH DRD	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY	
CLIENT (SPE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		DATE DUE 28 Day TAT											
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com			EXPEDITED REPORT DELIVERY (SURCHARGE)											
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.			DATE DUE											
PRESERVATIVE															NUMBER OF COPIES SUBMITTED PER SHIPMENT	
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME															
5/19/08	1410	745B210-05 5/21-add not rec 8260 w GLO Ks			G	X	3	2	1	1	3	2			✓ - analyses from same container	
	0845	746WVP2a/9			G	X	3	2	1	1	3	2				
	1730	746WVP10A/JP5Hill			G	X	3	2	1	1	3	2				
	1930	746WVP1Ba/9			G	X	3				3					
5/19/08		74TB 25			G	X	3				3					
5/19/08		74TB 26			G	X	3				3					
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS						
Kil		5/20/08	0852					600-4425								

Serial Number 005130

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7605

TestAmerica Savannah  
5102 La Roche Avenue  
Savannah, GA 31404

Website: www.testamerica.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

74-013

Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPE 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) TX		NATRA TYPE		REQUIRED ANALYSIS										PAGE 1	OF 8																	
TALASH PROJECT MANAGER Kathy L. Smith		ED NUMBER	CONTRACT NO.														STANDARD REPORT DEU/CTV																		
CLIENT (STR) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DUE 18 Day TAT																		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT EMAIL mkimes@mbakercorp.com																EXPEDITED RETORT OF VFRY (SURCHARGE)																	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																		DATE DUE																	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.								PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT																	
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (C) OR GRAVE (G) INDICATE		POLYIONS (WATER)		SOLID OR SEMISOLID		AIR		HOMOCIOUS (H) OR HETEROG. (H)		App IX SVOCs		App IX SVOCs		LL PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GRD		TPH DRG		App IX Pesticides		App IX PCBs		TOC		REMARKS	
DATE	TIME																																		
5/19/08	1410	74SB210-05		G	X										3																				
	1450	74SB211-06		G	X										3																				
	1445	74SB211-03		G	X										3																				
	1445	74SB211-03.0		G	X										3																				
	1500	74SB211-04		G	X										3																				
	1500	74SB211-04 ms		G	X										3																				
	1500	74SB211-04 MSD		G	X										3																				
	1500	74SB211-04 ms/msd		G	X																														
	1320	74SB213-03		G	X										3																				
	1400	74SB215-03		G	X										3																				
	1415	74SB216-03		G	X										3																				
	1425	74SB216-05		G	X										3																				
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)			
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)			
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAVANNAH LOG NO		LABORATORY REMARKS																									
KL		5/22/08	0900					600-36978		1/1/1.4/5.8/2.1/4.1/1/2.2/2.2/1/1/0.7/0.3																									

Serial Number 005129

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

74-013

Alternate Laboratory Name/Location

Phone  
Fax

TestAmerica

FedEx Airbill No.:

8617 8652 7605

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSES										PAGE 2	8 <sup>00</sup>																			
LABORATORY PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.												STANDARD REPORT DELIVERY																				
CLIENT SITE PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE <del>28</del> Day TAT																				
CLIENT NAME Michael Baker Jr., Inc.		CUSTOMER MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE)																				
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE																				
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.					PRESERVATIVE										NUMBER OF COOLES SUBMITTED PER SHIPMENT																				
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (1 OF 10) GRAB (10 MINUTE)		AQUEOUS (ARBIT)		SOLID OR SEMISOLID		AR		MONOCYCLOUS LIXID (OL SOLVENT)		App IX VOCs		App IX SVOCs		LL PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH CRO		TPH DRO		App IX Pesticides		App IX PCBs		TOC		REMARKS	
DATE	TIME																																		
5/19/08	1425	74SB216-05D		G	X							3			1		3	1																	
	1520	74SB218-03		G	X							3			1		3	1																	
	1530	74SB218-05		G	X							3			1		3	1																	
	0825	74SBVP20-05		G	X							3			1		3	1																	
	0845	74SBVP20-06		G	X							3			✓	1		3	✓																
	1040	74SBVP1982-05		G	X							3			1		3	1																	
5/20/08	0855	74SB221-00		G	X							3			1		3	1																	
	0855	74SB221-00D		G	X							3			1		3	1																	
	0920	74SB221-02		G	X							3			✓	1		3	✓																
	0920	74SB221-02MS		G	X							3					3																		
	0920	74SB221-02MSD		G	X							3					3																		
	0920	74SB221-02MS/MSD		G	X							3			✓	1		3	✓																
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)			
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)			
RECEIVED FOR LAUNCH BY (SIGNATURE)		DATE	TIME	CUSTODY IN/OUT		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS																									
fh		5/22/08	0900	YES <input type="radio"/> NO <input type="radio"/>				600-26978																											





Serial Number 005127

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8667 8652 7605

TestAmerica Savannah  
5132 La Roche Avenue  
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Phone: (912) 554-7858  
Fax: (912) 352-3765

74-013

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION ISTATE: pr		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 4	8															
TAI (LAB) PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY																
CLIENT SITE PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DUE 28 Day TAT																
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com																EXPEDITED REPORT DELIVERY (SURCHARGE)															
CLIENT ADDRESS 100 Altside Dr., Moon Township, PA 15108																		DATE DUE															
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.								PRESERVATIVE										NUMBER OF COPIES SUBMITTED PER SHIPMENT															
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE FOR GRAB(S) INDICATE		ADDITIONAL WATER		SOLID ON SEMI-SOLID		AIR		NON-VOLATILE LIQUID (UL, SOLVING, ...)		App IX VOCs		App IX SVOCs		LI. PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GRO		TPH DRO		App IX Pesticides		App IX PCBs		TOC	
DATE		TIME																															
5/20/08		0815		74SB227-05		G		X				3		✓		1		3		✓													
		0840		74SB193-03		G		X				3				1		3		1													
		0845		74SB193-05		G		X				3				1		3		1													
		0855		74SB194-03		G		X				3				1		3		1													
		0910		74SB194-05		G		X				3				1		3		1													
		0930		74SB195-03		G		X				3				1		3		1													
		0940		74SB195-05		G		X				3				1		3		1													
		1020		74SB196-03		G		X				3				1		3		1													
		1020		74SB196-03A		G		X				3				1		3		1													
		1030		74SB196-05		G		X				3				1		3		1													
		1055		74SB197-03		G		X				3				1		3		1													
		1110		74SB197-05		G		X				3				1		3		1													
RELEASED BY (SIGNATURE)		DATE		TIME		RELEASED BY (SIGNATURE)		DATE		TIME		RELEASED BY (SIGNATURE)		DATE		TIME		RELEASED BY (SIGNATURE)		DATE		TIME		RELEASED BY (SIGNATURE)		DATE		TIME		TIME			
RECEIVED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME		TIME			
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE		TIME		CUSTODY INTACT		CUSTODY SEALING		SAVANNAH LOG NO.		LABORATORY REMARKS																					
fkh		5/22/08		0900		YES <input type="radio"/>		NO <input type="radio"/>		610-36178																							

Serial Number 005126

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7605

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamercaninc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

74-013

☐ Alternate Laboratory Name/Location

Phone  
Fax

PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 5	8
TAL (LAB) PROJECT MANAGER Kathy E. Smith	PO NUMBER	CONTRACT NO.												STANDARD REPORT DELIVERY	
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E-MAIL mkimes@mbakercorp.com													EXPECTED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108														DATE DUE	
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.														NUMBER OF COOLERS SUBMITTED PER SHIPMENT	

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE	ADDED	SIZE (D)	AIR	KCMNO	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5/20/08 ↓	0825	74SB228-04	G	X			3			1		3	1					
	0835	74SB228-05	G	X			3		✓	1		3	✓					
	0905	74SB229-04	G	X			3			1		3	1					
	0920	74SB229-05	G	X			3			1		3	1					
	0930	74SB230-04	G	X			3			1		3	1					
	0945	74SB230-05	G	X			3		✓	1		3	✓					
	1200	74SB231-00	G	X			3			1		3	1					
	1200	74SB231-00D	G	X			3			1		3	1				cancel per client KS 5/22/08	
	1210	74SB231-04	G	X			3			1		3	1					
	1210	74SB231-04ms	G	X			3					3						
	1210	74SB231-04msA	G	X			3					3						
	1210	74SB231-04ms/msA	G	X						1			1					

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
				5/24/08	1630			
RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO	SAVANNAH LOG NO.	LABORATORY REMARKS
KL		5/22/08	0900			610-36976	





Serial Number 005122

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☐ TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
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Fax: (912) 352-0165

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

# TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111625	PROJECT LOCATION (STATE) PK	MATRIX TYPE	REQUIRED ANALYSIS										PAUSE 7	8
LAB/PROJECT MANAGER Kathy E. Smith		PC NUMBER	CONTRACT NO.	COMPOSITE OR CRUSH/INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR	NON-AQUEOUS LIQUID (OIL, SOLVENT, ...) APP IX VOCs	APP IX SVOCs	LL PAHs	APP IX Metals (Total)	APP IX Metals (Dissolved)	TPH GRD	TPH DRG	APP IX Pesticides	APP IX PCBs	TOC	STANDARD REPORT DELIVERY	
CLIENT IS/CFW Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day TAT	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.													DATE CMF	
PRESERVATIVE															NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS	
DATE	TIME															
5/20/08	0920	74GW9mw025ms			GX		3	2	1	1	3	2				
5/20/08	0920	74GW9mw025msd			GX		3	2	1	1	3	2				
5/21/08	0830	74GW/51			GX		3		1	1	3	2				
5/21/08	1030	74GW VP07			GX		3		1	1	3	2				
5/16/08	0945	74GW VP1 Bb/9			GX							1				
5/18/08	1130	74GW VP1 Ab/9			GX											
5/16/08	1105	74GW VP6 Cb			GX		3	1	1	3	1					
5/20/08	1135	74GW VP6 Ca			GX		3		1	1	3					
5/21/08	0930	74GW 145			GX		3				3					
5/20/08	0710	74ER18			GX		3	2	1		3	2				
5/24/08	0720	74ER19			GX		3		1		3	2				
5/19/08		74TB27			GX		3				3					
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS						
KL		5/22/08	0900					680-36978								





## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamercan.com  
Phone: (912) 354-7858  
Fax: (912) 352-0135

74-014

Alternate Laboratory Name/Location

Please  
Fax:

TestAmerica

FedEx Airbill No.:

8617 8652 7590

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 2	OF 7
IN CHARGE/MANAGER Kathy E. Smith		ED NUMBER	CONTRACT NO		MATRIX TYPE		REQUIRED ANALYSIS										STANDARD REPORT DELIVERY	
CLIENT(SITE) PM Mark Kines		CLIENT PHONE 412.337.7465	CLIENT FAX		MATRIX TYPE		REQUIRED ANALYSIS										DATE DUE <u>24 Day TAT</u>	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkines@mbakercorp.com		MATRIX TYPE		REQUIRED ANALYSIS										EXPIRED REPORT DELIVERY (SURCHARGE)		
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		MATRIX TYPE		REQUIRED ANALYSIS										DATE DUE				
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.		MATRIX TYPE		REQUIRED ANALYSIS										NUMBER OF COOLERS SUBMITTED PER SHIPMENT				
SAMPLE		SAMPLE IDENTIFICATION		MATRIX TYPE		REQUIRED ANALYSIS										REMARKS		
DATE	TIME	SAMPLE IDENTIFICATION		MATRIX TYPE		REQUIRED ANALYSIS										REMARKS		
5/21/08	0800	74SB 264-03 18m 5/22/08		G X		3		1	3	1								
	0810	74SB 264-04		G X		3	✓	1	3	✓								
	1220	74SB 256-03		G X		3		1	3	1								
	1220	74SB 256-03D		G X		3		1	3	1								
	1235	74SB 256-04		G X		3		1	3	1								
	1145	74SB 258-03		G X		3		1	3	1								
	1155	74SB 258-05		G X		3		1	3	1								
	1115	74SB 259-03		G X		3		1	3	1								
	1125	74SB 259-04		G X		3		1	3	1								
	1025	74SB 260-03		G X		3		1	3	1								
	1040	74SB 260-04		G X		3	✓	1	3	✓								
	0920	74SB 261-00		G X		3		1	3	1								
RELINQUISHED BY SIGNATURE		DATE	TIME	RELINQUISHED BY SIGNATURE		DATE	TIME	RELINQUISHED BY SIGNATURE		DATE	TIME	RELINQUISHED BY SIGNATURE		DATE	TIME			
RECEIVED BY SIGNATURE		DATE	TIME	RECEIVED BY SIGNATURE		DATE	TIME	RECEIVED BY SIGNATURE		DATE	TIME	RECEIVED BY SIGNATURE		DATE	TIME			
LABORATORY USE ONLY																		
RECEIVED FOR LABORATORY BY (PRINT NAME)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO		LABORATORY REMARKS								
KL		5/23/08	0406					680-32020										



Serial Number 005173

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

847 8652 7590

TestAmerica Savannah  
5702 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
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Fax: (912) 352-0165

74-014

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE KAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) ZIP GA 31404		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 3	7 <sup>th</sup>													
LABORATORY PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY														
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412-337-7465	CLIENT FAX														DATE DUE 28 Day TAT														
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com															EXPEDITED REPORT DELIVERY IS REQUIRED:														
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																		DATE DUE													
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.								PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT:													
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE, CLOTH OR ORGANIC MEDIATE AQUEOUS (WATER) SOLID OR SEMISOLID		AIR		PRESERVE LIQUID (OIL, SOLVENT, ...) App IX VOCs		App IX SVOCs		LL PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GRN		TPH BRO		App IX Pesticides		App IX PCBs		TOC		REMARKS			
DATE	TIME																														
5/2/08	0140	74SB 261-03		G	X		3								1		3		1												
	0940	74SB 261-03D		G	X		3								1		3		1												
	0940	74SB 261-03 MS		G	X		3										3														
	0940	74SB 261-04 MSD		G	X		3										3														
	0940	74SB 261-04 MS/MSD		G	X		3							1					1												
	0855	74SB 262-03		G	X		3								1		3		1												
	0900	74SB 236-04		G	X		3								1		3		1												
	0810	74SB 236-05		G	X		3								1		3		1												
	0810	74SB 236-05D		G	X		3								1		3		1												
	0845	74SB 237-04		G	X		3								1		3		1												
	0900	74SB 237-05		G	X		3								1		3		1												
	0940	74SB 238-04		G	X		3								1		3		1												
RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME
RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	CUSTODY IN/OUT		YES	NO	CUSTODY SEAL NO.		SAVANNAH	LAB NO.	LABORATORY REMARKS																			
FL		5/2/08	0940								60-37020																				

Serial Number 005172

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7590

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-6155

74-014

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPM 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION STATE: PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 4	OF 7
TPI LAB/PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO		COMPOSITE/SUBSTRATE AQUICUS/MATERIAL SOLID/SEMISOLID APR	NONAQUEOUS LIQUID (OIL/SOLVENT...) APP IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TUC	STANDARD REPORT DELIVERY		
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX				App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRO	App IX Pesticides	App IX PCBs	TUC	DATE DUE: 28 Day TAT		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com		PRESERVATIVE										EXPEDITED REPORT DELIVERY (UNCHARGED)				
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108				NUMBER OF CONTAINERS SUBMITTED										DATE DUE				
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																NUMBER OF COOLERS ELIMINATED PER SHIPMENT		
SAMPLE		SAMPLE IDENTIFICATION						NUMBER OF CONTAINERS SUBMITTED								REMARKS		
DATE	TIME																	
5/21/08	0950	74SB 238-05				G	X	3		1	3	1						
	1000	74SB 239-04				G	X	3		1	3	1						
	1011	74SB 239-05				G	X	3		1	3	1						
	1040	74SB 240-04				G	X	3		1	3	1						
	1050	74SB 240-05				G	X	3		1	3	1						
	1400	74SB 241-00				G	X	3		1	3	1						
	1410	74SB 241-04				G	X	3		1	3	1						
	1410	74SB 241-040				G	X	3		1	3	1						
	1420	74SB 241-05				G	X	3		1	3	1						
	1420	74SB 241-05 MS				G	X	3			3							
	1420	74SB 241-05 MSO				G	X	3			3							
✓	1420	74SB 241-05 MS/MSO				G	X											
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME			
				John Malinowski		5/21/08	1630											
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME			
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS								
KL		5/21/08	0906					600-3704										

Serial Number 005124

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

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TestAmerica

FedEx Airbill No.:

8617 8652 7590

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 5	OF 7													
TAL/CAB/PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY														
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DUE 28 Day TAT														
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com																EXPANDED REPORT DELIVERY (AIR-CHARGE)													
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																		DATE DUE													
COMPANY CONTRACTING THE WORK (if applicable) Michael Baker Jr., Inc.								PRESERVATIVE										NUMBER OF COPIES SUBMITTED PER SHIPMENT													
SAMPLE		SAMPLE IDENTIFICATION		CONTAINER (G/L OR G/L SOLVENT) MOLECULAR (WATER) SOLID OR SEMISOLID		MR		NONVOLATILES LIQUID (OL. SOLVENT)		App IX VOCs		App IX SVOCs		LL PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GRO		TPH DRO		App IX Pesticides		App IX PCBs		IDC		REMARKS	
DATE	TIME																														
5/21/08	0755	745B 245-03		G	X					3			1		3	1															
	0805	745B 245-05		G	X					3			1		3	1															
	0825	745B 246-03		G	X					3			1		3	1															
	0825	745B 246-030		G	X					3			1		3	1															
	0835	745B 246-05		G	X					3			1		3	1															
	0900	745B 247-03		G	X					3			1		3	1															
	0955	745B 248-03		G	X					3			1		3	1															
	1010	745B 249-03		G	X					3			1		3	1															
	1025	745B 250-03		G	X					3			1		3	1															
	1030	745B 250-05		G	X					3			1		3	1															
	1120	745B 251-00		G	X					3			1		3	1															
✓	1130	745B 251-03		G	X					3			1		3	1															
RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME
LABORATORY USE ONLY																															
RECEIVED FOR LABORATORY BY: SIGNATURE		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAVANNAH LOG NO		LABORATORY REMARKS																					
KL		5/23/08	0906					600-33020																							

Serial Number 005113

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7570

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

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Fax: (912) 352-0195

74-014

Atlanta Laboratory Name/Location

Phone  
Fax

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 6	7 <sup>th</sup>																	
TA LAB PROJECT MANAGER Kathy E. Smith		PO NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY																		
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE DUE 28 Day TAT																		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com																EXPEDITED REPORT DELIVERY (SURCHARGE)																	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																		DATE DUE																	
COMPANY CONTRACTING THE WORK (if applicable) Michael Baker Jr., Inc.								PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT																	
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (C) OR GRAV (G) INDICATE		AQUEOUS (WATER)		SOLID OR SEMI-SOLID		ALL		NON-AQUEOUS LIQUID (OL. SOURCE)		App IX VOCs		App IX SVOCs		T.L. PAHS		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GRO		TPH DRO		App IX Pesticides		App IX PCBs		TOC		REMARKS	
DATE	TIME																																		
5/21/08	1130	74SB251-03D		G	X										3					1															
	1145	74SB251-05		G	X										3					1															
	1145	74SB251-05 MS		G	X										3					1															
	1145	74SB251-05 MSD		G	X										3					1															
	1145	74SB251-05 MS/MSD		G	X										3					1															
	1310	74SB252-03		G	X										3					1															
	1330	74SB253-03		G	X										3					1															
	1400	74SB254-03		G	X										3					1															
	1430	74SB255-03		G	X										3					1															
5/21/08	1500	74GWVP6Ba		G	X										3																				
5/21/08	0930	74GW145		G	X															1															
5/20/08	1135	74GWVP6Ca		G	X																														
RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)			
RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)		DATE	TIME	RECEIVED BY: (Signature)			
RECEIVED FOR LABORATORY BY (Signature)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS																									
Kf		5/23/08	0906					600-72020																											



Serial Number 005114

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

# TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7590

**TestAmerica Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: [www.lectamarcaine.com](http://www.lectamarcaine.com)  
Phone: (512) 354-7858  
Fax: (912) 352-0165

☐ Alternate Laboratory Name(s), location

Phong:  
Fam.

PROJECT REFERENCE NAPR 7 Site Investigation 111626		PROJECT NO 111626		PROJECT LOCATION STATE: PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 7		OF 7											
TAL/LAB: PROJECT MANAGER Kathy E. Smith		P.O. NUMBER		CONTRACT NO.		COMPOSITE (S) OR Grab (S) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NON-AQUEOUS LIQUID (Oil, Solvent, ...)		App IX VOCs		App IX SVOCs		LL PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GRO		TPH DRD		App IX Pesticides		App IX PCBs		TOC		STANDARD REPORT DELIVERY		DATE DUE 28 Day CAT	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465		CLIENT FAX																								EXPEDITED REPORT DELIVERY (SURCHARGE)		DATE DUE	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com																													
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																															
COMPANY CONTRACTING THIS WORK (if applicable): Michael Baker Jr., Inc.																															
SAMPLE		DATE		TIME		SAMPLE IDENTIFICATION																									
5/20/08						74TB30																									
5/21/08						74TB 31																									
						</																									

Serial Number 305115

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7579

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7926  
Fax: (912) 352-0155

74-015

THE LEADER IN ENVIRONMENTAL TESTING

☐ Alternate Laboratory Name/Location

Phone  
Fax

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR		MATRIX TYPE	REQUIRED ANALYSES										PAGE 1	OF 2
TO (FAX) PROJECT MANAGER Kathy E. Smith		PO. NUMBER	CONTRACT NO.		COMPOSITE (C) OR GRAVIMETRIC (G) AQUEOUS (WATER) SOLID (OF SEMI SOLID) AIR NONAQUEOUS LIQUID (OIL SOLVENT...) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY DATE DUE 28 Day TAT	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.937.7465	CLIENT FAX													EXPEDITED REPORT DELIVERY (SURCHARGE) DATE DUE	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com												NUMBER OF COOLERS SUBMITTED PER SHIPMENT			
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108						PRESERVATIVE											
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.					NUMBER OF CONTAINERS SUBMITTED										REMARKS		
SAMPLE		SAMPLE IDENTIFICATION															
DATE	TIME																
5/28/08	1005	74 SB 270-04			G	X			3			1		3	1		
	1015	74 SB 270-05			G	X			3			1		3	1		
	1030	74 SB 271-00			G	X			3			1		3	1		
	1040	74 SB 271-03			G	X			3			1		3	1		
	1040	74 SB 271-03 D			G	X			3			1		3	1		
	1040	74 SB 271-03 MS			G	X			3					3			
	1040	74 SB 271-03 MS/D			G	X			3					3			
	1040	74 SB 271-03 MS/MSD			G	X						1			1		
	1050	74 SB 271-05			G	X			3			1		3	1		
	1105	74 SB 272-04			G	X			3			1		3	1		
	1115	74 SB 272-05			G	X			3			1		3	1		
	1125	74 SB 273-04			G	X			3			1		3	1		
RECEIVED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME	RELINQUISHED BY (SIGNATURE)		DATE	TIME		
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME		
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY IN FACT		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS							
KJ		5/29/08	0900	YES <input type="radio"/> NO <input type="radio"/>				600-37125		0.6   0.6   0.6   0.5							

Serial Number 005116

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7579

TestAmerica Savannah  
5192 LaRoche Avenue  
Savannah GA 31404

Website: www.testamerica.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

74-015

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPE 7 Site Investigation	PROJECT NO 111626	PROJECT LOCATION STATE: PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 2	OF 2
TAL (LAB) PROJECT MANAGER Kathy L. Smith	PO. NUMBER	CONTRACT NO.	COMPOSITE (S) OR GRAV (T) VENT (F) AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SEDIMENT...) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRD App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY DATE DUE 28 Day TAT	
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX												EXPEDITED REPORT DELIVERY (SURCHARGE) DATE DUE	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT EMAIL mkimes@mbakercorp.com													NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.			PRESERVATIVE												

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (S) OR GRAV (T) VENT (F)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SEDIMENT...)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME																	
5/28/08	1135	74 SB 273 - 05	G	X			3			1		3	1					
	1150	74 SB 274 - 03	G	X			3			1		3	1					
	1200	74 SB 274 - 05	G	X			3			1		3	1					
	0948	74 SB 279 - 03	G	X			3			1		3	1					
	0957	74 SB 279 - 05	G	X			3			1		3	1					
	1120	74 SB 283 - 02	G	X			3			1		3	1					
	1048	74 SB 284 - 02	G	X			3			1		3	1					
	1055	74 SB 284 - 05	G	X			3			1		3	1					
	1023	74 SB 285 - 02	G	X			3			1		3	1					
	1030	74 SB 285 - 05	G	X			3			1		3	1					
5/28/08		74 TB 32	G	X			3					3						

REMOVED BY: (SIGNATURE)	DATE	TIME	REMOVED BY: (SIGNATURE)	DATE	TIME	REMOVED BY: (SIGNATURE)	DATE	TIME
				5/28/08	1500			
REMOVED BY: (SIGNATURE)	DATE	TIME	REMOVED BY: (SIGNATURE)	DATE	TIME	REMOVED BY: (SIGNATURE)	DATE	TIME

REMOVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Kh		5/28/08	0900			600-3725	

Serial Number 305117

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7068  
Fax: (912) 352-0165

74-016

☐ Alternate Laboratory Name/Location

Phone  
Fax

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7568

PROJECT REFERENCE KAPR 7 Site Investigation		PROJECT NO 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 1	OF 2	
TAL (LAB) PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO												STANDARD REPORT DELIVERY		
CLIENT(S) I/M Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE 28 Day 1A		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE)		
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108															DATE DUE		
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
SAMPLE				SAMPLE IDENTIFICATION				COMPOSITE (SOLID OR LIQUID) AQUEOUS (WATER) SOLID OR SEMISOLID AIR				PRESERVATIVE				REMARKS	
DATE	TIME																
5/28/08	1215	74 SB 275-03		G	X			3			1	3	1				
	1215	74 SB 275-03 D		G	X			3			1	3	1				
	1230	74 SB 277-02		G	X			3			1	3	1				
	1212	74 SB 278-03		G	X			3			1	3	1				
	1416	74 SB 280-02		G	X			3			1	3	1				
	1420	74 SB 290-05		G	X			3			1	3	1				
	1430	74 SB 281-00		G	X			3			1	3	1				
	1434	74 SB 281-02		G	X			3			1	3	1				
	1440	74 SB 281-05		G	X			3			1	3	1				
	1440	74 SB 281-05 D		G	X			3			1	3	1				
	1440	74 SB 281-05 MS		G	X			3				3					
	1440	74 SB 281-05 MSD		G	X			3				3					
DELIVERED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	DELIVERED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)	
						5/29/08	1500										
RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)	
LABORATORY USE ONLY																	
RECEIVED BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		CUSTODY SEAL NO		SAVANNAH LOG NO.		LABORATORY REMARKS							
5/30/08		0929							680-37178		Temp 5 (X): 1.6, 0.6, 1.8, 0.2, 0.4, 0.8, 1.2, 0.6						

Serial Number 005118

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
 5102 LaRoche Avenue  
 Savannah, GA 31404

Website: www.testamericainc.com  
 Phone: (912) 354-7858  
 Fax: (912) 352-0165

TestAmerica

FedEx Airbill No.:

8617 8652 7568

☐ Abnormal Laboratory Name location

Phone:  
 Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 11626	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 1	OF 2																	
TAL (LAB) PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY																		
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX														DATE 08 Day TAT																		
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com														EXPEDITED REPORT DELIVERY (SCHEDULE 2)																			
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108																DATE CUE																			
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.																NUMBER OF COCLERS SUBMITTED PER SHIPMENT																			
SAMPLE		SAMPLE IDENTIFICATION		COMPOSITE (C) OR SPOTS (S) INDICATE		AQUEOUS (WATER)		SOLID OR SEMISOLID		PH		NONAQUEOUS LIQUID (OIL, SOLVENT, ...)		App IX VOCs		App IX SVOCs		I.T. PAHs		App IX Metals (Total)		App IX Metals (Dissolved)		TPH GRO		TPH PRO		App TX Pesticides		App IX PCBs		TOC			
DATE		TIME																																	
5/28/08		1440		74 SB 281-05 NS/NSD		G		X																											
5/28/08		1545		74 SB 282-02		G		X				3																							
5/28/08		1545		74 SB 282-05		G		X				3																							
5/28/08		1225		74 GW UP 1982		GX						3		2		1		1		3		2													
5/28/08		1115		74 GW UP 20		GX						3		2		1		1		3		2													
5/28/08		1005		74 GW UP 19B		GX						3								3															
5/28/08				74 TB 33		GX						3								3															
5/28/08		1600		74 ER 20		GX						3		2		1				3		2													
5/29/08		1000		74 ER 21		GX						3		2		1				3		2													
REQUISITIONED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME		RECEIVED BY (SIGNATURE)		DATE		TIME	
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE		TIME		CUSTODY INTACT		YES <input type="radio"/>		NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG #		LABORATORY REMARKS																			
for Howard		5/30/08		0929										680-3778																					



Serial Number 006515

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

TestAmerica Savannah  
5102 LaRocca Avenue  
Savannah, GA 31404Website: www.testamerica.com  
Phone: (912) 254-7856  
Fax: (912) 352-0185

74-017

☐ Alternate Laboratory Name/LocationPhone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7557

PROJECT REFERENCE <b>NAPR 7 Site Investigation</b>		PROJECT NO. <b>111626</b>	PROJECT LOCATION (STATE) <b>2R</b>	MATRIX TYPE	REQUIRED ANALYSIS										PAGE <b>1</b>	OF <b>2</b>
TAL (LAB) PROJECT MANAGER <b>Kathy E. Smith</b>		F.O. NUMBER	CONTRACT NO.	COMPOSITE ( ) OR GRAB ( ) SAMPLE SOLID ( ) OR LIQUID ( ) NONAQUEOUS LIQUID (OIL SOLVENT, ) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Unassayed) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC											STANDARD REPORT DELIVERY <b>DATE DUE 28 Day TAT</b>	
CLIENT (SITE) PM <b>Mark Kimes</b>		CLIENT PHONE <b>412.337.7465</b>	CLIENT FAX												EXPEDITED REPORT DELIVERY (SLURCHARGE) <b>DATE DUE</b>	
CLIENT NAME <b>Michael Baker Jr., Inc.</b>		CLIENT EMAIL <b>mkimes@mbakercorp.com</b>													NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	
CLIENT ADDRESS <b>100 Airside Drive., Moon Township, PA 15108</b>																
COMPANY CONTRACTING THIS WORK (if applicable) <b>Michael Baker Jr., Inc.</b>				<b>PRESERVED</b>												
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME															
5/29/08	0745	74 LGW-04-UP-24		6X	3	2	1	1	3	2						
5/29/08	0920	74 GW-M2-2-UP-56		6X	3	2	1	1	3	2						
5/29/08	1140	74 GW-12-VP-56		6X	3	2	1	1	3	2						
5/29/08	1150	74 GW-12-UP-56 D		6X	3	2	1	1	3	2						
5/29/08	1140	74 GW-12-UP-56 MS		6X	3	2	1	1	3	2						
5/29/08	1140	74 GW-12-UP-56 MSD		6X	3	2	1	1	3	2						
5/29/08	1500	74 GW UP6 BA		6X				1								
5/29/08	0930	74 GW 145		6X				1								
5/29/08		74 GW UP30/9														
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME					
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME					
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS									
		05/31/08	0930			080-7226										

Serial Number 306511

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7557

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 LaFayette Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 364-7958  
Fax: (912) 352-0165

74-017

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE <b>NAPR 7 Site Investigation</b>		PROJECT NO <b>111626</b>	PROJECT LOCATION (STATE) PR		MATRIX TYPE		REQUIRED ANALYSES										PAGE <b>2</b>	OF <b>2</b>
LAB (LAW) PROJECT MANAGER <b>Kathy E. Smith</b>		PO NUMBER	CONTRACT NO.		COMPOSITE (G) OR CRAB (G) IN CANISTER AQUEOUS (WATER) SOLID OR SEMISOLID AIR NON-AQUEOUS LIQUID (OIL, SOLVENT, ...) App IX VOCs		App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRD	App IX Pesticides	App IX PCBs	TGC	STANDARD REPORT DATE DUE <b>28 Day TAT</b>		
CLIENT (SITE) PM <b>Mark Kimes</b>		CLIENT PHONE <b>612.337.7465</b>	CLIENT FAX				App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH GRO	TPH DRD	App IX Pesticides	App IX PCBs	TGC	EXPEDITED REPORT DELIVERY (SURCHARGE) DATE DUE		
CLIENT NAME <b>Michael Baker Jr., Inc.</b>		CLIENT E-MAIL <b>mkimes@mbakercorp.com</b>				PRESERVATIVE										NUMBER OF COOLERS SUBMITTED PER SHIPMENT		
CLIENT ADDRESS <b>100 Airside Drive., Moon Township, PA 15108</b>		COMPANY CONTRACTING THIS WORK (if applicable) <b>Michael Baker Jr., Inc.</b>				NUMBER OF CONTAINERS SUBMITTED										REMARKS		
SAMPLE		SAMPLE IDENTIFICATION																
DATE	TIME																	
5/17/08	1130	74 GW UP 3a / 9																
5/18/08	1130	74 GW UP 1 Ab / 9																
5/19/08	1230	74 GW UP 1 Ba / 9																
5/30/08	0850	74 GW UP 6 Bb																
5/30/08	0933	74 GW 05a																
5/30/08	1110	74 GW 25c																
RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME	RELINQUISHED BY: SIGNATURE		DATE	TIME			
RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME	RECEIVED BY: SIGNATURE		DATE	TIME			
RECEIVED FOR: LABORATORY BY: SIGNATURE		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO		SAVANNAH LOG NO		LABORATORY REMARKS								
5/31/08		0930					680-37226											

Serial Number 006502

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
6102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-3165

TestAmerica

FedEx Airbill No.:

8617 8652 7546

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAEP 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 1	OF 1
TAL (L/S) PROJECT MANAGER Kathy E. Smith		P.D. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GFAB (G) FRACTIONATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL SOLVENT...) App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC	App IX VOCs App IX SVOCs LL PAHs App IX Metals (Total) App IX Metals (Dissolved) TPH GRO TPH DRO App IX Pesticides App IX PCBs TOC										STANDARD REPORT DELIVERY DATE DUE 28 Day TAT	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		PRESERVATIVE										EXPEDITED REPORT DELIVERY (SLURCH/99F)	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com													DATE DUE	
CLIENT ADDRESS 100 Airside Drive., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.													NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME															
5/31/08	1230	74GW236		6X		3	-	2	1	1	3	2	-	-	-	
5/31/08	1050	74GWVP08A		6X		3	-	-	1	1	3	2	-	-	-	
5/31/08	1050	74GWVP08B		6X		3	-	-	1	1	3	2	-	-	-	
5/31/08	1000	74GV246		6X		3	-	2	1	1	3	2	-	-	-	
5/30/08	1620	74GW273		6X		3	-	-	1	1	3	2	-	-	-	
5/30/08	0933	74GWVPO5A		6X		-	-	-	-	-	1	-	-	-	-	
RETURNED BY (SIGNATURE)		DATE	TIME	RETURNED BY (SIGNATURE)		DATE	TIME	RETURNED BY (SIGNATURE)		DATE	TIME	RETURNED BY (SIGNATURE)		DATE	TIME	
PLACED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		DATE	TIME	
RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO.		LABORATORY REMARKS						
X [Signature]		060308	0921					680-37251		Temps: 2.2/2.4/1.6/2.8/4.4/0.8/ 1.5/1.1/1.0/1.0/2.3/1.1						



Serial Number 005111

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☒ TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-2186

QA/QC-001

☐ Alternate Laboratory Name/Location

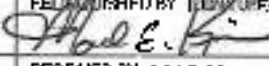
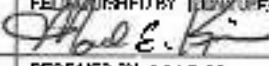
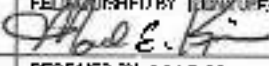

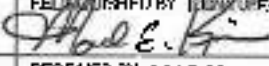
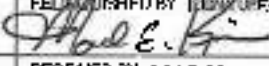

Phone:  
Fax:

TestAmerica

FedEx Airbill No.:

8617 8652 8005

THE LEADER IN ENVIRONMENTAL TESTING

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 311626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 1	OF 1
TA LAB PROJECT MANAGER Kathy E. Smith		F.O. NUMBER	CONTRACT NO.	COMPOSITE (1) OR GRAPE (2) W/DATE AQUEOUS (3) WATER SOIL OR SEMISOLID AIR	NONCHLOROUS UG/ML (4), SOLVENT (5) App IX VOCs	App IX SVOCs	1,1,1 PAKs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH CRD	TPH DRD	App IX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX												DATE DUE <u>28</u> Day <u>TAT</u>	
CLIENT NAME Michael Baker Jr., Inc.		CLIENT FAX/MAIL mkimes@mbakercorp.com													EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable): Michael Baker Jr., Inc.													DATE DUE	
					<b>PRESERVATIVE</b>										NUMBER OF COOLERS SUBMITTED PER SHIPMENT	
SAMPLE			SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS SUBMITTED											REMARKS	
DATE	TIME															
4/28/08	1700	ER01	G✓	3	2	1	3	2								
4/29/08	1700	ER02	G✓	3	2	1	3	2								
4/30/08	1700	ER03	G✓	3	2	1	3	2								
5/1/08	1700	ER04	G✓	3	2	1										
5/2/08	0820	ER05	G✓	3	2	1										
5/2/08	0815	FB01	G✓	3	2	1	3	2								
5/2/08	0850	FB02	G✓	3	2	1	3	2								
5/2/08		GATB01	G✓	3			3									
FURNISHED BY (SIGNATURE)			DATE	TIME	FURNISHED BY (SIGNATURE)			DATE	TIME	FURNISHED BY (SIGNATURE)			DATE	TIME		
			4/28/08	0700				5/2/08	1500							
RECEIVED BY (SIGNATURE)			DATE	TIME	RECEIVED BY (SIGNATURE)			DATE	TIME	RECEIVED BY (SIGNATURE)			DATE	TIME		
			4/28/08	0700												
LABORATORY USE ONLY																
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS								
		5/5/09	0909	YES <input type="radio"/> NO <input type="radio"/>			60-3419									

Serial Number 005168

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7970

☒ TestAmerica Savannah  
6702 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com

Phone: (912) 354-7858

Fax: (912) 352-0185

GA-GL-002

☐ Alternate Laboratory Name/LocationPhone:  
Fax:

PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE <u>1</u> OF <u>1</u>
LAB (LAB) PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GASES (G) OR SOLID (S) AQUEOUS (WATER) SOLID OR SEMISOLID AH NONAQUEOUS LIQUID (OF SOLVENT)	App IX SVOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH (GR)	TPH DRO	App TX Pesticides	App IX PCBs	TOC	STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>
CLIENT (SITE) PM Mark Kimes		CLIENT PHONE 412.337.7465	CLIENT FAX		App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH (GR)	TPH DRO	App TX Pesticides	App IX PCBs	TOC	DATE DUE <u>28</u> <u>DAY</u> <u>TAT</u>
CLIENT NAME Michael Baker Jr., Inc.		CLIENT E-MAIL mkimes@mbakercorp.com			App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH (GR)	TPH DRO	App TX Pesticides	App IX PCBs	TOC	EXPECTED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>
CLIENT ADDRESS 100 Airside Dr., Moon Township, PA 15108					App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH (GR)	TPH DRO	App TX Pesticides	App IX PCBs	TOC	DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.				<b>PRESERVATIVE</b>										NUMBER OF COPIES SUBMITTED PER SHIPMENT	

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GASES (G) OR SOLID (S) AQUEOUS (WATER) SOLID OR SEMISOLID AH NONAQUEOUS LIQUID (OF SOLVENT)	NUMBER OF CONTAINERS SUBMITTED										REMARKS
DATE	TIME			App IX VOCs	App IX SVOCs	LL PAHs	App IX Metals (Total)	App IX Metals (Dissolved)	TPH (GR)	TPH DRO	App TX Pesticides	App IX PCBs	TOC	
5-3-08	1200	ER06	G X	3			1		3	2				
5-4-08	1200	ER07	G X	3			1		3	2				
5-5-08	1200	ER08	G X	3			1		3	2				
5-6-08	1200	ER09	G X	3			1		3	2				
5-7-08	1200	ER10	G X	3			1		3	2				

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
<i>Michael E. Kimes</i>	5/7/08	1500	<i>Michael E. Kimes</i>	5/7/08	1500	<i>Michael E. Kimes</i>	5/7/08	1500
RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
<i>Michael E. Kimes</i>	5/7/08	0700	<i>Michael E. Kimes</i>	5/7/08	0700	<i>Michael E. Kimes</i>	5/7/08	0700

LABORATORY USE ONLY					
RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	LABORATORY REMARKS
<i>Michael E. Kimes</i>	5/6/08	0946	YES <input type="radio"/> NO <input type="radio"/>	680-36527	

**IDW Analytical Data**

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## APPENDIX A

### SUMMARY OF ANALYTICAL RESULTS - IDW (SOIL) SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I - CORRECTIVE MEASURES STUDY REPORT NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

<b>Sample ID</b>	<b>74IDW01</b>
<b>Sampling Date</b>	<b>6/5/2008</b>
<b>TCLP VOA - 8260B (mg/L)</b>	
Benzene	0.13 U
Carbon tetrachloride	0.11 U
Chlorobenzene	0.14 U
Chloroform	0.12 U
1,2-Dichloroethane	0.12 U
1,1-Dichloroethene	0.14 U
2-Butanone (MEK)	0.24 U
Tetrachloroethene	0.11 U
Trichloroethene	0.16 U
Vinyl chloride	0.08 U
<b>TCLP Metals (mg/L)</b>	
Arsenic	0.059 U
Barium	0.8 J
Cadmium	0.0053 U
Chromium	0.025 J
Lead	0.042 J
Selenium	0.036 U
Silver	0.0051 U
Mercury	0.008 U
<b>Metals (mg/kg)</b>	
Arsenic	1.9
Barium	83
Cadmium	0.063 J
Chromium	63
Lead	5.5
Selenium	0.93
Silver	0.032 J B
Copper	79
Nickel	21
Thallium	0.13 U
Tin	4.4 U
Vanadium	240
Zinc	45
Antimony	0.22 J
Beryllium	0.39
Cobalt	21 B
Mercury	0.0087 J
<b>General Chemistry</b>	
Ignitability - mm/sec	NB
Cyanide, Reactive - mg/Kg	100 U
Sulfide, Reactive - mg/Kg	50 U
pH - SU	8.99

## **APPENDIX A**

### **SUMMARY OF ANALYTICAL RESULTS - IDW (SOIL) SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I - CORRECTIVE MEASURES STUDY REPORT NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

#### **Notes:**

- U: Undetected at the Limit of Detection.
- J: Estimated: The analyte was positively identified; the quantitation is an estimation
- B: Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
- NB: No burn

## APPENDIX A

### SUMMARY OF ANALYTICAL RESULTS - IDW (WATER) SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I - CORRECTIVE MEASURES STUDY REPORT NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	74IDW02
Sampling Date	6/5/2008
GC/MS VOA - 8260B (ug/L)	
Acetone	14 J
Acetonitrile	15 U
Acrolein	18 U
Acrylonitrile	3.8 U
Benzene	0.32 U
Bromoform	0.41 U
Bromomethane	0.5 U
2-Butanone (MEK)	5 J
Carbon disulfide	0.17 U
Carbon tetrachloride	0.27 U
Chlorobenzene	0.34 U
2-Chloro-1,3-butadiene	0.35 U
Chlorodibromomethane	0.3 U
Chloroethane	1 U
Chloroform	0.74 J
Chloromethane	0.28 U
3-Chloro-1-propene	0.46 U
cis-1,3-Dichloropropene	0.37 U
1,2-Dibromo-3-Chloropropane	0.48 U
Dibromomethane	0.29 U
Dichlorobromomethane	0.34 U
Dichlorodifluoromethane	0.33 U
1,1-Dichloroethane	0.32 U
1,2-Dichloroethane	0.31 U
1,1-Dichloroethene	0.36 U
1,2-Dichloropropane	0.36 U
Ethylbenzene	0.3 U
Ethylene Dibromide	0.3 U
Ethyl methacrylate	1 U
2-Hexanone	0.68 U
Iodomethane	1 U
Isobutyl alcohol	19 U
Methacrylonitrile	6.6 U
Methylene Chloride	1 U
Methyl methacrylate	0.38 U
4-Methyl-2-pentanone (MIBK)	0.6 U
Pentachloroethane	1.3 U
Propionitrile	9.2 U
Styrene	0.36 U
1,1,1,2-Tetrachloroethane	0.29 U
1,1,2,2-Tetrachloroethane	0.26 U
Tetrachloroethene	0.28 U
Toluene	0.31 U
trans-1,4-Dichloro-2-butene	0.83 U
trans-1,2-Dichloroethene	0.3 U
trans-1,3-Dichloropropene	0.27 U

## APPENDIX A

### SUMMARY OF ANALYTICAL RESULTS - IDW (WATER) SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I - CORRECTIVE MEASURES STUDY REPORT NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	74IDW02	
Sampling Date	6/5/2008	
GC/MS VOA - 8260B (ug/L)		
1,1,1-Trichloroethane	0.39	U
1,1,2-Trichloroethane	0.51	U
Trichloroethene	0.4	U
Trichlorofluoromethane	0.29	U
1,2,3-Trichloropropane	0.42	U
Vinyl acetate	0.62	U
Vinyl chloride	0.2	U
Xylenes, Total	0.87	U
Metals (ug/L)		
Antimony	0.44	J B
Arsenic	3.9	
Barium	200	
Beryllium	0.9	
Cadmium	0.12	U
Chromium	60	
Cobalt	47	B
Copper	210	
Lead	5.4	
Nickel	29	
Selenium	1.3	J
Silver	0.11	J
Thallium	0.55	U
Tin	2.2	J B
Vanadium	260	
Zinc	120	
Mercury	0.08	U
General Chemistry		
Flashpoint - Degrees F	>140	
Cyanide, Reactive - mg/Kg	100	U
Sulfide, Reactive - mg/Kg	50	U
pH - SU	10.3	H



# ALLIED WASTE INDUSTRIES INC

NON-HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No	Manifest Document No.	2. Page 1 of 1	Pickup Code
3. Generator's Name and Mailing Address Waste Management Corp. P.O. Box 1010 Casta, PR 00735		4. Generator's Phone (787) 534-0934		5. Generator's Location Sec. 2001, 1st Floor, Casta, PR 00735	
6. Generator's Phone (787) 534-0934		7. Transporter's Company Name Waste Management Corp.		8. Transporter's Phone (787) 789-0881	
9. Designated Facility Name and Site Address PONCE SANITARY LANDFILL PO BOX 71041 RD 500 BARRAMAYA FINAL AVENUE PONCE, PR 00731		10. EQB Permit # IDF-58-008		11. Facility's Phone 787-841-7775	
12. Waste Shipping Name and Description		13. Handling Code		14. Containers No Type	15. Total Quantity
a. Soil DOT Not Regulated, NONE		091031 DOT Not Regulated, NONE		3	385
b. Dioxin Water DOT Not Regulated, NONE		091031 DOT Not Regulated, NONE		5	275
c.					
d.					
16. Additional Descriptions for Materials Listed Above Ref. 74-50000 Ref. 52-50000					
17. Special Handling Instructions and Additional Information Emergency in transit contact (787) 123-0000					
18. GENERATOR'S CERTIFICATION: I certify the materials above or the manifest are not subject to federal regulations for handling or other disposal of Hazardous Waste					
Printed / Typed Name Eduardo Rivera		Signature [Signature]		Month 07	Day 16
19. Transporter 1 Acknowledgement of Receipt of Materials		Signature [Signature]		Month 07	Day 16
20. Transporter 2 Acknowledgement of Receipt of Materials		Signature [Signature]		Month 07	Day 16
21. Discrepancy Indication Space					
22. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in item 19.					
Printed / Typed Name [Name]		Signature [Signature]		Month 07	Day 16

GENERATOR 2ND COPY



**Site Photographs**

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**GeoProbe® Tracked Direct Push Machine operated by JFA Geological and Environmental Associates**



**Geoprobe® Tracked Direct Push Machine operated by JFA Geological and Environmental Associates**



**Day Tank in the background and Aircraft Hydrant Fueling System in the foreground, looking Northwest**



**Close up of Aircraft Hydrant Refueling System equipment, looking West**





**View of a JP-5 Tank at JP-5 Hill Storage Area with a sight of 74GWVP11B in the forefront**



**Two groundwater monitoring wells installed in the region of Valve Pit 11**



**JFA Environmental Associates and GeoEnviroTech drillers both installing a groundwater monitoring well using a GeoProbe® Tracked Direct Push Machine at SWMU 9 A-B Area**



**Valve Pit 3 just outside the Airfield fence with two groundwater monitoring wells installed nearby**





**Baker geologist preparing for soil sampling, and JFA Environmental Associates and GeoEnviroTech drill rigs located in the background at SWMU 9 A-B Area**



**Baker associates locating soil boring and groundwater well locations using GPS**

**APPENDIX B**  
**LABORATORY ANALYTICAL DATA TABLES**

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## **Surface Soil Data**

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## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB01	74SB13	74SB13	74SB22
	Sample ID	74SB01-00	74SB13-00	74SB13-00D	74SB22-00
	Date	4/28/2008	4/30/2008	4/30/2008	5/3/2008
	Depth Range	0-1	0-1	0-1	0-1
<b>Volatile Organic Compounds (ug/kg)</b>					
1,1,1,2-Tetrachloroethane		0.77 U	0.66 U	0.77 U	0.65 U
1,1,1-Trichloroethane		0.7 U	0.6 U	0.7 U	0.58 U
1,1,2,2-Tetrachloroethane		1.7 U	1.5 U	1.7 U	1.4 U
1,1,2-Trichloroethane		1.4 U	1.2 U	1.4 U	1.2 U
1,1-Dichloroethane		0.6 U	0.52 U	0.6 U	0.5 U
1,1-Dichloroethene		0.65 U	0.56 U	0.65 U	0.54 U
1,2,3-Trichloropropane		1.7 U	1.5 U	1.7 U	1.4 U
1,2-Dibromo-3-Chloropropane		3.4 U	2.9 U	3.4 U	2.8 U
1,2-Dichloroethane		1.2 U	1 U	1.2 U	1 U
1,2-Dichloropropane		1.3 U	1.1 U	1.3 U	1.1 U
2-Butanone (MEK)		3.3 U	29 UJ	31 U	23 UJ
2-Chloro-1,3-butadiene		0.69 UJ	0.59 U	0.68 U	0.57 U
2-Hexanone		2.5 U	2.2 UJ	2.5 U	2.1 UJ
3-Chloro-1-propene		1.8 R	1.6 UJ	1.8 UJ	1.5 U
4-Methyl-2-pentanone (MIBK)		3.5 U	3 UJ	3.5 U	2.9 UJ
Acetone		21 J	400 J	450 J	210 J
Acetonitrile		54 UJ	47 UJ	54 UJ	45 R
Acrolein		23 R	20 R	23 R	19 R
Acrylonitrile		28 UJ	24 U	28 U	23 U
Benzene		0.95 U	0.82 U	0.95 U	0.8 U
Bromoform		1.3 U	1.1 U	1.3 U	1.1 U
Bromomethane		1.9 UJ	1.7 U	1.9 U	1.6 UJ
Carbon disulfide		0.62 U	0.53 U	0.61 U	0.51 U
Carbon tetrachloride		1.2 U	1 U	1.2 U	1 U
Chlorobenzene		0.88 U	0.76 U	0.88 U	0.74 U
Chlorodibromomethane		0.6 U	0.52 U	0.6 U	0.5 U
Chloroethane		1.4 U	1.2 U	1.4 U	1.2 U
Chloroform		0.6 U	0.52 U	0.6 U	0.5 U
Chloromethane		0.86 U	0.74 U	0.85 U	0.72 U
cis-1,3-Dichloropropene		1.1 U	0.9 U	1 U	0.88 U
Dibromomethane		1.4 U	1.2 U	1.4 U	1.2 U
Dichlorobromomethane		1 U	0.86 U	1 U	0.84 U
Dichlorodifluoromethane		1.1 U	0.92 U	1.1 U	0.9 U
Ethyl methacrylate		2.7 U	2.3 U	2.6 U	2.2 UJ
Ethylbenzene		0.91 U	0.78 U	0.9 U	0.76 U
Ethylene Dibromide		1.8 U	1.6 U	1.8 U	1.5 U
Iodomethane		1.2 U	1.4 J	1.7 J	1 J
Isobutyl alcohol		83 R	72 R	83 R	70 R
Methacrylonitrile		29 U	25 U	29 U	24 UJ
Methyl methacrylate		4.5 U	3.8 UJ	4.4 U	3.7 UJ
Methylene Chloride		1.2 U	1 U	1.2 U	1 U
Pentachloroethane		2.7 U	2.3 U	2.6 UJ	2.2 UJ
Propionitrile		25 UJ	22 U	25 U	21 R
Styrene		0.8 U	0.69 U	0.79 U	0.67 U
Tetrachloroethene		0.88 U	0.76 U	0.88 U	0.74 U
Toluene		0.95 U	0.82 U	0.95 U	0.8 U
trans-1,2-Dichloroethene		1.2 U	1 U	1.2 U	0.98 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB01	74SB13	74SB13	74SB22
	Sample ID	74SB01-00	74SB13-00	74SB13-00D	74SB22-00
	Date	4/28/2008	4/30/2008	4/30/2008	5/3/2008
	Depth Range	0-1	0-1	0-1	0-1
<b>Volatile Organic Compounds (ug/kg)</b>					
trans-1,3-Dichloropropene		1.1 U	0.9 U	1 U	0.88 U
trans-1,4-Dichloro-2-butene		3.7 U	3.2 U	3.7 U	3.1 UJ
Trichloroethene		1.2 U	1 U	1.2 U	1 U
Trichlorofluoromethane		1.8 U	1.6 U	1.8 U	1.5 U
Vinyl acetate		1.8 UJ	1.6 UJ	1.8 U	1.5 U
Vinyl chloride		0.7 U	0.6 U	0.7 U	0.58 U
Xylenes, Total		2.8 U	2.4 U	2.8 U	2.3 U
<b>LLPAHs (ug/kg)</b>					
1-Methylnaphthalene		15 U	NA	NA	1.5 U
2-Methylnaphthalene		21 U	NA	NA	2.1 U
Acenaphthene		6.9 U	NA	NA	0.71 U
Acenaphthylene		21 U	NA	NA	2.1 U
Anthracene		21 U	NA	NA	2.1 U
Benzo[a]anthracene		21 U	NA	NA	2.1 U
Benzo[a]pyrene		8 U	NA	NA	0.96 J
Benzo[b]fluoranthene		9.3 U	NA	NA	0.95 U
Benzo[g,h,i]perylene		21 U	NA	NA	2.1 U
Benzo[k]fluoranthene		12 U	NA	NA	1.2 U
Chrysene		7.4 U	NA	NA	0.76 U
Dibenz(a,h)anthracene		7.2 U	NA	NA	0.74 U
Fluoranthene		21 U	NA	NA	2.1 U
Fluorene		9.4 U	NA	NA	0.96 U
Indeno[1,2,3-cd]pyrene		15 U	NA	NA	1.5 U
Naphthalene		7.3 U	NA	NA	0.75 U
Phenanthrene		21 U	NA	NA	2.1 U
Pyrene		21 U	NA	NA	2.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB01	74SB13	74SB13	74SB22
	Sample ID	74SB01-00	74SB13-00	74SB13-00D	74SB22-00
	Date	4/28/2008	4/30/2008	4/30/2008	5/3/2008
	Depth Range	0-1	0-1	0-1	0-1
<b>Metals (mg/kg)</b>					
Antimony		0.15 UJ	0.14 U	0.12 U	0.2 U
Arsenic		2.7	1.8	1.5	2.3
Barium		65 J	96 J	63 J	120
Beryllium		0.17	0.24	0.22	0.35
Cadmium		0.19	0.13	0.11	0.09 J
Chromium		28 J	25	22	41
Cobalt		25	22	18	17
Copper		93	93	88	150
Lead		20	6.3 J	5.4 J	6.8
Mercury		0.0046 U	0.05	0.046	0.059
Nickel		19	13	11	9.1
Selenium		0.16 J	0.6	0.6	0.9
Silver		0.05 J	0.054 J	0.22 J	0.051 U
Thallium		0.13 U	0.14 U	0.13 U	0.19 J
Tin		4.5 U	4.7 U	4.5 U	4.8 U
Vanadium		170	220	210	160
Zinc		86	64	58	43
<b>TPH DRO and GRO (mg/kg)</b>					
Diesel Range Organics		88	11	10	4 J
Gasoline Range Organics		41 J	0.25 J	0.4 J	0.13 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB34	74SB51	74SB61
	Sample ID	74SB34-00	74SB51-00	74SB61-00
	Date	5/1/2008	5/3/2008	5/3/2008
	Depth Range	0-1	0-1	0-1
<b>Volatile Organic Compounds (ug/kg)</b>				
1,1,1,2-Tetrachloroethane		1 UJ	0.75 U	0.46 U
1,1,1-Trichloroethane		0.92 UJ	0.68 U	0.42 U
1,1,2,2-Tetrachloroethane		2.2 UJ	1.6 U	1 U
1,1,2-Trichloroethane		1.9 UJ	1.4 U	0.86 U
1,1-Dichloroethane		0.8 UJ	0.59 U	0.36 U
1,1-Dichloroethene		0.86 UJ	0.63 U	0.39 U
1,2,3-Trichloropropane		2.2 UJ	1.6 U	1 U
1,2-Dibromo-3-Chloropropane		4.5 UJ	3.3 U	2 U
1,2-Dichloroethane		1.6 UJ	1.2 U	0.72 U
1,2-Dichloropropane		1.8 UJ	1.3 U	0.79 U
2-Butanone (MEK)		51 UJ	27 U	5.5 U
2-Chloro-1,3-butadiene		0.91 UJ	0.67 U	0.41 U
2-Hexanone		3.3 UJ	2.5 U	1.5 U
3-Chloro-1-propene		2.4 UJ	1.8 UJ	1.1 U
4-Methyl-2-pentanone (MIBK)		4.6 UJ	3.4 U	2.1 U
Acetone		830 J	410 J	130 J
Acetonitrile		72 R	53 R	32 R
Acrolein		30 R	22 R	14 U
Acrylonitrile		37 UJ	27 U	16 U
Benzene		1.3 UJ	0.92 U	0.57 U
Bromoform		1.8 UJ	1.3 U	0.79 U
Bromomethane		2.6 UJ	1.9 UJ	1.1 U
Carbon disulfide		0.81 UJ	0.6 U	0.37 U
Carbon tetrachloride		1.6 UJ	1.2 U	0.72 U
Chlorobenzene		1.2 UJ	0.85 U	0.52 U
Chlorodibromomethane		0.8 UJ	0.59 U	0.36 U
Chloroethane		1.9 UJ	1.4 U	0.86 U
Chloroform		0.8 UJ	0.59 U	0.36 U
Chloromethane		1.1 UJ	0.83 U	0.51 U
cis-1,3-Dichloropropene		1.4 UJ	1 U	0.62 U
Dibromomethane		1.9 UJ	1.4 U	0.86 U
Dichlorobromomethane		1.3 UJ	0.97 U	0.6 U
Dichlorodifluoromethane		1.4 UJ	1 U	0.64 U
Ethyl methacrylate		3.5 UJ	2.6 UJ	1.6 U
Ethylbenzene		1.2 UJ	0.88 U	0.54 U
Ethylene Dibromide		2.4 UJ	1.8 U	1.1 U
Iodomethane		3.4 J	1.5 J	0.72 U
Isobutyl alcohol		110 R	81 R	49 R
Methacrylonitrile		38 UJ	28 UJ	17 U
Methyl methacrylate		5.9 UJ	4.3 UJ	2.7 U
Methylene Chloride		1.6 UJ	1.2 U	0.72 U
Pentachloroethane		3.5 UJ	2.6 U	1.6 UJ
Propionitrile		33 R	25 R	15 U
Styrene		1.1 UJ	0.77 U	0.47 U
Tetrachloroethene		1.2 UJ	0.85 U	0.52 U
Toluene		1.3 UJ	0.92 U	0.57 U
trans-1,2-Dichloroethene		1.5 UJ	1.1 U	0.7 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB34	74SB51	74SB61
	Sample ID	74SB34-00	74SB51-00	74SB61-00
	Date	5/1/2008	5/3/2008	5/3/2008
	Depth Range	0-1	0-1	0-1
<b>Volatile Organic Compounds (ug/kg)</b>				
trans-1,3-Dichloropropene		1.4 UJ	1 U	0.62 U
trans-1,4-Dichloro-2-butene		4.9 UJ	3.6 UJ	2.2 U
Trichloroethene		1.6 UJ	1.2 U	0.72 U
Trichlorofluoromethane		2.4 UJ	1.8 U	1.1 U
Vinyl acetate		2.4 UJ	1.8 U	1.1 U
Vinyl chloride		0.92 UJ	0.68 U	0.42 U
Xylenes, Total		3.7 UJ	2.7 U	1.6 U
<b>LLPAHs (ug/kg)</b>				
1-Methylnaphthalene		NA	NA	NA
2-Methylnaphthalene		NA	NA	NA
Acenaphthene		NA	NA	NA
Acenaphthylene		NA	NA	NA
Anthracene		NA	NA	NA
Benzo[a]anthracene		NA	NA	NA
Benzo[a]pyrene		NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA
Chrysene		NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA
Fluoranthene		NA	NA	NA
Fluorene		NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA
Naphthalene		NA	NA	NA
Phenanthrene		NA	NA	NA
Pyrene		NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB34	74SB51	74SB61
	Sample ID	74SB34-00	74SB51-00	74SB61-00
	Date	5/1/2008	5/3/2008	5/3/2008
	Depth Range	0-1	0-1	0-1
<b>Metals (mg/kg)</b>				
Antimony		0.23 J	0.095 UJ	0.08 UJ
Arsenic		3.3	1.3	0.5 J
Barium		41	93	37
Beryllium		0.21	0.2	0.13
Cadmium		0.14 J	0.19	0.075 J
Chromium		40 J	36 R	5.1 J
Cobalt		8.2	21	21
Copper		150	79	77
Lead		10 J	5.7	0.42
Mercury		0.1 J	0.0068 J	0.005 J
Nickel		7.9	14	5.9
Selenium		1.6	0.21 J	0.13 UJ
Silver		0.1 J	0.032 J	0.02 U
Thallium		0.18 U	0.15 U	0.13 U
Tin		6 U	5.1 U	4.3 U
Vanadium		440 J	140	160
Zinc		46	65 J	59 J
<b>TPH DRO and GRO (mg/kg)</b>				
Diesel Range Organics		28 J	15	4.6
Gasoline Range Organics		1.5 J	0.46	0.062 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB71	74SB81	74SB91	74SB101	74SB111	74SB121
Sample ID	74SB71-00	74SB81-00	74SB91-00	74SB101-00	74SB111-00	74SB121-00
Date	5/5/2008	5/5/2008	5/7/2008	5/5/2008	5/7/2008	5/13/2008
Depth Range	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0

#### Volatile Organic Compounds (ug/kg)

1,1,1,2-Tetrachloroethane	0.79 U	0.59 U	0.68 U	0.66 U	0.96 U	0.7 U
1,1,1-Trichloroethane	0.72 U	0.53 U	0.61 U	0.6 U	0.87 U	0.63 U
1,1,2,2-Tetrachloroethane	1.7 U	1.3 U	1.5 U	1.5 U	2.1 U	1.5 U
1,1,2-Trichloroethane	1.5 U	1.1 U	1.3 U	1.2 U	1.8 U	1.3 U
1,1-Dichloroethane	0.62 U	0.46 U	0.53 U	0.52 U	0.75 U	0.54 U
1,1-Dichloroethene	0.67 U	0.5 U	0.57 U	0.56 U	0.81 U	0.59 U
1,2,3-Trichloropropane	1.7 U	1.3 U	1.5 U	1.5 UJ	2.1 U	1.5 U
1,2-Dibromo-3-Chloropropane	3.5 U	2.6 U	3 U	2.9 UJ	4.2 U	3 U
1,2-Dichloroethane	1.2 U	0.92 U	1.1 U	1 U	1.5 U	1.1 U
1,2-Dichloropropane	1.4 U	1 U	1.2 U	1.1 U	1.6 U	1.2 U
2-Butanone (MEK)	39 U	6.9 U	28 U	6.8 U	19 U	2.9 U
2-Chloro-1,3-butadiene	0.71 U	0.52 U	0.6 U	0.59 U	0.85 U	0.62 UJ
2-Hexanone	2.6 U	1.9 U	2.2 U	2.2 U	3.1 U	2.3 U
3-Chloro-1-propene	1.9 UJ	1.4 UJ	1.6 U	1.6 UJ	2.2 U	1.6 U
4-Methyl-2-pentanone (MIBK)	3.6 U	2.7 U	3.1 U	3 U	4.3 U	3.2 U
Acetone	430 J	70 J	390 J	73 J	220 J	43 J
Acetonitrile	56 UJ	41 UJ	48 R	47 UJ	67 R	49 R
Acrolein	24 R	17 R	20 U	20 R	28 U	21 R
Acrylonitrile	29 UJ	21 UJ	24 U	24 U	34 U	25 U
Benzene	0.98 U	0.73 U	0.84 U	0.82 U	1.2 U	0.86 U
Bromoform	1.4 U	1 U	1.2 U	1.1 U	1.6 U	1.2 U
Bromomethane	2 U	1.5 U	1.7 U	1.7 U	2.4 U	1.7 U
Carbon disulfide	0.63 U	7	0.64 J	0.57 J	0.76 U	0.55 U
Carbon tetrachloride	1.2 U	0.92 U	1.1 U	1 U	1.5 U	1.1 U
Chlorobenzene	0.91 U	0.67 U	0.77 U	0.76 U	1.1 U	0.79 U
Chlorodibromomethane	0.62 U	0.46 U	0.53 U	0.52 U	0.75 U	0.54 U
Chloroethane	1.5 U	1.1 U	1.3 U	1.2 UJ	1.8 U	1.3 U
Chloroform	0.62 U	0.46 U	0.53 U	0.52 U	0.75 U	0.54 U
Chloromethane	0.88 U	0.65 U	0.75 U	0.74 U	1.1 U	0.77 U
cis-1,3-Dichloropropene	1.1 U	0.8 U	0.92 U	0.9 U	1.3 U	0.95 U
Dibromomethane	1.5 U	1.1 U	1.3 U	1.2 U	1.8 U	1.3 U
Dichlorobromomethane	1 U	0.76 U	0.88 U	0.86 U	1.2 U	0.9 U
Dichlorodifluoromethane	1.1 U	0.82 U	0.94 U	0.92 U	1.3 U	0.97 U
Ethyl methacrylate	2.7 U	2 U	2.3 U	2.3 U	3.3 U	2.4 U
Ethylbenzene	0.93 U	0.69 U	0.79 U	0.78 U	1.1 U	0.82 U
Ethylene Dibromide	1.9 U	1.4 U	1.6 U	1.6 U	2.2 U	1.6 U
Iodomethane	2.2 J	0.92 U	1.1 U	1 UJ	1.5 U	1.1 U
Isobutyl alcohol	86 R	63 R	73 R	71 R	100 R	75 R
Methacrylonitrile	30 U	22 U	25 UJ	25 U	36 UJ	26 UJ
Methyl methacrylate	4.6 U	3.4 U	3.9 U	3.8 U	5.5 U	4 U
Methylene Chloride	1.2 U	0.92 U	1.1 U	1 U	1.5 U	1.1 U
Pentachloroethane	2.7 UJ	2 UJ	2.3 U	2.3 UJ	3.3 U	2.4 UJ
Propionitrile	26 U	19 UJ	22 U	22 U	31 U	23 U
Styrene	0.82 U	0.61 U	0.7 U	0.68 U	0.99 U	0.72 U
Tetrachloroethene	0.91 U	0.67 U	0.77 U	0.76 U	1.1 U	0.79 U
Toluene	0.98 U	0.73 U	0.84 U	0.82 U	1.2 U	0.86 U
trans-1,2-Dichloroethene	1.2 U	0.89 U	1 U	1 U	1.4 U	1.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB71	74SB81	74SB91	74SB101	74SB111	74SB121
Sample ID	74SB71-00	74SB81-00	74SB91-00	74SB101-00	74SB111-00	74SB121-00
Date	5/5/2008	5/5/2008	5/7/2008	5/5/2008	5/7/2008	5/13/2008
Depth Range	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0

#### Volatile Organic Compounds (ug/kg)

trans-1,3-Dichloropropene	1.1 U	0.8 U	0.92 U	0.9 U	1.3 U	0.95 U
trans-1,4-Dichloro-2-butene	3.8 U	2.8 U	3.3 U	3.2 U	4.6 U	3.4 U
Trichloroethene	1.2 U	0.92 U	1.1 U	1 U	1.5 U	1.1 U
Trichlorofluoromethane	1.9 U	1.4 U	1.6 U	1.6 U	2.2 U	1.6 U
Vinyl acetate	1.9 U	1.4 U	1.6 U	1.6 U	2.2 U	1.6 U
Vinyl chloride	0.72 U	0.53 U	0.61 U	0.6 U	0.87 U	0.63 U
Xylenes, Total	2.9 U	2.1 U	2.4 U	2.4 U	3.4 U	2.5 U

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA

#### Metals (mg/kg)

Antimony	0.11 UJ	0.22 UJ	0.26 J	0.12 UJ	0.11 J	0.26 UJ
Arsenic	1.3	2.3	1.8	2.9	1.5	2.8
Barium	78 J	80 J	110 R	110 J	75	170
Beryllium	0.23	0.23	0.24	0.1 J	0.23	0.21
Cadmium	0.15	0.15	0.19	0.17	0.051 J	0.21
Chromium	20	33 R	19 J	12 R	14	29 J
Cobalt	22	25	13 J	8.7	19	17
Copper	110 J	110	61	55	53	75
Lead	3.9	12 J	27	5.1 J	5.9	39
Mercury	0.031	0.011 J	0.061	0.0081 J	0.017 J	0.016 J
Nickel	10	17	9.3	6.2	7.8	14
Selenium	0.74	0.36 J	0.23 J	0.22 J	0.26 J	0.32 J
Silver	0.04 J	0.07 UJ	0.098 J	0.046 UJ	0.022 J	0.074 J
Thallium	0.16 U	0.13 U	0.13 U	0.14 U	0.15 U	0.13 U
Tin	5.3 U	4.3 U	4.2 U	4.8 U	5.1 U	4.3 U
Vanadium	210	160	98	78	120	130
Zinc	76 J	69 J	87	35 J	47	85 J

#### TPH DRO and GRO (mg/kg)

Diesel Range Organics	12	11	48	4.5	4 J	33
Gasoline Range Organics	1 J	0.82 J	0.31 J	0.092 UJ	0.084 U	0.07 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB161	74SB161	74SB171	74SB181	74SB191
	Sample ID	74SB161-00	74SB161-00D	74SB171-00	74SB181-00	74SB191-00
	Date	5/16/2008	5/16/2008	5/17/2008	5/19/2008	5/19/2008
	Depth Range	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>						
1,1,1,2-Tetrachloroethane		0.61 U	0.83 U	0.7 U	0.69 U	0.81 U
1,1,1-Trichloroethane		0.55 U	0.75 U	0.64 U	0.62 U	0.73 U
1,1,2,2-Tetrachloroethane		1.3 U	1.8 U	1.5 U	1.5 U	1.8 U
1,1,2-Trichloroethane		1.1 U	1.6 U	1.3 U	1.3 U	1.5 U
1,1-Dichloroethane		0.48 U	0.65 U	0.55 U	0.54 U	0.63 U
1,1-Dichloroethene		0.52 U	0.7 U	0.59 U	0.58 U	0.68 U
1,2,3-Trichloropropane		1.3 U	1.8 U	1.5 UJ	1.5 U	1.8 U
1,2-Dibromo-3-Chloropropane		2.7 U	3.6 U	3.1 UJ	3 UJ	3.5 U
1,2-Dichloroethane		0.95 U	1.3 U	1.1 U	1.1 U	1.3 U
1,2-Dichloropropane		1.1 U	1.4 U	1.2 U	1.2 U	1.4 U
2-Butanone (MEK)		4.6 U	6.8 U	11 J	2.9 UJ	11 U
2-Chloro-1,3-butadiene		0.54 U	0.74 U	0.62 U	0.61 U	0.72 UJ
2-Hexanone		2 U	2.7 U	2.3 UJ	2.3 UJ	2.7 U
3-Chloro-1-propene		1.4 UJ	1.9 UJ	1.6 U	1.6 UJ	1.9 U
4-Methyl-2-pentanone (MIBK)		2.8 U	3.8 U	3.2 UJ	3.1 UJ	3.7 U
Acetone		21 J	38 J	120 J	44 J	75
Acetonitrile		43 U	58 U	49 UJ	48 UJ	57 U
Acrolein		18 R	25 R	21 U	20 R	24 UJ
Acrylonitrile		22 UJ	30 UJ	25 U	25 UJ	29 UJ
Benzene		0.75 U	1 U	0.87 U	0.85 U	1.1 J
Bromoform		1.1 U	1.4 U	1.2 U	1.2 U	1.4 U
Bromomethane		1.5 UJ	2.1 UJ	1.8 UJ	1.7 UJ	2 U
Carbon disulfide		0.49 U	0.66 U	0.56 U	0.55 U	0.64 U
Carbon tetrachloride		0.95 U	1.3 U	1.1 U	1.1 U	1.3 U
Chlorobenzene		0.7 U	0.95 U	0.8 U	0.78 U	0.92 U
Chlorodibromomethane		0.48 U	0.65 U	0.55 U	0.54 U	0.63 U
Chloroethane		1.1 U	1.6 U	1.3 U	1.3 U	1.5 U
Chloroform		0.48 U	0.65 U	0.55 U	0.54 U	0.63 U
Chloromethane		0.68 U	0.92 U	0.78 U	0.76 U	0.9 U
cis-1,3-Dichloropropene		0.83 U	1.1 U	0.95 U	0.93 U	1.1 U
Dibromomethane		1.1 U	1.6 U	1.3 U	1.3 U	1.5 U
Dichlorobromomethane		0.79 U	1.1 U	0.91 U	0.89 U	1 U
Dichlorodifluoromethane		0.85 U	1.2 U	0.98 U	0.95 U	1.1 U
Ethyl methacrylate		2.1 U	2.8 U	2.4 U	2.4 U	2.8 U
Ethylbenzene		0.72 U	0.97 U	0.82 U	0.8 U	0.95 U
Ethylene Dibromide		1.4 U	1.9 U	1.6 U	1.6 U	1.9 U
Iodomethane		0.95 UJ	1.3 UJ	1.2 J	1.1 UJ	1.3 U
Isobutyl alcohol		66 R	89 R	76 R	74 R	87 U
Methacrylonitrile		23 U	31 U	26 U	26 U	30 U
Methyl methacrylate		3.5 UJ	4.8 UJ	4.1 UJ	4 U	4.7 U
Methylene Chloride		0.95 U	1.3 U	1.1 U	1.1 U	1.3 U
Pentachloroethane		2.1 UJ	2.8 UJ	2.4 UJ	2.4 UJ	2.8 R
Propionitrile		20 U	27 U	23 U	23 UJ	27 U
Styrene		0.63 U	0.85 U	0.72 U	0.71 U	0.83 U
Tetrachloroethene		0.7 U	0.95 U	0.8 U	0.78 U	0.92 U
Toluene		0.75 U	1 U	0.87 U	0.85 U	1 U
trans-1,2-Dichloroethene		0.93 U	1.3 U	1.1 U	1 U	1.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB161	74SB161	74SB171	74SB181	74SB191
	Sample ID	74SB161-00	74SB161-00D	74SB171-00	74SB181-00	74SB191-00
	Date	5/16/2008	5/16/2008	5/17/2008	5/19/2008	5/19/2008
	Depth Range	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>						
trans-1,3-Dichloropropene		0.83 U	1.1 U	0.95 U	0.93 U	1.1 U
trans-1,4-Dichloro-2-butene		3 U	4 U	3.4 U	3.3 U	3.9 U
Trichloroethene		0.95 U	1.3 U	1.1 U	1.1 U	1.3 U
Trichlorofluoromethane		1.4 U	1.9 U	1.6 U	1.6 U	1.9 U
Vinyl acetate		1.4 U	1.9 U	1.6 U	1.6 U	1.9 U
Vinyl chloride		0.55 U	0.75 U	0.64 U	0.62 U	0.73 U
Xylenes, Total		2.2 U	3 U	2.5 U	2.5 U	2.9 U
<b>LLPAHs (ug/kg)</b>						
1-Methylnaphthalene		NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>						
Antimony		0.34 UJ	0.36 UJ	0.22 UJ	0.085 UJ	0.29 UJ
Arsenic		4	4.2	3.2	1.4	2.8
Barium		15 J	20 J	53	350	52 J
Beryllium		0.054 J	0.091 J	0.24	0.38	0.18
Cadmium		0.051 J	0.081 J	0.44	0.041 J	0.33
Chromium		17 J	23 J	22	58	32
Cobalt		5.4 J	7.5 J	16 J	19	16 J
Copper		21 J	51 J	93	65	68 J
Lead		6.5 J	7.8 J	38 J	3.4	210 J
Mercury		0.004 J	0.0056 J	0.014 R	0.01 J	0.024
Nickel		6.8	7.8	12	18	15
Selenium		0.18 J	0.23 J	1.2	1	0.32 J
Silver		0.016 UJ	0.019 J	0.18 J	0.041 J	0.067 J
Thallium		0.12 U	0.11 U	0.12 U	0.14 U	0.12 U
Tin		3.9 U	3.7 U	4.1 U	4.6 U	4 U
Vanadium		63	68	150	260	130
Zinc		14 J	22 J	80	53 J	110
<b>TPH DRO and GRO (mg/kg)</b>						
Diesel Range Organics [C10-C28]		2.4 J	2.3 J	2.8 U	1.2 UJ	77
Gasoline Range Organics (GRO)-C6-C10		0.071 U	0.072 U	0.067 U	0.032 J	0.018 J

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SURFACE SOIL

### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB131	74SB141	74SB151	74SB201	74SB211	74SB271	74SB281
Sample ID	74SB131-00	74SB141-00	74SB151-00	74SB201-00	74SB211-00	74SB271-00	74SB281-00
Date	5/15/2008	5/14/2008	5/15/2008	5/18/2008	5/19/2008	5/28/2008	5/28/2008
Depth Range	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>							
1,1,1,2-Tetrachloroethane	0.74 U	0.66 U	1 U	0.87 U	0.61 U	0.7 U	0.68 U
1,1,1-Trichloroethane	0.67 U	0.6 U	0.91 U	0.79 U	0.55 U	0.63 UJ	0.62 UJ
1,1,2,2-Tetrachloroethane	1.6 U	1.4 U	2.2 U	1.9 U	1.3 U	1.5 U	1.5 U
1,1,2-Trichloroethane	1.4 U	1.2 U	1.9 U	1.6 U	1.1 U	1.3 U	1.3 U
1,1-Dichloroethane	0.58 U	0.52 U	0.78 U	0.68 U	0.48 U	0.54 U	0.53 U
1,1-Dichloroethene	0.62 U	0.56 U	0.84 U	0.73 U	0.52 U	0.59 U	0.57 U
1,2,3-Trichloropropane	1.6 U	1.4 U	2.2 U	1.9 U	1.3 UJ	1.5 U	1.5 U
1,2-Dibromo-3-Chloropropane	3.2 U	2.9 U	4.4 U	3.8 U	2.7 U	3 U	3 U
1,2-Dichloroethane	1.2 U	1 U	1.6 U	1.4 U	0.96 U	1.1 U	1.1 U
1,2-Dichloropropane	1.3 U	1.1 U	1.7 U	1.5 U	1.1 U	1.2 U	1.2 U
2-Butanone (MEK)	3.1 U	2.8 U	12 U	21 UJ	9.7 UJ	7 UJ	5 UJ
2-Chloro-1,3-butadiene	0.66 U	0.59 U	0.89 U	0.77 U	0.55 U	0.62 U	0.61 U
2-Hexanone	2.4 UJ	2.2 U	3.3 U	2.8 UJ	2 UJ	2.3 U	2.2 U
3-Chloro-1-propene	1.7 U	1.5 UJ	2.3 UJ	2 U	1.4 U	1.6 U	1.6 U
4-Methyl-2-pentanone (MIBK)	3.3 U	3 U	4.5 U	3.9 UJ	2.8 UJ	3.2 UJ	3.1 UJ
Acetone	5.1 U	39 U	150	280	98 J	56 UJ	60 UJ
Acetonitrile	52 U	46 U	70 U	61 U	43 UJ	49 U	48 UJ
Acrolein	22 U	20 R	30 R	26 U	18 UJ	21 U	20 U
Acrylonitrile	26 U	24 U	36 UJ	31 UJ	22 UJ	25 U	24 UJ
Benzene	0.91 U	0.82 U	1.2 U	1.1 U	0.76 U	0.86 U	0.84 U
Bromoform	1.3 U	1.1 U	1.7 U	1.5 U	1.1 U	1.2 U	1.2 U
Bromomethane	1.8 U	1.7 U	2.5 UJ	2.2 U	1.5 UJ	1.7 U	1.7 U
Carbon disulfide	0.59 U	0.53 U	0.8 U	0.69 U	0.49 U	0.61 J	0.54 U
Carbon tetrachloride	1.2 U	1 U	1.6 U	1.4 U	0.96 U	1.1 UJ	1.1 UJ
Chlorobenzene	0.84 U	0.75 U	1.1 U	0.99 U	0.7 U	0.79 U	0.78 U
Chlorodibromomethane	0.58 U	0.52 U	0.78 U	0.68 U	0.48 U	0.54 U	0.53 U
Chloroethane	1.4 U	1.2 U	1.9 U	1.6 U	1.1 U	1.3 UJ	1.3 UJ
Chloroform	0.58 U	0.52 U	0.78 U	0.68 U	0.48 U	0.54 U	0.53 U
Chloromethane	0.82 U	0.73 U	1.1 U	0.96 U	0.68 U	0.77 U	0.76 U
cis-1,3-Dichloropropene	1 U	0.9 U	1.4 U	1.2 U	0.83 U	0.95 UJ	0.93 UJ
Dibromomethane	1.4 U	1.2 U	1.9 U	1.6 U	1.1 U	1.3 U	1.3 U
Dichlorobromomethane	0.96 U	0.86 U	1.3 U	1.1 U	0.79 U	0.9 U	0.88 U
Dichlorodifluoromethane	1 U	0.92 U	1.4 U	1.2 U	0.85 U	0.97 U	0.95 U
Ethyl methacrylate	2.5 U	2.3 U	3.4 U	3 UJ	2.1 U	2.4 U	2.3 U
Ethylbenzene	0.86 U	0.77 U	1.2 U	1 U	0.72 U	0.81 U	0.8 U
Ethylene Dibromide	1.7 U	1.5 U	2.3 U	2 U	1.4 U	1.6 U	1.6 U
Iodomethane	1.2 U	1 UJ	1.6 UJ	4 J	1.3 J	2.9 J	1.1 U
Isobutyl alcohol	79 U	71 R	110 R	93 U	66 R	75 U	73 R
Methacrylonitrile	28 U	25 UJ	38 U	33 U	23 U	26 U	26 UJ
Methyl methacrylate	4.3 U	3.8 U	5.8 UJ	5 U	3.5 U	4 U	3.9 UJ
Methylene Chloride	1.2 U	1 U	1.6 U	1.4 U	0.96 U	1.1 U	1.1 U
Pentachloroethane	2.5 R	2.3 UJ	3.4 UJ	3 R	2.1 UJ	2.4 R	2.3 R
Propionitrile	24 U	22 U	33 U	28 U	20 U	23 U	22 UJ
Styrene	0.76 U	0.68 U	1 U	0.89 U	0.63 U	0.72 U	0.7 U
Tetrachloroethene	0.84 U	0.75 U	1.1 U	0.99 U	0.7 U	0.79 U	0.78 U
Toluene	0.91 U	0.82 U	1.2 U	1.1 U	0.76 U	0.86 U	0.84 U
trans-1,2-Dichloroethene	1.1 U	1 U	1.5 U	1.3 U	0.93 U	1.1 U	1 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB131	74SB141	74SB151	74SB201	74SB211	74SB271	74SB281
	Sample ID	74SB131-00	74SB141-00	74SB151-00	74SB201-00	74SB211-00	74SB271-00	74SB281-00
	Date	5/15/2008	5/14/2008	5/15/2008	5/18/2008	5/19/2008	5/28/2008	5/28/2008
	Depth Range	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>								
trans-1,3-Dichloropropene		1 U	0.9 U	1.4 U	1.2 U	0.83 U	0.95 U	0.93 U
trans-1,4-Dichloro-2-butene		3.6 U	3.2 U	4.8 U	4.2 UJ	3 U	3.4 U	3.3 UJ
Trichloroethene		1.2 U	1 U	1.6 U	1.4 U	0.96 U	1.1 U	1.1 U
Trichlorofluoromethane		1.7 U	1.5 U	2.3 U	2 U	1.4 U	1.6 U	1.6 U
Vinyl acetate		1.7 U	1.5 U	2.3 U	2 U	1.4 U	1.6 U	1.6 U
Vinyl chloride		0.67 U	0.6 U	0.91 U	0.79 U	0.55 U	0.63 U	0.62 U
Xylenes, Total		2.6 U	2.4 U	3.6 U	3.1 U	2.2 U	2.5 U	2.4 U
<b>LLPAHs (ug/kg)</b>								
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>								
Antimony		0.32 UJ	0.087 UJ	0.43 UJ	0.17 J	0.15 J	0.079 UJ	0.077 UJ
Arsenic		2	0.95	2.5	2.8	1.2	1.2	0.88
Barium		47 J	180 J	54 J	180	78	100 J	65
Beryllium		0.27	0.41	0.3	0.35	0.22	0.33	0.19
Cadmium		0.075 J	0.093 J	0.13	0.16	0.035 U	0.15	0.13
Chromium		30	28	28 J	29	25	65 J	40
Cobalt		22 J	46 J	30 J	27 J	22	38	26
Copper		100	43	88	88	130 J	120	94
Lead		3.4	10	12 J	4.1	2	5.9	8.1
Mercury		0.0043 U	0.0043 U	0.016 J	0.048	0.0097 J	0.0045 U	0.005 J
Nickel		24	15 J	11	14	16	38	30
Selenium		0.13 U	0.13 U	1.2	1.3	0.19 J	0.17 J	0.24 U
Silver		0.028 J	0.099 J	0.16 J	0.053 J	0.04 J	0.045 J	0.027 J
Thallium		0.13 U	0.13 U	0.14 U	0.15 U	0.13 U	0.13 U	0.12 U
Tin		4.2 U	4.4 U	4.5 U	5 U	4.5 U	4.2 U	4.1 U
Vanadium		160	150	220	190	190	180	140
Zinc		82 J	87 J	72 J	67 J	43 J	73 J	97 J
<b>TPH DRO and GRO (mg/kg)</b>								
Diesel Range Organics		3.6 J	0.68 U	27	4.6	4.9	1.5	3.8
Gasoline Range Organics		0.064 U	0.071 U	0.083 U	0.26 J	0.57	0.063 U	0.1 J

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB221	74SB221	74SB231	74SB241	74SB251	74SB261
Sample ID	74SB221-00	74SB221-00D	74SB231-00	74SB241-00	74SB251-00	74SB261-00
Date	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.63 U	0.66 U	0.95 U	0.56 U	1.1 U	0.7 U
1,1,1-Trichloroethane	0.57 U	0.6 U	0.86 U	0.51 U	1 U	0.64 U
1,1,2,2-Tetrachloroethane	1.4 U	1.4 U	2.1 U	1.2 U	2.4 U	1.5 U
1,1,2-Trichloroethane	1.2 U	1.2 U	1.8 U	1 U	2.1 U	1.3 U
1,1-Dichloroethane	0.49 U	0.52 U	0.74 U	0.44 U	0.86 U	0.55 U
1,1-Dichloroethene	0.53 U	0.56 U	0.8 U	0.47 U	0.93 U	0.59 U
1,2,3-Trichloropropane	1.4 UJ	1.4 UJ	2.1 UJ	1.2 UJ	2.4 UJ	1.5 UJ
1,2-Dibromo-3-Chloropropane	2.8 U	2.9 U	4.2 UJ	2.4 UJ	4.8 UJ	3.1 UJ
1,2-Dichloroethane	0.98 U	1 U	1.5 U	0.87 U	1.7 U	1.1 U
1,2-Dichloropropane	1.1 U	1.1 U	1.6 U	0.96 U	1.9 U	1.2 U
2-Butanone (MEK)	7.1 UJ	4.8 UJ	7.1 UJ	5.5 UJ	9.8 UJ	3 UJ
2-Chloro-1,3-butadiene	0.56 U	0.59 U	0.85 U	0.5 U	0.98 U	0.63 UJ
2-Hexanone	2.1 UJ	2.2 UJ	3.1 UJ	1.8 UJ	3.6 UJ	2.3 UJ
3-Chloro-1-propene	1.5 U	1.6 U	2.2 UJ	1.3 UJ	2.6 UJ	1.6 UJ
4-Methyl-2-pentanone (MIBK)	2.9 UJ	3 UJ	4.3 UJ	2.5 UJ	5 UJ	3.2 UJ
Acetone	48 J	31 J	70 U	53 U	78 UJ	74 U
Acetonitrile	44 UJ	47 UJ	67 UJ	39 UJ	78 UJ	49 UJ
Acrolein	19 UJ	20 UJ	28 R	17 U	33 R	21 UJ
Acrylonitrile	23 UJ	24 UJ	34 UJ	20 U	40 UJ	25 U
Benzene	1.1 J	0.82 U	1.2 U	0.69 U	1.4 U	0.87 U
Bromoform	1.1 U	1.1 U	1.6 U	0.96 U	1.9 UJ	1.2 U
Bromomethane	1.6 UJ	1.7 UJ	2.4 UJ	1.4 UJ	2.8 UJ	1.8 UJ
Carbon disulfide	0.5 U	0.53 U	0.76 U	1.1 J	0.88 U	0.68 J
Carbon tetrachloride	0.98 U	1 U	1.5 U	0.87 U	1.7 U	1.1 U
Chlorobenzene	0.72 U	0.75 U	1.1 U	0.64 U	1.3 U	0.8 U
Chlorodibromomethane	0.49 U	0.52 U	0.74 U	0.44 U	0.86 U	0.55 U
Chloroethane	1.2 U	1.2 U	1.8 U	1 U	2.1 U	1.3 U
Chloroform	0.49 U	0.52 U	0.74 U	0.44 U	0.86 U	0.55 U
Chloromethane	0.7 U	0.73 U	1.1 U	0.62 U	1.2 UJ	0.78 U
cis-1,3-Dichloropropene	0.86 U	0.9 U	1.3 U	0.76 U	1.5 U	0.96 U
Dibromomethane	1.2 U	1.2 U	1.8 U	1 U	2.1 U	1.3 U
Dichlorobromomethane	0.82 U	0.86 U	1.2 U	0.72 U	1.4 U	0.91 U
Dichlorodifluoromethane	0.88 U	0.92 U	1.3 U	0.78 U	1.5 UJ	0.98 U
Ethyl methacrylate	2.2 U	2.3 U	3.3 U	1.9 U	3.8 U	2.4 U
Ethylbenzene	0.74 U	0.78 U	1.1 U	0.65 U	1.3 U	0.82 U
Ethylene Dibromide	1.5 U	1.6 U	2.2 U	1.3 U	2.6 U	1.6 U
Iodomethane	0.98 U	1 U	1.5 U	0.87 U	1.7 U	1.1 UJ
Isobutyl alcohol	68 R	71 R	100 R	60 R	120 R	76 R
Methacrylonitrile	24 U	25 U	36 U	21 U	41 U	26 U
Methyl methacrylate	3.6 U	3.8 U	5.5 U	3.2 U	6.4 U	4.1 U
Methylene Chloride	0.98 U	1 U	1.5 U	0.87 U	1.7 U	1.1 U
Pentachloroethane	2.2 UJ	2.3 UJ	3.3 UJ	1.9 UJ	3.8 UJ	2.4 UJ
Propionitrile	21 U	22 U	31 UJ	18 U	36 UJ	23 U
Styrene	0.65 U	0.68 U	0.98 U	0.58 U	1.1 U	0.72 U
Tetrachloroethene	0.72 U	0.75 U	1.1 U	0.64 U	1.3 U	0.8 U
Toluene	0.78 U	0.82 U	1.2 U	0.69 U	1.4 U	0.87 U
trans-1,2-Dichloroethene	0.95 U	1 U	1.4 U	0.85 U	1.7 U	1.1 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB221	74SB221	74SB231	74SB241	74SB251	74SB261
	Sample ID	74SB221-00	74SB221-00D	74SB231-00	74SB241-00	74SB251-00	74SB261-00
	Date	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
<b>Volatile Organic Compounds (ug/kg)</b>							
trans-1,3-Dichloropropene		0.86 U	0.9 U	1.3 U	0.76 U	1.5 U	0.96 U
trans-1,4-Dichloro-2-butene		3.1 U	3.2 U	4.6 U	2.7 U	5.3 U	3.4 U
Trichloroethene		0.98 U	1 U	1.5 U	0.87 U	1.7 U	1.1 U
Trichlorofluoromethane		1.5 U	1.6 U	2.2 U	1.3 U	2.6 U	1.6 U
Vinyl acetate		1.5 U	1.6 U	2.2 U	1.3 U	2.6 U	1.6 U
Vinyl chloride		0.57 U	0.6 U	0.86 U	0.51 U	1 U	0.64 U
Xylenes, Total		2.3 U	2.4 U	3.4 U	2 U	4 U	2.5 U
<b>LLPAHs (ug/kg)</b>							
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>							
Antimony		0.51	0.41 J	0.39 U	0.53	0.26 J	0.59
Arsenic		3.6	3.1	4.6	2	3.1	2.9
Barium		110 J	37 J	25	79 J	58	46 J
Beryllium		0.26	0.26	0.038 U	0.18	0.13 J	0.16
Cadmium		0.14	0.098 J	0.22	0.38	0.16	0.17
Chromium		25	20	8.4	25 J	16	29 J
Cobalt		21	16	2.7	12 J	8.8	14 J
Copper		86 J	73 J	14	72 J	70	55 J
Lead		5.2	4.6	35	49	6.1	14
Mercury		0.021 J	0.024 J	0.01 J	0.012 J	0.011 J	0.0099 J
Nickel		16	16	2.9	18 J	7.8	11 J
Selenium		0.19 J	0.21 J	0.26 J	0.12 J	0.3 U	0.28 J
Silver		0.085 J	0.062 J	0.04 J	0.057 J	0.042 J	0.049 J
Thallium		0.11 U	0.12 U	0.25 U	0.11 U	0.3 U	0.12 U
Tin		3.8 U	4 U	8.4 U	3.8 U	9.9 U	4.1 U
Vanadium		150	130	18	120 J	89	110 J
Zinc		54 J	48 J	22	89	52 J	58
<b>TPH DRO and GRO (mg/kg)</b>							
Diesel Range Organics		100 J	26 J	69	19	6.7	9.3
Gasoline Range Organics		0.06 U	0.058 U	0.084 U	0.0053 U	0.056 J	0.0062 U

**Subsurface Soil Data**

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## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB01	74SB01	74SB02	74SB02	74SB04	74SB04	74SB05	74SB05	74SB05
Sample ID	74SB01-02	74SB01-04	74SB02-03	74SB02-05	74SB04-01	74SB04-04	74SB05-01	74SB05-01D	74SB05-02
Date	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/29/2008	4/29/2008	4/29/2008
Depth Range	4.0 - 5.0	8.0 - 9.0	6.0 - 7.0	9.0 - 10.0	1.0 - 3.0	7.0 - 9.0	2.0 - 3.0	2.0 - 3.0	3.0 - 4.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.61 U	0.76 U	0.65 U	0.71 U	0.56 U	0.69 U	0.66 U	62 U	0.78 U
1,1,1-Trichloroethane	0.56 U	0.69 U	0.59 U	0.65 U	0.5 U	0.62 U	0.6 U	56 U	0.7 U
1,1,2,2-Tetrachloroethane	1.3 U	1.7 U	1.4 U	1.6 U	1.2 U	1.5 U	1.4 U	140 U	1.7 U
1,1,2-Trichloroethane	1.2 U	1.4 U	1.2 U	1.3 U	1 U	1.3 U	1.2 U	120 U	1.5 U
1,1-Dichloroethane	0.48 U	0.6 U	0.51 U	0.56 U	0.43 U	0.54 U	0.51 U	48 U	0.61 U
1,1-Dichloroethene	0.52 U	0.64 U	0.55 U	0.6 U	0.47 U	0.58 U	0.56 U	52 U	0.66 U
1,2,3-Trichloropropane	1.3 U	1.7 U	1.4 U	1.6 U	1.2 U	1.5 U	1.4 U	140 U	1.7 U
1,2-Dibromo-3-Chloropropane	2.7 U	3.3 U	2.8 U	3.1 U	2.4 U	3 U	2.9 U	270 U	3.4 U
1,2-Dichloroethane	0.96 U	1.2 U	1 U	1.1 U	0.87 U	1.1 U	1 U	97 U	1.2 U
1,2-Dichloropropane	1.1 U	1.3 U	1.1 U	1.2 U	0.96 U	1.2 U	1.1 U	110 U	1.3 U
2-Butanone (MEK)	2.6 U	3.2 U	2.7 U	3 U	2.3 U	2.9 U	2.8 UJ	410 U	5.2 UJ
2-Chloro-1,3-butadiene	0.55 UJ	0.68 UJ	0.58 UJ	0.63 UJ	0.49 UJ	0.61 UJ	0.59 U	55 UJ	0.69 U
2-Hexanone	2 U	2.5 U	2.1 U	2.3 U	1.8 U	2.3 U	2.2 UJ	200 U	2.5 UJ
3-Chloro-1-propene	1.4 R	1.8 R	1.5 R	1.7 R	1.3 R	1.6 R	1.5 UJ	150 UJ	1.8 UJ
4-Methyl-2-pentanone (MIBK)	2.8 U	3.5 U	2.9 U	3.2 U	2.5 U	3.1 U	3 UJ	280 U	3.5 UJ
Acetone	21 J	5.2 R	23 J	4.9 R	5.8 J	4.7 R	15 R	430 R	24 R
Acetonitrile	43 UJ	54 UJ	46 UJ	50 UJ	39 UJ	48 UJ	46 UJ	4400 UJ	55 UJ
Acrolein	18 R	23 R	19 R	21 R	16 R	20 R	20 R	1800 R	23 R
Acrylonitrile	22 UJ	27 UJ	23 UJ	26 UJ	20 UJ	25 UJ	24 U	2200 UJ	28 U
Benzene	0.76 U	0.94 U	0.8 U	0.88 U	0.69 U	0.85 U	0.81 U	76 U	0.96 U
Bromoform	1.1 U	1.3 U	1.1 U	1.2 U	0.96 U	1.2 U	1.1 U	110 U	1.3 U
Bromomethane	1.5 UJ	1.9 UJ	1.6 UJ	1.8 UJ	1.4 UJ	1.7 UJ	1.6 U	150 U	1.9 U
Carbon disulfide	1.8 J	0.61 U	0.52 U	0.57 U	0.44 U	0.55 U	0.52 U	49 U	0.62 U
Carbon tetrachloride	0.96 U	1.2 U	1 U	1.1 U	0.87 U	1.1 U	1 U	97 U	1.2 U
Chlorobenzene	0.7 U	0.87 U	0.74 U	0.81 U	0.63 U	0.79 U	0.75 U	71 U	0.89 U
Chlorodibromomethane	0.48 U	0.6 U	0.51 U	0.56 U	0.43 U	0.54 U	0.51 U	48 U	0.61 U
Chloroethane	1.2 U	1.4 U	1.2 U	1.3 U	1 U	1.3 U	1.2 U	120 U	1.5 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB01	74SB01	74SB02	74SB02	74SB04	74SB04	74SB05	74SB05	74SB05
Sample ID	74SB01-02	74SB01-04	74SB02-03	74SB02-05	74SB04-01	74SB04-04	74SB05-01	74SB05-01D	74SB05-02
Date	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/29/2008	4/29/2008	4/29/2008
Depth Range	4.0 - 5.0	8.0 - 9.0	6.0 - 7.0	9.0 - 10.0	1.0 - 3.0	7.0 - 9.0	2.0 - 3.0	2.0 - 3.0	3.0 - 4.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.48 U	0.6 U	0.51 U	0.56 U	0.43 U	0.54 U	0.51 U	48 U	0.61 U
Chloromethane	0.68 U	0.85 U	0.72 U	0.79 U	0.62 U	0.76 U	0.73 U	69 U	0.86 U
cis-1,3-Dichloropropene	0.83 U	1 U	0.88 U	0.97 U	0.76 U	0.94 U	0.89 U	84 U	1.1 U
Dibromomethane	1.2 U	1.4 U	1.2 U	1.3 U	1 U	1.3 U	1.2 U	120 U	1.5 U
Dichlorobromomethane	0.8 U	0.99 U	0.84 U	0.92 U	0.72 U	0.89 U	0.85 U	80 U	1 U
Dichlorodifluoromethane	0.85 U	1.1 U	0.9 U	0.99 U	0.77 U	0.96 U	0.91 U	86 U	1.1 U
Ethyl methacrylate	2.1 U	2.6 U	2.2 U	2.4 U	1.9 U	2.4 U	2.3 U	210 U	2.7 U
Ethylbenzene	0.72 U	0.89 U	0.76 U	0.83 U	0.65 U	0.81 U	0.77 U	73 U	0.91 U
Ethylene Dibromide	1.4 U	1.8 U	1.5 U	1.7 U	1.3 U	1.6 U	1.5 U	150 U	1.8 U
Iodomethane	0.96 U	1.2 U	1 U	1.1 U	0.87 U	1.1 U	1 U	97 U	1.2 U
Isobutyl alcohol	66 R	82 R	130 J	77 R	60 R	74 R	71 R	6700 R	84 R
Methacrylonitrile	23 U	29 U	24 U	27 U	21 U	26 U	25 U	2300 U	29 U
Methyl methacrylate	3.5 U	4.4 U	3.8 U	4.1 U	3.2 U	4 U	3.8 UJ	360 U	4.5 UJ
Methylene Chloride	0.96 U	1.2 U	1 U	1.1 U	0.87 U	1.1 U	1 U	97 U	1.2 U
Pentachloroethane	2.1 U	2.6 U	2.2 U	2.4 U	1.9 U	2.4 U	2.3 U	210 UJ	2.7 U
Propionitrile	20 UJ	25 UJ	21 UJ	23 UJ	18 UJ	23 UJ	22 U	2000 UJ	25 U
Styrene	0.63 U	0.79 U	0.67 U	0.73 U	0.57 U	0.71 U	0.68 U	64 U	0.8 U
Tetrachloroethene	0.7 U	0.87 U	0.74 U	0.81 U	0.63 U	0.79 U	0.75 U	71 U	0.89 U
Toluene	0.76 U	0.94 U	0.8 U	0.88 U	0.69 U	0.85 U	0.81 U	76 U	0.96 U
trans-1,2-Dichloroethene	0.93 U	1.2 U	0.99 U	1.1 U	0.84 U	1 U	1 U	94 U	1.2 U
trans-1,3-Dichloropropene	0.83 U	1 U	0.88 U	0.97 U	0.76 U	0.94 U	0.89 U	84 U	1.1 U
trans-1,4-Dichloro-2-butene	3 U	3.7 U	3.2 U	3.4 U	2.7 U	3.3 U	3.2 U	300 U	3.8 U
Trichloroethene	0.96 U	1.2 U	1 U	1.1 U	0.87 U	1.1 U	1 U	97 U	1.2 U
Trichlorofluoromethane	1.4 U	1.8 U	1.5 U	1.7 U	1.3 U	1.6 U	1.5 U	150 U	1.8 U
Vinyl acetate	1.4 UJ	1.8 UJ	1.5 UJ	1.7 UJ	1.3 UJ	1.6 UJ	1.5 UJ	150 U	1.8 UJ
Vinyl chloride	0.56 U	0.69 U	0.59 U	0.65 U	0.5 U	0.62 U	0.6 U	56 U	0.7 U
Xylenes, Total	2.2 U	2.7 U	2.3 U	2.6 U	2 U	2.5 U	2.4 U	220 U	2.8 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB01	74SB01	74SB02	74SB02	74SB04	74SB04	74SB05	74SB05	74SB05
	Sample ID	74SB01-02	74SB01-04	74SB02-03	74SB02-05	74SB04-01	74SB04-04	74SB05-01	74SB05-01D	74SB05-02
	Date	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/29/2008	4/29/2008	4/29/2008
	Depth Range	4.0 - 5.0	8.0 - 9.0	6.0 - 7.0	9.0 - 10.0	1.0 - 3.0	7.0 - 9.0	2.0 - 3.0	2.0 - 3.0	3.0 - 4.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		1.5 U	1.6 U	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		2.1 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		0.71 U	0.78 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		2.1 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
Anthracene		2.1 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		2.1 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		0.82 U	0.9 U	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		0.95 U	1 U	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		2.1 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		1.2 U	1.4 U	NA	NA	NA	NA	NA	NA	NA
Chrysene		0.76 U	0.83 U	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		0.74 U	0.8 U	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		2.1 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
Fluorene		0.96 U	1.1 U	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		1.5 U	1.6 U	NA	NA	NA	NA	NA	NA	NA
Naphthalene		0.75 U	0.82 U	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		2.1 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
Pyrene		2.1 U	2.3 U	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB01	74SB01	74SB02	74SB02	74SB04	74SB04	74SB05	74SB05	74SB05
	Sample ID	74SB01-02	74SB01-04	74SB02-03	74SB02-05	74SB04-01	74SB04-04	74SB05-01	74SB05-01D	74SB05-02
	Date	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/28/2008	4/29/2008	4/29/2008	4/29/2008
	Depth Range	4.0 - 5.0	8.0 - 9.0	6.0 - 7.0	9.0 - 10.0	1.0 - 3.0	7.0 - 9.0	2.0 - 3.0	2.0 - 3.0	3.0 - 4.0
<b>Metals (mg/kg)</b>										
Antimony		0.13 UJ	0.097 UJ	0.19 UJ	0.14 UJ	0.084 UJ	0.2 UJ	0.23 UJ	0.14 UJ	0.18 UJ
Arsenic		2.2	1.5	4.9	2.2	1.2	3.4	2.2	2.1	2.8
Barium		61	80 J	25 J	23 J	49 J	18 J	47 J	68 J	74 J
Beryllium		0.28	0.088 U	0.17	0.13	0.26	0.14	0.21	0.19	0.25
Cadmium		0.058 J	0.04 U	0.036 U	0.042 J	0.035 U	0.033 U	0.16 J	0.22 J	0.22 J
Chromium		24 J	12 J	38 J	23 J	22 J	34 J	29	38	62
Cobalt		20	3.9	11	6.9	14	4.7	24 J	29 J	27
Copper		95	82	150	87	67	100	95	110	99
Lead		14	1.2	4.6	2.7	3.3	3.6	22 J	12 J	27 J
Mercury		0.036 J	0.037 J	0.051	0.0051 U	0.05	0.41	0.004 U	0.0043 U	0.0047 J
Nickel		12	21	7	5	7	4.1	20	21	22
Selenium		0.5 J	0.62 J	1.2	0.96	0.28 J	1.1	0.2 J	0.13 U	0.22 J
Silver		0.071 U	0.077 U	0.048 U	0.057 U	0.029 U	0.051 U	0.057 J	0.061 J	0.053 J
Thallium		0.14 U	0.15 U	0.14 U	0.15 U	0.23 J	0.13 U	0.13 U	0.13 U	0.13 U
Tin		4.6 U	5.2 U	4.7 U	5.1 U	4.5 U	4.3 U	4.3 U	4.4 U	4.5 U
Vanadium		270	240	430	290	180	330	170	170	200
Zinc		54	28	35	29	63	27	94	89	87
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		14	4.3 U	2.6 U	3.5 U	2.1 U	2.9 U	14	10	2.9 U
Gasoline Range Organics		2.1	0.073 U	0.067 U	0.074 U	0.055 U	0.06 U	0.055 UJ	340 J	36 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB06	74SB06	74SB07	74SB07	74SB09	74SB09	74SB10	74SB10	74SB11
Sample ID	74SB06-01	74SB06-02	74SB07-02	74SB07-04	74SB09-02	74SB09-05	74SB10-02	74SB10-04	74SB11-02
Date	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/30/2008
Depth Range	1.0 - 2.0	3.0 - 4.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0	9.0 - 10.0	3.0 - 4.0	7.0 - 8.0	4.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.63 U	120 U	0.77 U	0.65 U	0.62 U	0.59 U	0.57 U	0.59 U	0.61 U
1,1,1-Trichloroethane	0.57 U	110 U	0.7 U	0.58 U	0.57 U	0.54 U	0.52 U	0.53 U	0.55 U
1,1,2,2-Tetrachloroethane	1.4 U	260 U	1.7 U	1.4 U	1.4 U	1.3 U	1.3 U	1.3 U	1.3 U
1,1,2-Trichloroethane	1.2 U	220 U	1.4 U	1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U
1,1-Dichloroethane	0.49 U	93 U	0.6 U	0.5 U	0.49 U	0.46 U	0.45 U	0.46 U	0.47 U
1,1-Dichloroethene	0.53 U	100 U	0.65 U	0.54 U	0.53 U	0.5 U	0.48 U	0.5 U	0.51 U
1,2,3-Trichloropropane	1.4 U	260 U	1.7 U	1.4 U	1.4 U	1.3 U	1.3 U	1.3 U	1.3 U
1,2-Dibromo-3-Chloropropane	2.8 U	520 U	3.4 U	2.8 U	2.7 U	2.6 U	2.5 U	2.6 U	2.7 U
1,2-Dichloroethane	0.99 U	190 U	1.2 U	1 U	0.97 U	0.93 U	0.89 U	0.92 U	0.95 U
1,2-Dichloropropane	1.1 U	210 U	1.3 U	1.1 U	1.1 U	1 U	0.98 U	1 U	1 U
2-Butanone (MEK)	4.4 UJ	580 U	22 UJ	7.9 UJ	4 UJ	2.5 UJ	6.9 UJ	2.5 UJ	3.8 U
2-Chloro-1,3-butadiene	0.56 U	110 UJ	0.69 U	0.57 U	0.56 U	5.2	0.51 U	0.52 U	0.54 U
2-Hexanone	2.1 UJ	390 U	2.5 UJ	2.1 UJ	2 UJ	1.9 UJ	1.9 UJ	1.9 UJ	2 U
3-Chloro-1-propene	1.5 UJ	280 UJ	1.8 UJ	1.5 UJ	1.5 UJ	1.4 UJ	1.3 UJ	1.4 UJ	1.4 UJ
4-Methyl-2-pentanone (MIBK)	2.9 UJ	540 U	3.5 UJ	2.9 UJ	2.8 UJ	2.7 UJ	2.6 UJ	2.7 UJ	2.8 U
Acetone	20 R	1800 R	91 R	63 R	38 R	40 R	50 R	24 R	34 J
Acetonitrile	44 UJ	8400 UJ	54 UJ	45 UJ	44 UJ	42 UJ	40 UJ	41 UJ	43 UJ
Acrolein	19 R	3500 R	23 R	19 R	19 R	18 R	17 R	17 R	18 R
Acrylonitrile	23 U	4300 UJ	28 U	23 U	22 U	21 U	21 U	21 U	22 U
Benzene	0.78 U	150 U	0.95 U	0.8 U	0.77 U	0.73 U	0.71 U	0.73 U	0.75 U
Bromoform	1.1 U	210 U	1.3 U	1.1 U	1.1 U	1 U	0.98 U	1 U	1 U
Bromomethane	1.6 U	300 U	1.9 U	1.6 U	1.6 U	1.5 U	1.4 U	1.5 U	1.5 U
Carbon disulfide	0.5 U	95 U	1.2 J	0.51 U	0.5 U	0.47 U	0.46 U	0.47 U	0.78 J
Carbon tetrachloride	0.99 U	190 U	1.2 U	1 U	0.97 U	0.93 U	0.89 U	0.92 U	0.95 U
Chlorobenzene	0.72 U	140 U	0.88 U	0.74 U	0.71 U	0.68 U	0.65 U	0.67 U	0.69 U
Chlorodibromomethane	0.49 U	93 U	0.6 U	0.5 U	0.49 U	0.46 U	0.45 U	0.46 U	0.47 U
Chloroethane	1.2 U	220 U	1.4 U	1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB06	74SB06	74SB07	74SB07	74SB09	74SB09	74SB10	74SB10	74SB11
	Sample ID	74SB06-01	74SB06-02	74SB07-02	74SB07-04	74SB09-02	74SB09-05	74SB10-02	74SB10-04	74SB11-02
	Date	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/30/2008
	Depth Range	1.0 - 2.0	3.0 - 4.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0	9.0 - 10.0	3.0 - 4.0	7.0 - 8.0	4.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform		0.49 U	93 U	0.6 U	0.5 U	0.49 U	0.46 U	0.45 U	0.46 U	0.47 U
Chloromethane		0.7 U	130 U	0.86 U	0.72 U	0.69 U	0.66 U	0.63 U	0.65 U	0.67 U
cis-1,3-Dichloropropene		0.86 U	160 U	1.1 U	0.88 U	0.85 U	0.81 U	0.78 U	0.8 U	0.83 U
Dibromomethane		1.2 U	220 U	1.4 U	1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U
Dichlorobromomethane		0.82 U	150 U	1 U	0.84 U	0.81 U	0.77 U	0.74 U	0.76 U	0.79 U
Dichlorodifluoromethane		0.88 U	170 U	1.1 U	0.9 U	0.87 U	0.82 U	0.8 U	0.82 U	0.84 U
Ethyl methacrylate		2.2 U	410 U	2.7 U	2.2 U	2.1 U	2 U	2 U	2 U	2.1 U
Ethylbenzene		0.74 U	140 U	0.91 U	0.76 U	0.73 U	0.69 U	0.67 U	0.69 U	0.71 U
Ethylene Dibromide		1.5 U	280 U	1.8 U	1.5 U	1.5 U	1.4 U	1.3 U	1.4 U	1.4 U
Iodomethane		0.99 U	190 U	1.2 U	1 U	0.97 U	0.93 U	0.89 U	0.92 U	0.95 U
Isobutyl alcohol		68 R	13000 R	83 R	70 R	67 R	64 R	62 R	63 R	65 R
Methacrylonitrile		24 U	4500 U	29 U	24 U	23 U	22 U	21 U	22 U	23 U
Methyl methacrylate		3.7 UJ	690 U	4.5 UJ	3.7 UJ	3.6 UJ	3.4 UJ	3.3 UJ	3.4 UJ	3.5 U
Methylene Chloride		0.99 U	190 U	1.2 U	1 U	0.97 U	0.93 U	0.89 U	0.92 U	0.95 U
Pentachloroethane		2.2 U	410 UJ	2.7 U	2.2 U	2.1 U	2 U	2 U	2 U	2.1 UJ
Propionitrile		21 U	3900 UJ	25 U	21 U	20 U	19 U	19 U	19 U	20 U
Styrene		0.65 U	120 U	0.8 U	0.67 U	0.64 U	0.61 U	0.59 U	0.61 U	0.63 U
Tetrachloroethene		0.72 U	140 U	0.88 U	0.74 U	0.71 U	0.68 U	0.65 U	0.67 U	0.69 U
Toluene		0.78 U	150 U	0.95 U	0.8 U	0.77 U	0.73 U	0.71 U	0.73 U	0.75 U
trans-1,2-Dichloroethene		0.96 U	180 U	1.2 U	0.98 U	0.95 U	0.9 U	0.87 U	0.89 U	0.92 U
trans-1,3-Dichloropropene		0.86 U	160 U	1.1 U	0.88 U	0.85 U	0.81 U	0.78 U	0.8 U	0.83 U
trans-1,4-Dichloro-2-butene		3.1 U	580 U	3.7 U	3.1 U	3 U	2.9 U	2.8 U	2.8 U	2.9 U
Trichloroethene		0.99 U	190 U	1.2 U	1 U	0.97 U	0.93 U	0.89 U	0.92 U	0.95 U
Trichlorofluoromethane		1.5 U	280 U	1.8 U	1.5 U	1.5 U	1.4 U	1.3 U	1.4 U	1.4 U
Vinyl acetate		1.5 UJ	280 U	1.8 UJ	1.5 UJ	1.5 UJ	1.4 UJ	1.3 UJ	1.4 UJ	1.4 U
Vinyl chloride		0.57 U	110 U	0.7 U	0.58 U	0.57 U	0.54 U	0.52 U	0.53 U	0.55 U
Xylenes, Total		2.3 U	430 U	2.8 U	2.3 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB06	74SB06	74SB07	74SB07	74SB09	74SB09	74SB10	74SB10	74SB11
	Sample ID	74SB06-01	74SB06-02	74SB07-02	74SB07-04	74SB09-02	74SB09-05	74SB10-02	74SB10-04	74SB11-02
	Date	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/30/2008
	Depth Range	1.0 - 2.0	3.0 - 4.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0	9.0 - 10.0	3.0 - 4.0	7.0 - 8.0	4.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB06	74SB06	74SB07	74SB07	74SB09	74SB09	74SB10	74SB10	74SB11
	Sample ID	74SB06-01	74SB06-02	74SB07-02	74SB07-04	74SB09-02	74SB09-05	74SB10-02	74SB10-04	74SB11-02
	Date	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/29/2008	4/30/2008
	Depth Range	1.0 - 2.0	3.0 - 4.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0	9.0 - 10.0	3.0 - 4.0	7.0 - 8.0	4.0 - 5.0
<b>Metals (mg/kg)</b>										
Antimony		0.2 UJ	0.19 UJ	0.11 UJ	0.088 UJ	0.1 UJ	0.13 UJ	0.12 UJ	0.094 UJ	0.097 UJ
Arsenic		2.1	4.8	2.1	1.6	1.8	1.4	1.9	1.4	1.7
Barium		55 J	53 J	26 J	24 J	61 J	93 J	51 J	120 J	130 J
Beryllium		0.23	0.24	0.27	0.23	0.38	0.26	0.21	0.3	0.36
Cadmium		0.23 J	0.25 J	0.035 UJ	0.048 J	0.056 J	0.051 J	0.21 J	0.13 J	0.13 J
Chromium		36	29	29	22	23	20	36	21	22
Cobalt		27	26	26	13	18	25	27	31	49
Copper		110	100	120	100	110	94	100	100	110
Lead		17 J	24 J	3.5 J	2.6 J	2.5 J	2.7 J	14 J	2.6 J	2.7 J
Mercury		0.0042 U	0.0041 U	0.025	0.027	0.038	0.016 J	0.0044 U	0.058	0.035
Nickel		21	19	8.6	8.3	11	8.4	21	9.5	13
Selenium		0.19 J	0.29 J	0.76	0.51 J	0.37 J	0.39 J	0.2 J	0.4 J	0.43 J
Silver		0.056 J	0.14 J	0.042 J	0.053 J	0.024 J	0.036 J	0.039 J	0.036 J	0.035 J
Thallium		0.13 U	0.14 U	0.2 J	0.18 J	0.13 U	0.14 U	0.13 U	0.15 J	0.18 J
Tin		4.2 U	4.7 U	4.6 U	4.7 U	4.5 U	4.6 U	4.5 U	4.6 U	4.7 U
Vanadium		190	170	330	270	320	310	200	330	300
Zinc		96	72	52	51	50	40	80	50	56
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		3.6 U	100	2.9 U	1.7 U	3.2 U	3.1 U	2.3 U	2 U	2.3 U
Gasoline Range Organics		0.096 J	350 J	0.065 U	0.057 U	0.062 U	0.057 U	0.059 J	0.059 U	0.055 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB11	74SB11	74SB12	74SB12	74SB13	74SB13	74SB14	74SB14	74SB15
Sample ID	74SB11-04	74SB11-04D	74SB12-03	74SB12-05	74SB13-02	74SB13-04	74SB14-02	74SB14-03	74SB15-02
Date	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008
Depth Range	7.0 - 8.0	7.0 - 8.0	6.0 - 7.0	9.0 - 10.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0	6.0 - 7.0	3.0 - 4.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.7 U	0.66 U	0.6 U	0.62 U	0.63 U	0.67 U	0.65 U	0.69 U	0.58 U
1,1,1-Trichloroethane	0.64 U	0.6 U	0.54 U	0.56 U	0.57 U	0.6 U	0.59 U	0.63 U	0.53 U
1,1,2,2-Tetrachloroethane	1.5 U	1.4 U	1.3 U	1.4 U	1.4 U	1.5 U	1.4 U	1.5 U	1.3 U
1,1,2-Trichloroethane	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	1.1 U
1,1-Dichloroethane	0.55 U	0.52 U	0.47 U	0.49 U	0.49 U	0.52 U	0.51 U	0.54 U	0.46 U
1,1-Dichloroethene	0.59 U	0.56 U	0.51 U	0.52 U	0.53 U	0.56 U	0.55 U	0.58 U	0.49 U
1,2,3-Trichloropropane	1.5 U	1.4 U	1.3 U	1.4 U	1.4 U	1.5 U	1.4 U	1.5 U	1.3 U
1,2-Dibromo-3-Chloropropane	3.1 U	2.9 U	2.6 U	2.7 U	2.7 U	2.9 U	2.9 U	3 U	2.5 U
1,2-Dichloroethane	1.1 U	1 U	0.94 U	0.97 U	0.98 U	1 U	1 U	1.1 U	0.91 U
1,2-Dichloropropane	1.2 U	1.1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1 U
2-Butanone (MEK)	4.4 U	9.3 UJ	5.5 UJ	2.6 U	11 U	6.7 U	18 U	39 U	9.7 U
2-Chloro-1,3-butadiene	0.62 U	0.59 U	0.53 U	0.55 U	0.56 U	0.59 U	0.58 U	0.62 U	0.52 U
2-Hexanone	2.3 U	2.2 UJ	2 UJ	2 U	2.1 U	2.2 U	2.1 U	2.3 U	1.9 U
3-Chloro-1-propene	1.6 UJ	1.5 UJ	1.4 UJ	1.5 U	1.5 UJ	1.6 UJ	1.5 UJ	1.6 UJ	1.4 UJ
4-Methyl-2-pentanone (MIBK)	3.2 U	3 UJ	2.7 UJ	2.8 U	2.8 U	3 U	3 U	3.1 U	2.6 U
Acetone	40 J	50 R	160 J	55 J	170 J	120 J	220 J	230 J	77 J
Acetonitrile	49 UJ	46 UJ	42 UJ	44 R	44 UJ	47 UJ	46 UJ	49 UJ	41 UJ
Acrolein	21 R	20 R	18 R	18 R	19 R	20 R	19 U	21 U	17 U
Acrylonitrile	25 U	24 U	22 U	22 U	23 U	24 U	23 U	25 U	21 U
Benzene	0.87 U	0.81 U	0.74 U	0.77 U	0.77 U	0.82 U	0.81 U	0.86 U	0.72 U
Bromoform	1.2 U	1.1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1 U
Bromomethane	1.8 U	1.6 U	1.5 U	1.6 UJ	1.6 U	1.7 U	1.6 U	1.7 U	1.5 U
Carbon disulfide	0.56 U	0.53 U	0.48 U	0.62 J	0.69 J	0.53 U	0.52 U	0.55 U	0.46 U
Carbon tetrachloride	1.1 U	1 U	0.94 U	0.97 U	0.98 U	1 U	1 U	1.1 U	0.91 U
Chlorobenzene	0.8 U	0.75 U	0.68 U	0.71 U	0.71 U	0.76 U	0.75 U	0.79 U	0.66 U
Chlorodibromomethane	0.55 U	0.52 U	0.47 U	0.49 U	0.49 U	0.52 U	0.51 U	0.54 U	0.46 U
Chloroethane	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	1.1 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB11	74SB11	74SB12	74SB12	74SB13	74SB13	74SB14	74SB14	74SB15
Sample ID	74SB11-04	74SB11-04D	74SB12-03	74SB12-05	74SB13-02	74SB13-04	74SB14-02	74SB14-03	74SB15-02
Date	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008
Depth Range	7.0 - 8.0	7.0 - 8.0	6.0 - 7.0	9.0 - 10.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0	6.0 - 7.0	3.0 - 4.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.55 U	0.52 U	0.47 U	0.49 U	0.49 U	0.52 U	0.51 U	0.54 U	0.46 U
Chloromethane	0.78 U	0.73 U	0.67 U	0.69 U	0.69 U	0.74 U	0.72 U	0.77 U	0.65 U
cis-1,3-Dichloropropene	0.95 U	0.9 U	0.82 U	0.84 U	0.85 U	0.91 U	0.89 U	0.94 U	0.79 U
Dibromomethane	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	1.1 U
Dichlorobromomethane	0.91 U	0.86 U	0.78 U	0.81 U	0.81 U	0.86 U	0.85 U	0.9 U	0.76 U
Dichlorodifluoromethane	0.98 U	0.92 U	0.83 U	0.86 U	0.87 U	0.93 U	0.91 U	0.96 U	0.81 U
Ethyl methacrylate	2.4 U	2.3 U	2.1 U	2.1 UJ	2.2 U	2.3 U	2.2 U	2.4 U	2 U
Ethylbenzene	0.82 U	0.77 U	0.7 U	0.73 U	0.73 U	0.78 U	0.77 U	0.81 U	0.68 U
Ethylene Dibromide	1.6 U	1.5 U	1.4 U	1.5 U	1.5 U	1.6 U	1.5 U	1.6 U	1.4 U
Iodomethane	1.1 U	1.9 J	0.94 U	0.97 U	0.98 U	1 U	1.1 J	5.7	0.91 U
Isobutyl alcohol	76 R	71 R	65 R	67 R	68 R	72 R	70 R	75 R	63 R
Methacrylonitrile	26 U	25 U	22 U	23 UJ	23 U	25 U	24 U	26 U	22 U
Methyl methacrylate	4.1 U	3.8 UJ	3.5 UJ	3.6 UJ	3.6 U	3.9 U	3.8 U	4 U	3.4 U
Methylene Chloride	1.1 U	1 U	0.94 U	0.97 U	0.98 U	1 U	1 U	1.1 U	0.91 U
Pentachloroethane	2.4 UJ	2.3 U	2.1 U	2.1 U	2.2 UJ	2.3 UJ	2.2 UJ	2.4 UJ	2 UJ
Propionitrile	23 U	22 U	20 U	20 R	21 U	22 U	21 U	23 U	19 U
Styrene	0.72 U	0.68 U	0.62 U	0.64 U	0.65 U	0.69 U	0.67 U	0.71 U	0.6 U
Tetrachloroethene	0.8 U	0.75 U	0.68 U	0.71 U	0.71 U	0.76 U	0.75 U	0.79 U	0.66 U
Toluene	0.87 U	0.81 U	0.74 U	0.77 U	0.77 U	0.82 U	0.81 U	0.86 U	0.72 U
trans-1,2-Dichloroethene	1.1 U	1 U	0.91 U	0.94 U	0.95 U	1 U	0.99 U	1.1 U	0.88 U
trans-1,3-Dichloropropene	0.95 U	0.9 U	0.82 U	0.84 U	0.85 U	0.91 U	0.89 U	0.94 U	0.79 U
trans-1,4-Dichloro-2-butene	3.4 U	3.2 U	2.9 U	3 UJ	3 U	3.2 U	3.2 U	3.4 U	2.8 U
Trichloroethene	1.1 U	1 U	0.94 U	0.97 U	0.98 U	1 U	1 U	1.1 U	0.91 U
Trichlorofluoromethane	1.6 U	1.5 U	1.4 U	1.5 U	1.5 U	1.6 U	1.5 U	1.6 U	1.4 U
Vinyl acetate	1.6 U	1.5 UJ	1.4 UJ	1.5 U	1.5 U	1.6 U	1.5 U	1.6 U	1.4 U
Vinyl chloride	0.64 U	0.6 U	0.54 U	0.56 U	0.57 U	0.6 U	0.59 U	0.63 U	0.53 U
Xylenes, Total	2.5 U	2.4 U	2.2 U	2.2 U	2.3 U	2.4 U	2.3 U	2.5 U	2.1 U

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### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB11	74SB11	74SB12	74SB12	74SB13	74SB13	74SB14	74SB14	74SB15
	Sample ID	74SB11-04	74SB11-04D	74SB12-03	74SB12-05	74SB13-02	74SB13-04	74SB14-02	74SB14-03	74SB15-02
	Date	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008
	Depth Range	7.0 - 8.0	7.0 - 8.0	6.0 - 7.0	9.0 - 10.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0	6.0 - 7.0	3.0 - 4.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		1.6 U	1.5 U	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		2.3 U	2.1 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		0.76 U	0.69 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		2.3 U	2.1 U	NA	NA	NA	NA	NA	NA	NA
Anthracene		2.3 U	2.1 U	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		2.3 U	2.1 U	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		0.88 U	0.8 U	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		1 U	0.92 U	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		2.3 U	2.1 U	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		1.3 U	1.2 U	NA	NA	NA	NA	NA	NA	NA
Chrysene		1 J	0.74 U	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		0.79 U	0.72 U	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		2.3 U	2.1 U	NA	NA	NA	NA	NA	NA	NA
Fluorene		1 U	2.2 J	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		1.6 U	1.5 U	NA	NA	NA	NA	NA	NA	NA
Naphthalene		0.8 U	0.73 U	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		2.3 U	2.1 U	NA	NA	NA	NA	NA	NA	NA
Pyrene		2.3 U	2.1 U	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB11	74SB11	74SB12	74SB12	74SB13	74SB13	74SB14	74SB14	74SB15
	Sample ID	74SB11-04	74SB11-04D	74SB12-03	74SB12-05	74SB13-02	74SB13-04	74SB14-02	74SB14-03	74SB15-02
	Date	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008	4/30/2008
	Depth Range	7.0 - 8.0	7.0 - 8.0	6.0 - 7.0	9.0 - 10.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0	6.0 - 7.0	3.0 - 4.0
<b>Metals (mg/kg)</b>										
Antimony		0.29 UJ	0.21 UJ	0.24 UJ	0.089 UJ	0.11 UJ	0.15 UJ	0.12 UJ	0.18 UJ	0.19 UJ
Arsenic		2.2	2	3.9	1.4	2.1	2.7	2.2	3.6	2.9
Barium		31 J	24 J	63 J	32 J	250 J	36 J	660	55	85
Beryllium		0.15	0.22	0.23	0.28	0.24	0.19	0.24	0.36	0.36
Cadmium		0.083 J	0.053 J	0.08 J	0.034 UJ	0.13 J	0.042 J	0.26 J	0.089 J	0.16 J
Chromium		19 J	36 J	40	23	38	39	47 J	63 J	90 J
Cobalt		11 J	6.9 J	14	13	34	5.3	53 J	11 J	21 J
Copper		260 J	160 J	230	100	100	140	98	140	140
Lead		2.8 J	3.2 J	5.9 J	2.4 J	4 J	4.9 J	5.1 R	11 R	6.5 R
Mercury		0.042 R	0.11 R	0.11	0.036	0.065	0.13	0.058	0.16	0.097
Nickel		13 J	8.2 J	8.2	9.1	9	6.2	10	9.7	9.7
Selenium		0.91	0.73	0.9	0.49 J	1.4	1.2	0.81	1.1	0.93
Silver		0.042 J	0.067 J	0.048 J	0.042 J	0.1 J	0.055 U	0.11 U	0.035 U	0.089 U
Thallium		0.14 U	0.16 J	0.17 J	0.13 U	0.32 J	0.14 U	0.71	0.17 J	0.22 J
Tin		4.8 U	4.5 U	4.6 U	4.4 U	4.5 U	4.6 U	4.3 U	4.5 U	4.3 U
Vanadium		400 J	280 J	510	270	270	310	250	370	390
Zinc		70	77	41	48	57	31	48	46	73
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		1.2 U	1.5 U	2.2 U	1.9 U	4 U	1.9 U	3.5 U	2.2 U	2.7 U
Gasoline Range Organics		0.064 U	0.06 U	0.065 J	0.061 J	0.11 J	0.072 J	0.15 J	0.089 J	0.066 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB15	74SB16	74SB16	74SB16	74SB22	74SB22	74SB22	74SB23	74SB23
Sample ID	74SB15-03	74SB16-02	74SB16-04D	74SB16-04	74SB22-03D	74SB22-03	74SB22-04	74SB23-02	74SB23-03
Date	4/30/2008	4/30/2008	4/30/2008	4/30/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	6.0 - 7.0	4.0 - 5.0	8.0 - 9.0	8.0 - 9.0	5.0 -7.0	5.0 -7.0	7.0 - 9.0	3.0 - 5.0	5.0 -7.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.67 U	0.68 U	0.72 U	29 U	0.66 U	25 U	26 U	0.61 U	26 U
1,1,1-Trichloroethane	0.61 U	0.62 U	0.66 U	26 U	0.6 U	23 U	24 U	0.55 U	24 U
1,1,2,2-Tetrachloroethane	1.5 U	1.5 U	1.6 U	63 U	1.4 U	55 U	58 U	1.3 U	57 U
1,1,2-Trichloroethane	1.3 U	1.3 U	1.4 U	54 U	1.2 U	47 U	50 U	1.1 U	49 U
1,1-Dichloroethane	0.52 U	0.53 U	0.57 U	23 U	0.51 U	20 U	21 U	0.48 U	20 U
1,1-Dichloroethene	0.56 U	0.58 U	0.61 U	24 U	0.55 U	21 U	22 U	0.52 U	22 U
1,2,3-Trichloropropane	1.5 U	1.5 U	1.6 U	63 U	1.4 U	55 U	58 U	1.3 U	57 U
1,2-Dibromo-3-Chloropropane	2.9 U	3 U	3.2 U	130 U	2.9 U	110 U	120 U	2.7 U	110 U
1,2-Dichloroethane	1 U	1.1 U	1.1 U	45 U	1 U	39 U	41 U	0.96 U	41 U
1,2-Dichloropropane	1.1 U	1.2 U	1.2 U	50 U	1.1 U	43 U	45 U	1.1 U	45 U
2-Butanone (MEK)	5.1 U	5.8 U	6 U	120 U	2.8 U	110 U	120 U	2.6 UJ	110 U
2-Chloro-1,3-butadiene	0.6 U	0.61 U	0.64 U	26 U	0.59 U	22 U	24 U	0.54 U	23 U
2-Hexanone	2.2 U	2.2 U	2.4 U	95 UJ	2.2 U	82 UJ	87 UJ	2 UJ	86 UJ
3-Chloro-1-propene	1.6 UJ	1.6 UJ	1.7 UJ	68 UJ	1.5 UJ	59 UJ	62 UJ	1.4 U	61 UJ
4-Methyl-2-pentanone (MIBK)	3 U	3.1 U	3.3 U	130 UJ	3 U	110 UJ	120 UJ	2.8 UJ	120 UJ
Acetone	51 J	68 R	39 J	920 R	54 J	420 R	440 R	34 J	180 R
Acetonitrile	47 UJ	48 U	51 UJ	2000 U	46 R	1800 U	1900 U	43 R	1800 U
Acrolein	20 U	20 R	21 U	860 R	20 R	750 R	780 UJ	18 R	780 R
Acrylonitrile	24 U	25 UJ	26 U	1000 U	24 U	900 U	950 U	22 U	940 U
Benzene	0.83 U	0.84 U	0.89 U	36 U	0.81 U	31 U	33 U	0.75 U	32 U
Bromoform	1.1 U	1.2 U	1.2 U	50 U	1.1 U	43 U	45 U	1.1 U	45 U
Bromomethane	1.7 U	1.7 U	1.8 U	72 U	1.6 UJ	63 U	66 UJ	1.5 U	66 U
Carbon disulfide	0.53 U	1 J	0.97 J	23 U	0.52 U	20 U	21 U	0.49 U	21 U
Carbon tetrachloride	1 U	1.1 U	1.1 U	45 U	1 U	39 U	41 U	0.96 U	41 U
Chlorobenzene	0.76 U	0.78 U	0.83 U	33 U	0.75 U	29 U	30 U	0.7 U	30 U
Chlorodibromomethane	0.52 U	0.53 U	0.57 U	23 U	0.51 U	20 U	21 U	0.48 U	20 U
Chloroethane	1.3 U	1.3 U	1.4 U	54 U	1.2 U	47 UJ	50 UJ	1.1 U	49 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB15	74SB16	74SB16	74SB16	74SB22	74SB22	74SB22	74SB23	74SB23
Sample ID	74SB15-03	74SB16-02	74SB16-04D	74SB16-04	74SB22-03D	74SB22-03	74SB22-04	74SB23-02	74SB23-03
Date	4/30/2008	4/30/2008	4/30/2008	4/30/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	6.0 - 7.0	4.0 - 5.0	8.0 - 9.0	8.0 - 9.0	5.0 -7.0	5.0 -7.0	7.0 - 9.0	3.0 - 5.0	5.0 -7.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.52 U	0.53 U	0.57 U	23 U	0.51 U	20 U	21 U	0.48 U	20 U
Chloromethane	0.74 U	0.76 U	0.8 U	32 U	0.73 U	28 U	29 U	0.68 U	29 U
cis-1,3-Dichloropropene	0.91 U	0.93 U	0.98 U	39 U	0.89 U	34 U	36 U	0.83 U	36 U
Dibromomethane	1.3 U	1.3 U	1.4 U	54 U	1.2 U	47 U	50 U	1.1 U	49 U
Dichlorobromomethane	0.87 U	0.89 U	0.94 U	37 U	0.85 U	33 U	34 U	0.79 U	34 U
Dichlorodifluoromethane	0.93 U	0.95 U	1 U	40 U	0.91 U	35 U	37 U	0.85 U	36 U
Ethyl methacrylate	2.3 U	2.4 U	17 J	99 UJ	2.3 UJ	86 U	91 U	2.1 UJ	90 U
Ethylbenzene	0.78 U	0.8 U	0.85 U	34 U	0.77 U	29 U	31 U	0.72 U	31 U
Ethylene Dibromide	1.6 U	1.6 U	1.7 U	68 U	1.5 U	59 U	62 U	1.4 U	61 U
Iodomethane	1 U	1.1 U	1.1 U	45 UJ	1 U	39 UJ	41 UJ	0.96 U	41 UJ
Isobutyl alcohol	72 R	74 R	240 J	3100 R	71 R	2700 R	2800 R	66 R	2800 R
Methacrylonitrile	25 U	26 U	27 U	1100 U	25 UJ	940 U	990 U	23 UJ	980 U
Methyl methacrylate	3.9 U	4 U	17 J	170 UJ	3.8 UJ	150 U	150 U	3.5 UJ	150 U
Methylene Chloride	1 U	1.1 U	1.1 U	45 U	1 U	39 U	41 U	0.96 U	41 U
Pentachloroethane	2.3 UJ	2.4 UJ	2.5 UJ	99 UJ	2.3 U	86 UJ	91 UJ	2.1 U	90 UJ
Propionitrile	22 U	22 U	24 U	950 U	22 R	820 U	870 U	20 R	860 U
Styrene	0.69 U	0.71 U	0.75 U	30 U	0.68 U	26 U	27 U	0.63 U	27 U
Tetrachloroethene	0.76 U	0.78 U	0.83 U	33 U	0.75 U	29 U	30 U	0.7 U	30 U
Toluene	0.83 U	0.84 U	0.89 U	36 U	0.81 U	31 U	33 U	0.75 U	32 U
trans-1,2-Dichloroethene	1 U	1 U	1.1 U	44 U	1 U	38 U	40 U	0.93 U	40 U
trans-1,3-Dichloropropene	0.91 U	0.93 U	0.98 U	39 U	0.89 U	34 U	36 U	0.83 U	36 U
trans-1,4-Dichloro-2-butene	3.2 U	3.3 U	3.5 U	140 U	3.2 UJ	120 U	130 U	3 UJ	130 U
Trichloroethene	1 U	1.1 U	1.1 U	45 U	1 U	39 U	41 U	0.96 U	41 U
Trichlorofluoromethane	1.6 U	1.6 U	1.7 U	68 U	1.5 U	59 U	62 U	1.4 U	61 U
Vinyl acetate	1.6 U	1.6 U	1.7 U	68 U	1.5 U	59 U	62 U	1.4 UJ	61 U
Vinyl chloride	0.61 U	0.62 U	0.66 U	26 U	0.6 U	23 U	24 U	0.55 U	24 U
Xylenes, Total	2.4 U	2.5 U	2.6 U	100 U	2.4 U	90 U	95 U	2.2 U	94 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB15	74SB16	74SB16	74SB16	74SB22	74SB22	74SB22	74SB23	74SB23
	Sample ID	74SB15-03	74SB16-02	74SB16-04D	74SB16-04	74SB22-03D	74SB22-03	74SB22-04	74SB23-02	74SB23-03
	Date	4/30/2008	4/30/2008	4/30/2008	4/30/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	6.0 - 7.0	4.0 - 5.0	8.0 - 9.0	8.0 - 9.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	3.0 - 5.0	5.0 - 7.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	16 R	15 U	17 R	16 U	7900	37 J	1100
2-Methylnaphthalene		NA	NA	22 R	21 U	23 R	22 U	8800	36 J	1400
Acenaphthene		NA	NA	7.4 R	7.2 U	7.8 R	7.5 U	7.6 U	7.4 U	7.4 U
Acenaphthylene		NA	NA	22 R	21 U	23 R	22 U	220	22 U	22 U
Anthracene		NA	NA	22 R	21 U	23 R	200 J	150	22 U	70 J
Benzo[a]anthracene		NA	NA	22 R	21 U	250 J	630 J	230	22 U	120
Benzo[a]pyrene		NA	NA	8.6 R	14 J	160 J	390 J	160	8.6 U	71 J
Benzo[b]fluoranthene		NA	NA	9.9 R	13 J	290 J	860 J	350	9.9 U	130
Benzo[g,h,i]perylene		NA	NA	22 R	21 U	78 J	130	69 J	22 U	29 J
Benzo[k]fluoranthene		NA	NA	13 R	14 J	170 J	13 UJ	13 U	13 U	13 U
Chrysene		NA	NA	8 R	14 J	300 J	620 J	240	7.9 U	91
Dibenz(a,h)anthracene		NA	NA	7.7 R	12 J	34 J	58 J	30 J	7.7 U	12 J
Fluoranthene		NA	NA	22 R	21 U	480 J	1400 J	550	22 U	250
Fluorene		NA	NA	60 J	83 J	52 J	200 J	230	10 U	79 J
Indeno[1,2,3-cd]pyrene		NA	NA	16 R	15 U	84 J	130	62 J	16 U	32 J
Naphthalene		NA	NA	7.8 R	7.5 U	8.3 R	7.9 U	8 U	7.8 U	7.7 U
Phenanthrene		NA	NA	22 R	21 U	23 R	430 J	460	22 U	230
Pyrene		NA	NA	22 R	21 U	680 J	1400 J	510	22 U	220

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB15	74SB16	74SB16	74SB16	74SB22	74SB22	74SB22	74SB23	74SB23
	Sample ID	74SB15-03	74SB16-02	74SB16-04D	74SB16-04	74SB22-03D	74SB22-03	74SB22-04	74SB23-02	74SB23-03
	Date	4/30/2008	4/30/2008	4/30/2008	4/30/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	6.0 - 7.0	4.0 - 5.0	8.0 - 9.0	8.0 - 9.0	5.0 -7.0	5.0 -7.0	7.0 - 9.0	3.0 - 5.0	5.0 -7.0
<b>Metals (mg/kg)</b>										
Antimony		0.086 UJ	0.16 UJ	0.09 UJ	0.089 UJ	0.46 U	0.094 U	0.16 U	0.14 U	0.14 U
Arsenic		1.1	3.1	1.6	1.5	3.1	2	3.6	2.6	2.9
Barium		76	50	87	70	350	310 J	440	170	27
Beryllium		0.17	0.43	0.17	0.16	0.56 J	0.26 J	0.65	0.37	0.3
Cadmium		0.034 UJ	0.16 J	0.037 UJ	0.037 UJ	0.096 J	0.039 U	0.051 J	0.092 J	0.036 U
Chromium		56 J	57 J	40 J	52 J	82 J	37 J	53	42	60
Cobalt		3.9 J	34 J	2 J	1.6 J	57 R	8.8 R	57	22	10
Copper		73	160	180	160	270 J	120 J	300	170	240
Lead		3.4 R	4 R	1.9 R	2 R	8.9 R	0.96 R	3.9	6.4	8.1
Mercury		0.32	0.046	0.046	0.067	0.056	0.068	0.038	0.064	0.02 J
Nickel		5.5	10	3.1	3.4	15 J	5.5 J	24	11	6.9
Selenium		0.65	1	1.1	1.2	1.3	0.25 J	0.86	0.83	0.69
Silver		0.25	0.071 U	0.026 U	0.047 U	0.093 U	0.057 U	0.062 U	0.044 U	0.037 U
Thallium		0.21 J	0.54	0.14 U	0.14 U	0.42 J	0.34 J	0.43 J	0.22 J	0.14 J
Tin		4.4 U	4.4 U	4.8 U	4.7 U	5 U	5 U	5 U	4.8 U	4.7 U
Vanadium		180	250	170	220	290 J	97 J	190	180	220
Zinc		20	39	14	13	59 J	24 J	60	41	23
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		1.8 U	3.7 U	17 J	91 J	860 J	2100 J	1500	41	380
Gasoline Range Organics		0.066 J	0.26	140 J	130 J	68	280	140	0.062 U	150

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB24	74SB24	74SB25	74SB25	74SB26	74SB26	74SB26	74SB27	74SB27
Sample ID	74SB24-03	74SB24-05	74SB25-04	74SB25-05	74SB26-05	74SB26-02D	74SB26-02	74SB27-03	74SB27-05
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	5.0 - 7.0	9.0 - 11.0	7.0 - 9.0	9.0 - 11.0	9.0 - 11.0	3.0 - 5.0	3.0 - 5.0	5.0 - 7.0	9.0 - 11.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.58 U	1.2 U	0.59 U	0.61 U	28 U	0.64 U	0.65 U	30 U	30 U
1,1,1-Trichloroethane	0.53 U	1.1 U	0.53 U	0.55 U	26 U	0.58 U	0.59 U	28 U	28 U
1,1,2,2-Tetrachloroethane	1.3 U	2.6 U	1.3 U	1.3 U	62 U	1.4 U	1.4 U	67 U	67 U
1,1,2-Trichloroethane	1.1 U	2.2 U	1.1 U	1.1 U	53 U	1.2 U	1.2 U	57 U	57 U
1,1-Dichloroethane	0.46 U	0.93 U	0.46 U	0.47 U	22 U	0.5 U	0.51 U	24 U	24 U
1,1-Dichloroethene	0.49 U	1 U	0.5 U	0.51 U	24 U	0.54 U	0.55 U	26 U	26 U
1,2,3-Trichloropropane	1.3 U	2.6 U	1.3 U	1.3 U	62 U	1.4 U	1.4 U	67 U	67 U
1,2-Dibromo-3-Chloropropane	2.6 U	5.2 U	2.6 U	2.6 U	120 U	2.8 U	2.9 U	130 U	130 U
1,2-Dichloroethane	0.91 U	1.9 U	0.92 U	0.95 U	44 U	1 U	1 U	48 U	48 U
1,2-Dichloropropane	1 U	2 U	1 U	1 U	49 U	1.1 U	1.1 U	52 U	52 U
2-Butanone (MEK)	2.5 UJ	5 UJ	2.5 UJ	2.6 UJ	120 U	6.7 UJ	2.8 UJ	130 U	130 U
2-Chloro-1,3-butadiene	0.52 U	1.1 U	0.53 U	0.54 U	25 U	0.57 U	0.58 U	27 U	27 U
2-Hexanone	1.9 UJ	3.9 UJ	1.9 UJ	2 UJ	93 UJ	2.1 UJ	2.1 UJ	100 UJ	100 UJ
3-Chloro-1-propene	1.4 U	2.8 U	1.4 U	1.4 U	67 UJ	1.5 U	1.5 U	71 UJ	71 UJ
4-Methyl-2-pentanone (MIBK)	2.6 UJ	5.4 UJ	2.7 UJ	2.7 UJ	130 UJ	2.9 UJ	3 UJ	140 UJ	140 UJ
Acetone	19 J	14 J	43 J	4.2 R	200 R	25 J	25 J	210 R	300 R
Acetonitrile	41 R	84 R	42 R	43 R	2000 U	45 R	46 R	2100 U	2100 U
Acrolein	17 R	35 R	18 R	18 R	840 R	19 R	19 R	900 R	900 R
Acrylonitrile	21 U	43 U	21 U	22 U	1000 U	23 U	24 U	1100 U	1100 U
Benzene	0.72 U	1.5 U	0.73 U	0.75 U	35 U	0.79 U	0.81 U	38 U	38 U
Bromoform	1 U	2 U	1 U	1 U	49 U	1.1 U	1.1 U	52 U	52 U
Bromomethane	1.5 U	3 U	1.5 U	1.5 U	71 U	1.6 U	1.6 U	76 U	76 U
Carbon disulfide	0.65 J	0.95 U	1.1 J	0.48 U	23 U	1.3 J	1.9 J	24 U	24 U
Carbon tetrachloride	0.91 U	1.9 U	0.92 U	0.95 U	44 U	1 U	1 U	48 U	48 U
Chlorobenzene	0.67 U	1.4 U	0.67 U	0.69 U	32 U	0.73 U	2 J	35 U	35 U
Chlorodibromomethane	0.46 U	0.93 U	0.46 U	0.47 U	22 U	0.5 U	0.51 U	24 U	24 U
Chloroethane	1.1 U	2.2 U	1.1 U	1.1 U	53 UJ	1.2 U	1.2 U	57 UJ	57 UJ



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB24	74SB24	74SB25	74SB25	74SB26	74SB26	74SB26	74SB27	74SB27
Sample ID	74SB24-03	74SB24-05	74SB25-04	74SB25-05	74SB26-05	74SB26-02D	74SB26-02	74SB27-03	74SB27-05
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	5.0 -7.0	9.0 - 11.0	7.0 - 9.0	9.0 - 11.0	9.0 - 11.0	3.0 - 5.0	3.0 - 5.0	5.0 - 7.0	9.0 - 11.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.46 U	0.93 U	0.46 U	0.47 U	22 U	0.5 U	0.51 U	24 U	24 U
Chloromethane	0.65 U	1.3 U	0.65 U	0.67 U	32 U	1.5 J	0.73 U	34 U	34 U
cis-1,3-Dichloropropene	0.79 U	1.6 U	0.8 U	0.82 U	39 U	0.87 U	0.89 U	41 U	41 U
Dibromomethane	1.1 U	2.2 U	1.1 U	1.1 U	53 U	1.2 U	1.2 U	57 U	57 U
Dichlorobromomethane	0.76 U	1.5 U	0.77 U	0.79 U	37 U	0.83 U	0.85 U	39 U	40 U
Dichlorodifluoromethane	0.81 U	1.7 U	0.82 U	0.84 U	40 U	0.89 U	0.91 U	42 U	42 U
Ethyl methacrylate	2 UJ	4.1 UJ	2 UJ	2.1 UJ	98 U	2.2 UJ	2.2 UJ	100 U	100 U
Ethylbenzene	0.69 U	1.4 U	0.69 U	0.71 U	33 U	0.75 U	0.77 U	36 U	36 U
Ethylene Dibromide	1.4 U	2.8 U	1.4 U	1.4 U	67 U	1.5 U	1.5 U	71 U	71 U
Iodomethane	0.91 U	1.9 U	0.92 U	0.95 U	44 UJ	1 U	1 U	48 UJ	48 UJ
Isobutyl alcohol	63 R	130 R	64 R	65 R	3100 R	69 R	71 R	3300 R	3300 R
Methacrylonitrile	22 UJ	45 UJ	22 UJ	23 UJ	1100 U	24 UJ	25 UJ	1100 U	1100 U
Methyl methacrylate	3.4 UJ	6.9 UJ	3.4 UJ	3.5 UJ	160 U	3.7 UJ	3.8 UJ	180 U	180 U
Methylene Chloride	0.91 U	1.9 U	0.92 U	0.95 U	44 U	1 U	1 U	48 U	48 U
Pentachloroethane	2 U	4.1 U	2 U	2.1 U	98 UJ	2.2 U	2.2 U	100 UJ	100 UJ
Propionitrile	19 R	39 R	19 R	20 R	930 U	21 R	21 R	1000 U	1000 U
Styrene	0.6 U	1.2 U	0.61 U	0.62 U	29 U	0.66 U	0.67 U	31 U	31 U
Tetrachloroethene	0.67 U	1.4 U	0.67 U	0.69 U	32 U	0.73 U	0.75 U	35 U	35 U
Toluene	0.72 U	1.5 U	0.73 U	0.75 U	35 U	0.79 U	0.81 U	38 U	38 U
trans-1,2-Dichloroethene	0.89 U	1.8 U	0.89 U	0.92 U	43 U	0.97 U	0.99 U	46 U	46 U
trans-1,3-Dichloropropene	0.79 U	1.6 U	0.8 U	0.82 U	39 U	0.87 U	0.89 U	41 U	41 U
trans-1,4-Dichloro-2-butene	2.8 UJ	5.8 UJ	2.9 UJ	2.9 UJ	140 U	3.1 UJ	3.2 UJ	150 U	150 U
Trichloroethene	0.91 U	1.9 U	0.92 U	0.95 U	44 U	1 U	1 U	48 U	48 U
Trichlorofluoromethane	1.4 U	2.8 U	1.4 U	1.4 U	67 U	1.5 U	1.5 U	71 U	71 U
Vinyl acetate	1.4 UJ	2.8 UJ	1.4 UJ	1.4 UJ	67 U	1.5 UJ	1.5 UJ	71 U	71 U
Vinyl chloride	0.53 U	1.1 U	0.53 U	0.55 U	26 U	0.58 U	0.59 U	28 U	28 U
Xylenes, Total	2.1 U	4.3 U	2.1 U	2.2 U	100 U	2.3 U	2.4 U	110 U	110 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB24	74SB24	74SB25	74SB25	74SB26	74SB26	74SB26	74SB27	74SB27
	Sample ID	74SB24-03	74SB24-05	74SB25-04	74SB25-05	74SB26-05	74SB26-02D	74SB26-02	74SB27-03	74SB27-05
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	5.0 -7.0	9.0 - 11.0	7.0 - 9.0	9.0 - 11.0	9.0 - 11.0	3.0 - 5.0	3.0 - 5.0	5.0 - 7.0	9.0 - 11.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		1.5 U	1.5 U	1.5 U	2.3 J	NA	NA	NA	NA	NA
2-Methylnaphthalene		2.2 U	2.1 U	2.2 U	2.3 J	NA	NA	NA	NA	NA
Acenaphthene		0.72 U	0.71 U	0.72 U	0.67 U	NA	NA	NA	NA	NA
Acenaphthylene		2.2 U	2.1 U	2.2 U	2 U	NA	NA	NA	NA	NA
Anthracene		2.2 U	2.1 U	2.2 U	2 U	NA	NA	NA	NA	NA
Benzo[a]anthracene		2.2 U	2.1 U	2.2 U	2 U	NA	NA	NA	NA	NA
Benzo[a]pyrene		0.84 U	0.82 U	0.84 U	0.78 UJ	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		0.97 U	0.95 U	0.96 U	0.9 UJ	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		2.2 U	2.1 U	2.2 U	2 UJ	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		1.3 U	1.2 U	1.3 U	1.2 UJ	NA	NA	NA	NA	NA
Chrysene		0.77 U	0.76 U	0.77 U	0.72 U	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		0.75 U	0.74 U	0.75 U	0.7 UJ	NA	NA	NA	NA	NA
Fluoranthene		2.2 U	2.1 U	2.2 U	2 U	NA	NA	NA	NA	NA
Fluorene		0.98 U	0.96 U	0.98 U	0.91 U	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		1.5 U	1.5 U	1.5 U	1.4 UJ	NA	NA	NA	NA	NA
Naphthalene		0.76 U	0.75 U	0.76 U	0.71 U	NA	NA	NA	NA	NA
Phenanthrene		2.2 U	2.1 U	2.2 U	2 U	NA	NA	NA	NA	NA
Pyrene		2.2 U	2.1 U	2.2 U	2 U	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB24	74SB24	74SB25	74SB25	74SB26	74SB26	74SB26	74SB27	74SB27
	Sample ID	74SB24-03	74SB24-05	74SB25-04	74SB25-05	74SB26-05	74SB26-02D	74SB26-02	74SB27-03	74SB27-05
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	5.0 - 7.0	9.0 - 11.0	7.0 - 9.0	9.0 - 11.0	9.0 - 11.0	3.0 - 5.0	3.0 - 5.0	5.0 - 7.0	9.0 - 11.0
<b>Metals (mg/kg)</b>										
Antimony		0.13 U	0.12 U	0.088 U	0.16 U	0.51 UJ	0.086 U	0.095 U	0.14 UJ	0.13 UJ
Arsenic		1.3	1.7	1.2	2.1	4.5	1.1	1.3	1.7	1.6
Barium		90	180	14	21	33	76	76	26	21
Beryllium		0.24	0.17	0.11 U	0.17	0.33	0.25	0.28	0.11 U	0.15
Cadmium		0.068 J	0.036 U	0.036 U	0.034 U	0.054 J	0.07 J	0.067 J	0.038 U	0.035 U
Chromium		16	26	15	45	140 R	18	20	40 R	44 R
Cobalt		16	5.2	0.86	2.8	8.3	14	14	1.9	0.99
Copper		65	120	48	110	260	73	82	88	110
Lead		2.5	3.3	2.3	4.2	64	2.5	2.7	4.5	4.1
Mercury		0.04	0.11	0.18	0.038	0.0097 J	0.061	0.032	0.03	0.042
Nickel		8.4	4.1	2.8	4.4	9.3	8.4	8.7	3	3.3
Selenium		0.16 J	0.74	0.54 J	0.82	1.6	0.36 J	0.41 J	1	1.1
Silver		0.051 U	0.045 U	0.025 U	0.02 U	0.082 U	0.053 U	0.044 U	0.048 U	0.024 U
Thallium		0.14 U	0.14 U	0.14 U	0.13 U	0.2 J	0.14 U	0.14 U	0.15 U	0.14 U
Tin		4.8 U	4.6 U	4.7 U	4.3 U	4.8 U	4.6 U	4.6 U	4.9 U	4.5 U
Vanadium		220	260	120	240	380	180	200	200	180
Zinc		46	18	10	20	48 J	59	55	11 J	12 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		2.1 J	1.9 J	1.4 J	1.2 J	420	420	550	300	98
Gasoline Range Organics		0.06 U	0.057 U	0.061 U	0.063 U	140 J	120	140	89 J	42 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB28	74SB28	74SB29	74SB29	74SB30	74SB30	74SB31	74SB31	74SB32
Sample ID	74SB28-02	74SB28-04	74SB29-03	74SB29-05	74SB30-03	74SB30-04	74SB31-02	74SB31-03	74SB32-02
Date	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008
Depth Range	4.0 - 5.0	8.0 - 9.0	6.0 - 7.0	9.0 - 10.0	6.0 - 7.0	8.0 - 9.0	3.0 - 4.0	5.0 - 6.0	4.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.65 UJ	30 UJ	0.66 UJ	0.59 UJ	30 UJ	27 UJ	0.6 UJ	0.81 UJ	0.71 UJ
1,1,1-Trichloroethane	0.59 UJ	27 UJ	0.6 UJ	0.54 UJ	27 UJ	24 UJ	0.54 UJ	0.73 UJ	0.64 UJ
1,1,2,2-Tetrachloroethane	1.4 UJ	66 UJ	1.4 UJ	1.3 UJ	65 UJ	59 UJ	1.3 UJ	1.8 UJ	1.6 UJ
1,1,2-Trichloroethane	1.2 UJ	57 UJ	1.2 UJ	1.1 UJ	56 UJ	51 UJ	1.1 UJ	1.5 UJ	1.3 UJ
1,1-Dichloroethane	0.51 UJ	24 UJ	0.51 UJ	0.46 UJ	23 UJ	21 UJ	0.47 UJ	0.63 UJ	0.55 UJ
1,1-Dichloroethene	0.55 UJ	26 UJ	0.56 UJ	0.5 UJ	25 UJ	23 UJ	0.51 UJ	0.68 UJ	0.6 UJ
1,2,3-Trichloropropane	1.4 UJ	66 UJ	1.4 UJ	1.3 UJ	65 UJ	59 UJ	1.3 UJ	1.8 UJ	1.6 UJ
1,2-Dibromo-3-Chloropropane	2.8 UJ	130 UJ	2.9 UJ	2.6 UJ	130 UJ	120 UJ	2.6 UJ	3.5 UJ	3.1 UJ
1,2-Dichloroethane	1 UJ	47 UJ	1 UJ	0.92 UJ	46 UJ	42 UJ	0.94 UJ	1.3 UJ	1.1 UJ
1,2-Dichloropropane	1.1 UJ	52 UJ	1.1 UJ	1 UJ	51 UJ	46 UJ	1 UJ	1.4 UJ	1.2 UJ
2-Butanone (MEK)	2.7 UJ	130 UJ	2.8 UJ	2.5 UJ	130 UJ	110 UJ	2.5 UJ	3.4 UJ	3 UJ
2-Chloro-1,3-butadiene	0.58 UJ	27 UJ	0.59 UJ	0.53 UJ	26 UJ	24 UJ	0.54 UJ	0.72 UJ	0.63 UJ
2-Hexanone	2.1 UJ	100 UJ	2.2 UJ	1.9 UJ	98 UJ	88 UJ	2 UJ	2.7 UJ	2.3 UJ
3-Chloro-1-propene	1.5 UJ	71 UJ	1.5 UJ	1.4 UJ	70 UJ	63 UJ	1.4 UJ	1.9 UJ	1.7 UJ
4-Methyl-2-pentanone (MIBK)	2.9 UJ	140 UJ	3 UJ	2.7 UJ	130 UJ	120 UJ	2.7 UJ	3.7 UJ	3.2 UJ
Acetone	32 J	490 R	21 J	4.1 R	360 R	190 R	65 J	33 J	4.9 R
Acetonitrile	46 R	2100 UJ	46 R	42 R	2100 UJ	1900 UJ	42 R	57 R	50 R
Acrolein	19 R	900 R	20 R	18 R	880 R	800 R	18 R	24 R	21 R
Acrylonitrile	23 UJ	1100 UJ	24 UJ	21 UJ	1100 UJ	970 UJ	22 UJ	29 UJ	25 UJ
Benzene	0.8 UJ	37 UJ	0.81 UJ	0.73 UJ	37 UJ	33 UJ	0.74 UJ	1 UJ	0.88 UJ
Bromoform	1.1 UJ	52 UJ	1.1 UJ	1 UJ	51 UJ	46 UJ	1 UJ	1.4 UJ	1.2 UJ
Bromomethane	1.6 UJ	76 UJ	1.6 UJ	1.5 UJ	74 UJ	67 UJ	1.5 UJ	2 UJ	1.8 UJ
Carbon disulfide	0.52 UJ	24 UJ	0.9 J	0.47 UJ	24 UJ	21 UJ	0.48 UJ	0.65 UJ	0.57 UJ
Carbon tetrachloride	1 UJ	47 UJ	1 UJ	0.92 UJ	46 UJ	42 UJ	0.94 UJ	1.3 UJ	1.1 UJ
Chlorobenzene	0.74 UJ	35 UJ	0.75 UJ	0.67 UJ	34 UJ	31 UJ	0.69 UJ	0.92 UJ	0.81 UJ
Chlorodibromomethane	0.51 UJ	24 UJ	0.51 UJ	0.46 UJ	23 UJ	21 UJ	0.47 UJ	0.63 UJ	0.55 UJ
Chloroethane	1.2 UJ	57 UJ	1.2 UJ	1.1 UJ	56 UJ	51 UJ	1.1 UJ	1.5 UJ	1.3 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB28	74SB28	74SB29	74SB29	74SB30	74SB30	74SB31	74SB31	74SB32
Sample ID	74SB28-02	74SB28-04	74SB29-03	74SB29-05	74SB30-03	74SB30-04	74SB31-02	74SB31-03	74SB32-02
Date	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008
Depth Range	4.0 - 5.0	8.0 - 9.0	6.0 - 7.0	9.0 - 10.0	6.0 - 7.0	8.0 - 9.0	3.0 - 4.0	5.0 - 6.0	4.0 - 5.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.51 UJ	40 J	0.51 UJ	0.46 UJ	23 UJ	21 UJ	0.47 UJ	0.63 UJ	0.55 UJ
Chloromethane	0.72 UJ	34 UJ	0.73 UJ	0.66 UJ	33 UJ	30 UJ	0.67 UJ	0.9 UJ	0.79 UJ
cis-1,3-Dichloropropene	0.88 UJ	41 UJ	0.89 UJ	0.8 UJ	40 UJ	37 UJ	0.82 UJ	1.1 UJ	0.96 UJ
Dibromomethane	1.2 UJ	57 UJ	1.2 UJ	1.1 UJ	56 UJ	51 UJ	1.1 UJ	1.5 UJ	1.3 UJ
Dichlorobromomethane	0.84 UJ	39 UJ	0.85 UJ	0.77 UJ	39 UJ	35 UJ	0.78 UJ	1.1 UJ	0.92 UJ
Dichlorodifluoromethane	0.9 UJ	42 UJ	0.91 UJ	0.82 UJ	41 UJ	37 UJ	0.84 UJ	1.1 UJ	0.99 UJ
Ethyl methacrylate	2.2 UJ	100 UJ	2.3 UJ	2 UJ	100 UJ	93 UJ	2.1 UJ	2.8 UJ	2.4 UJ
Ethylbenzene	0.76 UJ	1100 J	0.77 UJ	0.69 UJ	35 UJ	32 UJ	0.7 UJ	0.95 UJ	0.83 UJ
Ethylene Dibromide	1.5 UJ	71 UJ	1.5 UJ	1.4 UJ	70 UJ	63 UJ	1.4 UJ	1.9 UJ	1.7 UJ
Iodomethane	1 UJ	47 UJ	1 UJ	0.92 UJ	46 UJ	42 UJ	0.94 UJ	1.3 UJ	1.1 UJ
Isobutyl alcohol	70 R	3300 R	71 R	64 R	3200 R	2900 R	65 R	87 R	76 R
Methacrylonitrile	24 UJ	1100 UJ	25 UJ	22 UJ	1100 UJ	1000 UJ	23 UJ	30 UJ	27 UJ
Methyl methacrylate	3.8 UJ	180 UJ	3.8 UJ	3.4 UJ	170 UJ	160 UJ	3.5 UJ	4.7 UJ	4.1 UJ
Methylene Chloride	1 UJ	47 UJ	1 UJ	0.92 UJ	46 UJ	42 UJ	0.94 UJ	1.3 UJ	1.1 UJ
Pentachloroethane	2.2 UJ	100 UJ	2.3 UJ	2 UJ	100 UJ	93 UJ	2.1 UJ	2.8 UJ	2.4 UJ
Propionitrile	21 R	1000 UJ	22 R	19 R	980 UJ	880 UJ	20 R	27 R	23 R
Styrene	0.67 UJ	31 UJ	0.68 UJ	0.61 UJ	31 UJ	28 UJ	0.62 UJ	0.84 UJ	0.73 UJ
Tetrachloroethene	0.74 UJ	35 UJ	0.75 UJ	0.67 UJ	34 UJ	31 UJ	0.69 UJ	0.92 UJ	0.81 UJ
Toluene	0.8 UJ	37 UJ	0.81 UJ	0.73 UJ	37 UJ	33 UJ	0.74 UJ	1 UJ	0.88 UJ
trans-1,2-Dichloroethene	0.98 UJ	46 UJ	1 UJ	0.9 UJ	45 UJ	41 UJ	0.91 UJ	1.2 UJ	1.1 UJ
trans-1,3-Dichloropropene	0.88 UJ	41 UJ	0.89 UJ	0.8 UJ	40 UJ	37 UJ	0.82 UJ	1.1 UJ	0.96 UJ
trans-1,4-Dichloro-2-butene	3.1 UJ	150 UJ	3.2 UJ	2.9 UJ	140 UJ	130 UJ	2.9 UJ	3.9 UJ	3.4 UJ
Trichloroethene	1 UJ	47 UJ	1 UJ	0.92 UJ	46 UJ	42 UJ	0.94 UJ	1.3 UJ	1.1 UJ
Trichlorofluoromethane	1.5 UJ	71 UJ	1.5 UJ	1.4 UJ	70 UJ	63 UJ	1.4 UJ	1.9 UJ	1.7 UJ
Vinyl acetate	1.5 UJ	71 UJ	1.5 UJ	1.4 UJ	70 UJ	63 UJ	1.4 UJ	1.9 UJ	1.7 UJ
Vinyl chloride	0.59 UJ	27 UJ	0.6 UJ	0.54 UJ	27 UJ	24 UJ	0.54 UJ	0.73 UJ	0.64 UJ
Xylenes, Total	2.3 UJ	110 UJ	2.4 UJ	2.1 UJ	110 UJ	97 UJ	2.2 UJ	2.9 UJ	2.5 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB28	74SB28	74SB29	74SB29	74SB30	74SB30	74SB31	74SB31	74SB32
	Sample ID	74SB28-02	74SB28-04	74SB29-03	74SB29-05	74SB30-03	74SB30-04	74SB31-02	74SB31-03	74SB32-02
	Date	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008
	Depth Range	4.0 - 5.0	8.0 - 9.0	6.0 - 7.0	9.0 - 10.0	6.0 - 7.0	8.0 - 9.0	3.0 - 4.0	5.0 - 6.0	4.0 - 5.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	1.5 UJ	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	2.2 UJ	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	0.74 UJ	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	2.2 UJ	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	2.2 UJ	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	2.2 UJ	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	0.85 UJ	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	0.98 UJ	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	2.2 UJ	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	1.3 UJ	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	0.79 UJ	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	0.76 UJ	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	2.2 UJ	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	0.99 UJ	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	1.5 UJ	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	3.3 J	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	2.2 UJ	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	2.2 UJ	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB28	74SB28	74SB29	74SB29	74SB30	74SB30	74SB31	74SB31	74SB32
	Sample ID	74SB28-02	74SB28-04	74SB29-03	74SB29-05	74SB30-03	74SB30-04	74SB31-02	74SB31-03	74SB32-02
	Date	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008
	Depth Range	4.0 - 5.0	8.0 - 9.0	6.0 - 7.0	9.0 - 10.0	6.0 - 7.0	8.0 - 9.0	3.0 - 4.0	5.0 - 6.0	4.0 - 5.0
<b>Metals (mg/kg)</b>										
Antimony		0.39 UJ	0.27 UJ	0.093 UJ	0.083 UJ	0.1 UJ	0.093 UJ	0.091 UJ	0.12 UJ	0.092 UJ
Arsenic		2.1	1.6	1.3	1.8	3	3	1.3	1	1
Barium		47	44	81	91	630	730	56	14	23
Beryllium		0.12	0.21	0.17	0.14	0.99	0.95	0.21	0.26	0.24
Cadmium		0.036 UJ	0.037 UJ	0.039 UJ	0.034 UJ	0.043 UJ	0.038 UJ	0.064 J	0.049 UJ	0.038 UJ
Chromium		48 J	110 J	20 J	14 J	74 J	110 J	26 J	18 J	20 J
Cobalt		2	2.7	1.8	1.1	32	16	31	1.8	2.9
Copper		97	210	110	84	440	220	72	160	200
Lead		4 J	4.8 J	1.9 J	14 J	5 J	3.4 J	3.4 J	1.2 J	1.8 J
Mercury		0.19 J	0.091 J	0.035 J	0.065 J	0.1 J	0.035 J	0.062 J	0.057 J	0.044 J
Nickel		6.6	8.8	7.3	3.7	27	17	20	4.3	6.6
Selenium		1.1	1	0.33 J	0.81	0.47 J	0.27 J	0.15 U	0.37 J	1
Silver		0.049 J	0.019 UJ	0.02 UJ	0.019 J	0.063 J	0.02 J	0.043 J	0.027 J	0.046 J
Thallium		0.14 U	0.14 U	0.15 U	0.13 U	1.1	1.9	0.15 U	0.19 U	0.15 U
Tin		4.6 U	4.8 U	5 U	4.4 U	5.6 U	5 U	4.8 U	6.3 U	4.9 U
Vanadium		210 J	250 J	81 J	150 J	200 J	230 J	200 J	270 J	260 J
Zinc		23	30	15	13	66	110	78	18	14
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		22 J	880 J	6 J	0.74 UJ	150 J	270 J	4.1 J	1 UJ	0.8 UJ
Gasoline Range Organics		0.078 UJ	270 J	0.1 UJ	0.065 UJ	170 J	130 J	0.07 J	0.082 UJ	0.066 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB32	74SB32	74SB33	74SB33	74SB34	74SB34	74SB35	74SB35	74SB36
Sample ID	74SB32-03D	74SB32-03	74SB33-01	74SB33-02	74SB34-01	74SB34-02	74SB35-01	74SB35-03	74SB36-02
Date	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/2/2008	5/2/2008	5/2/2008
Depth Range	6.0 - 7.0	6.0 - 7.0	1.0 - 2.0	4.0 - 5.0	2.0 - 3.0	3.0 - 4.0	2.0 - 3.0	5.0 - 6.0	3.0 - 4.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.69 UJ	0.69 UJ	0.69 UJ	0.74 UJ	0.69 UJ	0.7 UJ	0.7 UJ	0.64 UJ	0.65 UJ
1,1,1-Trichloroethane	0.63 UJ	0.63 UJ	0.62 UJ	0.67 UJ	0.63 UJ	0.64 UJ	0.63 UJ	0.58 UJ	0.59 UJ
1,1,2,2-Tetrachloroethane	1.5 UJ	1.5 UJ	1.5 UJ	1.6 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.4 UJ	1.4 UJ
1,1,2-Trichloroethane	1.3 UJ	1.3 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.2 UJ	1.2 UJ
1,1-Dichloroethane	0.54 UJ	0.54 UJ	0.54 UJ	0.58 UJ	0.54 UJ	0.55 UJ	0.54 UJ	0.5 UJ	0.51 UJ
1,1-Dichloroethene	0.58 UJ	0.58 UJ	0.58 UJ	0.62 UJ	0.58 UJ	0.59 UJ	0.59 UJ	0.54 UJ	0.55 UJ
1,2,3-Trichloropropane	1.5 UJ	1.5 UJ	1.5 UJ	1.6 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.4 UJ	1.4 UJ
1,2-Dibromo-3-Chloropropane	3 UJ	3 UJ	3 UJ	3.2 UJ	3 UJ	3.1 UJ	3 UJ	2.8 UJ	2.8 UJ
1,2-Dichloroethane	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
1,2-Dichloropropane	1.2 UJ	1.2 UJ	1.2 UJ	1.3 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ
2-Butanone (MEK)	2.9 UJ	2.9 UJ	2.9 UJ	3.1 UJ	2.9 UJ	3 UJ	2.9 UJ	2.7 UJ	2.7 UJ
2-Chloro-1,3-butadiene	0.62 UJ	0.62 UJ	0.61 UJ	0.66 UJ	0.62 UJ	0.63 UJ	0.62 UJ	0.57 UJ	0.58 UJ
2-Hexanone	2.3 UJ	2.3 UJ	2.3 UJ	2.4 UJ	2.3 UJ	2.3 UJ	2.3 UJ	2.1 UJ	2.1 UJ
3-Chloro-1-propene	1.6 UJ	1.6 UJ	1.6 UJ	1.7 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.5 UJ	1.5 UJ
4-Methyl-2-pentanone (MIBK)	3.1 UJ	3.1 UJ	3.1 UJ	3.4 UJ	3.1 UJ	3.2 UJ	3.2 UJ	2.9 UJ	2.9 UJ
Acetone	33 J	28 J	35 J	14 J	4.8 R	150 J	16 J	14 J	29 J
Acetonitrile	49 R	49 R	48 R	52 R	49 R	49 R	49 R	45 R	46 R
Acrolein	21 R	21 R	20 R	22 R	21 R	21 R	21 R	19 R	19 R
Acrylonitrile	25 UJ	25 UJ	25 UJ	27 UJ	25 UJ	25 UJ	25 UJ	23 UJ	23 UJ
Benzene	0.85 UJ	0.85 UJ	0.85 UJ	0.91 UJ	0.86 UJ	0.87 UJ	0.86 UJ	0.79 UJ	0.8 UJ
Bromoform	1.2 UJ	1.2 UJ	1.2 UJ	1.3 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ
Bromomethane	1.7 UJ	1.7 UJ	1.7 UJ	1.9 UJ	1.7 UJ	1.8 UJ	1.7 UJ	1.6 UJ	1.6 UJ
Carbon disulfide	0.8 J	0.55 UJ	0.55 UJ	0.59 UJ	0.55 UJ	0.56 UJ	0.55 UJ	0.51 UJ	0.52 UJ
Carbon tetrachloride	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Chlorobenzene	0.79 UJ	0.79 UJ	0.78 UJ	0.84 UJ	0.79 UJ	0.8 UJ	0.79 UJ	0.73 UJ	0.74 UJ
Chlorodibromomethane	0.54 UJ	0.54 UJ	0.54 UJ	0.58 UJ	0.54 UJ	0.55 UJ	0.54 UJ	0.5 UJ	0.51 UJ
Chloroethane	1.3 UJ	1.3 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.2 UJ	1.2 UJ



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB32	74SB32	74SB33	74SB33	74SB34	74SB34	74SB35	74SB35	74SB36
Sample ID	74SB32-03D	74SB32-03	74SB33-01	74SB33-02	74SB34-01	74SB34-02	74SB35-01	74SB35-03	74SB36-02
Date	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/2/2008	5/2/2008	5/2/2008
Depth Range	6.0 - 7.0	6.0 - 7.0	1.0 - 2.0	4.0 - 5.0	2.0 - 3.0	3.0 - 4.0	2.0 - 3.0	5.0 - 6.0	3.0 - 4.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.54 UJ	0.54 UJ	0.54 UJ	0.58 UJ	0.54 UJ	0.55 UJ	0.54 UJ	0.5 UJ	0.51 UJ
Chloromethane	0.77 UJ	0.77 UJ	0.76 UJ	0.82 UJ	0.77 UJ	0.78 UJ	0.77 UJ	0.71 UJ	0.72 UJ
cis-1,3-Dichloropropene	0.94 UJ	0.94 UJ	0.93 UJ	1 UJ	0.94 UJ	0.96 UJ	0.95 UJ	0.87 UJ	0.88 UJ
Dibromomethane	1.3 UJ	1.3 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.2 UJ	1.2 UJ
Dichlorobromomethane	0.9 UJ	0.9 UJ	0.89 UJ	0.96 UJ	0.9 UJ	0.91 UJ	0.9 UJ	0.83 UJ	0.84 UJ
Dichlorodifluoromethane	0.96 UJ	0.96 UJ	0.96 UJ	1 UJ	0.96 UJ	0.98 UJ	0.97 UJ	0.89 UJ	0.9 UJ
Ethyl methacrylate	2.4 UJ	2.4 UJ	2.4 UJ	2.5 UJ	2.4 UJ	2.4 UJ	2.4 UJ	2.2 UJ	2.2 UJ
Ethylbenzene	0.81 UJ	0.81 UJ	0.81 UJ	0.87 UJ	0.81 UJ	0.82 UJ	0.81 UJ	0.75 UJ	0.76 UJ
Ethylene Dibromide	1.6 UJ	1.6 UJ	1.6 UJ	1.7 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.5 UJ	1.5 UJ
Iodomethane	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Isobutyl alcohol	74 R	75 R	74 R	80 R	75 R	76 R	75 R	69 R	70 R
Methacrylonitrile	26 UJ	26 UJ	26 UJ	28 UJ	26 UJ	26 UJ	26 UJ	24 UJ	24 UJ
Methyl methacrylate	4 UJ	4 UJ	4 UJ	4.3 UJ	4 UJ	4.1 UJ	4 UJ	3.7 UJ	3.8 UJ
Methylene Chloride	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Pentachloroethane	2.4 UJ	2.4 UJ	2.4 UJ	2.5 UJ	2.4 UJ	2.4 UJ	2.4 UJ	2.2 UJ	2.2 UJ
Propionitrile	23 R	23 R	23 R	24 R	23 R	23 R	23 R	21 R	21 R
Styrene	0.71 UJ	0.71 UJ	0.71 UJ	0.76 UJ	0.71 UJ	0.72 UJ	0.72 UJ	0.66 UJ	0.67 UJ
Tetrachloroethene	0.79 UJ	0.79 UJ	0.78 UJ	0.84 UJ	0.79 UJ	0.8 UJ	0.79 UJ	0.73 UJ	0.74 UJ
Toluene	0.85 UJ	0.85 UJ	0.85 UJ	0.91 UJ	0.86 UJ	0.87 UJ	0.86 UJ	0.79 UJ	0.8 UJ
trans-1,2-Dichloroethene	1 UJ	1 UJ	1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	0.97 UJ	0.98 UJ
trans-1,3-Dichloropropene	0.94 UJ	0.94 UJ	0.93 UJ	1 UJ	0.94 UJ	0.96 UJ	0.95 UJ	0.87 UJ	0.88 UJ
trans-1,4-Dichloro-2-butene	3.3 UJ	3.4 UJ	3.3 UJ	3.6 UJ	3.4 UJ	3.4 UJ	3.4 UJ	3.1 UJ	3.1 UJ
Trichloroethene	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ	1 UJ
Trichlorofluoromethane	1.6 UJ	1.6 UJ	1.6 UJ	1.7 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.5 UJ	1.5 UJ
Vinyl acetate	1.6 UJ	1.6 UJ	1.6 UJ	1.7 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.5 UJ	1.5 UJ
Vinyl chloride	0.63 UJ	0.63 UJ	0.62 UJ	0.67 UJ	0.63 UJ	0.64 UJ	0.63 UJ	0.58 UJ	0.59 UJ
Xylenes, Total	2.5 UJ	2.5 UJ	2.5 UJ	2.7 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.3 UJ	2.3 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB32	74SB32	74SB33	74SB33	74SB34	74SB34	74SB35	74SB35	74SB36
	Sample ID	74SB32-03D	74SB32-03	74SB33-01	74SB33-02	74SB34-01	74SB34-02	74SB35-01	74SB35-03	74SB36-02
	Date	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/2/2008	5/2/2008	5/2/2008
	Depth Range	6.0 - 7.0	6.0 - 7.0	1.0 - 2.0	4.0 - 5.0	2.0 - 3.0	3.0 - 4.0	2.0 - 3.0	5.0 - 6.0	3.0 - 4.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	1.5 UJ	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	2.2 UJ	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	0.74 UJ	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	2.2 UJ	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	2.2 UJ	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	2.2 UJ	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	0.85 UJ	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	0.98 UJ	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	2.2 UJ	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	1.3 UJ	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	0.79 UJ	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	0.76 UJ	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	2.2 UJ	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	0.99 UJ	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	1.5 UJ	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	0.77 UJ	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	2.2 UJ	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	2.2 UJ	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB32	74SB32	74SB33	74SB33	74SB34	74SB34	74SB35	74SB35	74SB36
	Sample ID	74SB32-03D	74SB32-03	74SB33-01	74SB33-02	74SB34-01	74SB34-02	74SB35-01	74SB35-03	74SB36-02
	Date	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/1/2008	5/2/2008	5/2/2008	5/2/2008
	Depth Range	6.0 - 7.0	6.0 - 7.0	1.0 - 2.0	4.0 - 5.0	2.0 - 3.0	3.0 - 4.0	2.0 - 3.0	5.0 - 6.0	3.0 - 4.0
<b>Metals (mg/kg)</b>										
Antimony		0.097 UJ	0.094 UJ	0.094 UJ	0.097 UJ	0.094 UJ	0.088 UJ	0.094 UJ	0.094 UJ	0.097 U
Arsenic		1.6	0.92	0.67	0.94	0.93	0.94	1.6	0.88	1.4
Barium		41 J	21 J	31	84	13	23	31	83	18
Beryllium		0.5	0.32	0.068 J	0.15	0.17	0.24	0.14	0.15	0.19
Cadmium		0.04 UJ	0.039 UJ	0.039 UJ	0.04 UJ	0.039 UJ	0.036 UJ	0.039 UJ	0.039 UJ	0.04 U
Chromium		6.1 J	4.2 J	7.3 J	22 J	39 J	42 J	8.6 J	11 J	61 J
Cobalt		1.7 J	1.1 J	2.6	1.5	2.8	3.9	0.99	1.5	4.6
Copper		380 J	240 J	54	110	230	240	170	190	160
Lead		4.5 J	3.2 J	0.5 J	1.3 J	1.4 J	1.1 J	2.7 J	1.7 J	2.2 J
Mercury		0.054 J	0.026 J	0.078 J	0.071 J	0.2 J	0.042 J	0.082 J	0.24 J	0.12 J
Nickel		6.7 J	3.4 J	1.9	2.4	7.5	12	4.2	4.2	8.5
Selenium		1.3	0.82	0.2 J	0.34 J	0.85	0.55 J	0.65	0.54 J	0.89
Silver		0.06 J	0.036 J	0.03 J	0.057 J	0.022 J	0.035 J	0.023 J	0.028 J	0.036 J
Thallium		0.16 U	0.15 U	0.15 U	0.16 U	0.15 U	0.14 U	0.15 U	0.15 U	0.16 U
Tin		5.2 U	5 U	5 U	5.2 U	5 U	4.7 U	5 U	5 U	5.2 U
Vanadium		310 J	230 J	57 J	110 J	360 J	250 J	310 J	300 J	350 J
Zinc		18	8.8	9.1	10	14	23	14	15	21 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		0.82 UJ	0.82 UJ	2.8 J	0.85 UJ	0.81 UJ	0.78 UJ	3.7 J	0.83 UJ	0.81 UJ
Gasoline Range Organics		0.066 UJ	0.07 J	0.072 UJ	0.11 UJ	0.089 UJ	0.081 UJ	0.066 UJ	0.069 UJ	0.16 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB36	74SB37	74SB37	74SB37	74SB38	74SB38	74SB39	74SB39	74SB40
Sample ID	74SB36-05	74SB37-01	74SB37-02D	74SB37-02	74SB38-01	74SB38-02	74SB39-02	74SB39-04	74SB40-02
Date	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008
Depth Range	9.0 - 10.0	1.0 - 2.0	3.0 - 4.0	3.0 - 4.0	2.0 - 3.0	4.0 - 5.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.93 UJ	0.65 UJ	0.65 UJ	0.73 UJ	0.71 UJ	0.75 UJ	0.71 UJ	0.75 UJ	0.64 UJ
1,1,1-Trichloroethane	0.85 UJ	0.59 UJ	0.59 UJ	0.66 UJ	0.64 UJ	0.68 UJ	0.64 UJ	0.68 UJ	0.58 UJ
1,1,2,2-Tetrachloroethane	2 UJ	1.4 UJ	1.4 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.5 UJ	1.6 UJ	1.4 UJ
1,1,2-Trichloroethane	1.7 UJ	1.2 UJ	1.2 UJ	1.4 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.4 UJ	1.2 UJ
1,1-Dichloroethane	0.73 UJ	0.5 UJ	0.51 UJ	0.57 UJ	0.56 UJ	0.59 UJ	0.55 UJ	0.58 UJ	0.5 UJ
1,1-Dichloroethene	0.79 UJ	0.54 UJ	0.55 UJ	0.61 UJ	0.6 UJ	0.63 UJ	0.6 UJ	0.63 UJ	0.54 UJ
1,2,3-Trichloropropane	2 UJ	1.4 UJ	1.4 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.5 UJ	1.6 UJ	1.4 UJ
1,2-Dibromo-3-Chloropropane	4.1 UJ	2.8 UJ	2.9 UJ	3.2 UJ	3.1 UJ	3.3 UJ	3.1 UJ	3.3 UJ	2.8 UJ
1,2-Dichloroethane	1.5 UJ	1 UJ	1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	1 UJ
1,2-Dichloropropane	1.6 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.3 UJ	1.2 UJ	1.3 UJ	1.1 UJ
2-Butanone (MEK)	3.9 UJ	2.7 UJ	2.8 UJ	3.1 UJ	3 UJ	3.2 UJ	3 UJ	3.2 UJ	2.7 UJ
2-Chloro-1,3-butadiene	0.83 UJ	0.58 UJ	0.58 UJ	0.65 UJ	0.63 UJ	0.67 UJ	0.63 UJ	0.67 UJ	0.57 UJ
2-Hexanone	3.1 UJ	2.1 UJ	2.1 UJ	2.4 UJ	2.3 UJ	2.5 UJ	2.3 UJ	2.5 UJ	2.1 UJ
3-Chloro-1-propene	2.2 UJ	1.5 UJ	1.5 UJ	1.7 UJ	1.7 UJ	1.8 UJ	1.7 UJ	1.8 UJ	1.5 UJ
4-Methyl-2-pentanone (MIBK)	4.2 UJ	2.9 UJ	3 UJ	3.3 UJ	3.2 UJ	3.4 UJ	3.2 UJ	3.4 UJ	2.9 UJ
Acetone	29 J	82 J	4.5 R	13 J	75 J	17 J	37 J	5.1 R	120 J
Acetonitrile	66 R	45 R	46 R	51 R	50 R	53 R	50 R	53 R	45 R
Acrolein	28 R	19 R	19 R	22 R	21 R	22 R	21 R	22 R	19 R
Acrylonitrile	34 UJ	23 UJ	23 UJ	26 UJ	26 UJ	27 UJ	25 UJ	27 UJ	23 UJ
Benzene	1.2 UJ	0.8 UJ	0.81 UJ	0.9 UJ	0.88 UJ	0.93 UJ	0.87 UJ	0.92 UJ	0.79 UJ
Bromoform	1.6 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.3 UJ	1.2 UJ	1.3 UJ	1.1 UJ
Bromomethane	2.3 UJ	1.6 UJ	1.6 UJ	1.8 UJ	1.8 UJ	1.9 UJ	1.8 UJ	1.9 UJ	1.6 UJ
Carbon disulfide	0.74 UJ	0.51 UJ	0.52 UJ	0.58 UJ	0.57 UJ	0.6 UJ	0.56 UJ	0.6 UJ	0.51 UJ
Carbon tetrachloride	1.5 UJ	1 UJ	1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	1 UJ
Chlorobenzene	1.1 UJ	0.74 UJ	0.74 UJ	0.83 UJ	0.81 UJ	0.86 UJ	0.81 UJ	0.85 UJ	0.73 UJ
Chlorodibromomethane	0.73 UJ	0.5 UJ	0.51 UJ	0.57 UJ	0.56 UJ	0.59 UJ	0.55 UJ	0.58 UJ	0.5 UJ
Chloroethane	1.7 UJ	1.2 UJ	1.2 UJ	1.4 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.4 UJ	1.2 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB36	74SB37	74SB37	74SB37	74SB38	74SB38	74SB39	74SB39	74SB40
Sample ID	74SB36-05	74SB37-01	74SB37-02D	74SB37-02	74SB38-01	74SB38-02	74SB39-02	74SB39-04	74SB40-02
Date	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008
Depth Range	9.0 - 10.0	1.0 - 2.0	3.0 - 4.0	3.0 - 4.0	2.0 - 3.0	4.0 - 5.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.73 UJ	0.5 UJ	0.51 UJ	0.57 UJ	0.56 UJ	0.59 UJ	0.55 UJ	0.58 UJ	0.5 UJ
Chloromethane	1 UJ	0.72 UJ	0.72 UJ	0.8 UJ	0.79 UJ	0.83 UJ	0.78 UJ	0.83 UJ	0.71 UJ
cis-1,3-Dichloropropene	1.3 UJ	0.88 UJ	0.89 UJ	0.99 UJ	0.97 UJ	1 UJ	0.96 UJ	1 UJ	0.87 UJ
Dibromomethane	1.7 UJ	1.2 UJ	1.2 UJ	1.4 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.4 UJ	1.2 UJ
Dichlorobromomethane	1.2 UJ	0.84 UJ	0.85 UJ	0.94 UJ	0.92 UJ	0.98 UJ	0.92 UJ	0.97 UJ	0.83 UJ
Dichlorodifluoromethane	1.3 UJ	0.9 UJ	0.91 UJ	1 UJ	0.99 UJ	1 UJ	0.98 UJ	1 UJ	0.89 UJ
Ethyl methacrylate	3.2 UJ	2.2 UJ	2.2 UJ	2.5 UJ	2.4 UJ	2.6 UJ	2.4 UJ	2.6 UJ	2.2 UJ
Ethylbenzene	1.1 UJ	0.76 UJ	0.77 UJ	0.85 UJ	0.83 UJ	0.88 UJ	0.83 UJ	0.88 UJ	0.75 UJ
Ethylene Dibromide	2.2 UJ	1.5 UJ	1.5 UJ	1.7 UJ	1.7 UJ	1.8 UJ	1.7 UJ	1.8 UJ	1.5 UJ
Iodomethane	1.5 UJ	1 UJ	1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	4.7 J
Isobutyl alcohol	100 R	70 R	70 R	78 R	77 R	81 R	76 R	81 R	69 R
Methacrylonitrile	35 UJ	24 UJ	24 UJ	27 UJ	27 UJ	28 UJ	26 UJ	28 UJ	24 UJ
Methyl methacrylate	5.4 UJ	3.7 UJ	3.8 UJ	4.2 UJ	4.1 UJ	4.4 UJ	4.1 UJ	4.3 UJ	3.7 UJ
Methylene Chloride	1.5 UJ	1 UJ	1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	1 UJ
Pentachloroethane	3.2 UJ	2.2 UJ	2.2 UJ	2.5 UJ	2.4 UJ	2.6 UJ	2.4 UJ	2.6 UJ	2.2 UJ
Propionitrile	31 R	21 R	21 R	24 R	23 R	25 R	23 R	25 R	21 R
Styrene	0.96 UJ	0.67 UJ	0.67 UJ	0.75 UJ	0.73 UJ	0.78 UJ	0.73 UJ	0.77 UJ	0.66 UJ
Tetrachloroethene	1.1 UJ	0.74 UJ	0.74 UJ	0.83 UJ	0.81 UJ	0.86 UJ	0.81 UJ	0.85 UJ	0.73 UJ
Toluene	1.2 UJ	0.8 UJ	0.81 UJ	0.9 UJ	0.88 UJ	0.93 UJ	0.87 UJ	0.92 UJ	0.79 UJ
trans-1,2-Dichloroethene	1.4 UJ	0.98 UJ	0.99 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	0.97 UJ
trans-1,3-Dichloropropene	1.3 UJ	0.88 UJ	0.89 UJ	0.99 UJ	0.97 UJ	1 UJ	0.96 UJ	1 UJ	0.87 UJ
trans-1,4-Dichloro-2-butene	4.5 UJ	3.1 UJ	3.2 UJ	3.5 UJ	3.4 UJ	3.6 UJ	3.4 UJ	3.6 UJ	3.1 UJ
Trichloroethene	1.5 UJ	1 UJ	1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	1 UJ
Trichlorofluoromethane	2.2 UJ	1.5 UJ	1.5 UJ	1.7 UJ	1.7 UJ	1.8 UJ	1.7 UJ	1.8 UJ	1.5 UJ
Vinyl acetate	2.2 UJ	1.5 UJ	1.5 UJ	1.7 UJ	1.7 UJ	1.8 UJ	1.7 UJ	1.8 UJ	1.5 UJ
Vinyl chloride	0.85 UJ	0.59 UJ	0.59 UJ	0.66 UJ	0.64 UJ	0.68 UJ	0.64 UJ	0.68 UJ	0.58 UJ
Xylenes, Total	3.4 UJ	2.3 UJ	2.3 UJ	2.6 UJ	2.6 UJ	2.7 UJ	2.5 UJ	2.7 UJ	2.3 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB36	74SB37	74SB37	74SB37	74SB38	74SB38	74SB39	74SB39	74SB40
	Sample ID	74SB36-05	74SB37-01	74SB37-02D	74SB37-02	74SB38-01	74SB38-02	74SB39-02	74SB39-04	74SB40-02
	Date	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008
	Depth Range	9.0 - 10.0	1.0 - 2.0	3.0 - 4.0	3.0 - 4.0	2.0 - 3.0	4.0 - 5.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB36	74SB37	74SB37	74SB37	74SB38	74SB38	74SB39	74SB39	74SB40
	Sample ID	74SB36-05	74SB37-01	74SB37-02D	74SB37-02	74SB38-01	74SB38-02	74SB39-02	74SB39-04	74SB40-02
	Date	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008	5/2/2008
	Depth Range	9.0 - 10.0	1.0 - 2.0	3.0 - 4.0	3.0 - 4.0	2.0 - 3.0	4.0 - 5.0	3.0 - 4.0	7.0 - 8.0	3.0 - 4.0
<b>Metals (mg/kg)</b>										
Antimony		0.1 UJ	0.094 UJ	0.092 UJ	0.096 UJ	0.37 UJ	0.33 UJ	0.17 UJ	0.49 UJ	0.12 UJ
Arsenic		1.5	0.51 J	0.21 J	0.5 J	3	2.1	2.5	79	1
Barium		280	11	17 J	41 J	31	8.8	77	15	23
Beryllium		0.99	0.099 U	0.047 U	0.092 U	0.17	0.21	0.18	0.24	0.14
Cadmium		0.051 J	0.039 U	0.038 U	0.04 U	0.039 U	0.038 U	0.038 U	0.062 J	0.04 U
Chromium		77 J	56	9.3 R	43 R	12	8.6	28	6.5	45
Cobalt		11	0.56	0.34 R	0.87 R	4.3	1.4	5.4	5.9	2.2
Copper		320	42	24 J	42 J	440	250	480	710	270
Lead		0.85 J	1.3	0.23 J	1.2 J	7.7	1.5	2.2	2.2	0.83
Mercury		0.013 J	0.14 J	0.022 J	0.064 J	0.14 J	0.082 J	0.074 J	0.014 J	0.05 J
Nickel		55	2.7	2.3 J	4 J	7.3	4	15	11	9.7
Selenium		0.32 J	0.45 J	0.17 J	0.28 J	0.74	0.83	0.86	3.4	0.46 J
Silver		0.064 J	0.022 U	0.024 U	0.03 U	0.066 U	0.04 U	0.23 U	0.23 U	0.064 U
Thallium		0.22 J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.16 U	0.15 U
Tin		5.5 U	5 U	4.9 U	5.1 U	5 U	4.9 U	4.9 U	5.4 U	5.1 U
Vanadium		290 J	180	42 J	150 J	340	260	520	520	260
Zinc		53 J	12 J	4.3 J	13 J	34 J	18 J	48 J	41 J	54 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		0.92 UJ	5.8 J	1.4 J	1.1 J	1.2 J	0.79 J	2.2 J	1.3 J	1.2 J
Gasoline Range Organics		0.079 UJ	0.076 UJ	0.063 UJ	0.06 UJ	0.065 UJ	0.064 UJ	0.085 UJ	0.072 UJ	0.066 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB40	74SB41	74SB41	74SB42	74SB42	74SB43	74SB43	74SB44	74SB44
Sample ID	74SB40-04	74SB41-02	74SB41-04	74SB42-03	74SB42-04	74SB43-03	74SB43-04	74SB44-04	74SB44-05
Date	5/2/2008	5/2/2008	5/2/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	7.0 - 8.0	3.0 - 4.0	8.0 - 9.0	5.0 - 6.0	8.0 - 9.0	5.0 - 6.0	8.0 - 9.0	7.0 - 8.0	9.0 - 10.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.81 UJ	0.72 U	0.78 U	0.65 U	0.74 U	0.58 U	0.66 U	0.68 U	0.57 U
1,1,1-Trichloroethane	0.74 UJ	0.66 U	0.71 U	0.59 U	0.67 U	0.52 U	0.6 U	0.62 U	0.52 U
1,1,2,2-Tetrachloroethane	1.8 UJ	1.6 U	1.7 U	1.4 U	1.6 U	1.3 U	1.4 U	1.5 U	1.2 U
1,1,2-Trichloroethane	1.5 UJ	1.4 U	1.5 U	1.2 U	1.4 U	1.1 U	1.2 U	1.3 U	1.1 U
1,1-Dichloroethane	0.64 UJ	0.57 U	0.61 U	0.51 U	0.58 U	0.45 U	0.51 U	0.53 U	0.45 U
1,1-Dichloroethene	0.69 UJ	0.61 U	0.66 U	0.55 U	0.62 U	0.49 U	0.56 U	0.57 U	0.48 U
1,2,3-Trichloropropane	1.8 UJ	1.6 U	1.7 U	1.4 U	1.6 U	1.3 U	1.4 U	1.5 U	1.2 U
1,2-Dibromo-3-Chloropropane	3.6 UJ	3.2 U	3.4 U	2.9 U	3.2 U	2.5 U	2.9 U	3 U	2.5 U
1,2-Dichloroethane	1.3 UJ	1.1 U	1.2 U	1 U	1.2 U	0.9 U	1 U	1.1 U	0.89 U
1,2-Dichloropropane	1.4 UJ	1.2 U	1.3 U	1.1 U	1.3 U	0.99 U	1.1 U	1.2 U	0.98 U
2-Butanone (MEK)	3.4 UJ	3.1 U	3.3 UJ	2.8 U	3.1 U	2.4 U	2.8 U	2.9 U	2.4 U
2-Chloro-1,3-butadiene	0.72 UJ	0.64 U	0.7 U	0.58 U	0.66 U	0.51 U	0.59 U	0.61 U	0.51 U
2-Hexanone	2.7 UJ	2.4 U	2.6 UJ	2.1 U	2.4 U	1.9 U	2.2 U	2.2 U	1.9 U
3-Chloro-1-propene	1.9 UJ	1.7 U	1.8 U	1.5 UJ	1.7 UJ	1.4 UJ	1.5 UJ	1.6 UJ	1.3 UJ
4-Methyl-2-pentanone (MIBK)	3.7 UJ	3.3 U	3.5 UJ	3 U	3.4 U	2.6 U	3 U	3.1 U	2.6 U
Acetone	36 J	5 R	42 J	14 J	5.1 R	21 J	40 J	28 J	16 J
Acetonitrile	57 R	51 R	55 R	46 R	52 R	41 R	46 R	48 R	40 R
Acrolein	24 R	21 U	23 R	19 R	22 R	17 R	20 R	20 R	17 R
Acrylonitrile	29 UJ	26 U	28 U	24 U	27 U	21 U	24 U	24 U	20 U
Benzene	1 UJ	0.89 U	0.97 U	0.81 U	0.91 U	0.71 U	0.81 U	0.84 U	0.7 U
Bromoform	1.4 UJ	1.2 U	1.3 U	1.1 U	1.3 U	0.99 U	1.1 U	1.2 U	0.98 U
Bromomethane	2 UJ	1.8 U	2 UJ	1.6 UJ	1.9 UJ	1.4 UJ	1.6 UJ	1.7 UJ	1.4 UJ
Carbon disulfide	0.65 UJ	0.58 U	0.62 U	0.52 U	0.59 U	0.46 U	0.52 U	0.54 U	0.45 U
Carbon tetrachloride	1.3 UJ	1.1 U	1.2 U	1 U	1.2 U	0.9 U	1 U	1.1 U	0.89 U
Chlorobenzene	0.93 UJ	0.83 U	0.89 U	0.75 U	0.84 U	0.66 U	0.75 U	0.78 U	0.65 U
Chlorodibromomethane	0.64 UJ	0.57 U	0.61 U	0.51 U	0.58 U	0.45 U	0.51 U	0.53 U	0.45 U
Chloroethane	1.5 UJ	1.4 U	1.5 U	1.2 U	1.4 U	1.1 U	1.2 U	1.3 U	1.1 U



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### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB40	74SB41	74SB41	74SB42	74SB42	74SB43	74SB43	74SB44	74SB44
Sample ID	74SB40-04	74SB41-02	74SB41-04	74SB42-03	74SB42-04	74SB43-03	74SB43-04	74SB44-04	74SB44-05
Date	5/2/2008	5/2/2008	5/2/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	7.0 - 8.0	3.0 - 4.0	8.0 - 9.0	5.0 - 6.0	8.0 - 9.0	5.0 - 6.0	8.0 - 9.0	7.0 - 8.0	9.0 - 10.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.64 UJ	0.57 U	0.61 U	0.51 U	0.58 U	0.45 U	0.51 U	0.53 U	0.45 U
Chloromethane	0.9 UJ	0.8 U	0.87 U	0.73 U	0.82 U	0.64 U	0.73 U	0.75 U	0.63 U
cis-1,3-Dichloropropene	1.1 UJ	0.98 U	1.1 U	0.89 U	1 U	0.78 U	0.89 U	0.92 U	0.77 U
Dibromomethane	1.5 UJ	1.4 U	1.5 U	1.2 U	1.4 U	1.1 U	1.2 U	1.3 U	1.1 U
Dichlorobromomethane	1.1 UJ	0.94 U	1 U	0.85 U	0.96 U	0.75 U	0.85 U	0.88 U	0.74 U
Dichlorodifluoromethane	1.1 UJ	1 U	1.1 U	0.91 U	1 U	0.8 U	0.91 U	0.95 U	0.79 U
Ethyl methacrylate	2.8 UJ	2.5 U	2.7 UJ	2.2 UJ	2.5 UJ	2 UJ	2.3 UJ	2.3 UJ	2 UJ
Ethylbenzene	0.95 UJ	0.85 U	0.92 U	0.77 U	0.87 U	0.68 U	0.77 U	0.8 U	0.67 U
Ethylene Dibromide	1.9 UJ	1.7 U	1.8 U	1.5 U	1.7 U	1.4 U	1.5 U	1.6 U	1.3 U
Iodomethane	1.3 UJ	1.1 U	1.2 U	1 U	1.2 U	0.9 U	1 U	1.1 U	0.89 U
Isobutyl alcohol	88 R	78 R	84 R	71 R	80 R	62 R	71 R	73 R	61 R
Methacrylonitrile	31 UJ	27 UJ	29 UJ	25 UJ	28 UJ	22 UJ	25 UJ	26 UJ	21 UJ
Methyl methacrylate	4.7 UJ	4.2 U	4.5 UJ	3.8 UJ	4.3 UJ	3.3 UJ	3.8 UJ	3.9 UJ	3.3 UJ
Methylene Chloride	1.3 UJ	1.1 U	1.2 U	1 U	1.2 U	0.9 U	1 U	1.1 U	0.89 U
Pentachloroethane	2.8 UJ	2.5 U	2.7 UJ	2.2 U	2.5 U	2 U	2.3 U	2.3 U	2 U
Propionitrile	27 R	24 U	26 R	21 R	24 R	19 R	22 R	22 R	19 R
Styrene	0.84 UJ	0.75 U	0.81 U	0.67 U	0.76 U	0.59 U	0.68 U	0.7 U	0.59 U
Tetrachloroethene	0.93 UJ	0.83 U	0.89 U	0.75 U	0.84 U	0.66 U	0.75 U	0.78 U	0.65 U
Toluene	1 UJ	0.89 U	0.97 U	0.81 U	0.91 U	0.71 U	0.81 U	0.84 U	0.7 U
trans-1,2-Dichloroethene	1.2 UJ	1.1 U	1.2 U	0.99 U	1.1 U	0.87 U	1 U	1 U	0.86 U
trans-1,3-Dichloropropene	1.1 UJ	0.98 U	1.1 U	0.89 U	1 U	0.78 U	0.89 U	0.92 U	0.77 U
trans-1,4-Dichloro-2-butene	3.9 UJ	3.5 U	3.8 UJ	3.2 UJ	3.6 UJ	2.8 UJ	3.2 UJ	3.3 UJ	2.8 UJ
Trichloroethene	1.3 UJ	1.1 U	1.2 U	1 U	1.2 U	0.9 U	1 U	1.1 U	0.89 U
Trichlorofluoromethane	1.9 UJ	1.7 U	1.8 U	1.5 U	1.7 U	1.4 U	1.5 U	1.6 U	1.3 U
Vinyl acetate	1.9 UJ	1.7 U	1.8 U	1.5 U	1.7 U	1.4 U	1.5 U	1.6 U	1.3 U
Vinyl chloride	0.74 UJ	0.66 U	0.71 U	0.59 U	0.67 U	0.52 U	0.6 U	0.62 U	0.52 U
Xylenes, Total	2.9 UJ	2.6 U	2.8 U	2.4 U	2.7 U	2.1 U	2.4 U	2.4 U	2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB40	74SB41	74SB41	74SB42	74SB42	74SB43	74SB43	74SB44	74SB44
	Sample ID	74SB40-04	74SB41-02	74SB41-04	74SB42-03	74SB42-04	74SB43-03	74SB43-04	74SB44-04	74SB44-05
	Date	5/2/2008	5/2/2008	5/2/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	7.0 - 8.0	3.0 - 4.0	8.0 - 9.0	5.0 - 6.0	8.0 - 9.0	5.0 - 6.0	8.0 - 9.0	7.0 - 8.0	9.0 - 10.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB40	74SB41	74SB41	74SB42	74SB42	74SB43	74SB43	74SB44	74SB44
	Sample ID	74SB40-04	74SB41-02	74SB41-04	74SB42-03	74SB42-04	74SB43-03	74SB43-04	74SB44-04	74SB44-05
	Date	5/2/2008	5/2/2008	5/2/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	7.0 - 8.0	3.0 - 4.0	8.0 - 9.0	5.0 - 6.0	8.0 - 9.0	5.0 - 6.0	8.0 - 9.0	7.0 - 8.0	9.0 - 10.0
<b>Metals (mg/kg)</b>										
Antimony		0.14 UJ	0.1 U	0.11 U	0.092 UJ	0.1 UJ	0.086 UJ	0.096 UJ	0.089 UJ	0.34 UJ
Arsenic		2.3	0.52 J	0.67 J	0.57 J	1.3	1.4	1.1	1.8	3.4
Barium		35	27	22	10	16	36	85	17	43
Beryllium		0.26	0.046 U	0.15 U	0.063 U	0.098 U	0.34	0.14	0.19	0.26
Cadmium		0.044 U	0.041 U	0.047 U	0.038 U	0.042 U	0.065 J	0.04 U	0.042 J	0.28
Chromium		33	6.7	13	5.7 R	12 R	20 R	19 R	22 R	130 R
Cobalt		3.2	1.2	12	0.76	2.4	13	2.2	9.4	15
Copper		520	45	150	27	85	120	94	84	120
Lead		3.4	0.63	0.94	0.81	0.77	2.3	1.9	2.5	7.4
Mercury		0.063 J	0.45	0.023 J	0.056	0.063	0.11	0.14	0.07	0.028
Nickel		23	1.4	3.7	1	1.9	9.1	2.3	5.7	6
Selenium		1	0.4 J	0.33 J	0.21 J	0.3 J	0.37 J	0.88	0.46 J	1.2
Silver		0.12 U	0.021 U	0.038 U	0.02 U	0.022 U	0.023 U	0.022 U	0.027 U	0.17 J
Thallium		0.17 U	0.16 U	0.18 U	0.15 U	0.16 U	0.15 J	0.15 U	0.14 U	0.21 J
Tin		5.7 U	5.3 U	6 U	4.9 U	5.4 U	4.6 U	5.1 U	4.7 U	4.3 U
Vanadium		360	200	340	110	210	240	330	220	590
Zinc		74 J	9.5	41	6.5 J	12 J	55 J	18 J	36 J	50 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		1.6 J	4.6 J	1.7 J	1 J	2.6 J	2.6 J	3 J	1.3 J	1.2 J
Gasoline Range Organics		0.08 UJ	0.069 U	0.076 U	0.061 U	0.072 U	0.073 U	0.069 U	0.06 U	0.053 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB48	74SB48	74SB49	74SB49	74SB50	74SB50	74SB51	74SB52	74SB52
Sample ID	74SB48-01D	74SB48-01	74SB49-04	74SB49-05	74SB50-03	74SB50-04	74SB51-03	74SB52-03	74SB52-04
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	1.0 - 3.0	1.0 - 3.0	7.0 - 8.0	8.0 - 9.0	6.0 - 7.0	7.0 - 8.0	5.0 - 6.0	6.0 - 7.0	7.0 - 7.5
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.82 U	0.61 U	0.7 U	0.67 U	0.76 U	0.64 U	0.65 U	0.74 U	0.69 U
1,1,1-Trichloroethane	0.74 U	0.55 U	0.64 U	0.61 U	0.69 U	0.58 U	0.59 U	0.67 U	0.62 U
1,1,2,2-Tetrachloroethane	1.8 U	1.3 U	1.5 U	1.5 U	1.7 U	1.4 U	1.4 U	1.6 U	1.5 U
1,1,2-Trichloroethane	1.5 U	1.1 U	1.3 U	1.3 U	1.4 U	1.2 U	1.2 U	1.4 U	1.3 U
1,1-Dichloroethane	0.64 U	0.48 U	0.55 U	0.52 U	0.59 U	0.5 U	0.51 U	0.58 U	0.54 U
1,1-Dichloroethene	0.69 U	0.52 U	0.59 U	0.56 U	0.64 U	0.54 U	0.55 U	0.63 U	0.58 U
1,2,3-Trichloropropane	1.8 U	1.3 U	1.5 U	1.5 U	1.7 U	1.4 U	1.4 U	1.6 U	1.5 U
1,2-Dibromo-3-Chloropropane	3.6 U	2.7 U	3.1 U	2.9 U	3.3 U	2.8 U	2.8 U	3.3 U	3 U
1,2-Dichloroethane	1.3 U	0.95 U	1.1 U	1 U	1.2 U	1 U	1 U	1.2 U	1.1 U
1,2-Dichloropropane	1.4 U	1 U	1.2 U	1.1 U	1.3 U	1.1 U	1.1 U	1.3 U	1.2 U
2-Butanone (MEK)	3.5 U	2.6 U	3 U	2.8 U	3.2 U	2.7 U	2.7 U	3.1 UJ	2.9 U
2-Chloro-1,3-butadiene	0.73 U	0.54 U	0.63 U	0.59 U	0.68 U	0.57 U	0.58 U	0.66 U	0.61 U
2-Hexanone	2.7 U	2 U	2.3 U	2.2 U	2.5 U	2.1 U	2.1 U	2.4 UJ	2.3 U
3-Chloro-1-propene	1.9 UJ	1.4 UJ	1.6 UJ	1.6 UJ	1.8 UJ	1.5 UJ	1.5 UJ	1.7 U	1.6 UJ
4-Methyl-2-pentanone (MIBK)	3.7 U	2.8 U	3.2 U	3 U	3.4 U	2.9 U	2.9 U	3.4 UJ	3.1 U
Acetone	84 J	31 J	4.8 R	22 J	12 J	4.4 R	41 J	17 J	65 J
Acetonitrile	58 R	43 R	49 R	47 R	53 R	45 R	46 R	52 R	48 R
Acrolein	24 R	18 R	21 R	20 R	23 R	19 R	19 R	22 R	20 R
Acrylonitrile	29 U	22 U	25 U	24 U	27 U	23 U	23 U	27 U	25 U
Benzene	1 U	0.75 U	0.87 U	0.82 U	0.94 U	0.79 U	0.8 U	0.92 U	0.85 U
Bromoform	1.4 U	1 U	1.2 U	1.1 U	1.3 U	1.1 U	1.1 U	1.3 U	1.2 U
Bromomethane	2 UJ	1.5 UJ	1.8 UJ	1.7 UJ	1.9 UJ	1.6 UJ	1.6 UJ	1.9 U	1.7 UJ
Carbon disulfide	0.65 U	0.49 U	0.56 U	0.53 U	0.61 U	0.51 U	2.1 J	0.59 U	0.55 U
Carbon tetrachloride	1.3 U	0.95 U	1.1 U	1 U	1.2 U	1 U	1 U	1.2 U	1.1 U
Chlorobenzene	0.93 U	0.7 U	0.8 U	0.76 U	0.87 U	0.73 U	0.74 U	0.85 U	0.79 U
Chlorodibromomethane	0.64 U	0.48 U	0.55 U	0.52 U	0.59 U	0.5 U	0.51 U	0.58 U	0.54 U
Chloroethane	1.5 U	1.1 U	1.3 U	1.3 U	1.4 U	1.2 U	1.2 U	1.4 U	1.3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB48	74SB48	74SB49	74SB49	74SB50	74SB50	74SB51	74SB52	74SB52
Sample ID	74SB48-01D	74SB48-01	74SB49-04	74SB49-05	74SB50-03	74SB50-04	74SB51-03	74SB52-03	74SB52-04
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	1.0 - 3.0	1.0 - 3.0	7.0 - 8.0	8.0 - 9.0	6.0 - 7.0	7.0 - 8.0	5.0 - 6.0	6.0 - 7.0	7.0 - 7.5
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.64 U	0.48 U	0.55 U	0.52 U	0.59 U	0.5 U	0.51 U	0.58 U	0.54 U
Chloromethane	0.91 U	0.68 U	0.78 U	0.74 U	0.84 U	0.71 U	0.72 U	0.83 U	0.76 U
cis-1,3-Dichloropropene	1.1 U	0.83 U	0.96 U	0.91 U	1 U	0.87 U	0.88 U	1 U	0.94 U
Dibromomethane	1.5 U	1.1 U	1.3 U	1.3 U	1.4 U	1.2 U	1.2 U	1.4 U	1.3 U
Dichlorobromomethane	1.1 U	0.79 U	0.91 U	0.87 U	0.99 U	0.83 U	0.84 U	0.96 U	0.89 U
Dichlorodifluoromethane	1.1 U	0.85 U	0.98 U	0.93 U	1.1 U	0.89 U	0.9 U	1 U	0.96 U
Ethyl methacrylate	2.8 UJ	2.1 UJ	2.4 UJ	2.3 UJ	2.6 UJ	2.2 UJ	2.2 UJ	2.6 UJ	2.4 UJ
Ethylbenzene	0.96 U	0.72 U	0.82 U	0.78 U	0.89 U	0.75 U	0.76 U	0.87 U	0.81 U
Ethylene Dibromide	1.9 U	1.4 U	1.6 U	1.6 U	1.8 U	1.5 U	1.5 U	1.7 U	1.6 U
Iodomethane	1.3 U	0.95 U	1.1 U	1 U	1.2 U	1 U	1 U	1.2 U	1.1 U
Isobutyl alcohol	88 R	66 R	76 R	72 R	82 R	69 R	70 R	80 R	74 R
Methacrylonitrile	31 UJ	23 UJ	26 UJ	25 UJ	29 UJ	24 UJ	24 UJ	28 UJ	26 UJ
Methyl methacrylate	4.7 UJ	3.5 UJ	4.1 UJ	3.9 UJ	4.4 UJ	3.7 UJ	3.8 UJ	4.3 UJ	4 UJ
Methylene Chloride	1.3 U	0.95 U	1.1 U	1 U	1.2 U	1 U	1 U	1.2 U	1.1 U
Pentachloroethane	2.8 U	2.1 U	2.4 U	2.3 U	2.6 U	2.2 U	2.2 U	2.6 U	2.4 U
Propionitrile	27 R	20 R	23 R	22 R	25 R	21 R	21 R	24 R	23 R
Styrene	0.84 U	0.63 U	0.73 U	0.69 U	0.78 U	0.66 U	0.67 U	0.77 U	0.71 U
Tetrachloroethene	0.93 U	0.7 U	0.8 U	0.76 U	0.87 U	0.73 U	0.74 U	0.85 U	0.79 U
Toluene	1 U	0.75 U	0.87 U	0.82 U	0.94 U	0.79 U	0.8 U	0.92 U	0.85 U
trans-1,2-Dichloroethene	1.2 U	0.93 U	1.1 U	1 U	1.2 U	0.97 U	0.99 U	1.1 U	1 U
trans-1,3-Dichloropropene	1.1 U	0.83 U	0.96 U	0.91 U	1 U	0.87 U	0.88 U	1 U	0.94 U
trans-1,4-Dichloro-2-butene	4 UJ	3 UJ	3.4 UJ	3.2 UJ	3.7 UJ	3.1 UJ	3.2 UJ	3.6 UJ	3.3 UJ
Trichloroethene	1.3 U	0.95 U	1.1 U	1 U	1.2 U	1 U	1 U	1.2 U	1.1 U
Trichlorofluoromethane	1.9 U	1.4 U	1.6 U	1.6 U	1.8 U	1.5 U	1.5 U	1.7 U	1.6 U
Vinyl acetate	1.9 U	1.4 U	1.6 U	1.6 U	1.8 U	1.5 U	1.5 U	1.7 UJ	1.6 U
Vinyl chloride	0.74 U	0.55 U	0.64 U	0.61 U	0.69 U	0.58 U	0.59 U	0.67 U	0.62 U
Xylenes, Total	2.9 U	2.2 U	2.5 U	2.4 U	2.7 U	2.3 U	2.3 U	2.7 U	2.5 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB48	74SB48	74SB49	74SB49	74SB50	74SB50	74SB51	74SB52	74SB52
	Sample ID	74SB48-01D	74SB48-01	74SB49-04	74SB49-05	74SB50-03	74SB50-04	74SB51-03	74SB52-03	74SB52-04
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	1.0 - 3.0	1.0 - 3.0	7.0 - 8.0	8.0 - 9.0	6.0 - 7.0	7.0 - 8.0	5.0 - 6.0	6.0 - 7.0	7.0 - 7.5
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB48	74SB48	74SB49	74SB49	74SB50	74SB50	74SB51	74SB52	74SB52
	Sample ID	74SB48-01D	74SB48-01	74SB49-04	74SB49-05	74SB50-03	74SB50-04	74SB51-03	74SB52-03	74SB52-04
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	1.0 - 3.0	1.0 - 3.0	7.0 - 8.0	8.0 - 9.0	6.0 - 7.0	7.0 - 8.0	5.0 - 6.0	6.0 - 7.0	7.0 - 7.5
<b>Metals (mg/kg)</b>										
Antimony		0.13 UJ	0.09 UJ	0.088 UJ	0.091 UJ	0.1 UJ	0.091 UJ	0.1 UJ	0.098 UJ	0.097 UJ
Arsenic		1.4	0.78	1.3	0.47 J	3.5	1.5	2.2	1.4	0.9
Barium		58	60	7.7	12	11	27	29	21	24
Beryllium		0.17	0.13	0.11 J	0.047 J	0.12 J	0.088 J	0.2	0.13	0.098 J
Cadmium		0.17	0.15	0.036 U	0.038 U	0.057 J	0.05 J	0.092 J	0.07 J	0.14
Chromium		55 R	13 R	26 R	6.4 R	23 R	21 R	84 R	19 R	15 R
Cobalt		30	22	0.91	0.76	2.8	1.9	8.8	5	3.1
Copper		130	130	31	13	49	47	70	53	46
Lead		1.5	0.66	1.9	0.5	2.1	1.8	4.9	2.2	1.7
Mercury		0.0056 J	0.0043 U	0.063	0.19	0.6	0.16	0.11	0.13	0.087
Nickel		21 J	13 J	2.2	1.5	3.6	2.1	9.9	3.4	2.5
Selenium		0.13 U	0.13 U	2.4	0.35 J	5.4	2	1.5	2.6	2.9
Silver		0.048 J	0.051 J	0.03 J	0.038 J	0.062 J	0.034 J	0.062 J	0.042 J	0.05 J
Thallium		0.13 U	0.13 U	0.14 U	0.15 U	0.16 U	0.14 U	0.33 J	0.16 U	0.15 U
Tin		4.4 U	4.4 U	4.7 U	4.9 U	5.4 U	4.8 U	5 U	5.2 U	5.2 U
Vanadium		160	160	220	74	280	220	230	230	200
Zinc		73 J	66 J	11 J	9.8 J	33 J	21 J	26 J	35 J	33 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		2.9 J	1.7 J	2.1 J	2.6 J	4.5 J	3.8 J	7.9	2.6 J	4.7
Gasoline Range Organics		0.047 U	0.054 U	0.067 U	0.062 U	0.068 U	0.064 U	0.1 U	0.064 U	0.064 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB53	74SB53	74SB54	74SB54	74SB55	74SB55	74SB56	74SB56	74SB57
Sample ID	74SB53-04	74SB53-05	74SB54-03	74SB54-04	74SB55-02	74SB55-03	74SB56-03	74SB56-04	74SB57-03
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	7.0 - 8.0	9.0 - 10.0	5.0 - 7.0	7.0 - 9.0	3.0 - 5.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	5.0 - 7.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.71 U	0.75 U	0.62 U	0.76 U	0.62 U	0.49 U	0.66 U	0.71 U	0.6 U
1,1,1-Trichloroethane	0.65 U	0.68 U	0.57 U	0.69 U	0.57 U	0.44 U	0.6 U	0.64 U	0.54 U
1,1,2,2-Tetrachloroethane	1.6 U	1.7 U	1.4 U	1.7 U	1.4 U	1.1 U	1.5 U	1.6 U	1.3 U
1,1,2-Trichloroethane	1.3 U	1.4 U	1.2 U	1.4 U	1.2 U	0.92 U	1.2 U	1.3 U	1.1 U
1,1-Dichloroethane	0.56 U	0.59 U	0.49 U	0.59 U	0.49 U	0.38 U	0.52 U	0.55 U	0.47 U
1,1-Dichloroethene	0.6 U	0.64 U	0.53 U	0.64 U	0.53 U	0.41 U	0.56 U	0.6 U	0.5 U
1,2,3-Trichloropropane	1.6 U	1.7 U	1.4 U	1.7 U	1.4 U	1.1 U	1.5 U	1.6 U	1.3 U
1,2-Dibromo-3-Chloropropane	3.1 U	3.3 U	2.7 U	3.3 U	2.7 U	2.1 U	2.9 U	3.1 U	2.6 U
1,2-Dichloroethane	1.1 U	1.2 U	0.98 U	1.2 U	0.97 U	0.77 U	1 U	1.1 U	0.93 U
1,2-Dichloropropane	1.2 U	1.3 U	1.1 U	1.3 U	1.1 U	0.84 U	1.1 U	1.2 U	1 U
2-Butanone (MEK)	3 U	3.2 UJ	12 UJ	30 UJ	9.8 UJ	2.1 UJ	2.8 UJ	3 UJ	2.5 UJ
2-Chloro-1,3-butadiene	0.64 U	0.67 U	0.56 U	0.68 U	0.56 U	0.44 U	0.59 U	0.63 U	0.53 U
2-Hexanone	2.3 U	2.5 U	2 U	2.5 U	2 U	1.6 U	2.2 U	2.3 U	2 U
3-Chloro-1-propene	1.7 UJ	1.8 U	1.5 U	1.8 U	1.5 U	1.1 U	1.6 U	1.7 U	1.4 U
4-Methyl-2-pentanone (MIBK)	3.2 U	3.4 UJ	2.8 UJ	3.4 UJ	2.8 UJ	2.2 UJ	3 UJ	3.2 UJ	2.7 UJ
Acetone	4.9 R	16 J	110 J	290 J	140 J	17 J	22 J	4.9 R	36 J
Acetonitrile	50 R	53 R	44 R	54 R	44 R	34 R	47 R	50 R	42 R
Acrolein	21 R	22 R	19 R	23 R	19 R	15 R	20 R	21 R	18 R
Acrylonitrile	26 U	27 U	22 U	27 U	22 U	18 U	24 U	25 U	21 U
Benzene	0.88 U	0.93 U	0.77 U	0.94 U	0.77 U	0.6 U	0.82 U	0.87 U	0.74 U
Bromoform	1.2 U	1.3 U	1.1 U	1.3 U	1.1 U	0.84 U	1.1 U	1.2 U	1 U
Bromomethane	1.8 UJ	1.9 U	1.6 U	1.9 U	1.6 U	1.2 U	1.7 U	1.8 U	1.5 U
Carbon disulfide	0.57 U	0.6 U	0.5 U	0.61 U	0.5 U	0.39 U	0.53 U	0.56 U	0.58 J
Carbon tetrachloride	1.1 U	1.2 U	0.98 U	1.2 U	0.97 U	0.77 U	1 U	1.1 U	0.93 U
Chlorobenzene	0.81 U	0.86 U	0.71 U	0.87 U	0.71 U	0.56 U	0.76 U	0.81 U	0.68 U
Chlorodibromomethane	0.56 U	0.59 U	0.49 U	0.59 U	0.49 U	0.38 U	0.52 U	0.55 U	0.47 U
Chloroethane	1.3 U	1.4 U	1.2 U	1.4 U	1.2 U	0.92 U	1.2 U	1.3 U	1.1 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB53	74SB53	74SB54	74SB54	74SB55	74SB55	74SB56	74SB56	74SB57
Sample ID	74SB53-04	74SB53-05	74SB54-03	74SB54-04	74SB55-02	74SB55-03	74SB56-03	74SB56-04	74SB57-03
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	7.0 - 8.0	9.0 - 10.0	5.0 - 7.0	7.0 - 9.0	3.0 - 5.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	5.0 - 7.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.56 U	0.59 U	0.49 U	0.59 U	0.49 U	0.38 U	0.52 U	0.55 U	0.47 U
Chloromethane	0.79 U	0.84 U	0.69 U	0.84 U	0.69 U	0.54 U	0.74 U	0.79 U	0.66 U
cis-1,3-Dichloropropene	0.97 U	1 U	0.85 U	1 U	0.85 U	0.67 U	0.9 U	0.96 U	0.81 U
Dibromomethane	1.3 U	1.4 U	1.2 U	1.4 U	1.2 U	0.92 U	1.2 U	1.3 U	1.1 U
Dichlorobromomethane	0.93 U	0.98 U	0.81 U	0.99 U	0.81 U	0.64 U	0.86 U	0.92 U	0.77 U
Dichlorodifluoromethane	0.99 U	1 U	0.87 U	1.1 U	0.87 U	0.68 U	0.92 U	0.99 U	0.83 U
Ethyl methacrylate	2.5 UJ	2.6 UJ	2.1 UJ	2.6 UJ	2.1 UJ	1.7 UJ	2.3 UJ	2.4 UJ	2 UJ
Ethylbenzene	0.84 U	0.88 U	0.73 U	0.89 U	0.73 U	0.57 U	0.78 U	0.83 U	0.7 U
Ethylene Dibromide	1.7 U	1.8 U	1.5 U	1.8 U	1.5 U	1.1 U	1.6 U	1.7 U	1.4 U
Iodomethane	1.1 U	1.2 U	1.3 J	1.2 U	3.2 J	0.77 U	1 U	1.1 U	0.93 U
Isobutyl alcohol	77 R	81 R	67 R	82 R	67 R	53 R	72 R	76 R	64 R
Methacrylonitrile	27 UJ	28 UJ	23 UJ	29 UJ	23 UJ	18 UJ	25 UJ	27 UJ	22 UJ
Methyl methacrylate	4.1 UJ	4.4 UJ	3.6 UJ	4.4 UJ	3.6 UJ	2.8 UJ	3.8 UJ	4.1 UJ	3.4 UJ
Methylene Chloride	1.1 U	1.2 U	0.98 U	1.2 U	0.97 U	0.77 U	1 U	1.1 U	0.93 U
Pentachloroethane	2.5 U	2.6 U	2.1 U	2.6 U	2.1 U	1.7 U	2.3 U	2.4 U	2 U
Propionitrile	23 R	25 R	20 R	25 R	20 R	16 R	22 R	23 R	20 R
Styrene	0.74 U	0.78 U	0.64 U	0.78 U	0.64 U	0.51 U	0.69 U	0.73 U	0.61 U
Tetrachloroethene	0.81 U	0.86 U	0.71 U	0.87 U	0.71 U	0.56 U	0.76 U	0.81 U	0.68 U
Toluene	0.88 U	0.93 U	0.77 U	0.94 U	0.77 U	0.6 U	0.82 U	0.87 U	0.74 U
trans-1,2-Dichloroethene	1.1 U	1.1 U	0.95 U	1.2 U	0.95 U	0.74 U	1 U	1.1 U	0.9 U
trans-1,3-Dichloropropene	0.97 U	1 U	0.85 U	1 U	0.85 U	0.67 U	0.9 U	0.96 U	0.81 U
trans-1,4-Dichloro-2-butene	3.5 UJ	3.7 UJ	3 UJ	3.7 UJ	3 UJ	2.4 UJ	3.2 UJ	3.4 UJ	2.9 UJ
Trichloroethene	1.1 U	1.2 U	0.98 U	1.2 U	0.97 U	0.77 U	1 U	1.1 U	0.93 U
Trichlorofluoromethane	1.7 U	1.8 U	1.5 U	1.8 U	1.5 U	1.1 U	1.6 U	1.7 U	1.4 U
Vinyl acetate	1.7 U	1.8 UJ	1.5 UJ	1.8 UJ	1.5 UJ	1.1 U	1.6 UJ	1.7 UJ	1.4 UJ
Vinyl chloride	0.65 U	0.68 U	0.57 U	0.69 U	0.57 U	0.44 U	0.6 U	0.64 U	0.54 U
Xylenes, Total	2.6 U	2.7 U	2.2 U	2.7 U	2.2 U	1.8 U	2.4 U	2.5 U	2.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB53	74SB53	74SB54	74SB54	74SB55	74SB55	74SB56	74SB56	74SB57
	Sample ID	74SB53-04	74SB53-05	74SB54-03	74SB54-04	74SB55-02	74SB55-03	74SB56-03	74SB56-04	74SB57-03
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	7.0 - 8.0	9.0 - 10.0	5.0 - 7.0	7.0 - 9.0	3.0 - 5.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	5.0 - 7.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB53	74SB53	74SB54	74SB54	74SB55	74SB55	74SB56	74SB56	74SB57
	Sample ID	74SB53-04	74SB53-05	74SB54-03	74SB54-04	74SB55-02	74SB55-03	74SB56-03	74SB56-04	74SB57-03
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	7.0 - 8.0	9.0 - 10.0	5.0 - 7.0	7.0 - 9.0	3.0 - 5.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	5.0 - 7.0
<b>Metals (mg/kg)</b>										
Antimony		0.1 UJ	0.18 UJ	0.33 UJ	0.36 UJ	0.21 UJ	0.24 UJ	0.12 UJ	0.14 UJ	0.12 UJ
Arsenic		2.1	4.7 J	6.2 J	7.1 J	4 J	3.8 J	2.3 J	3.2 J	2.1 J
Barium		11	13	960	530	130	34	140	18	44
Beryllium		0.047 J	0.096 U	0.32	0.47	0.34	0.29	0.4	0.12	0.3
Cadmium		0.037 U	0.081 J	2.9	2.1	1.6	0.53	0.65	0.22	0.48
Chromium		12 R	16 J	120 J	100 J	67 J	130 J	23 J	27 J	28 J
Cobalt		0.79	1.1	170	78	30	17	21	3.1	18
Copper		58	160	130	130	110	100	100	86	97
Lead		2	2.2	42	25	8.4	8.9	4.9	5.7	4.7
Mercury		0.0074 J	0.01 J	0.5	0.24	0.15	0.079	0.071	0.15	0.069
Nickel		1.5	1.8	10	8.6	9.2	5.9	9.4	3.6	8.2
Selenium		1.2	1.8 J	1.5 J	1.4 J	2.4 J	2.8 J	1.3 J	2.2 J	1.2 J
Silver		0.048 J	0.05 U	0.38	0.14 U	0.13 U	0.38	0.13 U	0.083 U	0.099 U
Thallium		0.14 U	0.14 U	2	1.1	0.43 J	0.25 J	0.2 J	0.15 U	0.14 J
Tin		4.8 U	4.8 U	4.4 U	4.3 U	4.8 U	4.7 U	4.6 U	4.8 U	4.6 U
Vanadium		210	370	570	470	390	360	270	450	300
Zinc		31 J	53 J	300 J	320 J	150 J	150 J	97 J	92 J	77 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		2.3 J	1.1 J	1.2 J	1.3 J	2.3 J	0.88 J	1.4 J	3 J	1.7 J
Gasoline Range Organics		0.064 U	0.071 U	0.082 U	0.069 U	0.06 U	0.06 U	0.2 U	0.085 U	0.051 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB57	74SB58	74SB58	74SB59	74SB59	74SB60	74SB60	74SB61	74SB61
Sample ID	74SB57-04	74SB58-03	74SB58-04	74SB59-04	74SB59-05	74SB60-04	74SB60-05	74SB61-03	74SB61-04D
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	7.0 - 9.0	5.0 - 7.0	7.0 - 9.0	7.0 - 9.0	9.0 - 11.0	7.0 - 9.0	9.0 - 11.0	5.0 - 7.0	7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.61 U	0.59 U	0.57 U	0.59 U	0.59 U	0.55 U	0.55 U	0.44 U	0.54 U
1,1,1-Trichloroethane	0.55 U	0.54 U	0.51 U	0.54 U	0.53 U	0.5 U	0.49 U	0.4 U	0.49 U
1,1,2,2-Tetrachloroethane	1.3 U	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U	1.2 U	0.97 U	1.2 U
1,1,2-Trichloroethane	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1 U	1 U	0.83 U	1 U
1,1-Dichloroethane	0.48 U	0.46 U	0.44 U	0.46 U	0.46 U	0.43 U	0.43 U	0.35 U	0.42 U
1,1-Dichloroethene	0.51 U	0.5 U	0.48 U	0.5 U	0.5 U	0.47 U	0.46 U	0.37 U	0.45 U
1,2,3-Trichloropropane	1.3 U	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U	1.2 U	0.97 U	1.2 U
1,2-Dibromo-3-Chloropropane	2.7 U	2.6 U	2.5 U	2.6 U	2.6 U	2.4 U	2.4 U	1.9 U	2.4 U
1,2-Dichloroethane	0.95 U	0.93 U	0.89 U	0.93 U	0.92 U	0.87 U	0.85 U	0.69 U	0.84 U
1,2-Dichloropropane	1 U	1 U	0.97 U	1 U	1 U	0.95 U	0.94 U	0.76 U	0.93 U
2-Butanone (MEK)	2.6 UJ	2.5 UJ	2.4 UJ	2.5 U	2.5 U	2.9 U	2.3 U	4.2 U	12 U
2-Chloro-1,3-butadiene	0.54 U	0.53 U	0.5 U	0.53 U	0.52 U	0.49 U	0.49 U	0.39 U	0.48 U
2-Hexanone	2 U	2 U	1.9 U	1.9 U	1.9 U	1.8 U	1.8 U	1.4 U	1.8 U
3-Chloro-1-propene	1.4 U	1.4 U	1.3 U	1.4 U	1.4 U	1.3 U	1.3 U	1 U	1.3 U
4-Methyl-2-pentanone (MIBK)	2.8 UJ	2.7 UJ	2.6 UJ	2.7 U	2.7 U	2.5 U	2.5 U	2 U	2.4 U
Acetone	23 J	31 J	13 J	12 J	21 J	25 J	33 J	16 J	65 J
Acetonitrile	43 R	42 R	40 R	42 R	41 R	39 R	38 R	31 R	38 R
Acrolein	18 R	18 R	17 R	18 U	17 U	16 U	16 U	13 U	16 U
Acrylonitrile	22 U	21 U	20 U	21 U	21 U	20 U	20 U	16 U	19 U
Benzene	0.75 U	0.73 U	0.7 U	0.73 U	0.72 U	0.68 U	0.67 U	0.55 U	0.67 U
Bromoform	1 U	1 U	0.97 U	1 U	1 U	0.95 U	0.94 U	0.76 U	0.93 U
Bromomethane	1.5 U	1.5 U	1.4 U	1.5 U	1.5 U	1.4 U	1.4 U	1.1 U	1.3 U
Carbon disulfide	0.5 J	0.47 U	0.45 U	0.47 U	0.99 J	0.44 U	0.43 U	0.35 U	0.43 U
Carbon tetrachloride	0.95 U	0.93 U	0.89 U	0.93 U	0.92 U	0.87 U	0.85 U	0.69 U	0.84 U
Chlorobenzene	0.7 U	0.68 U	0.65 U	0.68 U	0.67 U	0.63 U	0.62 U	0.5 U	0.61 U
Chlorodibromomethane	0.48 U	0.46 U	0.44 U	0.46 U	0.46 U	0.43 U	0.43 U	0.35 U	0.42 U
Chloroethane	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1 U	1 U	0.83 U	1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB57	74SB58	74SB58	74SB59	74SB59	74SB60	74SB60	74SB61	74SB61
Sample ID	74SB57-04	74SB58-03	74SB58-04	74SB59-04	74SB59-05	74SB60-04	74SB60-05	74SB61-03	74SB61-04D
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	7.0 - 9.0	5.0 - 7.0	7.0 - 9.0	7.0 - 9.0	9.0 - 11.0	7.0 - 9.0	9.0 - 11.0	5.0 - 7.0	7.0 - 9.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.48 U	0.46 U	0.44 U	0.46 U	0.46 U	0.43 U	0.43 U	0.35 U	0.42 U
Chloromethane	0.68 U	0.66 U	0.63 U	0.66 U	0.65 U	0.62 U	0.6 U	0.49 U	0.6 U
cis-1,3-Dichloropropene	0.83 U	0.81 U	0.77 U	0.81 U	0.8 U	0.75 U	0.74 U	0.6 U	0.73 U
Dibromomethane	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1 U	1 U	0.83 U	1 U
Dichlorobromomethane	0.79 U	0.77 U	0.73 U	0.77 U	0.76 U	0.72 U	0.71 U	0.57 U	0.7 U
Dichlorodifluoromethane	0.85 U	0.83 U	0.79 U	0.83 U	0.82 U	0.77 U	0.76 U	0.61 U	0.75 U
Ethyl methacrylate	2.1 UJ	2 UJ	1.9 UJ	2 U	2 U	1.9 U	1.9 U	1.5 U	1.9 U
Ethylbenzene	0.72 U	0.7 U	0.66 U	0.7 U	0.69 U	0.65 U	0.64 U	0.52 U	0.63 U
Ethylene Dibromide	1.4 U	1.4 U	1.3 U	1.4 U	1.4 U	1.3 U	1.3 U	1 U	1.3 U
Iodomethane	0.95 U	0.93 U	0.89 U	0.93 U	0.92 U	0.87 U	0.85 U	0.69 U	0.84 U
Isobutyl alcohol	66 R	64 R	61 R	64 R	63 R	60 R	59 R	48 R	58 R
Methacrylonitrile	23 UJ	22 UJ	21 UJ	22 U	22 U	21 U	20 U	17 U	20 U
Methyl methacrylate	3.5 UJ	3.4 UJ	3.3 UJ	3.4 U	3.4 U	3.2 U	3.2 U	2.6 U	3.1 U
Methylene Chloride	0.95 U	0.93 U	0.89 U	0.93 U	0.92 U	0.87 U	0.85 U	0.69 U	0.84 U
Pentachloroethane	2.1 U	2 U	1.9 U	2 UJ	2 UJ	1.9 UJ	1.9 UJ	1.5 UJ	1.9 UJ
Propionitrile	20 R	20 R	19 R	19 U	19 U	18 U	18 U	14 U	18 U
Styrene	0.63 U	0.61 U	0.58 U	0.61 U	0.61 U	0.57 U	0.56 U	0.46 U	0.56 U
Tetrachloroethene	0.7 U	0.68 U	0.65 U	0.68 U	0.67 U	0.63 U	0.62 U	0.5 U	0.61 U
Toluene	0.75 U	0.73 U	0.7 U	0.73 U	0.72 U	0.68 U	0.67 U	0.55 U	0.67 U
trans-1,2-Dichloroethene	0.92 U	0.9 U	0.86 U	0.9 U	0.89 U	0.84 U	0.83 U	0.67 U	0.82 U
trans-1,3-Dichloropropene	0.83 U	0.81 U	0.77 U	0.81 U	0.8 U	0.75 U	0.74 U	0.6 U	0.73 U
trans-1,4-Dichloro-2-butene	3 UJ	2.9 UJ	2.7 UJ	2.9 U	2.8 U	2.7 U	2.6 U	2.1 U	2.6 U
Trichloroethene	0.95 U	0.93 U	0.89 U	0.93 U	0.92 U	0.87 U	0.85 U	0.69 U	0.84 U
Trichlorofluoromethane	1.4 U	1.4 U	1.3 U	1.4 U	1.4 U	1.3 U	1.3 U	1 U	1.3 U
Vinyl acetate	1.4 UJ	1.4 UJ	1.3 UJ	1.4 U	1.4 U	1.3 U	1.3 U	1 U	1.3 U
Vinyl chloride	0.55 U	0.54 U	0.51 U	0.54 U	0.53 U	0.5 U	0.49 U	0.4 U	0.49 U
Xylenes, Total	2.2 U	2.1 U	2 U	2.1 U	2.1 U	2 U	2 U	1.6 U	1.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB57	74SB58	74SB58	74SB59	74SB59	74SB60	74SB60	74SB61	74SB61
	Sample ID	74SB57-04	74SB58-03	74SB58-04	74SB59-04	74SB59-05	74SB60-04	74SB60-05	74SB61-03	74SB61-04D
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	7.0 - 9.0	5.0 - 7.0	7.0 - 9.0	7.0 - 9.0	9.0 - 11.0	7.0 - 9.0	9.0 - 11.0	5.0 - 7.0	7.0 - 9.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB57	74SB58	74SB58	74SB59	74SB59	74SB60	74SB60	74SB61	74SB61
	Sample ID	74SB57-04	74SB58-03	74SB58-04	74SB59-04	74SB59-05	74SB60-04	74SB60-05	74SB61-03	74SB61-04D
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	7.0 - 9.0	5.0 - 7.0	7.0 - 9.0	7.0 - 9.0	9.0 - 11.0	7.0 - 9.0	9.0 - 11.0	5.0 - 7.0	7.0 - 9.0
<b>Metals (mg/kg)</b>										
Antimony		0.09 UJ	0.089 UJ	0.11 UJ	0.09 UJ	0.081 UJ	0.11 UJ	0.15 UJ	0.2 UJ	0.097 UJ
Arsenic		2 J	1.9 J	1.8 J	1.4 J	1.4 J	2 J	1.7 J	2.1 J	1.9 J
Barium		82	69	71	79	100	87	84	100	120
Beryllium		0.27	0.21	0.32	0.28	0.28	0.25	0.37	0.33	0.33
Cadmium		0.19	0.16	0.11 J	0.18	0.08 J	0.17	0.11 J	0.082 J	0.21
Chromium		21 J	16 J	21 J	24 J	24 J	18 J	36 J	5.8 J	34 J
Cobalt		18	15	17	16	18	18	22	22	25
Copper		97	53	75	67	66	79	97	150	93
Lead		4.2	3.1	3.2	2.8	2.5	4	3.7	0.78	3.9
Mercury		0.053	0.033	0.039	0.036	0.012 J	0.04	0.05	0.025	0.044
Nickel		7.8	4.9	6.9	6.3	6.7	7.1	9.5	8.4	9.8
Selenium		0.66 J	0.67 J	0.29 J	0.54 J	0.22 J	0.91 J	0.76 J	0.23 J	0.81 J
Silver		0.064 U	0.052 U	0.07 U	0.066 U	0.035 U	0.05 U	0.064 U	0.045 U	0.071 U
Thallium		0.15 J	0.14 U	0.14 U	0.13 U	0.13 U	0.15 J	0.16 J	0.16 U	0.17 J
Tin		4.8 U	4.5 U	4.6 U	4.5 U	4.3 U	4.8 U	4.6 U	5.2 U	5 U
Vanadium		210	160	230	190	180	190	290	270	240
Zinc		64 J	41 J	47 J	40 J	44 J	49 J	60 J	55 J	60 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		2.9 J	3.4 J	2.2 J	3 J	2.5 J	6.4	3.1 J	2.6 J	3.3 J
Gasoline Range Organics		0.062 U	0.058 U	0.056 U	0.065 U	0.064 U	0.06 U	0.046 U	0.04 U	0.037 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB61	74SB62	74VP1B	74VP1B	74VP1B	74VP1B	74VP2B	74VP2B
Sample ID	74SB61-04	74SB62-03	74VP1B-03D	74VP1B-03	74VP1B-04	74VP1B-04X	74VP2B-01	74VP2B-03
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	7.0 - 9.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	7.0 - 9.0	1.0 - 3.0	5.0 - 7.0
<b>Volatile Organic Compounds (ug/kg)</b>								
1,1,1,2-Tetrachloroethane	0.82 U	0.67 U	0.57 U	0.6 U	0.58 U	0.64 U	0.61 U	0.51 U
1,1,1-Trichloroethane	0.74 U	0.61 U	0.52 U	0.55 U	0.53 U	0.58 U	0.55 U	0.47 U
1,1,2,2-Tetrachloroethane	1.8 U	1.5 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.1 U
1,1,2-Trichloroethane	1.5 U	1.3 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U	0.96 U
1,1-Dichloroethane	0.64 U	0.53 U	0.45 U	0.47 U	0.45 U	0.5 U	0.48 U	0.4 U
1,1-Dichloroethene	0.69 U	0.57 U	0.48 U	0.51 U	0.49 U	0.54 U	0.52 U	0.43 U
1,2,3-Trichloropropane	1.8 U	1.5 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.1 U
1,2-Dibromo-3-Chloropropane	3.6 U	3 U	2.5 U	2.6 U	2.5 U	2.8 U	2.7 U	2.3 U
1,2-Dichloroethane	1.3 U	1.1 U	0.89 U	0.94 U	0.91 U	1 U	0.95 U	0.8 U
1,2-Dichloropropane	1.4 U	1.2 U	0.98 U	1 U	1 U	1.1 U	1 U	0.88 U
2-Butanone (MEK)	11 U	11 U	12 UJ	12 UJ	2.4 UJ	2.7 UJ	27 UJ	2.2 UJ
2-Chloro-1,3-butadiene	0.73 U	0.6 U	0.51 U	0.54 U	0.52 U	0.57 U	0.54 U	0.46 U
2-Hexanone	2.7 U	2.2 U	1.9 UJ	2 UJ	1.9 UJ	2.1 UJ	2 UJ	1.7 UJ
3-Chloro-1-propene	1.9 U	1.6 U	1.3 U	1.4 U	1.4 U	1.5 U	1.4 U	1.2 U
4-Methyl-2-pentanone (MIBK)	3.7 U	3.1 U	2.6 UJ	2.7 UJ	2.6 UJ	2.9 UJ	2.8 UJ	2.3 UJ
Acetone	50 J	67 J	140 J	120 J	32 J	33 J	280 J	52 J
Acetonitrile	58 R	47 R	40 R	42 R	41 R	45 R	43 R	36 R
Acrolein	24 U	20 U	17 R	18 R	17 R	19 R	18 R	15 R
Acrylonitrile	29 U	24 U	21 U	22 U	21 U	23 U	22 U	18 U
Benzene	1 U	0.83 U	0.71 U	0.74 U	0.72 U	0.79 U	0.75 U	0.64 U
Bromoform	1.4 U	1.2 U	0.98 U	1 U	1 U	1.1 U	1 U	0.88 U
Bromomethane	2 U	1.7 U	1.4 UJ	1.5 UJ	1.4 UJ	1.6 UJ	1.5 U	1.3 UJ
Carbon disulfide	0.65 U	0.54 U	0.46 U	0.48 U	0.46 U	0.51 U	0.49 U	0.41 U
Carbon tetrachloride	1.3 U	1.1 U	0.89 U	0.94 U	0.91 U	1 U	0.95 U	0.8 U
Chlorobenzene	0.93 U	0.77 U	0.65 U	0.69 U	0.66 U	0.73 U	0.7 U	0.59 U
Chlorodibromomethane	0.64 U	0.53 U	0.45 U	0.47 U	0.45 U	0.5 U	0.48 U	0.4 U
Chloroethane	1.5 U	1.3 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U	0.96 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB61	74SB62	74VP1B	74VP1B	74VP1B	74VP1B	74VP2B	74VP2B
Sample ID	74SB61-04	74SB62-03	74VP1B-03D	74VP1B-03	74VP1B-04	74VP1B-04X	74VP2B-01	74VP2B-03
Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
Depth Range	7.0 - 9.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	7.0 - 9.0	1.0 - 3.0	5.0 - 7.0
<b>Volatile Organic Compounds (ug/kg)</b>								
Chloroform	0.64 U	0.53 U	0.45 U	0.47 U	0.45 U	0.5 U	0.48 U	0.4 U
Chloromethane	0.91 U	0.75 U	0.64 U	0.67 U	0.64 U	0.71 U	0.68 U	0.57 U
cis-1,3-Dichloropropene	1.1 U	0.92 U	0.78 U	0.82 U	0.79 U	0.87 U	0.83 U	0.7 U
Dibromomethane	1.5 U	1.3 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U	0.96 U
Dichlorobromomethane	1.1 U	0.88 U	0.74 U	0.78 U	0.75 U	0.83 U	0.79 U	0.67 U
Dichlorodifluoromethane	1.1 U	0.94 U	0.8 U	0.84 U	0.81 U	0.89 U	0.85 U	0.72 U
Ethyl methacrylate	2.8 U	2.3 U	2 UJ	2.1 UJ	2 UJ	2.2 UJ	2.1 UJ	1.8 UJ
Ethylbenzene	0.96 U	0.79 U	0.67 U	0.71 U	0.68 U	0.75 U	0.72 U	0.6 U
Ethylene Dibromide	1.9 U	1.6 U	1.3 U	1.4 U	1.4 U	1.5 U	1.4 U	1.2 U
Iodomethane	1.3 U	1.1 U	0.89 U	0.94 U	0.91 U	1 U	5.1	0.8 U
Isobutyl alcohol	88 R	73 R	62 R	65 R	62 R	69 R	66 R	55 R
Methacrylonitrile	31 UJ	25 U	21 UJ	23 UJ	22 UJ	24 UJ	23 UJ	19 UJ
Methyl methacrylate	4.7 U	3.9 U	3.3 UJ	3.5 UJ	3.4 UJ	3.7 UJ	3.5 UJ	3 UJ
Methylene Chloride	1.3 U	1.1 U	0.89 U	0.94 U	0.91 U	1 U	0.95 U	0.8 U
Pentachloroethane	2.8 UJ	2.3 UJ	2 UJ	2.1 UJ	2 UJ	2.2 UJ	2.1 UJ	1.8 UJ
Propionitrile	27 U	22 U	19 R	20 R	19 R	21 R	20 R	17 R
Styrene	0.84 U	0.7 U	0.59 U	0.62 U	0.6 U	0.66 U	0.63 U	0.53 U
Tetrachloroethene	0.93 U	0.77 U	0.65 U	0.69 U	0.66 U	0.73 U	0.7 U	0.59 U
Toluene	1 U	0.83 U	0.71 U	0.74 U	0.72 U	0.79 U	0.75 U	0.64 U
trans-1,2-Dichloroethene	1.2 U	1 U	0.87 U	0.91 U	0.88 U	0.98 U	0.93 U	0.78 U
trans-1,3-Dichloropropene	1.1 U	0.92 U	0.78 U	0.82 U	0.79 U	0.87 U	0.83 U	0.7 U
trans-1,4-Dichloro-2-butene	4 U	3.3 U	2.8 UJ	2.9 UJ	2.8 UJ	3.1 UJ	3 UJ	2.5 UJ
Trichloroethene	1.3 U	1.1 U	0.89 U	0.94 U	0.91 U	1 U	0.95 U	0.8 U
Trichlorofluoromethane	1.9 U	1.6 U	1.3 U	1.4 U	1.4 U	1.5 U	1.4 U	1.2 U
Vinyl acetate	1.9 U	1.6 U	1.3 U	1.4 U	1.4 U	1.5 U	1.4 U	1.2 U
Vinyl chloride	0.74 U	0.61 U	0.52 U	0.55 U	0.53 U	0.58 U	0.55 U	0.47 U
Xylenes, Total	2.9 U	2.4 U	2.1 U	2.2 U	2.1 U	2.3 U	2.2 U	1.8 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB61	74SB62	74VP1B	74VP1B	74VP1B	74VP1B	74VP2B	74VP2B
	Sample ID	74SB61-04	74SB62-03	74VP1B-03D	74VP1B-03	74VP1B-04	74VP1B-04X	74VP2B-01	74VP2B-03
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	7.0 - 9.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	7.0 - 9.0	1.0 - 3.0	5.0 - 7.0
<b>LLPAHs (ug/kg)</b>									
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB61	74SB62	74VP1B	74VP1B	74VP1B	74VP1B	74VP2B	74VP2B
	Sample ID	74SB61-04	74SB62-03	74VP1B-03D	74VP1B-03	74VP1B-04	74VP1B-04X	74VP2B-01	74VP2B-03
	Date	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008	5/3/2008
	Depth Range	7.0 - 9.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	7.0 - 9.0	7.0 - 9.0	1.0 - 3.0	5.0 - 7.0
<b>Metals (mg/kg)</b>									
Antimony		0.09 UJ	0.21 UJ	0.28 U	0.22 U	0.11 U	0.091 U	0.13 U	0.34 U
Arsenic		2.3 J	3.3 J	2.4	2.2	2.2	1.8	3.5	2.8
Barium		100	110	25 J	39 J	78	80	28	64
Beryllium		0.39	0.34	0.35	0.3	0.28	0.31	0.16	0.21
Cadmium		0.32	0.28	0.17	0.077 J	0.078 J	0.15	0.061 J	1.6
Chromium		26 J	20 J	14 J	30 J	31	22	18	17
Cobalt		35	32	26	20	19	28	5.8	15
Copper		89	160	270 J	170 J	130	86	43	190
Lead		4	3.7	2.7	3.5	3.8	3.4	2.8	3.7
Mercury		0.052	0.046	0.052	0.071	0.031	0.052	0.19	0.0043 U
Nickel		9.8	6.7	10	11	8.1	8.3	4.9	16
Selenium		0.78 J	1.3 J	1.5	1	0.66	1.2	2.5	0.41 J
Silver		0.066 U	0.094 U	0.085 U	0.074 U	0.035 U	0.051 U	0.089 U	0.26
Thallium		0.27 J	0.16 U	0.15 U	0.16 J	0.19 J	0.26 J	0.26 J	0.12 U
Tin		4.5 U	5.2 U	4.9 U	4.8 U	4.7 U	4.8 U	4.9 U	3.9 U
Vanadium		220	280	520	380	290	190	220	100
Zinc		57 J	56 J	95	68	46	60	32	200
<b>TPH DRO/GRO (mg/kg)</b>									
Diesel Range Organics		2.8 J	2.2 J	3 J	3.3 J	2 J	1 J	7.6	2.2 J
Gasoline Range Organics		0.036 U	0.065 U	0.053 U	0.069 U	0.055 U	0.061 U	0.058 U	0.063 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB63	74SB63	74SB64	74SB64	74SB65	74SB65	74SB66	74SB66	74SB66	74SB67
Sample ID	74SB63-03	74SB63-04	74SB64-03	74SB64-04	74SB65-03	74SB65-04	74SB66-03	74SB66-04	74SB66-04D	74SB67-03
Date	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008
Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.64 U	0.66 U	0.55 U	0.62 U	0.55 U	0.64 U	0.63 U	0.66 U	0.76 U	0.73 U
1,1,1-Trichloroethane	0.58 U	0.6 U	0.5 U	0.57 U	0.5 U	0.58 U	0.57 U	0.6 U	0.69 U	0.66 U
1,1,2,2-Tetrachloroethane	1.4 U	1.4 U	1.2 U	1.4 U	1.2 U	1.4 U	1.4 U	1.5 U	1.7 U	1.6 U
1,1,2-Trichloroethane	1.2 U	1.2 U	1 U	1.2 U	1 U	1.2 U	1.2 U	1.2 U	1.4 U	1.4 U
1,1-Dichloroethane	0.5 U	0.51 U	0.43 U	0.49 U	0.43 U	0.5 U	0.49 U	0.52 U	0.6 U	0.57 U
1,1-Dichloroethene	0.54 U	0.56 U	0.46 U	0.53 U	0.46 U	0.54 U	0.53 U	0.56 U	0.64 U	0.62 U
1,2,3-Trichloropropane	1.4 U	1.4 U	1.2 U	1.4 U	1.2 U	1.4 U	1.4 U	1.5 U	1.7 U	1.6 U
1,2-Dibromo-3-Chloropropane	2.8 U	2.9 U	2.4 U	2.7 U	2.4 U	2.8 U	2.8 U	2.9 U	3.3 U	3.2 U
1,2-Dichloroethane	0.99 U	1 U	0.86 U	0.98 U	0.86 U	1 U	0.99 U	1 U	1.2 U	1.1 U
1,2-Dichloropropane	1.1 U	1.1 U	0.94 U	1.1 U	0.94 U	1.1 U	1.1 U	1.1 U	1.3 U	1.3 U
2-Butanone (MEK)	2.7 U	2.8 U	2.3 U	2.6 U	2.3 U	2.7 U	2.7 U	2.8 U	3.2 U	3.1 U
2-Chloro-1,3-butadiene	0.57 U	0.59 U	0.49 U	0.56 U	0.49 U	0.57 U	0.56 U	0.59 U	0.68 U	0.65 U
2-Hexanone	2.1 U	2.2 U	1.8 U	2 U	1.8 U	2.1 U	2.1 U	2.2 U	2.5 U	2.4 U
3-Chloro-1-propene	1.5 U	1.5 U	1.3 U	1.5 U	1.3 U	1.5 U	1.5 U	1.6 U	1.8 U	1.7 U
4-Methyl-2-pentanone (MIBK)	2.9 U	3 U	2.5 U	2.8 U	2.5 U	2.9 U	2.9 U	3 U	3.5 U	3.3 U
Acetone	10 J	4.5 R	3.8 R	8.5 J	7.6 J	4.4 R	4.4 R	20 J	5.3 R	5 R
Acetonitrile	45 R	46 R	39 R	44 R	39 R	45 R	45 R	47 R	54 R	51 R
Acrolein	19 U	20 U	16 U	19 U	16 U	19 U	19 U	20 U	23 U	22 U
Acrylonitrile	23 U	24 U	20 U	22 U	20 U	23 U	23 U	24 U	27 U	26 U
Benzene	0.79 U	0.81 U	0.68 U	0.77 U	0.68 U	0.79 U	0.78 U	0.82 U	0.94 U	0.9 U
Bromoform	1.1 U	1.1 U	0.94 U	1.1 U	0.94 U	1.1 U	1.1 U	1.1 U	1.3 U	1.3 U
Bromomethane	1.6 U	1.6 U	1.4 U	1.6 U	1.4 U	1.6 U	1.6 U	1.7 U	1.9 U	1.8 U
Carbon disulfide	0.51 U	0.52 U	0.44 U	0.5 U	0.44 U	0.51 U	0.5 U	0.56 J	0.61 U	0.58 U
Carbon tetrachloride	0.99 U	1 U	0.86 U	0.98 U	0.86 U	1 U	0.99 U	1 U	1.2 U	1.1 U
Chlorobenzene	0.73 U	0.75 U	0.63 U	0.71 U	0.63 U	0.73 U	0.72 U	0.76 U	0.87 U	0.83 U
Chlorodibromomethane	0.5 U	0.51 U	0.43 U	0.49 U	0.43 U	0.5 U	0.49 U	0.52 U	0.6 U	0.57 U
Chloroethane	1.2 U	1.2 U	1 U	1.2 U	1 U	1.2 U	1.2 U	1.2 U	1.4 U	1.4 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB63	74SB63	74SB64	74SB64	74SB65	74SB65	74SB66	74SB66	74SB66	74SB67
Sample ID	74SB63-03	74SB63-04	74SB64-03	74SB64-04	74SB65-03	74SB65-04	74SB66-03	74SB66-04	74SB66-04D	74SB67-03
Date	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008
Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.5 U	0.51 U	0.43 U	0.49 U	0.43 U	0.5 U	0.49 U	0.52 U	0.6 U	0.57 U
Chloromethane	0.71 U	0.73 U	0.61 U	0.69 U	0.61 U	0.71 U	0.7 U	0.74 U	0.85 U	0.81 U
cis-1,3-Dichloropropene	0.86 U	0.89 U	0.75 U	0.85 U	0.75 U	0.87 U	0.86 U	0.9 U	1 U	0.99 U
Dibromomethane	1.2 U	1.2 U	1 U	1.2 U	1 U	1.2 U	1.2 U	1.2 U	1.4 U	1.4 U
Dichlorobromomethane	0.83 U	0.85 U	0.71 U	0.81 U	0.71 U	0.83 U	0.82 U	0.86 U	0.99 U	0.95 U
Dichlorodifluoromethane	0.88 U	0.92 U	0.76 U	0.87 U	0.76 U	0.89 U	0.88 U	0.92 U	1.1 U	1 U
Ethyl methacrylate	2.2 U	2.3 U	1.9 U	2.1 U	1.9 U	2.2 U	2.2 U	2.3 U	2.6 U	2.5 U
Ethylbenzene	0.75 U	0.77 U	0.64 U	0.73 U	0.64 U	0.75 U	0.74 U	0.78 U	0.9 U	0.86 U
Ethylene Dibromide	1.5 U	1.5 U	1.3 U	1.5 U	1.3 U	1.5 U	1.5 U	1.6 U	1.8 U	1.7 U
Iodomethane	0.99 U	1 U	1.5 J	0.98 U	0.86 U	1 U	0.99 U	1 U	1.2 U	1.1 U
Isobutyl alcohol	69 R	71 R	59 R	67 R	59 R	69 R	68 R	71 R	82 R	79 R
Methacrylonitrile	24 U	25 U	21 U	23 UJ	21 UJ	24 UJ	24 UJ	25 UJ	29 UJ	27 UJ
Methyl methacrylate	3.7 U	3.8 U	3.2 U	3.6 U	3.2 U	3.7 U	3.7 U	3.8 U	4.4 U	4.2 U
Methylene Chloride	0.99 U	1 U	0.86 U	0.98 U	0.86 U	1 U	0.99 U	1 U	1.2 U	1.1 U
Pentachloroethane	2.2 UJ	2.3 UJ	1.9 UJ	2.1 UJ	1.9 UJ	2.2 UJ	2.2 UJ	2.3 UJ	2.6 UJ	2.5 UJ
Propionitrile	21 U	22 U	18 U	20 U	18 U	21 U	21 U	22 U	25 U	24 U
Styrene	0.66 U	0.68 U	0.57 U	0.64 U	0.57 U	0.66 U	0.65 U	0.68 U	0.79 U	0.75 U
Tetrachloroethene	0.73 U	0.75 U	0.63 U	0.71 U	0.63 U	0.73 U	0.72 U	0.76 U	0.87 U	0.83 U
Toluene	0.79 U	0.81 U	0.68 U	0.77 U	0.68 U	0.79 U	0.78 U	0.82 U	0.94 U	0.9 U
trans-1,2-Dichloroethene	0.96 U	1 U	0.83 U	0.95 U	0.83 U	0.97 U	0.96 U	1 U	1.2 U	1.1 U
trans-1,3-Dichloropropene	0.86 U	0.89 U	0.75 U	0.85 U	0.75 U	0.87 U	0.86 U	0.9 U	1 U	0.99 U
trans-1,4-Dichloro-2-butene	3.1 U	3.2 U	2.7 U	3 U	2.7 U	3.1 U	3.1 U	3.2 U	3.7 U	3.5 U
Trichloroethene	0.99 U	1 U	0.86 U	0.98 U	0.86 U	1 U	0.99 U	1 U	1.2 U	1.1 U
Trichlorofluoromethane	1.5 U	1.5 U	1.3 U	1.5 U	1.3 U	1.5 U	1.5 U	1.6 U	1.8 U	1.7 U
Vinyl acetate	1.5 U	1.5 U	1.3 U	1.5 U	1.3 U	1.5 U	1.5 U	1.6 U	1.8 U	1.7 U
Vinyl chloride	0.58 U	0.6 U	0.5 U	0.57 U	0.5 U	0.58 U	0.57 U	0.6 U	0.69 U	0.66 U
Xylenes, Total	2.3 U	2.4 U	2 U	2.2 U	2 U	2.3 U	2.3 U	2.4 U	2.7 U	2.6 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB63	74SB63	74SB64	74SB64	74SB65	74SB65	74SB66	74SB66	74SB66	74SB67
	Sample ID	74SB63-03	74SB63-04	74SB64-03	74SB64-04	74SB65-03	74SB65-04	74SB66-03	74SB66-04	74SB66-04D	74SB67-03
	Date	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008
	Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB63	74SB63	74SB64	74SB64	74SB65	74SB65	74SB66	74SB66	74SB66	74SB67
	Sample ID	74SB63-03	74SB63-04	74SB64-03	74SB64-04	74SB65-03	74SB65-04	74SB66-03	74SB66-04	74SB66-04D	74SB67-03
	Date	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008
	Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony		0.091 UJ	0.091 UJ	0.081 UJ	0.088 UJ	0.098 J	0.12 J	0.085 UJ	0.092 UJ	0.092 UJ	0.095 UJ
Arsenic		0.55 J	0.59 J	0.69	0.4 J	0.42 J	0.45 J	0.28 J	0.46 J	0.37 J	0.71
Barium		45 J	140 J	54 J	21 J	22 J	13 J	46 J	84 J	110 J	200 J
Beryllium		0.13	0.1 J	0.18	0.095 J	0.18	0.18	0.12	0.14	0.15	0.23
Cadmium		0.12 J	0.19	0.089 J	0.047 J	0.67	0.62	0.035 U	0.077 J	0.059 J	0.052 J
Chromium		5.3	3.6	18	0.56 J	2.5	1.4	0.74 J	4.3	1.4	3.5
Cobalt		17	27	19	9.1	7.4	7.1	22	18 J	29 J	28
Copper		180 J	530 J	91 J	80 J	23 J	17 J	78 J	60 J	100 J	120 J
Lead		0.48	0.72	1.7	0.38	1.2	0.99	0.4	0.71	0.58	1.5
Mercury		0.0049 R	0.054 R	0.004 R	0.007 R	0.004 R	0.005 R	0.021 R	0.018 R	0.17 R	0.005 R
Nickel		12	7.2	6.9	1.8	1.9	1.7	3.5	2.9	4	7.6
Selenium		0.15 U	0.15 U	0.13 U	0.14 U	0.12 U	0.14 U	0.14 U	0.15 U	0.15 U	0.15 U
Silver		0.062 J	0.02 J	0.022 J	0.019 U	0.016 U	0.019 U	0.02 J	0.073 J	0.064 J	0.038 J
Thallium		0.15 U	0.15 U	0.13 U	0.14 U	0.12 U	0.14 U	0.14 U	0.15 U	0.15 U	0.15 U
Tin		4.9 U	4.9 U	4.3 U	4.7 U	4 U	4.7 U	4.5 U	4.9 U	4.9 U	5.1 U
Vanadium		140	100	170	78	49	54	100	210	180	150
Zinc		39	75	61	33	63	63	43	58	67	70
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		2.2 J	1.6 J	2 J	1.7 J	1.1 J	1.4 J	2 J	1.2 J	2.4 J	0.97 J
Gasoline Range Organics		0.064 U	0.061 U	0.054 U	0.057 U	0.054 U	0.065 U	0.059 U	0.066 U	0.066 U	0.065 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB67	74SB68	74SB68	74SB69	74SB69	74SB70	74SB70	74SB71	74SB71	74SB71
Sample ID	74SB67-04	74SB68-03	74SB68-04	74SB69-03	74SB69-04	74SB70-03	74SB70-04	74SB71-03	74SB71-04	74SB71-04D
Date	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/5/2008	5/5/2008	5/5/2008
Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.74 U	0.65 U	0.84 U	0.7 U	0.74 U	0.71 U	0.67 U	0.72 U	0.85 U	0.68 U
1,1,1-Trichloroethane	0.67 U	0.59 U	0.76 U	0.64 U	0.67 U	0.65 U	0.6 U	0.65 U	0.77 U	0.62 U
1,1,2,2-Tetrachloroethane	1.6 U	1.4 U	1.8 U	1.5 U	1.6 U	1.6 U	1.5 U	1.6 U	1.8 U	1.5 U
1,1,2-Trichloroethane	1.4 U	1.2 U	1.6 U	1.3 U	1.4 U	1.3 U	1.2 U	1.4 U	1.6 U	1.3 U
1,1-Dichloroethane	0.58 U	0.51 U	0.66 U	0.55 U	0.58 U	0.56 U	0.52 U	0.56 U	0.66 U	0.53 U
1,1-Dichloroethene	0.63 U	0.55 U	0.71 U	0.59 U	0.62 U	0.6 U	0.56 U	0.61 U	0.71 U	0.58 U
1,2,3-Trichloropropane	1.6 U	1.4 U	1.8 U	1.5 U	1.6 U	1.6 U	1.5 U	1.6 U	1.8 U	1.5 U
1,2-Dibromo-3-Chloropropane	3.2 U	2.9 U	3.7 U	3.1 U	3.2 U	3.1 U	2.9 U	3.2 U	3.7 U	3 U
1,2-Dichloroethane	1.2 U	1 U	1.3 U	1.1 U	1.2 U	1.1 U	1 U	1.1 U	1.3 U	1.1 U
1,2-Dichloropropane	1.3 U	1.1 U	1.4 U	1.2 U	1.3 U	1.2 U	1.1 U	1.2 U	1.5 U	1.2 U
2-Butanone (MEK)	3.1 U	2.8 U	3.5 U	3 U	3.1 U	3 U	8.6 U	15 U	7.5 U	5.5 U
2-Chloro-1,3-butadiene	0.66 U	0.58 U	0.75 U	0.63 UJ	0.66 U	0.64 UJ	0.59 U	0.64 U	0.75 U	0.61 U
2-Hexanone	2.4 U	2.1 U	2.8 U	2.3 U	2.4 U	2.3 U	2.2 U	2.4 U	2.8 U	2.2 U
3-Chloro-1-propene	1.7 U	1.5 U	2 U	1.7 U	1.7 U	1.7 U	1.6 U	1.7 UJ	2 UJ	1.6 UJ
4-Methyl-2-pentanone (MIBK)	3.4 U	3 U	3.8 U	3.2 U	3.4 U	3.2 U	3 U	3.3 U	3.8 U	3.1 U
Acetone	5.1 R	14 J	5.8 R	32 J	5.1 R	82 J	130 J	240 J	110 R	62 R
Acetonitrile	52 R	46 R	59 R	50 R	52 R	50 R	47 R	51 UJ	59 UJ	48 UJ
Acrolein	22 U	19 U	25 U	21 R	22 U	21 R	20 U	21 R	25 R	20 R
Acrylonitrile	27 U	24 U	30 U	25 U	27 U	26 U	24 U	26 UJ	30 UJ	25 UJ
Benzene	0.92 U	0.81 U	1 U	0.87 U	0.91 U	0.88 U	0.82 U	0.89 U	1 U	0.84 U
Bromoform	1.3 U	1.1 U	1.4 U	1.2 U	1.3 U	1.2 U	1.1 U	1.2 U	1.5 U	1.2 U
Bromomethane	1.9 U	1.6 U	2.1 U	1.8 U	1.8 U	1.8 U	1.7 U	1.8 U	2.1 U	1.7 U
Carbon disulfide	0.59 U	0.52 U	0.67 U	0.56 U	0.59 U	0.57 U	0.53 U	0.57 U	0.67 U	0.54 U
Carbon tetrachloride	1.2 U	1 U	1.3 U	1.1 U	1.2 U	1.1 U	1 U	1.1 U	1.3 U	1.1 U
Chlorobenzene	0.85 U	0.75 U	0.96 U	0.8 U	0.84 U	0.81 U	0.76 U	0.82 U	0.96 U	0.78 U
Chlorodibromomethane	0.58 U	0.51 U	0.66 U	0.55 U	0.58 U	0.56 U	0.52 U	0.56 U	0.66 U	0.53 U
Chloroethane	1.4 U	1.2 U	1.6 U	1.3 U	1.4 U	1.3 U	1.2 U	1.4 U	1.6 U	1.3 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB67	74SB68	74SB68	74SB69	74SB69	74SB70	74SB70	74SB71	74SB71	74SB71
Sample ID	74SB67-04	74SB68-03	74SB68-04	74SB69-03	74SB69-04	74SB70-03	74SB70-04	74SB71-03	74SB71-04	74SB71-04D
Date	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/5/2008	5/5/2008	5/5/2008
Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.58 U	0.51 U	0.66 U	0.55 U	0.58 U	0.56 U	0.52 U	0.56 U	0.66 U	0.53 U
Chloromethane	0.82 U	0.73 U	0.93 U	0.78 U	0.82 U	0.79 U	0.74 U	0.8 U	0.94 U	0.76 U
cis-1,3-Dichloropropene	1 U	0.89 U	1.1 U	0.96 U	1 U	0.97 U	0.9 U	0.98 U	1.1 U	0.93 U
Dibromomethane	1.4 U	1.2 U	1.6 U	1.3 U	1.4 U	1.3 U	1.2 U	1.4 U	1.6 U	1.3 U
Dichlorobromomethane	0.96 U	0.85 U	1.1 U	0.91 U	0.96 U	0.93 U	0.86 U	0.93 U	1.1 U	0.88 U
Dichlorodifluoromethane	1 U	0.91 U	1.2 U	0.98 U	1 U	0.99 U	0.93 U	1 U	1.2 U	0.95 U
Ethyl methacrylate	2.6 U	2.2 U	2.9 U	2.4 U	2.5 U	2.5 U	2.3 U	2.5 U	2.9 U	2.3 U
Ethylbenzene	0.87 U	0.77 U	0.98 U	0.83 U	0.87 U	0.84 U	0.78 U	0.84 U	0.99 U	0.8 U
Ethylene Dibromide	1.7 U	1.5 U	2 U	1.7 U	1.7 U	1.7 U	1.6 U	1.7 U	2 U	1.6 U
Iodomethane	1.2 U	1 U	1.3 U	1.1 U	1.2 U	1.1 U	3.5 J	2.4 J	1.3 U	1.1 U
Isobutyl alcohol	80 R	71 R	90 R	76 R	80 R	77 R	72 R	78 R	91 R	74 R
Methacrylonitrile	28 UJ	25 UJ	31 UJ	26 UJ	28 UJ	27 UJ	25 UJ	27 U	32 U	26 U
Methyl methacrylate	4.3 U	3.8 U	4.9 U	4.1 U	4.3 U	4.1 U	3.8 U	4.2 U	4.9 U	3.9 U
Methylene Chloride	1.2 U	1 U	1.3 U	1.1 U	1.2 U	1.1 U	1 U	1.1 U	1.3 U	1.1 U
Pentachloroethane	2.6 UJ	2.2 UJ	2.9 UJ	2.4 UJ	2.5 UJ	2.5 UJ	2.3 UJ	2.5 UJ	2.9 UJ	2.3 UJ
Propionitrile	24 U	21 U	28 U	23 U	24 U	23 U	22 U	24 U	28 U	22 U
Styrene	0.77 U	0.67 U	0.87 U	0.73 U	0.76 U	0.74 U	0.69 U	0.74 U	0.87 U	0.7 U
Tetrachloroethene	0.85 U	0.75 U	0.96 U	0.8 U	0.84 U	0.81 U	0.76 U	0.82 U	0.96 U	0.78 U
Toluene	0.92 U	0.81 U	1 U	0.87 U	0.91 U	0.88 U	0.82 U	0.89 U	1 U	0.84 U
trans-1,2-Dichloroethene	1.1 U	0.99 U	1.3 U	1.1 U	1.1 U	1.1 U	1 U	1.1 U	1.3 U	1 U
trans-1,3-Dichloropropene	1 U	0.89 U	1.1 U	0.96 U	1 U	0.97 U	0.9 U	0.98 U	1.1 U	0.93 U
trans-1,4-Dichloro-2-butene	3.6 U	3.2 U	4.1 U	3.4 U	3.6 U	3.5 U	3.2 U	3.5 U	4.1 U	3.3 U
Trichloroethene	1.2 U	1 U	1.3 U	1.1 U	1.2 U	1.1 U	1 U	1.1 U	1.3 U	1.1 U
Trichlorofluoromethane	1.7 U	1.5 U	2 U	1.7 U	1.7 U	1.7 U	1.6 U	1.7 U	2 U	1.6 U
Vinyl acetate	1.7 U	1.5 U	2 U	1.7 U	1.7 U	1.7 U	1.6 U	1.7 U	2 U	1.6 U
Vinyl chloride	0.67 U	0.59 U	0.76 U	0.64 U	0.67 U	0.65 U	0.6 U	0.65 U	0.77 U	0.62 U
Xylenes, Total	2.7 U	2.4 U	3 U	2.5 U	2.7 U	2.6 U	2.4 U	2.6 U	3 U	2.5 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB67	74SB68	74SB68	74SB69	74SB69	74SB70	74SB70	74SB71	74SB71	74SB71
	Sample ID	74SB67-04	74SB68-03	74SB68-04	74SB69-03	74SB69-04	74SB70-03	74SB70-04	74SB71-03	74SB71-04	74SB71-04D
	Date	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/5/2008	5/5/2008	5/5/2008
	Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB67	74SB68	74SB68	74SB69	74SB69	74SB70	74SB70	74SB71	74SB71	74SB71
	Sample ID	74SB67-04	74SB68-03	74SB68-04	74SB69-03	74SB69-04	74SB70-03	74SB70-04	74SB71-03	74SB71-04	74SB71-04D
	Date	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/4/2008	5/5/2008	5/5/2008	5/5/2008
	Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.1 UJ	0.097 UJ	0.1 UJ	0.1 UJ	0.098 UJ	0.11 J	0.094 J	0.11 UJ	0.1 UJ	0.095 UJ
Arsenic		0.27 J	0.55 J	0.66 J	1.5	1.8	1.8	2.2	2.3	1.8	1.3
Barium		19 J	140 J	460 J	75 J	34 J	24 J	89 J	88 J	300 J	210 J
Beryllium		0.24	0.41	0.64	0.29	0.19	0.22	0.35	0.27	0.3	0.26
Cadmium		0.042 U	0.04 U	0.043 U	0.041 U	0.04 U	0.38	0.36	0.12 U	0.09 U	0.049 U
Chromium		4.7	9.5	4.3	15	14	23	26	25	21	22
Cobalt		6.3	23	230	14	6.6	21	61	18	14	12
Copper		33 J	140 J	160 J	60 J	64 J	89 J	71 J	100 J	99 J	92 J
Lead		0.3 U	1.3	1.4	9.9	6.9	7.3	14	4	3.3	2.6
Mercury		0.013 R	0.01 R	0.006 R	0.051 R	0.053 R	0.069 R	0.11 R	0.078	0.034	0.007 J
Nickel		3.7	6.7	7.2	5	4.5	5.4	9.3	7.9	9.7	9.3
Selenium		0.16 U	0.15 U	0.17 U	2.8	1.9	1.7	1.5	2.1	0.94	0.57 J
Silver		0.021 U	0.034 J	0.044 J	0.058 J	0.037 J	0.15 J	0.1 J	0.032 J	0.05 J	0.056 J
Thallium		0.16 U	0.15 U	0.17 U	0.16 U	0.16 U	0.15 U	0.15 J	0.16 U	0.17 U	0.15 U
Tin		5.4 U	5.1 U	5.5 U	5.3 U	5.2 U	5.1 U	4.9 U	5.3 U	5.5 U	5.1 U
Vanadium		130	140	160	260	270	320	340	430	330	280
Zinc		30	62	45	42	38	41	56	60 J	60 J	59 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.96 J	1.8 J	1.6 J	2.3 J	1.8 J	2.1 J	2 J	1.5 J	1.4 J	1.2 J
Gasoline Range Organics		0.07 U	0.069 U	0.075 U	0.069 U	0.068 U	0.063 U	0.062 U	0.068 U	0.073 U	0.068 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB72	74SB72	74SB73	74SB73	74SB74	74SB74	74SB75	74SB75	74SB76	74SB76
Sample ID	74SB72-03	74SB72-04	74SB73-03	74SB73-04	74SB74-03	74SB74-04	74SB75-03	74SB75-04	74SB76-03	74SB76-03D
Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.7 U	0.74 U	0.62 U	0.61 U	0.63 U	0.64 U	0.57 U	0.53 U	0.58 U	0.61 U
1,1,1-Trichloroethane	0.63 U	0.67 U	0.56 U	0.55 U	0.57 U	0.58 U	0.52 U	0.48 U	0.52 U	0.55 U
1,1,2,2-Tetrachloroethane	1.5 U	1.6 U	1.4 U	1.3 U	1.4 U	1.4 U	1.3 U	1.2 U	1.3 U	1.3 U
1,1,2-Trichloroethane	1.3 U	1.4 U	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1 U	1.1 U	1.1 U
1,1-Dichloroethane	0.54 U	0.58 U	0.49 U	0.48 U	0.49 U	0.5 U	0.45 U	0.42 U	0.45 U	0.48 U
1,1-Dichloroethene	0.59 U	0.62 U	0.52 U	0.51 U	0.53 U	0.54 U	0.48 U	0.45 U	0.49 U	0.51 U
1,2,3-Trichloropropane	1.5 U	1.6 U	1.4 U	1.3 U	1.4 U	1.4 U	1.3 U	1.2 U	1.3 U	1.3 U
1,2-Dibromo-3-Chloropropane	3.1 U	3.2 U	2.7 U	2.7 U	2.8 U	2.8 U	2.5 U	2.3 U	2.5 U	2.7 U
1,2-Dichloroethane	1.1 U	1.2 U	0.97 U	0.95 U	0.98 U	1 U	0.9 U	0.83 U	0.9 U	0.95 U
1,2-Dichloropropane	1.2 U	1.3 U	1.1 U	1 U	1.1 U	1.1 U	0.99 U	0.92 U	0.99 U	1 U
2-Butanone (MEK)	5.5 U	3.1 U	2.6 U	2.6 U	2.7 U	2.7 U	2.4 U	2.3 U	2.4 U	2.6 U
2-Chloro-1,3-butadiene	0.62 U	0.66 U	0.55 U	0.54 U	0.56 U	0.57 U	0.51 U	0.48 U	0.51 U	0.54 U
2-Hexanone	2.3 U	2.4 U	2 U	2 U	2.1 U	2.1 U	1.9 U	1.8 U	1.9 U	2 U
3-Chloro-1-propene	1.6 UJ	1.7 UJ	1.5 UJ	1.4 UJ	1.5 UJ	1.5 UJ	1.3 UJ	1.3 UJ	1.4 UJ	1.4 UJ
4-Methyl-2-pentanone (MIBK)	3.2 U	3.3 U	2.8 U	2.8 U	2.9 U	2.9 U	2.6 U	2.4 U	2.6 U	2.8 U
Acetone	50 R	27 R	11 R	4.2 R	6.4 R	5.2 R	3.9 R	3.7 R	4 R	4.2 R
Acetonitrile	49 UJ	52 UJ	44 UJ	43 UJ	44 UJ	45 UJ	40 UJ	38 UJ	41 UJ	43 UJ
Acrolein	21 R	22 R	18 R	18 R	19 R	19 R	17 R	16 R	17 R	18 R
Acrylonitrile	25 UJ	27 UJ	22 UJ	22 UJ	23 UJ	23 UJ	21 UJ	19 UJ	21 UJ	22 UJ
Benzene	0.86 U	0.91 U	0.77 U	0.75 U	0.78 U	0.79 U	0.71 U	0.66 U	0.71 U	0.75 U
Bromoform	1.2 U	1.3 U	1.1 U	1 U	1.1 U	1.1 U	0.99 U	0.92 U	0.99 U	1 U
Bromomethane	1.7 U	1.8 U	1.6 U	1.5 U	1.6 U	1.6 U	1.4 U	1.3 U	1.4 U	1.5 U
Carbon disulfide	0.56 U	0.59 U	0.5 U	0.49 U	0.5 U	0.51 U	0.46 U	0.43 U	0.46 U	0.49 U
Carbon tetrachloride	1.1 U	1.2 U	0.97 U	0.95 U	0.98 U	1 U	0.9 U	0.83 U	0.9 U	0.95 U
Chlorobenzene	0.8 U	0.84 U	0.71 U	0.69 U	0.72 U	0.73 U	0.65 U	0.61 U	0.66 U	0.69 U
Chlorodibromomethane	0.54 U	0.58 U	0.49 U	0.48 U	0.49 U	0.5 U	0.45 U	0.42 U	0.45 U	0.48 U
Chloroethane	1.3 U	1.4 U	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1 U	1.1 U	1.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB72	74SB72	74SB73	74SB73	74SB74	74SB74	74SB75	74SB75	74SB76	74SB76
Sample ID	74SB72-03	74SB72-04	74SB73-03	74SB73-04	74SB74-03	74SB74-04	74SB75-03	74SB75-04	74SB76-03	74SB76-03D
Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.54 U	0.58 U	0.49 U	0.48 U	0.49 U	0.5 U	0.45 U	0.42 U	0.45 U	0.48 U
Chloromethane	0.77 U	0.82 U	0.69 U	0.68 U	0.7 U	0.71 U	0.64 U	0.59 U	0.64 U	0.68 U
cis-1,3-Dichloropropene	0.95 U	1 U	0.84 U	0.83 U	0.86 U	0.87 U	0.78 U	0.73 U	0.79 U	0.83 U
Dibromomethane	1.3 U	1.4 U	1.2 U	1.1 U	1.2 U	1.2 U	1.1 U	1 U	1.1 U	1.1 U
Dichlorobromomethane	0.9 U	0.96 U	0.81 U	0.79 U	0.82 U	0.83 U	0.74 U	0.69 U	0.75 U	0.79 U
Dichlorodifluoromethane	0.97 U	1 U	0.86 U	0.85 U	0.87 U	0.89 U	0.8 U	0.74 U	0.8 U	0.85 U
Ethyl methacrylate	2.4 U	2.5 U	2.1 U	2.1 U	2.2 U	2.2 U	2 U	1.8 U	2 U	2.1 U
Ethylbenzene	0.82 U	0.87 U	0.73 U	0.71 U	0.74 U	0.75 U	0.67 U	0.63 U	0.68 U	0.71 U
Ethylene Dibromide	1.6 U	1.7 U	1.5 U	1.4 U	1.5 U	1.5 U	1.3 U	1.3 U	1.4 U	1.4 U
Iodomethane	2.4 J	1.2 U	0.97 U	0.95 U	0.98 U	1 U	0.9 U	0.83 U	0.9 U	0.95 U
Isobutyl alcohol	75 R	80 R	67 R	66 R	68 R	69 R	62 R	58 R	62 R	66 R
Methacrylonitrile	26 U	28 U	23 U	23 U	24 U	24 U	22 U	20 U	22 U	23 U
Methyl methacrylate	4 U	4.3 U	3.6 U	3.5 U	3.6 U	3.7 U	3.3 U	3.1 U	3.3 U	3.5 U
Methylene Chloride	1.1 U	1.2 U	0.97 U	0.95 U	0.98 U	1 U	0.9 U	0.83 U	0.9 U	0.95 U
Pentachloroethane	2.4 UJ	2.5 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.2 UJ	2 UJ	1.8 UJ	2 UJ	2.1 UJ
Propionitrile	23 U	24 U	20 U	20 U	21 U	21 U	19 U	18 U	19 U	20 U
Styrene	0.72 U	0.76 U	0.64 U	0.63 U	0.65 U	0.66 U	0.59 U	0.55 U	0.6 U	0.63 U
Tetrachloroethene	0.8 U	0.84 U	0.71 U	0.69 U	0.72 U	0.73 U	0.65 U	0.61 U	0.66 U	0.69 U
Toluene	0.86 U	0.91 U	0.77 U	0.75 U	0.78 U	0.79 U	0.71 U	0.66 U	0.71 U	0.75 U
trans-1,2-Dichloroethene	1.1 U	1.1 U	0.94 U	0.92 U	0.95 U	0.97 U	0.87 U	0.81 U	0.88 U	0.92 U
trans-1,3-Dichloropropene	0.95 U	1 U	0.84 U	0.83 U	0.86 U	0.87 U	0.78 U	0.73 U	0.79 U	0.83 U
trans-1,4-Dichloro-2-butene	3.4 U	3.6 U	3 U	3 U	3 U	3.1 U	2.8 U	2.6 U	2.8 U	2.9 U
Trichloroethene	1.1 U	1.2 U	0.97 U	0.95 U	0.98 U	1 U	0.9 U	0.83 U	0.9 U	0.95 U
Trichlorofluoromethane	1.6 U	1.7 U	1.5 U	1.4 U	1.5 U	1.5 U	1.3 U	1.3 U	1.4 U	1.4 U
Vinyl acetate	1.6 U	1.7 U	1.5 U	1.4 U	1.5 U	1.5 U	1.3 U	1.3 U	1.4 U	1.4 U
Vinyl chloride	0.63 U	0.67 U	0.56 U	0.55 U	0.57 U	0.58 U	0.52 U	0.48 U	0.52 U	0.55 U
Xylenes, Total	2.5 U	2.7 U	2.2 U	2.2 U	2.3 U	2.3 U	2.1 U	1.9 U	2.1 U	2.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB72	74SB72	74SB73	74SB73	74SB74	74SB74	74SB75	74SB75	74SB76	74SB76
	Sample ID	74SB72-03	74SB72-04	74SB73-03	74SB73-04	74SB74-03	74SB74-04	74SB75-03	74SB75-04	74SB76-03	74SB76-03D
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
	Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB72	74SB72	74SB73	74SB73	74SB74	74SB74	74SB75	74SB75	74SB76	74SB76
	Sample ID	74SB72-03	74SB72-04	74SB73-03	74SB73-04	74SB74-03	74SB74-04	74SB75-03	74SB75-04	74SB76-03	74SB76-03D
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
	Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony		0.094 UJ	0.095 UJ	0.084 UJ	0.091 UJ	0.081 UJ	0.086 UJ	0.078 UJ	0.073 UJ	0.079 UJ	0.086 UJ
Arsenic		1.7	1.3	0.66	1	2.8	7.4	1.1	1.1	0.9	1.4
Barium		120 J	81 J	35 J	99 J	79 J	46 J	30 J	24 J	40 J	73 J
Beryllium		0.88	0.73	0.13	0.17	0.14	0.17	0.12 J	0.1	0.1 J	0.16
Cadmium		0.099 J	0.064 J	0.11 J	0.57	0.54	0.37	0.18	0.19	0.055 J	0.15
Chromium		6.1	7	19	40	7.8	2.1	3.8	3.4	2.2	2.9
Cobalt		220	60	17	36	34	140	22	19	17 J	38 J
Copper		79 J	47 J	55 J	86 J	110 J	1000 J	53 J	26 J	3.3 J	6 J
Lead		1.1	0.87	0.7	0.73	0.91	1.8	0.41	0.31	0.28 UJ	0.47 J
Mercury		0.009 J	0.016 J	0.005 U	0.006 J	0.008 J	0.005 J	0.005 U	0.004 U	0.006 J	0.005 J
Nickel		12	9.2	14	22	5.6	8.4	7.5	5.2	4	5.7
Selenium		0.32 J	0.25 J	0.13 U	0.14 J	0.37 J	1.9	0.13 U	0.12 U	0.13 U	0.14 U
Silver		0.021 J	0.027 J	0.024 J	0.029 J	0.02 J	0.034 J	0.054 J	0.047 J	0.13 J	0.062 J
Thallium		0.15 U	0.15 U	0.13 U	0.14 U	0.13 U	0.14 U	0.13 U	0.12 U	0.13 U	0.14 U
Tin		5 U	5.1 U	4.5 U	4.8 U	4.3 U	4.6 U	4.2 U	3.9 U	4.2 U	4.6 U
Vanadium		410	310	130	150	170	310	220	190	190	240
Zinc		46 J	41 J	51 J	86 J	110 J	48 J	42 J	67 J	34 J	77 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		1.2 J	1.6 J	1.2 J	1.5 J	0.92 J	1.3 J	1.4 J	1.2 J	0.9 J	0.96 J
Gasoline Range Organics		0.065 U	0.067 U	0.061 U	0.056 U	0.053 U	0.062 U	0.055 U	0.049 U	0.053 U	0.055 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB76	74SB77	74SB77	74SB79	74SB79	74SB80	74SB80	74SB81	74SB81	74SB81
Sample ID	74SB76-04	74SB77-03	74SB77-04	74SB79-03	74SB79-04	74SB80-03	74SB80-04	74SB81-03	74SB81-04	74SB81-04D
Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.53 U	0.64 U	0.7 U	0.67 U	0.61 U	0.43 U	0.56 U	0.61 U	0.73 U	0.52 U
1,1,1-Trichloroethane	0.48 U	0.58 U	0.64 U	0.61 U	0.56 U	0.39 U	0.51 U	0.55 U	0.66 U	0.47 U
1,1,2,2-Tetrachloroethane	1.2 U	1.4 U	1.5 U	1.5 U	1.3 U	0.94 U	1.2 U	1.3 U	1.6 U	1.1 U
1,1,2-Trichloroethane	0.99 U	1.2 U	1.3 U	1.3 U	1.2 U	0.8 U	1.1 U	1.1 U	1.4 U	0.98 U
1,1-Dichloroethane	0.41 U	0.5 U	0.55 U	0.52 U	0.48 U	0.34 U	0.44 U	0.48 U	0.57 U	0.41 U
1,1-Dichloroethene	0.45 U	0.54 U	0.59 U	0.56 U	0.52 U	0.36 U	0.48 U	0.52 U	0.62 U	0.44 U
1,2,3-Trichloropropane	1.2 U	1.4 U	1.5 U	1.5 U	1.3 U	0.94 U	1.2 U	1.3 U	1.6 U	1.1 U
1,2-Dibromo-3-Chloropropane	2.3 U	2.8 U	3.1 U	2.9 U	2.7 U	1.9 U	2.5 U	2.7 U	3.2 U	2.3 U
1,2-Dichloroethane	0.83 U	1 U	1.1 U	1 U	0.96 U	0.67 U	0.88 U	0.96 U	1.1 U	0.82 U
1,2-Dichloropropane	0.91 U	1.1 U	1.2 U	1.1 U	1.1 U	0.74 U	0.97 U	1.1 U	1.3 U	0.9 U
2-Butanone (MEK)	3.1 U	2.7 U	3 U	2.8 U	2.6 U	3.2 U	4.7 U	2.6 U	3.1 U	2.2 U
2-Chloro-1,3-butadiene	0.47 U	0.57 U	0.62 U	0.6 U	0.55 U	0.38 U	0.5 U	0.54 U	0.65 U	0.47 U
2-Hexanone	1.7 U	2.1 U	2.3 U	2.2 U	2 U	1.4 U	1.8 U	2 U	2.4 U	1.7 U
3-Chloro-1-propene	1.2 UJ	1.5 UJ	1.6 UJ	1.6 UJ	1.4 UJ	1 UJ	1.3 UJ	1.4 UJ	1.7 UJ	1.2 UJ
4-Methyl-2-pentanone (MIBK)	2.4 U	2.9 U	3.2 U	3 U	2.8 U	1.9 U	2.6 U	2.8 U	3.3 U	2.4 U
Acetone	16 R	4.4 R	4.8 R	31 J	21 J	20 J	36 J	44 J	28 J	13 J
Acetonitrile	37 UJ	45 UJ	49 UJ	47 UJ	43 UJ	30 UJ	40 UJ	43 UJ	51 UJ	37 UJ
Acrolein	16 R	19 R	21 R	20 R	18 R	13 R	17 R	18 R	22 R	16 R
Acrylonitrile	19 UJ	23 UJ	25 UJ	24 UJ	22 UJ	15 UJ	20 UJ	22 UJ	26 UJ	19 UJ
Benzene	0.65 U	0.79 U	0.87 U	0.82 U	0.76 U	0.53 U	0.7 U	0.76 U	0.9 U	0.64 U
Bromoform	0.91 U	1.1 U	1.2 U	1.1 U	1.1 U	0.74 U	0.97 U	1.1 U	1.3 U	0.9 U
Bromomethane	1.3 U	1.6 U	1.8 U	1.7 U	1.5 U	1.1 U	1.4 U	1.5 U	1.8 U	1.3 U
Carbon disulfide	0.42 U	0.51 U	0.56 U	1.5 J	0.49 U	0.34 U	0.57 J	0.49 U	0.58 U	0.42 U
Carbon tetrachloride	0.83 U	1 U	1.1 U	1 U	0.96 U	0.67 U	0.88 U	0.96 U	1.1 U	0.82 U
Chlorobenzene	0.6 U	0.73 U	0.8 U	0.76 U	0.7 U	0.49 U	0.64 U	0.7 U	0.83 U	0.6 U
Chlorodibromomethane	0.41 U	0.5 U	0.55 U	0.52 U	0.48 U	0.34 U	0.44 U	0.48 U	0.57 U	0.41 U
Chloroethane	0.99 U	1.2 U	1.3 U	1.3 U	1.2 U	0.8 U	1.1 U	1.1 U	1.4 U	0.98 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB76	74SB77	74SB77	74SB79	74SB79	74SB80	74SB80	74SB81	74SB81	74SB81
Sample ID	74SB76-04	74SB77-03	74SB77-04	74SB79-03	74SB79-04	74SB80-03	74SB80-04	74SB81-03	74SB81-04	74SB81-04D
Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.41 U	0.5 U	0.55 U	0.52 U	0.48 U	0.34 U	0.44 U	0.48 U	0.57 U	0.41 U
Chloromethane	0.59 U	0.71 U	0.78 U	0.74 U	0.68 U	0.48 U	0.63 U	0.68 U	0.81 U	0.58 U
cis-1,3-Dichloropropene	0.72 U	0.87 U	0.95 U	0.91 U	0.84 U	0.58 U	0.77 U	0.83 U	0.99 U	0.71 U
Dibromomethane	0.99 U	1.2 U	1.3 U	1.3 U	1.2 U	0.8 U	1.1 U	1.1 U	1.4 U	0.98 U
Dichlorobromomethane	0.69 U	0.83 U	0.91 U	0.87 U	0.8 U	0.56 U	0.73 U	0.79 U	0.95 U	0.68 U
Dichlorodifluoromethane	0.74 U	0.89 U	0.98 U	0.93 U	0.86 U	0.6 U	0.78 U	0.85 U	1 U	0.73 U
Ethyl methacrylate	1.8 U	2.2 U	2.4 U	2.3 U	2.1 U	1.5 U	1.9 U	2.1 U	2.5 U	1.8 U
Ethylbenzene	0.62 U	0.75 U	0.82 U	0.78 U	0.72 U	0.5 U	0.66 U	0.72 U	0.86 U	0.61 U
Ethylene Dibromide	1.2 U	1.5 U	1.6 U	1.6 U	1.4 U	1 U	1.3 U	1.4 U	1.7 U	1.2 U
Iodomethane	0.83 U	1 U	1.1 U	1.4 J	0.96 U	1.1 J	0.88 U	0.96 U	1.1 U	0.82 U
Isobutyl alcohol	57 R	69 R	76 R	72 R	66 R	46 R	61 R	66 R	79 R	56 R
Methacrylonitrile	20 U	24 U	26 U	25 U	23 U	16 U	21 U	23 U	27 U	20 U
Methyl methacrylate	3.1 U	3.7 U	4.1 U	3.9 U	3.6 U	2.5 U	3.3 U	3.5 U	4.2 U	3 U
Methylene Chloride	0.83 U	1 U	1.1 U	1 U	0.96 U	0.67 U	0.88 U	0.96 U	1.1 U	0.82 U
Pentachloroethane	1.8 UJ	2.2 UJ	2.4 UJ	2.3 UJ	2.1 UJ	1.5 UJ	1.9 UJ	2.1 UJ	2.5 UJ	1.8 UJ
Propionitrile	17 U	21 UJ	23 UJ	22 UJ	20 UJ	14 UJ	18 UJ	20 UJ	24 UJ	17 UJ
Styrene	0.55 U	0.66 U	0.72 U	0.69 U	0.63 U	0.44 U	0.58 U	0.63 U	0.75 U	0.54 U
Tetrachloroethene	0.6 U	0.73 U	0.8 U	0.76 U	0.7 U	0.49 U	0.64 U	0.7 U	0.83 U	0.6 U
Toluene	0.65 U	0.79 U	0.87 U	0.82 U	0.76 U	0.53 U	0.7 U	0.76 U	0.9 U	0.64 U
trans-1,2-Dichloroethene	0.8 U	0.97 U	1.1 U	1 U	0.93 U	0.65 U	0.85 U	0.93 U	1.1 U	0.79 U
trans-1,3-Dichloropropene	0.72 U	0.87 U	0.95 U	0.91 U	0.84 U	0.58 U	0.77 U	0.83 U	0.99 U	0.71 U
trans-1,4-Dichloro-2-butene	2.6 U	3.1 U	3.4 U	3.2 U	3 U	2.1 U	2.7 U	3 U	3.5 U	2.5 U
Trichloroethene	0.83 U	1 U	1.1 U	1 U	0.96 U	0.67 U	0.88 U	0.96 U	1.1 U	0.82 U
Trichlorofluoromethane	1.2 U	1.5 U	1.6 U	1.6 U	1.4 U	1 U	1.3 U	1.4 U	1.7 U	1.2 U
Vinyl acetate	1.2 U	1.5 U	1.6 U	1.6 U	1.4 U	1 U	1.3 U	1.4 U	1.7 U	1.2 U
Vinyl chloride	0.48 U	0.58 U	0.64 U	0.61 U	0.56 U	0.39 U	0.51 U	0.55 U	0.66 U	0.47 U
Xylenes, Total	1.9 U	2.3 U	2.5 U	2.4 U	2.2 U	1.5 U	2 U	2.2 U	2.6 U	1.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB76	74SB77	74SB77	74SB79	74SB79	74SB80	74SB80	74SB81	74SB81	74SB81
	Sample ID	74SB76-04	74SB77-03	74SB77-04	74SB79-03	74SB79-04	74SB80-03	74SB80-04	74SB81-03	74SB81-04	74SB81-04D
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
	Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB76	74SB77	74SB77	74SB79	74SB79	74SB80	74SB80	74SB81	74SB81	74SB81
	Sample ID	74SB76-04	74SB77-03	74SB77-04	74SB79-03	74SB79-04	74SB80-03	74SB80-04	74SB81-03	74SB81-04	74SB81-04D
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
	Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.077 UJ	0.092 UJ	0.1 UJ	0.095 UJ	0.087 UJ	0.086 UJ	0.15 UJ	0.11 UJ	0.1 UJ	0.1 UJ
Arsenic		0.82	3.2	0.9	1.8	2.3	0.96	2.1	2.4	3.5	1.6
Barium		31 J	170 J	28 J	130 J	510 J	110 J	110 J	130 J	72 J	59 J
Beryllium		0.11 J	0.65	0.5	0.46	0.55	0.15	0.3	0.24	0.2	0.18
Cadmium		0.043 J	0.18	0.44	0.15	0.29	0.059 J	0.42	0.094 J	0.2	0.089 J
Chromium		2.4	7.1	10	6.4	5.7	6.3	7 R	18 R	13 R	15 R
Cobalt		13	35	16	51	30	18	47	29	24	21
Copper		4.4 J	230 J	150 J	220 J	200 J	75 J	98	100	110	82
Lead		0.28 U	1.2	0.34 U	3.9	4	0.73	3.5 J	5.1 J	4.6 J	5.2 J
Mercury		0.005 J	0.005 U	0.071	0.043	0.029	0.005 J	0.069	0.009 J	0.02 J	0.005 U
Nickel		4	7.2	9.9	5.9	7.3	5.1	4.7	12	7.9	8
Selenium		0.12 U	0.26 J	0.16 J	1.1	1.1	0.14 U	0.92	0.31 J	0.67 J	0.45 J
Silver		0.12 J	0.064 J	0.13 J	0.034 J	0.054 J	0.021 J	0.11 UJ	0.051 UJ	0.086 UJ	0.063 UJ
Thallium		0.12 U	0.15 U	0.16 U	0.15 U	0.14 U	0.14 U	0.14 U	0.13 U	0.17 U	0.13 U
Tin		4.1 U	4.9 U	5.5 U	5 U	4.7 U	4.6 U	4.6 U	4.5 U	5.5 U	4.4 U
Vanadium		190	310	100	270	260	170	210	190	200	180
Zinc		36 J	120 J	40 J	91 J	110 J	45 J	49 J	74 J	74 J	58 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		2 J	3.2 J	2.8 J	5.7	1.7 J	1 J	2.8 J	11	530 J	52 J
Gasoline Range Organics		0.054 U	0.066 U	0.067 U	0.064 U	0.065 U	0.055 U	0.061 U	0.068 J	0.17 J	0.058 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB82	74SB82	74SB82	74SB83	74SB84	74SB85	74SB85	74SB86	74SB86	74SB86
Sample ID	74SB82-03	74SB82-04	74SB82-04D	74SB83-02	74SB84-03	74SB85-03	74SB85-04	74SB86-03	74SB86-03D	74SB86-04
Date	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008
Depth Range	5.0-7.0	7.0-9.0	7.0-9.0	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.68 U	0.8 U	0.83 U	0.71 U	0.63 U	0.65 U	0.54 U	0.53 U	0.57 U	0.57 U
1,1,1-Trichloroethane	0.62 U	0.73 U	0.75 U	0.64 U	0.57 U	0.59 U	0.49 U	0.48 U	0.51 U	0.52 U
1,1,2,2-Tetrachloroethane	1.5 U	1.8 U	1.8 U	1.6 U	1.4 U	1.4 U	1.2 U	1.2 U	1.2 U	1.2 U
1,1,2-Trichloroethane	1.3 U	1.5 U	1.6 U	1.3 U	1.2 U	1.2 U	1 U	1 U	1.1 U	1.1 U
1,1-Dichloroethane	0.54 U	0.63 U	0.65 U	0.55 U	0.49 U	0.51 U	0.43 U	0.41 U	0.44 U	0.44 U
1,1-Dichloroethene	0.58 U	0.68 U	0.7 U	0.6 U	0.53 U	0.55 U	0.46 U	0.45 U	0.48 U	0.48 U
1,2,3-Trichloropropane	1.5 UJ	1.8 UJ	1.8 UJ	1.6 UJ	1.4 U	1.4 U	1.2 U	1.2 U	1.2 U	1.2 U
1,2-Dibromo-3-Chloropropane	3 UJ	3.5 UJ	3.6 UJ	3.1 UJ	2.8 U	2.8 U	2.4 U	2.3 U	2.5 U	2.5 U
1,2-Dichloroethane	1.1 U	1.3 U	1.3 U	1.1 U	0.98 U	1 U	0.85 U	0.83 U	0.88 U	0.89 U
1,2-Dichloropropane	1.2 U	1.4 U	1.4 U	1.2 U	1.1 U	1.1 U	0.94 U	0.91 U	0.97 U	0.98 U
2-Butanone (MEK)	2.9 U	3.4 U	3.5 U	3 U	2.7 U	2.7 U	2.3 U	2.2 U	2.4 U	2.4 U
2-Chloro-1,3-butadiene	0.61 U	0.71 U	0.74 U	0.63 U	0.56 UJ	0.58 UJ	0.48 UJ	0.47 UJ	0.5 UJ	0.51 UJ
2-Hexanone	2.2 U	2.6 U	2.7 U	2.3 U	2.1 U	2.1 U	1.8 U	1.7 U	1.9 U	1.9 U
3-Chloro-1-propene	1.6 UJ	1.9 UJ	1.9 UJ	1.7 UJ	1.5 U	1.5 U	1.3 U	1.2 U	1.3 U	1.3 U
4-Methyl-2-pentanone (MIBK)	3.1 U	3.6 U	3.8 U	3.2 U	2.8 U	2.9 U	2.5 U	2.4 U	2.6 U	2.6 U
Acetone	21 J	24 J	14 J	13 J	12 J	30 J	21 J	6.3 J	22 J	3.9 R
Acetonitrile	48 UJ	56 UJ	58 UJ	50 UJ	44 R	46 R	38 R	37 R	40 R	40 R
Acrolein	20 R	24 R	25 R	21 R	19 R	19 R	16 R	16 R	17 R	17 R
Acrylonitrile	25 U	29 U	30 U	25 U	23 U	23 U	20 U	19 U	20 U	20 U
Benzene	0.85 U	0.99 U	1 U	0.87 U	0.78 U	0.8 U	0.67 U	0.66 U	0.7 U	0.7 U
Bromoform	1.2 U	1.4 U	1.4 U	1.2 U	1.1 U	1.1 U	0.94 U	0.91 U	0.97 U	0.98 U
Bromomethane	1.7 UJ	2 UJ	2.1 UJ	1.8 UJ	1.6 U	1.6 U	1.4 U	1.3 U	1.4 U	1.4 U
Carbon disulfide	0.55 UJ	0.64 UJ	0.66 UJ	0.56 UJ	0.5 U	0.52 U	1.1 J	0.42 U	0.45 U	0.45 U
Carbon tetrachloride	1.1 U	1.3 U	1.3 U	1.1 U	0.98 U	1 U	0.85 U	0.83 U	0.88 U	0.89 U
Chlorobenzene	0.78 U	0.91 U	0.95 U	0.81 U	0.72 U	0.74 U	0.62 U	0.61 U	0.65 U	0.65 U
Chlorodibromomethane	0.54 U	0.63 U	0.65 U	0.55 U	0.49 U	0.51 U	0.43 U	0.41 U	0.44 U	0.44 U
Chloroethane	1.3 UJ	1.5 UJ	1.6 UJ	1.3 UJ	1.2 U	1.2 U	1 U	1 U	1.1 U	1.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB82	74SB82	74SB82	74SB83	74SB84	74SB85	74SB85	74SB86	74SB86	74SB86
Sample ID	74SB82-03	74SB82-04	74SB82-04D	74SB83-02	74SB84-03	74SB85-03	74SB85-04	74SB86-03	74SB86-03D	74SB86-04
Date	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008
Depth Range	5.0-7.0	7.0-9.0	7.0-9.0	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.54 U	0.63 U	0.65 U	0.55 U	0.49 U	0.51 U	0.43 U	0.41 U	0.44 U	0.44 U
Chloromethane	0.76 U	0.89 U	0.92 U	0.79 U	0.7 U	0.72 U	0.6 U	0.59 U	0.63 U	0.63 U
cis-1,3-Dichloropropene	0.93 U	1.1 U	1.1 U	0.96 U	0.85 U	0.88 U	0.74 U	0.72 U	0.77 U	0.77 U
Dibromomethane	1.3 U	1.5 U	1.6 U	1.3 U	1.2 U	1.2 U	1 U	1 U	1.1 U	1.1 U
Dichlorobromomethane	0.89 U	1 U	1.1 U	0.92 U	0.82 U	0.84 U	0.71 U	0.69 U	0.73 U	0.74 U
Dichlorodifluoromethane	0.95 U	1.1 U	1.2 U	0.99 U	0.87 U	0.9 U	0.76 U	0.74 U	0.79 U	0.79 U
Ethyl methacrylate	2.4 U	2.8 U	2.9 U	2.4 U	2.2 U	2.2 U	1.9 U	1.8 U	1.9 U	2 U
Ethylbenzene	0.8 U	0.94 U	0.97 U	0.83 U	0.74 U	0.76 U	0.64 U	0.62 U	0.66 U	0.67 U
Ethylene Dibromide	1.6 U	1.9 U	1.9 U	1.7 U	1.5 U	1.5 U	1.3 U	1.2 U	1.3 U	1.3 U
Iodomethane	1.1 UJ	1.3 UJ	1.3 UJ	1.1 UJ	0.98 U	1 U	0.85 U	0.83 U	0.88 U	0.89 U
Isobutyl alcohol	74 R	86 R	89 R	76 R	68 R	70 R	59 R	57 R	61 R	290 J
Methacrylonitrile	26 U	30 U	31 U	27 U	24 UJ	24 UJ	20 UJ	20 UJ	21 UJ	21 UJ
Methyl methacrylate	4 U	4.6 U	4.8 U	4.1 U	3.6 U	3.7 U	3.1 U	3.1 U	3.3 U	3.3 U
Methylene Chloride	1.1 U	1.3 U	1.3 U	1.1 U	0.98 U	1 U	0.85 U	0.83 U	0.88 U	0.89 U
Pentachloroethane	2.4 UJ	2.8 UJ	2.9 UJ	2.4 UJ	2.2 UJ	2.2 UJ	1.9 UJ	1.8 UJ	1.9 UJ	2 UJ
Propionitrile	22 U	26 U	27 U	23 U	21 U	21 U	18 U	17 U	19 U	19 U
Styrene	0.71 U	0.83 U	0.86 U	0.73 U	0.65 U	0.67 U	0.56 U	0.55 U	0.58 U	0.59 U
Tetrachloroethene	0.78 U	0.91 U	0.95 U	0.81 U	0.72 U	0.74 U	0.62 U	0.61 U	0.65 U	0.65 U
Toluene	0.85 U	0.99 U	1 U	0.87 U	0.78 U	0.8 U	0.67 U	0.66 U	0.7 U	0.7 U
trans-1,2-Dichloroethene	1 U	1.2 U	1.3 U	1.1 U	0.95 U	0.98 U	0.82 U	0.81 U	0.86 U	0.86 U
trans-1,3-Dichloropropene	0.93 U	1.1 U	1.1 U	0.96 U	0.85 U	0.88 U	0.74 U	0.72 U	0.77 U	0.77 U
trans-1,4-Dichloro-2-butene	3.3 U	3.9 U	4 U	3.4 U	3 U	3.1 U	2.6 U	2.6 U	2.7 U	2.8 U
Trichloroethene	1.1 U	1.3 U	1.3 U	1.1 U	0.98 U	1 U	0.85 U	0.83 U	0.88 U	0.89 U
Trichlorofluoromethane	1.6 U	1.9 U	1.9 U	1.7 U	1.5 U	1.5 U	1.3 U	1.2 U	1.3 U	1.3 U
Vinyl acetate	1.6 U	1.9 U	1.9 U	1.7 U	1.5 U	1.5 U	1.3 U	1.2 U	1.3 U	1.3 U
Vinyl chloride	0.62 U	0.73 U	0.75 U	0.64 U	0.57 U	0.59 U	0.49 U	0.48 U	0.51 U	0.52 U
Xylenes, Total	2.5 U	2.9 U	3 U	2.5 U	2.3 U	2.3 U	2 U	1.9 U	2 U	2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB82	74SB82	74SB82	74SB83	74SB84	74SB85	74SB85	74SB86	74SB86	74SB86
	Sample ID	74SB82-03	74SB82-04	74SB82-04D	74SB83-02	74SB84-03	74SB85-03	74SB85-04	74SB86-03	74SB86-03D	74SB86-04
	Date	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008
	Depth Range	5.0-7.0	7.0-9.0	7.0-9.0	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	14 U
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4 U
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	7.4 U
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	8.6 U
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	11 U
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	6.9 U
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	6.6 U
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	8.7 U
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	14 U
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8 U
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB82	74SB82	74SB82	74SB83	74SB84	74SB85	74SB85	74SB86	74SB86	74SB86
	Sample ID	74SB82-03	74SB82-04	74SB82-04D	74SB83-02	74SB84-03	74SB85-03	74SB85-04	74SB86-03	74SB86-03D	74SB86-04
	Date	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008
	Depth Range	5.0-7.0	7.0-9.0	7.0-9.0	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.074 UJ	0.089 UJ	0.088 UJ	0.084 UJ	0.13 J	0.1 UJ	0.08 UJ	0.089 UJ	0.076 UJ	0.079 UJ
Arsenic		4.6	0.93	1.1	0.72	1.6	3.2	0.47 U	0.84	0.63	0.63
Barium		19	89	100	63	55 R	87 R	87 R	150 R	28 R	45 R
Beryllium		0.051 J	0.23	0.22	0.2	0.23	0.39	0.17	0.16	0.1	0.21
Cadmium		0.031 U	0.039 J	0.08 J	0.055 J	0.12	0.048 J	0.033 U	0.099 J	0.085 J	0.048 J
Chromium		7.3	12 J	29 J	30	18 J	6.2 J	19 J	26 R	3.2 R	19 J
Cobalt		3.8	18 J	29 J	33	21 J	110 J	15 J	20 J	13 J	21 J
Copper		18 J	110 J	150 J	120 J	86 J	100	100	74	54	110
Lead		1.6	0.77	1.4	1.6	5.8	2.3	1	62 R	1 R	0.83
Mercury		0.004 U	0.009 J	0.008 J	0.004 U	0.014 J	0.048	0.004 J	0.01 J	0.004 U	0.004 U
Nickel		2.2	8.5 J	19 J	22	11	7	11	8.4 J	3.2 J	15
Selenium		0.12 U	0.42 J	0.16 J	0.13 U	0.18 J	1.5	0.19 J	0.14 U	0.12 U	0.13 J
Silver		0.016 UJ	0.05 J	0.041 J	0.04 J	0.034 J	0.021 U	0.065 J	0.026 J	0.016 U	0.11 J
Thallium		0.12 U	0.14 U	0.14 U	0.13 U	0.15 U	0.16 U	0.13 U	0.14 U	0.12 U	0.13 U
Tin		4 U	4.8 U	4.7 U	4.5 U	4.8 U	5.3 U	4.3 U	4.8 U	4.1 U	4.2 U
Vanadium		27	230	200	220	140	270	140	130	100	110
Zinc		13 J	37 J	71 J	72 J	67	54	45	53 J	35 J	49
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		3.4 J	4.8	7.9	5.7	3 J	2.6 J	12	3.5 J	5.8	740
Gasoline Range Organics		0.21 J	0.066 U	0.083 U	0.066 U	0.064 U	0.066 U	0.059 U	0.051 U	0.051 U	0.053 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB87	74SB87	74SB88	74SB89	74SB90	74SB91	74SB91	74SB92	74SB92	74SB93
Sample ID	74SB87-03	74SB87-04	74SB88-03	74SB89-03	74SB90-02	74SB91-03	74SB91-03D	74SB92-03	74SB92-04	74SB93-03
Date	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008
Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.58 U	0.65 U	0.65 U	0.61 U	0.74 U	0.6 U	0.69 U	0.72 U	0.76 U	0.59 U
1,1,1-Trichloroethane	0.53 U	0.59 U	0.59 U	0.55 U	0.67 U	0.54 U	0.62 U	0.65 U	0.68 U	0.53 U
1,1,2,2-Tetrachloroethane	1.3 U	1.4 U	1.4 U	1.3 U	1.6 U	1.3 U	1.5 U	1.6 U	1.7 U	1.3 U
1,1,2-Trichloroethane	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U	1.1 U	1.3 U	1.4 U	1.4 U	1.1 U
1,1-Dichloroethane	0.46 U	0.5 U	0.51 U	0.48 U	0.58 U	0.47 U	0.54 U	0.56 U	0.59 U	0.46 U
1,1-Dichloroethene	0.49 U	0.55 U	0.55 U	0.52 U	0.62 U	0.51 U	0.58 U	0.61 U	0.64 U	0.5 U
1,2,3-Trichloropropane	1.3 U	1.4 U	1.4 U	1.3 U	1.6 U	1.3 U	1.5 U	1.6 U	1.7 U	1.3 U
1,2-Dibromo-3-Chloropropane	2.6 U	2.8 U	2.9 U	2.7 U	3.2 U	2.6 U	3 U	3.2 U	3.3 U	2.6 U
1,2-Dichloroethane	0.91 U	1 U	1 U	0.96 U	1.2 U	0.94 U	1.1 U	1.1 U	1.2 U	0.92 U
1,2-Dichloropropane	1 U	1.1 U	1.1 U	1.1 U	1.3 U	1 U	1.2 U	1.2 U	1.3 U	1 U
2-Butanone (MEK)	2.5 U	2.7 U	2.8 U	2.6 U	4.8 U	2.5 U	2.9 U	3 U	3.2 U	2.5 U
2-Chloro-1,3-butadiene	0.52 UJ	0.58 U	0.58 UJ	0.54 U	0.66 UJ	0.54 U	0.61 U	0.64 U	0.67 U	0.53 U
2-Hexanone	1.9 U	2.1 U	2.1 U	2 U	2.4 U	2 U	2.3 U	2.4 U	2.5 U	1.9 U
3-Chloro-1-propene	1.4 U	1.5 U	1.5 U	1.4 U	1.7 U	1.4 U	1.6 U	1.7 U	1.8 U	1.4 U
4-Methyl-2-pentanone (MIBK)	2.6 U	2.9 U	3 U	2.8 U	3.3 U	2.7 U	3.1 U	3.3 U	3.4 U	2.7 U
Acetone	24 J	23 J	14 J	29 J	50 J	17 J	4.7 R	24 J	21 J	4.1 R
Acetonitrile	41 R	45 U	46 R	43 R	52 R	42 R	48 R	51 R	53 R	41 R
Acrolein	17 R	19 R	19 R	18 U	22 R	18 U	20 U	21 U	22 U	18 U
Acrylonitrile	21 U	23 U	23 U	22 U	26 U	22 U	25 U	26 U	27 U	21 U
Benzene	0.72 U	0.8 U	0.81 U	0.75 U	0.91 U	0.74 U	0.85 U	0.89 U	0.93 U	0.73 U
Bromoform	1 U	1.1 U	1.1 U	1.1 U	1.3 U	1 U	1.2 U	1.2 U	1.3 U	1 U
Bromomethane	1.5 U	1.6 U	1.6 U	1.5 U	1.8 U	1.5 U	1.7 U	1.8 U	1.9 U	1.5 U
Carbon disulfide	0.46 U	1.8 J	0.52 U	0.49 U	4.6 J	0.48 U	0.55 U	1.2 J	0.6 U	0.47 U
Carbon tetrachloride	0.91 U	1 U	1 U	0.96 U	1.2 U	0.94 U	1.1 U	1.1 U	1.2 U	0.92 U
Chlorobenzene	0.67 U	0.74 U	0.75 U	0.7 U	0.84 U	0.69 U	0.78 U	0.82 U	0.86 U	0.67 U
Chlorodibromomethane	0.46 U	0.5 U	0.51 U	0.48 U	0.58 U	0.47 U	0.54 U	0.56 U	0.59 U	0.46 U
Chloroethane	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U	1.1 U	1.3 U	1.4 U	1.4 U	1.1 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB87	74SB87	74SB88	74SB89	74SB90	74SB91	74SB91	74SB92	74SB92	74SB93
Sample ID	74SB87-03	74SB87-04	74SB88-03	74SB89-03	74SB90-02	74SB91-03	74SB91-03D	74SB92-03	74SB92-04	74SB93-03
Date	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008
Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.46 U	0.5 U	0.51 U	0.48 U	0.58 U	0.47 U	0.54 U	0.56 U	0.59 U	0.46 U
Chloromethane	0.65 U	0.72 U	0.72 U	0.68 U	0.82 U	0.67 U	0.76 U	0.8 U	0.84 U	0.65 U
cis-1,3-Dichloropropene	0.79 U	0.88 U	0.89 U	0.83 U	1 U	0.82 U	0.93 U	0.98 U	1 U	0.8 U
Dibromomethane	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U	1.1 U	1.3 U	1.4 U	1.4 U	1.1 U
Dichlorobromomethane	0.76 U	0.84 U	0.85 U	0.79 U	0.96 U	0.78 U	0.89 U	0.94 U	0.98 U	0.77 U
Dichlorodifluoromethane	0.81 U	0.9 U	0.91 U	0.85 U	1 U	0.84 U	0.95 U	1 U	1.1 U	0.82 U
Ethyl methacrylate	2 U	2.2 U	2.2 U	2.1 U	2.5 U	2.1 U	2.4 U	2.5 U	2.6 U	2 U
Ethylbenzene	0.68 U	0.76 U	0.77 U	0.72 U	0.86 U	0.7 U	0.8 U	0.85 U	0.89 U	0.69 U
Ethylene Dibromide	1.4 U	1.5 U	1.5 U	1.4 U	1.7 U	1.4 U	1.6 U	1.7 U	1.8 U	1.4 U
Iodomethane	0.91 U	1 U	1 U	0.96 U	1.2 U	0.94 U	1.1 U	1.1 U	1.2 U	0.92 U
Isobutyl alcohol	63 R	70 R	70 R	66 R	79 R	65 R	74 R	78 R	81 R	64 R
Methacrylonitrile	22 UJ	24 U	25 UJ	23 UJ	28 UJ	23 UJ	26 UJ	27 UJ	28 UJ	22 UJ
Methyl methacrylate	3.4 U	3.7 U	3.8 U	3.5 U	4.3 U	3.5 U	4 U	4.2 U	4.4 U	3.4 U
Methylene Chloride	0.91 U	1 U	1 U	0.96 U	1.2 U	0.94 U	1.1 U	1.1 U	1.2 U	0.92 U
Pentachloroethane	2 UJ	2.2 UJ	2.2 UJ	2.1 U	2.5 UJ	2.1 U	2.4 U	2.5 U	2.6 U	2 U
Propionitrile	19 U	21 U	21 U	20 U	24 U	20 U	23 U	24 U	25 U	19 U
Styrene	0.6 U	0.67 U	0.67 U	0.63 U	0.76 U	0.62 U	0.71 U	0.74 U	0.78 U	0.61 U
Tetrachloroethene	0.67 U	0.74 U	0.75 U	0.7 U	0.84 U	0.69 U	0.78 U	0.82 U	0.86 U	0.67 U
Toluene	0.72 U	0.8 U	0.81 U	0.75 U	0.91 U	0.74 U	0.85 U	0.89 U	0.93 U	0.73 U
trans-1,2-Dichloroethene	0.88 U	0.98 U	0.99 U	0.93 U	1.1 U	0.91 U	1 U	1.1 U	1.1 U	0.89 U
trans-1,3-Dichloropropene	0.79 U	0.88 U	0.89 U	0.83 U	1 U	0.82 U	0.93 U	0.98 U	1 U	0.8 U
trans-1,4-Dichloro-2-butene	2.8 U	3.1 U	3.2 U	3 U	3.6 U	2.9 U	3.3 U	3.5 U	3.7 U	2.9 U
Trichloroethene	0.91 U	1 U	1 U	0.96 U	1.2 U	0.94 U	1.1 U	1.1 U	1.2 U	0.92 U
Trichlorofluoromethane	1.4 U	1.5 U	1.5 U	1.4 U	1.7 U	1.4 U	1.6 U	1.7 U	1.8 U	1.4 U
Vinyl acetate	1.4 U	1.5 U	1.5 U	1.4 U	1.7 U	1.4 U	1.6 U	1.7 U	1.8 U	1.4 U
Vinyl chloride	0.53 U	0.59 U	0.59 U	0.55 U	0.67 U	0.54 U	0.62 U	0.65 U	0.68 U	0.53 U
Xylenes, Total	2.1 U	2.3 U	2.3 U	2.2 U	2.6 U	2.2 U	2.5 U	2.6 U	2.7 U	2.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB87	74SB87	74SB88	74SB89	74SB90	74SB91	74SB91	74SB92	74SB92	74SB93
	Sample ID	74SB87-03	74SB87-04	74SB88-03	74SB89-03	74SB90-02	74SB91-03	74SB91-03D	74SB92-03	74SB92-04	74SB93-03
	Date	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008
	Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB87	74SB87	74SB88	74SB89	74SB90	74SB91	74SB91	74SB92	74SB92	74SB93
	Sample ID	74SB87-03	74SB87-04	74SB88-03	74SB89-03	74SB90-02	74SB91-03	74SB91-03D	74SB92-03	74SB92-04	74SB93-03
	Date	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008
	Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony		0.075 UJ	0.15 J	0.1 J	0.078 UJ	0.082 UJ	0.084 UJ	0.14 J	0.087 UJ	0.097 UJ	0.079 UJ
Arsenic		1.2	1.6	0.5 U	0.74	1.5	0.89	0.93	1.2	2.9	0.42 U
Barium		150 R	140	69 R	76 R	100 R	42 R	51 R	100 R	16 R	40 R
Beryllium		0.29	0.26	0.19	0.19	0.36	0.21	0.22	0.35	1.3	0.088 J
Cadmium		0.19	0.048 J	0.16	0.054 J	0.07 J	0.1 J	0.17	0.036 U	0.04 U	0.062 J
Chromium		21 J	29	4.8 J	35 J	37 J	6.6 J	19 J	5.4 J	1.5 J	2.1 J
Cobalt		26 J	19	25 J	26 J	31 J	21 J	24 J	20 J	39 J	13 J
Copper		110	120	100	120	110	100	94	96	210	24 J
Lead		2.2	1.3	1.5	1.9	2.4	0.96 R	15 R	1.4	1.7	0.38
Mercury		0.009 J	0.011 J	0.007 J	0.004 U	0.049	0.005 J	0.011 J	0.039	0.005 U	0.004 U
Nickel		16	15	4.7	22	16	6.9 J	11 J	6.1	6.1	3.2
Selenium		0.35 J	0.34 J	0.13 U	0.13 U	1.5	0.13 U	0.19 J	0.61	0.15 U	0.13 U
Silver		0.033 J	0.019 J	0.017 U	0.037 J	0.021 J	0.018 U	0.037 J	0.019 U	0.021 U	0.017 J
Thallium		0.12 U	0.14 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U	0.15 U	0.13 U
Tin		4 U	4.6 U	4.4 U	4.2 U	4.4 U	4.5 U	4.2 U	4.6 U	5.2 U	4.2 U
Vanadium		170	160	100	150	240	140	160	210	250	120
Zinc		82	52	48	49	53	75	71	64	89	29
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		4.3	7.2	1.2 J	1.5 J	2.1 J	2.7 J	6.9	2.3 J	1.1 J	0.76 J
Gasoline Range Organics		0.051 U	1.1	0.057 U	0.052 U	0.067 U	0.054 U	0.088 U	0.068 U	0.072 U	0.068 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB93	74SB94	74SB94	74SB95	74SB95	74SB96	74SB96	74SB96	74SB97	74SB97
Sample ID	74SB93-04	74SB94-03	74SB94-04	74SB95-03	74SB95-04	74SB96-03	74SB96-03D	74SB96-05	74SB97-03	74SB97-04
Date	5/7/2008	5/7/2008	5/7/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/5/2008	5/5/2008
Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.64 U	0.62 U	0.65 U	0.65 U	0.61 U	0.74 U	0.73 U	0.84 U	0.66 U	0.64 U
1,1,1-Trichloroethane	0.58 U	0.56 U	0.59 U	0.59 U	0.55 U	0.67 U	0.67 U	0.76 U	0.6 U	0.58 U
1,1,2,2-Tetrachloroethane	1.4 U	1.4 U	1.4 U	1.4 U	1.3 U	1.6 U	1.6 U	1.8 U	1.4 U	1.4 U
1,1,2-Trichloroethane	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.4 U	1.4 U	1.6 U	1.2 U	1.2 U
1,1-Dichloroethane	0.5 U	0.48 U	0.51 U	0.51 U	0.48 U	0.58 U	0.57 U	0.65 U	0.51 U	0.5 U
1,1-Dichloroethene	0.54 U	0.52 U	0.55 U	0.55 U	0.51 U	0.62 U	0.62 U	0.71 U	0.55 U	0.54 U
1,2,3-Trichloropropane	1.4 U	1.4 U	1.4 U	1.4 U	1.3 U	1.6 U	1.6 U	1.8 U	1.4 U	1.4 UJ
1,2-Dibromo-3-Chloropropane	2.8 U	2.7 U	2.9 U	2.9 U	2.7 U	3.2 U	3.2 U	3.7 U	2.9 U	2.8 UJ
1,2-Dichloroethane	1 U	0.97 U	1 U	1 U	0.95 U	1.2 U	1.1 U	1.3 U	1 U	1 U
1,2-Dichloropropane	1.1 U	1.1 U	1.1 U	1.1 U	1 U	1.3 U	1.3 U	1.4 U	1.1 U	1.1 U
2-Butanone (MEK)	2.7 U	2.6 U	2.8 U	2.8 U	2.6 U	3.1 U	3.1 U	3.5 U	2.8 U	9.9 U
2-Chloro-1,3-butadiene	0.57 U	0.55 U	0.58 U	0.58 UJ	0.54 UJ	0.66 UJ	0.65 UJ	0.75 UJ	0.59 U	0.57 U
2-Hexanone	2.1 U	2 U	2.1 U	2.1 U	2 U	2.4 U	2.4 U	2.7 U	2.2 U	7 J
3-Chloro-1-propene	1.5 U	1.5 U	1.5 U	1.5 U	1.4 U	1.7 U	1.7 U	2 U	1.5 UJ	1.5 UJ
4-Methyl-2-pentanone (MIBK)	2.9 U	2.8 U	3 U	3 U	2.8 U	3.4 U	3.3 U	3.8 U	3 U	3.8 J
Acetone	4.4 R	4.3 R	4.5 R	7 R	7 J	15 J	5 R	16 J	11 J	24 J
Acetonitrile	45 R	44 R	46 R	46 R	43 R	52 R	52 R	59 R	46 UJ	45 UJ
Acrolein	19 U	18 U	19 U	19 U	18 R	22 R	22 R	25 R	20 R	19 R
Acrylonitrile	23 U	22 U	23 U	23 U	22 U	27 U	26 U	30 U	24 UJ	23 U
Benzene	0.79 U	0.77 U	0.81 U	0.81 U	0.75 U	0.91 U	0.91 U	1 U	0.81 U	0.79 U
Bromoform	1.1 U	1.1 U	1.1 U	1.1 U	1 U	1.3 U	1.3 U	1.4 U	1.1 U	1.1 U
Bromomethane	1.6 U	1.6 U	1.6 U	1.6 U	1.5 U	1.9 U	1.8 U	2.1 U	1.6 U	1.6 U
Carbon disulfide	0.51 U	0.49 U	0.52 U	0.52 U	0.49 U	0.59 U	0.58 U	0.67 U	0.52 U	0.51 U
Carbon tetrachloride	1 U	0.97 U	1 U	1 U	0.95 U	1.2 U	1.1 U	1.3 U	1 U	1 U
Chlorobenzene	0.73 U	0.71 U	0.74 U	0.74 U	0.69 U	0.84 U	0.84 U	0.96 U	0.75 U	0.73 U
Chlorodibromomethane	0.5 U	0.48 U	0.51 U	0.51 U	0.48 U	0.58 U	0.57 U	0.65 U	0.51 U	0.5 U
Chloroethane	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.4 U	1.4 U	1.6 U	1.2 U	1.2 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB93	74SB94	74SB94	74SB95	74SB95	74SB96	74SB96	74SB96	74SB97	74SB97
Sample ID	74SB93-04	74SB94-03	74SB94-04	74SB95-03	74SB95-04	74SB96-03	74SB96-03D	74SB96-05	74SB97-03	74SB97-04
Date	5/7/2008	5/7/2008	5/7/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/5/2008	5/5/2008
Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.5 U	0.48 U	0.51 U	0.51 U	0.48 U	0.58 U	0.57 U	0.65 U	0.51 U	0.5 U
Chloromethane	0.71 U	0.69 U	0.72 U	0.72 U	0.68 U	0.82 U	0.81 U	0.93 U	0.73 U	0.71 U
cis-1,3-Dichloropropene	0.87 U	0.84 U	0.89 U	0.89 U	0.83 U	1 U	1 U	1.1 U	0.89 U	0.87 U
Dibromomethane	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.4 U	1.4 U	1.6 U	1.2 U	1.2 U
Dichlorobromomethane	0.83 U	0.8 U	0.85 U	0.85 U	0.79 U	0.96 U	0.95 U	1.1 U	0.85 U	0.83 U
Dichlorodifluoromethane	0.89 U	0.86 U	0.91 U	0.91 U	0.85 U	1 U	1 U	1.2 U	0.91 U	0.89 U
Ethyl methacrylate	2.2 U	2.1 U	2.2 U	2.2 U	2.1 U	2.5 U	2.5 U	2.9 U	2.3 U	2.2 U
Ethylbenzene	0.75 U	0.73 U	0.76 U	0.77 U	0.71 U	0.87 U	0.86 U	0.98 U	0.77 U	0.75 U
Ethylene Dibromide	1.5 U	1.5 U	1.5 U	1.5 U	1.4 U	1.7 U	1.7 U	2 U	1.5 U	1.5 U
Iodomethane	1 U	0.97 U	1 U	1 U	0.95 U	1.2 U	1.1 U	1.3 U	1 U	1 UJ
Isobutyl alcohol	69 R	67 R	70 R	70 R	66 R	80 R	79 R	90 R	71 R	69 R
Methacrylonitrile	24 UJ	23 UJ	24 UJ	24 UJ	23 UJ	28 UJ	28 UJ	31 UJ	25 U	24 U
Methyl methacrylate	3.7 U	3.6 U	3.8 U	3.8 U	3.5 U	4.3 U	4.2 U	4.8 U	3.8 U	3.7 U
Methylene Chloride	1 U	0.97 U	1 U	1 U	0.95 U	1.2 U	1.1 U	1.3 U	1 U	1 U
Pentachloroethane	2.2 U	2.1 U	2.2 U	2.2 UJ	2.1 UJ	2.5 UJ	2.5 UJ	2.9 UJ	2.3 UJ	2.2 UJ
Propionitrile	21 U	20 U	21 U	21 U	20 U	24 U	24 U	27 U	22 UJ	21 U
Styrene	0.66 U	0.64 U	0.67 U	0.67 U	0.63 U	0.76 U	0.76 U	0.86 U	0.68 U	0.66 U
Tetrachloroethene	0.73 U	0.71 U	0.74 U	0.74 U	0.69 U	0.84 U	0.84 U	0.96 U	0.75 U	0.73 U
Toluene	0.79 U	0.77 U	0.81 U	0.81 U	0.75 U	0.91 U	0.91 U	1 U	0.81 U	0.79 U
trans-1,2-Dichloroethene	0.97 U	0.94 U	0.99 U	0.99 U	0.92 U	1.1 U	1.1 U	1.3 U	1 U	0.97 U
trans-1,3-Dichloropropene	0.87 U	0.84 U	0.89 U	0.89 U	0.83 U	1 U	1 U	1.1 U	0.89 U	0.87 U
trans-1,4-Dichloro-2-butene	3.1 U	3 U	3.2 U	3.2 U	2.9 U	3.6 U	3.6 U	4.1 U	3.2 U	3.1 U
Trichloroethene	1 U	0.97 U	1 U	1 U	0.95 U	1.2 U	1.1 U	1.3 U	1 U	1 U
Trichlorofluoromethane	1.5 U	1.5 U	1.5 U	1.5 U	1.4 U	1.7 U	1.7 U	2 U	1.5 U	1.5 U
Vinyl acetate	1.5 U	1.5 U	1.5 U	1.5 U	1.4 U	1.7 U	1.7 U	2 U	1.5 U	1.5 U
Vinyl chloride	0.58 U	0.56 U	0.59 U	0.59 U	0.55 U	0.67 U	0.67 U	0.76 U	0.6 U	0.58 U
Xylenes, Total	2.3 U	2.2 U	2.3 U	2.3 U	2.2 U	2.7 U	2.6 U	3 U	2.4 U	2.3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB93	74SB94	74SB94	74SB95	74SB95	74SB96	74SB96	74SB96	74SB97	74SB97
	Sample ID	74SB93-04	74SB94-03	74SB94-04	74SB95-03	74SB95-04	74SB96-03	74SB96-03D	74SB96-05	74SB97-03	74SB97-04
	Date	5/7/2008	5/7/2008	5/7/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/5/2008	5/5/2008
	Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB93	74SB94	74SB94	74SB95	74SB95	74SB96	74SB96	74SB96	74SB97	74SB97
	Sample ID	74SB93-04	74SB94-03	74SB94-04	74SB95-03	74SB95-04	74SB96-03	74SB96-03D	74SB96-05	74SB97-03	74SB97-04
	Date	5/7/2008	5/7/2008	5/7/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/5/2008	5/5/2008
	Depth Range	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.082 U	0.078 U	0.086 U	0.085 UJ	0.084 UJ	0.092 UJ	0.098 UJ	0.095 UJ	0.087 UJ	0.092 UJ
Arsenic		0.51 U	0.32 U	0.42 U	0.41 U	0.37 U	1.2	1.5	1.2	0.79	1.3
Barium		19	62	15	49	48	510 R	96 R	120	21 J	17 J
Beryllium		0.13	0.16	0.16	0.18	0.13	0.48	0.5	0.61	0.11 J	0.17
Cadmium		0.084 J	0.09 J	0.052 J	0.065 J	0.052 J	0.038 U	0.04 U	0.039 U	0.036 U	0.038 U
Chromium		2.4	1.8	2	3.3 J	3.6 J	5.2 J	5.2 J	7.3 J	14 R	29 R
Cobalt		23	26	23	30	24	12	10	16	4.2	8.8
Copper		73	74	110	43	84	180	180	160	45	85
Lead		0.51	0.74	0.7	0.47	0.82	1.7	2.4	1.7	1.3 J	2.1 J
Mercury		0.005 U	0.004 U	0.005 U	0.008 J	0.006 J	0.005 U	0.0053 U	0.006 U	0.005 U	0.005 U
Nickel		5	5	4.2	6.2	5.2	14	10	9.4	4.4	10
Selenium		0.13 U	0.12 U	0.14 U	0.14 U	0.13 U	0.15 U	0.22 J	0.15 U	0.24 J	0.41 J
Silver		0.021 J	0.017 U	0.018 U	0.018 J	0.018 J	0.024 J	0.037 J	0.025 J	0.025 UJ	0.02 UJ
Thallium		0.13 U	0.12 U	0.14 U	0.14 U	0.13 U	0.15 U	0.16 U	0.15 U	0.14 U	0.15 U
Tin		4.4 U	4.2 U	4.6 U	4.5 U	4.5 U	4.9 U	5.2 U	5 U	4.7 U	4.9 U
Vanadium		260	190	140	220	250	230	250	200	120	190
Zinc		79	83	100	90 J	92 J	160 J	130 J	140 J	61 J	190 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.69 U	1.7 J	1.4 J	2.6 J	2 J	2.6 J	3.3 J	2.2 J	1.7 J	1 J
Gasoline Range Organics		0.061 U	0.061 U	0.062 U	0.065 U	0.062 U	0.071 U	0.07 U	0.077 U	0.065 U	0.064 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB98	74SB98	74SB99	74SB99	74SB100	74SB100	74SB101	74SB101	74SB101	74SB102
Sample ID	74SB98-03	74SB98-04	74SB99-03	74SB99-04	74SB100-03	74SB100-04	74SB101-03	74SB101-03D	74SB101-04	74SB102-04
Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.65 U	0.68 U	0.81 U	0.6 U	0.65 U	0.63 U	0.6 U	0.73 U	0.79 U	0.59 U
1,1,1-Trichloroethane	0.59 U	0.61 U	0.74 U	0.55 U	0.59 U	0.57 U	0.55 U	0.66 U	0.72 U	0.53 U
1,1,2,2-Tetrachloroethane	1.4 U	1.5 U	1.8 U	1.3 U	1.4 U	1.4 U	1.3 U	1.6 U	1.7 U	1.3 U
1,1,2-Trichloroethane	1.2 U	1.3 U	1.5 U	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U	1.5 U	1.1 U
1,1-Dichloroethane	0.51 U	0.53 U	0.64 U	0.47 U	0.5 U	0.49 U	0.47 U	0.57 U	0.62 U	0.46 U
1,1-Dichloroethene	0.55 U	0.57 U	0.69 U	0.51 U	0.54 U	0.53 U	0.51 U	0.62 U	0.67 U	0.49 U
1,2,3-Trichloropropane	1.4 UJ	1.5 UJ	1.8 UJ	1.3 UJ	1.4 UJ	1.4 UJ	1.3 UJ	1.6 UJ	1.7 UJ	1.3 U
1,2-Dibromo-3-Chloropropane	2.8 UJ	3 UJ	3.6 UJ	2.6 UJ	2.8 UJ	2.8 UJ	2.6 UJ	3.2 UJ	3.5 UJ	2.6 U
1,2-Dichloroethane	1 U	1.1 U	1.3 U	0.94 U	1 U	0.99 U	0.94 U	1.1 U	1.2 U	0.91 U
1,2-Dichloropropane	1.1 U	1.2 U	1.4 U	1 U	1.1 U	1.1 U	1 U	1.3 U	1.4 U	1 U
2-Butanone (MEK)	5.5 U	2.9 U	3.4 U	2.5 U	28 U	11 U	3.5 U	3.1 U	3.3 U	2.5 U
2-Chloro-1,3-butadiene	0.58 U	0.6 U	0.72 U	0.54 U	0.57 U	0.56 U	0.54 U	0.65 U	0.71 U	0.52 U
2-Hexanone	2.9 J	2.2 U	2.7 U	2 U	2.1 U	2.1 U	2 U	2.4 U	2.6 U	1.9 U
3-Chloro-1-propene	1.5 UJ	1.6 UJ	1.9 UJ	1.4 UJ	1.5 UJ	1.5 UJ	1.4 UJ	1.7 UJ	1.9 UJ	1.4 U
4-Methyl-2-pentanone (MIBK)	2.9 U	3.1 U	3.7 U	2.7 U	2.9 U	2.9 U	2.7 U	3.3 U	3.6 U	2.7 U
Acetone	4.4 UJ	13 J	63 J	34 J	400 J	160 J	39 J	24 J	15 J	16 J
Acetonitrile	45 UJ	48 UJ	57 UJ	42 UJ	45 UJ	44 UJ	43 UJ	51 UJ	56 UJ	41 U
Acrolein	19 R	20 R	24 R	18 R	19 R	19 R	18 R	22 R	24 R	17 R
Acrylonitrile	23 U	24 U	29 U	22 U	23 U	23 U	22 U	26 U	28 U	21 U
Benzene	0.8 U	0.84 U	1 U	0.74 U	0.8 U	0.78 U	0.75 U	0.9 U	0.98 U	0.72 U
Bromoform	1.1 U	1.2 U	1.4 U	1 U	1.1 U	1.1 U	1 U	1.3 U	1.4 U	1 U
Bromomethane	1.6 U	1.7 U	2 U	1.5 U	1.6 U	1.6 U	1.5 U	1.8 U	2 U	1.5 U
Carbon disulfide	0.52 U	0.54 U	2.2 J	1 J	1.3 J	0.5 U	0.63 J	0.58 U	0.63 U	0.47 U
Carbon tetrachloride	1 U	1.1 U	1.3 U	0.94 U	1 U	0.99 U	0.94 U	1.1 U	1.2 U	0.91 U
Chlorobenzene	0.74 U	0.77 U	0.93 U	0.69 U	0.74 U	0.72 U	0.69 U	0.83 U	0.9 U	0.67 U
Chlorodibromomethane	0.51 U	0.53 U	0.64 U	0.47 U	0.5 U	0.49 U	0.47 U	0.57 U	0.62 U	0.46 U
Chloroethane	1.2 UJ	1.3 UJ	1.5 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.4 UJ	1.5 UJ	1.1 U



# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB98	74SB98	74SB99	74SB99	74SB100	74SB100	74SB101	74SB101	74SB101	74SB102
Sample ID	74SB98-03	74SB98-04	74SB99-03	74SB99-04	74SB100-03	74SB100-04	74SB101-03	74SB101-03D	74SB101-04	74SB102-04
Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.51 U	0.53 U	0.64 U	0.47 U	0.51 J	0.49 U	0.47 U	0.57 U	0.62 U	0.46 U
Chloromethane	0.72 U	0.75 U	0.9 U	0.67 U	1.5 J	0.7 U	0.95 J	0.81 U	0.88 U	0.65 U
cis-1,3-Dichloropropene	0.88 U	0.92 U	1.1 U	0.82 U	0.88 U	0.86 U	0.82 U	0.99 U	1.1 U	0.8 U
Dibromomethane	1.2 U	1.3 U	1.5 U	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U	1.5 U	1.1 U
Dichlorobromomethane	0.84 U	0.88 U	1.1 U	0.78 U	0.84 U	0.82 U	0.78 U	0.95 U	1 U	0.76 U
Dichlorodifluoromethane	0.9 U	0.94 U	1.1 U	0.84 U	0.9 U	0.88 U	0.84 U	1 U	1.1 U	0.81 U
Ethyl methacrylate	2.2 U	2.3 U	2.8 U	2.1 U	2.2 U	2.2 U	2.1 U	2.5 U	2.7 U	2 U
Ethylbenzene	0.76 U	0.79 U	0.95 U	0.71 U	0.76 U	0.74 U	0.71 U	0.86 U	0.93 U	0.69 U
Ethylene Dibromide	1.5 U	1.6 U	1.9 U	1.4 U	1.5 U	1.5 U	1.4 U	1.7 U	1.9 U	1.4 U
Iodomethane	1 UJ	1.1 UJ	1.3 UJ	0.94 UJ	12 J	1 J	0.94 UJ	1.1 UJ	1.2 UJ	0.91 U
Isobutyl alcohol	70 R	73 R	88 R	65 R	70 R	68 R	65 R	79 R	85 R	63 R
Methacrylonitrile	24 U	25 U	30 U	23 U	24 U	24 U	23 U	27 U	30 U	22 U
Methyl methacrylate	3.7 U	3.9 U	4.7 U	3.5 U	3.7 U	3.6 U	3.5 U	4.2 U	4.6 U	3.4 U
Methylene Chloride	1 U	1.1 U	1.3 U	0.94 U	1 U	0.99 U	0.94 U	1.1 U	1.2 U	0.91 U
Pentachloroethane	2.2 UJ	2.3 UJ	2.8 UJ	2.1 UJ	2.2 UJ	2.2 UJ	2.1 UJ	2.5 UJ	2.7 UJ	2 UJ
Propionitrile	21 U	22 U	27 U	20 U	21 U	21 U	20 U	24 U	26 U	19 U
Styrene	0.67 U	0.7 U	0.84 U	0.62 U	0.67 U	0.65 U	0.62 U	0.75 U	0.82 U	0.6 U
Tetrachloroethene	0.74 U	0.77 U	0.93 U	0.69 U	0.74 U	0.72 U	0.69 U	0.83 U	0.9 U	0.67 U
Toluene	0.8 U	0.84 U	1 U	0.74 U	0.8 U	0.78 U	0.75 U	0.9 U	0.98 U	0.72 U
trans-1,2-Dichloroethene	0.98 U	1 U	1.2 U	0.91 U	0.98 U	0.96 U	0.92 U	1.1 U	1.2 U	0.89 U
trans-1,3-Dichloropropene	0.88 U	0.92 U	1.1 U	0.82 U	0.88 U	0.86 U	0.82 U	0.99 U	1.1 U	0.8 U
trans-1,4-Dichloro-2-butene	3.1 U	3.3 U	3.9 U	2.9 U	3.1 U	3.1 U	2.9 U	3.5 U	3.8 U	2.8 U
Trichloroethene	1 U	1.1 U	1.3 U	0.94 U	1 U	0.99 U	0.94 U	1.1 U	1.2 U	0.91 U
Trichlorofluoromethane	1.5 U	1.6 U	1.9 U	1.4 U	1.5 U	1.5 U	1.4 U	1.7 U	1.9 U	1.4 U
Vinyl acetate	1.5 U	1.6 U	1.9 U	1.4 U	1.5 U	1.5 U	1.4 U	1.7 U	1.9 U	1.4 U
Vinyl chloride	0.59 U	0.61 U	0.74 U	0.55 U	0.59 U	0.57 U	0.55 U	0.66 U	0.72 U	0.53 U
Xylenes, Total	2.3 U	2.4 U	2.9 U	2.2 U	2.3 U	2.3 U	2.2 U	2.6 U	2.8 U	2.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB98	74SB98	74SB99	74SB99	74SB100	74SB100	74SB101	74SB101	74SB101	74SB102
	Sample ID	74SB98-03	74SB98-04	74SB99-03	74SB99-04	74SB100-03	74SB100-04	74SB101-03	74SB101-03D	74SB101-04	74SB102-04
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
	Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB98	74SB98	74SB99	74SB99	74SB100	74SB100	74SB101	74SB101	74SB101	74SB102
	Sample ID	74SB98-03	74SB98-04	74SB99-03	74SB99-04	74SB100-03	74SB100-04	74SB101-03	74SB101-03D	74SB101-04	74SB102-04
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008
	Depth Range	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	5.0-7.0	7.0-9.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.087 UJ	0.096 UJ	0.093 UJ	0.095 UJ	0.084 UJ	0.089 UJ	0.089 UJ	0.09 UJ	0.082 UJ	0.083 UJ
Arsenic		2	0.66	2	0.87	3.3	3.9	2.9	3.6	2.6	2.7
Barium		82 J	9.1 J	33 J	12 J	150 J	26 J	23 J	14 J	20 J	35 J
Beryllium		0.17	0.16	0.16	0.12 J	0.31	0.32	0.12	0.15	0.082 U	0.13
Cadmium		0.04 J	0.039 U	0.046 J	0.039 U	0.33	0.048 J	0.037 U	0.057 J	0.034 U	0.034 U
Chromium		29 R	8.9 R	13 R	6 R	16 R	36 R	15 R	26 R	31 R	24 R
Cobalt		7	5.2	5.2	3.2	61	9.2	2.9	3.3	2.7	5.2
Copper		73	72	62	77	56	110	57	82	54	58
Lead		1.9 J	0.68 J	2.1 J	0.77 J	4.9 J	4.4 J	2.8 J	5.3 J	3.5 J	5 J
Mercury		0.077	0.004 U	0.048	0.005 U	0.079	0.15	0.081	0.027	0.005 U	0.19
Nickel		6.7	4.3	4.2	2.8	9.7	6.3	3.8	3.8	2.4	4.2
Selenium		1.4	0.22 J	2.6	0.5 J	2	2.2	2.8 J	5.2 J	2.4	6.9
Silver		0.033 UJ	0.037 UJ	0.035 UJ	0.02 UJ	0.088 UJ	0.035 UJ	0.061 UJ	0.055 UJ	0.034 UJ	0.054 UJ
Thallium		0.14 U	0.15 U	0.15 U	0.15 U	0.13 U	0.14 U	0.14 U	0.14 U	0.13 U	0.13 U
Tin		4.7 U	5.1 U	5 U	5.1 U	4.5 U	4.8 U	4.8 U	4.8 U	4.4 U	4.4 U
Vanadium		310	110	250	150	210	470	410	410	360	300
Zinc		39 J	50 J	31 J	24 J	91 J	78 J	21 J	23 J	13 J	24 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.77 U	1.4 J	1.5 J	2.3 J	1.8 J	1.8 J	1.5 J	0.95 J	2 J	1.8 J
Gasoline Range Organics		0.058 U	0.063 U	0.063 U	0.064 U	0.059 J	0.066 U	0.057 U	0.069 U	0.061 U	0.062 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB102	74SB103	74SB103	74SB104	74SB104	74SB105	74SB105	74SB106	74SB106	74SB107
	Sample ID	74SB102-05	74SB103-03	74SB103-04	74SB104-03	74SB104-04	74SB105-03	74SB105-04	74SB106-01	74SB106-04	74SB107-03
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/6/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	1.0-3.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.63 U	0.72 U	0.68 U	0.71 U	0.59 U	0.66 U	0.63 U	0.6 U	0.68 U	0.77 U
1,1,1-Trichloroethane		0.57 U	0.65 U	0.62 U	0.64 U	0.53 U	0.6 U	0.57 U	0.54 U	0.62 U	0.7 U
1,1,2,2-Tetrachloroethane		1.4 U	1.6 U	1.5 U	1.5 U	1.3 U	1.4 U	1.4 U	1.3 U	1.5 U	1.7 U
1,1,2-Trichloroethane		1.2 U	1.3 U	1.3 U	1.3 U	1.1 U	1.2 U	1.2 U	1.1 U	1.3 U	1.4 U
1,1-Dichloroethane		0.49 U	0.56 U	0.53 U	0.55 U	0.46 U	0.52 U	0.49 U	0.47 U	0.53 U	0.6 U
1,1-Dichloroethene		0.53 U	0.6 U	0.57 U	0.6 U	0.5 U	0.56 U	0.53 U	0.5 U	0.58 U	0.65 U
1,2,3-Trichloropropane		1.4 U	1.6 U	1.5 U	1.5 U	1.3 U	1.4 U	1.4 U	1.3 U	1.5 U	1.7 UJ
1,2-Dibromo-3-Chloropropane		2.8 UJ	3.1 UJ	3 UJ	3.1 UJ	2.6 UJ	2.9 UJ	2.8 UJ	2.6 UJ	3 UJ	3.4 UJ
1,2-Dichloroethane		0.99 U	1.1 U	1.1 U	1.1 U	0.92 U	1 U	0.99 U	0.93 U	1.1 U	1.2 U
1,2-Dichloropropane		1.1 U	1.2 U	1.2 U	1.2 U	1 U	1.1 U	1.1 U	1 U	1.2 U	1.3 U
2-Butanone (MEK)		2.7 U	3 U	2.9 U	3 U	2.5 U	7.1 U	2.7 U	7.8 U	2.9 U	3.2 U
2-Chloro-1,3-butadiene		0.56 U	0.64 U	0.61 U	0.63 U	0.53 U	0.59 U	0.56 U	0.53 U	0.61 U	0.68 U
2-Hexanone		2.1 U	2.3 U	2.2 U	2.3 U	1.9 U	2.2 U	2.1 U	2 U	2.2 U	2.5 U
3-Chloro-1-propene		1.5 U	1.7 U	1.6 U	1.7 U	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.8 UJ
4-Methyl-2-pentanone (MIBK)		2.9 U	3.2 U	3.1 U	3.2 U	2.7 U	3 U	2.9 U	2.7 U	3.1 U	3.5 U
Acetone		7 UJ	19 UJ	11 UJ	29 UJ	12 UJ	110 J	43 UJ	85 UJ	51 UJ	41 J
Acetonitrile		44 UJ	50 UJ	48 UJ	50 UJ	41 UJ	46 UJ	44 UJ	42 UJ	48 UJ	54 UJ
Acrolein		19 U	21 U	20 U	21 U	18 U	20 U	19 U	18 U	20 U	23 R
Acrylonitrile		23 U	26 U	24 U	25 U	21 U	24 U	23 U	21 U	25 U	28 U
Benzene		0.78 U	0.88 U	0.84 U	0.87 U	0.73 U	0.81 U	0.78 U	0.74 U	0.84 U	0.95 U
Bromoform		1.1 U	1.2 U	1.2 U	1.2 U	1 U	3.2 J	1.1 U	1 U	1.2 U	1.3 U
Bromomethane		1.6 U	1.8 U	1.7 U	1.8 U	1.5 U	1.7 U	1.6 U	1.5 U	1.7 U	1.9 UJ
Carbon disulfide		0.5 U	0.57 U	0.54 U	6.5 J	0.47 U	0.53 U	0.5 U	1.7 J	0.54 U	0.61 UJ
Carbon tetrachloride		0.99 U	1.1 U	1.1 U	1.1 U	0.92 U	1 U	0.99 U	0.93 U	1.1 U	1.2 U
Chlorobenzene		0.72 U	0.82 U	0.78 U	0.81 U	0.67 U	0.75 U	0.72 U	0.68 U	0.78 U	0.88 U
Chlorodibromomethane		0.49 U	0.56 U	0.53 U	0.55 U	0.46 U	0.52 U	0.49 U	0.47 U	0.53 U	0.6 U
Chloroethane		1.2 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.3 UJ	1.4 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB102	74SB103	74SB103	74SB104	74SB104	74SB105	74SB105	74SB106	74SB106	74SB107
Sample ID	74SB102-05	74SB103-03	74SB103-04	74SB104-03	74SB104-04	74SB105-03	74SB105-04	74SB106-01	74SB106-04	74SB107-03
Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/6/2008
Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	1.0-3.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.49 U	0.56 U	0.53 U	0.55 U	0.46 U	0.52 U	0.49 U	0.47 U	0.53 U	0.6 U
Chloromethane	0.7 U	0.79 U	0.76 U	0.78 U	0.65 U	1.8 J	0.7 U	0.66 U	0.76 U	0.85 U
cis-1,3-Dichloropropene	0.86 U	0.97 U	0.93 U	0.96 U	0.8 U	0.9 U	0.86 U	0.81 U	0.93 U	1 U
Dibromomethane	1.2 U	1.3 U	1.3 U	1.3 U	1.1 U	1.2 U	1.2 U	1.1 U	1.3 U	1.4 U
Dichlorobromomethane	0.82 U	0.93 U	0.88 U	0.92 U	0.76 U	0.86 U	0.82 U	0.77 U	0.89 U	1 U
Dichlorodifluoromethane	0.88 U	1 U	0.95 U	0.98 U	0.82 U	0.92 U	0.88 U	0.83 U	0.95 U	1.1 U
Ethyl methacrylate	2.2 U	2.5 U	2.3 U	2.4 U	2 U	2.3 U	2.2 U	2 U	2.3 U	2.6 U
Ethylbenzene	0.74 U	0.84 U	0.8 U	0.83 U	0.69 U	0.77 U	0.74 U	0.7 U	0.8 U	0.9 U
Ethylene Dibromide	1.5 U	1.7 U	1.6 U	1.7 U	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.8 U
Iodomethane	0.99 UJ	1.1 UJ	1.1 UJ	1.1 UJ	0.92 UJ	6 J	0.99 UJ	0.93 UJ	1.1 UJ	1.2 UJ
Isobutyl alcohol	68 R	77 R	73 R	76 R	64 R	71 R	68 R	64 R	74 R	83 R
Methacrylonitrile	24 U	27 U	26 U	27 U	22 U	25 U	24 U	22 U	26 U	29 U
Methyl methacrylate	3.7 U	4.1 U	3.9 U	4.1 U	3.4 U	3.8 U	3.7 U	3.4 U	3.9 U	4.4 U
Methylene Chloride	0.99 U	1.1 U	1.1 U	1.1 U	0.92 U	1 U	0.99 U	0.93 U	1.1 U	1.2 U
Pentachloroethane	2.2 UJ	2.5 UJ	2.3 UJ	2.4 UJ	2 UJ	2.3 UJ	2.2 UJ	2 UJ	2.3 UJ	2.6 UJ
Propionitrile	21 U	23 U	22 U	23 U	19 U	22 U	21 U	20 U	22 U	25 U
Styrene	0.65 U	0.74 U	0.7 U	0.73 U	0.61 U	0.68 U	0.65 U	0.61 U	0.7 U	0.79 U
Tetrachloroethene	0.72 U	0.82 U	0.78 U	0.81 U	0.67 U	0.75 U	0.72 U	0.68 U	0.78 U	0.88 U
Toluene	0.78 U	0.88 U	0.84 U	0.87 U	0.73 U	0.81 U	0.78 U	0.74 U	0.84 U	0.95 U
trans-1,2-Dichloroethene	0.96 U	1.1 U	1 U	1.1 U	0.89 U	1 U	0.96 U	0.9 U	1 U	1.2 U
trans-1,3-Dichloropropene	0.86 U	0.97 U	0.93 U	0.96 U	0.8 U	0.9 U	0.86 U	1.4 J	0.93 U	1 U
trans-1,4-Dichloro-2-butene	3.1 U	3.5 U	3.3 U	3.4 U	2.9 U	3.2 U	3.1 U	2.9 U	3.3 U	3.7 U
Trichloroethene	0.99 U	1.1 U	1.1 U	1.1 U	0.92 U	1 U	0.99 U	0.93 U	1.1 U	1.2 U
Trichlorofluoromethane	1.5 U	1.7 U	1.6 U	1.7 U	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.8 U
Vinyl acetate	1.5 U	1.7 U	1.6 U	1.7 U	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.8 U
Vinyl chloride	0.57 U	0.65 U	0.62 U	0.64 U	0.53 U	0.6 U	0.57 U	0.54 U	0.62 U	0.7 U
Xylenes, Total	2.3 U	2.6 U	2.4 U	2.5 U	2.1 U	2.4 U	2.3 U	2.1 U	2.5 U	2.8 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB102	74SB103	74SB103	74SB104	74SB104	74SB105	74SB105	74SB106	74SB106	74SB107
	Sample ID	74SB102-05	74SB103-03	74SB103-04	74SB104-03	74SB104-04	74SB105-03	74SB105-04	74SB106-01	74SB106-04	74SB107-03
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/6/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	1.0-3.0	7.0-9.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB102	74SB103	74SB103	74SB104	74SB104	74SB105	74SB105	74SB106	74SB106	74SB107
	Sample ID	74SB102-05	74SB103-03	74SB103-04	74SB104-03	74SB104-04	74SB105-03	74SB105-04	74SB106-01	74SB106-04	74SB107-03
	Date	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/6/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0	1.0-3.0	7.0-9.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony		0.087 UJ	0.088 UJ	0.09 UJ	0.24 UJ	0.087 UJ	0.087 UJ	0.087 UJ	0.2 UJ	0.17 UJ	0.087 UJ
Arsenic		2	4.2	0.59 J	3.2	1.4	4.4	1.9	2.7	6.5	2.7
Barium		32 J	47 J	47	89	16	240	61	61	47	19
Beryllium		0.096 U	0.2	0.075 J	0.28	0.1 J	0.27	0.08 J	0.23	0.23	0.12
Cadmium		0.036 U	0.05 J	0.037 U	0.7	0.036 U	0.21	0.094 J	1.1	0.35	0.036 U
Chromium		18 R	25 R	4.8	31	8.3	14	5.7	21	34	15
Cobalt		4.1	14	1.6	17	2.2	620	8.3	12	49	4.4 J
Copper		43	82	22 J	170 J	48 J	68 J	45 J	170 J	100 J	49 J
Lead		7.3 J	3.4 J	2.2	2.6	2	3.2	1.6	2.7	4.8	1.7
Mercury		0.004 U	0.19	0.035	0.004 U	0.004 U	0.008 J	0.025	0.004 U	0.024	0.053
Nickel		3.1	8	3.3	15	1.8	7.6	3	14	13	4
Selenium		1.4	3.5	0.96	0.36 J	0.95	2.1	0.97	0.5 J	2.3	4.3
Silver		0.039 UJ	0.047 UJ	0.037 J	0.11 J	0.019 UJ	0.032 J	0.02 J	0.14 J	0.11 J	0.054 J
Thallium		0.14 U	0.14 U	0.14 U	0.12 U	0.14 U	0.23 J	0.14 U	0.12 U	0.13 U	0.14 U
Tin		4.7 U	4.7 U	4.8 U	4.1 U	4.7 U	4.6 U	4.6 U	4.2 U	4.3 U	4.6 U
Vanadium		300	360	40	140	150	190	130	100	320	270
Zinc		14 J	45 J	9.7 J	170 J	19 J	53 J	23 J	220 J	76 J	24 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		3 J	5.6	4.1 J	5	2.6 J	2.8 J	2.6 J	3.2 J	3 J	3.1 J
Gasoline Range Organics		0.06 U	0.064 J	0.066 U	0.15 J	0.067 U	0.065 U	0.074 J	0.06 U	0.056 U	0.073 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB107	74SB107	74SB108	74SB108	74SB109	74SB109	74SB110	74SB110	74SB111
Sample ID	74SB107-03D	74SB107-05	74SB108-03	74SB108-04	74SB109-04	74SB109-05	74SB110-04	74SB110-05	74SB111-03
Date	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/7/2008
Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.77 U	0.66 U	0.77 U	0.81 UJ	0.68 U	730 U	0.62 U	0.63 U	0.7 U
1,1,1-Trichloroethane	0.69 U	0.59 U	0.7 U	0.73 UJ	0.62 U	670 U	0.56 U	0.57 U	0.63 U
1,1,2,2-Tetrachloroethane	1.7 U	1.4 U	1.7 U	1.8 UJ	1.5 U	1600 U	1.4 U	1.4 U	1.5 U
1,1,2-Trichloroethane	1.4 U	1.2 U	1.4 U	1.5 UJ	1.3 U	1400 U	1.2 U	1.2 U	1.3 U
1,1-Dichloroethane	0.6 U	0.51 U	0.6 U	0.63 UJ	0.53 U	570 U	0.48 U	0.49 U	0.55 U
1,1-Dichloroethene	0.65 U	0.55 U	0.65 U	0.68 UJ	0.58 U	620 U	0.52 U	0.53 U	0.59 U
1,2,3-Trichloropropane	1.7 UJ	1.4 UJ	1.7 UJ	1.8 UJ	1.5 U	1600 U	1.4 U	1.4 U	1.5 U
1,2-Dibromo-3-Chloropropane	3.4 UJ	2.9 UJ	3.4 UJ	3.5 UJ	3 U	3200 U	2.7 U	2.7 U	3.1 U
1,2-Dichloroethane	1.2 U	1 U	1.2 U	1.3 UJ	1.1 U	1100 U	0.97 U	0.98 U	1.1 U
1,2-Dichloropropane	1.3 U	1.1 U	1.3 U	1.4 UJ	1.2 U	1300 U	1.1 U	1.1 U	1.2 U
2-Butanone (MEK)	4 U	2.8 U	3.3 U	4.1 UJ	2.9 U	3100 U	2.6 U	2.7 U	11 U
2-Chloro-1,3-butadiene	0.68 U	0.58 U	0.69 U	0.72 UJ	0.61 UJ	650 U	0.55 U	0.56 UJ	0.62 U
2-Hexanone	2.5 U	2.2 U	2.5 U	2.7 UJ	2.2 U	2400 U	2 U	2.1 U	2.3 U
3-Chloro-1-propene	1.8 UJ	1.5 UJ	1.8 UJ	1.9 UJ	1.6 U	1700 U	1.4 U	1.5 U	1.6 U
4-Methyl-2-pentanone (MIBK)	3.5 U	3 U	3.5 U	3.7 UJ	3.1 U	3300 U	2.8 U	2.8 U	3.2 U
Acetone	77 J	31 J	38 J	35 J	4.7 R	5100 R	15 J	7.1 J	140 J
Acetonitrile	54 UJ	46 UJ	54 UJ	57 UJ	48 R	52000 U	43 R	44 R	49 R
Acrolein	23 R	19 R	23 R	24 R	20 R	22000 R	18 U	19 R	21 U
Acrylonitrile	28 U	24 U	28 U	29 UJ	25 U	26000 U	22 U	23 U	25 U
Benzene	0.95 U	0.81 U	0.95 U	1 UJ	0.84 U	910 U	0.76 U	0.78 U	0.86 U
Bromoform	1.3 U	1.1 U	1.3 U	1.4 UJ	1.2 U	1300 U	1.1 U	1.1 U	1.2 U
Bromomethane	1.9 UJ	1.6 UJ	1.9 UJ	2 UJ	1.7 U	1800 U	1.5 U	1.6 U	1.8 U
Carbon disulfide	0.61 UJ	0.52 UJ	9.1 J	4.3 J	0.54 U	590 U	0.49 U	0.5 U	0.56 U
Carbon tetrachloride	1.2 U	1 U	1.2 U	1.3 UJ	1.1 U	1100 U	0.97 U	0.98 U	1.1 U
Chlorobenzene	0.87 U	0.75 U	0.88 U	0.92 UJ	0.78 U	840 U	0.7 U	0.72 U	0.8 U
Chlorodibromomethane	0.6 U	0.51 U	0.6 U	0.63 UJ	0.53 U	570 U	0.48 U	0.49 U	0.55 U
Chloroethane	1.4 UJ	1.2 UJ	1.4 UJ	1.5 UJ	1.3 U	1400 U	1.2 U	1.2 U	1.3 U



# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB107	74SB107	74SB108	74SB108	74SB109	74SB109	74SB110	74SB110	74SB111
Sample ID	74SB107-03D	74SB107-05	74SB108-03	74SB108-04	74SB109-04	74SB109-05	74SB110-04	74SB110-05	74SB111-03
Date	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/7/2008
Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.6 U	0.51 U	0.6 U	0.63 UJ	0.53 U	570 U	0.48 U	0.49 U	0.55 U
Chloromethane	0.85 U	0.73 U	0.86 U	0.9 UJ	0.76 U	810 U	0.69 U	0.7 U	0.78 U
cis-1,3-Dichloropropene	1 U	0.89 U	1.1 U	1.1 UJ	0.93 U	1000 U	0.84 U	0.85 U	0.95 U
Dibromomethane	1.4 U	1.2 U	1.4 U	1.5 UJ	1.3 U	1400 U	1.2 U	1.2 U	1.3 U
Dichlorobromomethane	0.99 U	0.85 U	1 U	1 UJ	0.88 U	950 U	0.8 U	0.81 U	0.91 U
Dichlorodifluoromethane	1.1 U	0.91 U	1.1 U	1.1 UJ	0.95 U	1000 U	0.86 U	0.87 U	0.97 U
Ethyl methacrylate	2.6 U	2.3 U	2.7 U	2.8 UJ	7.3	2500 U	2.1 U	2.2 U	2.4 U
Ethylbenzene	0.9 U	0.77 U	0.91 U	0.95 UJ	0.8 U	860 U	0.72 U	0.74 U	0.82 U
Ethylene Dibromide	1.8 U	1.5 U	1.8 U	1.9 UJ	1.6 U	1700 U	1.4 U	1.5 U	1.6 U
Iodomethane	1.2 UJ	1 UJ	1.2 UJ	1.3 UJ	1.1 U	1100 U	0.97 U	0.98 U	1.1 U
Isobutyl alcohol	83 R	71 R	83 R	87 R	450 J	79000 R	67 R	68 R	76 R
Methacrylonitrile	29 U	25 U	29 U	30 UJ	26 UJ	28000 U	23 UJ	24 UJ	26 UJ
Methyl methacrylate	4.4 U	3.8 U	4.5 U	4.7 UJ	3.9 U	4200 U	3.6 U	3.6 U	4 U
Methylene Chloride	1.2 U	1 U	1.2 U	1.3 UJ	2.8 J	1100 U	0.97 U	0.98 U	1.1 U
Pentachloroethane	2.6 UJ	2.3 UJ	2.7 UJ	2.8 UJ	2.3 UJ	2500 UJ	2.1 U	2.2 UJ	2.4 U
Propionitrile	25 U	22 U	25 U	27 UJ	22 U	24000 U	20 U	21 U	23 U
Styrene	0.79 U	0.68 U	0.8 U	0.83 UJ	0.7 U	760 U	0.64 U	0.65 U	0.72 U
Tetrachloroethene	0.87 U	0.75 U	0.88 U	0.92 UJ	0.78 U	840 U	0.7 U	0.72 U	0.8 U
Toluene	0.95 U	0.81 U	0.95 U	1 UJ	0.84 U	910 U	0.76 U	0.78 U	0.86 U
trans-1,2-Dichloroethene	1.2 U	0.99 U	1.2 U	1.2 UJ	1 U	1100 U	0.94 U	0.95 U	1.1 U
trans-1,3-Dichloropropene	1 U	0.89 U	1.1 U	1.1 UJ	0.93 U	1000 U	0.84 U	0.85 U	0.95 U
trans-1,4-Dichloro-2-butene	3.7 U	3.2 U	3.7 U	3.9 UJ	3.3 U	3600 U	3 U	3 U	3.4 U
Trichloroethene	1.2 U	1 U	1.2 U	1.3 UJ	1.1 U	1100 U	0.97 U	0.98 U	1.1 U
Trichlorofluoromethane	1.8 U	1.5 U	1.8 U	1.9 UJ	1.6 U	1700 U	1.4 U	1.5 U	1.6 U
Vinyl acetate	1.8 U	1.5 U	1.8 U	1.9 UJ	1.6 U	1700 U	1.4 U	1.5 U	1.6 U
Vinyl chloride	0.69 U	0.59 U	0.7 U	0.73 UJ	0.62 U	670 U	0.56 U	0.57 U	0.63 U
Xylenes, Total	2.8 U	2.4 U	2.8 U	2.9 UJ	2.5 U	2600 U	2.2 U	2.3 U	2.5 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB107	74SB107	74SB108	74SB108	74SB109	74SB109	74SB110	74SB110	74SB111
	Sample ID	74SB107-03D	74SB107-05	74SB108-03	74SB108-04	74SB109-04	74SB109-05	74SB110-04	74SB110-05	74SB111-03
	Date	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/7/2008
	Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB107	74SB107	74SB108	74SB108	74SB109	74SB109	74SB110	74SB110	74SB111
	Sample ID	74SB107-03D	74SB107-05	74SB108-03	74SB108-04	74SB109-04	74SB109-05	74SB110-04	74SB110-05	74SB111-03
	Date	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008	5/7/2008
	Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony		0.087 UJ	0.092 UJ	0.091 UJ	0.09 UJ	0.094 UJ	0.092 UJ	0.093 J	0.086 UJ	0.088 U
Arsenic		2.6	0.75	2.3	2	1	1.8	1.2	1.2	1.3
Barium		18	30	17	17	70 R	26 R	60 R	54 R	120
Beryllium		0.13	0.065 J	0.15	0.16	0.2	0.33	0.47	0.23	0.44
Cadmium		0.037 J	0.038 U	0.043 J	0.037 U	0.039 U	0.038 U	0.075 J	0.047 J	0.073 J
Chromium		15	5.1	24	16	6.1 J	10 J	11 J	9.4 J	9.1
Cobalt		6.6 J	1.8	3.3	3.8	8.8 J	8.3 J	36 J	26 J	37
Copper		53 J	22 J	57 J	65 J	81	110	89	41 J	92
Lead		1.7	0.47	12	10	6.3	5.3	2.6	1.4	1.2
Mercury		0.022 J	0.005 U	0.048	0.005 U	0.008 J	0.005 J	0.007 J	0.006 J	0.017 J
Nickel		4.1	1.6	4.3	3	3.2	4	7.1	5	7.4
Selenium		3.8	0.34 J	3.3	2.7	1.9	0.67	0.13 U	0.14 U	0.22 J
Silver		0.044 J	0.02 UJ	0.05 J	0.019 UJ	0.03 J	0.048 J	0.017 U	0.038 J	0.022 J
Thallium		0.14 U	0.15 U	0.15 U	0.14 U	0.15 U	0.15 U	0.13 U	0.14 U	0.14 U
Tin		4.7 U	4.9 U	4.9 U	4.8 U	5 U	4.9 U	4.2 U	4.6 U	4.7 U
Vanadium		280	63	240	300	130	260	230	220	180
Zinc		26 J	12 J	24 J	20 J	28	43	110	100	88
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		3 J	2.7 J	6.8	9.9	4.9	2.2 J	0.69 U	0.75 U	2.6 J
Gasoline Range Organics		0.067 U	0.066 U	2.2	150 J	0.27	3600	0.048 U	0.19 J	0.075 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB111	74SB111	74SB112	74SB112	74SB113	74SB113	74SB114	74SB114	74SB115
	Sample ID	74SB111-03D	74SB111-05	74SB112-04	74SB112-05	74SB113-04	74SB113-05	74SB114-04	74SB114-05	74SB115-03
	Date	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/13/2008	5/13/2008	5/13/2008
	Depth Range	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane		0.69 U	0.79 U	0.69 U	0.61 U	0.64 U	0.85 UJ	0.77 U	0.87 U	0.7 U
1,1,1-Trichloroethane		0.62 U	0.71 U	0.62 U	0.55 U	0.58 U	0.77 UJ	0.69 U	0.79 U	0.63 U
1,1,2,2-Tetrachloroethane		1.5 U	1.7 U	1.5 U	1.3 U	1.4 U	1.9 UJ	1.7 U	1.9 U	1.5 U
1,1,2-Trichloroethane		1.3 U	1.5 U	1.3 U	1.1 U	1.2 U	1.6 UJ	1.4 U	1.6 U	1.3 U
1,1-Dichloroethane		0.54 U	0.62 U	0.54 U	0.48 U	0.5 U	0.67 UJ	0.6 U	0.68 U	0.54 U
1,1-Dichloroethene		0.58 U	0.66 U	0.58 U	0.52 U	0.54 U	0.72 UJ	0.65 U	0.74 U	0.59 U
1,2,3-Trichloropropane		1.5 U	1.7 U	1.5 U	1.3 U	1.4 U	1.9 UJ	1.7 U	1.9 U	1.5 U
1,2-Dibromo-3-Chloropropane		3 U	3.4 U	3 U	2.7 U	2.8 U	3.7 UJ	3.3 U	3.8 U	3 U
1,2-Dichloroethane		1.1 U	1.2 U	1.1 U	0.96 U	1 U	1.3 UJ	1.2 U	1.4 U	1.1 U
1,2-Dichloropropane		1.2 U	1.4 U	1.2 U	1.1 U	1.1 U	1.5 UJ	1.3 U	1.5 U	1.2 U
2-Butanone (MEK)		2.9 U	13 J	2.9 U	2.6 U	2.7 U	3.6 UJ	10 UJ	3.7 UJ	2.9 UJ
2-Chloro-1,3-butadiene		0.61 U	0.7 U	0.61 U	0.55 U	0.57 U	0.76 UJ	0.68 U	0.78 U	0.62 U
2-Hexanone		2.3 U	2.6 U	2.2 U	2 U	2.1 U	2.8 UJ	5.7 J	2.9 UJ	2.3 UJ
3-Chloro-1-propene		1.6 U	1.8 U	1.6 U	1.4 U	1.5 U	2 UJ	1.8 U	2 U	1.6 U
4-Methyl-2-pentanone (MIBK)		3.1 U	3.6 U	3.1 U	2.8 U	2.9 U	3.9 UJ	3.5 UJ	4 UJ	3.2 UJ
Acetone		40 J	73 J	12 U	17 J	27 U	5.9 R	43 J	30 J	21 J
Acetonitrile		48 R	55 R	48 U	43 U	45 U	60 UJ	54 U	61 U	49 U
Acrolein		20 U	23 U	20 R	18 R	31 J	25 R	23 UJ	26 UJ	21 UJ
Acrylonitrile		25 U	28 U	25 U	22 U	23 U	31 UJ	27 U	31 U	25 U
Benzene		0.85 U	0.97 U	0.85 U	0.76 U	0.79 U	1.1 UJ	0.94 U	1.1 U	0.86 U
Bromoform		1.2 U	1.4 U	1.2 U	1.1 U	1.1 U	1.5 UJ	1.3 U	1.5 U	1.2 U
Bromomethane		1.7 U	2 U	1.7 U	1.5 U	1.6 U	2.1 UJ	1.9 U	2.2 U	1.7 U
Carbon disulfide		0.55 U	2.3 J	0.55 U	0.53 J	2.6 J	3.7 J	0.61 U	1.8 J	0.55 U
Carbon tetrachloride		1.1 U	1.2 U	1.1 U	0.96 U	1 U	1.3 UJ	1.2 U	1.4 U	1.1 U
Chlorobenzene		0.78 U	0.9 U	0.78 U	0.7 U	0.73 U	0.97 UJ	0.87 U	1 U	0.79 U
Chlorodibromomethane		0.54 U	0.62 U	0.54 U	0.48 U	0.5 U	0.67 UJ	0.6 U	0.68 U	0.54 U
Chloroethane		1.3 U	1.5 U	1.3 U	1.1 U	1.2 U	1.6 UJ	1.4 U	1.6 U	1.3 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB111	74SB111	74SB112	74SB112	74SB113	74SB113	74SB114	74SB114	74SB115
Sample ID	74SB111-03D	74SB111-05	74SB112-04	74SB112-05	74SB113-04	74SB113-05	74SB114-04	74SB114-05	74SB115-03
Date	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/13/2008	5/13/2008	5/13/2008
Depth Range	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.54 U	0.62 U	0.54 U	0.48 U	0.5 U	0.67 UJ	0.6 U	0.68 U	0.54 U
Chloromethane	0.76 U	0.87 U	0.76 U	0.68 U	0.71 U	0.95 UJ	0.85 U	0.97 U	0.77 U
cis-1,3-Dichloropropene	0.93 U	1.1 U	0.93 U	0.83 U	0.87 U	1.2 UJ	1 U	1.2 U	0.95 U
Dibromomethane	1.3 U	1.5 U	1.3 U	1.1 U	1.2 U	1.6 UJ	1.4 U	1.6 U	1.3 U
Dichlorobromomethane	0.89 U	1 U	0.89 U	0.79 U	0.83 U	1.1 UJ	0.99 U	1.1 U	0.9 U
Dichlorodifluoromethane	0.95 U	1.1 U	0.95 U	0.85 U	0.89 U	1.2 UJ	1.1 U	1.2 U	0.97 U
Ethyl methacrylate	2.4 U	2.7 U	2.4 U	2.1 U	2.2 U	2.9 UJ	2.6 U	3 U	2.4 U
Ethylbenzene	0.8 U	0.92 U	0.8 U	0.72 U	0.75 U	14 J	0.9 U	1 U	0.82 U
Ethylene Dibromide	1.6 U	1.8 U	1.6 U	1.4 U	1.5 U	2 UJ	1.8 U	2 U	1.6 U
Iodomethane	1.1 U	1.2 U	1.1 U	0.96 U	1 U	1.3 UJ	1.2 UJ	1.4 UJ	1.1 UJ
Isobutyl alcohol	74 R	85 R	74 R	66 R	69 R	92 R	82 R	94 R	75 R
Methacrylonitrile	26 UJ	30 UJ	26 U	23 U	24 U	32 UJ	29 U	33 U	26 U
Methyl methacrylate	4 U	4.6 U	4 U	3.5 U	3.7 U	4.9 UJ	4.4 U	5.1 U	4 U
Methylene Chloride	1.1 U	1.2 U	1.1 U	0.96 U	1 U	1.3 UJ	1.2 U	1.4 U	1.1 U
Pentachloroethane	2.4 U	2.7 U	2.4 UJ	2.1 UJ	2.2 UJ	2.9 UJ	2.6 UJ	3 UJ	2.4 UJ
Propionitrile	23 U	26 U	22 U	20 U	21 U	28 UJ	25 U	29 U	23 U
Styrene	0.71 U	0.81 U	0.71 U	0.63 U	0.66 U	0.88 UJ	0.79 U	0.9 U	0.72 U
Tetrachloroethene	0.78 U	0.9 U	0.78 U	0.7 U	0.73 U	0.97 UJ	0.87 U	1 U	1.1 J
Toluene	0.85 U	0.97 U	0.85 U	0.76 U	0.79 U	1.1 UJ	0.94 U	1.1 U	0.86 U
trans-1,2-Dichloroethene	1 U	1.2 U	1 U	0.93 U	0.97 U	1.3 UJ	1.2 U	1.3 U	1.1 U
trans-1,3-Dichloropropene	0.93 U	1.1 U	0.93 U	0.83 U	0.87 U	1.2 UJ	1 U	1.2 U	0.95 U
trans-1,4-Dichloro-2-butene	3.3 U	3.8 U	3.3 U	3 U	3.1 U	4.1 UJ	3.7 U	4.2 U	3.4 U
Trichloroethene	1.1 U	1.2 U	1.1 U	0.96 U	1 U	1.3 UJ	1.2 U	1.4 U	1.1 U
Trichlorofluoromethane	1.6 U	1.8 U	1.6 U	1.4 U	1.5 U	2 UJ	1.8 U	2 U	1.6 U
Vinyl acetate	1.6 U	1.8 U	1.6 U	1.4 U	1.5 U	2 UJ	1.8 U	2 U	1.6 U
Vinyl chloride	0.62 U	0.71 U	0.62 U	0.55 U	0.58 U	0.77 UJ	0.69 U	0.79 U	0.63 U
Xylenes, Total	2.5 U	2.8 U	2.5 U	2.2 U	2.3 U	3.1 UJ	2.7 U	3.1 U	2.5 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB111	74SB111	74SB112	74SB112	74SB113	74SB113	74SB114	74SB114	74SB115
	Sample ID	74SB111-03D	74SB111-05	74SB112-04	74SB112-05	74SB113-04	74SB113-05	74SB114-04	74SB114-05	74SB115-03
	Date	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/13/2008	5/13/2008	5/13/2008
	Depth Range	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	1.6 U	NA	NA	1.5 U	1.7 U	NA	1.8 U	NA
2-Methylnaphthalene		NA	2.2 U	NA	NA	2.1 U	2.4 U	NA	2.6 U	NA
Acenaphthene		NA	0.74 U	NA	NA	0.7 U	0.79 U	NA	0.87 U	NA
Acenaphthylene		NA	2.2 U	NA	NA	2.1 U	2.4 U	NA	2.6 U	NA
Anthracene		NA	2.2 U	NA	NA	2.1 U	2.4 U	NA	2.6 U	NA
Benzo[a]anthracene		NA	2.2 U	NA	NA	2.1 U	2.4 U	NA	2.6 U	NA
Benzo[a]pyrene		NA	0.86 U	NA	NA	0.81 U	0.91 U	NA	1 U	NA
Benzo[b]fluoranthene		NA	0.99 U	NA	NA	0.94 J	1.1 U	NA	1.2 U	NA
Benzo[g,h,i]perylene		NA	2.2 U	NA	NA	2.1 U	2.4 U	NA	2.6 U	NA
Benzo[k]fluoranthene		NA	1.3 U	NA	NA	1.2 U	1.4 U	NA	1.5 U	NA
Chrysene		NA	0.79 U	NA	NA	0.75 U	0.86 J	NA	1.7 J	NA
Dibenz(a,h)anthracene		NA	0.77 U	NA	NA	0.73 U	0.82 U	NA	0.9 U	NA
Fluoranthene		NA	2.2 U	NA	NA	2.1 U	8.8 J	NA	2.6 U	NA
Fluorene		NA	1 U	NA	NA	0.95 U	1.1 U	NA	1.2 U	NA
Indeno[1,2,3-cd]pyrene		NA	1.6 U	NA	NA	1.5 U	1.7 U	NA	1.8 U	NA
Naphthalene		NA	0.78 U	NA	NA	0.74 U	0.83 U	NA	0.91 U	NA
Phenanthrene		NA	2.2 U	NA	NA	2.1 U	2.4 U	NA	2.6 U	NA
Pyrene		NA	2.2 U	NA	NA	2.1 U	8.3 J	NA	8 J	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB111	74SB111	74SB112	74SB112	74SB113	74SB113	74SB114	74SB114	74SB115
	Sample ID	74SB111-03D	74SB111-05	74SB112-04	74SB112-05	74SB113-04	74SB113-05	74SB114-04	74SB114-05	74SB115-03
	Date	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/7/2008	5/13/2008	5/13/2008	5/13/2008
	Depth Range	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Metals (mg/kg)</b>										
Antimony		0.084 U	0.091 U	0.083 U	0.082 U	0.083 U	0.097 U	0.11 UJ	0.12 UJ	0.13 UJ
Arsenic		1.5	1.6	0.85	0.96	0.59	0.82	2.2	3	3.4
Barium		87	120	40	25	130	97	210	270	13
Beryllium		0.33	0.32	0.2	0.22	0.19	0.19	0.56	0.7	0.3
Cadmium		0.099 J	0.081 J	0.12	0.13	0.035 J	0.11 J	0.085 J	0.09 J	0.037 U
Chromium		9.2	8.7	17	12	6.7	9	20	18	24
Cobalt		36	32	35	24	20	49	32	45	11
Copper		130	110	130	130	110	130	67	91	98
Lead		0.87	24	0.62	0.55	4.1	7.3	8.9	8.6	4.8
Mercury		0.018 J	0.014 J	0.007 J	0.007 J	0.006 J	0.01 J	0.017 J	0.006 U	0.043
Nickel		7.5	8	15	13	8.5	16	12	15	6.3
Selenium		0.31 J	0.22 J	0.13 U	0.13 U	0.13 U	0.16 U	0.61 J	0.37 J	2.8
Silver		0.026 J	0.024 J	0.031 J	0.025 J	0.018 U	0.024 J	0.024 J	0.027 J	0.019 U
Thallium		0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.16 U	0.15 U	0.17 U	0.14 U
Tin		4.5 U	4.8 U	4.4 U	4.4 U	4.4 U	5.2 U	5.1 U	5.6 U	4.8 U
Vanadium		200	160	200	200	200	230	190	250	350
Zinc		76	76	65	93	94	82	210 J	280 J	46 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		1.7 J	1.8 J	1.9 J	2.8 J	4.7	5.1	2.8 J	3.3 J	2.8 J
Gasoline Range Organics		0.064 U	0.55	0.06 U	0.059 J	140	4.8 J	0.072 U	40	0.059 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB115	74SB116	74SB116	74SB116	74SB117	74SB117	74SB118	74SB118	74SB119
Sample ID	74SB115-05	74SB116-04	74SB116-05	74SB116-05D	74SB117-03	74SB117-04	74SB118-03	74SB118-05	74SB119-04
Date	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008
Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.82 U	0.82 U	0.88 U	0.89 U	0.71 U	0.69 U	0.72 U	0.88 U	0.63 U
1,1,1-Trichloroethane	0.74 U	0.74 U	0.8 U	0.81 U	0.65 U	0.63 U	0.66 U	0.8 U	0.57 U
1,1,2,2-Tetrachloroethane	1.8 U	1.8 U	1.9 U	2 U	1.6 U	1.5 U	1.6 U	1.9 U	1.4 U
1,1,2-Trichloroethane	1.5 U	1.5 U	1.7 U	1.7 U	1.3 U	1.3 U	1.4 U	1.7 U	1.2 U
1,1-Dichloroethane	0.64 U	0.64 U	0.69 U	0.7 U	0.56 U	0.54 U	0.57 U	0.69 U	0.49 U
1,1-Dichloroethene	0.69 U	0.69 U	0.75 U	0.75 U	0.6 U	0.59 U	0.61 U	0.74 U	0.53 U
1,2,3-Trichloropropane	1.8 U	1.8 U	1.9 U	2 U	1.6 U	1.5 U	1.6 U	1.9 U	1.4 U
1,2-Dibromo-3-Chloropropane	3.6 U	3.6 U	3.9 U	3.9 U	3.1 U	3 U	3.2 U	3.9 U	2.7 U
1,2-Dichloroethane	1.3 U	1.3 U	1.4 U	1.4 U	1.1 U	1.1 U	1.1 U	1.4 U	0.98 U
1,2-Dichloropropane	1.4 U	1.4 U	1.5 U	1.5 U	1.2 U	1.2 U	1.2 U	1.5 U	1.1 U
2-Butanone (MEK)	3.5 UJ	3.4 UJ	3.7 UJ	3.8 UJ	3 UJ	2.9 UJ	3.1 UJ	3.7 UJ	2.6 UJ
2-Chloro-1,3-butadiene	0.73 U	0.73 U	0.79 U	0.79 U	0.63 U	0.62 U	0.65 U	0.79 U	0.56 U
2-Hexanone	2.7 UJ	2.7 UJ	2.9 UJ	2.9 UJ	2.3 UJ	2.3 UJ	2.4 UJ	2.9 UJ	2.1 UJ
3-Chloro-1-propene	1.9 U	1.9 U	2.1 U	2.1 U	1.7 U	1.6 U	1.7 U	2.1 U	1.5 U
4-Methyl-2-pentanone (MIBK)	3.7 UJ	3.7 UJ	4 UJ	4 UJ	3.2 UJ	3.1 UJ	3.3 UJ	4 UJ	2.8 UJ
Acetone	17 J	52 J	60 J	46 J	22 J	4.8 R	24 J	30 J	15 J
Acetonitrile	58 U	57 U	62 U	63 U	50 U	49 U	51 U	62 U	44 U
Acrolein	24 UJ	24 UJ	26 UJ	26 UJ	21 UJ	21 UJ	22 UJ	26 UJ	19 UJ
Acrylonitrile	29 U	29 U	32 U	32 U	26 U	25 U	26 U	32 U	23 U
Benzene	1 U	1 U	1.1 U	1.1 U	0.88 U	0.86 U	0.89 U	1.1 U	0.78 U
Bromoform	1.4 U	1.4 U	1.5 U	1.5 U	1.2 U	1.2 U	1.2 U	1.5 U	1.1 U
Bromomethane	2.1 U	2 U	2.2 U	2.2 U	1.8 U	1.7 U	1.8 U	2.2 U	1.6 U
Carbon disulfide	0.65 U	0.65 U	0.7 U	0.71 U	0.57 U	0.55 U	0.58 U	0.7 U	0.5 U
Carbon tetrachloride	1.3 U	1.3 U	1.4 U	1.4 U	1.1 U	1.1 U	1.1 U	1.4 U	0.98 U
Chlorobenzene	0.94 U	0.93 U	1 U	1 U	0.81 U	0.79 U	0.83 U	1 U	0.72 U
Chlorodibromomethane	0.64 U	0.64 U	0.69 U	0.7 U	0.56 U	0.54 U	0.57 U	0.69 U	0.49 U
Chloroethane	1.5 U	1.5 U	1.7 U	1.7 U	1.3 U	1.3 U	1.4 U	1.7 U	1.2 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB115	74SB116	74SB116	74SB116	74SB117	74SB117	74SB118	74SB118	74SB119
	Sample ID	74SB115-05	74SB116-04	74SB116-05	74SB116-05D	74SB117-03	74SB117-04	74SB118-03	74SB118-05	74SB119-04
	Date	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform		0.64 U	0.64 U	0.69 U	0.7 U	0.56 U	0.54 U	0.57 U	0.69 U	0.49 U
Chloromethane		0.91 U	0.9 U	0.98 U	0.99 U	0.79 U	0.77 U	0.8 U	0.98 U	0.7 U
cis-1,3-Dichloropropene		1.1 U	1.1 U	1.2 U	1.2 U	0.97 U	0.94 U	0.98 U	1.2 U	0.85 U
Dibromomethane		1.5 U	1.5 U	1.7 U	1.7 U	1.3 U	1.3 U	1.4 U	1.7 U	1.2 U
Dichlorobromomethane		1.1 U	1.1 U	1.1 U	1.2 U	0.92 U	0.9 U	0.94 U	1.1 U	0.81 U
Dichlorodifluoromethane		1.1 U	1.1 U	1.2 U	1.2 U	0.99 U	0.96 U	1 U	1.2 U	0.87 U
Ethyl methacrylate		2.8 U	2.8 U	3 U	3.1 U	2.4 U	2.4 U	2.5 U	3 U	2.2 U
Ethylbenzene		0.96 U	0.96 U	1 U	1 U	0.83 U	0.81 U	0.85 U	1 U	0.74 U
Ethylene Dibromide		1.9 U	1.9 U	2.1 U	2.1 U	1.7 U	1.6 U	1.7 U	2.1 U	1.5 U
Iodomethane		1.3 UJ	1.3 UJ	1.4 UJ	1.4 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.4 J	0.98 UJ
Isobutyl alcohol		88 R	88 R	95 R	96 R	77 R	75 R	78 R	95 R	68 R
Methacrylonitrile		31 U	31 U	33 U	33 U	27 U	26 U	27 U	33 U	24 U
Methyl methacrylate		4.7 U	4.7 U	5.1 U	5.2 U	4.1 U	4 U	4.2 U	5.1 U	3.6 U
Methylene Chloride		1.3 U	1.3 U	1.4 U	1.4 U	1.1 U	1.1 U	1.1 U	1.4 U	0.98 U
Pentachloroethane		2.8 UJ	2.8 UJ	3 UJ	3.1 UJ	2.4 UJ	2.4 UJ	2.5 UJ	3 UJ	2.2 UJ
Propionitrile		27 U	27 U	29 U	29 U	23 U	23 U	24 U	29 U	21 U
Styrene		0.85 U	0.84 U	0.91 U	0.92 U	0.73 U	0.72 U	0.75 U	0.91 U	0.65 U
Tetrachloroethene		0.94 U	0.93 U	1 U	1 U	0.81 U	0.79 U	0.83 U	1 U	0.72 U
Toluene		1 U	1 U	1.1 U	1.1 U	0.88 U	0.86 U	0.89 U	1.1 U	0.78 U
trans-1,2-Dichloroethene		1.2 U	1.2 U	1.3 U	1.4 U	1.1 U	1.1 U	1.1 U	1.3 U	0.95 U
trans-1,3-Dichloropropene		1.1 U	1.1 U	1.2 U	1.2 U	0.97 U	0.94 U	0.98 U	1.2 U	0.85 U
trans-1,4-Dichloro-2-butene		4 U	3.9 U	4.3 U	4.3 U	3.4 U	3.4 U	3.5 U	4.3 U	3 U
Trichloroethene		1.3 U	1.3 U	1.4 U	1.4 U	1.1 U	1.1 U	1.1 U	1.4 U	0.98 U
Trichlorofluoromethane		1.9 U	1.9 U	2.1 U	2.1 U	1.7 U	1.6 U	1.7 U	2.1 U	1.5 U
Vinyl acetate		1.9 U	1.9 U	2.1 U	2.1 U	1.7 U	1.6 U	1.7 U	2.1 U	1.5 U
Vinyl chloride		0.74 U	0.74 U	0.8 U	0.81 U	0.65 U	0.63 U	0.66 U	0.8 U	0.57 U
Xylenes, Total		2.9 U	2.9 U	3.2 U	3.2 U	2.6 U	2.5 U	2.6 U	3.2 U	2.3 U

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### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB115	74SB116	74SB116	74SB116	74SB117	74SB117	74SB118	74SB118	74SB119
	Sample ID	74SB115-05	74SB116-04	74SB116-05	74SB116-05D	74SB117-03	74SB117-04	74SB118-03	74SB118-05	74SB119-04
	Date	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB115	74SB116	74SB116	74SB116	74SB117	74SB117	74SB118	74SB118	74SB119
	Sample ID	74SB115-05	74SB116-04	74SB116-05	74SB116-05D	74SB117-03	74SB117-04	74SB118-03	74SB118-05	74SB119-04
	Date	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008	5/13/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony		0.095 UJ	0.11 UJ	0.099 UJ	0.11 UJ	0.092 UJ	0.18 UJ	0.1 UJ	0.1 UJ	0.11 UJ
Arsenic		0.96	2.7	2.4	1.3	0.65	1.7	1.9	1.3	1.6
Barium		11	460	320	250	28	43	160	310	88
Beryllium		0.39	0.62	0.58	0.51	0.13	0.32	0.2	0.43	0.27
Cadmium		0.039 U	0.047 J	0.041 U	0.045 U	0.038 U	0.037 U	0.038 U	0.081 J	0.3
Chromium		9.8	8.3	8.6	8.3	7.2	16	24	9.4	16
Cobalt		19	40	30 J	18 J	4.6	4.7	12	27	14
Copper		110	83	81	71	45	97	150	67	200
Lead		3	1.9	1.8	2.5	1.3	2	2.6	13	1.6
Mercury		0.005 U	0.045	0.023 J	0.031	0.01 J	0.054	0.032	0.0056 U	0.013 J
Nickel		19	9.4	8.5	8.7	3.2	5.1	7.6	10	9.1
Selenium		0.66	1.5	1.1	1	0.27 J	0.56 J	0.65	0.17 U	0.22 J
Silver		0.026 J	0.025 J	0.021 U	0.036 J	0.046 J	0.021 J	0.027 J	0.045 J	0.052 J
Thallium		0.15 U	0.16 U	0.16 U	0.17 U	0.15 U	0.14 U	0.15 U	0.17 U	0.13 U
Tin		5.1 U	5.5 U	5.3 U	5.8 U	4.9 U	4.8 U	4.9 U	5.6 U	4.5 U
Vanadium		210	260	260	200	120	270	290	220	150
Zinc		89 J	170 J	150 J	130 J	34 J	54 J	49 J	79 J	100 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		3.4 J	2.9 J	2.7 J	2.2 J	1.5 J	2.4 J	2.3 J	4.7 J	3.9 J
Gasoline Range Organics		0.078 U	0.079 U	0.091 U	0.087 U	0.07 U	0.073 U	0.071 U	0.081 U	0.058 U

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### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB119	74SB120	74SB120	74SB121	74SB121
	Sample ID	74SB119-05	74SB120-04	74SB120-05	74SB121-05	74SB121-05D
	Date	5/13/2008	5/14/2008	5/14/2008	5/13/2008	5/13/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>						
1,1,1,2-Tetrachloroethane		0.74 U	0.62 U	0.78 U	0.71 U	0.81 U
1,1,1-Trichloroethane		0.67 U	0.56 U	0.71 U	0.65 U	0.73 U
1,1,2,2-Tetrachloroethane		1.6 U	1.4 U	1.7 U	1.6 U	1.8 U
1,1,2-Trichloroethane		1.4 U	1.2 U	1.5 U	1.3 U	1.5 U
1,1-Dichloroethane		0.58 U	0.48 U	0.61 U	0.56 U	0.63 U
1,1-Dichloroethene		0.63 U	0.52 U	0.66 U	0.6 U	0.68 U
1,2,3-Trichloropropane		1.6 U	1.4 U	1.7 U	1.6 U	1.8 U
1,2-Dibromo-3-Chloropropane		3.2 U	2.7 U	3.4 U	3.1 U	3.5 U
1,2-Dichloroethane		1.2 U	0.97 U	1.2 U	1.1 U	1.3 U
1,2-Dichloropropane		1.3 U	1.1 U	1.3 U	1.2 U	1.4 U
2-Butanone (MEK)		3.1 UJ	2.6 UJ	3.3 UJ	3 U	3.4 U
2-Chloro-1,3-butadiene		0.66 U	0.55 U	0.7 U	0.64 UJ	0.72 UJ
2-Hexanone		2.4 UJ	2 UJ	2.6 UJ	2.3 U	2.7 U
3-Chloro-1-propene		1.7 U	1.4 U	1.8 U	1.7 U	1.9 U
4-Methyl-2-pentanone (MIBK)		3.4 UJ	2.8 UJ	3.6 UJ	3.2 U	3.7 U
Acetone		5.1 R	4.3 R	15 J	26 J	26 J
Acetonitrile		52 U	43 U	55 U	50 R	57 R
Acrolein		22 UJ	18 UJ	23 UJ	21 R	24 R
Acrylonitrile		27 U	22 U	28 U	26 U	29 U
Benzene		0.92 U	0.76 U	0.97 U	0.88 U	1 U
Bromoform		1.3 U	1.1 U	1.3 U	1.2 U	1.4 U
Bromomethane		1.9 U	1.5 U	2 U	1.8 U	2 U
Carbon disulfide		0.59 U	0.49 U	0.62 U	0.57 U	0.64 U
Carbon tetrachloride		1.2 U	0.97 U	1.2 U	1.1 U	1.3 U
Chlorobenzene		0.85 U	0.71 U	0.89 U	0.82 U	0.92 U
Chlorodibromomethane		0.58 U	0.48 U	0.61 U	0.56 U	0.63 U
Chloroethane		1.4 U	1.2 U	1.5 U	1.3 U	1.5 U

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### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB119	74SB120	74SB120	74SB121	74SB121
Sample ID	74SB119-05	74SB120-04	74SB120-05	74SB121-05	74SB121-05D
Date	5/13/2008	5/14/2008	5/14/2008	5/13/2008	5/13/2008
Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>					
Chloroform	0.58 U	0.48 U	0.61 U	0.56 U	0.63 U
Chloromethane	0.82 U	0.69 U	0.87 U	0.79 U	0.9 U
cis-1,3-Dichloropropene	1 U	0.84 U	1.1 U	0.97 U	1.1 U
Dibromomethane	1.4 U	1.2 U	1.5 U	1.3 U	1.5 U
Dichlorobromomethane	0.96 U	0.8 U	1 U	0.93 U	1 U
Dichlorodifluoromethane	1 U	0.86 U	1.1 U	0.99 U	1.1 U
Ethyl methacrylate	2.5 U	2.1 U	2.7 U	2.5 U	2.8 U
Ethylbenzene	0.87 U	0.72 U	0.92 U	0.84 U	0.95 U
Ethylene Dibromide	1.7 U	1.4 U	1.8 U	1.7 U	1.9 U
Iodomethane	1.2 UJ	0.97 UJ	1.2 UJ	1.1 U	1.3 U
Isobutyl alcohol	80 R	67 R	85 R	77 R	87 R
Methacrylonitrile	28 U	23 U	29 U	27 UJ	30 UJ
Methyl methacrylate	4.3 U	3.6 U	4.5 U	4.1 U	4.7 U
Methylene Chloride	1.2 U	0.97 U	1.2 U	1.1 U	1.3 U
Pentachloroethane	2.5 UJ	2.1 UJ	2.7 UJ	2.5 UJ	2.8 UJ
Propionitrile	24 U	20 U	26 U	23 U	27 U
Styrene	0.76 U	0.64 U	0.81 U	0.74 U	0.83 U
Tetrachloroethene	0.85 U	0.71 U	0.89 U	0.82 U	0.92 U
Toluene	0.92 U	0.76 U	0.97 U	0.88 U	1 U
trans-1,2-Dichloroethene	1.1 U	0.94 U	1.2 U	1.1 U	1.2 U
trans-1,3-Dichloropropene	1 U	0.84 U	1.1 U	0.97 U	1.1 U
trans-1,4-Dichloro-2-butene	3.6 U	3 U	3.8 U	3.5 U	3.9 U
Trichloroethene	1.2 U	0.97 U	1.2 U	1.1 U	1.3 U
Trichlorofluoromethane	1.7 U	1.4 U	1.8 U	1.7 U	1.9 U
Vinyl acetate	1.7 U	1.4 U	1.8 U	1.7 U	1.9 U
Vinyl chloride	0.67 U	0.56 U	0.71 U	0.65 U	0.73 U
Xylenes, Total	2.7 U	2.2 U	2.8 U	2.6 U	2.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB119	74SB120	74SB120	74SB121	74SB121
	Sample ID	74SB119-05	74SB120-04	74SB120-05	74SB121-05	74SB121-05D
	Date	5/13/2008	5/14/2008	5/14/2008	5/13/2008	5/13/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>						
1-Methylnaphthalene		NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA

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### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB119	74SB120	74SB120	74SB121	74SB121
	Sample ID	74SB119-05	74SB120-04	74SB120-05	74SB121-05	74SB121-05D
	Date	5/13/2008	5/14/2008	5/14/2008	5/13/2008	5/13/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	9.0-11.0
<b>Metals (mg/kg)</b>						
Antimony		0.089 UJ	0.076 UJ	0.12 UJ	0.089 UJ	0.085 UJ
Arsenic		1.1	2	0.77	0.93	0.93
Barium		76	52	35	250 R	43 R
Beryllium		0.32	0.24	0.14	0.27	0.24
Cadmium		0.076 J	0.11	0.088 J	0.066 J	0.039 J
Chromium		7.7	8.2	4.6	14 J	15 J
Cobalt		37	25	23	18	16
Copper		26	400	340	210	190
Lead		0.48	1.1	0.57	4.5 J	2.6 J
Mercury		0.011 J	0.006 J	0.006 J	0.0046 U	0.0048 U
Nickel		7.4	8.3	6	18	17
Selenium		0.34 J	0.23 J	0.16 U	0.14 U	0.14 U
Silver		0.097 J	0.11 J	0.12 J	0.019 U	0.018 U
Thallium		0.14 U	0.12 U	0.16 U	0.14 U	0.14 U
Tin		4.8 U	4.1 U	5.2 U	4.8 U	4.5 U
Vanadium		210	230	170	190	180
Zinc		84 J	78 J	68 J	140 J	130 J
<b>TPH DRO/GRO (mg/kg)</b>						
Diesel Range Organics		2.8 J	3.1 J	2.7 J	6.7	4.3
Gasoline Range Organics		0.066 U	0.068 U	0.083 U	0.064 U	0.069 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB144	74SB144	74SB145	74SB145	74SB146	74SB146	74SB146	74SB147	74SB147
Sample ID	74SB144-03	74SB144-05	74SB145-05	74SB145-09	74SB146-02D	74SB146-02	74SB146-05	74SB147-03	74SB147-04
Date	5/14/2008	5/14/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range	5.0-7.0	9.0-11.0	9.0-11.0	17-19	3.0-5.0	3.0-5.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.71 U	0.82 U	0.71 U	0.75 U	0.56 U	0.59 U	0.71 U	0.87 U	0.61 U
1,1,1-Trichloroethane	0.64 U	0.75 U	0.64 U	0.68 U	0.51 U	0.54 U	0.65 U	0.79 U	0.55 U
1,1,2,2-Tetrachloroethane	1.5 U	1.8 U	1.5 U	1.6 U	1.2 U	1.3 U	1.6 U	1.9 U	1.3 U
1,1,2-Trichloroethane	1.3 U	1.5 U	1.3 U	1.4 U	1.1 U	1.1 U	1.3 U	1.6 U	1.1 U
1,1-Dichloroethane	0.55 U	0.64 U	0.55 U	0.58 U	0.44 U	0.46 U	0.56 U	0.68 U	0.48 U
1,1-Dichloroethene	0.6 U	0.69 U	0.6 U	0.63 U	0.47 U	0.5 U	0.6 U	0.73 U	0.51 U
1,2,3-Trichloropropane	1.5 U	1.8 U	1.5 U	1.6 U	1.2 U	1.3 U	1.6 U	1.9 U	1.3 U
1,2-Dibromo-3-Chloropropane	3.1 U	3.6 U	3.1 U	3.3 U	2.5 U	2.6 U	3.1 U	3.8 U	2.7 U
1,2-Dichloroethane	1.1 U	1.3 U	1.1 U	1.2 U	0.88 U	0.93 U	1.1 U	1.4 U	0.95 U
1,2-Dichloropropane	1.2 U	1.4 U	1.2 U	1.3 U	0.97 U	1 U	1.2 U	1.5 U	1 U
2-Butanone (MEK)	3 U	3.5 U	3.9 UJ	3.1 U	2.4 U	2.5 U	3 U	3.7 U	2.6 U
2-Chloro-1,3-butadiene	0.63 U	0.73 U	0.63 U	0.66 U	0.5 U	0.53 U	0.63 U	0.77 U	0.54 U
2-Hexanone	2.3 U	2.7 U	2.3 U	2.4 UJ	1.8 U	2 U	2.3 U	2.8 U	2 U
3-Chloro-1-propene	1.7 U	1.9 U	1.7 U	1.7 U	1.3 U	1.4 U	1.7 U	2 U	1.4 U
4-Methyl-2-pentanone (MIBK)	3.2 U	3.7 U	3.2 U	3.4 U	2.5 U	2.7 U	3.2 U	3.9 U	2.8 U
Acetone	11 J	13 J	23 J	11 J	18 J	4.1 U	8.6 J	53 J	4.5 J
Acetonitrile	50 U	58 U	50 U	52 U	40 U	42 U	50 U	61 U	43 U
Acrolein	21 R	24 R	21 U	22 U	17 R	18 R	21 R	26 R	18 R
Acrylonitrile	25 U	30 U	25 U	27 U	20 U	21 U	26 U	31 U	22 U
Benzene	0.87 U	1 U	0.87 U	0.92 U	0.69 U	0.73 U	0.88 U	1.1 U	0.75 U
Bromoform	1.2 U	7.7	1.2 U	1.3 U	0.97 U	1 U	1.2 U	1.5 U	1 U
Bromomethane	1.8 U	2.1 U	1.8 U	1.9 U	1.4 U	1.5 U	1.8 U	2.2 U	1.5 UJ
Carbon disulfide	0.56 U	0.66 U	0.56 U	0.59 U	0.45 U	0.47 U	0.57 U	2.5 J	0.49 U
Carbon tetrachloride	1.1 U	1.3 U	1.1 U	1.2 U	0.88 U	0.93 U	1.1 U	1.4 U	0.95 U
Chlorobenzene	0.81 U	0.94 U	0.8 U	0.85 U	0.64 U	0.68 U	0.81 U	0.99 U	0.7 U
Chlorodibromomethane	0.55 U	0.64 U	0.55 U	0.58 U	0.44 U	0.46 U	0.56 U	0.68 U	0.48 U
Chloroethane	1.3 U	1.5 U	1.3 U	1.4 U	1.1 UJ	1.1 UJ	1.3 UJ	1.6 UJ	1.1 UJ



# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB144	74SB144	74SB145	74SB145	74SB146	74SB146	74SB146	74SB147	74SB147
Sample ID	74SB144-03	74SB144-05	74SB145-05	74SB145-09	74SB146-02D	74SB146-02	74SB146-05	74SB147-03	74SB147-04
Date	5/14/2008	5/14/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range	5.0-7.0	9.0-11.0	9.0-11.0	17-19	3.0-5.0	3.0-5.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.55 U	0.64 U	0.55 U	0.58 U	0.44 U	0.46 U	0.56 U	0.68 U	0.48 U
Chloromethane	0.79 U	0.91 U	0.78 U	0.83 U	0.62 U	0.66 U	0.79 U	0.96 U	0.68 U
cis-1,3-Dichloropropene	0.96 U	1.1 U	0.96 U	1 U	0.76 U	0.81 U	0.97 U	1.2 U	0.83 U
Dibromomethane	1.3 U	1.5 U	1.3 U	1.4 U	1.1 U	1.1 U	1.3 U	1.6 U	1.1 U
Dichlorobromomethane	0.92 U	1.1 U	0.91 U	0.97 U	0.73 U	0.77 U	0.92 U	1.1 U	0.79 U
Dichlorodifluoromethane	0.98 U	1.1 U	0.98 U	1 U	0.78 U	0.83 U	0.99 U	1.2 U	0.85 U
Ethyl methacrylate	2.4 U	2.8 U	2.4 U	2.6 U	1.9 U	2 U	2.5 U	3 U	2.1 U
Ethylbenzene	0.83 U	0.96 U	0.83 U	0.87 U	0.66 U	0.7 U	0.84 U	1 U	0.71 U
Ethylene Dibromide	1.7 U	1.9 U	1.7 U	1.7 U	1.3 U	1.4 U	1.7 U	2 U	1.4 U
Iodomethane	1.1 U	1.3 U	1.1 U	1.2 U	0.88 UJ	0.97 UJ	1.1 UJ	2.1 J	0.95 U
Isobutyl alcohol	76 R	89 R	76 U	80 U	61 R	64 R	77 R	93 R	66 R
Methacrylonitrile	27 U	31 U	26 U	28 U	21 U	22 U	27 U	33 U	23 U
Methyl methacrylate	4.1 U	4.8 U	4.1 U	4.3 U	3.3 U	3.4 U	4.1 U	5 U	3.5 U
Methylene Chloride	1.1 U	1.3 U	1.1 U	1.2 U	0.88 U	0.93 U	1.1 U	1.4 U	0.95 U
Pentachloroethane	2.4 U	2.8 U	2.4 R	2.6 R	1.9 UJ	2 UJ	2.5 UJ	3 UJ	2.1 U
Propionitrile	23 U	27 U	23 U	24 U	18 U	20 U	23 U	28 U	20 U
Styrene	0.73 U	0.85 U	0.73 U	0.77 U	0.58 U	0.61 U	0.74 U	0.89 U	0.63 U
Tetrachloroethene	0.81 U	0.94 U	0.8 U	0.85 U	0.64 U	0.68 U	0.81 U	0.99 U	0.7 U
Toluene	0.87 U	1 U	0.87 U	0.92 U	0.69 U	0.73 U	0.88 U	1.1 U	0.75 U
trans-1,2-Dichloroethene	1.1 U	1.2 U	1.1 U	1.1 U	0.85 U	0.9 U	1.1 U	1.3 U	0.92 U
trans-1,3-Dichloropropene	0.96 U	1.1 U	0.96 U	1 U	0.76 U	0.81 U	0.97 U	1.2 U	0.83 U
trans-1,4-Dichloro-2-butene	3.4 U	4 U	3.4 U	3.6 U	2.7 U	2.9 U	3.5 U	4.2 U	3 U
Trichloroethene	1.1 U	1.3 U	1.1 U	1.2 U	0.88 U	0.93 U	1.1 U	1.4 U	0.95 U
Trichlorofluoromethane	1.7 U	1.9 U	1.7 U	1.7 U	1.3 U	1.4 U	1.7 U	2 U	1.4 U
Vinyl acetate	1.7 U	1.9 U	1.7 U	1.7 U	1.3 U	1.4 U	1.7 U	2 U	1.4 U
Vinyl chloride	0.64 U	0.75 U	0.64 U	0.68 U	0.51 U	0.54 U	0.65 U	0.79 U	0.55 U
Xylenes, Total	2.5 U	3 U	2.5 U	2.7 U	2 U	2.1 U	2.6 U	3.1 U	2.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB144	74SB144	74SB145	74SB145	74SB146	74SB146	74SB146	74SB147	74SB147
	Sample ID	74SB144-03	74SB144-05	74SB145-05	74SB145-09	74SB146-02D	74SB146-02	74SB146-05	74SB147-03	74SB147-04
	Date	5/14/2008	5/14/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	5.0-7.0	9.0-11.0	9.0-11.0	17-19	3.0-5.0	3.0-5.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB144	74SB144	74SB145	74SB145	74SB146	74SB146	74SB146	74SB147	74SB147
	Sample ID	74SB144-03	74SB144-05	74SB145-05	74SB145-09	74SB146-02D	74SB146-02	74SB146-05	74SB147-03	74SB147-04
	Date	5/14/2008	5/14/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	5.0-7.0	9.0-11.0	9.0-11.0	17-19	3.0-5.0	3.0-5.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony		0.094 UJ	0.086 UJ	0.086 UJ	0.081 UJ	0.075 U	0.28 U	0.094 U	0.12 U	0.076 U
Arsenic		1.4	0.86	0.66	0.87	1	1.1	0.74	1.6	0.95
Barium		190 J	150 J	62 J	27 J	54 J	76 J	95 J	92 J	87 J
Beryllium		0.38	0.48	0.44	0.14	0.23	0.32	0.63	0.45	0.53
Cadmium		0.039 U	0.036 U	0.056 J	0.1 J	0.31 R	1.2 R	0.047 J	0.41	0.07 J
Chromium		18	7.9	20 J	6.2 J	38 J	28 J	650 J	41 J	110 J
Cobalt		9.8 J	62 J	46	18	26 J	39 J	64 J	36 J	26 J
Copper		63	9.9	43	510	91 J	110 J	140 J	81 J	250 J
Lead		5.1	1.5	1	0.69	4.3	4.8	0.98	12	2.3
Mercury		0.007 J	0.0042 U	0.0044 U	0.0044 U	0.011 J	0.0078 J	0.0045 UJ	0.094 J	0.0043 UJ
Nickel		8.8 J	16 J	16	12	23	31	200	16	88
Selenium		1.2	0.17 J	0.23 J	0.12 U	0.14 J	0.18 J	0.15 U	1.3	0.12 U
Silver		0.02 U	0.028 J	0.031 J	0.11 J	0.037 J	0.12 J	0.063 J	0.2 J	0.082 J
Thallium		0.15 U	0.14 U	0.13 U	0.12 U	0.12 U	0.12 U	0.15 U	0.16 U	0.12 U
Tin		5 U	4.6 U	4.5 U	4.1 U	4 U	4 U	5 U	5.2 U	4.1 U
Vanadium		200	150	170	120	170 J	130 J	110 J	170 J	99 J
Zinc		56 J	120 J	78	56	96 J	130 J	95 J	65 J	45 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		0.82 U	0.72 U	0.74 U	0.67 U	3.3 J	1.9 J	1.8 J	0.84 U	6.9
Gasoline Range Organics		0.073 U	0.067 U	0.074 U	0.058 U	0.073 U	0.068 U	0.08 U	0.083 U	0.066 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB148	74SB148	74SB161	74SB161	74SB161	74SB162	74SB162	74SB163	74SB163
Sample ID	74SB148-02	74SB148-04	74SB161-04D	74SB161-04	74SB161-05	74SB162-04	74SB162-05	74SB163-03	74SB163-04
Date	5/15/2008	5/15/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.78 U	0.83 U	0.77 U	0.69 U	0.73 U	1.1 U	0.96 U	0.84 U	0.63 U
1,1,1-Trichloroethane	0.71 U	0.76 U	0.7 U	0.63 U	0.67 U	1 U	0.87 U	0.76 U	0.57 U
1,1,2,2-Tetrachloroethane	1.7 U	1.8 U	1.7 U	1.5 U	1.6 U	2.5 U	2.1 U	1.8 U	1.4 U
1,1,2-Trichloroethane	1.5 U	1.6 U	1.4 U	1.3 U	1.4 U	2.1 U	1.8 U	1.6 U	1.2 U
1,1-Dichloroethane	0.61 U	0.65 U	0.6 U	0.54 U	0.57 U	0.88 U	0.75 U	0.65 U	0.49 U
1,1-Dichloroethene	0.66 U	0.7 U	0.65 U	0.59 U	0.62 U	0.95 U	0.81 U	0.71 U	0.53 U
1,2,3-Trichloropropane	1.7 U	1.8 U	1.7 U	1.5 U	1.6 U	2.5 U	2.1 U	1.8 U	1.4 U
1,2-Dibromo-3-Chloropropane	3.4 U	3.7 U	3.4 U	3 U	3.2 U	4.9 U	4.2 U	3.7 U	2.8 U
1,2-Dichloroethane	1.2 U	1.3 U	1.2 U	1.1 U	1.1 U	1.8 U	1.5 U	1.3 U	0.98 U
1,2-Dichloropropane	1.3 U	1.4 U	1.3 U	1.2 U	1.3 U	1.9 U	1.6 U	1.4 U	1.1 U
2-Butanone (MEK)	3.3 U	3.5 U	5.8 U	5.5 U	4.4 U	4.8 U	4 U	3.5 U	2.7 U
2-Chloro-1,3-butadiene	0.7 U	0.74 U	0.68 U	0.62 U	0.65 U	1 U	0.85 U	0.75 U	0.56 U
2-Hexanone	2.6 U	2.7 U	2.5 U	2.3 U	2.4 U	3.7 UJ	3.1 UJ	2.7 UJ	2.1 UJ
3-Chloro-1-propene	1.8 U	2 U	1.8 U	1.6 UJ	1.7 U	2.6 U	2.2 U	2 U	1.5 U
4-Methyl-2-pentanone (MIBK)	3.5 U	3.8 U	3.5 U	3.1 U	3.3 U	5.1 U	4.3 U	3.8 U	2.9 U
Acetone	7.8 J	42 J	34 J	41 J	28 J	55 J	22 J	11 J	9.2 J
Acetonitrile	55 U	59 U	54 UJ	49 U	52 UJ	79 U	67 U	59 U	44 U
Acrolein	23 R	25 R	23 UJ	21 R	22 UJ	33 U	28 U	25 U	19 U
Acrylonitrile	28 U	30 U	28 UJ	25 UJ	26 UJ	41 U	34 U	30 U	23 U
Benzene	0.97 U	1 U	0.95 U	0.86 U	0.91 U	1.4 U	1.2 U	1 U	0.78 U
Bromoform	1.3 U	1.4 U	1.3 U	1.2 U	1.3 U	1.9 U	1.6 U	1.4 U	1.1 U
Bromomethane	2 UJ	2.1 U	1.9 U	1.7 UJ	1.8 U	2.8 U	2.4 U	2.1 U	1.6 U
Carbon disulfide	0.62 U	0.66 U	0.61 U	0.55 U	0.59 U	0.9 U	0.76 U	0.67 U	0.5 U
Carbon tetrachloride	1.2 U	1.3 U	1.2 U	1.1 U	1.1 U	1.8 U	1.5 U	1.3 U	0.98 U
Chlorobenzene	0.89 U	0.95 U	0.88 U	0.79 U	0.84 U	1.3 U	1.1 U	0.95 U	0.72 U
Chlorodibromomethane	0.61 U	0.65 U	0.6 U	0.54 U	0.57 U	0.88 U	0.75 U	0.65 U	0.49 U
Chloroethane	1.5 UJ	1.6 UJ	1.4 UJ	1.3 U	1.4 UJ	2.1 U	1.8 U	1.6 U	1.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB148	74SB148	74SB161	74SB161	74SB161	74SB162	74SB162	74SB163	74SB163
Sample ID	74SB148-02	74SB148-04	74SB161-04D	74SB161-04	74SB161-05	74SB162-04	74SB162-05	74SB163-03	74SB163-04
Date	5/15/2008	5/15/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.61 U	0.65 U	0.6 U	0.54 U	0.57 U	0.88 U	0.75 U	0.65 U	0.49 U
Chloromethane	0.87 U	0.93 U	0.85 U	0.77 U	0.81 U	1.3 U	1.1 U	0.93 U	0.7 U
cis-1,3-Dichloropropene	1.1 U	1.1 U	1 U	0.94 U	1 U	1.5 U	1.3 U	1.1 U	0.86 U
Dibromomethane	1.5 U	1.6 U	1.4 U	1.3 U	1.4 U	2.1 U	1.8 U	1.6 U	1.2 U
Dichlorobromomethane	1 U	1.1 U	1 U	0.9 U	0.95 U	1.5 U	1.2 U	1.1 U	0.82 U
Dichlorodifluoromethane	1.1 U	1.2 U	1.1 U	0.97 U	1 U	1.6 U	1.3 U	1.2 U	0.88 U
Ethyl methacrylate	2.7 U	2.9 U	2.6 U	2.4 U	2.5 U	3.9 U	3.3 U	2.9 U	2.2 U
Ethylbenzene	0.92 U	0.98 U	0.9 U	0.81 U	0.86 U	1.3 U	1.1 U	0.98 U	0.74 U
Ethylene Dibromide	1.8 U	2 U	1.8 U	1.6 U	1.7 U	2.6 U	2.2 U	2 U	1.5 U
Iodomethane	1.2 U	1.3 UJ	1.2 U	1.1 UJ	1.1 U	1.8 U	1.5 U	1.3 U	0.98 U
Isobutyl alcohol	84 R	90 R	83 UJ	75 R	79 UJ	120 U	100 U	90 U	68 U
Methacrylonitrile	29 U	31 U	29 UJ	26 U	28 UJ	42 U	36 U	31 U	24 U
Methyl methacrylate	4.5 U	4.8 U	4.4 U	4 UJ	4.2 U	6.5 U	5.5 U	4.8 U	3.6 U
Methylene Chloride	1.2 U	1.3 U	1.2 U	1.1 U	1.1 U	1.8 U	1.5 U	1.3 U	0.98 U
Pentachloroethane	2.7 U	2.9 UJ	2.6 R	2.4 UJ	2.5 R	3.9 R	3.3 R	2.9 R	2.2 R
Propionitrile	26 U	27 U	25 UJ	23 U	24 UJ	37 U	31 U	27 U	21 U
Styrene	0.81 U	0.86 U	0.79 U	0.72 U	0.76 U	1.2 U	0.99 U	0.86 U	0.65 U
Tetrachloroethene	0.89 U	0.95 U	0.88 U	0.79 U	0.84 U	1.3 U	1.1 U	0.95 U	0.72 U
Toluene	0.97 U	1 U	0.95 U	0.86 U	0.91 U	1.4 U	1.2 U	1 U	0.78 U
trans-1,2-Dichloroethene	1.2 U	1.3 U	1.2 U	1.1 U	1.1 U	1.7 U	1.5 U	1.3 U	0.95 U
trans-1,3-Dichloropropene	1.1 U	1.1 U	1 U	0.94 U	1 U	1.5 U	1.3 U	1.1 U	0.86 U
trans-1,4-Dichloro-2-butene	3.8 U	4 U	3.7 U	3.4 U	3.6 U	5.5 U	4.6 U	4.1 U	3.1 U
Trichloroethene	1.2 U	1.3 U	1.2 U	1.1 U	1.1 U	1.8 U	1.5 U	1.3 U	0.98 U
Trichlorofluoromethane	1.8 U	2 U	1.8 U	1.6 U	1.7 U	2.6 U	2.2 U	2 U	1.5 U
Vinyl acetate	1.8 U	2 U	1.8 UJ	1.6 U	1.7 UJ	2.6 U	2.2 U	2 U	1.5 U
Vinyl chloride	0.71 U	0.76 U	0.7 U	0.63 U	0.67 U	1 U	0.87 U	0.76 U	0.57 U
Xylenes, Total	2.8 U	3 U	2.8 U	2.5 U	2.6 U	4.1 U	3.4 U	3 U	2.3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB148	74SB148	74SB161	74SB161	74SB161	74SB162	74SB162	74SB163	74SB163
	Sample ID	74SB148-02	74SB148-04	74SB161-04D	74SB161-04	74SB161-05	74SB162-04	74SB162-05	74SB163-03	74SB163-04
	Date	5/15/2008	5/15/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
	Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB148	74SB148	74SB161	74SB161	74SB161	74SB162	74SB162	74SB163	74SB163
	Sample ID	74SB148-02	74SB148-04	74SB161-04D	74SB161-04	74SB161-05	74SB162-04	74SB162-05	74SB163-03	74SB163-04
	Date	5/15/2008	5/15/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
	Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0
<b>Metals (mg/kg)</b>										
Antimony		0.15 U	0.48 U	0.17 UJ	0.15 UJ	0.17 UJ	0.23 UJ	0.21 UJ	0.17 UJ	0.17 UJ
Arsenic		1.5	3.8	1.5	1.6	1.3	2.3	1.1	2.4	2.9
Barium		52 J	97 J	46 J	51 J	35 J	450 J	140 J	96	91
Beryllium		0.18	0.57	0.32	0.33	0.44	0.37	0.37	0.48	0.49
Cadmium		0.22	1.1	0.084 J	0.057 J	0.049 J	0.1 J	0.13	0.14	0.16
Chromium		34 J	65 J	26 J	24 J	26 J	61 J	62 J	41	32
Cobalt		21 J	91 J	26 J	22 J	23 J	29 J	36 J	25	23
Copper		79 J	170 J	89	93	89	77	81	230	210
Lead		7.3	16	20 J	15 J	4.4 J	12 J	1.4 J	3	2.7
Mercury		0.0063 J	0.054 J	0.005 J	0.0043 U	0.0093 J	0.0047 U	0.005 U	0.004 U	0.0038 U
Nickel		19	46	22	20	18	31	31	26	20
Selenium		0.16 J	1.2	0.16 J	0.15 J	0.14 U	0.3 J	0.15 U	0.51 J	0.53
Silver		0.06 J	0.16 J	0.04 J	0.041 J	0.049 J	0.032 J	0.037 J	0.081 J	0.11 J
Thallium		0.13 U	0.16 U	0.13 U	0.12 U	0.14 U	0.13 U	0.15 U	0.12 U	0.12 U
Tin		4.3 U	5.4 U	4.2 U	4 U	4.5 U	4.3 U	4.9 U	4.1 U	3.9 U
Vanadium		130 J	240 J	190	170	190	210	160	240	180
Zinc		79 J	87 J	75 J	63 J	68 J	84 J	89 J	92 J	91 J
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		18	6.6	2.2 J	2.9 J	2.1 J	0.77 J	0.77 U	1.4 J	1.8 J
Gasoline Range Organics		0.065 U	0.081 U	0.065 U	0.065 U	0.07 U	0.066 U	0.084 U	0.063 U	0.069 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB164	74SB164	74SB165	74SB165	74SB166	74SB166	74SB166	74SB167	74SB167
Sample ID	74SB164-04	74SB164-05	74SB165-04	74SB165-05	74SB166-04D	74SB166-04	74SB166-05	74SB167-04	74SB167-05
Date	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	1.1 U	0.81 U	0.78 U	0.72 U	0.75 U	0.78 U	0.92 U	0.73 U	0.69 U
1,1,1-Trichloroethane	1 U	0.74 U	0.71 U	0.65 U	0.68 U	0.71 U	0.83 U	0.66 U	0.63 U
1,1,2,2-Tetrachloroethane	2.5 U	1.8 U	1.7 U	1.6 U	1.6 U	1.7 U	2 U	1.6 U	1.5 U
1,1,2-Trichloroethane	2.1 U	1.5 U	1.5 U	1.3 U	1.4 U	1.5 U	1.7 U	1.4 U	1.3 U
1,1-Dichloroethane	0.89 U	0.63 U	0.61 U	0.56 U	0.58 U	0.61 U	0.72 U	0.57 U	0.54 U
1,1-Dichloroethene	0.96 U	0.69 U	0.66 U	0.6 U	0.63 U	0.66 U	0.77 U	0.62 U	0.59 U
1,2,3-Trichloropropane	2.5 U	1.8 U	1.7 U	1.6 U	1.6 U	1.7 U	2 U	1.6 U	1.5 U
1,2-Dibromo-3-Chloropropane	5 U	3.6 U	3.4 U	3.1 U	3.3 U	3.4 U	4 U	3.2 U	3 U
1,2-Dichloroethane	1.8 U	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.4 U	1.1 U	1.1 U
1,2-Dichloropropane	2 U	1.4 U	1.3 U	1.2 U	1.3 U	1.3 U	1.6 U	1.3 U	1.2 U
2-Butanone (MEK)	5.8 UJ	3.4 U	3.3 U	3 U	3.1 U	3.3 U	3.9 U	3.3 UJ	2.9 U
2-Chloro-1,3-butadiene	1 U	0.72 U	0.7 U	0.64 U	0.66 U	0.7 U	0.82 U	0.65 U	0.62 U
2-Hexanone	3.7 U	2.7 U	2.6 U	2.3 U	2.4 UJ	2.6 U	3 U	2.4 U	2.3 U
3-Chloro-1-propene	2.7 U	1.9 U	1.8 U	1.7 U	1.7 U	1.8 U	2.2 U	1.7 U	1.6 U
4-Methyl-2-pentanone (MIBK)	5.2 U	3.7 U	3.5 U	3.2 U	3.4 U	3.6 U	4.2 U	3.3 U	3.1 U
Acetone	39 J	11 J	16 J	17 J	9.7 J	13 J	11 J	19 J	9.7 J
Acetonitrile	80 U	57 U	55 U	50 U	52 U	55 U	65 U	51 U	49 U
Acrolein	34 U	24 U	23 U	21 U	22 U	23 U	27 U	22 U	21 U
Acrylonitrile	41 U	29 U	28 U	26 U	27 U	28 U	33 U	26 U	25 U
Benzene	1.4 U	1 U	0.97 U	0.88 U	0.92 U	0.97 U	1.1 U	0.9 U	0.86 U
Bromoform	2 U	1.4 U	1.3 U	1.2 U	1.3 U	1.3 U	1.6 U	1.3 U	1.2 U
Bromomethane	2.9 U	2 U	2 U	1.8 U	1.9 U	2 U	2.3 U	1.8 U	1.7 U
Carbon disulfide	0.91 U	0.65 U	0.62 U	0.57 U	0.59 U	0.62 U	0.73 U	0.58 U	0.55 U
Carbon tetrachloride	1.8 U	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.4 U	1.1 U	1.1 U
Chlorobenzene	1.3 U	0.93 U	0.89 U	0.82 U	0.85 U	0.89 U	1 U	0.83 U	0.79 U
Chlorodibromomethane	0.89 U	0.63 U	0.61 U	0.56 U	0.58 U	0.61 U	0.72 U	0.57 U	0.54 U
Chloroethane	2.1 U	1.5 U	1.5 U	1.3 U	1.4 U	1.5 U	1.7 U	1.4 U	1.3 U



# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB164	74SB164	74SB165	74SB165	74SB166	74SB166	74SB166	74SB167	74SB167
Sample ID	74SB164-04	74SB164-05	74SB165-04	74SB165-05	74SB166-04D	74SB166-04	74SB166-05	74SB167-04	74SB167-05
Date	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform	0.89 U	0.63 U	0.61 U	0.56 U	0.58 U	0.61 U	0.72 U	0.57 U	0.54 U
Chloromethane	1.3 U	0.9 U	0.87 U	0.79 U	0.83 U	0.87 U	1 U	0.81 U	0.77 U
cis-1,3-Dichloropropene	1.6 U	1.1 U	1.1 U	0.97 U	1 U	1.1 U	1.2 U	0.99 U	0.94 U
Dibromomethane	2.1 U	1.5 U	1.5 U	1.3 U	1.4 U	1.5 U	1.7 U	1.4 U	1.3 U
Dichlorobromomethane	1.5 U	1.1 U	1 U	0.93 U	0.97 U	1 U	1.2 U	0.95 U	0.9 U
Dichlorodifluoromethane	1.6 U	1.1 U	1.1 U	0.99 U	1 U	1.1 U	1.3 U	1 U	0.97 U
Ethyl methacrylate	3.9 U	2.8 U	2.7 U	2.5 U	2.6 U	2.7 U	3.2 U	2.5 U	2.4 U
Ethylbenzene	1.3 U	0.95 U	0.92 U	0.84 U	0.87 U	0.92 U	1.1 U	0.85 U	0.81 U
Ethylene Dibromide	2.7 U	1.9 U	1.8 U	1.7 U	1.7 U	1.8 U	2.2 U	1.7 U	1.6 U
Iodomethane	1.8 U	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.4 U	1.1 U	1.1 U
Isobutyl alcohol	120 U	88 U	84 U	180 J	80 U	84 U	99 U	79 U	75 U
Methacrylonitrile	43 U	30 U	29 U	27 U	28 U	29 U	34 U	27 U	26 U
Methyl methacrylate	6.6 U	4.7 U	4.5 U	4.1 U	4.3 U	4.5 U	5.3 U	4.2 U	4 U
Methylene Chloride	1.8 U	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.4 U	1.1 U	1.1 U
Pentachloroethane	3.9 R	2.8 R	2.7 R	2.5 R	2.6 R	2.7 R	3.2 R	2.5 R	2.4 R
Propionitrile	37 U	27 U	26 U	23 U	24 U	26 U	30 U	24 U	23 U
Styrene	1.2 U	0.84 U	0.81 U	0.74 U	0.77 U	0.81 U	0.95 U	0.75 U	0.72 U
Tetrachloroethene	1.3 U	0.93 U	0.89 U	0.82 U	0.85 U	0.89 U	1 U	0.83 U	0.79 U
Toluene	1.4 U	1 U	0.97 U	0.88 U	0.92 U	0.97 U	1.1 U	0.9 U	0.86 U
trans-1,2-Dichloroethene	1.7 U	1.2 U	1.2 U	1.1 U	1.1 U	1.2 U	1.4 U	1.1 U	1.1 U
trans-1,3-Dichloropropene	1.6 U	1.1 U	1.1 U	0.97 U	1 U	1.1 U	1.2 U	0.99 U	0.94 U
trans-1,4-Dichloro-2-butene	5.5 U	3.9 U	3.8 U	3.5 U	3.6 U	3.8 U	4.4 U	3.5 U	3.4 U
Trichloroethene	1.8 U	1.3 U	1.2 U	1.1 U	1.2 U	1.2 U	1.4 U	1.1 U	1.1 U
Trichlorofluoromethane	2.7 U	1.9 U	1.8 U	1.7 U	1.7 U	1.8 U	2.2 U	1.7 U	1.6 U
Vinyl acetate	2.7 U	1.9 U	1.8 U	1.7 U	1.7 U	1.8 U	2.2 U	1.7 U	1.6 U
Vinyl chloride	1 U	0.74 U	0.71 U	0.65 U	0.68 U	0.71 U	0.83 U	0.66 U	0.63 U
Xylenes, Total	4.1 U	2.9 U	2.8 U	2.6 U	2.7 U	2.8 U	3.3 U	2.6 U	2.5 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB164	74SB164	74SB165	74SB165	74SB166	74SB166	74SB166	74SB167	74SB167
	Sample ID	74SB164-04	74SB164-05	74SB165-04	74SB165-05	74SB166-04D	74SB166-04	74SB166-05	74SB167-04	74SB167-05
	Date	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>										
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB164	74SB164	74SB165	74SB165	74SB166	74SB166	74SB166	74SB167	74SB167
	Sample ID	74SB164-04	74SB164-05	74SB165-04	74SB165-05	74SB166-04D	74SB166-04	74SB166-05	74SB167-04	74SB167-05
	Date	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/16/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Metals (mg/kg)</b>										
Antimony		0.12 UJ	0.085 UJ	0.094 UJ	0.089 UJ	0.1 UJ	0.12 UJ	0.1 UJ	0.083 UJ	0.088 UJ
Arsenic		1.2	0.78	0.52	1.3	0.84	0.84	0.64 J	0.89	0.9
Barium		170 J	63 J	66 J	140 J	56 J	100 J	86 J	79 J	75 J
Beryllium		0.5	0.4	0.22	0.33	0.28	0.26	0.23	0.81	0.34
Cadmium		0.045 J	0.035 U	0.038 J	0.079 J	0.064 J	0.056 J	0.12 J	0.038 J	0.068 J
Chromium		21 J	24 J	28 J	21 J	18 J	23 J	29 J	25 J	36 J
Cobalt		31	24	33	34	29	31	26	39	22
Copper		130	57	83	59	120	92	78	90	130
Lead		2.7	1.7	2.1	3.3	2.4	2.3	1.2	4.9	1.9
Mercury		0.0055 U	0.0046 U	0.0048 J	0.004 U	0.0039 U	0.0043 U	0.0054 U	0.0042 U	0.0048 U
Nickel		24	22	28	29	30	27	22	13	20
Selenium		0.26 J	0.14 U	0.12 U	0.14 U	0.13 U	0.16 J	0.16 U	0.2 J	0.19 J
Silver		0.054 J	0.069 J	0.33	0.042 J	0.038 J	0.035 J	0.035 J	0.022 J	0.051 J
Thallium		0.16 U	0.14 U	0.12 U	0.14 U	0.13 U	0.13 U	0.16 U	0.13 U	0.14 U
Tin		5.5 U	4.6 U	4.1 U	4.6 U	4.2 U	4.4 U	5.3 U	4.4 U	4.7 U
Vanadium		240	190	200	160	280	270	210	140	170
Zinc		80	65	92	99	74	80	60	110	140
<b>TPH DRO/GRO (mg/kg)</b>										
Diesel Range Organics		0.93 UJ	0.73 UJ	2.2 UJ	1.3 UJ	0.68 UJ	0.69 UJ	0.86 UJ	1.2 UJ	0.75 UJ
Gasoline Range Organics		0.11 U	0.069 U	0.065 U	0.09 J	0.066 U	0.072 U	0.088 U	0.061 U	0.078 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB168	74SB168	74SB169	74SB169	74SB170	74SB170	74SB171	74SB171	74SB171	74SB172
	Sample ID	74SB168-04	74SB168-05	74SB169-04	74SB169-05	74SB170-04	74SB170-05	74SB171-04	74SB171-05D	74SB171-05	74SB172-04
	Date	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.72 U	0.66 U	0.75 U	0.82 U	0.77 U	0.83 U	0.66 U	0.78 U	0.87 U	0.83 U
1,1,1-Trichloroethane		0.65 U	0.59 U	0.68 U	0.75 U	0.7 U	0.76 U	0.59 U	0.7 U	0.79 U	0.75 U
1,1,2,2-Tetrachloroethane		1.6 U	1.4 U	1.6 U	1.8 U	1.7 U	1.8 U	1.4 U	1.7 U	1.9 U	1.8 U
1,1,2-Trichloroethane		1.3 U	1.2 U	1.4 U	1.5 U	1.4 U	1.6 U	1.2 U	1.5 U	1.6 U	1.6 U
1,1-Dichloroethane		0.56 U	0.51 U	0.58 U	0.64 U	0.6 U	0.65 U	0.51 U	0.61 U	0.68 U	0.65 U
1,1-Dichloroethene		0.6 U	0.55 U	0.63 U	0.69 U	0.65 U	0.7 U	0.55 U	0.66 U	0.74 U	0.7 U
1,2,3-Trichloropropane		1.6 U	1.4 U	1.6 U	1.8 U	1.7 UJ	1.8 UJ	1.4 UJ	1.7 U	1.9 U	1.8 U
1,2-Dibromo-3-Chloropropane		3.1 U	2.9 U	3.3 U	3.6 U	3.4 UJ	3.6 UJ	2.9 UJ	3.4 U	3.8 U	3.6 U
1,2-Dichloroethane		1.1 U	1 U	1.2 U	1.3 U	1.2 U	1.3 U	1 U	1.2 U	1.4 U	1.3 U
1,2-Dichloropropane		1.2 U	1.1 U	1.3 U	1.4 U	1.3 U	1.4 U	1.1 U	1.3 U	1.5 U	1.4 U
2-Butanone (MEK)		3 U	2.8 U	3.9 UJ	3.5 U	3.3 UJ	5.9 J	14 J	3.3 U	3.7 U	3.5 U
2-Chloro-1,3-butadiene		0.64 U	0.58 U	0.67 U	0.73 U	0.69 U	0.74 U	0.58 U	0.69 U	0.78 U	0.74 U
2-Hexanone		2.3 U	2.2 U	2.5 U	2.7 U	2.5 UJ	3 J	2.2 UJ	2.5 U	2.9 U	2.7 U
3-Chloro-1-propene		1.7 U	1.5 U	1.8 U	1.9 U	1.8 U	2 U	1.5 U	1.8 U	2 U	1.9 U
4-Methyl-2-pentanone (MIBK)		3.2 U	3 U	3.4 U	3.7 U	3.5 UJ	3.8 UJ	3 UJ	3.5 U	4 U	3.8 U
Acetone		20 J	6.2 J	42 J	18 J	27 UJ	40 UJ	180 J	72 UJ	46 UJ	62 UJ
Acetonitrile		50 U	46 U	53 U	58 U	54 UJ	59 UJ	46 UJ	55 UJ	61 UJ	58 UJ
Acrolein		21 U	19 U	22 U	24 U	23 U	25 U	19 U	23 U	26 U	25 U
Acrylonitrile		26 U	24 U	27 U	30 U	28 U	30 U	24 U	28 U	31 U	30 U
Benzene		0.88 U	0.81 U	0.92 U	1 U	0.95 U	1 U	0.81 U	0.96 U	1.1 U	1 U
Bromoform		1.2 U	1.1 U	1.3 U	1.4 U	1.3 U	1.4 U	1.1 U	1.3 U	1.5 U	1.4 U
Bromomethane		1.8 U	1.6 U	1.9 U	2.1 U	1.9 UJ	2.1 UJ	1.6 UJ	1.9 U	2.2 U	2.1 U
Carbon disulfide		0.57 U	0.52 U	0.6 U	0.66 U	0.61 U	0.66 U	0.52 U	0.62 U	0.7 U	0.66 U
Carbon tetrachloride		1.1 U	1 U	1.2 U	1.3 U	1.2 U	1.3 U	1 U	1.2 U	1.4 U	1.3 U
Chlorobenzene		0.82 U	0.75 U	0.85 U	0.94 U	0.88 U	0.95 U	0.75 U	0.89 U	0.99 U	0.95 U
Chlorodibromomethane		0.56 U	0.51 U	0.58 U	0.64 U	0.6 U	0.65 U	0.51 U	0.61 U	0.68 U	0.65 U
Chloroethane		1.3 U	1.2 U	1.4 U	1.5 U	1.4 U	1.6 U	1.2 U	1.5 U	1.6 U	1.6 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB168	74SB168	74SB169	74SB169	74SB170	74SB170	74SB171	74SB171	74SB171	74SB172
Sample ID	74SB168-04	74SB168-05	74SB169-04	74SB169-05	74SB170-04	74SB170-05	74SB171-04	74SB171-05D	74SB171-05	74SB172-04
Date	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.56 U	0.51 U	0.58 U	0.64 U	0.6 U	0.65 U	0.51 U	0.61 U	0.68 U	0.65 U
Chloromethane	0.79 U	0.73 U	0.83 U	0.91 U	0.86 U	0.93 U	0.73 U	0.86 U	0.97 U	0.92 U
cis-1,3-Dichloropropene	0.97 U	0.89 U	1 U	1.1 U	1 U	1.1 U	0.89 U	1.1 U	1.2 UJ	1.1 U
Dibromomethane	1.3 U	1.2 U	1.4 U	1.5 U	1.4 U	1.6 U	1.2 U	1.5 U	1.6 U	1.6 U
Dichlorobromomethane	0.93 U	0.85 U	0.97 U	1.1 U	1 U	1.1 U	0.85 U	1 U	1.1 U	1.1 U
Dichlorodifluoromethane	0.99 U	0.91 U	1 U	1.1 U	1.1 U	1.2 U	0.91 U	1.1 UJ	1.2 U	1.2 UJ
Ethyl methacrylate	2.5 U	2.3 U	2.6 U	2.8 U	2.6 U	2.9 U	2.3 U	2.7 U	3 U	2.9 U
Ethylbenzene	0.84 U	0.77 U	0.88 U	0.96 U	0.9 U	0.98 U	0.77 U	0.91 U	1 U	0.97 U
Ethylene Dibromide	1.7 U	1.5 U	1.8 U	1.9 U	1.8 U	2 U	1.5 U	1.8 U	2 U	1.9 U
Iodomethane	1.1 U	1 U	1.2 U	1.3 U	1.2 U	1.3 U	12	1.2 U	1.4 U	1.3 U
Isobutyl alcohol	77 U	71 U	81 U	89 U	83 R	90 R	71 R	84 R	94 R	90 R
Methacrylonitrile	27 U	25 U	28 U	31 U	29 U	31 U	25 U	29 U	33 U	31 U
Methyl methacrylate	4.1 U	3.8 U	4.3 U	4.8 U	4.5 UJ	4.8 UJ	3.8 UJ	4.5 U	5 U	4.8 U
Methylene Chloride	1.1 U	1 U	1.2 U	1.3 U	1.2 U	1.3 U	1 U	1.2 U	1.4 U	1.3 U
Pentachloroethane	2.5 R	2.3 R	2.6 R	2.8 R	2.6 UJ	2.9 UJ	2.3 UJ	2.7 U	3 U	2.9 U
Propionitrile	23 U	22 U	25 U	27 U	25 U	27 U	22 U	25 U	29 U	27 U
Styrene	0.74 U	0.68 U	0.77 U	0.85 U	0.79 U	0.86 U	0.68 U	0.8 U	0.9 U	0.86 U
Tetrachloroethene	0.82 U	0.75 U	0.85 U	0.94 U	0.88 U	0.95 U	0.75 U	0.89 U	0.99 U	0.95 U
Toluene	0.88 U	0.81 U	0.92 U	1 U	0.95 U	1 U	0.81 U	0.96 U	1.1 U	1 U
trans-1,2-Dichloroethene	1.1 U	0.99 U	1.1 U	1.2 U	1.2 U	1.3 U	0.99 U	1.2 U	1.3 U	1.3 U
trans-1,3-Dichloropropene	0.97 U	0.89 U	1 U	1.1 U	1 U	1.1 U	0.89 U	1.1 U	1.2 U	1.1 U
trans-1,4-Dichloro-2-butene	3.5 U	3.2 U	3.6 U	4 U	3.7 U	4 U	3.2 U	3.8 U	4.2 U	4 U
Trichloroethene	1.1 U	1 U	1.2 U	1.3 U	1.2 U	1.3 U	1 U	1.2 U	1.4 U	1.3 U
Trichlorofluoromethane	1.7 U	1.5 U	1.8 U	1.9 U	1.8 U	2 U	1.5 U	1.8 U	2 U	1.9 U
Vinyl acetate	1.7 U	1.5 U	1.8 U	1.9 U	1.8 U	2 U	1.5 U	1.8 U	2 U	1.9 U
Vinyl chloride	0.65 U	0.59 U	0.68 U	0.75 U	0.7 U	0.76 U	0.59 U	0.7 U	0.79 U	0.75 U
Xylenes, Total	2.6 U	2.4 U	2.7 U	3 U	2.8 U	3 U	2.4 U	2.8 U	3.1 U	3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB168	74SB168	74SB169	74SB169	74SB170	74SB170	74SB171	74SB171	74SB171	74SB172
	Sample ID	74SB168-04	74SB168-05	74SB169-04	74SB169-05	74SB170-04	74SB170-05	74SB171-04	74SB171-05D	74SB171-05	74SB172-04
	Date	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	1.5 U	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	2.1 U	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	0.71 U	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	2.1 U	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	2.1 U	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	2.1 U	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	0.82 U	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	0.94 U	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	2.1 U	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	1.2 U	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	0.76 U	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	0.73 U	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	2.1 U	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	0.95 U	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	1.5 U	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	0.74 U	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	2.1 U	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	2.1 U	NA	NA	NA	NA	NA

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB168	74SB168	74SB169	74SB169	74SB170	74SB170	74SB171	74SB171	74SB171	74SB172
	Sample ID	74SB168-04	74SB168-05	74SB169-04	74SB169-05	74SB170-04	74SB170-05	74SB171-04	74SB171-05D	74SB171-05	74SB172-04
	Date	5/16/2008	5/16/2008	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.11 UJ	0.12 UJ	0.094 UJ	0.088 UJ	0.15 UJ	0.084 UJ	0.12 UJ	0.11 UJ	0.13 UJ	0.12 UJ
Arsenic		2.4	2	1.1	0.8	0.75	0.71	2.5	0.92	1.4	2.6
Barium		230 J	66 J	300 J	92 J	51	83	44	29	31	8.7
Beryllium		0.75	1.1	0.66	0.27	0.31	0.49	0.45	0.38	0.43	0.73
Cadmium		0.095 J	0.22	0.097 J	0.14	0.067 J	0.21	1.6	0.071 J	0.08 J	0.1 J
Chromium		45 J	20 J	40 J	40 J	29	28	33	51	53	81
Cobalt		21	11	36	30	19 J	21 J	33 J	12 J	8.3 J	9 J
Copper		96	88	55	85	39	31	110	170	160	190
Lead		78	47	13	6.1	6.9 J	1.7 J	63 J	23 J	29 J	28 J
Mercury		0.0048 U	0.0044 U	0.015 J	0.02 J	0.0042 R	0.0046 R	0.013 R	0.011 R	0.0052 R	0.0044 R
Nickel		14	17	23	21	20	23	16	14	12	17
Selenium		1.6	0.37 J	0.98	0.14 U	0.2 J	0.13 U	1.9	0.92	2	2.5
Silver		0.035 J	0.36	0.12 J	0.67	0.036 J	0.18 J	0.65	0.075 J	0.061 J	0.055 J
Thallium		0.14 U	0.14 U	0.15 U	0.14 U	0.14 U	0.13 U	0.13 U	0.14 U	0.15 U	0.14 U
Tin		4.8 U	4.6 U	5 U	4.7 U	4.5 U	4.5 U	4.4 U	4.8 U	5.1 U	4.5 U
Vanadium		280	190	210	200	130	130	330	280	340	390
Zinc		120	130	110	95	110	100	140	130	120	110
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.78 UJ	0.75 U	2.2 U	0.76 U	4.6	1.5 U	1.2 U	1.1 U	1.4 U	0.74 U
Gasoline Range Organics		0.075 U	0.065 U	0.071 U	0.07 U	0.078 U	0.087 U	0.071 U	0.073 U	0.072 U	0.081 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB172	74SB173	74SB173	74SB174	74SB174	74SB175	74SB175	74SB176	74SB176	74SB176
	Sample ID	74SB172-05	74SB173-04	74SB173-05	74SB174-04	74SB174-05	74SB175-04	74SB175-05	74SB176-04	74SB176-05D	74SB176-05
	Date	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.79 U	0.74 U	0.75 U	0.84 U	34 UJ	0.9 U	0.78 U	0.69 U	0.83 U	0.9 U
1,1,1-Trichloroethane		0.71 U	0.67 U	0.68 U	0.76 U	31 UJ	0.81 U	0.71 U	0.62 U	0.76 U	0.81 U
1,1,2,2-Tetrachloroethane		1.7 U	1.6 U	1.6 U	1.8 U	75 UJ	2 U	1.7 U	1.5 U	1.8 U	2 U
1,1,2-Trichloroethane		1.5 U	1.4 U	1.4 U	1.6 U	64 UJ	1.7 U	1.5 U	1.3 U	1.6 U	1.7 U
1,1-Dichloroethane		0.62 U	0.58 U	0.58 U	0.66 U	27 UJ	0.7 U	0.61 U	0.54 U	0.65 U	0.7 U
1,1-Dichloroethene		0.67 U	0.62 U	0.63 U	0.71 U	29 UJ	0.76 U	0.66 U	0.58 U	0.7 U	0.76 U
1,2,3-Trichloropropane		1.7 UJ	1.6 U	1.6 U	1.8 U	75 UJ	2 UJ	1.7 UJ	1.5 UJ	1.8 UJ	2 UJ
1,2-Dibromo-3-Chloropropane		3.4 UJ	3.2 U	3.3 U	3.7 U	150 UJ	3.9 UJ	3.4 U	3 UJ	3.7 UJ	3.9 UJ
1,2-Dichloroethane		1.2 U	1.2 U	1.2 U	1.3 U	53 UJ	1.4 U	1.2 U	1.1 U	1.3 U	1.4 U
1,2-Dichloropropane		1.4 U	1.3 U	1.3 U	1.4 U	59 UJ	1.5 U	1.3 U	1.2 U	1.4 U	1.5 U
2-Butanone (MEK)		7.6 J	3.1 U	3.2 U	3.5 U	140 UJ	3.8 UJ	3.3 UJ	2.9 UJ	3.5 UJ	3.8 UJ
2-Chloro-1,3-butadiene		0.7 U	5 J	0.67 U	0.75 U	30 UJ	0.8 U	0.7 U	0.61 U	0.74 U	0.8 U
2-Hexanone		2.6 UJ	2.4 U	2.5 U	2.8 U	110 UJ	2.9 UJ	2.6 UJ	2.2 UJ	2.7 UJ	2.9 UJ
3-Chloro-1-propene		1.8 U	1.7 U	1.8 U	2 U	80 UJ	2.1 U	1.8 U	1.6 U	2 U	2.1 U
4-Methyl-2-pentanone (MIBK)		3.6 UJ	3.3 U	3.4 U	3.8 U	160 UJ	4.1 UJ	3.6 UJ	3.1 UJ	3.8 UJ	4.1 UJ
Acetone		140 J	39 UJ	23 UJ	22 UJ	4000 J	40 UJ	38 J	16 UJ	19 UJ	24 UJ
Acetonitrile		55 UJ	52 UJ	53 UJ	59 UJ	2400 UJ	63 UJ	55 UJ	48 UJ	59 UJ	63 UJ
Acrolein		23 U	22 U	22 U	25 U	1000 R	27 U	23 UJ	20 U	25 U	27 U
Acrylonitrile		28 U	26 U	27 U	30 U	1200 UJ	32 U	28 UJ	25 U	30 U	32 U
Benzene		0.97 U	0.91 U	0.92 U	1 U	42 UJ	1.1 U	0.97 U	0.85 U	1 U	1.1 U
Bromoform		1.4 U	1.3 U	1.3 U	1.4 U	59 UJ	1.5 U	1.3 U	1.2 U	1.4 U	1.5 U
Bromomethane		2 UJ	1.8 U	1.9 U	2.1 U	86 UJ	2.2 UJ	2 UJ	1.7 UJ	2.1 UJ	2.2 UJ
Carbon disulfide		0.63 U	0.59 U	0.6 U	0.69 J	27 UJ	0.71 U	0.62 U	0.55 U	0.67 U	0.72 U
Carbon tetrachloride		1.2 U	1.2 U	1.2 U	1.3 U	53 UJ	1.4 U	1.2 U	1.1 U	1.3 U	1.4 U
Chlorobenzene		0.9 U	0.84 U	0.85 U	0.96 U	39 UJ	1 U	0.89 U	0.78 U	0.95 U	1 U
Chlorodibromomethane		0.62 U	0.58 U	0.58 U	0.66 U	27 UJ	0.7 U	0.61 U	0.54 U	0.65 U	0.7 U
Chloroethane		1.5 U	1.4 U	1.4 U	1.6 U	64 UJ	1.7 U	1.5 U	1.3 U	1.6 U	1.7 U



# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB172	74SB173	74SB173	74SB174	74SB174	74SB175	74SB175	74SB176	74SB176	74SB176
Sample ID	74SB172-05	74SB173-04	74SB173-05	74SB174-04	74SB174-05	74SB175-04	74SB175-05	74SB176-04	74SB176-05D	74SB176-05
Date	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.62 U	0.58 U	0.58 U	0.66 U	27 UJ	0.7 U	0.61 U	0.54 U	0.65 U	0.7 U
Chloromethane	0.87 U	0.82 U	0.83 U	0.93 U	38 UJ	0.99 U	0.87 U	0.76 U	0.93 U	1 U
cis-1,3-Dichloropropene	1.1 U	1 U	1 U	1.1 U	47 UJ	1.2 U	1.1 U	0.93 U	1.1 U	1.2 U
Dibromomethane	1.5 U	1.4 U	1.4 U	1.6 U	64 UJ	1.7 U	1.5 U	1.3 U	1.6 U	1.7 U
Dichlorobromomethane	1 U	0.96 U	0.97 U	1.1 U	44 UJ	1.2 U	1 U	0.89 U	1.1 U	1.2 U
Dichlorodifluoromethane	1.1 U	1 UJ	1 UJ	1.2 UJ	48 UJ	1.2 U	1.1 U	0.95 U	1.2 U	1.2 U
Ethyl methacrylate	2.7 U	2.5 U	2.6 U	2.9 U	120 UJ	3.1 U	2.7 U	2.4 U	2.9 U	3.1 U
Ethylbenzene	0.92 U	0.86 U	0.88 U	0.99 U	1600 J	1 U	0.92 U	0.8 U	0.98 U	1.1 U
Ethylene Dibromide	1.8 U	1.7 U	1.8 U	2 U	80 UJ	2.1 U	1.8 U	1.6 U	2 U	2.1 U
Iodomethane	1.2 U	1.2 U	1.2 U	1.3 U	53 UJ	1.4 U	1.2 U	1.1 U	1.3 U	1.4 U
Isobutyl alcohol	85 R	79 R	81 R	91 R	3700 R	97 R	85 R	74 R	90 R	97 R
Methacrylonitrile	30 U	28 U	28 U	32 U	1300 UJ	34 U	29 U	26 U	31 U	34 U
Methyl methacrylate	4.6 UJ	4.3 U	4.3 U	4.9 U	200 UJ	5.2 UJ	4.5 U	4 UJ	4.8 UJ	5.2 UJ
Methylene Chloride	1.2 U	1.2 U	1.2 U	1.3 U	53 UJ	1.4 U	1.2 U	1.1 U	1.3 U	1.4 U
Pentachloroethane	2.7 UJ	2.5 U	2.6 U	2.9 U	120 UJ	3.1 UJ	2.7 UJ	2.4 UJ	2.9 UJ	3.1 UJ
Propionitrile	26 U	24 U	25 U	28 U	1100 UJ	29 U	26 U	22 U	27 U	29 U
Styrene	0.81 U	0.76 U	0.77 U	0.87 U	35 UJ	0.92 U	0.81 U	0.71 U	0.86 U	0.93 U
Tetrachloroethene	0.9 U	0.84 U	0.85 U	0.96 U	39 UJ	1 U	0.89 U	0.78 U	0.95 U	1 U
Toluene	0.97 U	0.91 U	0.92 U	1 U	42 UJ	1.1 U	0.97 U	0.85 U	1 U	1.1 U
trans-1,2-Dichloroethene	1.2 U	1.1 U	1.1 U	1.3 U	52 UJ	1.4 U	1.2 U	1 U	1.3 U	1.4 U
trans-1,3-Dichloropropene	1.1 U	1 U	1 U	1.1 U	47 UJ	1.2 U	1.1 U	0.93 U	1.1 U	1.2 U
trans-1,4-Dichloro-2-butene	3.8 U	3.6 U	3.6 U	4.1 U	170 UJ	4.3 U	3.8 U	3.3 U	4 U	4.4 U
Trichloroethene	1.2 U	1.2 U	1.2 U	1.3 U	53 UJ	1.4 U	1.2 U	1.1 U	1.3 U	1.4 U
Trichlorofluoromethane	1.8 U	1.7 U	1.8 U	2 U	80 UJ	2.1 U	1.8 U	1.6 U	2 U	2.1 U
Vinyl acetate	1.8 U	1.7 U	1.8 U	2 U	80 UJ	2.1 U	1.8 U	1.6 U	2 U	2.1 U
Vinyl chloride	0.71 U	0.67 U	0.68 U	0.76 U	31 UJ	0.81 U	0.71 U	0.62 U	0.76 U	0.81 U
Xylenes, Total	2.8 U	2.6 U	2.7 U	3 U	120 UJ	3.2 U	2.8 U	2.5 U	3 U	3.2 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB172	74SB173	74SB173	74SB174	74SB174	74SB175	74SB175	74SB176	74SB176	74SB176
	Sample ID	74SB172-05	74SB173-04	74SB173-05	74SB174-04	74SB174-05	74SB175-04	74SB175-05	74SB176-04	74SB176-05D	74SB176-05
	Date	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	170 R	1.7 U	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	240 R	2.4 U	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	1200 R	810	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	240 R	2.4 U	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	4500	3000 R	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	4800	3900 R	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	2300	1800 R	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	5100	2700 R	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	1100 R	640	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	140 R	1000 J	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	4800	3000 R	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	82 R	250	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	14000	5700 R	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	1600	1300 R	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	1000 R	740	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	84 R	0.84 U	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	240 R	2.4 U	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	11000	4900 R	NA	NA	NA	NA	NA

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB172	74SB173	74SB173	74SB174	74SB174	74SB175	74SB175	74SB176	74SB176	74SB176
	Sample ID	74SB172-05	74SB173-04	74SB173-05	74SB174-04	74SB174-05	74SB175-04	74SB175-05	74SB176-04	74SB176-05D	74SB176-05
	Date	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.094 UJ	0.1 UJ	0.087 UJ	0.12 UJ	0.12 UJ	0.092 UJ	0.12 UJ	0.17 UJ	0.13 UJ	0.099 UJ
Arsenic		1.3	2.2	0.64	1.5	1.4	0.73	0.76	1.1	0.72	0.61
Barium		12	30	4	34	84	89	130	80	94	110
Beryllium		0.55	0.35	0.27	0.28	0.21	0.27	0.5	0.14	0.12	0.14
Cadmium		0.098 J	0.039 U	0.044 J	0.042 U	0.13 J	0.063 J	0.24	0.22	0.29	0.42
Chromium		63	44	95	22	17	9.8	5.8	10	9.6	8.7
Cobalt		4.4 J	5.2 J	12 J	4.2 J	14 J	12 J	29 J	28 J	22 J	24 J
Copper		140	68	99	75	110	72	82	130	160	140
Lead		40 J	9.8 J	3.7 J	12 J	27 J	29 J	96 J	2.1 J	1.7 J	1.7 J
Mercury		0.005 R	0.0052 R	0.005 R	0.0049 R	0.006 R	0.0046 R	0.0043 R	0.0043 R	0.0042 R	0.0043 R
Nickel		12	9.9	28	8.6	14	6.9	8.3	9.8	9	9.1
Selenium		2.6	3.2	0.14 U	1.4	0.17 J	0.15 U	0.14 U	0.13 U	0.13 U	0.13 U
Silver		0.082 J	0.025 J	0.11 J	0.033 J	0.14 J	0.16 J	0.14 J	0.064 J	0.084 J	0.098 J
Thallium		0.15 U	0.15 U	0.14 U	0.16 U	0.16 U	0.15 U	0.14 U	0.13 U	0.13 U	0.13 U
Tin		5 U	5 U	4.6 U	5.4 U	5.2 U	4.9 U	4.6 U	4.3 U	4.4 U	4.3 U
Vanadium		350	340	160	310	240	180	170	280	210	200
Zinc		65	42	110	49	120	87	150	110	91	88
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.78 U	0.94 U	2.5 U	1.1 U	140	1.1 U	1.1 U	1.1 U	2.3 U	2.2 U
Gasoline Range Organics		0.077 U	0.068 U	0.074 U	9.8 J	1800	0.082 U	0.073 U	0.072 U	0.07 U	0.085 J

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB177	74SB177	74SB178	74SB178	74SB179	74SB179	74SB180	74SB180	74SB181	74SB181
	Sample ID	74SB177-04	74SB177-05	74SB178-04	74SB178-05	74SB179-04	74SB179-05	74SB180-04	74SB180-05	74SB181-04	74SB181-05D
	Date	5/17/2008	5/17/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.91 U	0.76 U	0.69 U	0.71 U	0.67 U	0.67 U	0.97 U	0.91 U	0.56 U	0.8 U
1,1,1-Trichloroethane		0.83 U	0.69 U	0.62 U	0.65 U	0.61 U	0.61 U	0.88 U	0.82 U	0.51 U	0.73 U
1,1,2,2-Tetrachloroethane		2 U	1.7 U	1.5 U	1.6 U	1.5 U	1.5 U	2.1 U	2 U	1.2 U	1.8 U
1,1,2-Trichloroethane		1.7 U	1.4 U	1.3 U	1.3 U	1.3 U	1.3 U	1.8 U	1.7 U	1 U	1.5 U
1,1-Dichloroethane		0.71 U	0.59 U	0.54 U	0.56 U	0.53 U	0.53 U	0.76 U	0.71 U	0.44 U	0.63 U
1,1-Dichloroethene		0.77 U	0.64 U	0.58 U	0.6 U	0.57 U	0.57 U	0.82 U	0.77 U	0.47 U	0.68 U
1,2,3-Trichloropropane		2 UJ	1.7 UJ	1.5 U	1.6 U	1.5 U	1.5 U	2.1 U	2 U	1.2 U	1.8 U
1,2-Dibromo-3-Chloropropane		4 UJ	3.3 UJ	3 U	3.1 U	2.9 U	3 U	4.3 UJ	4 UJ	2.4 UJ	3.5 UJ
1,2-Dichloroethane		1.4 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.5 U	1.4 U	0.87 U	1.3 U
1,2-Dichloropropane		1.6 U	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.7 U	1.6 U	0.96 U	1.4 U
2-Butanone (MEK)		3.9 UJ	3.2 UJ	2.9 U	3 U	2.8 U	2.8 U	4.1 UJ	3.8 UJ	2.4 UJ	3.4 UJ
2-Chloro-1,3-butadiene		0.81 U	0.68 U	0.61 UJ	0.63 UJ	0.6 UJ	0.6 UJ	0.87 U	0.81 U	0.5 U	0.71 U
2-Hexanone		3 UJ	2.5 UJ	2.3 U	2.3 U	2.2 U	2.2 U	3.2 UJ	3 UJ	1.8 UJ	2.6 UJ
3-Chloro-1-propene		2.1 U	1.8 U	1.6 U	1.7 U	1.6 U	1.6 U	2.3 UJ	2.1 UJ	1.3 UJ	1.9 UJ
4-Methyl-2-pentanone (MIBK)		4.1 UJ	3.4 UJ	3.1 U	3.2 U	3.1 U	3.1 U	4.4 UJ	4.1 UJ	2.5 UJ	3.6 UJ
Acetone		19 UJ	12 UJ	14 J	10 J	6.9 J	8 J	14 J	11 J	18 J	16 J
Acetonitrile		64 UJ	53 UJ	48 U	50 U	47 U	47 U	68 UJ	64 UJ	39 UJ	56 UJ
Acrolein		27 U	23 U	20 UJ	21 UJ	20 UJ	20 UJ	29 R	27 R	17 R	24 R
Acrylonitrile		33 U	27 U	25 UJ	26 UJ	24 UJ	24 UJ	35 UJ	33 UJ	20 UJ	29 UJ
Benzene		1.1 U	0.94 U	0.85 U	0.88 U	0.83 U	0.83 U	1.2 U	1.1 U	0.69 U	0.99 U
Bromoform		1.6 U	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.7 U	1.6 U	0.96 U	1.4 U
Bromomethane		2.3 UJ	1.9 UJ	1.7 U	1.8 U	1.7 U	1.7 U	2.4 UJ	2.3 UJ	1.4 UJ	2 UJ
Carbon disulfide		0.73 U	0.61 U	0.55 U	0.57 U	0.54 U	0.54 U	0.77 U	0.72 U	0.44 U	0.64 U
Carbon tetrachloride		1.4 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.5 U	1.4 U	0.87 U	1.3 U
Chlorobenzene		1 U	0.87 U	0.78 U	0.81 U	0.77 U	0.77 U	1.1 U	1 U	0.64 U	0.91 U
Chlorodibromomethane		0.71 U	0.59 U	0.54 U	0.56 U	0.53 U	0.53 U	0.76 U	0.71 U	0.44 U	0.63 U
Chloroethane		1.7 U	1.4 U	1.3 U	1.3 U	1.3 U	1.3 U	1.8 U	1.7 U	1 U	1.5 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB177	74SB177	74SB178	74SB178	74SB179	74SB179	74SB180	74SB180	74SB181	74SB181
	Sample ID	74SB177-04	74SB177-05	74SB178-04	74SB178-05	74SB179-04	74SB179-05	74SB180-04	74SB180-05	74SB181-04	74SB181-05D
	Date	5/17/2008	5/17/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.71 U	0.59 U	0.54 U	0.56 U	0.53 U	0.53 U	0.76 U	0.71 U	0.44 U	0.63 U
Chloromethane		1 U	0.84 U	0.76 U	0.79 U	0.75 U	0.75 U	1.1 U	1 U	0.62 U	0.89 U
cis-1,3-Dichloropropene		1.2 U	1 U	0.94 U	0.97 U	0.92 U	0.92 U	1.3 U	1.2 U	0.76 U	1.1 U
Dibromomethane		1.7 U	1.4 U	1.3 U	1.3 U	1.3 U	1.3 U	1.8 U	1.7 U	1 U	1.5 U
Dichlorobromomethane		1.2 U	0.98 U	0.89 U	0.92 U	0.87 U	0.87 U	1.3 U	1.2 U	0.72 U	1 U
Dichlorodifluoromethane		1.3 U	1.1 U	0.96 U	0.99 U	0.94 U	0.94 U	1.4 U	1.3 U	0.78 U	1.1 U
Ethyl methacrylate		3.1 U	2.6 U	2.4 U	2.5 U	2.3 U	2.3 U	3.3 U	3.1 U	1.9 U	2.8 U
Ethylbenzene		1.1 U	0.89 U	0.81 U	0.84 U	0.79 U	0.79 U	1.1 U	1.1 U	0.65 U	0.94 U
Ethylene Dibromide		2.1 U	1.8 U	1.6 U	1.7 U	1.6 U	1.6 U	2.3 U	2.1 U	1.3 U	1.9 U
Iodomethane		1.4 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.5 UJ	1.4 UJ	0.87 UJ	1.3 UJ
Isobutyl alcohol		99 R	82 R	74 U	77 U	73 U	73 U	100 R	98 R	60 R	86 R
Methacrylonitrile		34 U	28 U	26 U	27 U	25 U	25 U	36 U	34 U	21 U	30 U
Methyl methacrylate		5.3 UJ	4.4 UJ	4 U	4.1 U	3.9 U	3.9 U	5.6 U	5.3 U	3.2 U	4.6 U
Methylene Chloride		1.4 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.5 U	1.4 U	0.87 U	1.3 U
Pentachloroethane		3.1 UJ	2.6 UJ	2.4 R	2.5 R	2.3 R	2.3 R	3.3 UJ	3.1 UJ	1.9 UJ	2.8 UJ
Propionitrile		30 U	25 U	23 U	23 U	22 U	22 U	32 UJ	30 UJ	18 UJ	26 UJ
Styrene		0.94 U	0.78 U	0.71 U	0.74 U	0.69 U	0.7 U	1 U	0.94 U	0.58 U	0.83 U
Tetrachloroethene		1 U	0.87 U	0.78 U	0.81 U	0.77 U	0.77 U	1.1 U	1 U	0.64 U	0.91 U
Toluene		1.1 U	0.94 U	0.85 U	0.88 U	0.83 U	0.83 U	1.2 U	1.1 U	0.69 U	0.99 U
trans-1,2-Dichloroethene		1.4 U	1.2 U	1 U	1.1 U	1 U	1 U	1.5 U	1.4 U	0.85 U	1.2 U
trans-1,3-Dichloropropene		1.2 U	1 U	0.94 U	0.97 U	0.92 U	0.92 U	1.3 U	1.2 U	0.76 U	1.1 U
trans-1,4-Dichloro-2-butene		4.4 U	3.7 U	3.3 U	3.5 U	3.3 U	3.3 U	4.7 U	4.4 U	2.7 U	3.9 U
Trichloroethene		1.4 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.5 U	1.4 U	0.87 U	1.3 U
Trichlorofluoromethane		2.1 U	1.8 U	1.6 U	1.7 U	1.6 U	1.6 U	2.3 U	2.1 U	1.3 U	1.9 U
Vinyl acetate		2.1 U	1.8 U	1.6 U	1.7 U	1.6 U	1.6 U	2.3 U	2.1 U	1.3 U	1.9 U
Vinyl chloride		0.83 U	0.69 U	0.62 U	0.65 U	0.61 U	0.61 U	0.88 U	0.82 U	0.51 U	0.73 U
Xylenes, Total		3.3 U	2.7 U	2.5 U	2.6 U	2.4 U	2.4 U	3.5 U	3.3 U	2 U	2.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB177	74SB177	74SB178	74SB178	74SB179	74SB179	74SB180	74SB180	74SB181	74SB181
	Sample ID	74SB177-04	74SB177-05	74SB178-04	74SB178-05	74SB179-04	74SB179-05	74SB180-04	74SB180-05	74SB181-04	74SB181-05D
	Date	5/17/2008	5/17/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB177	74SB177	74SB178	74SB178	74SB179	74SB179	74SB180	74SB180	74SB181	74SB181
	Sample ID	74SB177-04	74SB177-05	74SB178-04	74SB178-05	74SB179-04	74SB179-05	74SB180-04	74SB180-05	74SB181-04	74SB181-05D
	Date	5/17/2008	5/17/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.11 UJ	0.091 UJ	0.094 UJ	0.19 UJ	0.077 UJ	0.077 UJ	0.078 UJ	0.075 UJ	0.075 UJ	0.081 UJ
Arsenic		0.72	0.88	0.65	1.4	1.2	1	1.2	1.3	1	0.92
Barium		49	73	90 J	46 J	67 J	50 J	140 J	70 J	63	130 J
Beryllium		0.16	0.16	0.18	0.32	0.43	0.22	0.26	0.22	0.14	0.24
Cadmium		0.3	0.72	0.09 J	0.1 J	0.063 J	0.069 J	0.18	0.11	0.09 J	0.073 J
Chromium		23	23	50	36	11	9.2	43	30	21	61
Cobalt		28 J	33 J	38 J	30 J	27 J	27 J	41 J	51 J	29	53
Copper		68	30	160 J	66 J	110 J	84 J	150 J	580 J	91	15
Lead		6.4 J	120 J	0.91 J	0.99 J	1.6 J	1 J	0.85 J	1.5 J	1	1.6
Mercury		0.004 R	0.004 R	0.0043 U	0.0047 U	0.004 U	0.0037 U	0.0042 U	0.004 U	0.004 U	0.0044 U
Nickel		18	19	32	28	13	13	19	13	24	49
Selenium		0.12 U	0.13 U	0.13 U	0.14 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U
Silver		0.044 J	0.017 U	0.027 J	0.044 J	0.058 J	0.077 J	0.048 J	0.046 J	0.074 J	0.054 J
Thallium		0.12 U	0.13 U	0.13 U	0.14 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U
Tin		4.1 U	4.2 U	4.3 U	4.7 U	4.1 U	4.1 U	4.2 U	4 U	4 U	4.3 U
Vanadium		260	180	260	240	220	200	290	260	260	190
Zinc		100	410	180	85	70	74	75	51	66 J	90 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		1.1 U	0.77 U	4.8	4.4	3.5 U	3.1 U	3 U	4.3	1.1 UJ	0.88 UJ
Gasoline Range Organics		0.076 U	0.067 U	0.0072 U	0.0074 U	0.0066 U	0.0062 U	0.0073 U	0.0071 U	0.0064 U	0.0082 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB181	74SB182	74SB182	74SB183	74SB183	74SB184	74SB184	74SB188	74SB188	74SB189
	Sample ID	74SB181-05	74SB182-04	74SB182-05	74SB183-04	74SB183-05	74SB184-04	74SB184-05	74SB188-03	74SB188-04	74SB189-03
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.9 U	0.74 U	0.87 U	0.81 U	0.75 U	0.69 U	0.75 U	0.64 U	0.69 U	0.71 U
1,1,1-Trichloroethane		0.81 U	0.67 U	0.79 U	0.73 U	0.68 U	0.63 U	0.68 U	0.58 U	0.63 U	0.65 U
1,1,2,2-Tetrachloroethane		2 U	1.6 U	1.9 U	1.8 U	1.6 U	1.5 U	1.6 U	1.4 U	1.5 U	1.6 U
1,1,2-Trichloroethane		1.7 U	1.4 U	1.6 U	1.5 U	1.4 U	1.3 U	1.4 U	1.2 U	1.3 U	1.3 U
1,1-Dichloroethane		0.7 U	0.58 U	0.68 U	0.63 U	0.58 U	0.54 U	0.59 U	0.5 U	0.54 U	0.56 U
1,1-Dichloroethene		0.76 U	0.62 U	0.74 U	0.68 U	0.63 U	0.59 U	0.64 U	0.54 U	0.58 U	0.6 U
1,2,3-Trichloropropane		2 U	1.6 U	1.9 U	1.8 U	1.6 U	1.5 U	1.6 U	1.4 U	1.5 U	1.6 U
1,2-Dibromo-3-Chloropropane		3.9 UJ	3.2 UJ	3.8 UJ	3.5 UJ	3.3 UJ	3 U	3.3 U	2.8 U	3 U	3.1 U
1,2-Dichloroethane		1.4 U	1.2 U	1.4 U	1.3 U	1.2 U	1.1 U	1.2 U	1 U	1.1 U	1.1 U
1,2-Dichloropropane		1.5 U	1.3 U	1.5 U	1.4 U	1.3 U	1.2 U	1.3 U	1.1 U	1.2 U	1.2 U
2-Butanone (MEK)		3.8 UJ	3.1 UJ	3.7 UJ	3.4 UJ	3.2 UJ	2.9 U	3.2 U	14 U	3.2 U	3 U
2-Chloro-1,3-butadiene		0.8 U	0.66 U	0.78 U	0.72 U	0.67 U	0.62 UJ	0.67 UJ	0.57 UJ	0.62 UJ	0.64 UJ
2-Hexanone		3 UJ	2.4 UJ	2.9 UJ	2.6 UJ	2.5 UJ	2.3 U	2.5 U	2.1 U	2.3 U	2.3 U
3-Chloro-1-propene		2.1 UJ	1.7 U	2 U	1.9 U	1.8 U	1.6 U	1.8 U	1.5 U	1.6 U	1.7 U
4-Methyl-2-pentanone (MIBK)		4.1 UJ	3.3 UJ	4 UJ	3.7 UJ	3.4 UJ	3.1 U	3.4 U	2.9 U	3.1 U	3.2 U
Acetone		18 J	8.2 J	11 J	7.4 J	5.1 U	10 J	11 J	150	24 J	23 J
Acetonitrile		63 UJ	52 UJ	61 UJ	57 UJ	53 UJ	49 U	53 U	45 U	49 U	50 U
Acrolein		27 R	22 UJ	26 R	24 UJ	22 UJ	21 UJ	22 UJ	19 UJ	21 UJ	21 UJ
Acrylonitrile		32 UJ	27 UJ	31 UJ	29 UJ	27 UJ	25 UJ	27 UJ	23 UJ	25 UJ	26 UJ
Benzene		1.1 U	0.91 U	1.1 U	1 U	0.92 U	0.86 U	0.93 U	0.79 U	0.85 U	0.88 U
Bromoform		1.5 U	1.3 U	1.5 U	1.4 U	1.3 U	1.2 U	1.3 U	2.1 J	1.2 U	1.2 U
Bromomethane		2.2 UJ	1.8 U	2.2 UJ	2 U	1.9 U	1.7 U	1.9 U	1.6 U	1.7 U	1.8 U
Carbon disulfide		0.72 U	0.59 U	0.7 U	0.64 U	0.6 U	0.55 U	0.6 U	0.51 U	0.55 U	0.57 U
Carbon tetrachloride		1.4 U	1.2 U	1.4 U	1.3 U	1.2 U	1.1 U	1.2 U	1 U	1.1 U	1.1 U
Chlorobenzene		1 U	0.84 U	1 U	0.92 U	0.85 U	0.79 U	0.86 U	0.73 U	0.79 U	0.81 U
Chlorodibromomethane		0.7 U	0.58 U	0.68 U	0.63 U	0.58 U	0.54 U	0.59 U	0.5 U	0.54 U	0.56 U
Chloroethane		1.7 U	1.4 UJ	1.6 U	1.5 UJ	1.4 UJ	1.3 U	1.4 U	1.2 U	1.3 U	1.3 U



# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB181	74SB182	74SB182	74SB183	74SB183	74SB184	74SB184	74SB188	74SB188	74SB189
	Sample ID	74SB181-05	74SB182-04	74SB182-05	74SB183-04	74SB183-05	74SB184-04	74SB184-05	74SB188-03	74SB188-04	74SB189-03
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.7 U	0.58 U	0.68 U	0.63 U	0.58 U	0.54 U	0.59 U	0.5 U	0.54 U	0.56 U
Chloromethane		1 U	0.82 U	0.97 U	0.9 U	0.83 U	0.77 U	0.84 U	0.71 U	0.77 U	0.79 U
cis-1,3-Dichloropropene		1.2 U	1 U	1.2 U	1.1 U	1 U	0.94 U	1 U	0.87 U	0.94 U	0.97 U
Dibromomethane		1.7 U	1.4 U	1.6 U	1.5 U	1.4 U	1.3 U	1.4 U	1.2 U	1.3 U	1.3 U
Dichlorobromomethane		1.2 U	0.96 U	1.1 U	1 U	0.97 U	0.9 U	0.98 U	0.83 U	0.9 U	0.93 U
Dichlorodifluoromethane		1.3 U	1 U	1.2 U	1.1 U	1 U	0.96 U	1 U	0.89 U	0.96 U	0.99 U
Ethyl methacrylate		3.1 U	2.5 U	3 U	2.8 U	2.6 U	2.4 U	2.6 U	2.2 U	2.4 U	2.5 U
Ethylbenzene		1.1 U	0.87 U	1 U	0.95 U	0.88 U	0.81 U	0.88 U	0.75 U	0.81 U	0.84 U
Ethylene Dibromide		2.1 U	1.7 U	2 U	1.9 U	1.8 U	1.6 U	1.8 U	1.5 U	1.6 U	1.7 U
Iodomethane		1.4 UJ	1.2 U	1.4 UJ	1.3 U	1.2 U	1.1 U	1.2 U	5.7	1.1 U	1.1 U
Isobutyl alcohol		97 R	80 R	94 R	87 R	81 R	75 U	81 U	69 U	74 U	77 U
Methacrylonitrile		34 U	28 U	33 U	30 U	28 U	26 U	28 U	24 U	26 U	27 U
Methyl methacrylate		5.2 U	4.3 UJ	5 U	4.7 UJ	4.3 UJ	4 U	4.4 U	3.7 U	4 U	4.1 U
Methylene Chloride		1.4 U	1.2 U	1.4 U	1.3 U	1.2 U	1.1 U	1.2 U	1 U	1.1 U	1.1 U
Pentachloroethane		3.1 UJ	2.5 UJ	3 UJ	2.8 UJ	2.6 UJ	2.4 R	2.6 R	2.2 R	2.4 R	2.5 R
Propionitrile		30 UJ	24 U	29 UJ	26 U	25 U	23 U	25 U	21 U	23 U	23 U
Styrene		0.93 U	0.76 U	0.9 U	0.83 U	0.77 U	0.72 U	0.78 U	0.66 U	0.71 U	0.74 U
Tetrachloroethene		1 U	0.84 U	1 U	0.92 U	0.85 U	0.79 U	0.86 U	0.73 U	0.79 U	0.81 U
Toluene		1.1 U	0.91 U	1.1 U	1 U	0.92 U	0.86 U	0.93 U	0.79 U	0.85 U	0.88 U
trans-1,2-Dichloroethene		1.4 U	1.1 U	1.3 U	1.2 U	1.1 U	1.1 U	1.1 U	0.97 U	1 U	1.1 U
trans-1,3-Dichloropropene		1.2 U	1 U	1.2 U	1.1 U	1 U	0.94 U	1 U	0.87 U	0.94 U	0.97 U
trans-1,4-Dichloro-2-butene		4.4 U	3.6 U	4.2 U	3.9 U	3.6 U	3.4 U	3.6 U	3.1 U	3.3 U	3.5 U
Trichloroethene		1.4 U	1.2 U	1.4 U	1.3 U	1.2 U	1.1 U	1.2 U	1 U	1.1 U	1.1 U
Trichlorofluoromethane		2.1 U	1.7 U	2 U	1.9 U	1.8 U	1.6 U	1.8 U	1.5 U	1.6 U	1.7 U
Vinyl acetate		2.1 U	1.7 U	2 U	1.9 U	1.8 U	1.6 U	1.8 U	1.5 U	1.6 U	1.7 U
Vinyl chloride		0.81 U	0.67 U	0.79 U	0.73 U	0.68 U	0.63 U	0.68 U	0.58 U	0.63 U	0.65 U
Xylenes, Total		3.2 U	2.7 U	3.1 U	2.9 U	2.7 U	2.5 U	2.7 U	2.3 U	2.5 U	2.6 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB181	74SB182	74SB182	74SB183	74SB183	74SB184	74SB184	74SB188	74SB188	74SB189
	Sample ID	74SB181-05	74SB182-04	74SB182-05	74SB183-04	74SB183-05	74SB184-04	74SB184-05	74SB188-03	74SB188-04	74SB189-03
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB181	74SB182	74SB182	74SB183	74SB183	74SB184	74SB184	74SB188	74SB188	74SB189
	Sample ID	74SB181-05	74SB182-04	74SB182-05	74SB183-04	74SB183-05	74SB184-04	74SB184-05	74SB188-03	74SB188-04	74SB189-03
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony		0.083 UJ	0.087 UJ	0.087 UJ	0.087 UJ	0.087 UJ	0.21 UJ	0.18 UJ	0.18 UJ	0.092 UJ	0.083 UJ
Arsenic		0.97	1.2	1.1	1.5	1.5	4.7	1.7	5.5	2.2	1.6
Barium		89 J	95	140	200	110	22 J	87 J	1500 J	69 J	11 J
Beryllium		0.24	0.23	0.23	0.64	0.25	0.38	0.64	0.81	0.29	0.13
Cadmium		0.067 J	0.04 J	0.043 J	0.29	0.32	0.11 J	0.082 J	1.1	0.038 U	0.034 U
Chromium		59	86	55	22	26	7.3	14	31	21	18
Cobalt		52	33	32	78	39	14 J	42 J	320 J	5.8 J	2.6 J
Copper		14	130	180	87	110	230 J	120 J	43 J	51 J	32 J
Lead		1.3	31	2	0.73	0.63	20 J	2.5 J	97 J	19 J	7.8 J
Mercury		0.0042 U	0.0045 U	0.0047 U	0.0046 U	0.0048 U	0.0047 U	0.005 U	0.061	0.28	0.12
Nickel		39	41	30	36	41	12	18	46	6.2	4.7
Selenium		0.13 U	0.14 U	0.14 U	0.14 U	0.14 U	0.23 J	0.15 U	3.2	2	1.7
Silver		0.056 J	0.047 J	0.059 J	0.083 J	0.092 J	0.063 J	0.04 J	0.075 J	0.02 U	0.082 J
Thallium		0.13 U	0.14 U	0.14 U	0.14 U	0.14 U	0.19 J	0.15 U	0.35 J	0.15 U	0.13 U
Tin		4.4 U	4.6 U	4.6 U	4.7 U	4.6 U	4.8 U	4.9 U	4.3 U	4.9 U	4.4 U
Vanadium		190	280	230	220	240	320	180	430	250	220
Zinc		93 J	74 J	86 J	69 J	74 J	92	84	100	34	19
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.91 UJ	0.71 UJ	0.94 UJ	1.2 UJ	0.76 UJ	1.4 U	0.93 U	1.2 U	2.3 U	2.1 U
Gasoline Range Organics		0.0094 U	0.0071 U	0.0077 U	0.0076 U	0.0091 U	0.0078 U	0.0081 U	0.0079 U	0.023 J	0.0088 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB189	74SB190	74SB190	74SB191	74SB191	74SB191	74SB192	74SB192	74SB193	74SB193
	Sample ID	74SB189-05	74SB190-03	74SB190-05	74SB191-03D	74SB191-03	74SB191-05	74SB192-03	74SB192-05	74SB193-03	74SB193-05
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.81 U	0.91 U	0.68 U	0.62 U	0.68 U	0.71 U	0.75 U	0.78 U	0.68 U	0.88 U
1,1,1-Trichloroethane		0.73 U	0.82 U	0.61 U	0.56 U	0.62 U	0.64 U	0.68 U	0.7 U	0.62 U	0.8 U
1,1,2,2-Tetrachloroethane		1.8 U	2 U	1.5 U	1.4 U	1.5 U	1.5 U	1.6 U	1.7 U	1.5 U	1.9 U
1,1,2-Trichloroethane		1.5 U	1.7 U	1.3 U	1.2 U	1.3 U	1.3 U	1.4 U	1.5 U	1.3 U	1.7 U
1,1-Dichloroethane		0.63 U	0.71 U	0.53 U	0.48 U	0.53 U	0.55 U	0.58 U	0.61 U	0.53 U	0.69 U
1,1-Dichloroethene		0.68 U	0.76 U	0.57 U	0.52 U	0.58 U	0.6 U	0.63 U	0.66 U	0.58 U	0.75 U
1,2,3-Trichloropropane		1.8 U	2 U	1.5 U	1.4 U	1.5 U	1.5 U	1.6 U	1.7 U	1.5 U	1.9 U
1,2-Dibromo-3-Chloropropane		3.5 U	4 U	3 U	2.7 U	3 U	3.1 U	3.3 U	3.4 U	3 UJ	3.9 UJ
1,2-Dichloroethane		1.3 U	1.4 U	1.1 U	0.97 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U
1,2-Dichloropropane		1.4 U	1.6 U	1.2 U	1.1 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U	1.5 U
2-Butanone (MEK)		3.4 U	29 U	2.9 U	8.5 U	7.8 U	3 U	3.2 U	3.3 U	2.9 UJ	3.7 UJ
2-Chloro-1,3-butadiene		0.72 UJ	0.81 UJ	0.6 UJ	0.55 UJ	0.61 UJ	0.63 UJ	0.67 UJ	0.69 UJ	0.61 U	0.79 U
2-Hexanone		2.6 U	3 U	2.2 U	2 U	2.2 U	2.3 U	2.5 U	2.5 U	2.2 UJ	2.9 UJ
3-Chloro-1-propene		1.9 U	2.1 U	1.6 U	1.5 U	1.6 U	1.7 U	1.8 U	1.8 U	1.6 UJ	2.1 UJ
4-Methyl-2-pentanone (MIBK)		3.7 U	4.1 U	3.1 U	2.8 U	3.1 U	3.2 U	3.4 U	3.5 U	3.1 U	4 U
Acetone		9.1 J	330	19 J	90	98	14 J	27 J	14 J	18 UJ	12 UJ
Acetonitrile		57 U	64 U	48 U	44 U	48 U	50 U	53 U	55 U	48 UJ	62 UJ
Acrolein		24 UJ	27 UJ	20 UJ	18 UJ	20 UJ	21 UJ	22 UJ	23 UJ	20 UJ	26 UJ
Acrylonitrile		29 UJ	33 UJ	24 UJ	22 UJ	25 UJ	25 UJ	27 UJ	28 UJ	25 U	32 U
Benzene		1 U	1.1 U	0.83 U	0.76 U	0.84 U	0.87 U	0.92 U	0.96 U	0.84 U	1.1 U
Bromoform		1.4 U	1.6 U	1.2 U	1.1 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U	1.5 U
Bromomethane		2 U	2.3 U	1.7 U	1.5 U	1.7 U	1.8 U	1.9 U	1.9 U	1.7 UJ	2.2 UJ
Carbon disulfide		0.64 U	0.76 J	0.55 J	0.49 U	0.54 U	0.56 U	0.6 U	0.62 U	0.54 U	0.71 U
Carbon tetrachloride		1.3 U	1.4 U	1.1 U	0.97 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U
Chlorobenzene		0.92 U	1 U	0.77 U	0.71 U	0.78 U	0.81 U	0.85 U	0.89 U	0.78 U	1 U
Chlorodibromomethane		0.63 U	0.71 U	0.53 U	0.48 U	0.53 U	0.55 U	0.58 U	0.61 U	0.53 U	0.69 U
Chloroethane		1.5 U	1.7 U	1.3 U	1.2 U	1.3 U	1.3 U	1.4 U	1.5 U	1.3 U	1.7 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB189	74SB190	74SB190	74SB191	74SB191	74SB191	74SB192	74SB192	74SB193	74SB193
Sample ID	74SB189-05	74SB190-03	74SB190-05	74SB191-03D	74SB191-03	74SB191-05	74SB192-03	74SB192-05	74SB193-03	74SB193-05
Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008
Depth Range	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.63 U	0.71 U	0.53 U	0.48 U	0.53 U	0.55 U	0.58 U	0.61 U	0.53 U	0.69 U
Chloromethane	0.89 U	1 U	0.75 U	0.69 U	0.76 U	0.78 U	0.83 U	0.86 U	0.76 U	0.98 U
cis-1,3-Dichloropropene	1.1 U	1.2 U	0.92 U	0.84 U	0.93 U	0.96 U	1 U	1.1 U	0.93 U	1.2 U
Dibromomethane	1.5 U	1.7 U	1.3 U	1.2 U	1.3 U	1.3 U	1.4 U	1.5 U	1.3 U	1.7 U
Dichlorobromomethane	1 U	1.2 U	0.88 U	0.8 U	0.89 U	0.92 U	0.97 U	1 U	0.89 U	1.1 U
Dichlorodifluoromethane	1.1 U	1.3 U	0.94 U	0.86 U	0.95 U	0.98 U	1 U	1.1 U	0.95 U	1.2 U
Ethyl methacrylate	2.8 U	3.1 U	2.3 U	2.1 U	2.3 U	2.4 U	2.6 U	2.7 U	2.4 UJ	3 UJ
Ethylbenzene	0.95 U	1.1 U	0.79 U	0.73 U	0.8 U	0.83 U	0.88 U	0.91 U	0.8 U	1 U
Ethylene Dibromide	1.9 U	2.1 U	1.6 U	1.5 U	1.6 U	1.7 U	1.8 U	1.8 U	1.6 U	2.1 U
Iodomethane	1.3 U	11	1.1 U	8	8.7	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U
Isobutyl alcohol	87 U	98 U	73 U	67 U	74 U	76 U	81 U	84 U	74 R	95 R
Methacrylonitrile	30 U	34 U	25 U	23 U	26 U	26 U	28 U	29 U	26 U	110 J
Methyl methacrylate	4.7 U	5.2 U	3.9 U	3.6 U	4 U	4.1 U	4.3 U	4.5 U	4 U	5.1 U
Methylene Chloride	1.3 U	1.4 U	1.1 U	0.97 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U
Pentachloroethane	2.8 R	3.1 R	2.3 R	2.1 R	2.3 R	2.4 R	2.6 R	2.7 R	2.4 UJ	3 UJ
Propionitrile	26 U	30 U	22 U	20 U	22 U	23 U	25 U	25 U	22 UJ	29 UJ
Styrene	0.83 U	0.93 U	0.7 U	0.64 U	0.7 U	0.73 U	0.77 U	0.8 U	0.71 U	0.91 U
Tetrachloroethene	0.92 U	1 U	0.77 U	0.71 U	0.78 U	0.81 U	0.85 U	0.89 U	0.78 U	1 U
Toluene	1 U	1.1 U	0.83 U	0.76 U	0.84 U	0.87 U	0.92 U	0.96 U	0.84 U	1.1 U
trans-1,2-Dichloroethene	1.2 U	1.4 U	1 U	0.94 U	1 U	1.1 U	1.1 U	1.2 U	1 U	1.3 U
trans-1,3-Dichloropropene	1.1 U	1.2 U	0.92 U	0.84 U	0.93 U	0.96 U	1 U	1.1 U	0.93 U	1.2 U
trans-1,4-Dichloro-2-butene	3.9 U	4.4 U	3.3 U	3 U	3.3 U	3.4 U	3.6 U	3.8 U	3.3 U	4.3 U
Trichloroethene	1.3 U	1.4 U	1.1 U	0.97 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U	1.4 U
Trichlorofluoromethane	1.9 U	2.1 U	1.6 U	1.5 U	1.6 U	1.7 U	1.8 U	1.8 U	1.6 U	2.1 U
Vinyl acetate	1.9 U	2.1 U	1.6 U	1.5 U	1.6 U	1.7 U	1.8 U	1.8 U	1.6 U	2.1 U
Vinyl chloride	0.73 U	0.82 U	0.61 U	0.56 U	0.62 U	0.64 U	0.68 U	0.7 U	0.62 U	0.8 U
Xylenes, Total	2.9 U	3.3 U	2.4 U	2.2 U	2.5 U	2.5 U	2.7 U	2.8 U	2.5 U	3.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB189	74SB190	74SB190	74SB191	74SB191	74SB191	74SB192	74SB192	74SB193	74SB193
	Sample ID	74SB189-05	74SB190-03	74SB190-05	74SB191-03D	74SB191-03	74SB191-05	74SB192-03	74SB192-05	74SB193-03	74SB193-05
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB189	74SB190	74SB190	74SB191	74SB191	74SB191	74SB192	74SB192	74SB193	74SB193
	Sample ID	74SB189-05	74SB190-03	74SB190-05	74SB191-03D	74SB191-03	74SB191-05	74SB192-03	74SB192-05	74SB193-03	74SB193-05
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.1 UJ	0.28 UJ	0.088 UJ	0.13 UJ	0.16 UJ	0.11 UJ	0.091 UJ	0.095 UJ	0.095 UJ	0.087 UJ
Arsenic		0.56 J	6.3	2.7	2.5	3	2.9	2.2	0.69	2.8	1.7
Barium		39 J	210 J	77 J	34 R	280 R	15 J	11 J	5.5 J	33	7.6
Beryllium		0.16	0.78	0.26	0.41	0.39	0.17	0.099 J	0.056 J	0.12 J	0.11 J
Cadmium		0.042 U	0.73	0.036 U	0.097 J	0.11 J	0.08 J	0.038 U	0.039 U	0.039 U	0.036 U
Chromium		6.1	44	15	20	23	26	36	14	46	32
Cobalt		5.6 J	160 J	5.4 J	19 J	28 J	8.4 J	2.3 J	0.9 J	2.4	1.1
Copper		130 J	59 J	95 J	34 J	34 J	27 J	33 J	21 J	34	59
Lead		7.8 J	99 J	15 J	14 J	23 J	14 J	6.3 J	2.5 J	8.4	8.1
Mercury		0.02 J	0.064	0.066	0.024	0.09	0.088	0.071	0.0055 U	0.02 J	0.0044 U
Nickel		6.5	23	4.6	8.3	8	4.4	6.1	2.7	6.1	3
Selenium		0.32 J	4.4	1	1.2	2.1	1.8	3.4	0.56 J	5.3	1.4
Silver		0.022 U	0.12 J	0.043 J	0.075 J	0.055 J	0.07 J	0.23 J	0.026 J	0.17 U	0.019 U
Thallium		0.16 U	0.19 J	0.14 U	0.13 U	0.14 U	0.14 U	0.18 J	0.15 U	0.15 U	0.14 U
Tin		5.4 U	4.8 U	4.7 U	4.5 U	4.6 U	4.7 U	4.9 U	5.1 U	5 U	4.6 U
Vanadium		180	510	330	280	290	310	220	82	240 J	210 J
Zinc		47	83	30	57	44	19	18	7.2	20 J	9.8 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		5.3	13	4.3 U	4 J	21 J	5.3	5.6	5	3.6 U	2 U
Gasoline Range Organics		0.0075 U	0.057 J	0.007 U	0.0059 U	0.0054 U	0.0073 U	0.0073 U	0.0078 U	0.007 U	0.0068 U

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB194	74SB194	74SB195	74SB195	74SB196	74SB196	74SB196	74SB197	74SB197	74VP6Aa
	Sample ID	74SB194-03	74SB194-05	74SB195-03	74SB195-05	74SB196-03D	74SB196-03	74SB196-05	74SB197-03	74SB197-05	74VP6Aa-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/17/2008
	Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.68 U	0.88 U	0.78 U	1 U	0.76 U	0.78 U	0.79 U	0.72 U	0.88 U	0.83 U
1,1,1-Trichloroethane		0.62 U	0.8 U	0.7 U	0.92 U	0.69 U	0.71 U	0.72 U	0.65 U	0.8 U	0.75 U
1,1,2,2-Tetrachloroethane		1.5 U	1.9 U	1.7 U	2.2 U	1.7 U	1.7 U	1.7 U	1.6 U	1.9 U	1.8 U
1,1,2-Trichloroethane		1.3 U	1.6 U	1.5 U	1.9 U	1.4 U	1.5 U	1.5 U	1.3 U	1.7 U	1.6 U
1,1-Dichloroethane		0.53 U	0.69 U	0.61 U	0.8 U	0.59 U	0.61 U	0.62 U	0.56 U	0.69 U	0.65 U
1,1-Dichloroethene		0.58 U	0.74 U	0.65 U	0.86 U	0.64 U	0.66 U	0.67 U	0.61 U	0.74 U	0.7 U
1,2,3-Trichloropropane		1.5 UJ	1.9 U	1.7 U	2.2 U	1.7 U	1.7 U	1.7 UJ	1.6 UJ	1.9 UJ	1.8 U
1,2-Dibromo-3-Chloropropane		3 UJ	3.8 UJ	3.4 UJ	4.5 UJ	3.3 UJ	3.4 UJ	3.5 UJ	3.1 UJ	3.9 UJ	3.6 U
1,2-Dichloroethane		1.1 U	1.4 U	1.2 U	1.6 U	1.2 U	1.2 U	1.2 U	1.1 U	1.4 U	1.3 U
1,2-Dichloropropane		1.2 U	1.5 U	1.3 U	1.8 U	1.3 U	1.3 U	1.4 U	1.2 U	1.5 U	1.4 U
2-Butanone (MEK)		3.7 UJ	3.7 UJ	7.6 UJ	5.3 UJ	3.2 UJ	3.3 UJ	9.2 UJ	4.9 UJ	4 UJ	3.5 UJ
2-Chloro-1,3-butadiene		0.61 U	0.78 U	0.69 U	0.91 U	0.67 U	0.7 U	0.7 U	0.64 U	0.79 U	0.74 U
2-Hexanone		2.2 UJ	2.9 UJ	2.5 UJ	3.3 UJ	2.5 UJ	2.6 UJ	2.6 UJ	2.4 UJ	2.9 UJ	2.7 UJ
3-Chloro-1-propene		1.6 UJ	2.1 UJ	1.8 UJ	2.4 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.7 UJ	2.1 UJ	1.9 U
4-Methyl-2-pentanone (MIBK)		3.1 UJ	4 U	3.5 U	4.6 U	3.4 U	3.5 U	3.6 UJ	3.3 UJ	4 UJ	3.8 UJ
Acetone		55 U	22 UJ	77 UJ	70 UJ	32 UJ	33 UJ	26 UJ	22 U	34 U	15 J
Acetonitrile		48 UJ	62 UJ	54 UJ	72 UJ	53 UJ	55 UJ	55 UJ	50 UJ	62 UJ	58 U
Acrolein		20 R	26 UJ	23 UJ	30 UJ	22 UJ	23 UJ	23 R	21 R	26 R	25 U
Acrylonitrile		25 UJ	32 U	28 U	37 U	27 U	28 U	28 UJ	26 UJ	32 UJ	30 UJ
Benzene		0.84 U	1.1 U	1.1 J	1.3 U	0.94 U	0.97 U	0.97 U	0.89 U	1.1 U	1 U
Bromoform		1.2 U	1.5 U	1.3 U	1.8 U	1.3 U	1.3 U	1.4 U	1.2 U	1.5 U	1.4 U
Bromomethane		1.7 UJ	2.2 UJ	1.9 UJ	2.5 UJ	1.9 UJ	2 UJ	2 UJ	1.8 UJ	2.2 UJ	2.1 U
Carbon disulfide		0.54 U	0.87 J	0.62 U	2.9 J	0.6 U	0.62 U	0.63 U	0.57 U	13	0.66 U
Carbon tetrachloride		1.1 U	1.4 U	1.2 U	1.6 U	1.2 U	1.2 U	1.2 U	1.1 U	1.4 U	1.3 U
Chlorobenzene		0.78 U	1 U	0.88 U	1.2 U	0.86 U	0.89 U	0.9 U	0.82 U	1 U	0.95 U
Chlorodibromomethane		0.53 U	0.69 U	0.61 U	0.8 U	0.59 U	0.61 U	0.62 U	0.56 U	0.69 U	0.65 U
Chloroethane		1.3 U	1.6 U	1.5 U	1.9 U	1.4 U	1.5 U	1.5 U	1.3 U	1.7 U	1.6 U



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## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB194	74SB194	74SB195	74SB195	74SB196	74SB196	74SB196	74SB197	74SB197	74VP6Aa
	Sample ID	74SB194-03	74SB194-05	74SB195-03	74SB195-05	74SB196-03D	74SB196-03	74SB196-05	74SB197-03	74SB197-05	74VP6Aa-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/17/2008
	Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.53 U	0.69 U	0.61 U	0.8 U	0.59 U	0.61 U	0.62 U	0.56 U	0.69 U	0.65 U
Chloromethane		0.76 U	0.97 U	0.86 U	1.1 U	0.84 U	0.87 U	0.88 U	0.8 U	0.98 U	0.92 U
cis-1,3-Dichloropropene		0.93 U	1.2 U	1.1 U	1.4 U	1 U	1.1 U	1.1 U	0.98 U	1.2 U	1.1 U
Dibromomethane		1.3 U	1.6 U	1.5 U	1.9 U	1.4 U	1.5 U	1.5 U	1.3 U	1.7 U	1.6 U
Dichlorobromomethane		0.88 U	1.1 U	1 U	1.3 U	0.98 U	1 U	1 U	0.93 U	1.1 U	1.1 U
Dichlorodifluoromethane		0.95 U	1.2 U	1.1 U	1.4 U	1.1 U	1.1 U	1.1 U	1 U	1.2 U	1.2 U
Ethyl methacrylate		2.3 U	3 UJ	2.7 UJ	3.5 UJ	2.6 UJ	2.7 UJ	2.7 U	2.5 U	3 U	2.9 UJ
Ethylbenzene		0.8 U	1 U	0.91 U	1.2 U	0.89 U	0.92 U	0.92 U	0.84 U	1 U	0.97 U
Ethylene Dibromide		1.6 U	2.1 U	1.8 U	2.4 U	1.8 U	1.8 U	1.8 U	1.7 U	2.1 U	1.9 U
Iodomethane		1.1 U	1.4 U	1.2 U	1.6 U	1.4 J	1.2 U	1.2 U	1.1 U	1.4 U	1.3 U
Isobutyl alcohol		74 R	95 R	84 R	110 R	82 R	84 R	85 R	77 R	95 R	90 U
Methacrylonitrile		26 U	33 U	29 U	38 U	28 U	29 U	30 U	27 U	33 U	31 U
Methyl methacrylate		3.9 U	5.1 U	4.5 U	5.9 U	4.4 U	4.5 U	4.6 U	4.1 U	5.1 U	4.8 U
Methylene Chloride		1.1 U	1.4 U	1.2 U	1.6 U	1.2 U	1.2 U	1.2 U	1.1 U	1.4 U	1.3 U
Pentachloroethane		2.3 UJ	3 UJ	2.7 UJ	3.5 UJ	2.6 UJ	2.7 UJ	2.7 UJ	2.5 UJ	3 UJ	2.9 R
Propionitrile		22 UJ	29 UJ	25 UJ	33 UJ	25 UJ	26 UJ	26 UJ	24 UJ	29 UJ	27 U
Styrene		0.7 U	0.91 U	0.8 U	1.1 U	0.78 U	0.81 U	0.81 U	0.74 U	0.91 U	0.86 U
Tetrachloroethene		0.78 U	1 U	0.88 U	1.2 U	0.86 U	0.89 U	0.9 U	0.82 U	1 U	0.95 U
Toluene		0.84 U	1.1 U	0.96 U	1.3 U	0.94 U	0.97 U	0.97 U	0.89 U	1.1 U	1 U
trans-1,2-Dichloroethene		1 U	1.3 U	1.2 U	1.5 U	1.1 U	1.2 U	1.2 U	1.1 U	1.3 U	1.3 U
trans-1,3-Dichloropropene		0.93 U	1.2 U	1.1 U	1.4 U	1 U	1.1 U	1.1 U	0.98 U	1.2 U	1.1 U
trans-1,4-Dichloro-2-butene		3.3 U	4.3 U	3.8 U	4.9 U	3.7 U	3.8 U	3.8 U	3.5 U	4.3 U	4 UJ
Trichloroethene		1.1 U	1.4 U	1.2 U	1.6 U	1.2 U	1.2 U	1.2 U	1.1 U	1.4 U	1.3 U
Trichlorofluoromethane		1.6 U	2.1 U	1.8 U	2.4 U	1.8 U	1.8 U	1.8 U	1.7 U	2.1 U	1.9 U
Vinyl acetate		1.6 U	2.1 U	1.8 U	2.4 U	1.8 U	1.8 U	1.8 U	1.7 U	2.1 U	1.9 U
Vinyl chloride		0.62 U	0.8 U	0.7 U	0.92 U	0.69 U	0.71 U	0.72 U	0.65 U	0.8 U	0.75 U
Xylenes, Total		2.5 U	3.2 U	2.8 U	3.7 U	2.7 U	2.8 U	2.8 U	2.6 U	3.2 U	3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB194	74SB194	74SB195	74SB195	74SB196	74SB196	74SB196	74SB197	74SB197	74VP6Aa
	Sample ID	74SB194-03	74SB194-05	74SB195-03	74SB195-05	74SB196-03D	74SB196-03	74SB196-05	74SB197-03	74SB197-05	74VP6Aa-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/17/2008
	Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# APPENDIX B

## SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB194	74SB194	74SB195	74SB195	74SB196	74SB196	74SB196	74SB197	74SB197	74VP6Aa
	Sample ID	74SB194-03	74SB194-05	74SB195-03	74SB195-05	74SB196-03D	74SB196-03	74SB196-05	74SB197-03	74SB197-05	74VP6Aa-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/17/2008
	Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	9.0-11.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.085 UJ	0.12 J	0.13 J	0.12 J	0.093 UJ	0.091 UJ	0.098 UJ	0.095 U	0.092 U	0.091 U
Arsenic		1.9	3.4	2.7	2	2.2	1.6	0.74	1.7	0.91	0.95
Barium		49	6.9	220	55	57	57	18	18	37	75
Beryllium		0.13	0.46	0.3	0.39	0.38	0.33	0.42	0.21	0.22	0.18
Cadmium		0.035 U	0.051 J	0.16	0.24	0.099 J	0.066 J	0.04 U	0.074 J	0.05 J	0.14
Chromium		25	26	140	92	38	37	25	41	17	100
Cobalt		1.4	4.2	20	18	8.5	8.9	14	3.5	10	48 J
Copper		56	130	110	130	93	92	86	56	86	82
Lead		8.8	16	12	17	12	7.1	3.9	17	11	1.9
Mercury		0.07	0.0047 U	0.01 J	0.022 J	0.0056 J	0.005 U	0.0051 U	0.0051 U	0.0048 U	0.0051 U
Nickel		4.5	6.2	16	14	11	11	14	6.6	11	33
Selenium		1.4	1.4	0.92	0.69 J	1.6	1	0.16 U	1.7	0.25 J	0.15 U
Silver		0.15 U	0.039 U	0.058 U	0.08 U	0.039 U	0.036 U	0.11 U	0.074 J	0.059 J	0.047 J
Thallium		0.14 U	0.15 U	0.16 U	0.17 U	0.15 U	0.15 U	0.16 U	0.15 U	0.15 U	0.15 U
Tin		4.5 U	5.1 U	5.2 U	5.8 U	4.9 U	4.9 U	5.2 U	5 U	4.9 U	4.9 U
Vanadium		210 J	590 J	290 J	300 J	320 J	260 J	100 J	300	160	200
Zinc		18 J	38 J	58 J	73 J	48 J	46 J	60 J	36	70	110 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		3 U	2.7 U	3.4	1.5 U	1.6 U	1.5 U	2.4 U	1.3 U	1.4 U	1.7 U
Gasoline Range Organics		0.0076 U	0.0064 U	0.0091 U	0.0096 U	0.0078 U	0.0075 U	0.0095 U	0.062 U	0.078 U	0.074 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP6Aa	74VP6Ba	74VP6Ba	74VP6Cb	74VP6Cb
	Sample ID	74VP6Aa-07	74VP6Ba-03	74VP6Ba-04	74VP6Cb-04	74VP6Cb-07
	Date	5/18/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	13.0-15.0	5.0-7.0	7.0-9.0	7.0-9.0	13.0-15.0
<b>Volatile Organic Compounds (ug/kg)</b>						
1,1,1,2-Tetrachloroethane		0.77 U	0.73 U	0.92 U	0.66 U	35 U
1,1,1-Trichloroethane		0.7 U	0.66 U	0.83 U	0.6 U	32 U
1,1,2,2-Tetrachloroethane		1.7 U	1.6 U	2 U	1.4 U	76 U
1,1,2-Trichloroethane		1.4 U	1.4 U	1.7 U	1.2 U	65 U
1,1-Dichloroethane		0.6 U	0.57 U	0.72 U	0.51 U	27 U
1,1-Dichloroethene		0.65 U	0.62 U	0.78 U	0.56 U	29 U
1,2,3-Trichloropropane		1.7 U	1.6 U	2 U	1.4 U	76 U
1,2-Dibromo-3-Chloropropane		3.4 UJ	3.2 U	4 U	2.9 U	150 UJ
1,2-Dichloroethane		1.2 U	1.1 U	1.4 U	1 U	54 U
1,2-Dichloropropane		1.3 U	1.3 U	1.6 U	1.1 U	60 U
2-Butanone (MEK)		3.3 UJ	3.1 UJ	3.9 UJ	2.8 UJ	150 UJ
2-Chloro-1,3-butadiene		0.69 U	0.65 U	0.82 U	0.59 U	31 U
2-Hexanone		2.5 UJ	2.4 UJ	3 UJ	2.2 UJ	110 UJ
3-Chloro-1-propene		1.8 UJ	1.7 U	2.2 U	1.5 U	82 UJ
4-Methyl-2-pentanone (MIBK)		3.5 U	3.3 UJ	4.2 UJ	3 UJ	160 UJ
Acetone		12 J	22 J	43 J	20 J	2500 J
Acetonitrile		54 UJ	51 U	65 U	46 U	2400 UJ
Acrolein		23 UJ	22 U	27 U	20 U	1000 R
Acrylonitrile		28 U	26 UJ	33 UJ	24 UJ	1300 UJ
Benzene		0.95 U	0.9 U	1.1 U	0.81 U	43 U
Bromoform		1.3 U	1.3 U	1.6 U	1.1 U	60 U
Bromomethane		1.9 UJ	1.8 U	2.3 U	1.6 U	87 UJ
Carbon disulfide		0.61 U	0.58 U	0.73 U	0.53 U	28 U
Carbon tetrachloride		1.2 U	1.1 U	1.4 U	1 U	54 U
Chlorobenzene		0.88 U	0.83 U	1.1 U	0.75 U	40 U
Chlorodibromomethane		0.6 U	0.57 U	0.72 U	0.51 U	27 U
Chloroethane		1.4 U	1.4 U	1.7 U	1.2 U	65 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP6Aa	74VP6Ba	74VP6Ba	74VP6Cb	74VP6Cb
	Sample ID	74VP6Aa-07	74VP6Ba-03	74VP6Ba-04	74VP6Cb-04	74VP6Cb-07
	Date	5/18/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	13.0-15.0	5.0-7.0	7.0-9.0	7.0-9.0	13.0-15.0
<b>Volatile Organic Compounds (ug/kg)</b>						
Chloroform		0.6 U	0.57 U	0.72 U	0.51 U	27 U
Chloromethane		0.86 U	0.81 U	1 U	0.73 U	39 U
cis-1,3-Dichloropropene		1 U	0.99 U	1.3 U	0.9 U	47 U
Dibromomethane		1.4 U	1.4 U	1.7 U	1.2 U	65 U
Dichlorobromomethane		1 U	0.95 U	1.2 U	0.85 U	45 U
Dichlorodifluoromethane		1.1 U	1 U	1.3 U	0.92 U	48 U
Ethyl methacrylate		2.7 UJ	2.5 UJ	3.2 UJ	2.3 UJ	120 U
Ethylbenzene		0.9 U	0.85 U	1.1 U	0.77 U	49 J
Ethylene Dibromide		1.8 U	1.7 U	2.2 U	1.5 U	82 U
Iodomethane		1.2 U	1.1 U	2.9 J	1 U	54 UJ
Isobutyl alcohol		83 R	79 U	99 U	71 U	3800 R
Methacrylonitrile		29 U	27 U	35 U	25 U	1300 U
Methyl methacrylate		4.5 U	4.2 U	5.3 U	3.8 U	200 U
Methylene Chloride		1.2 U	1.1 U	1.4 U	1 U	54 U
Pentachloroethane		2.7 UJ	2.5 R	3.2 R	2.3 R	120 UJ
Propionitrile		25 UJ	24 U	30 U	22 U	1100 UJ
Styrene		0.8 U	0.75 U	0.95 U	0.68 U	36 U
Tetrachloroethene		0.88 U	0.83 U	1.1 U	0.75 U	40 U
Toluene		0.95 U	0.9 U	1.1 U	0.81 U	43 U
trans-1,2-Dichloroethene		1.2 U	1.1 U	1.4 U	1 U	53 U
trans-1,3-Dichloropropene		1 U	0.99 U	1.3 U	0.9 U	47 U
trans-1,4-Dichloro-2-butene		3.7 U	3.5 UJ	4.5 UJ	3.2 UJ	170 U
Trichloroethene		1.2 U	1.1 U	1.4 U	1 U	54 U
Trichlorofluoromethane		1.8 U	1.7 U	2.2 U	1.5 U	82 U
Vinyl acetate		1.8 U	1.7 U	2.2 U	1.5 U	82 U
Vinyl chloride		0.7 U	0.66 U	0.83 U	0.6 U	32 U
Xylenes, Total		2.8 U	2.6 U	3.3 U	2.4 U	130 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP6Aa	74VP6Ba	74VP6Ba	74VP6Cb	74VP6Cb
	Sample ID	74VP6Aa-07	74VP6Ba-03	74VP6Ba-04	74VP6Cb-04	74VP6Cb-07
	Date	5/18/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	13.0-15.0	5.0-7.0	7.0-9.0	7.0-9.0	13.0-15.0
<b>LLPAHs (ug/kg)</b>						
1-Methylnaphthalene		NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP6Aa	74VP6Ba	74VP6Ba	74VP6Cb	74VP6Cb
	Sample ID	74VP6Aa-07	74VP6Ba-03	74VP6Ba-04	74VP6Cb-04	74VP6Cb-07
	Date	5/18/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	13.0-15.0	5.0-7.0	7.0-9.0	7.0-9.0	13.0-15.0
<b>Metals (mg/kg)</b>						
Antimony		0.096 J	0.096 U	0.11 U	0.099 J	0.094 U
Arsenic		1.3	1.8	1.6	3.2	1.2
Barium		61	130	61	270	57
Beryllium		0.2	0.37	0.71	0.33	0.32
Cadmium		0.16	0.063 J	0.11 J	0.045 J	0.2
Chromium		9.2	41	58	19	28
Cobalt		31 J	8.4 J	41 J	29 J	34 J
Copper		59	84	120	82	66
Lead		1.8	17	3.4	11	3.6
Mercury		0.0041 U	0.038	0.01 J	0.13	0.047
Nickel		8.7	14	31	17	36
Selenium		0.14 U	1.5	0.18 J	1.6	0.15 U
Silver		0.035 J	0.19 J	0.1 J	0.056 J	0.055 J
Thallium		0.14 U	0.15 U	0.17 U	0.14 U	0.15 U
Tin		4.8 U	5.1 U	5.7 U	4.6 U	5 U
Vanadium		270	240	240	110	130
Zinc		77 J	78 J	160 J	92 J	81 J
<b>TPH DRO/GRO (mg/kg)</b>						
Diesel Range Organics		0.77 U	1.2 U	1.8 U	1.4 U	0.99 U
Gasoline Range Organics		0.069 U	0.072 U	0.08 U	0.13 J	480 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB125	74SB125	74SB126	74SB126	74SB126	74SB127	74SB127	74SB128	74SB128	74SB129
	Sample ID	74SB125-03	74SB125-05	74SB126-02	74SB126-05D	74SB126-05	74SB127-03	74SB127-04	74SB128-03	74SB128-05	74SB129-02
	Date	5/13/2008	5/13/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
	Depth Range	5.0-7.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	3.0-5.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.72 U	0.83 U	0.64 U	0.6 U	0.64 U	0.59 U	0.67 U	0.7 U	0.69 U	1.6 U
1,1,1-Trichloroethane		0.65 U	0.75 U	0.58 U	0.55 U	0.58 U	0.54 U	0.6 U	0.64 U	0.63 U	1.4 U
1,1,2,2-Tetrachloroethane		1.6 U	1.8 U	1.4 U	1.3 U	1.4 U	1.3 U	1.5 U	1.5 U	1.5 U	3.5 U
1,1,2-Trichloroethane		1.4 U	1.6 U	1.2 U	1.1 U	1.2 U	1.1 U	1.2 U	1.3 U	1.3 U	3 U
1,1-Dichloroethane		0.56 U	0.65 U	0.5 U	0.47 U	0.5 U	0.46 U	0.52 U	0.55 U	0.54 U	1.2 U
1,1-Dichloroethene		0.61 U	0.7 U	0.54 U	0.51 U	0.54 U	0.5 U	0.56 U	0.59 U	0.59 U	1.3 U
1,2,3-Trichloropropane		1.6 U	1.8 U	1.4 U	1.3 U	1.4 U	1.3 U	1.5 U	1.5 U	1.5 U	3.5 U
1,2-Dibromo-3-Chloropropane		3.2 U	3.6 U	2.8 U	2.6 U	2.8 U	2.6 U	2.9 U	3.1 U	3 U	7 U
1,2-Dichloroethane		1.1 U	1.3 U	1 U	0.94 U	1 U	0.93 U	1 U	1.1 U	1.1 U	2.5 U
1,2-Dichloropropane		1.2 U	1.4 U	1.1 U	1 U	1.1 U	1 U	1.1 U	1.2 U	1.2 U	2.7 U
2-Butanone (MEK)		3 U	3.5 U	3.1 U	2.5 U	2.7 U	2.5 U	2.8 U	3 U	2.9 U	8.4 J
2-Chloro-1,3-butadiene		0.64 U	0.74 U	0.57 U	0.54 U	0.57 U	0.53 U	0.59 U	0.62 U	0.62 U	1.4 U
2-Hexanone		2.4 U	2.7 U	2.1 U	2 U	2.1 U	2 U	2.2 U	2.3 U	2.3 U	5.2 U
3-Chloro-1-propene		1.7 U	1.9 U	1.5 U	1.4 U	1.5 U	1.4 U	1.6 U	1.6 U	1.6 U	3.7 UJ
4-Methyl-2-pentanone (MIBK)		3.3 U	3.8 U	2.9 U	2.7 U	2.9 U	2.7 U	3 U	3.2 U	3.1 U	7.2 U
Acetone		15 J	9.2 J	19 U	7.8 U	12 U	7.7 U	6.7 U	11 U	9.8 U	44 U
Acetonitrile		51 U	58 U	45 U	42 U	45 U	42 U	47 U	49 U	49 U	110 U
Acrolein		21 R	25 R	19 R	18 R	19 R	18 R	20 R	21 R	21 R	47 R
Acrylonitrile		26 U	30 U	23 U	22 U	23 U	21 U	24 U	25 U	25 U	57 U
Benzene		0.89 U	1 U	0.79 U	0.75 U	0.79 U	0.73 U	0.82 U	0.87 U	0.86 U	2 U
Bromoform		1.2 U	1.4 U	1.1 U	1 U	1.1 U	1 U	1.1 U	1.2 U	1.2 U	2.7 U
Bromomethane		1.8 U	2.1 UJ	1.6 U	1.5 U	1.6 U	1.5 U	1.7 U	1.8 U	1.7 U	4 U
Carbon disulfide		0.57 U	0.66 U	0.51 U	0.48 U	0.51 U	0.47 U	0.53 U	0.56 U	0.55 U	1.3 U
Carbon tetrachloride		1.1 U	1.3 U	1 U	0.94 U	1 U	0.93 U	1 U	1.1 U	1.1 U	2.5 U
Chlorobenzene		0.82 U	0.95 U	0.73 U	0.69 U	0.73 U	0.68 U	0.76 U	0.8 U	0.79 U	1.8 U
Chlorodibromomethane		0.56 U	0.65 U	0.5 U	0.47 U	0.5 U	0.46 U	0.52 U	0.55 U	0.54 U	1.2 U
Chloroethane		1.4 UJ	1.6 UJ	1.2 U	1.1 U	1.2 U	1.1 U	1.2 U	1.3 U	1.3 U	3 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB125	74SB125	74SB126	74SB126	74SB126	74SB127	74SB127	74SB128	74SB128	74SB129
	Sample ID	74SB125-03	74SB125-05	74SB126-02	74SB126-05D	74SB126-05	74SB127-03	74SB127-04	74SB128-03	74SB128-05	74SB129-02
	Date	5/13/2008	5/13/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
	Depth Range	5.0-7.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	3.0-5.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.56 U	0.65 U	0.5 U	0.47 U	0.5 U	0.46 U	0.52 U	0.55 U	0.54 U	1.2 U
Chloromethane		0.8 U	0.92 U	0.71 U	0.67 U	0.71 U	0.66 U	0.74 U	0.78 U	0.77 U	1.8 U
cis-1,3-Dichloropropene		0.98 U	1.1 U	0.87 U	0.82 U	0.87 U	0.81 U	0.91 U	0.95 U	0.94 U	2.2 U
Dibromomethane		1.4 U	1.6 U	1.2 U	1.1 U	1.2 U	1.1 U	1.2 U	1.3 U	1.3 U	3 U
Dichlorobromomethane		0.93 U	1.1 U	0.83 U	0.78 U	0.83 U	0.77 U	0.86 U	0.91 U	0.9 U	2.1 U
Dichlorodifluoromethane		1 U	1.2 U	0.89 U	0.84 U	0.89 U	0.83 U	0.93 U	0.98 U	0.97 U	2.2 U
Ethyl methacrylate		2.5 U	2.8 U	2.2 U	2.1 U	2.2 U	2 U	2.3 U	2.4 U	2.4 U	5.5 U
Ethylbenzene		0.84 U	0.97 U	0.75 U	0.71 U	0.75 U	0.7 U	0.78 U	0.82 U	0.81 U	1.9 U
Ethylene Dibromide		1.7 U	1.9 U	1.5 U	1.4 U	1.5 U	1.4 U	1.6 U	1.6 U	1.6 U	3.7 U
Iodomethane		1.1 UJ	1.3 U	1 U	0.94 U	1 U	0.93 U	1 U	1.1 U	1.1 U	2.5 UJ
Isobutyl alcohol		78 R	89 R	70 J	65 R	69 R	64 R	72 R	76 R	75 R	170 R
Methacrylonitrile		27 U	31 U	24 U	23 U	24 U	22 U	25 U	26 U	26 U	60 U
Methyl methacrylate		4.2 U	4.8 U	3.7 U	3.5 U	3.7 U	3.4 U	3.9 U	4.1 U	4 U	9.2 U
Methylene Chloride		1.1 U	1.3 U	1 U	0.94 U	1 U	0.93 U	1 U	1.1 U	1.1 U	2.5 U
Pentachloroethane		2.5 UJ	2.8 U	2.2 UJ	2.1 UJ	2.2 UJ	2 UJ	2.3 UJ	2.4 UJ	2.4 UJ	5.5 UJ
Propionitrile		24 U	27 U	21 U	20 U	21 U	20 U	22 U	23 U	23 U	52 U
Styrene		0.74 U	0.85 U	0.66 U	0.62 U	0.66 U	0.61 U	0.69 U	0.72 U	0.72 U	1.6 U
Tetrachloroethene		0.82 U	0.95 U	0.73 U	0.69 U	0.73 U	0.68 U	0.76 U	0.8 U	0.79 U	1.8 U
Toluene		0.89 U	1 U	0.79 U	0.75 U	0.79 U	0.73 U	0.82 U	0.87 U	0.86 U	2 U
trans-1,2-Dichloroethene		1.1 U	1.3 U	0.97 U	0.92 U	0.97 U	0.9 U	1 U	1.1 U	1.1 U	2.4 U
trans-1,3-Dichloropropene		0.98 U	1.1 U	0.87 U	0.82 U	0.87 U	0.81 U	0.91 U	0.95 U	0.94 U	2.2 U
trans-1,4-Dichloro-2-butene		3.5 U	4 U	3.1 U	2.9 U	3.1 U	2.9 U	3.2 U	3.4 U	3.4 U	7.7 U
Trichloroethene		1.1 U	1.3 U	1 U	0.94 U	1 U	0.93 U	1 U	1.1 U	1.1 U	2.5 U
Trichlorofluoromethane		1.7 U	1.9 U	1.5 U	1.4 U	1.5 U	1.4 U	1.6 U	1.6 U	1.6 U	3.7 U
Vinyl acetate		1.7 U	1.9 U	1.5 U	1.4 U	1.5 U	1.4 U	1.6 U	1.6 U	1.6 U	3.7 U
Vinyl chloride		0.65 U	0.75 U	0.58 U	0.55 U	0.58 U	0.54 U	0.6 U	0.64 U	0.63 U	1.4 U
Xylenes, Total		2.6 U	3 U	2.3 U	2.2 U	2.3 U	2.1 U	2.4 U	2.5 U	2.5 U	5.7 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB125	74SB125	74SB126	74SB126	74SB126	74SB127	74SB127	74SB128	74SB128	74SB129
Sample ID	74SB125-03	74SB125-05	74SB126-02	74SB126-05D	74SB126-05	74SB127-03	74SB127-04	74SB128-03	74SB128-05	74SB129-02
Date	5/13/2008	5/13/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
Depth Range	5.0-7.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	3.0-5.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB125	74SB125	74SB126	74SB126	74SB126	74SB127	74SB127	74SB128	74SB128	74SB129
	Sample ID	74SB125-03	74SB125-05	74SB126-02	74SB126-05D	74SB126-05	74SB127-03	74SB127-04	74SB128-03	74SB128-05	74SB129-02
	Date	5/13/2008	5/13/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
	Depth Range	5.0-7.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	3.0-5.0
<b>Metals (mg/kg)</b>											
Antimony		0.11 UJ	0.1 UJ	0.21 UJ	0.76 J	0.46 UJ	0.087 UJ	0.1 UJ	0.099 UJ	0.11 UJ	0.077 UJ
Arsenic		0.95	0.74	6.5	17	13	0.76	0.57 U	0.6 U	0.69	1.5
Barium		23	27	92	36 J	21 J	44	59	95	58	19
Beryllium		0.24	0.64	0.5	0.32	0.2	0.21	0.14	0.18	0.22	0.052 J
Cadmium		0.037 U	0.039 U	0.23	0.48	0.36	0.041 J	0.058 J	0.038 U	0.046 J	0.035 J
Chromium		18	20	5	2.2	4.7	0.74 J	5.1	16	36	2.8
Cobalt		23 J	22 J	19	13 J	5.7 J	15	20	31	38	4
Copper		140	140	160	260	190	10	0.74 U	120	370	26
Lead		1.7	1.9	260	830	640	1.2	2	1.2	3.8	1
Mercury		0.0051 UJ	0.0051 UJ	0.0053 J	0.0086 J	0.0077 J	0.0055 J	0.0046 U	0.0063 J	0.0046 U	0.0085 J
Nickel		17	14	7.7	11 J	7.5 J	1.9	5.4	9.5	17	1.6
Selenium		0.4 J	0.15 U	0.42 J	0.48 J	0.43 J	0.14 U	0.14 U	0.15 U	0.14 U	0.12 U
Silver		0.03 J	0.085 J	0.034 J	0.088 J	0.41	0.062 J	0.02 J	0.11 J	0.096 J	0.017 U
Thallium		0.14 U	0.15 U	0.13 U	0.12 U	0.13 U	0.14 U	0.15 J	0.15 U	0.14 U	0.12 U
Tin		4.8 U	5.1 U	4.3 U	4.1 U	4.4 U	4.6 U	4.6 U	4.9 U	4.7 U	4.1 U
Vanadium		240	180	210	360	360	100	130	170	170	34
Zinc		51	50	330 J	700 J	390 J	51 J	57 J	59 J	86 J	10 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.77 U	0.86 U	3.6 J	3.4 J	4	2.8 J	2 J	1.9 J	1.1 J	1.5 J
Gasoline Range Organics		0.07 U	0.091 U	0.061 U	0.058 U	0.067 U	0.068 U	0.064 U	0.069 U	0.071 U	0.078 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB129	74SB130	74SB130	74SB131	74SB131	74SB131	74SB132	74SB132	74SB133	74SB133
	Sample ID	74SB129-03	74SB130-03	74SB130-05	74SB131-03D	74SB131-03	74SB131-05	74SB132-04	74SB132-05	74SB133-04	74SB133-05
	Date	5/14/2008	5/14/2008	5/14/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.66 U	0.64 U	0.64 U	0.65 U	0.68 U	0.73 U	0.76 U	0.75 U	0.83 U	0.75 U
1,1,1-Trichloroethane		0.6 U	0.58 U	0.58 U	0.59 U	0.61 U	0.67 U	0.69 U	0.68 U	0.76 U	0.68 U
1,1,2,2-Tetrachloroethane		1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.6 U	1.7 U	1.6 U	1.8 U	1.6 U
1,1,2-Trichloroethane		1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	1.4 U	1.4 U	1.4 U	1.6 U	1.4 U
1,1-Dichloroethane		0.51 U	0.5 U	0.5 U	0.51 U	0.53 U	0.57 U	0.59 U	0.58 U	0.65 U	0.58 U
1,1-Dichloroethene		0.56 U	0.54 U	0.54 U	0.55 U	0.57 U	0.62 U	0.64 U	0.63 U	0.7 U	0.63 U
1,2,3-Trichloropropane		1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.6 U	1.7 U	1.6 U	1.8 U	1.6 U
1,2-Dibromo-3-Chloropropane		2.9 U	2.8 U	2.8 U	2.8 U	3 U	3.2 U	3.3 U	3.3 U	3.7 U	3.3 U
1,2-Dichloroethane		1 U	1 U	0.99 U	1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U
1,2-Dichloropropane		1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U
2-Butanone (MEK)		2.8 U	2.8 J	2.7 U	2.7 U	2.8 U	5.7 U	3.2 U	3.2 U	3.5 U	3.2 U
2-Chloro-1,3-butadiene		0.59 U	0.57 U	0.57 U	0.58 U	0.6 U	0.65 U	0.68 U	0.67 U	0.74 U	0.67 U
2-Hexanone		2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.4 U	2.5 UJ	2.5 UJ	2.7 U	2.5 UJ
3-Chloro-1-propene		1.5 U	1.5 U	1.5 U	1.5 U	1.6 U	1.7 U	1.8 U	1.8 U	2 U	1.8 U
4-Methyl-2-pentanone (MIBK)		3 U	2.9 U	2.9 U	2.9 U	3.1 U	3.3 U	3.4 U	3.4 U	3.8 U	3.4 U
Acetone		12 U	24 U	5.1 U	5.7 J	5.8 U	38 U	8 J	16 J	16 U	21 J
Acetonitrile		46 U	45 U	45 U	46 U	47 U	52 U	53 U	53 U	59 U	53 U
Acrolein		20 R	19 R	19 R	19 R	20 R	22 R	23 U	22 U	25 R	22 U
Acrylonitrile		24 U	23 U	23 U	23 U	24 U	26 U	27 U	27 U	30 U	27 U
Benzene		0.81 U	0.79 U	0.79 U	0.8 U	0.83 U	0.91 U	0.94 U	0.92 U	1 U	0.92 U
Bromoform		1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U
Bromomethane		1.6 U	1.6 U	1.6 U	1.6 UJ	1.7 U	1.8 U	1.9 U	1.9 U	2.1 U	1.9 U
Carbon disulfide		0.53 U	1.2 J	0.51 U	0.52 U	0.54 U	0.58 U	0.6 U	0.6 U	0.67 U	0.6 U
Carbon tetrachloride		1 U	1 U	0.99 U	1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U
Chlorobenzene		0.75 U	0.73 U	0.73 U	0.74 U	0.77 U	0.84 U	0.87 U	0.85 U	0.95 U	0.85 U
Chlorodibromomethane		0.51 U	0.5 U	0.5 U	0.51 U	0.53 U	0.57 U	0.59 U	0.58 U	0.65 U	0.58 U
Chloroethane		1.2 U	1.2 U	1.2 U	1.2 U	1.3 UJ	1.4 UJ	1.4 U	1.4 U	1.6 UJ	1.4 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB129	74SB130	74SB130	74SB131	74SB131	74SB131	74SB132	74SB132	74SB133	74SB133
	Sample ID	74SB129-03	74SB130-03	74SB130-05	74SB131-03D	74SB131-03	74SB131-05	74SB132-04	74SB132-05	74SB133-04	74SB133-05
	Date	5/14/2008	5/14/2008	5/14/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.51 U	0.5 U	0.5 U	0.51 U	0.53 U	0.57 U	0.59 U	0.58 U	0.65 U	0.58 U
Chloromethane		0.73 U	0.71 U	0.71 U	0.72 U	0.75 U	0.81 U	0.84 U	0.83 U	0.93 U	0.83 U
cis-1,3-Dichloropropene		0.9 U	0.88 U	0.87 U	0.88 U	0.92 U	1 U	1 U	1 U	1.1 U	1 U
Dibromomethane		1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	1.4 U	1.4 U	1.4 U	1.6 U	1.4 U
Dichlorobromomethane		0.85 U	0.84 U	0.83 U	0.84 U	0.88 U	0.95 U	0.98 U	0.97 U	1.1 U	0.97 U
Dichlorodifluoromethane		0.92 U	0.9 U	0.89 U	0.9 U	0.94 U	1 U	1.1 U	1 U	1.2 U	1 U
Ethyl methacrylate		2.3 U	2.2 U	2.2 U	2.2 U	2.3 U	2.5 U	2.6 U	2.6 U	2.9 U	2.6 U
Ethylbenzene		0.77 U	0.75 U	0.75 U	0.76 U	0.79 U	0.86 U	0.89 U	0.88 U	0.98 U	0.88 U
Ethylene Dibromide		1.5 U	1.5 U	1.5 U	1.5 U	1.6 U	1.7 U	1.8 U	1.8 U	2 U	1.8 U
Iodomethane		1 U	1 U	0.99 U	1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U
Isobutyl alcohol		71 R	69 R	69 R	70 R	73 R	79 R	82 U	81 U	90 R	81 U
Methacrylonitrile		25 U	24 U	24 U	24 U	25 U	28 U	28 U	28 U	31 U	28 U
Methyl methacrylate		3.8 U	3.7 U	3.7 U	3.7 U	3.9 U	4.2 U	4.4 U	4.3 U	4.8 U	4.3 U
Methylene Chloride		1 U	1 U	0.99 U	1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U
Pentachloroethane		2.3 UJ	2.2 UJ	2.2 UJ	2.2 U	2.3 UJ	2.5 UJ	2.6 R	2.6 R	2.9 UJ	2.6 R
Propionitrile		22 U	21 U	21 U	21 U	22 U	24 U	25 U	25 U	27 U	25 U
Styrene		0.68 U	0.66 U	0.66 U	0.67 U	0.7 U	0.76 U	0.78 U	0.77 U	0.86 U	0.77 U
Tetrachloroethene		0.75 U	0.73 U	0.73 U	0.74 U	0.77 U	0.84 U	0.87 U	0.85 U	0.95 U	0.85 U
Toluene		0.81 U	0.79 U	0.79 U	0.8 U	0.83 U	0.91 U	0.94 U	0.92 U	1 U	0.92 U
trans-1,2-Dichloroethene		1 U	0.98 U	0.96 U	0.98 U	1 U	1.1 U	1.2 U	1.1 U	1.3 U	1.1 U
trans-1,3-Dichloropropene		0.9 U	0.88 U	0.87 U	0.88 U	0.92 U	1 U	1 U	1 U	1.1 U	1 U
trans-1,4-Dichloro-2-butene		3.2 U	3.1 U	3.1 U	3.1 U	3.3 U	3.6 U	3.7 U	3.6 U	4 U	3.6 U
Trichloroethene		1 U	1 U	0.99 U	1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U
Trichlorofluoromethane		1.5 U	1.5 U	1.5 U	1.5 U	1.6 U	1.7 U	1.8 U	1.8 U	2 U	1.8 U
Vinyl acetate		1.5 U	1.5 U	1.5 U	1.5 U	1.6 U	1.7 U	1.8 U	1.8 U	2 U	1.8 U
Vinyl chloride		0.6 U	0.58 U	0.58 U	0.59 U	0.61 U	0.67 U	0.69 U	0.68 U	0.76 U	0.68 U
Xylenes, Total		2.4 U	2.3 U	2.3 U	2.3 U	2.4 U	2.6 U	2.7 U	2.7 U	3 U	2.7 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB129	74SB130	74SB130	74SB131	74SB131	74SB131	74SB132	74SB132	74SB133	74SB133
Sample ID	74SB129-03	74SB130-03	74SB130-05	74SB131-03D	74SB131-03	74SB131-05	74SB132-04	74SB132-05	74SB133-04	74SB133-05
Date	5/14/2008	5/14/2008	5/14/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB129	74SB130	74SB130	74SB131	74SB131	74SB131	74SB132	74SB132	74SB133	74SB133
	Sample ID	74SB129-03	74SB130-03	74SB130-05	74SB131-03D	74SB131-03	74SB131-05	74SB132-04	74SB132-05	74SB133-04	74SB133-05
	Date	5/14/2008	5/14/2008	5/14/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.076 UJ	0.089 UJ	0.076 UJ	0.31 UJ	0.37 UJ	0.28 UJ	0.29 UJ	0.28 UJ	0.3 UJ	0.28 UJ
Arsenic		0.62	0.77	0.82	1.1	0.82	0.87	0.83	0.68	1.2	0.98
Barium		56	150	45	39 J	14 J	14 J	34 J	45 J	57 J	32 J
Beryllium		0.22	0.56	0.19	0.26	0.27	0.27	0.42	0.33	0.3	0.24
Cadmium		0.031 U	0.052 J	0.076 J	0.055 J	0.037 U	0.055 J	0.037 J	0.051 J	0.24	0.19
Chromium		9.3	16	12	4.1	5.3	6.1	3.8	2.4	64	26
Cobalt		30	86	22	15 J	13 J	13 J	16 J	17 J	35 J	20 J
Copper		140	82	68	60	52	46	15	4.1	83	59
Lead		0.6	2.7	5.6	0.95	0.52	0.71	0.91	1.3	1.4	1.2
Mercury		0.0043 U	0.024	0.0044 U	0.0044 U	0.0045 U	0.0048 U	0.0047 U	0.0045 U	0.0045 U	0.0044 U
Nickel		14	16	12	11	13	12	24	26	31	22
Selenium		0.12 U	0.41 J	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U
Silver		0.03 J	0.034 J	0.025 J	0.028 J	0.062 J	0.034 J	0.046 J	0.051 J	0.053 J	0.057 J
Thallium		0.12 U	0.14 U	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U
Tin		4 U	4.7 U	4.1 U	4.3 U	4.8 U	4.4 U	4.5 U	4.4 U	4.6 U	4.4 U
Vanadium		200	220	180	110 J	160 J	140	98	68	140	95
Zinc		50 J	92 J	74 J	94 J	92 J	100 J	86 J	63 J	93 J	61 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		1.2 J	1.1 J	0.87 J	1.2 J	1.5 J	0.81 J	0.75 J	0.89 J	22	0.85 J
Gasoline Range Organics		0.065 U	0.073 U	0.06 U	0.065 U	0.067 U	0.07 U	0.065 U	0.14 U	0.12 U	0.07 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB134	74SB134	74SB135	74SB135	74SB136	74SB136	74SB136	74SB137	74SB137	74SB138
Sample ID	74SB134-04	74SB134-05	74SB135-03	74SB135-05	74SB136-03D	74SB136-03	74SB136-05	74SB137-03	74SB137-04	74SB138-03
Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.72 U	0.73 U	0.66 U	0.61 U	0.8 U	0.74 U	0.63 U	0.75 U	0.76 U	0.66 U
1,1,1-Trichloroethane	0.65 U	0.66 U	0.6 U	0.56 U	0.72 U	0.67 U	0.58 U	0.68 U	0.69 U	0.6 U
1,1,2,2-Tetrachloroethane	1.6 U	1.6 U	1.4 U	1.3 U	1.7 U	1.6 U	1.4 U	1.6 U	1.7 U	1.4 U
1,1,2-Trichloroethane	1.3 U	1.4 U	1.2 U	1.1 U	1.5 U	1.4 U	1.2 U	1.4 U	1.4 U	1.2 U
1,1-Dichloroethane	0.56 U	0.57 U	0.52 U	0.48 U	0.62 U	0.58 U	0.5 U	0.59 U	0.59 U	0.51 U
1,1-Dichloroethene	0.61 U	0.61 U	0.56 U	0.52 U	0.67 U	0.63 U	0.54 U	0.64 U	0.64 U	0.55 U
1,2,3-Trichloropropane	1.6 U	1.6 U	1.4 U	1.3 U	1.7 U	1.6 U	1.4 U	1.6 U	1.7 U	1.4 U
1,2-Dibromo-3-Chloropropane	3.1 U	3.2 U	2.9 U	2.7 U	3.5 U	3.2 U	2.8 U	3.3 U	3.3 U	2.9 U
1,2-Dichloroethane	1.1 U	1.1 U	1 U	0.96 U	1.2 U	1.2 U	0.99 U	1.2 U	1.2 U	1 U
1,2-Dichloropropane	1.2 U	1.3 U	1.1 U	1.1 U	1.4 U	1.3 U	1.1 U	1.3 U	1.3 U	1.1 U
2-Butanone (MEK)	3 U	3.1 U	2.8 U	2.6 U	12 U	18 U	9.9 U	8.9 U	3.2 U	4.5 U
2-Chloro-1,3-butadiene	0.64 U	0.65 U	0.59 U	0.55 U	0.71 U	0.66 U	0.57 U	0.67 U	0.68 U	0.58 U
2-Hexanone	2.4 UJ	2.4 UJ	2.2 U	2 U	2.6 U	2.4 U	2.1 U	2.5 U	2.5 U	2.2 U
3-Chloro-1-propene	1.7 U	1.7 U	1.6 U	1.4 U	1.9 U	1.7 U	1.5 U	1.8 U	1.8 U	1.5 U
4-Methyl-2-pentanone (MIBK)	3.3 U	3.3 U	3 U	2.8 U	3.6 U	3.4 U	2.9 U	3.4 U	3.4 U	3 U
Acetone	6 J	13 J	12 U	5.4 J	200	230	82	68	38 J	28 J
Acetonitrile	50 U	51 U	47 U	43 UJ	56 UJ	52 UJ	45 UJ	53 UJ	53 U	46 UJ
Acrolein	21 U	22 U	20 R	18 UJ	24 UJ	22 UJ	19 UJ	22 UJ	23 R	19 UJ
Acrylonitrile	26 U	26 U	24 U	22 UJ	29 UJ	27 UJ	23 UJ	27 UJ	27 U	24 UJ
Benzene	0.89 U	0.9 U	0.82 U	0.76 U	0.99 U	0.92 U	0.78 U	0.93 U	0.94 U	0.81 U
Bromoform	1.2 U	1.3 U	1.1 U	1.1 U	1.4 U	1.3 U	1.1 U	1.3 U	1.3 U	1.1 U
Bromomethane	1.8 U	1.8 U	1.7 U	1.5 U	2 U	1.9 U	1.6 U	1.9 U	1.9 UJ	1.6 U
Carbon disulfide	0.57 U	0.58 U	0.53 U	0.49 U	0.64 U	0.59 U	0.51 U	12	0.89 J	5.3
Carbon tetrachloride	1.1 U	1.1 U	1 U	0.96 U	1.2 U	1.2 U	0.99 U	1.2 U	1.2 U	1 U
Chlorobenzene	0.82 U	0.83 U	0.76 U	0.7 U	0.91 U	0.85 U	0.72 U	0.86 U	0.87 U	0.75 U
Chlorodibromomethane	0.56 U	0.57 U	0.52 U	0.48 U	0.62 U	0.58 U	0.5 U	0.59 U	0.59 U	0.51 U
Chloroethane	1.3 U	1.4 U	1.2 UJ	1.1 UJ	1.5 UJ	1.4 UJ	1.2 UJ	1.4 UJ	1.4 U	1.2 UJ



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB134	74SB134	74SB135	74SB135	74SB136	74SB136	74SB136	74SB137	74SB137	74SB138
	Sample ID	74SB134-04	74SB134-05	74SB135-03	74SB135-05	74SB136-03D	74SB136-03	74SB136-05	74SB137-03	74SB137-04	74SB138-03
	Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.56 U	0.57 U	0.52 U	0.48 U	0.62 U	0.58 U	0.5 U	0.59 U	0.59 U	0.51 U
Chloromethane		0.8 U	0.81 U	0.74 U	0.68 U	0.89 U	1 J	0.7 U	0.84 U	0.84 U	0.73 U
cis-1,3-Dichloropropene		0.98 U	0.99 U	0.9 U	0.83 U	1.1 U	1 U	0.86 U	1 U	1 U	0.89 U
Dibromomethane		1.3 U	1.4 U	1.2 U	1.1 U	1.5 U	1.4 U	1.2 U	1.4 U	1.4 U	1.2 U
Dichlorobromomethane		0.93 U	0.94 U	0.86 U	0.8 U	1 U	0.96 U	0.82 U	0.98 U	0.99 U	0.85 U
Dichlorodifluoromethane		1 U	1 U	0.92 U	0.85 U	1.1 U	1 U	0.88 U	1 U	1.1 U	0.91 U
Ethyl methacrylate		2.5 U	2.5 U	2.3 U	2.1 U	2.7 U	2.5 U	2.2 U	2.6 U	2.6 U	2.3 U
Ethylbenzene		0.84 U	0.85 U	0.78 U	0.72 U	0.94 U	0.87 U	0.74 U	0.88 U	0.89 U	0.77 U
Ethylene Dibromide		1.7 U	1.7 U	1.6 U	1.4 U	1.9 U	1.7 U	1.5 U	1.8 U	1.8 U	1.5 U
Iodomethane		1.1 U	1.1 U	1 U	0.96 U	1.2 U	3.4 J	3.3 J	1.2 U	1.2 U	1 U
Isobutyl alcohol		77 U	79 U	71 R	66 UJ	86 UJ	80 UJ	68 UJ	81 UJ	82 R	71 UJ
Methacrylonitrile		27 U	27 U	25 U	23 UJ	30 UJ	28 UJ	24 UJ	28 UJ	100 J	25 UJ
Methyl methacrylate		4.2 U	4.2 U	3.8 U	3.5 U	4.6 U	4.3 U	3.7 U	4.4 U	4.4 U	3.8 U
Methylene Chloride		1.1 U	1.1 U	1 U	0.96 U	1.2 U	1.2 U	0.99 U	1.2 U	1.2 U	1 U
Pentachloroethane		2.5 R	2.5 R	2.3 UJ	2.1 R	2.7 R	2.5 R	2.2 R	2.6 R	2.6 U	2.3 R
Propionitrile		24 U	24 U	22 U	20 UJ	26 UJ	24 UJ	21 UJ	25 UJ	25 U	22 UJ
Styrene		0.74 U	0.75 U	0.68 U	0.63 U	0.82 U	0.76 U	0.65 U	0.78 U	0.78 U	0.68 U
Tetrachloroethene		0.82 U	0.83 U	0.76 U	0.7 U	0.91 U	0.85 U	0.72 U	0.86 U	0.87 U	0.75 U
Toluene		0.89 U	0.9 U	0.82 U	0.76 U	0.99 U	0.92 U	0.78 U	0.93 U	0.94 U	0.81 U
trans-1,2-Dichloroethene		1.1 U	1.1 U	1 U	0.93 U	1.2 U	1.1 U	0.96 U	1.1 U	1.2 U	1 U
trans-1,3-Dichloropropene		0.98 U	0.99 U	0.9 U	0.83 U	1.1 U	1 U	0.86 U	1 U	1 U	0.89 U
trans-1,4-Dichloro-2-butene		3.5 U	3.5 U	3.2 U	3 U	3.9 U	3.6 U	3.1 U	3.7 U	3.7 U	3.2 U
Trichloroethene		1.1 U	1.1 U	1 U	0.96 U	1.2 U	1.2 U	0.99 U	1.2 U	1.2 U	1 U
Trichlorofluoromethane		1.7 U	1.7 U	1.6 U	1.4 U	1.9 U	1.7 U	1.5 U	1.8 U	1.8 U	1.5 U
Vinyl acetate		1.7 U	1.7 U	1.6 U	1.4 UJ	1.9 UJ	1.7 UJ	1.5 UJ	1.8 UJ	1.8 U	1.5 UJ
Vinyl chloride		0.65 U	0.66 U	0.6 U	0.56 U	0.72 U	0.67 U	0.58 U	0.68 U	0.69 U	0.6 U
Xylenes, Total		2.6 U	2.6 U	2.4 U	2.2 U	2.9 U	2.7 U	2.3 U	2.7 U	2.7 U	2.4 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB134	74SB134	74SB135	74SB135	74SB136	74SB136	74SB136	74SB137	74SB137	74SB138
Sample ID	74SB134-04	74SB134-05	74SB135-03	74SB135-05	74SB136-03D	74SB136-03	74SB136-05	74SB137-03	74SB137-04	74SB138-03
Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB134	74SB134	74SB135	74SB135	74SB136	74SB136	74SB136	74SB137	74SB137	74SB138
	Sample ID	74SB134-04	74SB134-05	74SB135-03	74SB135-05	74SB136-03D	74SB136-03	74SB136-05	74SB137-03	74SB137-04	74SB138-03
	Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony		0.26 UJ	0.26 UJ	0.24 UJ	0.35 UJ	0.23 UJ	0.26 UJ	0.3 UJ	0.23 UJ	0.24 UJ	0.25 UJ
Arsenic		0.79	1.3	0.7	0.88	1.2	1.1	3.2	1.4	1.3	2.1
Barium		20 J	37 J	48 J	50 J	86 J	140 J	530 J	40 J	97 J	270 J
Beryllium		0.28	0.32	0.21	0.27	0.39	0.3	0.73	0.45	0.35	0.34
Cadmium		0.08 J	0.16	0.12	0.21	0.12 J	0.074 J	0.41	0.046 J	0.039 U	0.11
Chromium		45	40	60	61	72 J	28 J	160	110	110	32
Cobalt		30 J	36 J	21 J	32 J	44 J	27 J	190 J	35 J	13 J	51 J
Copper		87	94	90	100	82	99	80	72	81	32
Lead		1.1	0.96	1.5	5.6	8.5 J	2.3 J	11	4.3	3.2	3
Mercury		0.0039 U	0.0044 U	0.0045 U	0.0042 U	0.053	0.054	0.0046 U	0.016 J	0.0051 U	0.0043 U
Nickel		27	39	26	44	28	22	61	23	20	27
Selenium		0.13 U	0.13 U	0.14 U	0.13 U	0.91	0.18 J	1.1	1.2	1.1	0.13 U
Silver		0.033 J	0.053 J	0.035 J	0.029 J	0.057 J	0.045 J	0.028 J	0.034 J	0.02 UJ	0.017 UJ
Thallium		0.13 U	0.13 U	0.14 U	0.13 U	0.15 U	0.14 U	0.13 U	0.15 U	0.15 U	0.13 U
Tin		4.3 U	4.4 U	4.6 U	4.3 U	5.1 U	4.7 U	4.3 U	5 U	5 U	4.3 U
Vanadium		200	210	120	250	210	190	520	220	220	240
Zinc		73 J	91 J	62 J	94 J	63 J	82 J	76 J	40 J	44 J	150 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		1.2 J	2 J	1.1 J	1 J	1 J	1.4 J	1.3 J	1.7 J	10	11
Gasoline Range Organics		0.083 U	0.072 U	0.082 U	0.065 U	0.076 U	0.068 U	0.055 U	0.073 U	0.076 U	0.22 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB138	74SB139	74SB139	74SB140	74SB140	74SB141	74SB141	74SB141	74SB142	74SB142
	Sample ID	74SB138-04	74SB139-03	74SB139-05	74SB140-04	74SB140-05	74SB141-03	74SB141-05D	74SB141-05	74SB142-02	74SB142-04
	Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
	Depth Range	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	9.0-11.0	3.0-5.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.6 U	0.8 U	0.64 U	0.65 U	0.67 U	0.69 U	0.59 U	0.59 U	0.98 U	0.88 U
1,1,1-Trichloroethane		0.54 U	0.72 U	0.58 U	0.59 U	0.6 U	0.63 U	0.54 U	0.53 U	0.89 U	0.8 U
1,1,2,2-Tetrachloroethane		1.3 U	1.7 U	1.4 U	1.4 U	1.5 U	1.5 U	1.3 U	1.3 U	2.1 U	1.9 U
1,1,2-Trichloroethane		1.1 U	1.5 U	1.2 U	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	1.8 U	1.7 U
1,1-Dichloroethane		0.47 U	0.62 U	0.5 U	0.51 U	0.52 U	0.54 U	0.46 U	0.46 U	0.76 U	0.69 U
1,1-Dichloroethene		0.51 U	0.67 U	0.54 U	0.55 U	0.56 U	0.58 U	0.5 U	0.49 U	0.83 U	0.75 U
1,2,3-Trichloropropane		1.3 U	1.7 U	1.4 U	1.4 U	1.5 U	1.5 U	1.3 U	1.3 U	2.1 U	1.9 U
1,2-Dibromo-3-Chloropropane		2.6 U	3.5 U	2.8 U	2.8 U	2.9 U	3 U	2.6 U	2.6 U	4.3 U	3.9 U
1,2-Dichloroethane		0.94 U	1.2 U	1 U	1 U	1 U	1.1 U	0.93 U	0.92 U	1.5 U	1.4 U
1,2-Dichloropropane		1 U	1.4 U	1.1 U	1.1 U	1.1 U	1.2 U	1 U	1 U	1.7 U	1.5 U
2-Butanone (MEK)		3 U	3.4 U	2.7 U	2.7 U	2.8 U	2.9 U	2.5 U	2.5 U	4.1 U	3.7 U
2-Chloro-1,3-butadiene		0.53 U	0.71 U	0.57 U	0.58 U	0.59 U	0.62 U	0.53 U	0.52 U	0.87 U	0.79 U
2-Hexanone		2 U	2.6 U	2.1 U	2.1 U	2.2 U	2.3 U	1.9 U	1.9 U	3.2 U	2.9 U
3-Chloro-1-propene		1.4 U	1.9 U	1.5 U	1.5 UJ	1.6 UJ	1.6 UJ	1.4 U	1.4 U	2.3 U	2.1 UJ
4-Methyl-2-pentanone (MIBK)		2.7 U	3.6 U	2.9 U	2.9 U	3 U	3.1 U	2.7 U	2.7 U	4.4 U	4 U
Acetone		18 J	12 J	11 J	9.1 J	43 J	20 U	12 J	14 J	26 J	19 U
Acetonitrile		42 UJ	56 UJ	45 U	46 U	47 U	49 U	42 U	41 U	69 U	62 U
Acrolein		18 UJ	24 UJ	19 R	19 R	20 R	21 R	18 R	17 R	29 R	26 R
Acrylonitrile		22 UJ	29 UJ	23 U	23 UJ	24 UJ	25 U	21 U	21 U	35 U	32 U
Benzene		0.74 U	0.99 U	0.79 U	0.8 U	0.82 U	0.86 U	0.73 U	0.72 U	1.2 U	1.1 U
Bromoform		1 U	1.4 U	1.1 U	1.1 U	1.1 U	1.2 U	1 U	1 U	1.7 U	1.5 U
Bromomethane		1.5 U	2 U	1.6 UJ	1.6 UJ	1.7 UJ	1.7 U	1.5 U	1.5 U	2.4 U	2.2 U
Carbon disulfide		0.48 U	0.64 U	0.51 U	0.52 U	0.53 U	0.55 U	0.47 U	0.47 U	0.78 U	0.7 U
Carbon tetrachloride		0.94 U	1.2 U	1 U	1 U	1 U	1.1 U	0.93 U	0.92 U	1.5 U	1.4 U
Chlorobenzene		0.68 U	0.91 U	0.73 U	0.74 U	0.76 U	0.79 U	0.68 U	0.67 U	1.1 U	1 U
Chlorodibromomethane		0.47 U	0.62 U	0.5 U	0.51 U	0.52 U	0.54 U	0.46 U	0.46 U	0.76 U	0.69 U
Chloroethane		1.1 UJ	1.5 UJ	1.2 U	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	1.8 U	1.7 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB138	74SB139	74SB139	74SB140	74SB140	74SB141	74SB141	74SB141	74SB142	74SB142
	Sample ID	74SB138-04	74SB139-03	74SB139-05	74SB140-04	74SB140-05	74SB141-03	74SB141-05D	74SB141-05	74SB142-02	74SB142-04
	Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
	Depth Range	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	9.0-11.0	3.0-5.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.47 U	0.62 U	0.5 U	0.51 U	0.52 U	0.54 U	0.46 U	0.46 U	0.76 U	0.69 U
Chloromethane		0.67 U	0.89 U	0.71 U	0.72 U	0.74 U	0.77 U	0.66 U	0.65 U	1.1 U	0.98 U
cis-1,3-Dichloropropene		0.82 U	1.1 U	0.88 U	0.88 U	0.91 U	0.94 U	0.81 U	0.8 U	1.3 U	1.2 U
Dibromomethane		1.1 U	1.5 U	1.2 U	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	1.8 U	1.7 U
Dichlorobromomethane		0.78 U	1 U	0.83 U	0.84 U	0.87 U	0.9 U	0.77 U	0.76 U	1.3 U	1.1 U
Dichlorodifluoromethane		0.83 U	1.1 U	0.9 U	0.9 U	0.93 U	0.96 U	0.83 U	0.82 U	1.4 U	1.2 U
Ethyl methacrylate		2.1 U	2.7 U	2.2 U	2.2 U	2.3 U	2.4 U	2 U	2 U	3.4 U	3 U
Ethylbenzene		0.7 U	0.94 U	0.75 U	0.76 U	0.78 U	0.81 U	0.7 U	0.69 U	1.1 U	1 U
Ethylene Dibromide		1.4 U	1.9 U	1.5 U	1.5 U	1.6 U	1.6 U	1.4 U	1.4 U	2.3 U	2.1 U
Iodomethane		0.94 U	1.2 U	1 U	1 UJ	1 UJ	1.1 UJ	0.93 U	0.92 U	1.5 U	1.4 UJ
Isobutyl alcohol		65 UJ	86 UJ	69 UJ	70 R	72 R	75 R	64 R	63 R	110 R	95 R
Methacrylonitrile		22 UJ	30 UJ	24 U	24 U	25 U	26 U	22 U	22 U	37 U	33 U
Methyl methacrylate		3.5 U	4.6 U	3.7 U	3.8 UJ	3.9 UJ	4 U	3.4 U	3.4 U	5.7 U	5.1 U
Methylene Chloride		0.94 U	1.2 U	1 U	1 U	1.5 J	1.1 U	0.93 U	0.92 U	1.5 U	1.4 U
Pentachloroethane		2.1 R	2.7 R	2.2 U	2.2 UJ	2.3 UJ	2.4 UJ	2 U	2 U	3.4 U	3 UJ
Propionitrile		20 UJ	26 UJ	21 U	21 U	22 U	23 U	19 U	19 U	32 U	29 U
Styrene		0.62 U	0.82 U	0.66 U	0.67 U	0.69 U	0.71 U	0.61 U	0.6 U	1 U	0.91 U
Tetrachloroethene		0.68 U	0.91 U	0.73 U	0.74 U	0.76 U	0.79 U	0.68 U	0.67 U	1.1 U	1 U
Toluene		0.74 U	0.99 U	0.79 U	0.8 U	0.82 U	0.86 U	0.73 U	0.72 U	1.2 U	1.1 U
trans-1,2-Dichloroethene		0.91 U	1.2 U	0.98 U	0.98 U	1 U	1.1 U	0.9 U	0.89 U	1.5 U	1.3 U
trans-1,3-Dichloropropene		0.82 U	1.1 U	0.88 U	0.88 U	0.91 U	0.94 U	0.81 U	0.8 U	1.3 U	1.2 U
trans-1,4-Dichloro-2-butene		2.9 U	3.9 U	3.1 U	3.1 U	3.2 U	3.4 U	2.9 U	2.8 U	4.7 U	4.3 U
Trichloroethene		0.94 U	1.2 U	1 U	1 U	1 U	1.1 U	0.93 U	0.92 U	1.5 U	1.4 U
Trichlorofluoromethane		1.4 U	1.9 U	1.5 U	1.5 U	1.6 U	1.6 U	1.4 U	1.4 U	2.3 U	2.1 U
Vinyl acetate		1.4 UJ	1.9 UJ	1.5 U	1.5 U	1.6 U	1.6 U	1.4 U	1.4 U	2.3 U	2.1 U
Vinyl chloride		0.54 U	0.72 U	0.58 U	0.59 U	0.6 U	0.63 U	0.54 U	0.53 U	0.89 U	0.8 U
Xylenes, Total		2.2 U	2.9 U	2.3 U	2.3 U	2.4 U	2.5 U	2.1 U	2.1 U	3.5 U	3.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB138	74SB139	74SB139	74SB140	74SB140	74SB141	74SB141	74SB141	74SB142	74SB142
Sample ID	74SB138-04	74SB139-03	74SB139-05	74SB140-04	74SB140-05	74SB141-03	74SB141-05D	74SB141-05	74SB142-02	74SB142-04
Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
Depth Range	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	9.0-11.0	3.0-5.0	7.0-9.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	1.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.74 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	0.85 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	0.98 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	1.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.79 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.76 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	1.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.78 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB138	74SB139	74SB139	74SB140	74SB140	74SB141	74SB141	74SB141	74SB142	74SB142
	Sample ID	74SB138-04	74SB139-03	74SB139-05	74SB140-04	74SB140-05	74SB141-03	74SB141-05D	74SB141-05	74SB142-02	74SB142-04
	Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
	Depth Range	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	9.0-11.0	3.0-5.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.24 UJ	0.24 UJ	0.16 UJ	0.15 UJ	0.14 UJ	0.08 UJ	0.073 UJ	0.073 UJ	0.1 UJ	0.086 UJ
Arsenic		1.4	0.96	0.95	0.81	1	2.1	1.9	1.5	0.64 J	0.85
Barium		660 J	81 J	73 J	30 J	64 J	91 J	28 J	28 J	55 J	150 J
Beryllium		0.55	0.36	0.2	0.23	0.23	0.38	0.28	0.29	0.23	0.25
Cadmium		0.13	0.14	0.22	0.14	0.2	0.26	0.24	0.19	0.042 U	0.044 J
Chromium		110	130	79 J	39 J	35 J	12	2.4	2.9	5.8	5.8
Cobalt		61 J	31 J	25 J	24 J	30 J	27 J	4.9 J	5.4 J	17 J	23 J
Copper		84	110	91	58	72	140	79	85	13	13
Lead		5.8	2	0.73 J	9.6 J	15 J	63	80	62	2.1	2.8
Mercury		0.023 J	0.0047 U	0.0043 U	0.0043 U	0.004 U	0.0043 U	0.0036 U	0.0037 U	0.0049 U	0.0047 U
Nickel		36	52	42	25	28	12 J	2.2 J	2.6 J	11 J	12 J
Selenium		0.7	0.16 J	0.14 J	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.16 U	0.14 U
Silver		0.032 J	0.028 J	0.022 J	0.037 J	0.037 J	0.062 J	0.021 J	0.025 J	0.047 J	0.035 J
Thallium		0.15 U	0.14 U	0.13 U	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.16 U	0.14 U
Tin		5 U	4.5 U	4.2 U	4.2 U	3.9 U	4.3 U	3.9 U	3.9 U	5.4 U	4.6 U
Vanadium		220	140	110	180	190	120	44	45	180	160
Zinc		51 J	96 J	65 J	73 J	86 J	240 J	130 J	150 J	76 J	98 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		60	0.92 J	1.2 J	0.7 J	11	0.67 U	0.62 U	0.62 U	0.87 U	0.71 U
Gasoline Range Organics		0.057 U	0.067 U	0.058 U	0.071 U	0.1 U	0.061 U	0.056 U	0.051 U	0.093 U	0.074 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB143	74SB143	74SB149	74SB149	74SB150	74SB150	74SB151	74SB151	74SB152	74SB152
	Sample ID	74SB143-02	74SB143-04	74SB149-04	74SB149-06	74SB150-02	74SB150-06	74SB151-01D	74SB151-01	74SB152-03	74SB152-05
	Date	5/14/2008	5/14/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	11.0-13.0	3.0-5.0	11.0-13.0	1.0-3.0	1.0-3.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.76 U	0.59 U	0.77 U	0.89 U	0.65 U	0.89 U	0.69 U	0.66 U	0.76 U	0.79 U
1,1,1-Trichloroethane		0.69 U	0.54 U	0.7 U	0.81 U	0.59 U	0.81 U	0.63 U	0.6 U	0.69 U	0.72 U
1,1,2,2-Tetrachloroethane		1.7 U	1.3 U	1.7 U	2 U	1.4 U	2 U	1.5 U	1.4 U	1.7 U	1.7 U
1,1,2-Trichloroethane		1.4 U	1.1 U	1.5 U	1.7 U	1.2 U	1.7 U	1.3 U	1.2 U	1.4 U	1.5 U
1,1-Dichloroethane		0.59 U	0.46 U	0.6 U	0.7 U	0.51 U	0.7 U	0.54 U	0.52 U	0.59 U	0.62 U
1,1-Dichloroethene		0.64 U	0.5 U	0.65 U	0.75 U	0.55 U	0.75 U	0.58 U	0.56 U	0.64 U	0.67 U
1,2,3-Trichloropropane		1.7 U	1.3 U	1.7 U	2 U	1.4 U	2 U	1.5 U	1.4 U	1.7 U	1.7 U
1,2-Dibromo-3-Chloropropane		3.3 U	2.6 U	3.4 U	3.9 U	2.8 U	3.9 U	3 U	2.9 U	3.3 U	3.5 U
1,2-Dichloroethane		1.2 U	0.93 U	1.2 U	1.4 U	1 U	1.4 U	1.1 U	1 U	1.2 U	1.2 U
1,2-Dichloropropane		1.3 U	1 U	1.3 U	1.5 U	1.1 U	1.5 U	1.2 U	1.1 U	1.3 U	1.4 U
2-Butanone (MEK)		3.2 U	2.5 U	17 U	8.9 U	2.7 U	3.8 U	4.1 U	5 U	13 U	3.4 U
2-Chloro-1,3-butadiene		0.67 U	0.53 U	0.69 U	0.8 U	0.58 U	0.8 U	0.62 U	0.59 U	0.68 U	0.71 U
2-Hexanone		2.5 U	2 U	2.5 U	2.9 U	2.1 U	2.9 U	2.3 U	2.2 U	2.5 U	2.6 U
3-Chloro-1-propene		1.8 UJ	1.4 U	1.8 U	2.1 U	1.5 U	2.1 U	1.6 U	1.5 UJ	1.8 U	1.9 U
4-Methyl-2-pentanone (MIBK)		3.4 U	2.7 U	3.5 U	4 U	2.9 U	4 U	3.1 U	3 U	3.4 U	3.6 U
Acetone		250	7.9 J	82 J	67 J	63	40 J	18 J	28 J	220 J	17 U
Acetonitrile		53 U	42 U	54 U	63 U	45 U	63 U	49 UJ	46 U	53 U	56 U
Acrolein		22 R	18 R	23 R	27 R	19 R	27 R	21 UJ	20 R	23 R	24 R
Acrylonitrile		27 U	21 U	28 U	32 U	23 U	32 U	25 UJ	24 UJ	27 U	29 U
Benzene		0.93 U	0.73 U	0.96 U	1.1 U	0.8 U	1.1 U	0.85 U	0.81 U	0.94 U	0.98 U
Bromoform		1.3 U	1 U	1.3 U	1.5 U	1.1 U	1.5 U	1.2 U	1.1 U	1.3 U	1.4 U
Bromomethane		1.9 U	1.5 U	1.9 UJ	2.2 UJ	1.6 U	2.2 U	1.7 U	1.6 UJ	1.9 UJ	2 U
Carbon disulfide		4.1 J	0.47 U	1.2 J	13	1.9 J	4.5 J	0.55 U	0.53 U	3.9 J	6.3
Carbon tetrachloride		1.2 U	0.93 U	1.2 U	1.4 U	1 U	1.4 U	1.1 U	1 U	1.2 U	1.2 U
Chlorobenzene		0.86 U	0.68 U	0.88 U	1 U	0.74 U	1 U	0.79 U	0.75 U	0.87 U	0.91 U
Chlorodibromomethane		0.59 U	0.46 U	0.6 U	0.7 U	0.51 U	0.7 U	0.54 U	0.52 U	0.59 U	0.62 U
Chloroethane		1.4 U	1.1 U	1.5 UJ	1.7 UJ	1.2 UJ	1.7 UJ	1.3 UJ	1.2 U	1.4 UJ	1.5 UJ



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB143	74SB143	74SB149	74SB149	74SB150	74SB150	74SB151	74SB151	74SB152	74SB152
	Sample ID	74SB143-02	74SB143-04	74SB149-04	74SB149-06	74SB150-02	74SB150-06	74SB151-01D	74SB151-01	74SB152-03	74SB152-05
	Date	5/14/2008	5/14/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	11.0-13.0	3.0-5.0	11.0-13.0	1.0-3.0	1.0-3.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.59 U	0.82 J	0.6 U	0.7 U	0.51 U	0.7 U	0.54 U	0.52 U	0.59 U	0.62 U
Chloromethane		0.84 U	0.66 U	0.86 U	0.99 U	0.72 U	0.99 U	0.77 U	0.73 U	0.84 U	0.88 U
cis-1,3-Dichloropropene		1 U	0.81 U	1.1 U	1.2 U	0.88 U	1.2 U	0.94 U	0.9 U	1 U	1.1 U
Dibromomethane		1.4 U	1.1 U	1.5 U	1.7 U	1.2 U	1.7 U	1.3 U	1.2 U	1.4 U	1.5 U
Dichlorobromomethane		0.98 U	0.77 U	1 U	1.2 U	0.84 U	1.2 U	0.9 U	0.86 U	0.99 U	1 U
Dichlorodifluoromethane		1.1 U	0.83 U	1.1 U	1.2 U	0.9 U	1.2 U	0.96 U	0.92 U	1.1 U	1.1 U
Ethyl methacrylate		2.6 U	2 U	2.7 U	3.1 U	2.2 U	3.1 U	2.4 U	2.3 U	2.6 U	2.7 U
Ethylbenzene		0.89 U	0.7 U	0.91 U	1 U	0.76 U	1 U	0.81 U	0.77 U	0.89 U	0.93 U
Ethylene Dibromide		1.8 U	1.4 U	1.8 U	2.1 U	1.5 U	2.1 U	1.6 U	1.5 U	1.8 U	1.9 U
Iodomethane		1.2 UJ	0.93 U	1.2 U	1.4 U	1 UJ	1.4 UJ	1.1 U	1 UJ	1.2 U	1.2 U
Isobutyl alcohol		82 R	64 R	83 R	96 R	70 R	96 R	75 UJ	71 R	82 R	86 R
Methacrylonitrile		28 U	22 U	29 U	33 U	24 U	34 U	26 UJ	25 U	29 U	30 U
Methyl methacrylate		4.4 U	3.4 U	4.5 U	5.2 U	3.7 U	5.2 U	4 U	3.8 UJ	4.4 U	4.6 U
Methylene Chloride		1.2 U	0.93 U	1.2 U	1.4 U	1 U	1.4 U	1.1 U	1 U	1.2 U	1.2 U
Pentachloroethane		2.6 UJ	2 U	2.7 U	3.1 U	2.2 UJ	3.1 UJ	2.4 R	2.3 UJ	2.6 U	2.7 UJ
Propionitrile		25 U	20 U	25 U	29 U	21 U	29 U	23 UJ	22 U	25 U	26 U
Styrene		0.78 U	0.61 U	0.8 U	0.92 U	0.67 U	0.92 U	0.71 UJ	0.68 UJ	0.78 U	0.82 U
Tetrachloroethene		0.86 U	0.68 U	0.88 U	1 U	0.74 U	1 U	0.79 U	0.75 U	0.87 U	0.91 U
Toluene		0.93 U	0.73 U	0.96 U	1.1 U	0.8 U	1.1 U	0.85 U	0.81 U	0.94 U	0.98 U
trans-1,2-Dichloroethene		1.1 U	0.9 U	1.2 U	1.4 U	0.98 U	1.4 U	1 U	1 U	1.2 U	1.2 U
trans-1,3-Dichloropropene		1 U	0.81 U	1.1 U	1.2 U	0.88 U	1.2 U	0.94 U	0.9 U	1 U	1.1 U
trans-1,4-Dichloro-2-butene		3.7 U	2.9 U	3.7 U	4.3 U	3.1 U	4.3 U	3.3 U	3.2 U	3.7 U	3.8 U
Trichloroethene		1.2 U	0.93 U	1.2 U	1.4 U	1 U	1.4 U	1.1 U	1 U	1.2 U	1.2 U
Trichlorofluoromethane		1.8 U	1.4 U	1.8 U	2.1 U	1.5 U	2.1 U	1.6 U	1.5 U	1.8 U	1.9 U
Vinyl acetate		1.8 U	1.4 U	1.8 U	2.1 U	1.5 U	2.1 U	1.6 UJ	1.5 U	1.8 U	1.9 U
Vinyl chloride		0.69 U	0.54 U	0.7 U	0.81 U	0.59 U	0.81 U	0.63 U	0.6 U	0.69 U	0.72 U
Xylenes, Total		2.7 U	2.1 U	2.8 U	3.2 U	2.3 U	3.2 U	2.5 U	2.4 U	2.7 U	2.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB143	74SB143	74SB149	74SB149	74SB150	74SB150	74SB151	74SB151	74SB152	74SB152
Sample ID	74SB143-02	74SB143-04	74SB149-04	74SB149-06	74SB150-02	74SB150-06	74SB151-01D	74SB151-01	74SB152-03	74SB152-05
Date	5/14/2008	5/14/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	11.0-13.0	3.0-5.0	11.0-13.0	1.0-3.0	1.0-3.0	5.0-7.0	9.0-11.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB143	74SB143	74SB149	74SB149	74SB150	74SB150	74SB151	74SB151	74SB152	74SB152
	Sample ID	74SB143-02	74SB143-04	74SB149-04	74SB149-06	74SB150-02	74SB150-06	74SB151-01D	74SB151-01	74SB152-03	74SB152-05
	Date	5/14/2008	5/14/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008
	Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	11.0-13.0	3.0-5.0	11.0-13.0	1.0-3.0	1.0-3.0	5.0-7.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.087 UJ	0.083 UJ	0.09 U	0.15 U	0.29 U	0.12 U	0.4 UJ	0.45 UJ	0.54 U	0.097 U
Arsenic		1.1	0.96	1	3	2.2	2.2	2.2	2.5	1.9	0.51 J
Barium		330 J	35 J	72 J	170 J	160 J	89 J	46 J	52 J	130 J	820 J
Beryllium		0.38	0.25	0.22	0.55	0.085 J	0.44	0.34	0.24	0.75	0.44
Cadmium		0.036 U	0.034 U	0.13	0.057 J	0.23	0.36	0.11	0.17	0.55	1.7
Chromium		28	6	46 J	70 J	35 J	60 J	31 J	28 J	35 J	15 J
Cobalt		14 J	16 J	25 J	26 J	11 J	59 J	26 J	16 J	45 J	59 J
Copper		26	20	230 J	81 J	60 J	97 J	97	84	98 J	89 J
Lead		3.6	0.91	6.9	34	16	55	12 J	15 J	9.4	1.6
Mercury		0.018 J	0.004 U	0.007 J	0.043 J	0.0058 J	0.077 J	0.013 J	0.019 J	0.07 J	0.11 J
Nickel		11 J	10 J	17	18	11	17	12	11	20	14
Selenium		1.1	0.13 U	0.38 J	1.6	0.14 J	2.4	1.1	0.68	1.8	0.16 U
Silver		0.039 J	0.041 J	0.047 J	0.042 J	0.037 J	0.2 J	0.17 J	0.08 J	2.1	3.1
Thallium		0.14 U	0.13 U	0.14 U	0.16 U	0.13 U	0.16 U	0.13 U	0.13 U	0.15 U	0.16 U
Tin		4.6 U	4.4 U	4.7 U	5.2 U	4.4 U	5.5 U	4.4 U	4.2 U	4.8 U	5.2 U
Vanadium		200	170	210 J	360 J	86 J	400 J	230	170	230 J	82 J
Zinc		69 J	93 J	71 J	97 J	68 J	79 J	80 J	59 J	73 J	71 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.74 U	0.68 U	7.6	19	51	7.2	31 J	62	7.7	5.8
Gasoline Range Organics		0.062 U	0.061 U	0.12 J	0.087 U	0.058 U	0.085 U	0.067 U	0.066 U	0.07 U	0.069 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB153	74SB153	74SB154	74SB154	74SB155	74SB155	74SB156	74SB156	74SB156	74SB157
Sample ID	74SB153-02	74SB153-04	74SB154-04	74SB154-05	74SB155-04	74SB155-05	74SB156-04	74SB156-05D	74SB156-05	74SB157-04
Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/14/2008
Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.72 U	0.73 U	0.68 U	0.72 U	0.9 U	0.64 U	0.71 U	0.7 U	0.8 U	0.81 U
1,1,1-Trichloroethane	0.66 U	0.66 U	0.62 U	0.66 U	0.81 U	0.58 U	0.65 U	0.63 U	0.73 U	0.74 U
1,1,2,2-Tetrachloroethane	1.6 U	1.6 U	1.5 U	1.6 U	2 U	1.4 U	1.6 U	1.5 U	1.8 U	1.8 U
1,1,2-Trichloroethane	1.4 U	1.4 U	1.3 U	1.4 U	1.7 U	1.2 U	1.3 U	1.3 U	1.5 U	1.5 U
1,1-Dichloroethane	0.57 U	0.57 U	0.53 U	0.57 U	0.7 U	0.5 U	0.56 U	0.55 U	0.63 U	0.64 U
1,1-Dichloroethene	0.61 U	0.61 U	0.58 U	0.61 U	0.76 U	0.54 U	0.6 U	0.59 U	0.68 U	0.69 U
1,2,3-Trichloropropane	1.6 U	1.6 U	1.5 U	1.6 U	2 U	1.4 U	1.6 U	1.5 U	1.8 U	1.8 U
1,2-Dibromo-3-Chloropropane	3.2 U	3.2 U	3 U	3.2 U	3.9 U	2.8 U	3.1 U	3.1 U	3.5 U	3.6 U
1,2-Dichloroethane	1.1 U	1.1 U	1.1 U	1.1 U	1.4 U	1 U	1.1 U	1.1 U	1.3 U	1.3 U
1,2-Dichloropropane	1.2 U	1.2 U	1.2 U	1.2 U	1.5 U	1.1 U	1.2 U	1.2 U	1.4 U	1.4 U
2-Butanone (MEK)	23 U	3.1 U	2.9 U	3.1 U	3.8 U	2.7 U	3 U	2.9 U	3.4 U	3.4 U
2-Chloro-1,3-butadiene	0.64 U	0.65 U	0.61 U	0.65 U	0.8 U	0.57 U	0.63 U	0.62 U	0.72 U	0.72 U
2-Hexanone	2.4 U	2.4 U	2.2 U	2.4 U	3 U	2.1 U	2.3 U	2.3 U	2.6 U	2.7 U
3-Chloro-1-propene	1.7 U	1.7 U	1.6 UJ	1.7 UJ	2.1 UJ	1.5 UJ	1.7 UJ	1.6 UJ	1.9 UJ	1.9 U
4-Methyl-2-pentanone (MIBK)	3.3 U	3.3 U	3.1 U	3.3 U	4.1 U	2.9 U	3.2 U	3.2 U	3.6 U	3.7 U
Acetone	290	9.4 U	22 J	88	13 J	33 J	33 J	29 J	49 J	17 J
Acetonitrile	51 U	51 U	48 U	51 U	63 U	45 U	50 U	49 U	56 U	57 U
Acrolein	21 R	22 R	20 R	22 R	27 R	19 R	21 R	21 R	24 R	24 R
Acrylonitrile	26 U	26 U	25 UJ	26 UJ	32 UJ	23 UJ	26 UJ	25 UJ	29 UJ	29 U
Benzene	0.89 U	0.9 U	0.84 U	0.89 U	1.1 U	0.79 U	0.88 U	0.86 U	0.99 U	1 U
Bromoform	1.2 U	1.2 U	1.2 U	1.2 U	1.5 U	1.1 U	1.2 U	1.2 U	1.4 U	1.4 U
Bromomethane	1.8 U	1.8 U	1.7 UJ	1.8 UJ	2.2 UJ	1.6 UJ	1.8 UJ	1.7 UJ	2 UJ	2 U
Carbon disulfide	0.58 U	0.58 U	0.54 U	1.4 J	0.72 U	1.1 J	2.5 J	2.6 J	3.4 J	5.4 J
Carbon tetrachloride	1.1 U	1.1 U	1.1 U	1.1 U	1.4 U	1 U	1.1 U	1.1 U	1.3 U	1.3 U
Chlorobenzene	0.83 U	0.83 U	0.78 U	0.83 U	1 U	0.73 U	0.81 U	0.8 U	0.92 U	0.93 U
Chlorodibromomethane	0.57 U	0.57 U	0.53 U	0.57 U	0.7 U	0.5 U	0.56 U	0.55 U	0.63 U	0.64 U
Chloroethane	1.4 UJ	1.4 UJ	1.3 U	1.4 U	1.7 U	1.2 U	1.3 U	1.3 U	1.5 U	1.5 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB153	74SB153	74SB154	74SB154	74SB155	74SB155	74SB156	74SB156	74SB156	74SB157
	Sample ID	74SB153-02	74SB153-04	74SB154-04	74SB154-05	74SB155-04	74SB155-05	74SB156-04	74SB156-05D	74SB156-05	74SB157-04
	Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/14/2008
	Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.57 U	0.57 U	0.53 U	0.57 U	0.7 U	0.5 U	0.56 U	0.55 U	0.63 U	0.64 U
Chloromethane		0.8 U	0.81 U	0.76 U	0.8 U	1 U	0.71 U	0.79 U	0.77 U	0.89 U	0.9 U
cis-1,3-Dichloropropene		0.98 U	0.99 U	0.93 U	0.98 U	1.2 U	0.88 U	0.97 U	0.95 U	1.1 U	1.1 U
Dibromomethane		1.4 U	1.4 U	1.3 U	1.4 U	1.7 U	1.2 U	1.3 U	1.3 U	1.5 U	1.5 U
Dichlorobromomethane		0.94 U	0.94 U	0.89 U	0.94 U	1.2 U	0.84 U	0.92 U	0.91 U	1 U	1.1 U
Dichlorodifluoromethane		1 U	1 U	0.95 U	1 U	1.3 U	0.9 U	0.99 U	0.97 U	1.1 U	1.1 U
Ethyl methacrylate		2.5 U	2.5 U	2.3 U	2.5 U	3.1 U	2.2 U	2.4 U	2.4 U	2.8 U	2.8 U
Ethylbenzene		0.85 U	0.85 U	0.8 U	0.85 U	1.1 U	0.75 U	0.83 U	0.82 U	0.94 U	0.95 U
Ethylene Dibromide		1.7 U	1.7 U	1.6 U	1.7 U	2.1 U	1.5 U	1.7 U	1.6 U	1.9 U	1.9 U
Iodomethane		2.2 J	1.1 U	1.1 UJ	1.1 UJ	1.4 UJ	1 UJ	1.1 UJ	1.1 UJ	1.3 UJ	1.3 U
Isobutyl alcohol		78 R	78 R	74 R	78 R	97 R	69 R	77 R	75 R	87 R	88 R
Methacrylonitrile		27 U	27 U	26 U	27 U	34 U	24 U	27 U	26 U	30 U	30 U
Methyl methacrylate		4.2 U	4.2 U	3.9 UJ	4.2 UJ	5.2 UJ	3.7 UJ	4.1 UJ	4 UJ	4.6 UJ	4.7 U
Methylene Chloride		1.1 U	1.1 U	1.3 J	1.1 U	1.4 U	1 U	1.1 U	1.1 U	1.3 U	1.3 U
Pentachloroethane		2.5 UJ	2.5 UJ	2.3 UJ	2.5 UJ	3.1 UJ	2.2 UJ	2.4 UJ	2.4 UJ	2.8 UJ	2.8 U
Propionitrile		24 U	24 U	22 U	24 U	30 U	21 U	23 U	23 U	26 U	27 U
Styrene		0.75 U	0.75 U	0.7 U	0.75 U	0.93 U	0.66 U	0.73 U	0.72 U	0.83 U	0.84 U
Tetrachloroethene		0.83 U	0.83 U	0.78 U	0.83 U	1 U	0.73 U	0.81 U	0.8 U	0.92 U	0.93 U
Toluene		0.89 U	0.9 U	0.84 U	0.89 U	1.1 U	0.79 U	0.88 U	0.86 U	0.99 U	1 U
trans-1,2-Dichloroethene		1.1 U	1.1 U	1 U	1.1 U	1.4 U	0.98 U	1.1 U	1.1 U	1.2 U	1.2 U
trans-1,3-Dichloropropene		0.98 U	0.99 U	0.93 U	0.98 U	1.2 U	0.88 U	0.97 U	0.95 U	1.1 U	1.1 U
trans-1,4-Dichloro-2-butene		3.5 U	3.5 U	3.3 U	3.5 U	4.4 U	3.1 U	3.5 U	3.4 U	3.9 U	3.9 U
Trichloroethene		1.1 U	1.1 U	1.1 U	1.1 U	1.4 U	1 U	1.1 U	1.1 U	1.3 U	1.3 U
Trichlorofluoromethane		1.7 U	1.7 U	1.6 U	1.7 U	2.1 U	1.5 U	1.7 U	1.6 U	1.9 U	1.9 U
Vinyl acetate		1.7 U	1.7 U	1.6 U	1.7 U	2.1 U	1.5 U	1.7 U	1.6 U	1.9 U	1.9 U
Vinyl chloride		0.66 U	0.66 U	0.62 U	0.66 U	0.81 U	0.58 U	0.65 U	0.63 U	0.73 U	0.74 U
Xylenes, Total		2.6 U	2.6 U	2.5 U	2.6 U	3.2 U	2.3 U	2.6 U	2.5 U	2.9 U	2.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB153	74SB153	74SB154	74SB154	74SB155	74SB155	74SB156	74SB156	74SB156	74SB157
Sample ID	74SB153-02	74SB153-04	74SB154-04	74SB154-05	74SB155-04	74SB155-05	74SB156-04	74SB156-05D	74SB156-05	74SB157-04
Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/14/2008
Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	15 U	16 U	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	21 U	23 U	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	6.9 U	7.6 U	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	21 U	23 U	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	21 U	23 U	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	21 U	23 U	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	8 U	8.8 U	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	9.3 U	10 U	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	21 U	23 U	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	7.4 U	8.2 U	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	7.2 U	7.9 U	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	21 U	23 U	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	130 J	10 UJ	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	15 U	16 U	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	7.3 U	8 U	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	290 J	23 UJ	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	21 U	23 U	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB153	74SB153	74SB154	74SB154	74SB155	74SB155	74SB156	74SB156	74SB156	74SB157
	Sample ID	74SB153-02	74SB153-04	74SB154-04	74SB154-05	74SB155-04	74SB155-05	74SB156-04	74SB156-05D	74SB156-05	74SB157-04
	Date	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/15/2008	5/14/2008
	Depth Range	3.0-5.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.93	0.086 U	0.23 UJ	0.22 UJ	0.11 UJ	0.41 UJ	0.22 UJ	0.2 UJ	0.18 UJ	0.2 UJ
Arsenic		1.6	0.43 J	1.5	0.72	0.4 J	1.7	1.4	1.2	1	1.6
Barium		99 J	200 J	58 J	29 J	19 J	59 J	73 J	97 J	110 J	38 J
Beryllium		0.44	0.4	0.5	0.093 J	0.15	0.32	0.64	0.25	0.23	0.4
Cadmium		0.074 J	0.044 J	0.04 U	0.054 J	0.11	0.27	0.053 J	0.13	0.15	0.038 U
Chromium		33 J	39 J	30 J	8.7 J	3.6 J	34 J	26 J	33 J	30 J	18
Cobalt		33 J	13 J	27 J	6.6 J	19 J	24 J	66 J	40 J	46 J	27 J
Copper		100 J	130 J	150	36	59	99	130	130	140	110
Lead		3.5	1.4	1.9 J	3.3 J	0.38 J	5.3 J	2.5 J	0.89 J	1.1 J	2.7
Mercury		0.1 J	0.0047 UJ	0.01 J	0.013 J	0.0079 J	0.018 J	0.005 U	0.011 J	0.0068 J	0.012 J
Nickel		13	18	14	3.9	4.7	14	29	23	25	16 J
Selenium		0.73	0.14 U	0.68	0.2 J	0.12 U	0.68	0.18 J	0.13 U	0.15 U	0.75
Silver		0.085 J	0.23	0.038 J	0.041 J	0.026 J	0.12 J	0.028 J	0.11 J	0.16 J	0.029 J
Thallium		0.14 U	0.14 U	0.16 U	0.15 U	0.12 U	0.15 U	0.13 U	0.13 U	0.15 U	0.15 U
Tin		4.8 U	4.6 U	5.2 U	4.9 U	4.1 U	5.1 U	4.5 U	4.5 U	5.1 U	4.9 U
Vanadium		230 J	150 J	210	38	150	180	160	200	190	270
Zinc		57 J	67 J	83 J	20 J	92 J	70 J	130 J	120 J	130 J	110 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		6.9	1.1 J	4.8	3.5 J	2 J	89	1000 J	1100 J	890 J	2.5 J
Gasoline Range Organics		0.069 U	0.071 U	0.076 U	0.07 U	0.076 U	0.2 U	12	3.7 U	68 J	2.2

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB157	74SB158	74SB158	74SB159	74SB159	74SB160	74SB160	74SB185	74SB185	74SB186
	Sample ID	74SB157-05	74SB158-03	74SB158-04	74SB159-03	74SB159-05	74SB160-04	74SB160-05	74SB185-03	74SB185-05	74SB186-03
	Date	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.77 U	0.8 U	0.73 U	0.72 U	0.7 U	0.69 U	0.83 U	0.89 U	0.48 U	0.84 U
1,1,1-Trichloroethane		0.7 U	0.72 U	0.67 U	0.65 U	0.63 U	0.62 U	0.76 U	0.8 U	0.44 U	0.76 U
1,1,2,2-Tetrachloroethane		1.7 U	1.7 U	1.6 U	1.6 U	1.5 U	1.5 U	1.8 U	1.9 U	1.1 U	1.8 U
1,1,2-Trichloroethane		1.4 U	1.5 U	1.4 U	1.3 U	1.3 U	1.3 U	1.6 U	1.7 U	0.91 U	1.6 U
1,1-Dichloroethane		0.6 U	0.62 U	0.57 U	0.56 U	0.55 U	0.54 U	0.65 U	0.69 U	0.38 U	0.66 U
1,1-Dichloroethene		0.65 U	0.67 U	0.62 U	0.61 U	0.59 U	0.58 U	0.7 U	0.75 U	0.41 U	0.71 U
1,2,3-Trichloropropane		1.7 U	1.7 U	1.6 U	1.6 U	1.5 U	1.5 U	1.8 U	1.9 U	1.1 U	1.8 U
1,2-Dibromo-3-Chloropropane		3.4 U	3.5 U	3.2 U	3.1 U	3.1 U	3 U	3.7 U	3.9 UJ	2.1 UJ	3.7 UJ
1,2-Dichloroethane		1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	1.4 U	0.76 U	1.3 U
1,2-Dichloropropane		1.3 U	1.4 U	1.3 U	1.2 U	1.2 U	1.2 U	1.4 U	1.5 U	0.83 U	1.4 U
2-Butanone (MEK)		3.2 U	6.2 U	9.2 U	3 U	2.9 U	2.9 U	3.5 U	4.5 UJ	5.8 UJ	14 UJ
2-Chloro-1,3-butadiene		0.68 U	0.71 U	0.65 U	0.64 U	0.62 U	0.61 U	0.74 U	0.79 U	0.43 U	0.75 U
2-Hexanone		2.5 U	2.6 U	2.4 U	2.4 U	2.3 U	2.2 U	2.7 U	2.9 UJ	1.6 UJ	2.8 UJ
3-Chloro-1-propene		1.8 U	1.9 U	1.7 U	1.7 U	1.6 U	1.6 U	2 U	2.1 U	1.1 U	2 U
4-Methyl-2-pentanone (MIBK)		3.5 U	3.6 U	3.3 U	3.3 U	3.2 U	3.1 U	3.8 U	4 UJ	2.2 UJ	3.8 UJ
Acetone		40 J	84 J	130 J	72 J	19 J	59	10 J	27 J	35 J	74
Acetonitrile		54 U	56 U	52 U	50 U	49 U	48 U	59 U	62 UJ	34 UJ	59 UJ
Acrolein		23 R	24 R	22 R	21 R	21 R	20 R	25 R	26 UJ	14 UJ	25 UJ
Acrylonitrile		28 U	29 U	26 U	26 U	25 U	25 U	30 U	32 UJ	17 UJ	30 UJ
Benzene		0.95 U	4.2 J	0.91 U	0.89 U	0.86 U	0.85 U	1 U	1.1 U	1.4 J	1 U
Bromoform		1.3 U	1.4 U	1.3 U	1.2 U	1.2 U	1.2 U	1.4 U	1.5 U	0.83 U	1.4 U
Bromomethane		1.9 U	2 U	1.8 U	1.8 UJ	1.7 UJ	1.7 U	2.1 U	2.2 U	1.2 U	2.1 U
Carbon disulfide		3.7 J	2 J	20	0.57 U	0.56 U	0.55 U	0.66 U	0.71 U	0.39 U	0.67 U
Carbon tetrachloride		1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	1.4 U	0.76 U	1.3 U
Chlorobenzene		0.88 U	0.91 U	0.84 U	0.82 U	0.8 U	0.78 U	0.95 U	1 U	0.55 U	0.96 U
Chlorodibromomethane		0.6 U	0.62 U	0.57 U	0.56 U	0.55 U	0.54 U	0.65 U	0.69 U	0.38 U	0.66 U
Chloroethane		1.4 UJ	1.5 U	1.4 U	1.3 UJ	1.3 UJ	1.3 UJ	1.6 UJ	1.7 UJ	0.91 UJ	1.6 UJ



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB157	74SB158	74SB158	74SB159	74SB159	74SB160	74SB160	74SB185	74SB185	74SB186
	Sample ID	74SB157-05	74SB158-03	74SB158-04	74SB159-03	74SB159-05	74SB160-04	74SB160-05	74SB185-03	74SB185-05	74SB186-03
	Date	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.6 U	0.62 U	0.57 U	0.56 U	0.55 U	0.54 U	0.65 U	0.69 U	0.38 U	0.66 U
Chloromethane		0.85 U	0.89 U	0.82 U	0.8 U	0.77 U	0.76 U	0.93 U	0.98 U	0.54 U	0.93 U
cis-1,3-Dichloropropene		1 U	1.1 U	1 U	0.98 U	0.95 U	0.93 U	1.1 U	1.2 U	0.66 U	1.1 U
Dibromomethane		1.4 U	1.5 U	1.4 U	1.3 U	1.3 U	1.3 U	1.6 U	1.7 U	0.91 U	1.6 U
Dichlorobromomethane		1 U	1 U	0.95 U	0.93 U	0.91 U	0.89 U	1.1 U	1.2 U	0.63 U	1.1 U
Dichlorodifluoromethane		1.1 U	1.1 U	1 U	1 U	0.97 U	0.95 U	1.2 U	1.2 U	0.67 U	1.2 U
Ethyl methacrylate		2.6 U	2.7 U	2.5 U	2.5 U	2.4 U	2.4 U	2.9 U	3 U	1.7 U	2.9 U
Ethylbenzene		0.9 U	0.94 U	0.86 U	0.84 U	0.82 U	0.8 U	0.98 U	1 U	0.57 U	0.98 U
Ethylene Dibromide		1.8 U	1.9 U	1.7 U	1.7 U	1.6 U	1.6 U	2 U	2.1 U	1.1 U	2 U
Iodomethane		1.2 UJ	1.2 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.3 UJ	1.4 U	0.76 U	1.3 U
Isobutyl alcohol		83 R	86 R	79 R	77 R	75 R	74 R	90 R	96 R	52 R	2700 J
Methacrylonitrile		29 U	30 U	28 U	27 U	26 U	26 U	31 U	33 U	18 U	31 U
Methyl methacrylate		4.4 U	4.6 U	4.2 U	4.2 U	4 U	4 U	4.8 U	5.1 UJ	2.8 UJ	4.9 UJ
Methylene Chloride		1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	1.4 U	0.76 U	1.3 U
Pentachloroethane		2.6 UJ	2.7 U	2.5 U	2.5 U	2.4 U	2.4 UJ	2.9 UJ	3 UJ	1.7 UJ	2.9 UJ
Propionitrile		25 U	26 U	24 U	24 U	23 U	22 U	27 U	29 U	16 U	28 U
Styrene		0.79 U	0.82 U	0.76 U	0.74 U	0.72 U	0.71 U	0.86 U	0.91 U	0.5 U	0.87 U
Tetrachloroethene		0.88 U	0.91 U	0.84 U	0.82 U	0.8 U	0.78 U	0.95 U	1 U	0.55 U	0.96 U
Toluene		0.95 U	1.5 J	0.91 U	0.89 U	0.86 U	0.85 U	1 U	1.6 U	1.3 U	1 U
trans-1,2-Dichloroethene		1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1 U	1.3 U	1.3 U	0.73 U	1.3 U
trans-1,3-Dichloropropene		1 U	1.1 U	1 U	0.98 U	0.95 U	0.93 U	1.1 U	1.2 U	0.66 U	1.1 U
trans-1,4-Dichloro-2-butene		3.7 U	3.9 U	3.6 U	3.5 U	3.4 U	3.3 U	4 U	4.3 U	2.3 U	4.1 U
Trichloroethene		1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	1.4 U	0.76 U	1.3 U
Trichlorofluoromethane		1.8 U	1.9 U	1.7 U	1.7 U	1.6 U	1.6 U	2 U	2.1 U	1.1 U	2 U
Vinyl acetate		1.8 U	1.9 U	1.7 U	1.7 U	1.6 U	1.6 U	2 U	2.1 U	1.1 U	2 U
Vinyl chloride		0.7 U	0.72 U	0.67 U	0.65 U	0.63 U	0.62 U	0.76 U	0.8 U	0.44 U	0.76 U
Xylenes, Total		2.8 U	2.9 U	3.9 J	4.1 J	2.5 U	2.5 U	3 U	3.2 U	1.7 U	3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB157	74SB158	74SB158	74SB159	74SB159	74SB160	74SB160	74SB185	74SB185	74SB186
Sample ID	74SB157-05	74SB158-03	74SB158-04	74SB159-03	74SB159-05	74SB160-04	74SB160-05	74SB185-03	74SB185-05	74SB186-03
Date	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB157	74SB158	74SB158	74SB159	74SB159	74SB160	74SB160	74SB185	74SB185	74SB186
	Sample ID	74SB157-05	74SB158-03	74SB158-04	74SB159-03	74SB159-05	74SB160-04	74SB160-05	74SB185-03	74SB185-05	74SB186-03
	Date	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony		0.16 UJ	0.084 UJ	0.24 UJ	0.1 U	0.094 U	0.084 U	0.093 U	0.12 UJ	0.16 UJ	0.095 UJ
Arsenic		1.4	0.97	1.6	1.1	1.2	0.84	0.57 J	3.8	4	3.7
Barium		120 J	230 J	190 J	230 J	34 J	41 J	200 J	19	24	220
Beryllium		0.51	0.87	0.48	0.43	0.43	0.24	0.23	0.035 J	0.026 J	0.43
Cadmium		0.035 U	0.044 J	0.066 J	0.039 U	0.041 J	0.049 J	0.079 J	0.033 U	0.051 J	0.2
Chromium		18	47	78	120 J	3.5 J	12 J	190 J	3.1	4.3	31
Cobalt		56 J	96 J	65 J	17 J	8 J	14 J	69 J	2.1	2.3	360
Copper		86	110	140	170 J	6.4 J	47 J	85 J	5.4	7.7	62
Lead		5.2	10	12	7.2	3	11	34	1.2	19	34
Mercury		0.0046 J	0.0044 U	0.0066 J	0.016 J	0.004 UJ	0.004 UJ	0.0053 UJ	0.0063 J	0.0075 J	0.031
Nickel		18 J	42 J	32 J	19	4.1	11	62	1.2	1.5	33
Selenium		0.42 J	0.13 U	0.5 J	1.4	0.16 J	0.15 J	0.15 U	0.13 U	0.16 J	1.9
Silver		0.082 J	0.021 J	0.031 J	0.049 J	0.043 J	0.039 J	0.19 J	0.017 U	0.015 U	0.066 J
Thallium		0.14 U	0.13 U	0.14 U	0.15 U	0.12 U	0.13 U	0.15 U	0.13 U	0.11 U	0.15 U
Tin		4.6 U	4.5 U	4.7 U	5 U	4 U	4.2 U	4.9 U	4.2 U	3.8 U	5.1 U
Vanadium		240	180	200	240 J	61 J	120 J	140 J	20	29	200
Zinc		120 J	78 J	97 J	45 J	33 J	77 J	110 J	5.3 J	9.5 J	64 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		270	3.3 J	2.8 J	0.82 U	2.4 J	0.67 U	0.83 U	4.8 J	4.6 J	2.4 UJ
Gasoline Range Organics		38	0.24 J	1.7	0.81	2.4	0.054 U	0.081 U	0.0095 U	0.0073 U	0.54

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB186	74SB187	74SB187	74SB200	74SB200	74SB201	74SB201	74SB201	74SB202	74SB202
	Sample ID	74SB186-05	74SB187-03	74SB187-04	74SB200-04	74SB200-05	74SB201-04D	74SB201-04	74SB201-05	74SB202-04	74SB202-05
	Date	5/19/2008	5/19/2008	5/19/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.77 U	0.83 U	1 U	0.87 U	1.1 U	0.7 U	0.92 U	1.1 U	0.62 U	0.88 U
1,1,1-Trichloroethane		0.69 U	0.75 U	0.93 U	0.79 U	0.98 U	0.64 U	0.83 U	0.98 U	0.57 U	0.8 U
1,1,2,2-Tetrachloroethane		1.7 U	1.8 U	2.3 U	1.9 U	2.4 U	1.5 U	2 U	2.4 U	1.4 U	1.9 U
1,1,2-Trichloroethane		1.4 U	1.6 U	1.9 U	1.6 U	2 U	1.3 U	1.7 U	2 U	1.2 U	1.7 U
1,1-Dichloroethane		0.6 U	0.65 U	0.8 U	0.68 U	0.84 U	0.55 U	0.72 U	0.84 U	0.49 U	0.69 U
1,1-Dichloroethene		0.65 U	0.7 U	0.87 U	0.73 U	0.91 U	0.59 U	0.78 U	0.91 U	0.53 U	0.75 U
1,2,3-Trichloropropane		1.7 U	1.8 U	2.3 U	1.9 U	2.4 U	1.5 U	2 U	2.4 U	1.4 U	1.9 U
1,2-Dibromo-3-Chloropropane		3.4 UJ	3.6 UJ	4.5 UJ	3.8 U	4.7 U	3.1 U	4 U	4.7 U	2.7 U	3.9 U
1,2-Dichloroethane		1.2 U	1.3 U	1.6 U	1.4 U	1.7 U	1.1 U	1.4 U	1.7 U	0.98 U	1.4 U
1,2-Dichloropropane		1.3 U	1.4 U	1.8 U	1.5 U	1.9 U	1.2 U	1.6 U	1.9 U	1.1 U	1.5 U
2-Butanone (MEK)		3.2 UJ	3.5 UJ	4.3 UJ	3.7 UJ	13 UJ	3 UJ	3.9 UJ	8 UJ	2.6 UJ	3.7 UJ
2-Chloro-1,3-butadiene		0.68 U	0.74 U	0.92 U	0.77 U	0.96 U	0.62 U	0.82 U	0.96 U	0.56 U	0.79 U
2-Hexanone		2.5 UJ	2.7 UJ	3.4 UJ	2.8 UJ	3.5 UJ	2.3 UJ	3 UJ	3.5 UJ	2.1 UJ	2.9 UJ
3-Chloro-1-propene		1.8 U	1.9 U	2.4 U	2 U	2.5 U	1.6 U	2.2 U	2.5 U	1.5 U	2.1 U
4-Methyl-2-pentanone (MIBK)		3.5 UJ	3.8 UJ	4.7 UJ	3.9 UJ	4.9 UJ	3.2 UJ	4.2 UJ	4.9 UJ	2.8 UJ	4 UJ
Acetone		29 J	34 J	66 J	11 J	43 J	8.4 J	32 J	26 J	8.1 J	22 J
Acetonitrile		54 UJ	58 UJ	72 UJ	61 U	76 U	49 U	65 U	76 U	44 U	62 U
Acrolein		23 UJ	25 UJ	31 UJ	26 U	32 U	21 U	27 U	32 U	19 U	26 U
Acrylonitrile		28 UJ	30 UJ	37 UJ	31 UJ	39 UJ	25 UJ	33 UJ	39 UJ	22 UJ	32 UJ
Benzene		0.95 U	1 U	1.3 U	1.1 U	2.5 J	0.87 U	1.1 U	2 J	0.77 U	1.1 U
Bromoform		1.3 U	1.4 U	1.8 U	1.5 U	1.9 U	1.2 U	1.6 U	1.9 U	1.1 U	1.5 U
Bromomethane		1.9 U	2.1 U	2.6 U	2.2 U	2.7 U	1.8 U	2.3 U	2.7 U	1.6 U	2.2 U
Carbon disulfide		0.61 U	0.66 U	0.82 U	0.85 J	2.4 J	0.56 U	0.73 U	0.86 U	0.5 U	0.93 J
Carbon tetrachloride		1.2 U	1.3 U	1.6 U	1.4 U	1.7 U	1.1 U	1.4 U	1.7 U	0.98 U	1.4 U
Chlorobenzene		0.87 U	0.95 U	1.2 U	0.99 U	1.2 U	0.8 U	1 U	1.2 U	0.71 U	1 U
Chlorodibromomethane		0.6 U	0.65 U	0.8 U	0.68 U	0.84 U	0.55 U	0.72 U	0.84 U	0.49 U	0.69 U
Chloroethane		1.4 UJ	1.6 UJ	1.9 UJ	1.6 U	2 U	1.3 U	1.7 U	2 U	1.2 U	1.7 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB186	74SB187	74SB187	74SB200	74SB200	74SB201	74SB201	74SB201	74SB202	74SB202
	Sample ID	74SB186-05	74SB187-03	74SB187-04	74SB200-04	74SB200-05	74SB201-04D	74SB201-04	74SB201-05	74SB202-04	74SB202-05
	Date	5/19/2008	5/19/2008	5/19/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.6 U	0.65 U	0.8 U	0.68 U	0.84 U	0.55 U	0.72 U	0.84 U	0.49 U	0.69 U
Chloromethane		0.85 U	0.92 U	1.1 U	0.96 U	1.2 U	0.78 U	1 U	1.2 U	0.69 U	0.98 U
cis-1,3-Dichloropropene		1 U	1.1 U	1.4 U	1.2 U	1.5 U	0.95 U	1.3 U	1.5 U	0.85 U	1.2 U
Dibromomethane		1.4 U	1.6 U	1.9 U	1.6 U	2 U	1.3 U	1.7 U	2 U	1.2 U	1.7 U
Dichlorobromomethane		0.99 U	1.1 U	1.3 U	1.1 U	1.4 U	0.91 U	1.2 U	1.4 U	0.81 U	1.1 U
Dichlorodifluoromethane		1.1 U	1.2 U	1.4 U	1.2 U	1.5 U	0.98 U	1.3 U	1.5 U	0.87 U	1.2 U
Ethyl methacrylate		2.6 U	2.8 U	3.5 U	3 UJ	3.7 UJ	2.4 UJ	3.2 UJ	3.7 UJ	2.1 UJ	3 UJ
Ethylbenzene		0.9 U	0.97 U	1.2 U	1 U	1.3 U	0.82 U	1.1 U	1.3 U	0.73 U	1 U
Ethylene Dibromide		1.8 U	1.9 U	2.4 U	2 U	2.5 U	1.6 U	2.2 U	2.5 U	1.5 U	2.1 U
Iodomethane		1.2 U	1.3 U	1.9 J	1.4 U	1.7 U	1.1 U	1.4 U	1.7 U	0.98 U	1.4 U
Isobutyl alcohol		83 R	89 R	810 J	94 U	120 U	76 U	99 U	120 U	67 U	95 U
Methacrylonitrile		29 U	31 U	39 U	33 U	40 U	26 U	34 U	40 U	23 U	33 U
Methyl methacrylate		4.4 UJ	4.8 UJ	5.9 UJ	5 U	6.2 U	4.1 U	5.3 U	6.2 U	3.6 U	5.1 U
Methylene Chloride		1.2 U	1.3 U	1.6 U	1.4 U	1.7 U	1.1 U	1.4 U	1.7 U	0.98 U	1.4 U
Pentachloroethane		2.6 UJ	2.8 UJ	3.5 UJ	3 R	3.7 R	2.4 R	3.2 R	3.7 R	2.1 R	3 R
Propionitrile		25 U	27 U	34 U	28 U	35 U	23 U	30 U	35 U	21 U	29 U
Styrene		0.79 U	0.85 U	1.1 U	0.89 U	1.1 U	0.72 U	0.95 U	1.1 U	0.64 U	0.91 U
Tetrachloroethene		0.87 U	0.95 U	1.2 U	0.99 U	1.2 U	0.8 U	1 U	1.2 U	0.71 U	1 U
Toluene		0.95 U	1 U	1.3 U	1.1 U	1.3 U	0.87 U	1.1 U	1.3 U	0.77 U	1.1 U
trans-1,2-Dichloroethene		1.2 U	1.3 U	1.6 U	1.3 U	1.6 U	1.1 U	1.4 U	1.6 U	0.95 U	1.3 U
trans-1,3-Dichloropropene		1 U	1.1 U	1.4 U	1.2 U	1.5 U	0.95 U	1.3 U	1.5 U	0.85 U	1.2 U
trans-1,4-Dichloro-2-butene		3.7 U	4 U	5 U	4.2 UJ	5.2 UJ	3.4 UJ	4.5 UJ	5.2 UJ	3 UJ	4.3 UJ
Trichloroethene		1.2 U	1.3 U	1.6 U	1.4 U	1.7 U	1.1 U	1.4 U	1.7 U	0.98 U	1.4 U
Trichlorofluoromethane		1.8 U	1.9 U	2.4 U	2 U	2.5 U	1.6 U	2.2 U	2.5 U	1.5 U	2.1 U
Vinyl acetate		1.8 U	1.9 U	2.4 U	2 U	2.5 U	1.6 U	2.2 U	2.5 U	1.5 U	2.1 U
Vinyl chloride		0.69 U	0.75 U	0.93 U	0.79 U	0.98 U	0.64 U	0.83 U	0.98 U	0.57 U	0.8 U
Xylenes, Total		2.8 U	3 U	3.7 U	3.1 U	3.9 U	2.5 U	3.3 U	3.9 U	2.2 U	3.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB186	74SB187	74SB187	74SB200	74SB200	74SB201	74SB201	74SB201	74SB202	74SB202
Sample ID	74SB186-05	74SB187-03	74SB187-04	74SB200-04	74SB200-05	74SB201-04D	74SB201-04	74SB201-05	74SB202-04	74SB202-05
Date	5/19/2008	5/19/2008	5/19/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008
Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB186	74SB187	74SB187	74SB200	74SB200	74SB201	74SB201	74SB201	74SB202	74SB202
	Sample ID	74SB186-05	74SB187-03	74SB187-04	74SB200-04	74SB200-05	74SB201-04D	74SB201-04	74SB201-05	74SB202-04	74SB202-05
	Date	5/19/2008	5/19/2008	5/19/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008
	Depth Range	9.0-11.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.094 UJ	0.087 UJ	0.13 UJ	0.09 U	0.34 J	0.09 U	0.093 U	0.27 J	0.082 U	0.1 J
Arsenic		1.6	2.2	0.79 J	0.95	7.4	0.94	0.92	5.5	1.2	1.5
Barium		150	31	86	150	13	53	57	22	64	90
Beryllium		0.39	0.33	0.6	0.44	0.072 J	0.28	0.19	0.046 J	0.27	0.35
Cadmium		0.053 J	0.036 U	0.053 U	0.1 J	0.055 U	0.12 J	0.057 J	0.047 U	0.065 J	0.064 J
Chromium		24	26	6.3	52	15	56	47	9.6	46	68
Cobalt		15	8.9	16	32 J	2.4 J	33 J	33 J	4.5 J	32 J	32 J
Copper		120	56	500	150	10	94	110	13	100	82
Lead		31	11	8.6	1.9	1.3	3.6 R	1.2 R	0.56	1.4	3.8
Mercury		0.0047 U	0.06	0.006 U	0.0052 J	0.0095 J	0.0052 U	0.011 J	0.012 J	0.0063 J	0.017 J
Nickel		13	9	10	33	4.9	36	40	4.3	39	30
Selenium		0.85	1.5	0.21 J	0.14 U	0.43 J	0.22 J	0.15 U	0.3 J	0.13 U	0.74
Silver		0.022 J	0.018 U	0.029 J	0.042 J	0.043 J	0.027 J	0.02 UJ	0.024 UJ	0.027 J	0.027 J
Thallium		0.15 U	0.14 U	0.21 U	0.14 U	0.21 U	0.14 U	0.15 U	0.18 U	0.13 U	0.15 U
Tin		5 U	4.6 U	6.9 U	4.8 U	7.1 U	4.8 U	5 U	6 U	4.4 U	5.1 U
Vanadium		230	260	230	150	24	160	170	28	160	190
Zinc		56 J	38 J	68 J	68 J	10 J	58 J	59 J	7.1 J	62 J	56 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.83 UJ	0.87 UJ	10 J	1.5 U	1.8 U	2 U	3.6 U	1.2 U	3.7 U	2.1 U
Gasoline Range Organics		0.0078 U	0.0069 U	0.26	0.46	0.1 U	0.067 U	0.072 U	0.11 U	0.064 U	0.076 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB203	74SB203	74SB204	74SB204	74SB205	74SB205	74SB206	74SB206	74SB206	74SB207
Sample ID	74SB203-04	74SB203-05	74SB204-04	74SB204-05	74SB205-04	74SB205-05	74SB206-04D	74SB206-04	74SB206-05	74SB207-04
Date	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	0.77 U	0.86 U	0.87 U	0.78 U	0.71 U	0.68 U	0.79 U	0.9 U	0.9 U	0.6 U
1,1,1-Trichloroethane	0.69 U	0.78 U	0.79 U	0.71 U	0.64 U	0.61 U	0.72 U	0.81 U	0.81 U	0.54 U
1,1,2,2-Tetrachloroethane	1.7 U	1.9 U	1.9 U	1.7 U	1.5 U	1.5 U	1.7 U	2 U	2 U	1.3 U
1,1,2-Trichloroethane	1.4 U	1.6 U	1.6 U	1.5 U	1.3 U	1.3 U	1.5 U	1.7 U	1.7 U	1.1 U
1,1-Dichloroethane	0.6 U	0.67 U	0.68 U	0.61 U	0.55 U	0.53 U	0.62 U	0.7 U	0.7 U	0.47 U
1,1-Dichloroethene	0.65 U	0.73 U	0.73 U	0.66 U	0.59 U	0.57 U	0.67 U	0.76 U	0.76 U	0.51 U
1,2,3-Trichloropropane	1.7 U	1.9 U	1.9 U	1.7 U	1.5 U	1.5 U	1.7 U	2 U	2 U	1.3 U
1,2-Dibromo-3-Chloropropane	3.4 U	3.8 U	3.8 U	3.4 U	3.1 U	3 U	3.5 UJ	3.9 UJ	3.9 UJ	2.6 UJ
1,2-Dichloroethane	1.2 U	1.3 U	1.4 U	1.2 U	1.1 U	1.1 U	1.2 U	1.4 U	1.4 U	0.94 U
1,2-Dichloropropane	1.3 U	1.5 U	1.5 U	1.3 U	1.2 U	1.2 U	1.4 U	1.5 U	1.5 U	1 U
2-Butanone (MEK)	3.2 UJ	3.6 UJ	3.7 UJ	3.3 UJ	3 U	2.8 U	3.4 UJ	3.8 UJ	3.8 UJ	2.5 UJ
2-Chloro-1,3-butadiene	0.68 U	0.77 U	0.77 U	0.7 U	0.63 UJ	0.6 UJ	0.71 U	0.8 U	0.8 U	0.53 U
2-Hexanone	2.5 UJ	2.8 UJ	2.8 UJ	2.6 UJ	2.3 U	2.2 U	2.6 UJ	2.9 UJ	3 UJ	2 UJ
3-Chloro-1-propene	1.8 U	2 U	2 U	1.8 U	1.7 U	1.6 U	1.9 U	2.1 U	2.1 UJ	1.4 UJ
4-Methyl-2-pentanone (MIBK)	3.5 UJ	3.9 UJ	3.9 UJ	3.6 UJ	3.2 U	3.1 U	3.6 UJ	4.1 UJ	4.1 UJ	2.7 UJ
Acetone	35 J	18 J	27 J	6.9 J	16 J	6.7 J	54 J	67 J	19 J	9.1 J
Acetonitrile	54 U	60 U	61 U	55 U	50 U	47 U	56 UJ	63 UJ	63 UJ	42 UJ
Acrolein	23 U	26 U	26 U	23 U	21 UJ	20 UJ	24 UJ	27 UJ	27 R	18 R
Acrylonitrile	28 UJ	31 UJ	31 UJ	28 UJ	25 UJ	24 UJ	29 UJ	32 UJ	32 UJ	22 UJ
Benzene	0.95 U	1.1 U	1.1 U	0.97 U	0.87 U	0.83 U	0.98 U	1.1 U	1.1 U	0.74 U
Bromoform	1.3 U	1.5 U	1.5 U	1.3 U	1.2 U	1.2 U	1.4 U	1.5 U	1.5 U	1 U
Bromomethane	1.9 U	2.1 U	2.2 U	2 U	1.8 U	1.7 U	2 U	2.2 U	2.2 UJ	1.5 UJ
Carbon disulfide	1.7 J	1 J	2.1 J	0.62 U	0.56 U	0.54 U	0.63 U	0.72 U	0.72 U	0.48 U
Carbon tetrachloride	1.2 U	1.3 U	1.4 U	1.2 U	1.1 U	1.1 U	1.2 U	1.4 U	1.4 U	0.94 U
Chlorobenzene	0.87 U	0.98 U	0.99 U	0.89 U	0.8 U	0.77 U	0.91 U	1 U	1 U	0.68 U
Chlorodibromomethane	0.6 U	0.67 U	0.68 U	0.61 U	0.55 U	0.53 U	0.62 U	0.7 U	0.7 U	0.47 U
Chloroethane	1.4 U	1.6 U	1.6 U	1.5 U	1.3 U	1.3 U	1.5 UJ	1.7 UJ	1.7 U	1.1 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB203	74SB203	74SB204	74SB204	74SB205	74SB205	74SB206	74SB206	74SB206	74SB207
	Sample ID	74SB203-04	74SB203-05	74SB204-04	74SB204-05	74SB205-04	74SB205-05	74SB206-04D	74SB206-04	74SB206-05	74SB207-04
	Date	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.6 U	0.67 U	0.68 U	0.61 U	0.55 U	0.53 U	0.62 U	0.7 U	0.7 U	0.47 U
Chloromethane		0.85 U	0.95 U	0.96 U	0.87 U	0.78 U	0.75 U	0.88 U	1 U	1 U	0.67 U
cis-1,3-Dichloropropene		1 U	1.2 U	1.2 U	1.1 U	0.96 U	0.92 U	1.1 U	1.2 U	1.2 U	0.82 U
Dibromomethane		1.4 U	1.6 U	1.6 U	1.5 U	1.3 U	1.3 U	1.5 U	1.7 U	1.7 U	1.1 U
Dichlorobromomethane		0.99 U	1.1 U	1.1 U	1 U	0.91 U	0.88 U	1 U	1.2 U	1.2 U	0.78 U
Dichlorodifluoromethane		1.1 U	1.2 U	1.2 U	1.1 U	0.98 U	0.94 U	1.1 U	1.2 U	1.3 U	0.84 U
Ethyl methacrylate		2.6 UJ	3 UJ	3 UJ	2.7 UJ	2.4 U	2.3 U	2.7 U	3.1 U	3.1 U	2.1 U
Ethylbenzene		0.9 U	1 U	1 U	0.92 U	0.83 U	0.79 U	0.93 U	1.1 U	1.1 U	0.7 U
Ethylene Dibromide		1.8 U	2 U	2 U	1.8 U	1.7 U	1.6 U	1.9 U	2.1 U	2.1 U	1.4 U
Iodomethane		1.2 U	1.3 U	1.4 U	1.2 U	1.1 U	1.1 U	1.2 U	1.4 U	1.4 UJ	0.94 UJ
Isobutyl alcohol		83 U	93 U	94 U	84 U	76 U	73 U	86 R	97 R	97 R	65 R
Methacrylonitrile		29 U	32 U	33 U	29 U	26 U	25 U	30 U	34 U	34 U	23 U
Methyl methacrylate		4.4 U	5 U	5 U	4.5 U	4.1 U	3.9 U	4.6 UJ	5.2 UJ	5.2 U	3.5 U
Methylene Chloride		1.2 U	1.3 U	1.4 U	1.2 U	1.1 U	1.1 U	1.2 U	1.4 U	1.4 U	0.94 U
Pentachloroethane		2.6 R	3 R	3 R	2.7 R	2.4 R	2.3 R	2.7 UJ	3.1 UJ	3.1 UJ	2.1 UJ
Propionitrile		25 U	28 U	28 U	26 U	23 U	22 U	26 U	29 U	30 UJ	20 UJ
Styrene		0.79 U	0.89 U	0.89 U	0.81 U	0.73 U	0.7 U	0.82 U	0.93 U	0.93 U	0.62 U
Tetrachloroethene		0.87 U	0.98 U	0.99 U	0.89 U	0.8 U	0.77 U	0.91 U	1 U	1 U	0.68 U
Toluene		0.95 U	1.1 U	1.1 U	0.97 U	0.87 U	0.83 U	0.98 U	1.1 U	1.1 U	0.74 U
trans-1,2-Dichloroethene		1.2 U	1.3 U	1.3 U	1.2 U	1.1 U	1 U	1.2 U	1.4 U	1.4 U	0.91 U
trans-1,3-Dichloropropene		1 U	1.2 U	1.2 U	1.1 U	0.96 U	0.92 U	1.1 U	1.2 U	1.2 U	0.82 U
trans-1,4-Dichloro-2-butene		3.7 UJ	4.2 UJ	4.2 UJ	3.8 UJ	3.4 U	3.3 U	3.8 U	4.4 U	4.4 U	2.9 U
Trichloroethene		1.2 U	1.3 U	1.4 U	1.2 U	1.1 U	1.1 U	1.2 U	1.4 U	1.4 U	0.94 U
Trichlorofluoromethane		1.8 U	2 U	2 U	1.8 U	1.7 U	1.6 U	1.9 U	2.1 U	2.1 U	1.4 U
Vinyl acetate		1.8 U	2 U	2 U	1.8 U	1.7 U	1.6 U	1.9 U	2.1 U	2.1 U	1.4 U
Vinyl chloride		0.69 U	0.78 U	0.79 U	0.71 U	0.64 U	0.61 U	0.72 U	0.81 U	0.81 U	0.54 U
Xylenes, Total		2.8 U	3.1 U	3.1 U	2.8 U	2.5 U	2.4 U	2.9 U	3.2 U	3.2 U	2.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB203	74SB203	74SB204	74SB204	74SB205	74SB205	74SB206	74SB206	74SB206	74SB207
Sample ID	74SB203-04	74SB203-05	74SB204-04	74SB204-05	74SB205-04	74SB205-05	74SB206-04D	74SB206-04	74SB206-05	74SB207-04
Date	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB203	74SB203	74SB204	74SB204	74SB205	74SB205	74SB206	74SB206	74SB206	74SB207
	Sample ID	74SB203-04	74SB203-05	74SB204-04	74SB204-05	74SB205-04	74SB205-05	74SB206-04D	74SB206-04	74SB206-05	74SB207-04
	Date	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Metals (mg/kg)</b>											
Antimony		0.092 U	0.11 U	0.1 J	0.087 U	0.089 J	0.093 J	0.096 UJ	0.11 UJ	0.13 UJ	0.073 UJ
Arsenic		2.1	1.6	1.4	0.85	2.5	1.7	1.4	1.5	1.1	0.53
Barium		58	120	26 J	110 J	23 J	18 J	66	76	24	28
Beryllium		0.38	0.49	0.5	0.23	0.36	0.22	0.52	0.5	0.29	0.2
Cadmium		0.068 J	0.053 J	0.12 J	0.22	0.27	0.2	0.04 U	0.062 J	0.031 U	0.058 J
Chromium		96	120	98	40	21	28	37	36	3.3	33
Cobalt		30 J	43 J	44 J	32 J	15 J	14 J	13 J	20 J	9.6	26
Copper		88	92	110 J	130 J	110 J	130 J	110	95	46	120
Lead		5.7	3.9	2.8	0.95	2	2.4	32	35	6.4	0.58
Mercury		0.038	0.013 J	0.024 J	0.0048 U	0.0045 U	0.0077 J	0.015 J	0.081 J	0.004 U	0.0036 U
Nickel		30	38	35 J	17 J	12 J	8.3 J	13	14	4.6	44
Selenium		1.8	1.1	0.79	0.14 U	0.22 J	0.13 U	1.3	1.4	0.2 J	0.12 U
Silver		0.031 J	0.025 J	0.063 J	0.11 J	0.02 J	0.17 J	0.036 J	0.032 J	0.043 J	0.1 J
Thallium		0.15 U	0.18 U	0.16 U	0.14 U	0.14 U	0.13 U	0.15 U	0.14 U	0.12 U	0.12 U
Tin		4.9 U	5.9 U	5.2 U	4.6 U	4.6 U	4.4 U	5.1 U	4.8 U	3.9 U	3.9 U
Vanadium		260	250	230	190	130	95	300	290	80	150
Zinc		58 J	56 J	46 J	63 J	82 J	67 J	54 J	51 J	46 J	34 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		2.1 U	4.1 U	5.4	1.3 U	0.75 U	0.73 U	0.82 UJ	0.81 UJ	1 UJ	0.94 UJ
Gasoline Range Organics		0.073 U	0.088 U	0.069 U	0.081 U	0.061 U	0.072 U	0.0075 U	0.0085 U	0.0065 U	0.007 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB207	74SB209	74SB209	74SB210	74SB210	74SB211	74SB211	74SB211	74SB226	74SB226
	Sample ID	74SB207-05	74SB209-04	74SB209-05	74SB210-04	74SB210-05	74SB211-03D	74SB211-03	74SB211-04	74SB226-04	74SB226-05D
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.72 U	0.73 U	0.8 U	29 U	110 U	0.69 U	0.71 U	0.72 U	0.7 U	22 U
1,1,1-Trichloroethane		0.65 U	0.66 U	0.72 U	26 U	100 U	0.62 U	0.64 U	0.65 U	0.63 U	20 U
1,1,2,2-Tetrachloroethane		1.6 U	1.6 U	1.7 U	63 U	250 U	1.5 U	1.6 U	1.6 U	1.5 U	49 U
1,1,2-Trichloroethane		1.3 U	1.4 U	1.5 U	54 U	210 U	1.3 U	1.3 U	1.3 U	1.3 U	42 U
1,1-Dichloroethane		0.56 U	0.57 U	0.62 U	23 U	89 U	0.54 U	0.55 U	0.56 U	0.55 U	17 U
1,1-Dichloroethene		0.61 U	0.61 U	0.67 U	24 U	96 U	0.58 U	0.6 U	0.6 U	0.59 U	19 U
1,2,3-Trichloropropane		1.6 U	1.6 U	1.7 UJ	63 U	250 U	1.5 UJ	1.6 UJ	1.6 UJ	1.5 U	49 U
1,2-Dibromo-3-Chloropropane		3.1 UJ	3.2 UJ	3.5 U	130 U	500 U	3 U	3.1 U	3.1 U	3.1 UJ	98 U
1,2-Dichloroethane		1.1 U	1.1 U	1.2 U	45 U	180 U	1.1 U	1.1 U	1.1 U	1.1 U	35 UJ
1,2-Dichloropropane		1.2 U	1.3 U	1.4 U	50 U	200 U	1.2 U	1.2 U	1.2 U	1.2 U	38 U
2-Butanone (MEK)		4.2 UJ	3.1 UJ	3.4 UJ	120 UJ	480 U	2.9 UJ	4.3 UJ	7.5 UJ	5.3 UJ	97 U
2-Chloro-1,3-butadiene		0.64 U	0.65 U	0.71 U	26 U	100 U	0.61 U	0.63 U	0.64 U	0.62 U	20 U
2-Hexanone		2.4 UJ	2.4 UJ	2.6 UJ	95 UJ	380 UJ	2.3 UJ	2.3 UJ	2.4 UJ	2.3 UJ	73 UJ
3-Chloro-1-propene		1.7 UJ	1.7 UJ	1.9 U	68 U	270 U	1.6 U	1.7 U	1.7 U	1.6 UJ	52 U
4-Methyl-2-pentanone (MIBK)		3.3 UJ	3.3 UJ	3.6 UJ	130 U	520 UJ	3.1 UJ	3.2 UJ	3.2 UJ	3.2 U	100 U
Acetone		62 J	32 J	20 J	200 UJ	1400 J	15 J	60 J	57 J	40 UJ	150 UJ
Acetonitrile		51 UJ	51 UJ	56 UJ	2000 U	8000 U	48 UJ	50 UJ	50 UJ	49 UJ	1600 U
Acrolein		21 R	22 R	24 UJ	860 UJ	3400 UJ	20 UJ	21 UJ	21 UJ	21 UJ	660 UJ
Acrylonitrile		26 UJ	26 UJ	29 UJ	1000 U	4100 U	25 UJ	25 UJ	26 UJ	25 U	800 UJ
Benzene		0.89 U	0.9 U	0.99 U	4200 J	3200 J	0.85 U	0.87 U	0.88 U	0.86 U	28 U
Bromoform		1.2 U	1.3 U	1.4 U	50 U	200 U	1.2 U	1.2 U	1.2 U	1.2 U	38 U
Bromomethane		1.8 UJ	1.8 UJ	2 UJ	72 U	290 U	1.7 UJ	1.8 UJ	1.8 UJ	1.7 UJ	56 U
Carbon disulfide		0.57 U	0.58 U	0.64 U	23 U	91 U	0.55 U	0.56 U	0.57 U	0.93 J	18 U
Carbon tetrachloride		1.1 U	1.1 U	1.2 U	45 UJ	180 U	1.1 U	1.1 U	1.1 U	1.1 U	35 U
Chlorobenzene		0.82 U	0.83 U	0.91 U	33 U	130 U	0.78 U	0.81 U	0.82 U	0.8 U	25 U
Chlorodibromomethane		0.56 U	0.57 U	0.62 U	23 U	89 U	0.54 U	0.55 U	0.56 U	0.55 U	17 U
Chloroethane		1.3 U	1.4 U	1.5 U	54 UJ	210 UJ	1.3 U	1.3 U	1.3 U	1.3 U	42 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB207	74SB209	74SB209	74SB210	74SB210	74SB211	74SB211	74SB211	74SB211	74SB226	74SB226
Sample ID	74SB207-05	74SB209-04	74SB209-05	74SB210-04	74SB210-05	74SB211-03D	74SB211-03	74SB211-04	74SB211-04	74SB226-04	74SB226-05D
Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008
Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	7.0-9.0	7.0-9.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform	0.56 U	0.57 U	0.62 U	23 U	89 U	0.54 U	0.55 U	0.56 U	0.55 U	17 U	
Chloromethane	0.8 U	0.81 U	0.89 U	32 U	130 U	0.76 U	0.79 U	0.8 U	0.77 U	25 U	
cis-1,3-Dichloropropene	0.98 U	0.99 U	1.1 U	39 U	160 U	0.93 U	0.96 U	0.97 U	0.95 U	30 U	
Dibromomethane	1.3 U	1.4 U	1.5 U	54 U	210 U	1.3 U	1.3 U	1.3 U	1.3 U	42 U	
Dichlorobromomethane	0.93 U	0.94 U	1 U	38 U	150 U	0.89 U	0.92 U	0.93 U	0.91 U	29 U	
Dichlorodifluoromethane	1 U	1 U	1.1 U	40 U	160 U	0.96 U	0.99 U	1 U	0.97 U	31 U	
Ethyl methacrylate	2.5 U	2.5 U	2.7 U	100 U	390 U	2.4 U	2.4 U	2.5 U	2.4 UJ	77 U	
Ethylbenzene	0.84 U	0.85 U	0.94 U	12000	12000 J	0.8 U	0.83 U	0.84 U	0.82 U	26 U	
Ethylene Dibromide	1.7 U	1.7 U	1.9 U	68 U	270 U	1.6 U	1.7 U	1.7 U	1.6 U	52 U	
Iodomethane	1.1 UJ	1.1 UJ	1.2 U	45 U	180 U	1.1 U	1.1 U	1.1 U	1.1 U	35 U	
Isobutyl alcohol	77 R	79 R	86 R	3100 U	12000 U	74 R	76 R	77 R	75 R	2400 U	
Methacrylonitrile	27 U	27 U	30 U	1100 U	4300 U	26 U	27 U	27 U	26 U	840 U	
Methyl methacrylate	4.2 U	4.2 U	4.6 U	170 UJ	660 UJ	4 U	4.1 U	4.1 U	4 U	130 U	
Methylene Chloride	1.1 U	1.1 U	1.2 U	45 U	180 U	1.1 U	1.1 U	1.1 U	1.1 U	35 UJ	
Pentachloroethane	2.5 UJ	2.5 UJ	2.7 UJ	100 R	390 R	2.4 UJ	2.4 UJ	2.5 UJ	2.4 UJ	77 R	
Propionitrile	24 UJ	24 UJ	26 U	950 U	3800 U	23 U	23 U	24 U	23 UJ	730 U	
Styrene	0.74 U	0.75 U	0.82 U	30 U	120 U	0.71 U	0.73 U	0.74 U	0.72 U	23 U	
Tetrachloroethene	0.82 U	0.83 U	0.91 U	33 U	130 U	0.78 U	0.81 U	0.82 U	0.8 U	25 U	
Toluene	0.89 U	0.9 U	0.99 U	6700 J	7900 J	0.85 U	0.87 U	0.88 U	0.86 U	53 U	
trans-1,2-Dichloroethene	1.1 U	1.1 U	1.2 U	44 U	170 U	1 U	1.1 U	1.1 U	1.1 U	34 UJ	
trans-1,3-Dichloropropene	0.98 U	0.99 U	1.1 U	39 U	160 U	0.93 U	0.96 U	0.97 U	0.95 U	30 U	
trans-1,4-Dichloro-2-butene	3.5 U	3.5 U	3.9 U	140 U	550 U	3.3 U	3.4 U	3.5 U	3.4 U	110 U	
Trichloroethene	1.1 U	1.1 U	1.2 U	45 U	180 U	1.1 U	1.1 U	1.1 U	1.1 U	35 U	
Trichlorofluoromethane	1.7 U	1.7 U	1.9 U	68 U	270 U	1.6 U	1.7 U	1.7 U	1.6 U	52 U	
Vinyl acetate	1.7 U	1.7 U	1.9 U	68 U	270 U	1.6 U	1.7 U	1.7 U	1.6 U	52 U	
Vinyl chloride	0.65 U	0.66 U	0.72 U	26 U	100 U	0.62 U	0.64 U	0.65 U	0.63 U	20 U	
Xylenes, Total	2.6 U	2.6 U	2.9 U	77000	78000 J	2.5 U	2.5 U	2.6 U	2.5 U	80 U	

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB207	74SB209	74SB209	74SB210	74SB210	74SB211	74SB211	74SB211	74SB226	74SB226
	Sample ID	74SB207-05	74SB209-04	74SB209-05	74SB210-04	74SB210-05	74SB211-03D	74SB211-03	74SB211-04	74SB226-04	74SB226-05D
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		NA	NA	NA	710	260 J	NA	NA	NA	NA	130
2-Methylnaphthalene		NA	NA	NA	1500	540 J	NA	NA	NA	NA	19 U
Acenaphthene		NA	NA	NA	12 J	6.1 U	NA	NA	NA	NA	110
Acenaphthylene		NA	NA	NA	18 U	18 U	NA	NA	NA	NA	25 J
Anthracene		NA	NA	NA	18 U	18 U	NA	NA	NA	NA	190
Benzo[a]anthracene		NA	NA	NA	18 U	18 U	NA	NA	NA	NA	120
Benzo[a]pyrene		NA	NA	NA	7.1 U	7.1 U	NA	NA	NA	NA	51 J
Benzo[b]fluoranthene		NA	NA	NA	14 J	8.2 U	NA	NA	NA	NA	93
Benzo[g,h,i]perylene		NA	NA	NA	18 U	18 U	NA	NA	NA	NA	25 J
Benzo[k]fluoranthene		NA	NA	NA	11 U	11 U	NA	NA	NA	NA	11 U
Chrysene		NA	NA	NA	25 J	14 J	NA	NA	NA	NA	120
Dibenz(a,h)anthracene		NA	NA	NA	6.4 U	6.4 U	NA	NA	NA	NA	6.6 U
Fluoranthene		NA	NA	NA	48 J	30 J	NA	NA	NA	NA	440
Fluorene		NA	NA	NA	190	94 J	NA	NA	NA	NA	130
Indeno[1,2,3-cd]pyrene		NA	NA	NA	13 U	13 U	NA	NA	NA	NA	26 J
Naphthalene		NA	NA	NA	920	310	NA	NA	NA	NA	6.7 U
Phenanthrene		NA	NA	NA	120	67 J	NA	NA	NA	NA	340
Pyrene		NA	NA	NA	44 J	26 J	NA	NA	NA	NA	370

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB207	74SB209	74SB209	74SB210	74SB210	74SB211	74SB211	74SB211	74SB226	74SB226
	Sample ID	74SB207-05	74SB209-04	74SB209-05	74SB210-04	74SB210-05	74SB211-03D	74SB211-03	74SB211-04	74SB226-04	74SB226-05D
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	7.0-9.0	7.0-9.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.1 UJ	0.087 UJ	0.084 UJ	0.21 J	0.18 J	0.078 J	0.076 U	0.08 J	0.093 J	0.17 J
Arsenic		1.6	0.99	0.67	2.5	2	1.1	1.2	1.1	1.3	1.4
Barium		25	35	24	21	9.5	36	28	36	30	19
Beryllium		0.22	0.21	0.21	0.3	0.23	0.18	0.2	0.19	0.21	0.22
Cadmium		0.14	0.35	0.26	0.13	0.07 J	0.04 J	0.059 J	0.077 J	0.086 J	0.14
Chromium		41	23	19	4.5	4.7	23	28	27	5	4.8
Cobalt		100	32	30	33	18	25	25	21	15	17
Copper		150	210	170	140	95	120 J	140 J	110 J	29	71
Lead		4.5	22	5	2.3	2.3	0.56	0.49	0.53	2	1.9 J
Mercury		0.0039 U	0.0044 U	0.0039 U	0.004 U	0.0042 U	0.004 U	0.004 U	0.0043 U	0.004 U	0.0042 U
Nickel		30	20	17	9.2	6.1	15	17	17	6.5	7.6
Selenium		0.31 J	0.15 J	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U	0.41 J
Silver		0.12 J	0.019 J	0.037 J	0.14 J	0.17 J	0.02 J	0.029 J	0.032 J	0.017 U	0.017 U
Thallium		0.12 U	0.14 U	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U	0.13 U
Tin		4 U	4.6 U	4.5 U	4 U	3.9 U	4.1 U	4 U	4 U	4.2 U	4.3 U
Vanadium		220	320	220	170	150	190	190	160	190 J	300 J
Zinc		47 J	97 J	58	47	49	46 J	43 J	37 J	79 J	140
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		3.2 UJ	0.78 UJ	1.6 U	33	28	0.85 U	0.76 U	1.6 U	510	1300 J
Gasoline Range Organics		0.06	0.0084 U	0.063 U	680 R	340 J	0.076 U	0.12 J	0.56	39	48

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB226	74SB227	74SB227	74SB228	74SB228	74SB229	74SB229	74SB230	74SB230	74SB268
	Sample ID	74SB226-05	74SB227-04	74SB227-05	74SB228-04	74SB228-05	74SB229-04	74SB229-05	74SB230-04	74SB230-05	74SB268-03
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		25 U	0.78 U	31 U	0.74 U	26 U	0.67 U	27 U	0.78 U	31 U	340 U
1,1,1-Trichloroethane		23 U	0.71 U	28 U	0.67 U	24 U	0.61 U	24 U	0.71 U	28 U	310 U
1,1,2,2-Tetrachloroethane		54 U	1.7 U	67 U	1.6 U	57 U	1.5 U	58 U	1.7 U	68 U	740 U
1,1,2-Trichloroethane		47 U	1.5 U	58 U	1.4 U	49 U	1.3 U	50 UJ	1.5 U	59 U	640 U
1,1-Dichloroethane		19 U	0.61 U	24 U	0.58 U	20 U	0.53 U	21 U	0.61 U	24 U	260 U
1,1-Dichloroethene		21 U	0.66 U	26 U	0.63 U	22 U	0.57 U	22 U	0.66 U	26 U	290 U
1,2,3-Trichloropropane		54 U	1.7 U	67 U	1.6 UJ	57 U	1.5 UJ	58 U	1.7 UJ	68 U	740 U
1,2-Dibromo-3-Chloropropane		110 U	3.4 UJ	130 U	3.3 UJ	110 U	3 UJ	120 U	3.4 UJ	140 U	1500 U
1,2-Dichloroethane		39 UJ	1.2 U	48 UJ	1.2 U	41 UJ	1.1 U	42 U	1.2 U	49 UJ	530 UJ
1,2-Dichloropropane		43 U	1.3 U	53 U	1.3 U	45 U	1.2 U	46 UJ	1.3 U	54 U	580 U
2-Butanone (MEK)		130 U	6.9 UJ	130 U	3.1 UJ	110 U	2.8 UJ	110 U	5.7 UJ	130 U	1400 U
2-Chloro-1,3-butadiene		22 U	0.7 U	27 U	0.66 U	27 J	0.6 U	24 U	0.7 U	28 U	300 U
2-Hexanone		82 UJ	2.6 UJ	100 UJ	2.4 UJ	86 UJ	2.2 UJ	87 UJ	2.6 UJ	100 UJ	1100 UJ
3-Chloro-1-propene		58 U	1.8 UJ	72 U	1.7 UJ	61 U	1.6 UJ	62 U	1.8 UJ	73 U	790 U
4-Methyl-2-pentanone (MIBK)		110 U	3.5 U	140 U	3.4 UJ	120 U	3.1 UJ	120 UJ	3.5 UJ	140 U	1500 U
Acetone		190 UJ	31 UJ	210 UJ	24 U	180 UJ	23 U	180 U	52 U	210 UJ	2300 UJ
Acetonitrile		1800 U	55 UJ	2200 U	52 UJ	1800 U	47 UJ	1900 U	55 UJ	2200 U	24000 U
Acrolein		740 UJ	23 UJ	910 UJ	22 R	780 UJ	20 R	790 UJ	23 R	930 UJ	10000 UJ
Acrylonitrile		890 UJ	28 U	1100 UJ	27 UJ	940 UJ	24 UJ	960 U	28 UJ	1100 UJ	12000 UJ
Benzene		31 U	0.96 U	38 U	0.92 U	32 U	0.83 U	33 U	0.97 U	39 U	420 U
Bromoform		43 U	1.3 U	53 U	1.3 U	45 U	1.2 U	46 U	1.3 U	54 U	580 U
Bromomethane		62 U	2 UJ	77 U	1.9 UJ	65 U	1.7 UJ	67 U	2 UJ	78 U	850 U
Carbon disulfide		20 U	1.3 J	24 U	0.59 U	29 J	0.54 U	21 U	3.4 J	25 U	270 U
Carbon tetrachloride		39 U	1.2 U	48 U	1.2 U	41 U	1.1 U	42 U	1.2 U	49 U	530 U
Chlorobenzene		28 U	0.89 U	35 U	0.85 U	30 U	0.77 U	30 U	0.89 U	36 U	390 U
Chlorodibromomethane		19 U	0.61 U	24 U	0.58 U	20 U	0.53 U	21 U	0.61 U	24 U	260 U
Chloroethane		47 UJ	1.5 U	58 UJ	1.4 U	49 UJ	1.3 U	50 UJ	1.5 U	59 UJ	640 UJ



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB226	74SB227	74SB227	74SB228	74SB228	74SB229	74SB229	74SB230	74SB230	74SB268
	Sample ID	74SB226-05	74SB227-04	74SB227-05	74SB228-04	74SB228-05	74SB229-04	74SB229-05	74SB230-04	74SB230-05	74SB268-03
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		19 U	0.61 U	24 U	0.58 U	20 U	0.53 U	21 U	0.61 U	24 U	260 U
Chloromethane		28 U	0.87 U	34 U	0.82 U	29 U	0.75 U	30 U	0.87 U	35 U	380 U
cis-1,3-Dichloropropene		34 U	1.1 U	42 U	1 U	36 U	0.92 U	36 UJ	1.1 U	42 U	460 U
Dibromomethane		47 U	1.5 U	58 U	1.4 U	49 U	1.3 U	50 UJ	1.5 U	59 U	640 U
Dichlorobromomethane		32 U	1 U	40 U	0.96 U	34 U	0.87 U	35 U	1 U	40 U	440 U
Dichlorodifluoromethane		35 U	1.1 U	43 U	1 U	36 U	0.94 U	37 U	1.1 U	43 U	470 U
Ethyl methacrylate		86 U	2.7 UJ	110 U	2.6 U	90 U	2.3 U	92 U	2.7 U	120 J	1200 U
Ethylbenzene		29 U	0.91 U	1000	0.87 U	44 J	0.79 U	31 U	0.92 U	37 U	400 U
Ethylene Dibromide		58 U	1.8 U	72 U	1.7 U	61 U	1.6 U	62 U	1.8 U	73 U	790 U
Iodomethane		39 U	1.2 U	48 U	1.2 U	41 U	1.1 U	42 U	1.2 U	49 U	530 U
Isobutyl alcohol		2700 U	84 R	3300 U	80 R	2800 U	73 R	2900 U	84 R	3400 U	37000 U
Methacrylonitrile		930 U	29 U	1200 U	28 U	980 U	25 U	1000 U	29 U	1200 U	13000 U
Methyl methacrylate		140 U	4.5 U	180 U	4.3 U	150 U	3.9 U	150 UJ	4.5 U	180 U	2000 U
Methylene Chloride		39 UJ	1.2 U	48 UJ	1.2 U	63 UJ	1.1 U	42 U	1.2 U	49 UJ	530 UJ
Pentachloroethane		86 R	2.7 UJ	110 R	2.6 UJ	90 R	2.3 UJ	92 R	2.7 UJ	110 R	1200 R
Propionitrile		820 U	26 UJ	1000 U	24 UJ	860 U	22 UJ	870 U	26 UJ	1000 U	11000 U
Styrene		26 U	0.8 U	32 U	0.77 U	27 U	0.7 U	27 U	0.81 U	32 U	350 U
Tetrachloroethene		32 J	0.89 U	35 U	0.85 U	30 U	0.77 U	30 U	0.89 U	36 U	390 U
Toluene		60 U	0.96 U	38 U	0.92 U	61 U	0.83 U	33 UJ	0.97 U	39 U	530 U
trans-1,2-Dichloroethene		38 UJ	1.2 U	47 UJ	1.1 U	40 UJ	1 U	40 U	1.2 U	47 UJ	510 UJ
trans-1,3-Dichloropropene		34 U	1.1 U	42 U	1 U	36 U	0.92 U	36 UJ	1.1 U	42 U	460 U
trans-1,4-Dichloro-2-butene		120 U	3.8 U	150 U	3.6 U	130 U	3.3 U	130 U	3.8 U	150 U	1600 U
Trichloroethene		39 U	1.2 U	48 U	1.2 U	41 U	1.1 U	42 UJ	1.2 U	49 U	530 U
Trichlorofluoromethane		58 U	1.8 U	72 U	1.7 U	61 U	1.6 U	62 U	1.8 U	73 U	790 U
Vinyl acetate		58 U	1.8 U	72 U	1.7 U	61 U	1.6 U	62 U	1.8 U	73 U	790 U
Vinyl chloride		23 U	0.71 U	28 U	0.67 U	24 U	0.61 U	24 U	0.71 U	28 U	310 U
Xylenes, Total		89 U	2.8 U	840	2.7 U	94 U	2.4 U	180 J	2.8 U	110 U	1200 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB226	74SB227	74SB227	74SB228	74SB228	74SB229	74SB229	74SB230	74SB230	74SB268
	Sample ID	74SB226-05	74SB227-04	74SB227-05	74SB228-04	74SB228-05	74SB229-04	74SB229-05	74SB230-04	74SB230-05	74SB268-03
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>											
1-Methylnaphthalene		79	NA	7.8	NA	11	NA	NA	NA	46	NA
2-Methylnaphthalene		19 U	NA	14	NA	9.2	NA	NA	NA	69	NA
Acenaphthene		88	NA	0.65 U	NA	0.71 U	NA	NA	NA	23	NA
Acenaphthylene		19 U	NA	1.9 U	NA	2.1 U	NA	NA	NA	2.3 U	NA
Anthracene		160	NA	1.9 U	NA	2.1 U	NA	NA	NA	2.3 U	NA
Benzo[a]anthracene		100	NA	1.9 U	NA	2.1 U	NA	NA	NA	2.3 U	NA
Benzo[a]pyrene		44 J	NA	0.75 U	NA	0.82 U	NA	NA	NA	0.87 U	NA
Benzo[b]fluoranthene		52 J	NA	0.86 U	NA	0.95 U	NA	NA	NA	1 U	NA
Benzo[g,h,i]perylene		22 J	NA	1.9 U	NA	2.1 U	NA	NA	NA	2.3 U	NA
Benzo[k]fluoranthene		28 J	NA	1.1 U	NA	1.2 U	NA	NA	NA	1.3 U	NA
Chrysene		100	NA	0.82 J	NA	0.76 U	NA	NA	NA	1.6 J	NA
Dibenz(a,h)anthracene		6.8 U	NA	0.67 U	NA	0.73 U	NA	NA	NA	0.78 U	NA
Fluoranthene		340	NA	2.3 J	NA	2.1 U	NA	NA	NA	21	NA
Fluorene		110	NA	1.6 J	NA	3.4 J	NA	NA	NA	43	NA
Indeno[1,2,3-cd]pyrene		19 J	NA	1.4 U	NA	1.5 U	NA	NA	NA	1.6 U	NA
Naphthalene		6.9 U	NA	0.68 U	NA	0.75 U	NA	NA	NA	64	NA
Phenanthrene		240	NA	2.5 J	NA	2.4 J	NA	NA	NA	99	NA
Pyrene		310	NA	1.9 U	NA	2.1 U	NA	NA	NA	16	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB226	74SB227	74SB227	74SB228	74SB228	74SB229	74SB229	74SB230	74SB230	74SB268
	Sample ID	74SB226-05	74SB227-04	74SB227-05	74SB228-04	74SB228-05	74SB229-04	74SB229-05	74SB230-04	74SB230-05	74SB268-03
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0
<b>Metals (mg/kg)</b>											
Antimony		0.13 J	0.087 J	0.084 J	0.25 U	0.086 U	0.27 U	0.17 U	0.095 U	0.15 U	0.15 U
Arsenic		1.5	0.93	1.2	3.9	1.9	1.8	3.4	1.2	3.1	1.3
Barium		24	52	73	67	29	49	230	96	140	43
Beryllium		0.23	0.27	0.31	0.29	0.3	0.43	0.65	0.34	0.49	0.29
Cadmium		0.2	0.035 U	0.032 U	0.24	0.061 J	0.088 J	0.073 J	0.039 U	0.13	0.15
Chromium		4.4	13	33	23	14	46	1.7	27	50	48
Cobalt		22	39	31	29	23	40	20	26	42	27
Copper		77	31	180	59	44	120	53	79	66	69
Lead		2.3	1.4	1.7	6.9	4.2	19	8.2	3.3	8.9	5.6
Mercury		0.0045 U	0.0042 U	0.004 U	0.024 J	0.035	0.0074 J	0.0043 U	0.0081 J	0.014 J	0.0079 J
Nickel		7.6	28	22	14	8.6	26	3.7	11	18	21
Selenium		0.64	0.15 J	0.12 U	0.51 J	0.53 J	0.47 J	0.18 J	0.81	0.6	0.27 J
Silver		0.028 J	0.018 U	0.032 U	0.051 J	0.11 J	0.03 J	0.018 UJ	0.062 J	0.036 J	0.053 J
Thallium		0.13 U	0.13 U	0.12 U	0.14 U	0.14 U	0.14 U	0.13 U	0.15 U	0.14 U	0.14 U
Tin		4.3 U	4.5 U	4.2 U	4.7 U	4.6 U	4.5 U	4.5 U	5.1 U	4.7 U	4.7 U
Vanadium		310 J	210 J	230 J	150	140	200	60	210	150	160
Zinc		110 J	67 J	64 J	86	40	95	70	55	81	73 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		420 J	4.8	8.9	120	8.3	14	86	2 U	46	1500
Gasoline Range Organics		33	0.21	150	0.066 U	230	0.063 U	110	0.077 U	29 J	120

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB268	74SB269	74SB269	74SB270	74SB270	74SB271	74SB271	74SB271	74SB272	74SB272
	Sample ID	74SB268-05	74SB269-04	74SB269-05	74SB270-04	74SB270-05	74SB271-03D	74SB271-03	74SB271-05	74SB272-04	74SB272-05
	Date	5/20/2008	5/20/2008	5/20/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		130 U	760 U	380 U	0.7 U	0.75 U	0.96 U	0.92 U	0.99 U	0.83 U	0.84 U
1,1,1-Trichloroethane		120 U	690 U	350 U	0.63 UJ	0.68 UJ	0.87 UJ	0.84 UJ	0.9 UJ	0.75 UJ	0.76 UJ
1,1,2,2-Tetrachloroethane		290 U	1700 U	830 U	1.5 U	1.6 U	2.1 U	2 U	2.2 U	1.8 U	1.8 U
1,1,2-Trichloroethane		250 U	1400 U	710 U	1.3 U	1.4 U	1.8 U	1.7 U	1.9 U	1.5 U	1.6 U
1,1-Dichloroethane		100 U	590 U	300 U	0.55 U	0.59 U	0.75 U	0.72 U	0.78 U	0.65 U	0.66 U
1,1-Dichloroethene		110 U	640 U	320 U	0.59 U	0.63 U	0.81 U	0.78 U	0.84 U	0.7 U	0.71 U
1,2,3-Trichloropropane		290 U	1700 U	830 U	1.5 U	1.6 U	2.1 U	2 U	2.2 U	1.8 U	1.8 U
1,2-Dibromo-3-Chloropropane		580 U	3300 U	1700 U	3.1 U	3.3 U	4.2 U	4 U	4.4 U	3.6 U	3.7 U
1,2-Dichloroethane		210 UJ	1200 U	600 U	1.1 U	1.2 U	1.5 U	1.4 U	1.6 U	1.3 U	1.3 U
1,2-Dichloropropane		230 U	1300 U	660 U	1.2 U	1.3 U	1.6 U	1.6 U	1.7 U	1.4 U	1.4 U
2-Butanone (MEK)		560 U	3200 U	1600 U	2.9 UJ	3.2 UJ	4 UJ	3.9 UJ	4.2 UJ	3.5 UJ	3.6 UJ
2-Chloro-1,3-butadiene		120 U	670 U	340 U	0.62 U	0.67 U	0.85 U	0.82 U	0.89 U	0.74 U	0.75 U
2-Hexanone		440 UJ	2500 U	1300 U	2.3 U	2.5 U	3.1 U	3 U	3.3 U	2.7 U	2.8 U
3-Chloro-1-propene		310 U	1800 U	890 U	1.6 U	1.8 U	2.2 U	2.2 U	2.3 U	1.9 U	2 U
4-Methyl-2-pentanone (MIBK)		600 U	3400 UJ	1700 UJ	3.2 UJ	3.4 UJ	4.3 UJ	4.2 UJ	4.5 UJ	3.7 UJ	3.8 UJ
Acetone		910 UJ	5200 UJ	2600 UJ	13 UJ	12 UJ	23 UJ	8.9 UJ	6.8 UJ	17 UJ	15 UJ
Acetonitrile		9300 U	53000 U	27000 U	49 U	53 U	67 U	65 U	70 U	58 U	59 U
Acrolein		3900 UJ	22000 UJ	11000 UJ	21 U	22 U	28 U	27 U	30 U	25 U	25 U
Acrylonitrile		4800 UJ	27000 U	14000 U	25 U	27 U	34 U	33 U	36 U	30 U	30 U
Benzene		160 U	10000	1500 J	0.86 U	0.93 U	1.2 U	1.1 U	1.2 U	1 U	1 U
Bromoform		230 U	1300 U	660 U	1.2 U	1.3 U	1.6 U	1.6 U	1.7 U	1.4 U	1.4 U
Bromomethane		330 U	1900 U	950 U	1.7 U	1.9 U	2.4 U	2.3 U	2.5 U	2.1 U	2.1 U
Carbon disulfide		110 U	600 U	300 U	0.56 U	0.6 U	0.76 U	0.73 U	0.79 U	0.66 U	0.67 U
Carbon tetrachloride		210 U	1200 U	600 U	1.1 UJ	1.2 UJ	1.5 UJ	1.4 UJ	1.6 UJ	1.3 UJ	1.3 UJ
Chlorobenzene		150 U	860 U	430 U	0.8 U	0.86 U	1.1 U	1.1 U	1.1 U	0.94 U	0.96 U
Chlorodibromomethane		100 U	590 U	300 U	0.55 UJ	0.59 UJ	0.75 U	0.72 U	0.78 U	0.65 U	0.66 U
Chloroethane		250 UJ	1400 U	710 U	1.3 UJ	1.4 UJ	1.8 UJ	1.7 UJ	1.9 UJ	1.5 UJ	1.6 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB268	74SB269	74SB269	74SB270	74SB270	74SB271	74SB271	74SB271	74SB272	74SB272
	Sample ID	74SB268-05	74SB269-04	74SB269-05	74SB270-04	74SB270-05	74SB271-03D	74SB271-03	74SB271-05	74SB272-04	74SB272-05
	Date	5/20/2008	5/20/2008	5/20/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		100 U	590 U	300 U	0.55 U	0.59 U	0.75 U	0.72 U	0.78 U	0.65 U	0.66 U
Chloromethane		150 U	840 U	420 U	0.78 U	0.83 U	1.1 U	1 U	1.1 U	0.92 U	0.93 U
cis-1,3-Dichloropropene		180 U	1000 U	520 U	0.95 UJ	1 UJ	1.3 UJ	1.3 UJ	1.4 UJ	1.1 UJ	1.1 UJ
Dibromomethane		250 U	1400 U	710 U	1.3 U	1.4 U	1.8 U	1.7 U	1.9 U	1.5 U	1.6 U
Dichlorobromomethane		170 U	980 U	490 U	0.91 U	0.97 U	1.2 U	1.2 U	1.3 U	1.1 U	1.1 U
Dichlorodifluoromethane		180 U	1100 U	530 U	0.97 U	1 U	1.3 U	1.3 U	1.4 U	1.1 U	1.2 U
Ethyl methacrylate		460 U	2600 U	1300 U	2.4 U	2.6 U	3.3 U	3.2 U	3.4 U	2.8 U	2.9 U
Ethylbenzene		160 U	30000	3100	0.82 U	0.88 U	1.1 U	1.1 U	1.2 U	0.97 U	0.99 U
Ethylene Dibromide		310 U	1800 U	890 U	1.6 U	1.8 U	2.2 U	2.2 U	2.3 U	1.9 U	2 U
Iodomethane		210 U	1200 U	600 U	1.1 U	1.2 U	1.5 U	1.4 U	1.6 U	1.3 U	1.3 U
Isobutyl alcohol		14000 U	82000 UJ	41000 UJ	75 U	81 U	100 U	99 U	110 U	89 U	91 U
Methacrylonitrile		5000 U	28000 U	14000 U	26 U	28 U	36 U	35 U	37 U	31 U	32 U
Methyl methacrylate		770 U	4400 UJ	2200 UJ	4 U	4.3 U	5.5 U	5.3 U	5.8 U	4.8 U	4.9 U
Methylene Chloride		210 UJ	1200 U	600 U	1.1 U	1.2 U	1.5 U	1.4 U	1.6 U	1.3 U	1.3 U
Pentachloroethane		460 R	2600 R	1300 R	2.4 R	2.6 R	3.3 R	3.2 R	3.4 R	2.8 R	2.9 R
Propionitrile		4400 U	25000 U	13000 U	23 U	25 U	31 U	30 U	33 U	27 U	28 U
Styrene		140 U	780 U	390 U	0.72 U	0.77 U	0.99 UJ	0.95 UJ	1 U	0.85 U	0.87 U
Tetrachloroethene		150 U	860 U	430 U	0.8 U	0.86 U	1.1 U	1.1 U	1.1 U	0.94 U	0.96 U
Toluene		160 U	1800 U	830 UJ	0.86 U	0.93 U	1.2 U	1.1 U	1.2 U	1 U	1 U
trans-1,2-Dichloroethene		200 UJ	1100 U	580 U	1.1 U	1.1 U	1.5 U	1.4 U	1.5 U	1.3 U	1.3 U
trans-1,3-Dichloropropene		180 U	1000 U	520 U	0.95 U	1 U	1.3 U	1.3 U	1.4 U	1.1 U	1.1 U
trans-1,4-Dichloro-2-butene		640 U	3700 U	1800 U	3.4 U	3.6 U	4.6 U	4.5 U	4.8 U	4 U	4.1 U
Trichloroethene		210 U	1200 U	600 U	1.1 U	1.2 U	1.5 U	1.4 U	1.6 U	1.3 U	1.3 U
Trichlorofluoromethane		310 U	1800 U	890 U	1.6 U	1.8 U	2.2 U	2.2 U	2.3 U	1.9 U	2 U
Vinyl acetate		310 U	1800 U	890 U	1.6 U	1.8 U	2.2 U	2.2 U	2.3 U	1.9 U	2 U
Vinyl chloride		120 U	690 U	350 U	0.63 U	0.68 U	0.87 U	0.84 U	0.9 U	0.75 U	0.76 U
Xylenes, Total		480 U	2700 U	1400 U	2.5 U	2.7 U	3.4 U	3.3 U	3.6 U	3 U	3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB268	74SB269	74SB269	74SB270	74SB270	74SB271	74SB271	74SB271	74SB272	74SB272
Sample ID	74SB268-05	74SB269-04	74SB269-05	74SB270-04	74SB270-05	74SB271-03D	74SB271-03	74SB271-05	74SB272-04	74SB272-05
Date	5/20/2008	5/20/2008	5/20/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	38 J	NA	390	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	37 J	NA	630	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	6.3 J	NA	7.6 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	19 U	NA	23 U	NA	NA	NA	NA	NA	NA	NA
Anthracene	19 U	NA	23 U	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	19 U	NA	23 U	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	7.2 U	NA	8.8 U	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	8.3 J	NA	10 U	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	19 U	NA	23 U	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	11 U	NA	13 U	NA	NA	NA	NA	NA	NA	NA
Chrysene	11 J	NA	8.2 U	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	6.5 U	NA	7.9 U	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	22 J	NA	24 J	NA	NA	NA	NA	NA	NA	NA
Fluorene	43 J	NA	10 U	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	13 U	NA	16 U	NA	NA	NA	NA	NA	NA	NA
Naphthalene	6.6 J	NA	890	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	34 J	NA	97	NA	NA	NA	NA	NA	NA	NA
Pyrene	28 J	NA	31 J	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB268	74SB269	74SB269	74SB270	74SB270	74SB271	74SB271	74SB271	74SB272	74SB272
	Sample ID	74SB268-05	74SB269-04	74SB269-05	74SB270-04	74SB270-05	74SB271-03D	74SB271-03	74SB271-05	74SB272-04	74SB272-05
	Date	5/20/2008	5/20/2008	5/20/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	5.0-7.0	5.0-7.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.074 U	0.47 U	0.24 U	0.16 UJ	0.088 UJ	0.1 UJ	0.11 UJ	0.19 UJ	0.087 UJ	0.088 UJ
Arsenic		1.2	7.2	2.9	2.1	0.79	0.27 J	0.3 J	1.4	2.8	2.5
Barium		46	180	100	14 J	4.9 J	8.9 R	86 R	2.2 J	240 J	250 J
Beryllium		0.21	0.77	0.54	0.49	0.34	0.12 J	0.12 J	0.31	1.3	1.3
Cadmium		0.086 J	0.67	0.098 J	0.053 J	0.042 J	0.041 U	0.044 U	0.045 J	0.17	0.24
Chromium		2.4	23	140	87 J	54 J	83 J	110 J	180 J	25 J	32 J
Cobalt		23	34	94	8	4.6	4.9	5.4	4	70	91
Copper		130	97	47	230	87	53	67	55	55	53
Lead		1.8	11	8.6	6.9	3.6	0.85	0.89	3.6	3	4
Mercury		0.004 U	0.011 J	0.051	0.0047 U	0.0052 U	0.0049 U	0.0058 U	0.0055 U	0.0048 U	0.0043 U
Nickel		16	16	38	15	9.5	12	18	21	32	32
Selenium		0.14 J	0.65	1.7	0.32 J	0.24 J	0.16 U	0.17 U	0.18 J	0.16 J	0.16 J
Silver		0.03 J	0.055 J	0.064 J	0.037 J	0.03 J	0.031 J	0.023 U	0.069 J	0.019 J	0.034 J
Thallium		0.12 U	0.14 U	0.15 U	0.15 U	0.14 U	0.16 U	0.17 U	0.16 U	0.14 U	0.14 U
Tin		4 U	4.7 U	4.9 U	5.1 U	4.7 U	5.4 U	5.7 U	5.2 U	4.7 U	4.7 U
Vanadium		180	210	240	410	180	40	40	290	47	63
Zinc		64 J	99 J	52 J	64 J	39 J	59 J	96 J	73 J	160 J	140 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		57	250	140	0.7	0.74	0.79	1.6	0.61	2.6	0.82
Gasoline Range Organics		69 J	1300 R	1100 R	0.071 U	0.072 U	0.089 U	0.1 U	0.082 U	0.088 U	0.074 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB273	74SB273	74SB274	74SB274	74SB275	74SB275	74SB277	74SB278	74SB279	74SB279
	Sample ID	74SB273-04	74SB273-05	74SB274-03	74SB274-05	74SB275-03D	74SB275-03	74SB277-02	74SB278-03	74SB279-03	74SB279-05
	Date	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
	Depth Range	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.69 U	0.74 U	0.63 U	0.67 U	0.96 U	0.74 U	0.98 U	0.79 U	0.93 U	0.86 U
1,1,1-Trichloroethane		0.62 UJ	0.67 UJ	0.57 UJ	0.61 UJ	0.87 UJ	0.67 UJ	0.89 UJ	0.72 UJ	0.84 UJ	0.78 UJ
1,1,2,2-Tetrachloroethane		1.5 U	1.6 U	1.4 U	1.5 U	2.1 U	1.6 U	2.1 U	1.7 U	2 U	1.9 U
1,1,2-Trichloroethane		1.3 U	1.4 U	1.2 U	1.3 U	1.8 U	1.4 U	1.8 U	1.5 U	1.7 U	1.6 U
1,1-Dichloroethane		0.54 U	0.58 U	0.49 U	0.52 U	0.75 U	0.57 U	0.77 U	0.62 U	0.73 U	0.67 U
1,1-Dichloroethene		0.58 U	0.63 U	0.53 U	0.56 U	0.81 U	0.62 U	0.83 U	0.67 U	0.79 U	0.73 U
1,2,3-Trichloropropane		1.5 U	1.6 U	1.4 U	1.5 U	2.1 U	1.6 U	2.1 U	1.7 U	2 U	1.9 U
1,2-Dibromo-3-Chloropropane		3 U	3.2 U	2.8 U	2.9 U	4.2 U	3.2 U	4.3 U	3.5 U	4.1 U	3.8 U
1,2-Dichloroethane		1.1 U	1.2 U	0.99 U	1 U	1.5 U	1.1 U	1.5 U	1.2 U	1.5 U	1.3 U
1,2-Dichloropropane		1.2 U	1.3 U	1.1 U	1.1 U	1.6 U	1.3 U	1.7 U	1.4 U	1.6 U	1.5 U
2-Butanone (MEK)		2.9 UJ	3.1 UJ	2.7 UJ	2.8 UJ	4 UJ	3.1 UJ	4.1 UJ	3.3 UJ	3.9 UJ	3.6 UJ
2-Chloro-1,3-butadiene		0.61 U	0.66 U	0.56 U	0.6 U	0.85 U	0.65 U	0.87 U	0.7 U	0.83 U	0.77 U
2-Hexanone		2.3 U	2.4 U	2.1 U	2.2 U	3.1 U	2.4 U	3.2 U	2.6 U	3.1 U	2.8 U
3-Chloro-1-propene		1.6 U	1.7 U	1.5 U	1.6 U	2.2 U	1.7 U	2.3 U	1.9 U	2.2 U	2 U
4-Methyl-2-pentanone (MIBK)		3.1 UJ	3.4 UJ	2.9 UJ	3 UJ	4.3 UJ	3.3 UJ	4.4 UJ	3.6 UJ	4.2 UJ	3.9 UJ
Acetone		4.8 UJ	12 UJ	5.1 UJ	6.7 UJ	13 UJ	9.6 UJ	34 UJ	7.4 UJ	14 UJ	8.8 UJ
Acetonitrile		48 U	52 U	45 U	47 U	67 UJ	52 UJ	69 UJ	56 UJ	65 U	60 U
Acrolein		20 U	22 U	19 U	20 U	28 U	22 U	29 U	23 U	28 U	26 U
Acrylonitrile		25 U	27 U	23 U	24 U	34 UJ	26 UJ	35 UJ	28 UJ	33 U	31 U
Benzene		0.85 U	0.92 U	0.78 U	0.83 U	1.2 U	0.91 U	1.2 U	0.98 U	1.1 U	1.1 U
Bromoform		1.2 U	1.3 U	1.1 U	1.1 U	1.6 U	1.3 U	1.7 U	1.4 U	1.6 U	1.5 U
Bromomethane		1.7 U	1.9 U	1.6 U	1.7 U	2.4 U	1.8 U	2.5 U	2 U	2.3 U	2.1 U
Carbon disulfide		0.55 U	0.59 U	0.5 U	0.53 U	0.76 U	0.59 U	0.78 U	0.63 U	0.74 U	0.68 U
Carbon tetrachloride		1.1 UJ	1.2 UJ	0.99 UJ	1 UJ	1.5 UJ	1.1 UJ	1.5 UJ	1.2 UJ	1.5 UJ	1.3 UJ
Chlorobenzene		0.78 U	0.85 U	0.72 U	0.76 U	1.1 U	0.84 U	1.1 U	0.9 U	1.1 U	0.98 U
Chlorodibromomethane		0.54 U	0.58 U	0.49 U	0.52 U	0.75 U	0.57 U	0.77 U	0.62 U	0.73 U	0.67 U
Chloroethane		1.3 UJ	1.4 UJ	1.2 UJ	1.3 UJ	1.8 UJ	1.4 UJ	1.8 UJ	1.5 UJ	1.7 UJ	1.6 UJ



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB273	74SB273	74SB274	74SB274	74SB275	74SB275	74SB277	74SB278	74SB279	74SB279
Sample ID	74SB273-04	74SB273-05	74SB274-03	74SB274-05	74SB275-03D	74SB275-03	74SB277-02	74SB278-03	74SB279-03	74SB279-05
Date	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>										
Chloroform	0.54 U	0.58 U	0.49 U	0.52 U	0.75 U	0.57 U	0.77 U	0.62 U	0.73 U	0.67 U
Chloromethane	0.76 U	0.82 U	0.7 U	0.74 U	1.1 U	0.82 U	1.1 U	0.88 U	1 U	0.95 U
cis-1,3-Dichloropropene	0.93 UJ	1 UJ	0.86 UJ	0.91 UJ	1.3 UJ	1 UJ	1.3 UJ	1.1 UJ	1.3 UJ	1.2 UJ
Dibromomethane	1.3 U	1.4 U	1.2 U	1.3 U	1.8 U	1.4 U	1.8 U	1.5 U	1.7 U	1.6 U
Dichlorobromomethane	0.89 U	0.96 U	0.82 U	0.87 U	1.2 U	0.95 U	1.3 U	1 U	1.2 U	1.1 U
Dichlorodifluoromethane	0.95 U	1 U	0.88 U	0.93 U	1.3 U	1 U	1.4 U	1.1 U	1.3 U	1.2 U
Ethyl methacrylate	2.4 U	2.5 U	2.2 U	2.3 U	3.3 U	2.5 U	3.4 U	2.7 U	3.2 U	3 U
Ethylbenzene	0.8 U	0.87 U	0.74 U	0.78 U	1.1 U	0.86 U	1.1 U	0.93 U	1.1 U	1 U
Ethylene Dibromide	1.6 U	1.7 U	1.5 U	1.6 U	2.2 U	1.7 U	2.3 U	1.9 U	2.2 U	2 U
Iodomethane	1.1 U	1.2 U	0.99 U	1 U	1.5 U	1.1 U	1.5 U	1.2 U	1.5 U	1.3 U
Isobutyl alcohol	74 U	80 U	68 U	72 U	100 R	79 R	110 R	85 R	100 U	93 U
Methacrylonitrile	26 U	28 U	24 U	25 U	36 UJ	28 UJ	37 UJ	30 UJ	35 U	32 U
Methyl methacrylate	4 U	4.3 U	3.7 U	3.9 U	5.5 UJ	4.2 UJ	5.7 UJ	4.6 UJ	5.4 U	5 U
Methylene Chloride	1.1 U	1.2 U	0.99 U	1 U	1.5 U	1.1 U	1.5 U	1.2 U	1.5 U	1.3 U
Pentachloroethane	2.4 R	2.5 R	2.2 R	2.3 R	3.3 R	2.5 R	3.4 R	2.7 R	3.2 R	3 R
Propionitrile	23 U	24 U	21 U	22 U	31 UJ	24 UJ	32 UJ	26 UJ	31 U	28 U
Styrene	0.71 U	0.76 U	0.65 U	0.69 U	0.99 U	0.76 U	1 U	0.82 U	0.96 U	0.89 U
Tetrachloroethene	0.78 U	0.85 U	0.72 U	0.76 U	1.1 U	0.84 U	1.1 U	0.9 U	1.1 U	0.98 U
Toluene	0.85 U	0.92 U	0.78 U	0.83 U	1.2 U	0.91 U	1.2 U	0.98 U	1.1 U	1.1 U
trans-1,2-Dichloroethene	1 U	1.1 U	0.96 U	1 U	1.5 U	1.1 U	1.5 U	1.2 U	1.4 U	1.3 U
trans-1,3-Dichloropropene	0.93 U	1 U	0.86 U	0.91 U	1.3 U	1 U	1.3 U	1.1 U	1.3 U	1.2 U
trans-1,4-Dichloro-2-butene	3.3 U	3.6 U	3.1 U	3.2 U	4.6 UJ	3.6 UJ	4.8 UJ	3.8 UJ	4.5 U	4.2 U
Trichloroethene	1.1 U	1.2 U	0.99 U	1 U	1.5 U	1.1 U	1.5 U	1.2 U	1.5 U	1.3 U
Trichlorofluoromethane	1.6 U	1.7 U	1.5 U	1.6 U	2.2 U	1.7 U	2.3 U	1.9 U	2.2 U	2 U
Vinyl acetate	1.6 U	1.7 U	1.5 U	1.6 U	2.2 U	1.7 U	2.3 U	1.9 U	2.2 U	2 U
Vinyl chloride	0.62 U	0.67 U	0.57 U	0.61 U	0.87 U	0.67 U	0.89 U	0.72 U	0.84 U	0.78 U
Xylenes, Total	2.5 U	2.7 U	2.3 U	2.4 U	3.4 U	2.6 U	3.5 U	2.8 U	3.3 U	3.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB273	74SB273	74SB274	74SB274	74SB275	74SB275	74SB277	74SB278	74SB279	74SB279
Sample ID	74SB273-04	74SB273-05	74SB274-03	74SB274-05	74SB275-03D	74SB275-03	74SB277-02	74SB278-03	74SB279-03	74SB279-05
Date	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	9.0-11.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB273	74SB273	74SB274	74SB274	74SB275	74SB275	74SB277	74SB278	74SB279	74SB279
	Sample ID	74SB273-04	74SB273-05	74SB274-03	74SB274-05	74SB275-03D	74SB275-03	74SB277-02	74SB278-03	74SB279-03	74SB279-05
	Date	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
	Depth Range	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	3.0-5.0	5.0-7.0	5.0-7.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.083 UJ	0.094 UJ	0.078 UJ	0.095 UJ	0.11 UJ	0.083 UJ	0.082 UJ	0.074 UJ	0.095 UJ	0.096 UJ
Arsenic		0.8	1	0.89	2.8	1.4	1.7	0.97	1.1	1	1.2
Barium		24 J	140 J	24 J	37 J	36 J	82 J	56	110	190 J	150 J
Beryllium		0.2	0.26	0.23	0.29	0.3	0.27	0.24	0.26	0.57	0.34
Cadmium		0.1 J	0.28	0.45	0.79	0.043 U	0.083 U	0.072 U	0.059 U	0.039 U	0.06 J
Chromium		21 J	75 J	49 J	58 J	24	19	31	22	37 J	36 J
Cobalt		9.4	37	25	31	18	25	22	36	67	35
Copper		150	160	150	93	110	140	110	130	130	100
Lead		0.43	2.5	1.4	5.4	1.2	1.5	1.9	1.6	1.2	1.4
Mercury		0.0047 U	0.0041 U	0.0043 U	0.0044 U	0.01 J	0.0042 U	0.0047 U	0.0042 U	0.0052 U	0.0051 U
Nickel		22	50	29	31	16	16	22	17	26	32
Selenium		0.13 U	0.13 U	0.13 U	0.13 U	0.17 U	0.13 U	0.13 U	0.12 U	0.15 U	0.15 U
Silver		0.082 J	0.044 J	0.072 J	0.026 J	0.076 J	0.088 J	0.042 J	0.11 J	0.027 J	0.021 J
Thallium		0.13 U	0.13 U	0.13 U	0.13 U	0.17 U	0.13 U	0.13 U	0.12 U	0.15 U	0.15 U
Tin		4.4 U	4.3 U	4.2 U	4.2 U	5.6 U	4.4 U	4.4 U	4 U	5.1 U	5.1 U
Vanadium		220	140	180	260	200	230	170	160	160	200
Zinc		30 J	67 J	62 J	100 J	61 J	95 J	56 J	42 J	60 J	73 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		0.84	2.2	1.1	0.62	1.4	1.1	1.8	0.53	0.73	0.91
Gasoline Range Organics		0.069 U	0.072 U	0.066 U	0.065 U	0.17 J	0.07 U	0.13 J	0.081 U	0.08 U	0.082 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB280	74SB280	74SB281	74SB281	74SB281	74SB282	74SB282	74SB283	74SB284	74SB284
	Sample ID	74SB280-02	74SB280-05	74SB281-02	74SB281-05D	74SB281-05	74SB282-02	74SB282-05	74SB283-02	74SB284-02	74SB284-05
	Date	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
	Depth Range	3.0-5.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	3.0-5.0	9.0-11.0	3.0-5.0	3.0-5.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
1,1,1,2-Tetrachloroethane		0.87 U	0.97 U	0.93 U	0.71 U	0.74 U	0.89 U	0.7 U	0.61 U	0.83 U	0.88 U
1,1,1-Trichloroethane		0.79 UJ	0.88 UJ	0.85 UJ	0.65 UJ	0.67 UJ	0.8 UJ	0.63 UJ	0.55 UJ	0.76 UJ	0.8 UJ
1,1,2,2-Tetrachloroethane		1.9 U	2.1 U	2 U	1.6 U	1.6 U	1.9 U	1.5 U	1.3 U	1.8 U	1.9 U
1,1,2-Trichloroethane		1.6 U	1.8 U	1.8 U	1.3 U	1.4 U	1.7 U	1.3 U	1.1 U	1.6 U	1.7 U
1,1-Dichloroethane		0.68 U	0.76 U	0.73 U	0.56 U	0.57 U	0.69 U	0.55 U	0.47 U	0.65 U	0.69 U
1,1-Dichloroethene		0.74 U	0.82 U	0.79 U	0.6 U	0.62 U	0.75 U	0.59 U	0.51 U	0.7 U	0.74 U
1,2,3-Trichloropropane		1.9 U	2.1 U	2 U	1.6 U	1.6 U	1.9 U	1.5 U	1.3 U	1.8 U	1.9 U
1,2-Dibromo-3-Chloropropane		3.8 U	4.3 U	4.1 U	3.1 U	3.2 U	3.9 U	3.1 U	2.6 U	3.6 U	3.9 U
1,2-Dichloroethane		1.4 U	1.5 U	1.5 U	1.1 U	1.1 U	1.4 U	1.1 U	0.95 U	1.3 U	1.4 U
1,2-Dichloropropane		1.5 U	1.7 U	1.6 U	1.2 U	1.3 U	1.5 U	1.2 U	1 U	1.4 U	1.5 U
2-Butanone (MEK)		3.7 UJ	4.1 UJ	3.9 J	3 UJ	3.1 UJ	3.7 UJ	2.9 UJ	2.6 UJ	3.5 UJ	3.7 UJ
2-Chloro-1,3-butadiene		0.78 U	0.87 U	0.83 U	0.64 U	0.65 U	0.79 U	0.62 U	0.54 U	0.74 U	0.78 U
2-Hexanone		2.9 U	3.2 U	3.1 U	2.3 U	2.4 U	2.9 U	2.3 U	2 U	2.7 U	2.9 U
3-Chloro-1-propene		2 U	2.3 U	2.2 U	1.7 U	1.7 U	2.1 U	1.6 U	1.4 U	2 U	2.1 U
4-Methyl-2-pentanone (MIBK)		4 UJ	4.4 UJ	4.2 UJ	3.2 UJ	3.3 UJ	4 UJ	3.2 UJ	2.7 UJ	3.8 UJ	4 UJ
Acetone		10 UJ	9 UJ	24 J	4.9 UJ	5.1 UJ	16 UJ	6.3 UJ	24 UJ	35 UJ	18 UJ
Acetonitrile		61 UJ	68 UJ	66 UJ	50 UJ	52 UJ	62 UJ	49 UJ	43 U	59 U	62 U
Acrolein		26 U	29 U	28 U	21 U	22 U	26 U	21 U	18 U	25 U	26 U
Acrylonitrile		31 UJ	35 UJ	34 UJ	26 UJ	26 UJ	32 UJ	25 UJ	22 U	30 U	32 U
Benzene		1.1 U	1.2 U	1.2 J	0.88 U	0.91 U	1.1 U	0.86 U	0.75 U	1 U	1.1 U
Bromoform		1.5 U	1.7 U	1.6 U	1.2 U	1.3 U	1.5 U	1.2 U	1 U	1.4 U	1.5 U
Bromomethane		2.2 U	2.4 U	2.3 U	1.8 U	1.8 U	2.2 U	1.7 U	1.5 U	2.1 U	2.2 U
Carbon disulfide		0.7 U	0.77 U	0.74 J	0.57 U	0.59 U	0.71 U	0.56 U	0.48 U	0.66 U	0.7 U
Carbon tetrachloride		1.4 UJ	1.5 UJ	1.5 UJ	1.1 UJ	1.1 UJ	1.4 UJ	1.1 UJ	0.95 UJ	1.3 UJ	1.4 UJ
Chlorobenzene		1 U	1.1 U	1.1 U	0.82 U	0.84 U	1 U	0.8 U	0.69 U	0.95 U	1 U
Chlorodibromomethane		0.68 U	0.76 U	0.73 U	0.56 U	0.57 U	0.69 U	0.55 U	0.47 U	0.65 U	0.69 U
Chloroethane		1.6 UJ	1.8 UJ	1.8 UJ	1.3 UJ	1.4 UJ	1.7 UJ	1.3 UJ	1.1 UJ	1.6 UJ	1.7 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB280	74SB280	74SB281	74SB281	74SB281	74SB282	74SB282	74SB283	74SB284	74SB284
	Sample ID	74SB280-02	74SB280-05	74SB281-02	74SB281-05D	74SB281-05	74SB282-02	74SB282-05	74SB283-02	74SB284-02	74SB284-05
	Date	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
	Depth Range	3.0-5.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	3.0-5.0	9.0-11.0	3.0-5.0	3.0-5.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>											
Chloroform		0.68 U	0.76 U	0.73 J	0.56 U	0.57 U	0.69 U	0.55 U	0.47 U	0.65 U	0.69 U
Chloromethane		0.97 U	1.1 U	1 J	0.79 U	0.82 U	0.98 U	0.78 U	0.67 U	0.92 U	0.98 U
cis-1,3-Dichloropropene		1.2 UJ	1.3 UJ	1.3 UJ	0.97 UJ	1 UJ	1.2 UJ	0.95 UJ	0.82 UJ	1.1 UJ	1.2 UJ
Dibromomethane		1.6 U	1.8 U	1.8 U	1.3 U	1.4 U	1.7 U	1.3 U	1.1 U	1.6 U	1.7 U
Dichlorobromomethane		1.1 U	1.3 U	1.2 U	0.93 U	0.95 U	1.2 U	0.91 U	0.78 U	1.1 U	1.1 U
Dichlorodifluoromethane		1.2 U	1.4 U	1.3 U	0.99 U	1 U	1.2 U	0.97 U	0.84 U	1.2 U	1.2 U
Ethyl methacrylate		3 U	3.3 U	3.2 U	2.5 U	2.5 U	3.1 U	2.4 U	2.1 U	2.9 U	3 U
Ethylbenzene		1 U	1.1 U	1.1 J	0.84 U	0.86 U	1 U	0.82 U	0.71 U	0.98 U	1 U
Ethylene Dibromide		2 U	2.3 U	2.2 U	1.7 U	1.7 U	2.1 U	1.6 U	1.4 U	2 U	2.1 U
Iodomethane		1.4 U	1.5 U	1.5 J	1.1 U	1.1 U	2.2 J	1.1 U	0.95 U	1.3 U	1.4 U
Isobutyl alcohol		94 R	100 R	100 R	77 R	79 R	96 R	75 R	65 U	90 U	95 U
Methacrylonitrile		33 UJ	36 UJ	35 J	27 UJ	28 UJ	33 UJ	26 UJ	23 U	31 U	33 U
Methyl methacrylate		5 UJ	5.6 UJ	5.4 UJ	4.1 UJ	4.3 UJ	5.1 UJ	4 UJ	3.5 U	4.8 U	5.1 U
Methylene Chloride		1.4 U	1.5 U	1.5 J	1.1 U	1.1 U	1.4 U	1.1 U	0.95 U	1.3 U	1.4 U
Pentachloroethane		3 R	3.3 R	3.2 R	2.5 R	2.5 R	3.1 R	2.4 R	2.1 R	2.9 R	3 R
Propionitrile		29 UJ	32 UJ	31 UJ	23 UJ	24 UJ	29 UJ	23 UJ	20 U	27 U	29 U
Styrene		0.9 U	1 U	0.96 U	0.74 U	0.76 U	0.92 U	0.72 U	0.62 U	0.86 U	0.91 U
Tetrachloroethene		1 U	1.1 U	1.1 U	0.82 U	0.84 U	1 U	0.8 U	0.69 U	0.95 U	1 U
Toluene		1.1 U	1.2 U	1.2 J	0.88 U	0.91 U	1.1 U	0.86 U	0.75 U	1 U	1.1 U
trans-1,2-Dichloroethene		1.3 U	1.5 U	1.4 J	1.1 U	1.1 U	1.3 U	1.1 U	0.92 U	1.3 U	1.3 U
trans-1,3-Dichloropropene		1.2 U	1.3 U	1.3 U	0.97 U	1 U	1.2 U	0.95 U	0.82 U	1.1 U	1.2 U
trans-1,4-Dichloro-2-butene		4.2 UJ	4.7 UJ	4.5 UJ	3.5 UJ	3.6 UJ	4.3 UJ	3.4 UJ	2.9 U	4 U	4.3 U
Trichloroethene		1.4 U	1.5 U	1.5 U	1.1 U	1.1 U	1.4 U	1.1 U	0.95 U	1.3 U	1.4 U
Trichlorofluoromethane		2 U	2.3 U	2.2 U	1.7 U	1.7 U	2.1 U	1.6 U	1.4 U	2 U	2.1 U
Vinyl acetate		2 U	2.3 U	2.2 U	1.7 U	1.7 U	2.1 U	1.6 U	1.4 U	2 U	2.1 U
Vinyl chloride		0.79 U	0.88 U	0.85 U	0.65 U	0.67 U	0.8 U	0.63 U	0.55 U	0.76 U	0.8 U
Xylenes, Total		3.1 U	3.5 U	3.4 J	2.6 U	2.6 U	3.2 U	2.5 U	2.2 U	3 U	3.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB280	74SB280	74SB281	74SB281	74SB281	74SB282	74SB282	74SB283	74SB284	74SB284
Sample ID	74SB280-02	74SB280-05	74SB281-02	74SB281-05D	74SB281-05	74SB282-02	74SB282-05	74SB283-02	74SB284-02	74SB284-05
Date	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
Depth Range	3.0-5.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	3.0-5.0	9.0-11.0	3.0-5.0	3.0-5.0	9.0-11.0

#### LLPAHs (ug/kg)

1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB280	74SB280	74SB281	74SB281	74SB281	74SB282	74SB282	74SB283	74SB284	74SB284
	Sample ID	74SB280-02	74SB280-05	74SB281-02	74SB281-05D	74SB281-05	74SB282-02	74SB282-05	74SB283-02	74SB284-02	74SB284-05
	Date	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008	5/28/2008
	Depth Range	3.0-5.0	9.0-11.0	3.0-5.0	9.0-11.0	9.0-11.0	3.0-5.0	9.0-11.0	3.0-5.0	3.0-5.0	9.0-11.0
<b>Metals (mg/kg)</b>											
Antimony		0.097 UJ	0.096 UJ	0.099 UJ	0.09 UJ	0.085 UJ	0.079 UJ	0.083 UJ	0.073 UJ	0.082 UJ	0.076 UJ
Arsenic		1.5	0.6 J	2	2	2	1.1	1.1	1.7	1	1.1
Barium		90	19	420	150 J	240 J	63	89	59 J	330 J	34 J
Beryllium		0.34	0.22	0.31	0.69	0.75	0.22	0.28	0.3	0.44	0.28
Cadmium		0.04 U	0.04 U	0.052 U	0.09 U	0.09 U	0.036 U	0.046 U	0.049 J	0.054 J	0.17
Chromium		83	52	78	60	54	20	30	54 J	66 J	35 J
Cobalt		18	11	12	64	56	21	21	27	56	23
Copper		120	130	90	150	160	100	130	95	100	98
Lead		3	1.9	8.7	1.1	1.1	0.79	0.89	1.7	3.3	0.83
Mercury		0.0048 U	0.0051 U	0.022 J	0.0051 U	0.0046 U	0.0045 U	0.0044 U	0.011 J	0.0044 U	0.0043 U
Nickel		21	28	18	41	45	19	19	35	39	51
Selenium		1.1	0.15 U	1.5	0.21 U	0.2 U	0.13 U	0.13 U	0.23 J	0.13 U	0.12 U
Silver		0.021 UJ	0.023 J	0.025 J	0.024 J	0.018 UJ	0.036 J	0.022 J	0.056 J	0.033 J	0.051 J
Thallium		0.15 U	0.15 U	0.16 U	0.14 U	0.14 U	0.13 U	0.13 U	0.12 U	0.13 U	0.12 U
Tin		5.2 U	5.1 U	5.3 U	4.8 U	4.5 U	4.2 U	4.5 U	3.9 U	4.4 U	4 U
Vanadium		310	130	380	330	260	190	210	150	170	160
Zinc		39 J	66 J	41 J	96 J	88 J	30 J	36 J	42 J	92 J	62 J
<b>TPH DRO/GRO (mg/kg)</b>											
Diesel Range Organics		1	1.3	1.9	0.96	2.1	1.2	1.3	1.4	1.2	0.77
Gasoline Range Organics		0.082 U	0.11 J	0.087 U	0.064 UJ	0.079 UJ	0.077 U	0.062 U	0.066 U	0.076 U	0.091 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB285	74SB285	74VP05a	74VP05a	74VP08a	74VP08a	74VP9b/JP5Hill	74VP9b/JP5Hill
	Sample ID	74SB285-02	74SB285-05	74VP05a-04	74VP05a-09	74VP08a-07	74VP08a-10	74VP9b/JP5Hill-03	74VP9b/JP5Hill-05
	Date	5/28/2008	5/28/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/16/2008	5/16/2008
	Depth Range	3.0-5.0	9.0-11.0	7.0-9.0	17.0-19.0	13.0-15.0	19.0-21.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane		0.85 U	1 U	0.68 U	0.73 U	1.1 U	0.75 U	38 U	0.86 U
1,1,1-Trichloroethane		0.77 UJ	0.92 UJ	0.62 U	0.66 U	0.97 U	0.68 U	34 U	0.78 U
1,1,2,2-Tetrachloroethane		1.9 U	2.2 U	1.5 U	1.6 U	2.4 U	1.6 U	82 U	1.9 U
1,1,2-Trichloroethane		1.6 U	1.9 U	1.3 U	1.4 U	2 U	1.4 U	71 U	1.6 U
1,1-Dichloroethane		0.66 U	0.8 U	0.53 U	0.57 U	0.84 U	0.59 U	29 U	0.67 U
1,1-Dichloroethene		0.71 U	0.86 U	0.58 U	0.61 U	0.91 U	0.64 U	32 U	0.72 U
1,2,3-Trichloropropane		1.9 U	2.2 U	1.5 U	1.6 U	2.4 U	1.6 U	82 U	1.9 UJ
1,2-Dibromo-3-Chloropropane		3.7 U	4.5 U	3 U	3.2 U	4.7 U	3.3 U	160 U	3.7 UJ
1,2-Dichloroethane		1.3 U	1.6 U	1.1 U	1.1 U	1.7 U	1.2 U	59 U	1.3 U
1,2-Dichloropropane		1.5 U	1.8 U	1.2 U	1.3 U	1.8 U	1.3 U	65 U	1.5 U
2-Butanone (MEK)		3.6 UJ	4.3 UJ	6.8 UJ	3.1 U	4.5 U	3.2 U	190 U	3.6 UJ
2-Chloro-1,3-butadiene		0.75 U	0.91 U	0.61 U	0.65 U	0.96 U	0.67 U	34 U	0.76 U
2-Hexanone		2.8 U	3.3 U	2.2 U	2.4 U	3.5 U	2.5 U	120 U	2.8 UJ
3-Chloro-1-propene		2 U	2.4 U	1.6 U	1.7 U	2.5 U	1.8 U	88 U	2 U
4-Methyl-2-pentanone (MIBK)		3.8 UJ	4.6 UJ	3.1 U	3.3 U	4.9 U	3.4 U	170 U	3.9 UJ
Acetone		9.5 UJ	9.4 UJ	53 J	10 J	12 U	8.5 U	270 J	19 UJ
Acetonitrile		60 U	72 U	48 U	51 U	76 U	53 U	2600 U	60 UJ
Acrolein		25 U	30 U	20 U	22 U	32 R	22 R	1100 U	25 U
Acrylonitrile		30 U	37 U	25 U	26 U	39 U	27 U	1400 U	31 U
Benzene		1 U	1.3 U	0.84 U	0.9 U	1.3 U	0.93 U	47 U	1.1 U
Bromoform		1.5 U	1.8 U	1.2 U	1.3 U	1.8 U	1.3 U	65 U	1.5 U
Bromomethane		2.1 U	2.5 U	1.7 U	1.8 U	2.7 U	1.9 U	94 U	2.1 UJ
Carbon disulfide		0.67 U	0.81 U	2.9 J	0.58 U	0.86 U	0.6 U	30 U	1.5 J
Carbon tetrachloride		1.3 UJ	1.6 UJ	1.1 U	1.1 U	1.7 U	1.2 U	59 U	1.3 U
Chlorobenzene		0.97 U	1.2 U	0.78 U	0.83 U	1.2 U	0.86 U	43 U	0.98 U
Chlorodibromomethane		0.66 U	0.8 U	0.53 U	0.57 U	0.84 U	0.59 U	29 U	0.67 U
Chloroethane		1.6 UJ	1.9 UJ	1.3 U	1.4 U	2 UJ	1.4 UJ	71 UJ	1.6 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB285	74SB285	74VP05a	74VP05a	74VP08a	74VP08a	74VP9b/JP5Hill	74VP9b/JP5Hill
Sample ID	74SB285-02	74SB285-05	74VP05a-04	74VP05a-09	74VP08a-07	74VP08a-10	74VP9b/JP5Hill-03	74VP9b/JP5Hill-05
Date	5/28/2008	5/28/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/16/2008	5/16/2008
Depth Range	3.0-5.0	9.0-11.0	7.0-9.0	17.0-19.0	13.0-15.0	19.0-21.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>								
Chloroform	0.66 U	0.8 U	0.53 U	0.57 U	0.84 U	0.59 U	29 U	0.67 U
Chloromethane	0.94 U	1.1 U	0.76 U	0.81 U	1.2 U	0.84 U	42 U	0.95 U
cis-1,3-Dichloropropene	1.2 UJ	1.4 UJ	0.93 U	0.99 U	1.5 U	1 U	51 U	1.2 U
Dibromomethane	1.6 U	1.9 U	1.3 U	1.4 U	2 U	1.4 U	71 U	1.6 U
Dichlorobromomethane	1.1 U	1.3 U	0.89 U	0.94 U	1.4 U	0.98 U	49 U	1.1 U
Dichlorodifluoromethane	1.2 U	1.4 U	0.95 U	1 U	1.5 U	1 U	52 U	1.2 U
Ethyl methacrylate	2.9 U	3.5 U	2.4 U	2.5 U	3.7 U	2.6 U	130 U	2.9 U
Ethylbenzene	0.99 U	1.2 U	0.8 U	0.85 U	1.3 U	0.88 U	44 U	1 U
Ethylene Dibromide	2 U	2.4 U	1.6 U	1.7 U	2.5 U	1.8 U	88 U	2 U
Iodomethane	1.3 U	1.6 U	1.1 U	1.1 U	1.7 U	1.2 U	59 U	1.3 U
Isobutyl alcohol	91 U	110 U	74 U	78 U	120 R	81 R	4100 U	92 R
Methacrylonitrile	32 U	38 U	26 U	27 U	40 U	28 U	1400 U	32 U
Methyl methacrylate	4.9 U	5.9 U	4 U	4.2 U	6.2 U	4.4 U	220 U	4.9 UJ
Methylene Chloride	1.3 U	1.6 U	1.1 U	1.1 U	1.7 U	1.2 U	59 U	1.3 U
Pentachloroethane	2.9 R	3.5 R	2.4 R	2.5 R	3.7 UJ	2.6 UJ	130 R	2.9 UJ
Propionitrile	28 U	33 U	22 U	24 U	35 U	25 U	1200 U	28 U
Styrene	0.87 U	1.1 U	0.71 U	0.75 U	1.1 U	0.78 U	39 U	0.88 U
Tetrachloroethene	0.97 U	1.2 U	0.78 U	0.83 U	1.2 U	0.86 U	43 U	0.98 U
Toluene	1 U	1.3 U	0.84 U	0.9 U	1.3 U	0.93 U	47 U	1.1 U
trans-1,2-Dichloroethene	1.3 U	1.5 U	1 U	1.1 U	1.6 U	1.1 U	57 U	1.3 U
trans-1,3-Dichloropropene	1.2 U	1.4 U	0.93 U	0.99 U	1.5 U	1 U	51 U	1.2 U
trans-1,4-Dichloro-2-butene	4.1 U	4.9 U	3.3 U	3.5 U	5.2 U	3.7 U	180 U	4.1 U
Trichloroethene	1.3 U	1.6 U	1.1 U	1.1 U	1.7 U	1.2 U	59 U	1.3 U
Trichlorofluoromethane	2 U	2.4 U	1.6 U	1.7 U	2.5 U	1.8 U	88 U	2 U
Vinyl acetate	2 U	2.4 U	1.6 U	1.7 U	2.5 U	1.8 U	88 U	2 U
Vinyl chloride	0.77 U	0.92 U	0.62 U	0.66 U	0.97 U	0.68 U	34 U	0.78 U
Xylenes, Total	3 U	3.7 U	2.5 U	2.6 U	3.9 U	2.7 U	140 U	3.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB285	74SB285	74VP05a	74VP05a	74VP08a	74VP08a	74VP9b/JP5Hill	74VP9b/JP5Hill
	Sample ID	74SB285-02	74SB285-05	74VP05a-04	74VP05a-09	74VP08a-07	74VP08a-10	74VP9b/JP5Hill-03	74VP9b/JP5Hill-05
	Date	5/28/2008	5/28/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/16/2008	5/16/2008
	Depth Range	3.0-5.0	9.0-11.0	7.0-9.0	17.0-19.0	13.0-15.0	19.0-21.0	5.0-7.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>									
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	18 U	1.4 U
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	25 U	1.9 U
Acenaphthene		NA	NA	NA	NA	NA	NA	8.4 U	4.6 J
Acenaphthylene		NA	NA	NA	NA	NA	NA	25 U	2.2 J
Anthracene		NA	NA	NA	NA	NA	NA	25 U	1.9 U
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	25 U	1.9 U
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	9.7 U	0.75 U
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	11 U	0.86 U
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	25 U	1.9 U
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	15 U	1.1 U
Chrysene		NA	NA	NA	NA	NA	NA	9 U	0.69 U
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	8.7 U	0.67 U
Fluoranthene		NA	NA	NA	NA	NA	NA	25 U	1.9 U
Fluorene		NA	NA	NA	NA	NA	NA	11 U	3.1 J
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	18 U	1.4 U
Naphthalene		NA	NA	NA	NA	NA	NA	8.8 U	1.9 J
Phenanthrene		NA	NA	NA	NA	NA	NA	25 U	5 J
Pyrene		NA	NA	NA	NA	NA	NA	25 U	1.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB285	74SB285	74VP05a	74VP05a	74VP08a	74VP08a	74VP9b/JP5Hill	74VP9b/JP5Hill
	Sample ID	74SB285-02	74SB285-05	74VP05a-04	74VP05a-09	74VP08a-07	74VP08a-10	74VP9b/JP5Hill-03	74VP9b/JP5Hill-05
	Date	5/28/2008	5/28/2008	5/16/2008	5/16/2008	5/15/2008	5/15/2008	5/16/2008	5/16/2008
	Depth Range	3.0-5.0	9.0-11.0	7.0-9.0	17.0-19.0	13.0-15.0	19.0-21.0	5.0-7.0	9.0-11.0
<b>Metals (mg/kg)</b>									
Antimony		0.089 UJ	0.087 UJ	0.11 UJ	0.13 UJ	0.098 U	0.083 UJ	0.11 UJ	0.079 UJ
Arsenic		0.79	0.64	1.4	0.96	0.5 J	0.95	0.26 J	0.37 J
Barium		130 J	60 J	120 J	57 J	91 J	48	34 J	43 J
Beryllium		0.26	0.18	0.42	0.33	0.24	0.2	0.12 J	0.29
Cadmium		0.037 U	0.036 U	0.042 J	0.27	0.05 J	0.25	0.1 J	0.097 J
Chromium		43 J	44 J	13 J	12 J	20 J	20	19 J	23 J
Cobalt		20	11	18	19	28 J	27 J	14	17
Copper		110	74	70	72	180 J	140	47	50
Lead		1.8	1.6	15	2.3	1.6	59	2.2	0.85
Mercury		0.0047 U	0.005 U	0.0098 J	0.058	0.0055 UJ	0.0042 U	0.0054 U	0.0041 U
Nickel		33	26	9	6.3	28	26	17	25
Selenium		0.14 U	0.14 U	0.61 J	0.14 U	0.16 U	0.32 J	0.17 U	0.13 U
Silver		0.14 J	0.11 J	0.026 J	0.08 J	0.24 J	0.081 J	0.035 J	0.078 J
Thallium		0.14 U	0.14 U	0.15 U	0.14 U	0.16 U	0.13 U	0.17 U	0.13 U
Tin		4.7 U	4.7 U	5 U	4.7 U	5.2 U	4.2 U	5.6 U	4.2 U
Vanadium		140	110	190	130	280 J	270	85	96
Zinc		70 J	60 J	56	68	150 J	160	54	49
<b>TPH DRO/GRO (mg/kg)</b>									
Diesel Range Organics		0.89	1.3	1.3 U	0.76 U	0.83 U	0.7 U	89	54
Gasoline Range Organics		0.097 U	0.088 U	0.074 U	0.073 U	0.3	0.097 U	0.43	8.3 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74VP10a/JP5Hill	74VP10a/JP5Hill	74VP10b/DFM	74VP10b/DFM	74VP11b/JP5Hill	74VP11b/JP5Hill
Sample ID	74VP10a/JP5Hill-04	74VP10a/JP5Hill-05	74VP10b/DFM-04	74VP10b/DFM-05	74VP11b/JP5Hill-04	74SBVP11b/JP5Hill-05
Date	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>						
1,1,1,2-Tetrachloroethane	0.61 U	24 U	0.67 U	0.7 U	0.65 U	0.74 U
1,1,1-Trichloroethane	0.56 U	22 U	0.61 U	0.63 U	0.59 U	0.67 U
1,1,2,2-Tetrachloroethane	1.3 U	52 U	1.5 U	1.5 U	1.4 U	1.6 U
1,1,2-Trichloroethane	1.1 U	45 U	1.3 U	1.3 U	1.2 U	1.4 U
1,1-Dichloroethane	0.48 U	19 U	0.53 U	0.54 U	0.51 U	0.58 U
1,1-Dichloroethene	0.52 U	20 U	0.57 U	0.59 U	0.55 U	0.62 U
1,2,3-Trichloropropane	1.3 U	52 U	1.5 U	1.5 U	1.4 U	1.6 U
1,2-Dibromo-3-Chloropropane	2.7 U	100 U	2.9 U	3.1 U	2.8 U	3.2 U
1,2-Dichloroethane	0.96 U	37 U	1.1 U	1.1 U	1 U	1.2 U
1,2-Dichloropropane	1.1 U	41 U	1.2 U	1.2 U	1.1 U	1.3 U
2-Butanone (MEK)	2.6 U	130 UJ	19 UJ	7.7 UJ	6.7 UJ	3.1 UJ
2-Chloro-1,3-butadiene	0.55 U	21 U	0.6 U	0.62 U	0.58 U	0.66 U
2-Hexanone	2 UJ	78 U	2.2 UJ	2.3 UJ	2.1 UJ	2.4 UJ
3-Chloro-1-propene	1.4 U	56 U	1.6 U	1.6 U	1.5 U	1.7 U
4-Methyl-2-pentanone (MIBK)	2.8 U	110 U	3 UJ	3.2 UJ	3 UJ	3.4 UJ
Acetone	52 J	160 U	100	58	63	22 J
Acetonitrile	43 U	1700 U	47 U	49 U	46 U	52 U
Acrolein	18 U	710 U	20 U	21 U	19 U	22 U
Acrylonitrile	22 U	850 U	24 UJ	25 UJ	23 UJ	27 UJ
Benzene	0.76 U	29 U	0.83 U	0.86 U	0.8 U	0.91 U
Bromoform	1.1 U	41 U	1.2 U	1.2 U	1.1 U	1.3 U
Bromomethane	1.5 U	59 U	1.7 U	1.7 U	1.6 U	1.8 U
Carbon disulfide	0.98 J	19 U	0.54 U	0.56 U	0.52 U	0.59 U
Carbon tetrachloride	0.96 U	37 U	1.1 U	1.1 U	1 U	1.2 U
Chlorobenzene	0.7 U	27 U	0.77 U	0.8 U	0.74 U	0.84 U
Chlorodibromomethane	0.48 U	19 U	0.53 U	0.54 U	0.51 U	0.58 U
Chloroethane	1.1 U	45 UJ	1.3 U	1.3 U	1.2 U	1.4 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP10a/JP5Hill	74VP10a/JP5Hill	74VP10b/DFM	74VP10b/DFM	74VP11b/JP5Hill	74VP11b/JP5Hill
	Sample ID	74VP10a/JP5Hill-04	74VP10a/JP5Hill-05	74VP10b/DFM-04	74VP10b/DFM-05	74VP11b/JP5Hill-04	74SBVP11b/JP5Hill-05
	Date	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Chloroform		0.48 U	19 U	0.53 U	0.54 U	0.51 U	0.58 U
Chloromethane		0.68 U	26 U	0.75 U	0.77 U	0.72 U	0.82 U
cis-1,3-Dichloropropene		0.83 U	32 U	0.91 U	0.95 U	0.89 U	1 U
Dibromomethane		1.1 U	45 U	1.3 U	1.3 U	1.2 U	1.4 U
Dichlorobromomethane		0.79 U	31 U	0.87 U	0.9 U	0.84 U	0.96 U
Dichlorodifluoromethane		0.85 U	33 U	0.94 U	0.97 U	0.91 U	1 U
Ethyl methacrylate		2.1 U	82 U	2.3 UJ	2.4 UJ	2.2 UJ	2.5 UJ
Ethylbenzene		0.72 U	28 U	0.79 U	0.82 U	0.76 U	0.87 U
Ethylene Dibromide		1.4 U	56 U	1.6 U	1.6 U	1.5 U	1.7 U
Iodomethane		0.96 U	37 U	1.1 U	1.1 U	2.4 J	1.2 U
Isobutyl alcohol		66 U	2700 J	73 U	75 U	70 U	80 U
Methacrylonitrile		23 U	890 U	25 U	26 U	24 U	28 U
Methyl methacrylate		3.5 U	140 U	3.9 U	4 U	3.8 U	4.3 U
Methylene Chloride		0.96 U	37 U	1.1 U	1.1 U	1 U	1.2 U
Pentachloroethane		2.1 R	82 R	2.3 R	2.4 R	2.2 R	2.5 R
Propionitrile		20 U	780 U	22 U	23 U	21 U	24 U
Styrene		0.63 U	24 U	0.69 U	0.72 U	0.67 U	0.76 U
Tetrachloroethene		0.7 U	27 U	0.77 U	0.8 U	0.74 U	0.84 U
Toluene		0.76 U	29 U	0.83 U	0.86 U	0.8 U	0.91 U
trans-1,2-Dichloroethene		0.93 U	36 U	1 U	1.1 U	0.99 U	1.1 U
trans-1,3-Dichloropropene		0.83 U	32 U	0.91 U	0.95 U	0.89 U	1 U
trans-1,4-Dichloro-2-butene		3 U	120 U	3.3 UJ	3.4 UJ	3.2 UJ	3.6 UJ
Trichloroethene		0.96 U	37 U	1.1 U	1.1 U	1 U	1.2 U
Trichlorofluoromethane		1.4 U	56 U	1.6 U	1.6 U	1.5 U	1.7 U
Vinyl acetate		1.4 U	56 U	2.4 J	1.6 U	1.5 U	1.7 U
Vinyl chloride		0.56 U	22 U	0.61 U	0.63 U	0.59 U	0.67 U
Xylenes, Total		2.2 U	85 U	2.4 U	2.5 U	2.3 U	2.7 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP10a/JP5Hill	74VP10a/JP5Hill	74VP10b/DFM	74VP10b/DFM	74VP11b/JP5Hill	74VP11b/JP5Hill
	Sample ID	74VP10a/JP5Hill-04	74VP10a/JP5Hill-05	74VP10b/DFM-04	74VP10b/DFM-05	74VP11b/JP5Hill-04	74SBVP11b/JP5Hill-05
	Date	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>							
1-Methylnaphthalene		14 U	14 U	1.3 U	1.4 U	NA	NA
2-Methylnaphthalene		20 U	20 U	1.9 U	2 U	NA	NA
Acenaphthene		6.8 U	6.7 U	10	0.69 U	NA	NA
Acenaphthylene		20 U	20 U	1.9 U	2 U	NA	NA
Anthracene		20 U	20 U	44	2 U	NA	NA
Benzo[a]anthracene		20 U	20 U	53	2.7 J	NA	NA
Benzo[a]pyrene		7.9 U	7.7 U	29	0.79 U	NA	NA
Benzo[b]fluoranthene		9.1 U	8.9 U	57	0.91 U	NA	NA
Benzo[g,h,i]perylene		63 J	20 U	12	2 U	NA	NA
Benzo[k]fluoranthene		12 U	12 U	1.1 U	1.2 U	NA	NA
Chrysene		7.3 U	7.1 U	52	3 J	NA	NA
Dibenz(a,h)anthracene		7 U	6.9 U	5.3 J	0.71 U	NA	NA
Fluoranthene		44 J	230	140	7.6 J	NA	NA
Fluorene		9.2 U	9 U	16	0.93 U	NA	NA
Indeno[1,2,3-cd]pyrene		14 U	14 U	12	1.4 U	NA	NA
Naphthalene		7.2 U	7 U	0.89 J	0.72 U	NA	NA
Phenanthrene		20 U	20 U	1.9 J	2 U	NA	NA
Pyrene		69 J	220	110	6.9 J	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP10a/JP5Hill	74VP10a/JP5Hill	74VP10b/DFM	74VP10b/DFM	74VP11b/JP5Hill	74VP11b/JP5Hill
	Sample ID	74VP10a/JP5Hill-04	74VP10a/JP5Hill-05	74VP10b/DFM-04	74VP10b/DFM-05	74VP11b/JP5Hill-04	74SBVP11b/JP5Hill-05
	Date	5/16/2008	5/16/2008	5/17/2008	5/17/2008	5/17/2008	5/17/2008
	Depth Range	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Metals (mg/kg)</b>							
Antimony		0.08 UJ	0.26 UJ	0.081 J	0.11 J	0.084 U	0.082 U
Arsenic		1.1	1.4	1	0.83	1.3	1.2
Barium		83 J	82	310	36	220	110
Beryllium		0.26	0.18	0.43	0.42	0.48	0.33
Cadmium		0.14	0.43	0.06 J	0.073 J	0.8	0.42
Chromium		36 J	34	38	63	78	100
Cobalt		26	27 J	120 J	37 J	72 J	48 J
Copper		76	110	140	90	97	100
Lead		8	47 J	2	2	9.5	27
Mercury		0.01 J	0.0046 R	0.0044 J	0.0043 U	0.0074 J	0.0063 J
Nickel		26	25	30	39	69	52
Selenium		0.2 J	0.13 U	0.17 J	0.14 U	0.13 U	0.13 U
Silver		0.05 J	0.046 J	0.037 J	0.054 J	0.042 J	0.034 J
Thallium		0.13 U	0.13 U	0.12 U	0.14 U	0.13 U	0.13 U
Tin		4.2 U	4.4 U	4.1 U	4.6 U	4.5 U	4.4 U
Vanadium		150	160	140	220	120	130
Zinc		67	73	59 J	110 J	110 J	100 J
<b>TPH DRO/GRO (mg/kg)</b>							
Diesel Range Organics		370	240	3.1 U	4	1.5 U	1.4 U
Gasoline Range Organics		1	4.9	0.27	0.15 J	0.06 U	0.075 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP19b	74VP19b	74VP20	74VP20	74VP1982	74VP1982
	Sample ID	74VP19b-03	74VP19b-05	74VP20-05	74VP20-06	74VP1982-03	74VP1982-05
	Date	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	5.0-7.0	9.0-11.0	9.0-11.0	11.0-13.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>							
1,1,1,2-Tetrachloroethane		27 U	27 U	0.71 U	0.85 U	28 UJ	0.76 U
1,1,1-Trichloroethane		25 U	24 U	0.65 U	0.77 U	25 UJ	0.69 U
1,1,2,2-Tetrachloroethane		60 U	59 U	1.6 U	1.9 U	61 UJ	1.7 U
1,1,2-Trichloroethane		51 U	51 U	1.3 U	1.6 U	52 UJ	1.4 U
1,1-Dichloroethane		21 U	21 U	0.56 U	0.67 U	22 UJ	0.6 U
1,1-Dichloroethene		23 U	23 U	0.6 U	0.72 U	24 UJ	0.65 U
1,2,3-Trichloropropane		60 U	59 U	1.6 UJ	1.9 UJ	61 UJ	1.7 UJ
1,2-Dibromo-3-Chloropropane		120 U	120 U	3.1 U	3.7 U	120 UJ	3.3 U
1,2-Dichloroethane		43 U	42 U	1.1 U	1.3 U	44 UJ	1.2 U
1,2-Dichloropropane		47 U	46 U	1.2 U	1.5 U	48 UJ	1.3 U
2-Butanone (MEK)		120 U	130 U	6.2 UJ	3.6 UJ	320 UJ	15 UJ
2-Chloro-1,3-butadiene		24 U	24 U	0.64 U	0.76 U	25 UJ	0.68 U
2-Hexanone		90 U	89 U	2.3 UJ	2.8 UJ	92 UJ	2.5 UJ
3-Chloro-1-propene		64 U	63 U	1.7 U	2 U	65 UJ	1.8 U
4-Methyl-2-pentanone (MIBK)		120 U	120 U	3.2 UJ	3.9 UJ	130 UJ	3.5 UJ
Acetone		190 U	190 U	55 J	43 J	190 UJ	66 J
Acetonitrile		1900 U	1900 U	50 UJ	60 UJ	2000 UJ	54 UJ
Acrolein		810 U	800 U	21 UJ	25 UJ	830 UJ	23 UJ
Acrylonitrile		980 U	970 U	26 UJ	31 UJ	1000 UJ	27 UJ
Benzene		34 U	33 U	0.88 U	3.7 J	34 UJ	2.5 J
Bromoform		47 U	46 U	1.2 U	1.5 U	48 UJ	1.3 U
Bromomethane		68 U	68 U	1.8 UJ	2.1 UJ	70 UJ	1.9 UJ
Carbon disulfide		22 U	22 U	1.2 J	0.91 J	22 UJ	0.61 U
Carbon tetrachloride		43 U	42 U	1.1 U	1.3 U	44 UJ	1.2 U
Chlorobenzene		31 U	31 U	0.82 U	0.97 U	32 UJ	0.87 U
Chlorodibromomethane		21 U	21 U	0.56 U	0.67 U	22 UJ	0.6 U
Chloroethane		51 UJ	51 UJ	1.3 U	1.6 U	52 UJ	1.4 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP19b	74VP19b	74VP20	74VP20	74VP1982	74VP1982
	Sample ID	74VP19b-03	74VP19b-05	74VP20-05	74VP20-06	74VP1982-03	74VP1982-05
	Date	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	5.0-7.0	9.0-11.0	9.0-11.0	11.0-13.0	5.0-7.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Chloroform		21 U	21 U	0.56 U	0.67 U	22 UJ	0.6 U
Chloromethane		30 U	30 U	0.79 U	0.95 U	31 UJ	0.85 U
cis-1,3-Dichloropropene		37 U	37 U	0.97 U	1.2 U	38 UJ	1 U
Dibromomethane		51 U	51 U	1.3 U	1.6 U	52 UJ	1.4 U
Dichlorobromomethane		35 U	35 U	0.93 U	1.1 U	36 UJ	0.99 U
Dichlorodifluoromethane		38 U	38 U	0.99 U	1.2 U	39 UJ	1.1 U
Ethyl methacrylate		94 U	93 U	2.5 U	2.9 U	96 UJ	2.6 U
Ethylbenzene		32 U	32 U	3 J	6 J	33 UJ	0.9 U
Ethylene Dibromide		64 U	63 U	1.7 U	2 U	65 UJ	1.8 U
Iodomethane		43 U	42 U	2.5 J	1.3 U	44 UJ	1.2 U
Isobutyl alcohol		2900 UJ	2900 U	77 R	92 R	3000 UJ	82 R
Methacrylonitrile		1000 U	1000 U	27 U	32 U	1000 UJ	29 U
Methyl methacrylate		160 U	160 U	4.1 U	4.9 U	160 UJ	4.4 U
Methylene Chloride		43 U	42 U	1.1 U	1.3 U	44 UJ	1.2 U
Pentachloroethane		94 R	93 R	2.5 UJ	2.9 UJ	96 R	2.6 UJ
Propionitrile		900 UJ	890 U	23 U	28 U	920 UJ	25 U
Styrene		28 U	28 U	0.74 U	0.88 U	29 UJ	0.79 U
Tetrachloroethene		31 U	31 U	0.82 U	0.97 U	32 UJ	0.87 U
Toluene		34 U	33 U	0.88 U	1.1 U	38 UJ	0.94 U
trans-1,2-Dichloroethene		41 U	41 U	1.1 U	1.3 U	42 UJ	1.2 U
trans-1,3-Dichloropropene		37 U	37 U	0.97 U	1.2 U	38 UJ	1 U
trans-1,4-Dichloro-2-butene		130 U	130 U	3.5 U	4.1 U	140 UJ	3.7 U
Trichloroethene		43 U	42 U	1.1 U	1.3 U	44 UJ	1.2 U
Trichlorofluoromethane		64 U	63 U	1.7 U	2 U	65 UJ	1.8 U
Vinyl acetate		64 U	63 U	1.7 U	2 U	65 UJ	1.8 U
Vinyl chloride		25 U	24 U	0.65 U	0.77 U	25 UJ	0.69 U
Xylenes, Total		98 U	97 U	9 J	3.1 U	100 UJ	2.7 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP19b	74VP19b	74VP20	74VP20	74VP1982	74VP1982
	Sample ID	74VP19b-03	74VP19b-05	74VP20-05	74VP20-06	74VP1982-03	74VP1982-05
	Date	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	5.0-7.0	9.0-11.0	9.0-11.0	11.0-13.0	5.0-7.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>							
1-Methylnaphthalene		17 U	16 U	NA	680	9.4	NA
2-Methylnaphthalene		24 U	22 U	NA	670	10	NA
Acenaphthene		7.9 U	7.4 U	NA	8.5 U	0.74 U	NA
Acenaphthylene		24 U	22 U	NA	25 U	2.2 U	NA
Anthracene		24 U	22 U	NA	25 U	2.2 U	NA
Benzo[a]anthracene		130 J	22 U	NA	25 U	3.4 J	NA
Benzo[a]pyrene		9.2 U	8.5 U	NA	9.8 U	1.7 J	NA
Benzo[b]fluoranthene		11 U	9.8 U	NA	11 U	2 J	NA
Benzo[g,h,i]perylene		100 J	22 U	NA	25 U	2.2 U	NA
Benzo[k]fluoranthene		14 U	13 U	NA	15 U	1.3 U	NA
Chrysene		270 J	7.9 U	NA	9.1 U	5.1 J	NA
Dibenz(a,h)anthracene		8.2 U	7.6 U	NA	8.8 U	0.76 U	NA
Fluoranthene		360 J	22 U	NA	25 U	13	NA
Fluorene		2700 J	10 U	NA	29 J	29	NA
Indeno[1,2,3-cd]pyrene		17 U	16 U	NA	18 U	1.6 U	NA
Naphthalene		8.3 U	7.8 U	NA	200	0.78 U	NA
Phenanthrene		7900 J	22 U	NA	32 J	2.2 U	NA
Pyrene		650 J	200	NA	25 U	12	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP19b	74VP19b	74VP20	74VP20	74VP1982	74VP1982
	Sample ID	74VP19b-03	74VP19b-05	74VP20-05	74VP20-06	74VP1982-03	74VP1982-05
	Date	5/18/2008	5/18/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008
	Depth Range	5.0-7.0	9.0-11.0	9.0-11.0	11.0-13.0	5.0-7.0	9.0-11.0
<b>Metals (mg/kg)</b>							
Antimony		0.22 J	0.2 J	0.26 J	0.32 J	0.26 J	0.28 J
Arsenic		2.3	2.1	2.5	2.5	9.9	3
Barium		120 J	110 J	86	79	210	100
Beryllium		0.33	0.51	0.51	0.57	0.58	0.55
Cadmium		0.21	0.061 J	0.22	0.35	0.44	0.21
Chromium		49	60	180	170	29	140
Cobalt		43 J	37 J	39	34	42	37
Copper		110 J	120 J	59 J	65 J	70 J	78 J
Lead		8.4	8.1	6.7	8.1	11	6.5
Mercury		0.049	0.0049 J	0.081 J	0.27 J	0.013 J	0.072 J
Nickel		23 J	17 J	29	37	12	30
Selenium		0.81	1.6	1.5	1.4	1.3	1.1
Silver		0.082 J	0.025 J	1.2	1.9	0.033 J	0.32
Thallium		0.15 U	0.15 U	0.15 U	0.16 U	0.15 U	0.16 U
Tin		5 U	4.9 U	5 U	5.4 U	4.8 U	5.4 U
Vanadium		200	430	270	310	240	250
Zinc		82 J	59 J	36 J	38 J	55 J	59 J
<b>TPH DRO/GRO (mg/kg)</b>							
Diesel Range Organics		7400 J	280	6	190	270	20
Gasoline Range Organics		24 J	1.3 J	0.34 J	36 J	250 J	0.67

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB213	74SB215	74SB216	74SB216	74SB216	74SB218	74SB218	74SB221
Sample ID	74SB213-03	74SB215-03	74SB216-03	74SB216-05	74SB216-05D	74SB218-03	74SB218-05	74SB221-02
Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008
Depth Range	5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	9.0-11.0	5.0-7.0	9.0-11.0	3.0-5.0
<b>Volatile Organic Compounds (ug/kg)</b>								
1,1,1,2-Tetrachloroethane	0.72 U	0.74 U	36 U	0.79 U	0.88 U	25 U	32 U	0.59 U
1,1,1-Trichloroethane	0.65 U	0.67 U	33 U	0.72 U	0.79 U	23 U	29 U	0.54 U
1,1,2,2-Tetrachloroethane	1.6 U	1.6 U	79 U	1.7 U	1.9 U	54 U	71 U	1.3 U
1,1,2-Trichloroethane	1.3 U	1.4 U	68 U	1.5 U	1.6 U	47 U	60 U	1.1 U
1,1-Dichloroethane	0.56 U	0.58 U	28 U	0.62 U	0.68 U	19 U	25 U	0.46 U
1,1-Dichloroethene	0.61 U	0.63 U	30 U	0.67 U	0.74 U	21 U	27 U	0.5 U
1,2,3-Trichloropropane	1.6 UJ	1.6 UJ	79 U	1.7 UJ	1.9 UJ	54 U	71 U	1.3 UJ
1,2-Dibromo-3-Chloropropane	3.1 U	3.2 U	160 U	3.5 U	3.8 U	110 U	140 U	2.6 U
1,2-Dichloroethane	1.1 U	1.2 U	56 U	1.2 U	1.4 U	39 U	50 U	0.92 U
1,2-Dichloropropane	1.2 U	1.3 U	62 U	1.4 U	1.5 U	43 U	55 U	1 U
2-Butanone (MEK)	6.8 UJ	5.4 UJ	150 U	3.3 UJ	3.7 UJ	100 UJ	140 UJ	14 UJ
2-Chloro-1,3-butadiene	0.64 U	0.66 U	32 U	0.7 U	0.78 U	22 U	29 U	0.53 U
2-Hexanone	2.4 UJ	2.4 UJ	120 UJ	2.6 UJ	2.9 UJ	82 UJ	110 UJ	1.9 UJ
3-Chloro-1-propene	1.7 U	1.7 U	84 U	1.9 U	2.1 U	58 U	76 U	1.4 U
4-Methyl-2-pentanone (MIBK)	3.3 UJ	3.4 UJ	160 UJ	3.6 UJ	4 UJ	110 U	150 U	2.7 UJ
Acetone	49 J	48 J	250 U	30 J	37 J	170 UJ	220 UJ	75 J
Acetonitrile	51 UJ	52 UJ	2500 U	56 UJ	62 UJ	1700 U	2300 U	42 UJ
Acrolein	21 UJ	22 UJ	1100 UJ	23 UJ	26 UJ	740 R	960 R	18 UJ
Acrylonitrile	26 UJ	27 UJ	1300 U	28 UJ	31 UJ	890 UJ	1200 UJ	21 UJ
Benzene	1 J	0.92 U	44 U	0.98 U	1.1 U	31 U	40 U	0.73 U
Bromoform	1.2 U	1.3 U	62 U	1.4 U	1.5 U	43 U	55 U	1 U
Bromomethane	1.8 UJ	1.9 UJ	90 U	2 UJ	2.2 UJ	62 U	81 U	1.5 UJ
Carbon disulfide	0.57 U	2.1 J	29 U	1.3 J	1.2 J	20 U	26 U	0.57 J
Carbon tetrachloride	1.1 U	1.2 U	56 U	1.2 U	1.4 U	39 U	50 U	0.92 U
Chlorobenzene	0.82 U	0.85 U	41 U	0.9 U	1 U	28 U	37 U	0.67 U
Chlorodibromomethane	0.56 U	0.58 U	28 U	0.62 U	0.68 U	19 U	25 U	0.46 U
Chloroethane	1.3 U	1.4 U	68 UJ	1.5 U	1.6 U	47 UJ	60 UJ	1.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB213	74SB215	74SB216	74SB216	74SB216	74SB218	74SB218	74SB221
	Sample ID	74SB213-03	74SB215-03	74SB216-03	74SB216-05	74SB216-05D	74SB218-03	74SB218-05	74SB221-02
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008
	Depth Range	5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	9.0-11.0	5.0-7.0	9.0-11.0	3.0-5.0
<b>Volatile Organic Compounds (ug/kg)</b>									
Chloroform		0.56 U	0.58 U	28 U	0.62 U	0.68 U	19 U	25 U	0.46 U
Chloromethane		0.8 U	0.82 U	40 U	0.88 U	0.97 U	28 U	36 U	0.86 J
cis-1,3-Dichloropropene		0.98 U	1 U	49 U	1.1 U	1.2 U	34 U	44 U	0.8 U
Dibromomethane		1.3 U	1.4 U	68 U	1.5 U	1.6 U	47 U	60 U	1.1 U
Dichlorobromomethane		0.93 U	0.96 U	47 U	1 U	1.1 U	32 U	42 U	0.77 U
Dichlorodifluoromethane		1 U	1 U	50 U	1.1 U	1.2 U	35 U	45 U	0.82 U
Ethyl methacrylate		2.5 U	2.6 U	120 U	2.7 U	3 U	85 U	110 U	2 U
Ethylbenzene		0.84 U	0.87 U	42 U	0.93 U	1 U	29 U	38 U	0.69 U
Ethylene Dibromide		1.7 U	1.7 U	84 U	1.9 U	2.1 U	58 U	76 U	1.4 U
Iodomethane		1.1 U	1.2 U	56 U	1.2 U	1.4 U	39 U	50 U	5.5
Isobutyl alcohol		78 R	80 R	3900 U	85 R	94 R	2700 U	3500 U	64 R
Methacrylonitrile		27 U	28 U	1400 U	30 U	33 U	930 U	1200 U	22 U
Methyl methacrylate		4.2 U	4.3 U	210 UJ	4.6 U	5.1 U	140 U	190 U	3.4 U
Methylene Chloride		1.1 U	1.2 U	56 U	1.2 U	1.4 U	39 U	50 U	0.92 U
Pentachloroethane		2.5 UJ	2.6 UJ	120 R	2.7 UJ	3 UJ	85 R	110 R	2 UJ
Propionitrile		24 U	24 U	1200 U	26 U	29 U	820 U	1100 U	19 U
Styrene		0.74 U	0.77 U	37 U	0.81 U	0.9 U	26 U	33 U	0.61 U
Tetrachloroethene		0.82 U	0.85 U	41 U	0.9 U	1 U	28 U	37 U	0.67 U
Toluene		0.89 U	0.92 U	69 U	0.98 U	1.1 U	51 U	61 U	0.73 U
trans-1,2-Dichloroethene		1.1 U	1.1 U	55 U	1.2 U	1.3 U	38 U	49 U	0.9 U
trans-1,3-Dichloropropene		0.98 U	1 U	49 U	1.1 U	1.2 U	34 U	44 U	0.8 U
trans-1,4-Dichloro-2-butene		3.5 U	3.6 U	170 U	3.8 U	4.2 U	120 U	160 U	2.9 U
Trichloroethene		1.1 U	1.2 U	56 U	1.2 U	1.4 U	39 U	50 U	0.92 U
Trichlorofluoromethane		1.7 U	1.7 U	84 U	1.9 U	2.1 U	58 U	76 U	1.4 U
Vinyl acetate		1.7 U	1.7 U	84 U	1.9 U	2.1 U	58 U	76 U	1.4 U
Vinyl chloride		0.65 U	0.67 U	33 U	0.72 U	0.79 U	23 U	29 U	0.54 U
Xylenes, Total		2.6 U	2.7 U	320 J	2.8 U	3.1 U	89 U	120 U	2.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB213	74SB215	74SB216	74SB216	74SB216	74SB218	74SB218	74SB221
	Sample ID	74SB213-03	74SB215-03	74SB216-03	74SB216-05	74SB216-05D	74SB218-03	74SB218-05	74SB221-02
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008
	Depth Range	5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	9.0-11.0	5.0-7.0	9.0-11.0	3.0-5.0
<b>LLPAHs (ug/kg)</b>									
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	14 U
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	20 U
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	6.6 U
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	20 U
Anthracene		NA	NA	NA	NA	NA	NA	NA	20 U
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	20 U
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	7.7 U
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	15 J
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	20 U
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	12 U
Chrysene		NA	NA	NA	NA	NA	NA	NA	7.7 J
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	6.9 U
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	20 U
Fluorene		NA	NA	NA	NA	NA	NA	NA	9 U
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	14 U
Naphthalene		NA	NA	NA	NA	NA	NA	NA	7 U
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	20 U
Pyrene		NA	NA	NA	NA	NA	NA	NA	20 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB213	74SB215	74SB216	74SB216	74SB216	74SB218	74SB218	74SB221
	Sample ID	74SB213-03	74SB215-03	74SB216-03	74SB216-05	74SB216-05D	74SB218-03	74SB218-05	74SB221-02
	Date	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/19/2008	5/20/2008
	Depth Range	5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	9.0-11.0	5.0-7.0	9.0-11.0	3.0-5.0
<b>Metals (mg/kg)</b>									
Antimony		0.39 J	0.26 J	0.5 J	0.35 J	0.4 J	0.091 J	0.09 U	0.31 J
Arsenic		1.9	1.9	2.5	2.4	2.4	1.2	0.62	2.7
Barium		70	190	81	68	73	24	28	51
Beryllium		0.32	0.49	0.38	0.7	0.8	0.19	0.22	0.19
Cadmium		0.096 J	0.047 J	0.039 U	0.041 J	0.049 J	0.048 J	0.056 J	0.23
Chromium		16	110	200	160	200	8.5	29	25
Cobalt		18	15	12	53	61	23	21	19
Copper		56 J	74 J	69 J	87 J	98 J	48 J	5.9 J	83 J
Lead		2.8	3.6	9.2	4.7	5.2	1.4	1	3.8
Mercury		0.0072 J	0.014 J	0.015 J	0.022 J	0.042 J	0.0038 U	0.005 U	0.0069 J
Nickel		14	20	23	36	40	10	9.5	12
Selenium		0.16 J	1.2	1.6	1.3	1.5	0.13 U	0.14 U	0.21 J
Silver		0.034 J	0.02 U	0.034 J	0.021 J	0.029 J	0.017 U	0.041 J	0.054 J
Thallium		0.12 U	0.15 U	0.15 U	0.15 U	0.16 U	0.13 U	0.14 U	0.14 U
Tin		4 U	4.9 U	5.1 U	5.1 U	5.3 U	4.4 U	4.8 U	4.5 U
Vanadium		110	240	250	250	300	270	160	110
Zinc		50 J	46 J	44 J	53 J	61 J	88 J	51 J	69 J
<b>TPH DRO/GRO (mg/kg)</b>									
Diesel Range Organics		8.8	320	2900	2300	2400	260	140	1400 J
Gasoline Range Organics		0.054 U	0.072 U	29	0.46	0.42	81	45	0.08 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB221	74SB222	74SB223	74SB224	74SB224	74SB225	74SB225	74SB231
Sample ID	74SB221-02D	74SB222-03	74SB223-03	74SB224-04	74SB224-05	74SB225-04	74SB225-05	74SB231-04
Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>								
1,1,1,2-Tetrachloroethane	22 U	0.85 U	27 U	23 U	0.76 U	0.67 U	0.65 U	0.93 U
1,1,1-Trichloroethane	20 U	0.77 U	24 U	21 U	0.68 U	0.61 U	0.59 U	0.84 U
1,1,2,2-Tetrachloroethane	47 U	1.9 U	58 U	50 U	1.7 U	1.5 U	1.4 U	2 U
1,1,2-Trichloroethane	41 U	1.6 U	50 U	43 U	1.4 U	1.3 U	1.2 U	1.7 U
1,1-Dichloroethane	17 U	0.66 U	21 U	18 U	0.59 U	0.52 U	0.51 U	0.73 U
1,1-Dichloroethene	18 U	0.72 U	22 U	19 U	0.64 U	0.56 U	0.55 U	0.79 U
1,2,3-Trichloropropane	47 U	1.9 U	58 U	50 U	1.7 U	1.5 U	1.4 U	2 UJ
1,2-Dibromo-3-Chloropropane	95 U	3.7 UJ	120 U	100 U	3.3 UJ	2.9 UJ	2.8 UJ	4.1 UJ
1,2-Dichloroethane	34 U	1.3 U	41 U	36 UJ	1.2 U	1 U	1 U	1.5 U
1,2-Dichloropropane	37 U	1.5 U	46 U	39 U	1.3 U	1.1 U	1.1 U	1.6 U
2-Butanone (MEK)	91 UJ	13 UJ	160 UJ	96 U	6.5 UJ	4.6 UJ	2.9 UJ	4.5 UJ
2-Chloro-1,3-butadiene	19 U	0.76 U	24 U	20 U	0.67 U	0.6 U	0.58 U	0.83 U
2-Hexanone	71 UJ	2.8 UJ	87 UJ	75 UJ	2.5 UJ	2.2 UJ	2.1 UJ	3.1 UJ
3-Chloro-1-propene	51 U	2 UJ	62 U	54 U	1.8 UJ	1.6 UJ	1.5 UJ	2.2 UJ
4-Methyl-2-pentanone (MIBK)	98 U	3.8 U	120 U	100 U	3.4 U	3 U	2.9 U	4.2 UJ
Acetone	150 UJ	40 UJ	180 UJ	160 UJ	47 UJ	34 UJ	24 UJ	34 U
Acetonitrile	1500 U	60 UJ	1900 U	1600 U	53 UJ	47 UJ	46 UJ	65 UJ
Acrolein	640 R	25 UJ	790 R	680 UJ	22 UJ	20 UJ	19 UJ	28 R
Acrylonitrile	780 UJ	31 U	950 UJ	820 UJ	27 U	24 U	23 U	33 UJ
Benzene	27 U	1.1 J	33 U	28 U	0.93 U	0.83 U	0.8 U	1.1 U
Bromoform	37 U	1.5 U	46 U	39 U	1.3 U	1.1 U	1.1 U	1.6 U
Bromomethane	54 U	2.1 UJ	66 U	57 U	1.9 UJ	1.7 UJ	1.6 UJ	2.3 UJ
Carbon disulfide	17 U	0.68 U	21 U	18 U	0.6 U	0.53 U	0.52 U	0.74 U
Carbon tetrachloride	34 U	1.3 U	41 U	36 U	1.2 U	1 U	1 U	1.5 U
Chlorobenzene	25 U	0.97 U	30 U	26 U	0.86 U	0.76 U	0.74 U	1.1 U
Chlorodibromomethane	17 U	0.66 U	21 U	18 U	0.59 U	0.52 U	0.51 U	0.73 U
Chloroethane	41 UJ	1.6 UJ	50 U	43 U	1.4 U	1.3 U	1.2 U	1.7 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB221	74SB222	74SB223	74SB224	74SB224	74SB225	74SB225	74SB231
Sample ID	74SB221-02D	74SB222-03	74SB223-03	74SB224-04	74SB224-05	74SB225-04	74SB225-05	74SB231-04
Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>								
Chloroform	17 U	0.66 U	21 U	18 U	0.59 U	0.52 U	0.51 U	1 U
Chloromethane	24 U	0.94 U	29 U	25 U	0.84 U	0.74 U	0.72 U	1 U
cis-1,3-Dichloropropene	29 U	1.2 U	36 U	31 U	1 U	0.91 U	0.88 U	1.3 U
Dibromomethane	41 U	1.6 U	50 U	43 U	1.4 U	1.3 U	1.2 U	1.7 U
Dichlorobromomethane	28 U	1.1 U	34 U	30 U	0.98 U	0.87 U	0.84 U	1.2 U
Dichlorodifluoromethane	30 U	1.2 U	37 U	32 U	1.1 U	0.93 U	0.9 U	1.3 U
Ethyl methacrylate	75 U	2.9 UJ	91 U	79 U	2.6 UJ	2.3 UJ	2.2 UJ	3.2 U
Ethylbenzene	25 U	0.99 U	31 U	30 J	0.89 U	0.78 U	0.76 U	1.1 U
Ethylene Dibromide	51 U	2 U	62 U	54 U	1.8 U	1.6 U	1.5 U	2.2 U
Iodomethane	34 U	1.3 U	41 U	36 U	1.2 U	1 U	1 U	1.5 U
Isobutyl alcohol	2300 U	92 R	2900 U	2500 U	81 R	72 R	70 R	100 R
Methacrylonitrile	810 U	32 U	1000 U	860 U	28 U	25 U	24 U	35 U
Methyl methacrylate	130 U	4.9 U	150 U	130 U	4.4 U	3.9 U	3.8 U	5.4 U
Methylene Chloride	34 U	1.3 U	41 U	36 UJ	1.2 U	1 U	1 U	1.5 U
Pentachloroethane	75 R	2.9 UJ	91 R	79 R	2.6 UJ	2.3 UJ	2.2 UJ	3.2 UJ
Propionitrile	710 U	28 UJ	870 U	750 U	25 UJ	22 UJ	21 UJ	31 UJ
Styrene	22 U	0.88 U	27 U	24 J	0.78 U	0.69 U	0.67 U	0.96 U
Tetrachloroethene	26 J	0.97 U	30 U	26 U	0.86 U	0.76 U	0.74 U	1.1 U
Toluene	35 U	1 U	47 J	74 U	0.93 U	0.83 U	0.8 U	1.1 U
trans-1,2-Dichloroethene	33 U	1.3 U	40 U	35 UJ	1.1 U	1 U	0.99 U	1.4 U
trans-1,3-Dichloropropene	29 U	1.2 U	36 U	31 U	1 U	0.91 U	0.88 U	1.3 U
trans-1,4-Dichloro-2-butene	110 U	4.1 U	130 U	110 U	3.7 U	3.2 U	3.1 U	4.5 U
Trichloroethene	34 U	1.3 U	41 U	36 U	1.2 U	1 U	1 U	1.5 U
Trichlorofluoromethane	51 U	2 U	62 U	54 U	1.8 U	1.6 U	1.5 U	2.2 U
Vinyl acetate	51 U	2 U	62 U	54 U	1.8 U	1.6 U	1.5 U	2.2 U
Vinyl chloride	20 U	0.77 U	24 U	21 U	0.68 U	0.61 U	0.59 U	0.84 U
Xylenes, Total	78 U	3.1 U	95 U	94 J	2.7 U	2.4 U	2.3 U	3.3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB221	74SB222	74SB223	74SB224	74SB224	74SB225	74SB225	74SB231
	Sample ID	74SB221-02D	74SB222-03	74SB223-03	74SB224-04	74SB224-05	74SB225-04	74SB225-05	74SB231-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>									
1-Methylnaphthalene		14 U	14 U	100	NA	NA	NA	NA	NA
2-Methylnaphthalene		20 U	20 U	19 U	NA	NA	NA	NA	NA
Acenaphthene		6.5 U	160	240	NA	NA	NA	NA	NA
Acenaphthylene		20 U	20 U	84	NA	NA	NA	NA	NA
Anthracene		20 U	20 U	19 U	NA	NA	NA	NA	NA
Benzo[a]anthracene		20 U	310	190	NA	NA	NA	NA	NA
Benzo[a]pyrene		13 J	360	110	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		13 J	720	110	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		20 U	200	42 J	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		11 U	12 U	11 U	NA	NA	NA	NA	NA
Chrysene		14 J	470	240	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		6.8 U	6.8 U	6.7 U	NA	NA	NA	NA	NA
Fluoranthene		20 U	380	350	NA	NA	NA	NA	NA
Fluorene		8.8 U	300	440	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		14 U	190	27 J	NA	NA	NA	NA	NA
Naphthalene		6.9 U	6.9 U	6.8 U	NA	NA	NA	NA	NA
Phenanthrene		20 U	20 U	280	NA	NA	NA	NA	NA
Pyrene		22 J	520	400	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB221	74SB222	74SB223	74SB224	74SB224	74SB225	74SB225	74SB231
	Sample ID	74SB221-02D	74SB222-03	74SB223-03	74SB224-04	74SB224-05	74SB225-04	74SB225-05	74SB231-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	3.0-5.0	5.0-7.0	5.0-7.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Metals (mg/kg)</b>									
Antimony		0.35 J	0.25 J	0.44 J	0.086 J	0.076 UJ	0.16 J	0.12 J	0.2 U
Arsenic		3.9	2.5	2.9	0.99	1	1.7	0.91	3.9
Barium		53	53	80	180	160	36	21	8.5
Beryllium		0.3	0.13	0.54	0.25	0.18	0.19	0.23	0.02 U
Cadmium		0.48	0.36	0.058 J	0.13	0.079 J	0.15	0.33	0.035 U
Chromium		26	19	60	16	18	19	86	1.8
Cobalt		18	15	35	26	15	15	33	1.1
Copper		77 J	53	160	130	130	40	66	1.1 U
Lead		3.3	9.5	1.5	1.1	0.63	5.4	2.2	0.18 U
Mercury		0.0076 J	0.0098 J	0.008 J	0.0045 U	0.0039 U	0.0039 U	0.0041 U	0.0044 U
Nickel		17	11	42	23	12	13	18	0.86
Selenium		0.19 J	0.13 J	0.22 J	0.13 J	0.12 U	0.13 U	0.14 U	0.13 U
Silver		0.036 J	0.033 J	0.1 J	0.036 J	0.069 J	0.042 J	0.022 J	0.018 UJ
Thallium		0.12 U	0.13 U	0.13 U	0.12 U	0.12 U	0.13 U	0.14 U	0.13 U
Tin		4.1 U	4.2 U	4.2 U	4.1 U	4 U	4.2 U	4.6 U	4.5 U
Vanadium		110	110 J	210 J	150 J	150 J	91 J	150 J	2.9
Zinc		83 J	39 J	62 J	47 J	39 J	38 J	61 J	0.88 J
<b>TPH DRO/GRO (mg/kg)</b>									
Diesel Range Organics		44 J	1800	2500	25	180	18	1.5 U	1.6 U
Gasoline Range Organics		0.064 U	0.0079 U	75	130	7.3	0.0072 U	0.0069 U	0.12 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB231	74SB231	74SB232	74SB232	74SB233	74SB233	74SB234
Sample ID	74SB231-05	74SB231-05D	74SB232-04	74SB232-05	74SB233-04	74SB233-05	74SB234-04
Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>							
1,1,1,2-Tetrachloroethane	0.78 U	0.61 U	0.88 U	0.79 U	1.1 U	0.95 U	0.57 U
1,1,1-Trichloroethane	0.71 U	0.55 U	0.79 U	0.72 U	1 U	0.86 U	0.52 U
1,1,2,2-Tetrachloroethane	1.7 U	1.3 U	1.9 U	1.7 U	2.4 U	2.1 U	1.2 U
1,1,2-Trichloroethane	1.5 U	1.1 U	1.6 U	1.5 U	2.1 U	1.8 U	1.1 U
1,1-Dichloroethane	0.61 U	0.47 U	0.68 U	0.62 U	0.86 U	0.74 U	0.45 U
1,1-Dichloroethene	0.66 U	0.51 U	0.74 U	0.67 U	0.93 U	0.8 U	0.48 U
1,2,3-Trichloropropane	1.7 UJ	1.3 UJ	1.9 UJ	1.7 UJ	2.4 UJ	2.1 UJ	1.2 UJ
1,2-Dibromo-3-Chloropropane	3.4 UJ	2.7 UJ	3.8 UJ	3.5 UJ	4.8 UJ	4.2 UJ	2.5 UJ
1,2-Dichloroethane	1.2 U	0.95 U	1.4 U	1.2 U	1.7 U	1.5 U	0.89 U
1,2-Dichloropropane	1.3 U	1 U	1.5 U	1.4 U	1.9 U	1.6 U	0.98 U
2-Butanone (MEK)	4.7 UJ	3.1 UJ	4.8 UJ	7.1 UJ	7.2 UJ	10 UJ	9 UJ
2-Chloro-1,3-butadiene	0.7 U	0.54 U	0.78 U	0.7 U	0.98 U	0.85 U	0.51 U
2-Hexanone	2.6 UJ	2 UJ	2.9 UJ	2.6 UJ	3.6 UJ	3.1 UJ	1.9 UJ
3-Chloro-1-propene	1.8 UJ	1.4 UJ	2.1 UJ	1.8 UJ	2.6 UJ	2.2 U	1.3 U
4-Methyl-2-pentanone (MIBK)	3.6 UJ	2.7 UJ	4 UJ	3.6 UJ	5 UJ	4.3 UJ	2.6 UJ
Acetone	30 U	17 U	29 U	41 U	54 U	52 UJ	100 J
Acetonitrile	55 UJ	43 UJ	62 UJ	55 UJ	77 UJ	67 UJ	40 UJ
Acrolein	23 R	18 R	26 R	23 R	33 R	28 U	17 U
Acrylonitrile	28 UJ	22 UJ	32 UJ	28 UJ	40 UJ	34 UJ	21 UJ
Benzene	0.97 U	0.75 U	1.1 U	0.97 U	1.4 U	1.2 U	0.71 U
Bromoform	1.3 U	1 U	1.5 U	1.4 U	1.9 U	1.6 U	0.98 U
Bromomethane	2 UJ	1.5 UJ	2.2 UJ	2 UJ	2.8 UJ	2.4 UJ	1.4 UJ
Carbon disulfide	0.63 U	0.48 U	0.7 U	12	0.88 U	1.4 J	0.46 U
Carbon tetrachloride	1.2 U	0.95 U	1.4 U	1.2 U	1.7 U	1.5 U	0.89 U
Chlorobenzene	0.89 U	0.69 U	1 U	0.9 U	1.3 U	1.1 U	0.65 U
Chlorodibromomethane	0.61 U	0.47 U	0.68 U	0.62 U	0.86 U	0.74 U	0.45 U
Chloroethane	1.5 U	1.1 U	1.6 U	1.5 U	2.1 U	1.8 U	1.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB231	74SB231	74SB232	74SB232	74SB233	74SB233	74SB234
Sample ID	74SB231-05	74SB231-05D	74SB232-04	74SB232-05	74SB233-04	74SB233-05	74SB234-04
Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Depth Range	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Chloroform	0.61 U	0.47 U	0.68 U	0.62 U	0.86 U	0.74 U	0.45 U
Chloromethane	0.87 U	0.67 U	0.97 U	0.88 U	1.2 U	1.1 U	0.63 U
cis-1,3-Dichloropropene	1.1 U	0.82 U	1.2 U	1.1 U	1.5 U	1.3 U	0.78 U
Dibromomethane	1.5 U	1.1 U	1.6 U	1.5 U	2.1 U	1.8 U	1.1 U
Dichlorobromomethane	1 U	0.79 U	1.1 U	1 U	1.4 U	1.2 U	0.74 U
Dichlorodifluoromethane	1.1 U	0.84 U	1.2 U	1.1 U	1.5 U	1.3 U	0.79 U
Ethyl methacrylate	2.7 U	2.1 U	3 U	2.7 U	3.8 U	3.3 U	2 U
Ethylbenzene	0.92 U	0.71 U	1 U	0.92 U	1.3 U	1.1 U	0.67 U
Ethylene Dibromide	1.8 U	1.4 U	2.1 U	1.8 U	2.6 U	2.2 U	1.3 U
Iodomethane	1.2 U	0.95 U	1.4 U	1.2 U	1.7 U	1.5 U	4.6
Isobutyl alcohol	85 R	65 R	95 R	85 R	120 R	100 R	62 R
Methacrylonitrile	29 U	23 U	33 U	30 U	41 U	36 U	21 U
Methyl methacrylate	4.5 U	3.5 U	5.1 U	4.6 U	6.4 U	5.5 U	3.3 U
Methylene Chloride	1.2 U	0.95 U	1.4 U	1.2 U	1.7 U	1.5 U	0.89 U
Pentachloroethane	2.7 UJ	2.1 UJ	3 UJ	2.7 UJ	3.8 UJ	3.3 UJ	2 UJ
Propionitrile	26 UJ	20 UJ	29 UJ	26 UJ	36 UJ	31 UJ	19 UJ
Styrene	0.81 U	0.63 U	0.9 U	0.81 U	1.1 U	0.98 U	0.59 U
Tetrachloroethene	0.89 U	0.69 U	1 U	0.9 U	1.3 U	1.1 U	0.65 U
Toluene	0.97 U	0.75 U	1.1 U	0.97 U	1.4 U	1.2 U	0.71 U
trans-1,2-Dichloroethene	1.2 U	0.92 U	1.3 U	1.2 U	1.7 U	1.4 U	0.87 U
trans-1,3-Dichloropropene	1.1 U	0.82 U	1.2 U	1.1 U	1.5 U	1.3 U	0.78 U
trans-1,4-Dichloro-2-butene	3.8 U	2.9 U	4.2 U	3.8 U	5.3 U	4.6 U	2.8 U
Trichloroethene	1.2 U	0.95 U	1.4 U	1.2 U	1.7 U	1.5 U	0.89 U
Trichlorofluoromethane	1.8 U	1.4 U	2.1 U	1.8 U	2.6 U	2.2 U	1.3 U
Vinyl acetate	1.8 U	1.4 U	2.1 U	1.8 U	2.6 U	2.2 U	1.3 U
Vinyl chloride	0.71 U	0.55 U	0.79 U	0.72 U	1 U	0.86 U	0.52 U
Xylenes, Total	2.8 U	2.2 U	3.2 U	2.8 U	4 U	3.4 U	2.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB231	74SB231	74SB232	74SB232	74SB233	74SB233	74SB234
	Sample ID	74SB231-05	74SB231-05D	74SB232-04	74SB232-05	74SB233-04	74SB233-05	74SB234-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>								
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB231	74SB231	74SB232	74SB232	74SB233	74SB233	74SB234
	Sample ID	74SB231-05	74SB231-05D	74SB232-04	74SB232-05	74SB233-04	74SB233-05	74SB234-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	9.0-11.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0
<b>Metals (mg/kg)</b>								
Antimony		0.32 U	0.21 U	0.21 U	0.31 U	0.25 U	0.24 U	0.086 U
Arsenic		5.5	5.4	4.8	7.2	4.5	6.7	1.8
Barium		11	12	8.9	8.4	11	9.8	110
Beryllium		0.17 J	0.04 U	0.041 U	0.045 U	0.049 U	0.047 U	0.38
Cadmium		0.46	0.068 U	0.071 U	0.078 U	0.084 U	0.081 U	0.27
Chromium		6	4.7	2.2 J	5.1	2.7	6	71
Cobalt		3.4 J	2.1 J	1.3	1.8	1.3	2.3	27
Copper		5.4	4.5	1.7 U	2.8 U	2.6 U	4.9 U	210
Lead		1.9 J	0.43 UJ	0.26 U	0.48 U	6.4	0.42 U	3.5
Mercury		0.0063 J	0.0045 J	0.0046 U	0.0045 U	0.0052 U	0.0053 U	0.029
Nickel		1.9	1.7	1.1	1.7	1.4	2.3	36
Selenium		0.25 U	0.26 U	0.28 U	0.3 U	0.33 U	0.31 U	0.54 J
Silver		0.11 J	0.035 UJ	0.037 UJ	0.04 UJ	0.043 UJ	0.042 UJ	0.052 J
Thallium		0.25 U	0.26 U	0.28 U	0.3 U	0.33 U	0.31 U	0.14 U
Tin		8.3 U	8.8 U	9.2 U	10 U	11 U	10 U	4.6 U
Vanadium		30 J	15 J	4.8	12	5.2	16	150
Zinc		6.5 J	3.5 J	1.5 U	3.5 J	2.4 J	4 J	100
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics		16 J	4.2 J	1.4 U	3.6 U	4.3 U	1.5 U	1.8 U
Gasoline Range Organics		0.064 U	0.086 U	0.091 U	0.08 U	0.1 U	0.081 U	0.06 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB234	74SB235	74SB235	74SB236	74SB236	74SB236	74SB237
	Sample ID	74SB234-05	74SB235-04	74SB235-05	74SB236-04	74SB236-05	74SB236-05D	74SB237-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>								
1,1,1,2-Tetrachloroethane		0.71 U	0.7 R	1 U	0.82 U	1.1 U	0.99 U	1.1 U
1,1,1-Trichloroethane		0.65 U	0.64 R	0.92 U	0.74 U	0.97 U	0.9 U	1 U
1,1,2,2-Tetrachloroethane		1.6 U	1.5 R	2.2 U	1.8 U	2.3 U	2.2 U	2.4 U
1,1,2-Trichloroethane		1.3 U	1.3 R	1.9 U	1.5 U	2 U	1.9 U	2.1 U
1,1-Dichloroethane		0.56 U	0.55 R	0.79 U	0.64 U	0.84 U	0.77 U	0.86 U
1,1-Dichloroethene		0.6 U	0.59 R	0.86 U	0.69 U	0.91 U	0.83 U	0.93 U
1,2,3-Trichloropropane		1.6 UJ	1.5 R	2.2 UJ	1.8 UJ	2.3 UJ	2.2 UJ	2.4 UJ
1,2-Dibromo-3-Chloropropane		3.1 UJ	3.1 R	4.4 UJ	3.6 UJ	4.7 UJ	4.3 UJ	4.8 UJ
1,2-Dichloroethane		1.1 U	1.1 R	1.6 U	1.3 U	1.7 U	1.5 U	1.7 U
1,2-Dichloropropane		1.2 U	1.2 R	1.7 U	1.4 U	1.8 U	1.7 U	1.9 U
2-Butanone (MEK)		3 UJ	5.4 R	5.1 UJ	3.4 UJ	4.5 UJ	11 UJ	4.6 UJ
2-Chloro-1,3-butadiene		0.64 U	0.63 R	0.9 U	0.73 UJ	0.96 UJ	0.88 U	0.98 UJ
2-Hexanone		2.3 UJ	3 J	3.3 UJ	2.7 UJ	3.5 UJ	3.2 UJ	3.6 UJ
3-Chloro-1-propene		1.7 UJ	1.7 R	2.4 UJ	1.9 UJ	2.5 UJ	2.3 UJ	2.6 UJ
4-Methyl-2-pentanone (MIBK)		3.2 UJ	3.2 R	4.6 UJ	3.7 UJ	4.9 UJ	4.5 UJ	5 UJ
Acetone		18 U	22 R	51 U	53 U	55 U	52 UJ	46 U
Acetonitrile		50 UJ	50 R	71 UJ	57 UJ	75 UJ	70 UJ	77 UJ
Acrolein		21 U	21 R	30 U	24 UJ	32 UJ	29 R	33 UJ
Acrylonitrile		26 U	25 R	36 U	29 U	39 U	36 UJ	39 U
Benzene		0.88 U	0.87 R	2.3 J	1 U	1.3 U	1.2 U	1.4 U
Bromoform		1.2 U	1.2 R	1.7 U	1.4 UJ	1.8 UJ	1.7 UJ	1.9 UJ
Bromomethane		1.8 UJ	1.8 R	2.5 UJ	2 U	2.7 U	2.5 UJ	2.7 U
Carbon disulfide		0.57 U	0.56 R	0.81 U	0.65 U	0.86 U	0.79 U	0.88 U
Carbon tetrachloride		1.1 U	1.1 R	1.6 U	1.3 U	1.7 U	1.5 U	1.7 U
Chlorobenzene		0.81 U	0.8 R	1.2 U	0.93 U	1.2 U	1.1 U	1.3 U
Chlorodibromomethane		0.56 U	0.55 R	0.79 U	0.64 U	0.84 U	0.77 U	0.86 U
Chloroethane		1.3 U	1.3 R	1.9 U	1.5 U	2 U	1.9 U	2.1 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB234	74SB235	74SB235	74SB236	74SB236	74SB236	74SB237
	Sample ID	74SB234-05	74SB235-04	74SB235-05	74SB236-04	74SB236-05	74SB236-05D	74SB237-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>								
Chloroform		0.56 U	0.55 R	0.79 U	0.64 U	0.84 U	0.77 U	0.86 U
Chloromethane		0.79 U	0.78 R	1.1 U	0.91 U	1.2 U	1.1 UJ	1.2 U
cis-1,3-Dichloropropene		0.97 U	0.96 R	1.4 U	1.1 U	1.5 U	1.3 U	1.5 U
Dibromomethane		1.3 U	1.3 R	1.9 U	1.5 U	2 U	1.9 U	2.1 U
Dichlorobromomethane		0.93 U	0.91 R	1.3 U	1.1 U	1.4 U	1.3 U	1.4 U
Dichlorodifluoromethane		0.99 U	0.98 R	1.4 U	1.1 U	1.5 U	1.4 UJ	1.5 U
Ethyl methacrylate		2.5 U	2.4 R	3.5 U	2.8 U	3.7 U	3.4 U	3.8 U
Ethylbenzene		0.84 U	0.83 R	1.2 U	0.96 U	1.3 U	1.2 U	1.3 U
Ethylene Dibromide		1.7 U	1.7 R	2.4 U	1.9 U	2.5 U	2.3 U	2.6 U
Iodomethane		1.1 U	1.1 R	1.6 U	1.3 UJ	1.7 UJ	1.5 U	1.7 UJ
Isobutyl alcohol		77 R	76 R	110 R	88 R	120 R	110 R	120 R
Methacrylonitrile		27 U	26 R	38 U	31 U	40 U	37 U	41 U
Methyl methacrylate		4.1 U	4.1 R	5.9 U	4.7 U	6.2 U	5.7 U	6.4 U
Methylene Chloride		1.1 U	1.6 R	1.6 U	1.3 U	1.7 U	1.5 U	1.7 U
Pentachloroethane		2.5 UJ	2.4 R	3.5 UJ	2.8 UJ	3.7 UJ	3.4 UJ	3.8 UJ
Propionitrile		23 U	23 R	33 U	27 U	35 U	32 UJ	36 U
Styrene		0.74 U	0.73 R	1 U	0.84 U	1.1 U	1 U	1.1 U
Tetrachloroethene		0.81 U	0.8 R	1.2 U	0.93 U	1.2 U	1.1 U	1.3 U
Toluene		0.88 U	0.87 R	1.3 U	1 U	1.3 U	1.2 U	1.4 U
trans-1,2-Dichloroethene		1.1 U	1.1 R	1.5 U	1.2 U	1.6 U	1.5 U	1.7 U
trans-1,3-Dichloropropene		0.97 U	0.96 R	1.4 U	1.1 U	1.5 U	1.3 U	1.5 U
trans-1,4-Dichloro-2-butene		3.5 U	3.4 R	4.9 U	4 U	5.2 U	4.8 U	5.3 U
Trichloroethene		1.1 U	1.1 R	1.6 U	1.3 U	1.7 U	1.5 U	1.7 U
Trichlorofluoromethane		1.7 U	1.7 R	2.4 U	1.9 U	2.5 U	2.3 U	2.6 U
Vinyl acetate		1.7 U	1.7 R	2.4 U	1.9 U	2.5 U	2.3 U	2.6 U
Vinyl chloride		0.65 U	0.64 R	0.92 U	0.74 U	0.97 U	0.9 U	1 U
Xylenes, Total		2.6 U	2.5 R	3.6 U	2.9 U	3.9 U	3.6 U	3.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB234	74SB235	74SB235	74SB236	74SB236	74SB236	74SB237
	Sample ID	74SB234-05	74SB235-04	74SB235-05	74SB236-04	74SB236-05	74SB236-05D	74SB237-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>								
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB234	74SB235	74SB235	74SB236	74SB236	74SB236	74SB237
	Sample ID	74SB234-05	74SB235-04	74SB235-05	74SB236-04	74SB236-05	74SB236-05D	74SB237-04
	Date	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	9.0-11.0	7.0-9.0
<b>Metals (mg/kg)</b>								
Antimony		0.19 U	0.23 U	0.32 U	0.4 J	0.19 J	0.17 J	0.15 J
Arsenic		1.9	3.5	7	7.2	2	2	2
Barium		87	26	14	13 J	9.8 J	9.4 J	11 J
Beryllium		0.37	0.042 J	0.06 J	0.06 U	0.024 U	0.025 U	0.022 U
Cadmium		0.078 J	0.07 U	0.055 J	0.044 J	0.042 U	0.044 U	0.038 U
Chromium		40	7.2	17	16 J	3.7 J	4.2 J	2.6 J
Cobalt		22	2.9	2	1.6 J	0.62 J	0.64 J	0.54 J
Copper		88	11	11	8.4 J	1.4 UJ	1.6 UJ	0.71 UJ
Lead		1.4	1.2	0.74	0.76	0.41	0.33 J	0.11 J
Mercury		0.016 J	0.0046 U	0.0063 U	0.0053 J	0.0051 U	0.0052 U	0.0047 U
Nickel		21	3.1	5.1	5.1 J	0.97 J	1.1 J	0.66 J
Selenium		0.47 J	0.27 U	0.77	0.42 J	0.16 U	0.17 U	0.15 U
Silver		0.03 J	0.036 UJ	0.026 J	0.021 J	0.022 U	0.023 U	0.02 U
Thallium		0.14 U	0.27 U	0.18 U	0.15 U	0.16 U	0.17 U	0.15 U
Tin		4.6 U	9 U	5.9 U	5.1 U	5.4 U	5.7 U	4.9 U
Vanadium		130	18	24	30 J	5.4 J	6.1 J	2.4 J
Zinc		90	7.3 J	8.8	7.1	1.1 J	1.3 J	0.78 U
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics		1.2	1.5	1.7 U	3.1	2.9	1.8	0.88
Gasoline Range Organics		0.059 U	0.076 U	0.097 U	0.0078 U	0.0093 U	0.0092 U	0.14 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB237	74SB238	74SB238	74SB239	74SB239	74SB240	74SB240
Sample ID	74SB237-05	74SB238-04	74SB238-05	74SB239-04	74SB239-05	74SB240-04	74SB240-05
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>							
1,1,1,2-Tetrachloroethane	1.2 U	0.92 U	0.88 U	0.82 U	1.1 U	0.69 U	0.89 U
1,1,1-Trichloroethane	1.1 U	0.83 U	0.8 U	0.74 U	0.99 U	0.62 U	0.8 U
1,1,2,2-Tetrachloroethane	2.5 U	2 U	1.9 U	1.8 U	2.4 U	1.5 U	1.9 U
1,1,2-Trichloroethane	2.2 U	1.7 U	1.6 U	1.5 U	2 U	1.3 U	1.7 U
1,1-Dichloroethane	0.91 U	0.72 U	0.69 U	0.64 U	0.85 U	0.54 U	0.69 U
1,1-Dichloroethene	0.98 U	0.77 U	0.74 U	0.69 U	0.92 U	0.58 U	0.75 U
1,2,3-Trichloropropane	2.5 UJ	2 UJ	1.9 UJ	1.8 UJ	2.4 UJ	1.5 UJ	1.9 UJ
1,2-Dibromo-3-Chloropropane	5.1 UJ	4 UJ	3.8 UJ	3.6 UJ	4.8 UJ	3 UJ	3.9 UJ
1,2-Dichloroethane	1.8 U	1.4 U	1.4 U	1.3 U	1.7 U	1.1 U	1.4 U
1,2-Dichloropropane	2 U	1.6 U	1.5 U	1.4 U	1.9 U	1.2 U	1.5 U
2-Butanone (MEK)	11 UJ	3.9 UJ	39 J	16 UJ	21 UJ	11 UJ	14 UJ
2-Chloro-1,3-butadiene	1 UJ	0.82 UJ	0.78 U	0.73 U	0.97 U	0.61 U	0.79 U
2-Hexanone	3.8 UJ	3 UJ	2.9 UJ	2.7 UJ	3.6 UJ	2.3 UJ	2.9 UJ
3-Chloro-1-propene	2.7 UJ	2.2 UJ	2.1 UJ	1.9 UJ	2.6 UJ	1.6 UJ	2.1 UJ
4-Methyl-2-pentanone (MIBK)	5.3 UJ	4.2 UJ	4 UJ	3.7 UJ	5 UJ	3.1 UJ	4 UJ
Acetone	56 U	42 U	170	97 U	150 U	65 U	60 U
Acetonitrile	82 UJ	65 UJ	62 UJ	58 UJ	77 UJ	48 UJ	62 UJ
Acrolein	35 UJ	27 UJ	26 U	24 U	32 U	20 U	26 U
Acrylonitrile	42 U	33 U	32 U	29 U	39 U	25 U	32 U
Benzene	1.4 U	1.1 U	1.1 U	1 U	1.3 U	0.85 U	1.1 U
Bromoform	2 UJ	1.6 UJ	1.5 U	1.4 U	1.9 U	1.2 U	1.5 U
Bromomethane	2.9 U	2.3 U	2.2 UJ	2 UJ	2.7 UJ	1.7 UJ	2.2 UJ
Carbon disulfide	3.8 J	0.73 U	7.2	0.65 U	13	1.8 J	4.3 J
Carbon tetrachloride	1.8 U	1.4 U	1.4 U	1.3 U	1.7 U	1.1 U	1.4 U
Chlorobenzene	1.3 U	1 U	1 U	0.93 U	1.2 U	0.78 U	1 U
Chlorodibromomethane	0.91 U	0.72 U	0.69 U	0.64 U	0.85 U	0.54 U	0.69 U
Chloroethane	2.2 U	1.7 U	1.6 U	1.5 U	2 U	1.3 U	1.7 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB237	74SB238	74SB238	74SB239	74SB239	74SB240	74SB240
Sample ID	74SB237-05	74SB238-04	74SB238-05	74SB239-04	74SB239-05	74SB240-04	74SB240-05
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Chloroform	0.91 U	0.72 U	0.69 U	0.64 U	0.85 U	0.54 U	0.69 U
Chloromethane	1.3 U	1 U	0.98 U	0.91 U	1.2 U	0.76 U	0.98 U
cis-1,3-Dichloropropene	1.6 U	1.2 U	1.2 U	1.1 U	1.5 U	0.93 U	1.2 U
Dibromomethane	2.2 U	1.7 U	1.6 U	1.5 U	2 U	1.3 U	1.7 U
Dichlorobromomethane	1.5 U	1.2 U	1.1 U	1.1 U	1.4 U	0.89 U	1.2 U
Dichlorodifluoromethane	1.6 U	1.3 U	1.2 U	1.1 U	1.5 U	0.95 U	1.2 U
Ethyl methacrylate	4 U	3.2 U	3 U	2.8 U	3.8 U	2.4 U	3 U
Ethylbenzene	1.4 U	1.1 U	1 U	0.96 U	1.3 U	0.8 U	1 U
Ethylene Dibromide	2.7 U	2.2 U	2.1 U	1.9 U	2.6 U	1.6 U	2.1 U
Iodomethane	1.8 UJ	1.4 UJ	1.4 U	1.3 U	1.7 U	1.1 U	1.4 U
Isobutyl alcohol	130 R	99 R	95 R	88 R	120 R	74 R	96 R
Methacrylonitrile	44 U	34 U	33 U	31 U	41 U	26 U	33 U
Methyl methacrylate	6.7 U	5.3 U	5.1 U	4.7 U	6.3 U	4 U	5.1 U
Methylene Chloride	1.8 U	1.4 U	1.4 U	1.3 U	1.7 U	1.1 U	1.4 U
Pentachloroethane	4 UJ	3.2 UJ	3 UJ	2.8 UJ	3.8 UJ	2.4 UJ	3 UJ
Propionitrile	38 U	30 U	29 U	27 U	36 U	23 U	29 U
Styrene	1.2 U	0.95 U	0.91 U	0.84 U	1.1 U	0.71 U	0.91 U
Tetrachloroethene	1.3 U	1 U	1 U	0.93 U	1.2 U	0.78 U	1 U
Toluene	1.4 U	1.1 J	1.1 U	1 U	1.3 U	0.85 U	1.1 U
trans-1,2-Dichloroethene	1.8 U	1.4 U	1.3 U	1.2 U	1.7 U	1 U	1.3 U
trans-1,3-Dichloropropene	1.6 U	1.2 U	1.2 U	1.1 U	1.5 U	0.93 U	1.2 U
trans-1,4-Dichloro-2-butene	5.6 U	4.4 U	4.3 U	4 U	5.3 U	3.3 U	4.3 U
Trichloroethene	1.8 U	1.4 U	1.4 U	1.3 U	1.7 U	1.1 U	1.4 U
Trichlorofluoromethane	2.7 U	2.2 U	2.1 U	1.9 U	2.6 U	1.6 U	2.1 U
Vinyl acetate	2.7 U	2.2 U	2.1 U	1.9 U	2.6 U	1.6 U	2.1 U
Vinyl chloride	1.1 U	0.83 U	0.8 U	0.74 U	0.99 U	0.62 U	0.8 U
Xylenes, Total	4.2 U	3.3 U	3.2 U	2.9 U	3.9 U	2.5 U	3.2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB237	74SB238	74SB238	74SB239	74SB239	74SB240	74SB240
	Sample ID	74SB237-05	74SB238-04	74SB238-05	74SB239-04	74SB239-05	74SB240-04	74SB240-05
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>LLPAHs (ug/kg)</b>								
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB237	74SB238	74SB238	74SB239	74SB239	74SB240	74SB240
	Sample ID	74SB237-05	74SB238-04	74SB238-05	74SB239-04	74SB239-05	74SB240-04	74SB240-05
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0	7.0-9.0	9.0-11.0
<b>Metals (mg/kg)</b>								
Antimony		0.18 J	0.25 J	0.23 J	0.19 J	0.39 J	0.24 J	0.23 J
Arsenic		2.3	2.3	3.4	2.8	6.7	2.5	2.2
Barium		11 J	18 J	19 J	12 J	13 J	20 J	9.5 J
Beryllium		0.026 U	0.044 J	0.039 U	0.049 U	0.062 U	0.069 U	0.024 U
Cadmium		0.044 U	0.042 J	0.063 J	0.078 J	0.092 J	0.088 J	0.041 U
Chromium		3.2 J	10 J	9.5 J	12 J	17 J	9.2 J	3 J
Cobalt		0.69 J	2.2 J	2.9 J	1.4 J	1.8 J	4.9 J	0.62 J
Copper		1.5 UJ	11 J	13 J	6.9 J	11 J	42 J	1.4 UJ
Lead		0.57	1.1	2	0.47	0.76	4.2	0.21 J
Mercury		0.006 U	0.0054 J	0.0064 J	0.0054 J	0.0062 U	0.0064 J	0.005 U
Nickel		0.75 J	3.3 J	3.2 J	3.6 J	5.9 J	6.1 J	0.87 J
Selenium		0.17 U	0.25 J	0.25 J	0.65 J	0.82	0.21 J	0.17 J
Silver		0.023 U	0.019 U	0.019 U	0.031 J	0.028 J	0.027 J	0.021 U
Thallium		0.17 U	0.14 U	0.14 U	0.17 U	0.18 U	0.14 U	0.16 U
Tin		5.7 U	4.7 U	4.6 U	5.5 U	5.9 U	4.6 U	5.2 U
Vanadium		4.1 J	23 J	28 J	15 J	32 J	40 J	3.7 J
Zinc		1.5 J	9.3	11	5.5	9.3	20	1.2 J
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics		1.7	11	14	8.3	9.2	25	3.1
Gasoline Range Organics		0.011 U	0.0074 U	0.035 J	0.0094 U	0.011 U	0.0076 U	0.0095 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB241	74SB241	74SB241	74SB245	74SB245	74SB246	74SB246
Sample ID	74SB241-04D	74SB241-04	74SB241-05	74SB245-03	74SB245-05	74SB246-03D	74SB246-03
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	7.0-9.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>							
1,1,1,2-Tetrachloroethane	0.91 U	0.87 U	0.89 U	1 U	0.71 U	3.5 U	1.5 U
1,1,1-Trichloroethane	0.83 U	0.79 U	0.81 U	0.94 U	0.65 U	3.2 U	1.4 U
1,1,2,2-Tetrachloroethane	2 U	1.9 U	1.9 U	2.3 U	1.6 U	7.7 U	3.4 U
1,1,2-Trichloroethane	1.7 U	1.6 U	1.7 U	1.9 U	1.3 U	6.6 U	2.9 U
1,1-Dichloroethane	0.71 U	0.68 U	0.7 U	0.81 U	0.56 U	2.7 U	1.2 U
1,1-Dichloroethene	0.77 U	0.74 U	0.75 U	0.87 U	0.6 U	3 U	1.3 U
1,2,3-Trichloropropane	2 UJ	1.9 UJ	1.9 UJ	2.3 UJ	1.6 UJ	7.7 UJ	3.4 UJ
1,2-Dibromo-3-Chloropropane	4 UJ	3.8 UJ	3.9 UJ	4.5 UJ	3.1 UJ	15 UJ	6.7 UJ
1,2-Dichloroethane	1.4 U	1.4 U	1.4 U	1.6 U	1.1 U	5.5 U	2.4 U
1,2-Dichloropropane	1.6 U	1.5 U	1.5 U	1.8 U	1.2 U	6 U	2.6 U
2-Butanone (MEK)	16 UJ	7.6 UJ	11 UJ	10 UJ	6.2 UJ	20 UJ	10 UJ
2-Chloro-1,3-butadiene	0.81 U	0.78 U	0.79 U	0.92 U	0.63 U	3.1 U	1.4 U
2-Hexanone	3 UJ	2.9 UJ	2.9 UJ	3.4 UJ	2.3 UJ	11 UJ	5.1 UJ
3-Chloro-1-propene	2.1 UJ	2 UJ	2.1 UJ	2.4 UJ	1.7 UJ	8.2 UJ	3.6 UJ
4-Methyl-2-pentanone (MIBK)	4.1 UJ	4 UJ	4 UJ	4.7 UJ	3.2 UJ	16 UJ	7 UJ
Acetone	78 U	51 U	58 U	76 U	47 U	160 U	65 U
Acetonitrile	64 UJ	61 UJ	63 UJ	73 UJ	50 UJ	250 UJ	110 UJ
Acrolein	27 U	26 U	26 U	31 U	21 U	100 U	46 U
Acrylonitrile	33 U	31 U	32 U	37 U	26 U	130 U	55 U
Benzene	1.1 U	1.1 U	1.1 U	1.3 U	0.88 U	4.3 U	1.9 U
Bromoform	1.6 U	1.5 U	1.5 U	1.8 U	1.2 U	6 U	2.6 U
Bromomethane	2.3 UJ	2.2 UJ	2.2 UJ	2.6 UJ	1.8 UJ	8.7 UJ	3.8 UJ
Carbon disulfide	0.73 U	0.7 U	4 J	1.4 J	0.7 J	2.8 U	1.2 U
Carbon tetrachloride	1.4 U	1.4 U	1.4 U	1.6 U	1.1 U	5.5 U	2.4 U
Chlorobenzene	1 U	1 U	1 U	1.2 U	0.81 U	4 U	1.8 U
Chlorodibromomethane	0.71 U	0.68 U	0.7 U	0.81 U	0.56 U	2.7 U	1.2 U
Chloroethane	1.7 U	1.6 U	1.7 U	1.9 U	1.3 U	6.6 U	2.9 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB241	74SB241	74SB241	74SB245	74SB245	74SB246	74SB246
	Sample ID	74SB241-04D	74SB241-04	74SB241-05	74SB245-03	74SB245-05	74SB246-03D	74SB246-03
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	7.0-9.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>								
Chloroform		0.71 U	0.68 U	0.7 U	0.81 U	0.56 U	2.7 U	1.2 U
Chloromethane		1 U	0.97 U	0.99 U	1.1 U	0.79 U	3.9 U	1.7 U
cis-1,3-Dichloropropene		1.2 U	1.2 U	1.2 U	1.4 U	0.97 U	4.8 U	2.1 U
Dibromomethane		1.7 U	1.6 U	1.7 U	1.9 U	1.3 U	6.6 U	2.9 U
Dichlorobromomethane		1.2 U	1.1 U	1.2 U	1.3 U	0.92 U	4.5 U	2 U
Dichlorodifluoromethane		1.3 U	1.2 U	1.2 U	1.4 U	0.99 U	4.9 U	2.1 U
Ethyl methacrylate		3.1 U	3 U	3.1 U	3.5 U	2.4 U	12 U	5.3 U
Ethylbenzene		1.1 U	1 U	1 U	1.2 U	0.83 U	4.1 U	1.8 U
Ethylene Dibromide		2.1 U	2 U	2.1 U	2.4 U	1.7 U	8.2 U	3.6 U
Iodomethane		1.4 U	1.4 U	1.4 U	1.6 U	1.2 J	5.5 U	2.4 U
Isobutyl alcohol		98 R	94 R	96 R	110 R	77 R	380 R	170 R
Methacrylonitrile		34 U	33 U	33 U	39 U	27 U	130 U	58 U
Methyl methacrylate		5.3 U	5 U	5.1 U	6 U	4.1 U	20 U	8.9 U
Methylene Chloride		1.4 U	1.4 U	1.4 U	1.6 U	1.1 U	5.5 U	2.4 U
Pentachloroethane		3.1 UJ	3 UJ	3.1 UJ	3.5 UJ	2.4 UJ	12 UJ	5.3 UJ
Propionitrile		30 U	29 U	29 U	34 U	23 U	110 U	51 U
Styrene		0.94 U	0.9 U	0.92 U	1.1 U	0.73 U	3.6 U	1.6 U
Tetrachloroethene		1 U	1 U	1 U	1.2 U	0.81 U	4 U	1.8 U
Toluene		1.1 U	1.1 U	1.1 U	1.3 U	0.88 U	4.3 U	1.9 U
trans-1,2-Dichloroethene		1.4 U	1.3 U	1.3 U	1.6 U	1.1 U	5.3 U	2.3 U
trans-1,3-Dichloropropene		1.2 U	1.2 U	1.2 U	1.4 U	0.97 U	4.8 U	2.1 U
trans-1,4-Dichloro-2-butene		4.4 U	4.2 U	4.3 U	5 U	3.5 U	17 U	7.5 U
Trichloroethene		1.4 U	1.4 U	1.4 U	1.6 U	1.1 U	5.5 U	2.4 U
Trichlorofluoromethane		2.1 U	2 U	2.1 U	2.4 U	1.7 U	8.2 U	3.6 U
Vinyl acetate		2.1 U	2 U	2.1 U	2.4 U	1.7 U	8.2 U	3.6 U
Vinyl chloride		0.83 U	0.79 U	0.81 U	0.94 U	0.65 U	3.2 U	1.4 U
Xylenes, Total		3.3 U	3.1 U	3.2 U	3.7 U	2.6 U	13 U	5.5 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB241	74SB241	74SB241	74SB245	74SB245	74SB246	74SB246
	Sample ID	74SB241-04D	74SB241-04	74SB241-05	74SB245-03	74SB245-05	74SB246-03D	74SB246-03
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	7.0-9.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>								
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB241	74SB241	74SB241	74SB245	74SB245	74SB246	74SB246
	Sample ID	74SB241-04D	74SB241-04	74SB241-05	74SB245-03	74SB245-05	74SB246-03D	74SB246-03
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	7.0-9.0	7.0-9.0	9.0-11.0	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0
<b>Metals (mg/kg)</b>								
Antimony		0.35 J	0.21 J	0.37 J	0.19 J	0.2 J	0.53 J	0.4 J
Arsenic		3.7	3.7	3.1	2.8	3.5	6.9	4.5
Barium		12	9.4 J	10	38	45	21	15
Beryllium		0.049 U	0.02 U	0.045 U	0.074 J	0.15 J	0.095 J	0.053 U
Cadmium		0.042 U	0.034 U	0.038 U	0.23	0.21	0.067 U	0.046 U
Chromium		9.7	3.6 J	3.8	11	16	23 R	4.4 R
Cobalt		1	0.57 J	0.81	9.1	8.1	4.7 J	1.6 J
Copper		4.1 U	0.89 UJ	1.4 U	64	67	16	5.3 U
Lead		0.5 U	0.66	0.22 U	6.3	3.4	1.2 U	0.5 U
Mercury		0.0052 U	0.0042 U	0.0051 U	0.0041 U	0.0053 J	0.0082 U	0.0057 U
Nickel		2.7	0.73 J	0.96	5.9	7.2	6.5	1.4
Selenium		0.33 U	0.13 U	0.3 U	0.28 U	0.47 J	0.51 U	0.35 U
Silver		0.044 UJ	0.018 U	0.04 UJ	0.045 J	0.062 J	0.069 UJ	0.047 UJ
Thallium		0.33 U	0.13 U	0.3 U	0.28 U	0.25 U	0.51 U	0.35 U
Tin		11 U	4.4 U	9.9 U	9.2 U	8.2 U	17 U	12 U
Vanadium		13	3.3 J	4.6	63	68	38 R	13 R
Zinc		5 U	0.7 U	2.6 U	42 J	46 J	17 U	4.6 U
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics		2.4	1.9	2.1	1.7	2.9	4.3 J	1.4 J
Gasoline Range Organics		0.01 U	0.011 U	0.0089 U	0.029 J	0.01 U	0.032 U	0.016 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB246	74SB247	74SB248	74SB249	74SB250	74SB250	74SB251
	Sample ID	74SB246-05	74SB247-03	74SB248-03	74SB249-03	74SB250-03	74SB250-05	74SB251-03
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>								
1,1,1,2-Tetrachloroethane		1.2 U	0.88 U	0.93 U	0.91 U	0.9 U	1.2 U	1 U
1,1,1-Trichloroethane		1.1 U	0.8 U	0.84 U	0.83 U	0.82 U	1.1 U	0.95 U
1,1,2,2-Tetrachloroethane		2.7 U	1.9 U	2 U	2 U	2 U	2.5 U	2.3 U
1,1,2-Trichloroethane		2.3 U	1.6 U	1.7 U	1.7 U	1.7 U	2.2 U	2 U
1,1-Dichloroethane		0.95 U	0.69 U	0.73 U	0.71 U	0.71 U	0.91 U	0.82 U
1,1-Dichloroethene		1 U	0.74 U	0.79 U	0.77 U	0.76 U	0.98 U	0.88 U
1,2,3-Trichloropropane		2.7 UJ	1.9 UJ	2 UJ	2 UJ	2 UJ	2.5 UJ	2.3 UJ
1,2-Dibromo-3-Chloropropane		5.3 UJ	3.8 UJ	4.1 UJ	4 UJ	4 UJ	5.1 UJ	4.6 UJ
1,2-Dichloroethane		1.9 U	1.4 U	1.5 U	1.4 U	1.4 U	1.8 U	1.6 U
1,2-Dichloropropane		2.1 U	1.5 U	1.6 U	1.6 U	1.6 U	2 U	1.8 U
2-Butanone (MEK)		17 UJ	4.4 UJ	3.9 UJ	7.3 UJ	4.7 UJ	7.8 UJ	8.6 UJ
2-Chloro-1,3-butadiene		1.1 U	0.78 U	0.83 U	0.81 U	0.81 U	1 U	0.93 U
2-Hexanone		4 UJ	2.9 UJ	3.1 UJ	3 UJ	3 UJ	3.8 UJ	3.4 UJ
3-Chloro-1-propene		2.8 UJ	2.1 UJ	2.2 UJ	2.1 UJ	2.1 UJ	2.7 UJ	2.4 UJ
4-Methyl-2-pentanone (MIBK)		5.5 UJ	4 UJ	4.2 UJ	4.1 UJ	4.1 UJ	5.3 UJ	4.7 UJ
Acetone		85 UJ	34 U	20 J	56 UJ	36 UJ	64 UJ	69 UJ
Acetonitrile		85 UJ	62 UJ	66 UJ	64 UJ	64 UJ	82 UJ	73 UJ
Acrolein		36 R	26 U	28 U	27 R	27 R	35 R	31 R
Acrylonitrile		44 UJ	32 U	33 U	33 UJ	33 UJ	42 UJ	38 UJ
Benzene		1.5 U	1.1 J	1.2 U	1.1 U	1.1 U	1.4 U	1.3 U
Bromoform		2.1 UJ	1.5 U	1.6 U	1.6 UJ	1.6 UJ	2 UJ	1.8 UJ
Bromomethane		3 UJ	2.2 UJ	2.3 UJ	2.3 UJ	2.3 UJ	2.9 UJ	2.6 UJ
Carbon disulfide		0.97 U	0.7 U	0.74 U	0.73 U	0.72 U	0.93 U	0.83 U
Carbon tetrachloride		1.9 U	1.4 U	1.5 U	1.4 U	1.4 U	1.8 U	1.6 U
Chlorobenzene		1.4 U	1 U	1.1 U	1 U	1 U	1.3 U	1.2 U
Chlorodibromomethane		0.95 U	0.69 U	0.73 U	0.71 U	0.71 U	0.91 U	0.82 U
Chloroethane		2.3 U	1.6 U	1.7 U	1.7 U	1.7 U	2.2 U	2 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB246	74SB247	74SB248	74SB249	74SB250	74SB250	74SB251
Sample ID	74SB246-05	74SB247-03	74SB248-03	74SB249-03	74SB250-03	74SB250-05	74SB251-03
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Chloroform	0.95 U	0.69 U	0.73 U	0.71 U	0.71 U	0.91 U	0.82 U
Chloromethane	1.3 UJ	0.97 U	1 U	1 UJ	1 UJ	1.3 UJ	1.2 UJ
cis-1,3-Dichloropropene	1.6 U	1.2 U	1.3 U	1.2 U	1.2 U	1.6 U	1.4 U
Dibromomethane	2.3 U	1.6 U	1.7 U	1.7 U	1.7 U	2.2 U	2 U
Dichlorobromomethane	1.6 U	1.1 U	1.2 U	1.2 U	1.2 U	1.5 U	1.4 U
Dichlorodifluoromethane	1.7 UJ	1.2 U	1.3 U	1.3 UJ	1.3 UJ	1.6 UJ	1.5 UJ
Ethyl methacrylate	4.2 U	3 U	3.2 U	3.1 U	3.1 U	4 U	3.6 U
Ethylbenzene	1.4 U	1 U	1.1 U	1.1 U	1.1 U	1.4 U	1.2 U
Ethylene Dibromide	2.8 U	2.1 U	2.2 U	2.1 U	2.1 U	2.7 U	2.4 U
Iodomethane	1.9 U	1.4 U	1.5 U	1.4 U	1.4 U	1.8 U	3.9 J
Isobutyl alcohol	130 R	95 R	100 R	98 R	98 R	130 R	110 R
Methacrylonitrile	45 U	33 U	35 U	34 U	34 U	44 U	39 U
Methyl methacrylate	7 U	5.1 U	5.4 U	5.3 U	5.2 U	6.7 U	6 U
Methylene Chloride	1.9 U	1.4 U	1.5 U	1.4 U	1.4 U	1.8 U	1.6 U
Pentachloroethane	4.2 UJ	3 UJ	3.2 U	3.1 UJ	3.1 UJ	4 UJ	3.6 UJ
Propionitrile	40 UJ	29 U	31 UJ	30 UJ	30 UJ	38 UJ	34 UJ
Styrene	1.2 U	0.91 U	0.96 U	0.94 U	0.93 U	1.2 U	1.1 U
Tetrachloroethene	1.4 U	1 U	1.1 U	1 U	1 U	1.3 U	1.2 U
Toluene	1.5 U	1.1 U	1.2 U	1.1 U	1.1 U	1.4 U	1.3 U
trans-1,2-Dichloroethene	1.8 U	1.3 U	1.4 U	1.4 U	1.4 U	1.8 U	1.6 U
trans-1,3-Dichloropropene	1.6 U	1.2 U	1.3 U	1.2 U	1.2 U	1.6 U	1.4 U
trans-1,4-Dichloro-2-butene	5.9 U	4.3 U	4.5 UJ	4.4 U	4.4 U	5.6 U	5.1 U
Trichloroethene	1.9 U	1.4 U	1.5 U	1.4 U	1.4 U	1.8 U	1.6 U
Trichlorofluoromethane	2.8 U	2.1 U	2.2 U	2.1 U	2.1 U	2.7 U	2.4 U
Vinyl acetate	2.8 U	2.1 U	2.2 U	2.1 U	2.1 U	2.7 U	2.4 U
Vinyl chloride	1.1 U	0.8 U	0.84 U	0.83 U	0.82 U	1.1 U	0.95 U
Xylenes, Total	4.4 U	3.2 U	3.3 U	3.3 U	3.3 U	4.2 U	3.8 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB246	74SB247	74SB248	74SB249	74SB250	74SB250	74SB251
	Sample ID	74SB246-05	74SB247-03	74SB248-03	74SB249-03	74SB250-03	74SB250-05	74SB251-03
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>								
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB246	74SB247	74SB248	74SB249	74SB250	74SB250	74SB251
	Sample ID	74SB246-05	74SB247-03	74SB248-03	74SB249-03	74SB250-03	74SB250-05	74SB251-03
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	9.0-11.0	5.0-7.0
<b>Metals (mg/kg)</b>								
Antimony		0.16 UJ	0.2 J	0.2 UJ	0.2 UJ	0.18 UJ	0.27 J	0.19 UJ
Arsenic		1.8	3.1	2.9	3.7	2.8	5.9	0.99 J
Barium		76	35	14	19	27	16	110
Beryllium		0.13 J	0.12 J	0.048 U	0.047 U	0.043 U	0.088 J	0.23 J
Cadmium		0.08 J	0.11 J	0.041 U	0.041 U	0.087 J	0.044 U	0.05 J
Chromium		27	19	5.1	6.3	5.9	14	14
Cobalt		10	12	2.5	1.8	3.8	2.5	29
Copper		63	74	13	7.4	27	14	240
Lead		1.7	3.8	0.39 U	0.44 U	0.49 U	0.61 U	0.96
Mercury		0.0071 J	0.0044 U	0.0049 U	0.0054 U	0.005 U	0.0065 J	0.0047 U
Nickel		13	9.4	2.1	1.8	2.9	4.6	12
Selenium		0.25 U	0.3 U	0.32 U	0.31 U	0.29 U	0.45 J	0.41 J
Silver		0.036 J	0.04 UJ	0.042 UJ	0.042 UJ	0.038 UJ	0.046 UJ	0.046 J
Thallium		0.25 U	0.3 U	0.32 U	0.31 U	0.29 U	0.34 U	0.3 U
Tin		8.4 U	10 U	11 U	10 U	9.6 U	11 U	10 U
Vanadium		82	97	15	12	24	22	190
Zinc		37 J	36 J	9.7 U	5.8 U	24 J	11 U	50 J
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics		1.7	1.4	1.2	0.97	0.9	1.5	1.8
Gasoline Range Organics		0.058 J	0.013 U	0.089 UJ	0.012 U	0.15 UJ	0.32 UJ	0.0084 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB251	74SB251	74SB252	74SB253	74SB254	74SB255	74SB256	74SB256
Sample ID	74SB251-03D	74SB251-05	74SB252-03	74SB253-03	74SB254-03	74SB255-03	74SB256-03	74SB256-03D
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>								
1,1,1,2-Tetrachloroethane	0.88 U	0.75 U	0.84 U	0.85 U	0.72 U	0.72 U	0.54 U	0.53 U
1,1,1-Trichloroethane	0.8 U	0.68 U	0.76 U	0.77 U	0.65 U	0.65 U	0.49 U	0.48 U
1,1,2,2-Tetrachloroethane	1.9 U	1.6 U	1.8 U	1.9 U	1.6 U	1.6 U	1.2 U	1.2 U
1,1,2-Trichloroethane	1.7 U	1.4 U	1.6 U	1.6 U	1.3 U	1.4 U	1 U	0.99 U
1,1-Dichloroethane	0.69 U	0.59 U	0.65 U	0.67 U	0.56 U	0.56 U	0.42 U	0.41 U
1,1-Dichloroethene	0.74 U	0.64 U	0.71 U	0.72 U	0.61 U	0.61 U	0.46 U	0.45 U
1,2,3-Trichloropropane	1.9 UJ	1.6 UJ	1.8 UJ	1.9 UJ	1.6 UJ	1.6 UJ	1.2 UJ	1.2 UJ
1,2-Dibromo-3-Chloropropane	3.9 UJ	3.3 UJ	3.7 UJ	3.7 UJ	3.1 UJ	3.2 UJ	2.4 UJ	2.3 UJ
1,2-Dichloroethane	1.4 U	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	0.85 U	0.83 U
1,2-Dichloropropane	1.5 U	1.3 U	1.4 U	1.5 U	1.2 U	1.2 U	0.93 U	0.91 U
2-Butanone (MEK)	38 J	3.2 UJ	16 UJ	8.5 UJ	3 UJ	3 UJ	6.5 UJ	2.2 UJ
2-Chloro-1,3-butadiene	0.79 U	0.67 U	0.74 U	0.76 U	0.64 U	0.64 U	0.48 U	0.47 U
2-Hexanone	13 J	2.5 UJ	2.7 UJ	2.8 UJ	2.4 UJ	2.4 UJ	1.8 UJ	1.7 UJ
3-Chloro-1-propene	2.1 UJ	1.8 UJ	2 UJ	2 UJ	1.7 UJ	1.7 UJ	1.3 U	1.2 U
4-Methyl-2-pentanone (MIBK)	5.6 J	3.4 UJ	3.8 UJ	3.9 UJ	3.3 UJ	3.3 UJ	2.5 UJ	2.4 UJ
Acetone	250 J	18 J	180 J	83 J	4.9 UJ	30 J	61 UJ	27 UJ
Acetonitrile	62 UJ	53 UJ	59 UJ	60 UJ	51 UJ	51 UJ	38 UJ	37 UJ
Acrolein	26 U	22 U	25 U	25 U	21 U	21 U	16 U	16 U
Acrylonitrile	32 U	27 U	30 U	31 U	26 U	26 U	19 UJ	19 UJ
Benzene	1.1 U	0.93 U	1 U	1.1 U	0.89 U	0.89 U	0.67 U	0.65 U
Bromoform	1.5 U	1.3 U	1.4 U	1.5 U	1.2 U	1.2 U	0.93 U	0.91 U
Bromomethane	2.2 UJ	1.9 UJ	2.1 UJ	2.1 UJ	1.8 UJ	1.8 UJ	1.4 UJ	1.3 UJ
Carbon disulfide	0.7 U	0.6 U	0.67 U	0.68 U	0.57 U	0.58 U	0.43 U	0.42 U
Carbon tetrachloride	1.4 U	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	0.85 U	0.83 U
Chlorobenzene	1 U	0.86 U	0.95 U	0.97 U	0.82 U	0.82 U	0.62 U	0.6 U
Chlorodibromomethane	0.69 U	0.59 U	0.65 U	0.67 U	0.56 U	0.56 U	0.42 U	0.41 U
Chloroethane	1.7 U	1.4 U	1.6 U	1.6 U	1.3 U	1.4 U	1 U	0.99 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB251	74SB251	74SB252	74SB253	74SB254	74SB255	74SB256	74SB256
Sample ID	74SB251-03D	74SB251-05	74SB252-03	74SB253-03	74SB254-03	74SB255-03	74SB256-03	74SB256-03D
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>								
Chloroform	0.69 U	0.59 U	0.65 U	0.67 U	0.56 U	0.56 U	0.42 U	0.41 U
Chloromethane	0.98 U	0.84 U	0.93 U	0.95 U	0.8 U	0.8 U	0.6 U	0.59 U
cis-1,3-Dichloropropene	1.2 U	1 U	1.1 U	1.2 U	0.98 U	0.98 U	0.74 U	0.72 U
Dibromomethane	1.7 U	1.4 U	1.6 U	1.6 U	1.3 U	1.4 U	1 U	0.99 U
Dichlorobromomethane	1.1 U	0.98 U	1.1 U	1.1 U	0.93 U	0.94 U	0.7 U	0.69 U
Dichlorodifluoromethane	1.2 U	1 U	1.2 U	1.2 U	1 U	1 U	0.75 U	0.74 U
Ethyl methacrylate	3 U	2.6 U	2.9 U	2.9 U	2.5 U	2.5 U	1.9 U	1.8 U
Ethylbenzene	1 U	0.88 U	0.98 U	1 U	0.84 U	0.85 U	0.63 U	0.62 U
Ethylene Dibromide	2.1 U	1.8 U	2 U	2 U	1.7 U	1.7 U	1.3 U	1.2 U
Iodomethane	7.3	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	0.85 U	0.83 U
Isobutyl alcohol	95 R	81 R	90 R	92 R	78 R	78 R	58 R	57 R
Methacrylonitrile	33 U	28 U	31 U	32 U	27 U	27 U	20 U	20 U
Methyl methacrylate	5.1 U	4.4 U	4.8 U	4.9 U	4.2 U	4.2 U	3.1 U	3.1 U
Methylene Chloride	1.4 U	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	0.85 U	0.83 U
Pentachloroethane	3 U	2.6 U	2.9 U	2.9 U	2.5 U	2.5 U	1.9 UJ	1.8 UJ
Propionitrile	29 UJ	25 UJ	27 UJ	28 UJ	24 UJ	24 UJ	18 UJ	17 UJ
Styrene	0.91 U	0.78 U	0.86 U	0.88 U	0.74 U	0.74 U	0.56 U	0.55 U
Tetrachloroethene	1 U	0.86 U	0.95 U	0.97 U	0.82 U	0.82 U	0.62 U	0.6 U
Toluene	1.1 U	0.93 U	1 U	1.1 U	0.89 U	0.89 U	0.67 U	0.65 U
trans-1,2-Dichloroethene	1.3 U	1.1 U	1.3 U	1.3 U	1.1 U	1.1 U	0.82 U	0.8 U
trans-1,3-Dichloropropene	1.2 U	1 U	1.1 U	1.2 U	0.98 U	0.98 U	0.74 U	0.72 U
trans-1,4-Dichloro-2-butene	4.3 UJ	3.6 UJ	4.1 UJ	4.1 UJ	3.5 UJ	3.5 UJ	2.6 U	2.6 U
Trichloroethene	1.4 U	1.2 U	1.3 U	1.3 U	1.1 U	1.1 U	0.85 U	0.83 U
Trichlorofluoromethane	2.1 U	1.8 U	2 U	2 U	1.7 U	1.7 U	1.3 U	1.2 U
Vinyl acetate	2.1 U	1.8 U	2 U	2 U	1.7 U	1.7 U	1.3 U	1.2 U
Vinyl chloride	0.8 U	0.68 U	0.76 U	0.77 U	0.65 U	0.65 U	0.49 U	0.48 U
Xylenes, Total	3.2 U	2.7 U	3 U	3.1 U	2.6 U	2.6 U	1.9 U	1.9 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB251	74SB251	74SB252	74SB253	74SB254	74SB255	74SB256	74SB256
	Sample ID	74SB251-03D	74SB251-05	74SB252-03	74SB253-03	74SB254-03	74SB255-03	74SB256-03	74SB256-03D
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>									
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB251	74SB251	74SB252	74SB253	74SB254	74SB255	74SB256	74SB256
	Sample ID	74SB251-03D	74SB251-05	74SB252-03	74SB253-03	74SB254-03	74SB255-03	74SB256-03	74SB256-03D
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	5.0-7.0	9.0-11.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0
<b>Metals (mg/kg)</b>									
Antimony		0.19 UJ	0.17 UJ	0.28 J	0.15 UJ	0.72 J	0.17 J	0.17 U	0.2 U
Arsenic		1.2 J	0.83 J	3.1	1.3	3.4	3.7	1.3	1.5
Barium		110	97	41	72	23	42	59	43
Beryllium		0.22 J	0.14 J	0.14 J	0.2 J	0.62	0.44	0.17	0.14
Cadmium		0.073 J	0.083 J	0.18	0.31	0.15	0.2	0.16	0.15
Chromium		15	14	34	16	17	7.5	27	19
Cobalt		24	13	13	19	18	31	19	14
Copper		220	120	66	100	72	96	110	150
Lead		1.2	1.4	6.7	4.1	5	5.1	15	18
Mercury		0.0061 J	0.0048 U	0.0041 U	0.0037 U	0.23	0.0057 J	0.0047 J	0.0052 J
Nickel		12	10	15	12	16	20	13	9.5
Selenium		0.41 J	0.28 U	0.33 J	0.24 U	0.24 U	0.26 U	0.13 J	0.13 J
Silver		0.071 J	0.05 J	0.054 J	0.035 J	0.032 UJ	0.035 UJ	0.041 J	0.046 J
Thallium		0.3 U	0.28 U	0.25 U	0.24 U	0.24 U	0.26 U	0.12 U	0.12 U
Tin		9.9 U	9.2 U	8.2 U	8 U	8.1 U	8.8 U	4 U	4 U
Vanadium		180	110	89	130	110	200	140	110
Zinc		62 J	41 J	55 J	93 J	76 J	110 J	61 J	50 J
<b>TPH DRO/GRO (mg/kg)</b>									
Diesel Range Organics		1.1	18	1.2	1.6	1.3	1.2	20	0.98
Gasoline Range Organics		0.0092 U	0.099	0.012 U	0.006 U	0.0065 U	0.0069 U	0.38 R	0.065 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB256	74SB258	74SB258	74SB259	74SB259	74SB260	74SB260
Sample ID	74SB256-04	74SB258-03	74SB258-05	74SB259-03	74SB259-04	74SB260-03	74SB260-04
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	7.0-9.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>							
1,1,1,2-Tetrachloroethane	0.79 U	0.53 U	0.61 U	0.64 U	1.3 U	0.65 U	0.69 U
1,1,1-Trichloroethane	0.71 U	0.48 U	0.55 U	0.58 U	1.2 U	0.59 U	0.63 U
1,1,2,2-Tetrachloroethane	1.7 U	1.2 U	1.3 U	1.4 U	2.9 U	1.4 U	1.5 U
1,1,2-Trichloroethane	1.5 U	0.99 U	1.1 U	1.2 U	2.5 U	1.2 U	1.3 U
1,1-Dichloroethane	0.62 U	0.41 U	0.47 U	0.5 U	1 U	0.51 U	0.54 U
1,1-Dichloroethene	0.67 U	0.45 U	0.51 U	0.54 U	1.1 U	0.55 U	0.59 U
1,2,3-Trichloropropane	1.7 UJ	1.2 UJ	1.3 UJ	1.4 UJ	2.9 UJ	1.4 UJ	1.5 UJ
1,2-Dibromo-3-Chloropropane	3.4 UJ	2.3 UJ	2.7 UJ	2.8 UJ	5.8 UJ	2.8 UJ	3 UJ
1,2-Dichloroethane	1.2 U	0.83 U	0.95 U	1 U	2.1 U	1 U	1.1 U
1,2-Dichloropropane	1.4 U	0.91 U	1 U	1.1 U	2.3 U	1.1 U	1.2 U
2-Butanone (MEK)	4.6 UJ	8 UJ	3.5 UJ	7.4 UJ	10 UJ	8.1 UJ	6.7 UJ
2-Chloro-1,3-butadiene	0.7 UJ	0.47 UJ	0.54 UJ	0.57 UJ	1.2 UJ	0.58 U	0.62 UJ
2-Hexanone	2.6 UJ	1.7 UJ	2 UJ	2.1 UJ	4.3 UJ	4.8 J	2.3 UJ
3-Chloro-1-propene	1.8 UJ	1.2 UJ	1.4 UJ	1.5 UJ	3.1 UJ	1.5 UJ	1.6 UJ
4-Methyl-2-pentanone (MIBK)	3.6 UJ	2.4 UJ	2.8 UJ	2.9 UJ	6 UJ	3.5 J	3.1 UJ
Acetone	34 U	47 U	31 U	46 U	74 U	33 UJ	58 U
Acetonitrile	55 UJ	37 UJ	43 UJ	45 UJ	92 UJ	45 UJ	49 UJ
Acrolein	23 UJ	16 UJ	18 UJ	19 UJ	39 UJ	19 R	21 UJ
Acrylonitrile	28 U	19 U	22 U	23 U	47 U	23 UJ	25 U
Benzene	0.97 U	0.65 U	0.75 U	0.79 U	1.6 U	0.8 U	0.86 U
Bromoform	1.4 UJ	0.91 UJ	1 UJ	1.1 UJ	2.3 U	1.1 UJ	1.2 UJ
Bromomethane	2 U	1.3 U	1.5 U	1.6 U	3.3 UJ	1.6 UJ	1.7 U
Carbon disulfide	3.9 J	0.42 U	0.48 U	0.51 U	1 U	0.52 U	0.74 J
Carbon tetrachloride	1.2 U	0.83 U	0.95 U	1 U	2.1 U	1 U	1.1 U
Chlorobenzene	0.9 U	0.6 U	0.69 U	0.73 U	1.5 U	0.74 U	0.79 U
Chlorodibromomethane	0.62 U	0.41 U	0.47 U	0.5 U	1 U	0.51 U	0.54 U
Chloroethane	1.5 U	0.99 U	1.1 U	1.2 U	2.5 U	1.2 U	1.3 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB256	74SB258	74SB258	74SB259	74SB259	74SB260	74SB260
Sample ID	74SB256-04	74SB258-03	74SB258-05	74SB259-03	74SB259-04	74SB260-03	74SB260-04
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	7.0-9.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Chloroform	0.62 U	0.41 U	0.47 U	0.5 U	1 U	0.51 U	0.54 U
Chloromethane	0.87 U	0.59 U	0.67 U	0.71 U	1.5 U	0.72 UJ	0.77 U
cis-1,3-Dichloropropene	1.1 U	0.72 U	0.83 U	0.87 U	1.8 U	0.88 U	0.94 U
Dibromomethane	1.5 U	0.99 U	1.1 U	1.2 U	2.5 U	1.2 U	1.3 U
Dichlorobromomethane	1 U	0.69 U	0.79 U	0.83 U	1.7 U	0.84 U	0.9 U
Dichlorodifluoromethane	1.1 U	0.74 U	0.84 U	0.89 U	1.8 U	0.9 UJ	0.97 U
Ethyl methacrylate	2.7 U	1.8 U	2.1 U	2.2 U	4.5 U	2.2 U	2.4 U
Ethylbenzene	0.92 U	0.62 U	0.71 U	0.75 U	1.5 U	0.76 U	0.81 U
Ethylene Dibromide	1.8 U	1.2 U	1.4 U	1.5 U	3.1 U	1.5 U	1.6 U
Iodomethane	1.2 UJ	0.9 U	0.95 UJ	1 UJ	2.1 UJ	1 U	1.1 UJ
Isobutyl alcohol	85 R	57 R	65 R	69 R	140 R	70 R	75 R
Methacrylonitrile	30 U	20 U	23 U	24 U	49 U	24 U	26 U
Methyl methacrylate	4.6 U	3.1 U	3.5 U	3.7 U	7.6 U	3.7 U	4 U
Methylene Chloride	1.2 U	0.83 U	0.95 U	1 U	2.1 U	1 U	1.1 U
Pentachloroethane	2.7 UJ	1.8 UJ	2.1 UJ	2.2 UJ	4.5 UJ	2.2 UJ	2.4 UJ
Propionitrile	26 U	17 U	20 U	21 U	43 U	21 UJ	23 U
Styrene	0.81 U	0.55 U	0.63 U	0.66 U	1.4 U	0.67 U	0.72 U
Tetrachloroethene	0.9 U	0.6 U	0.69 U	0.73 U	1.5 U	0.74 U	0.79 U
Toluene	0.97 U	0.65 U	0.75 U	0.79 U	1.6 U	0.8 U	0.86 U
trans-1,2-Dichloroethene	1.2 U	0.8 U	0.92 U	0.97 U	2 U	0.98 U	1.1 U
trans-1,3-Dichloropropene	1.1 U	0.72 U	0.83 U	0.87 U	1.8 U	0.88 U	0.94 U
trans-1,4-Dichloro-2-butene	3.8 U	2.6 U	2.9 U	3.1 U	6.4 U	3.1 U	3.4 U
Trichloroethene	1.2 U	0.83 U	0.95 U	1 U	2.1 U	1 U	1.1 U
Trichlorofluoromethane	1.8 U	1.2 U	1.4 U	1.5 U	3.1 U	1.5 U	1.6 U
Vinyl acetate	1.8 U	1.2 U	1.4 U	1.5 U	3.1 U	1.5 U	1.6 U
Vinyl chloride	0.71 U	0.48 U	0.55 U	0.58 U	1.2 U	0.59 U	0.63 U
Xylenes, Total	2.8 U	1.9 U	2.2 U	2.3 U	4.7 U	2.3 U	2.5 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB256	74SB258	74SB258	74SB259	74SB259	74SB260	74SB260
	Sample ID	74SB256-04	74SB258-03	74SB258-05	74SB259-03	74SB259-04	74SB260-03	74SB260-04
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	7.0-9.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>								
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	71 U
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	100 U
Acenaphthene		NA	NA	NA	NA	NA	NA	34 U
Acenaphthylene		NA	NA	NA	NA	NA	NA	100 U
Anthracene		NA	NA	NA	NA	NA	NA	100 U
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	100 U
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	39 U
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	45 U
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	100 U
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	59 U
Chrysene		NA	NA	NA	NA	NA	NA	36 U
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	35 U
Fluoranthene		NA	NA	NA	NA	NA	NA	100 U
Fluorene		NA	NA	NA	NA	NA	NA	45 U
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	71 U
Naphthalene		NA	NA	NA	NA	NA	NA	200 J
Phenanthrene		NA	NA	NA	NA	NA	NA	100 U
Pyrene		NA	NA	NA	NA	NA	NA	100 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB256	74SB258	74SB258	74SB259	74SB259	74SB260	74SB260
	Sample ID	74SB256-04	74SB258-03	74SB258-05	74SB259-03	74SB259-04	74SB260-03	74SB260-04
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	7.0-9.0	5.0-7.0	9.0-11.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>Metals (mg/kg)</b>								
Antimony		0.63 U	0.16 U	0.078 U	0.24 U	1.2	0.3 J	0.42 J
Arsenic		2.7	2.5	1.2	2.4	1.5	2.2	1.5
Barium		230	41	48	23	28 J	47 J	110 J
Beryllium		0.55	0.11	0.2	0.068 J	0.34	0.15	0.32
Cadmium		0.086 J	0.1	1.6	0.077 J	0.2	0.12	0.12
Chromium		90	51	18	44	32 J	39 J	39 J
Cobalt		30	17	20	14	23 J	17 J	29 J
Copper		130	56	100	32	66 J	350 J	140 J
Lead		5	2.3	1	1.6	24	8.7	4.5
Mercury		0.02 J	0.012 J	0.0039 U	0.016 J	0.022	0.013 J	0.0073 J
Nickel		23	23	11	16	19 J	15 J	24 J
Selenium		0.66	0.12 J	0.12 U	0.12 U	0.12 U	0.14 J	0.26 J
Silver		0.061 J	0.035 J	0.07 J	0.021 J	0.056 J	0.034 J	0.037 J
Thallium		0.15 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U
Tin		5.1 U	4 U	4.1 U	4.1 U	4 U	3.9 U	4.3 U
Vanadium		250	110	200	92	120 J	110 J	170 J
Zinc		59 J	35 J	73 J	22 J	100	41	71
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics		1000	37	96	1.3	17	25	150
Gasoline Range Organics		0.096 U	0.056 U	0.06 U	0.067 U	0.01 U	0.018 J	0.044 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB261	74SB261	74SB262	74SB263	74SB263	74SB264	74SB264
Sample ID	74SB261-03	74SB261-03D	74SB262-03	74SB263-03	74SB263-04	74SB264-03	74SB264-04
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>							
1,1,1,2-Tetrachloroethane	0.66 U	27 U	0.86 U	0.74 U	0.67 U	0.85 U	0.86 U
1,1,1-Trichloroethane	0.6 U	24 U	0.78 U	0.67 U	0.6 U	0.77 U	0.78 U
1,1,2,2-Tetrachloroethane	1.4 U	58 U	1.9 U	1.6 U	1.5 U	1.9 U	1.9 U
1,1,2-Trichloroethane	1.2 U	50 U	1.6 U	1.4 U	1.2 U	1.6 U	1.6 U
1,1-Dichloroethane	0.52 U	21 U	0.67 U	0.58 U	0.52 U	0.66 U	0.67 U
1,1-Dichloroethene	0.56 U	23 U	0.73 U	0.63 U	0.56 U	0.72 U	0.73 U
1,2,3-Trichloropropane	1.4 UJ	58 U	1.9 UJ	1.6 UJ	1.5 UJ	1.9 UJ	1.9 UJ
1,2-Dibromo-3-Chloropropane	2.9 UJ	120 U	3.8 UJ	3.2 UJ	2.9 UJ	3.7 UJ	3.8 UJ
1,2-Dichloroethane	1 U	42 UJ	1.3 U	1.2 U	1 U	1.3 U	1.3 U
1,2-Dichloropropane	1.1 U	46 U	1.5 U	1.3 U	1.1 U	1.5 U	1.5 U
2-Butanone (MEK)	2.8 UJ	170 U	8.2 UJ	8.7 UJ	8 UJ	4.3 UJ	25 UJ
2-Chloro-1,3-butadiene	0.59 UJ	24 U	0.77 U	0.66 UJ	0.59 U	0.76 U	0.77 U
2-Hexanone	2.2 UJ	88 UJ	2.8 UJ	2.4 UJ	2.2 UJ	2.8 UJ	2.8 UJ
3-Chloro-1-propene	1.6 UJ	63 U	2 UJ	1.7 UJ	1.6 U	2 U	2 U
4-Methyl-2-pentanone (MIBK)	3 UJ	120 U	3.9 UJ	3.4 UJ	3 UJ	3.9 UJ	3.9 UJ
Acetone	75 U	180 UJ	44 UJ	61 U	69 UJ	46 UJ	160 J
Acetonitrile	47 UJ	1900 U	61 UJ	52 UJ	47 UJ	60 UJ	61 UJ
Acrolein	20 UJ	790 UJ	26 R	22 UJ	20 U	25 U	26 U
Acrylonitrile	24 U	960 UJ	31 UJ	27 U	24 UJ	31 UJ	31 UJ
Benzene	0.82 U	33 U	1.1 U	0.92 U	0.82 U	1.1 U	1.1 U
Bromoform	1.1 UJ	46 U	1.5 UJ	1.3 UJ	1.1 U	1.5 U	1.5 U
Bromomethane	1.7 U	67 U	2.2 UJ	1.9 U	1.7 UJ	2.1 UJ	2.2 UJ
Carbon disulfide	0.53 U	21 U	0.69 U	0.59 U	0.53 U	4.4 J	0.75 J
Carbon tetrachloride	1 U	42 U	1.3 U	1.2 U	1 U	1.3 U	1.3 U
Chlorobenzene	0.75 U	30 U	0.98 U	0.85 U	0.76 U	0.97 U	0.98 U
Chlorodibromomethane	0.52 U	21 U	0.67 U	0.58 U	0.52 U	0.66 U	0.67 U
Chloroethane	1.2 U	50 UJ	1.6 U	1.4 U	1.2 U	1.6 U	1.6 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB261	74SB261	74SB262	74SB263	74SB263	74SB264	74SB264
Sample ID	74SB261-03	74SB261-03D	74SB262-03	74SB263-03	74SB263-04	74SB264-03	74SB264-04
Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
Depth Range	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Chloroform	0.52 U	21 U	0.67 U	0.58 U	0.52 U	0.66 U	0.67 U
Chloromethane	0.73 U	30 U	0.96 UJ	0.82 U	0.74 U	0.94 U	0.95 U
cis-1,3-Dichloropropene	0.9 U	36 U	1.2 U	1 U	0.91 U	1.2 U	1.2 U
Dibromomethane	1.2 U	50 U	1.6 U	1.4 U	1.2 U	1.6 U	1.6 U
Dichlorobromomethane	0.86 U	35 U	1.1 U	0.96 U	0.86 U	1.1 U	1.1 U
Dichlorodifluoromethane	0.92 U	37 U	1.2 UJ	1 U	0.93 U	1.2 U	1.2 U
Ethyl methacrylate	2.3 U	92 U	3 U	2.6 U	2.3 U	2.9 U	3 U
Ethylbenzene	0.78 U	31 U	1 U	0.87 U	0.78 U	1 U	1 U
Ethylene Dibromide	1.6 U	63 U	2 U	1.7 U	1.6 U	2 U	2 U
Iodomethane	1 UJ	42 U	1.3 U	1.2 UJ	1 U	1.3 U	1.3 U
Isobutyl alcohol	71 R	2900 U	93 R	80 R	72 R	92 R	93 R
Methacrylonitrile	25 U	1000 U	32 U	28 U	25 U	32 U	32 U
Methyl methacrylate	3.8 U	150 U	5 U	4.3 U	3.9 U	4.9 U	5 U
Methylene Chloride	1 U	42 UJ	1.3 U	1.2 U	1 U	1.3 U	1.3 U
Pentachloroethane	2.3 UJ	92 R	3 UJ	2.6 UJ	2.3 UJ	2.9 UJ	3 UJ
Propionitrile	22 U	880 U	28 UJ	24 U	22 UJ	28 UJ	28 UJ
Styrene	0.68 U	28 U	0.89 U	0.77 U	0.69 U	0.88 U	0.89 U
Tetrachloroethene	0.75 U	30 U	0.98 U	0.85 U	0.76 U	0.97 U	0.98 U
Toluene	0.96 J	43 U	1.1 U	0.92 U	0.82 U	1.1 U	1.1 U
trans-1,2-Dichloroethene	1 U	40 UJ	1.3 U	1.1 U	1 U	1.3 U	1.3 U
trans-1,3-Dichloropropene	0.9 U	36 U	1.2 U	1 U	0.91 U	1.2 U	1.2 U
trans-1,4-Dichloro-2-butene	3.2 U	130 U	4.2 U	3.6 U	3.2 U	4.1 U	4.2 U
Trichloroethene	1 U	42 U	1.3 U	1.2 U	1 U	1.3 U	1.3 U
Trichlorofluoromethane	1.6 U	63 U	2 U	1.7 U	1.6 U	2 U	2 U
Vinyl acetate	1.6 U	63 U	2 U	1.7 U	1.6 U	2 U	2 U
Vinyl chloride	0.6 U	24 U	0.78 U	0.67 U	0.6 U	0.77 U	0.78 U
Xylenes, Total	2.4 U	96 U	3.1 U	2.7 U	2.4 U	3.1 U	3.1 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB261	74SB261	74SB262	74SB263	74SB263	74SB264	74SB264
	Sample ID	74SB261-03	74SB261-03D	74SB262-03	74SB263-03	74SB263-04	74SB264-03	74SB264-04
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>LLPAHs (ug/kg)</b>								
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA	2400
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA	1700
Acenaphthene		NA	NA	NA	NA	NA	NA	7.7 U
Acenaphthylene		NA	NA	NA	NA	NA	NA	23 U
Anthracene		NA	NA	NA	NA	NA	NA	23 U
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA	23 U
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA	8.9 U
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA	10 U
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA	23 U
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA	13 U
Chrysene		NA	NA	NA	NA	NA	NA	8.2 U
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA	7.9 U
Fluoranthene		NA	NA	NA	NA	NA	NA	60 J
Fluorene		NA	NA	NA	NA	NA	NA	61 J
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA	16 U
Naphthalene		NA	NA	NA	NA	NA	NA	8.1 U
Phenanthrene		NA	NA	NA	NA	NA	NA	80 J
Pyrene		NA	NA	NA	NA	NA	NA	77 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB261	74SB261	74SB262	74SB263	74SB263	74SB264	74SB264
	Sample ID	74SB261-03	74SB261-03D	74SB262-03	74SB263-03	74SB263-04	74SB264-03	74SB264-04
	Date	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008
	Depth Range	5.0-7.0	5.0-7.0	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	7.0-9.0
<b>Metals (mg/kg)</b>								
Antimony		0.27 J	0.3 J	0.26 J	0.4 U	0.17 U	0.5 U	0.4 U
Arsenic		4	4.3	3.2	6.1	0.98	2.9	3.5
Barium		19 J	19 J	73 J	23	7.3	40	71
Beryllium		0.038 U	0.052 U	0.34	0.076 J	0.2	0.18	0.22
Cadmium		0.062 J	0.17	0.29	0.08 J	1.4	0.13	0.15
Chromium		21 J	28 J	99 J	16	25	27	48
Cobalt		5.5 J	7.1 J	24 J	6.9	23	16	26
Copper		17 J	15 J	64 J	18	1.7 J	52	98
Lead		0.72	0.83	3.9	1.6	13	3.2	8.6
Mercury		0.0067 J	0.0058 J	0.0085 J	0.011 J	0.012 J	0.017 J	0.0083 J
Nickel		7.1 J	9.9 J	29 J	6.5	22	13	21
Selenium		0.14 J	0.17 J	0.5 J	0.17 J	0.12 U	0.2 J	0.25 J
Silver		0.018 U	0.021 J	0.019 U	0.029 J	0.11 J	0.032 J	0.051 J
Thallium		0.13 U	0.13 U	0.14 U	0.15 U	0.12 U	0.14 U	0.15 U
Tin		4.5 U	4.3 U	4.8 U	4.9 U	4 U	4.5 U	4.9 U
Vanadium		40 J	53 J	300 J	44	110	120	160
Zinc		10 J	16 J	56	14 J	120 J	36 J	61 J
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics		32 J	370 J	13	1	29	2.4	1.4
Gasoline Range Organics		0.076 UJ	0.0073 U	0.098	0.07 U	0.077 U	0.067 U	53

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB265	74SB265	74SB265	74SB266	74SB267	74SB267
	Sample ID	74SB265-03	74SB265-03D	74SB265-04	74SB266-03	74SB267-02	74SB267-03
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	3.0-5.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>							
1,1,1,2-Tetrachloroethane		0.64 U	260 U	530 U	0.81 U	0.74 U	25 U
1,1,1-Trichloroethane		0.58 U	240 U	480 U	0.73 U	0.67 U	22 U
1,1,2,2-Tetrachloroethane		1.4 U	580 U	1200 U	1.8 U	1.6 U	54 U
1,1,2-Trichloroethane		1.2 U	490 U	1000 U	1.5 U	1.4 U	46 U
1,1-Dichloroethane		0.5 U	210 U	420 U	0.63 U	0.58 U	19 U
1,1-Dichloroethene		0.54 U	220 U	450 U	0.68 U	0.63 U	21 U
1,2,3-Trichloropropane		1.4 UJ	580 U	1200 U	1.8 UJ	1.6 UJ	54 U
1,2-Dibromo-3-Chloropropane		2.8 UJ	1200 U	2300 U	3.5 UJ	3.3 UJ	110 U
1,2-Dichloroethane		1 U	410 UJ	830 UJ	1.3 U	1.2 U	39 U
1,2-Dichloropropane		1.1 U	450 U	910 U	1.4 U	1.3 U	42 U
2-Butanone (MEK)		9.5 UJ	1100 U	2200 U	7.5 UJ	16 UJ	100 U
2-Chloro-1,3-butadiene		0.57 U	230 U	470 U	0.72 U	0.66 U	22 U
2-Hexanone		2.1 UJ	870 UJ	1700 UJ	2.6 UJ	2.4 UJ	81 UJ
3-Chloro-1-propene		1.5 U	620 U	1200 U	1.9 U	1.7 U	58 U
4-Methyl-2-pentanone (MIBK)		2.9 UJ	1200 U	2400 R	3.7 UJ	3.4 UJ	110 UJ
Acetone		110 J	1800 UJ	3700 UJ	73 UJ	110 UJ	270 U
Acetonitrile		45 UJ	19000 U	37000 U	57 UJ	52 UJ	1700 U
Acrolein		19 U	7800 UJ	16000 UJ	24 U	22 U	730 UJ
Acrylonitrile		23 UJ	9500 UJ	19000 UJ	29 UJ	27 UJ	890 U
Benzene		1.2 J	330 U	660 U	1 U	0.92 U	30 U
Bromoform		1.1 U	450 U	910 U	1.4 U	1.3 U	42 U
Bromomethane		1.6 UJ	660 U	1300 U	2 UJ	1.9 UJ	62 U
Carbon disulfide		1.3 J	210 U	420 U	0.64 U	0.59 U	20 U
Carbon tetrachloride		1 U	410 U	830 U	1.3 U	1.2 U	39 U
Chlorobenzene		0.73 U	300 U	610 U	0.92 U	0.85 U	28 U
Chlorodibromomethane		0.5 U	210 U	420 U	0.63 U	0.58 U	19 U
Chloroethane		1.2 U	490 UJ	1000 UJ	1.5 U	1.4 U	46 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB265	74SB265	74SB265	74SB266	74SB267	74SB267
	Sample ID	74SB265-03	74SB265-03D	74SB265-04	74SB266-03	74SB267-02	74SB267-03
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	3.0-5.0	5.0-7.0
<b>Volatile Organic Compounds (ug/kg)</b>							
Chloroform		0.5 U	210 U	420 U	0.63 U	0.58 U	19 U
Chloromethane		0.71 U	290 U	590 U	0.89 U	0.83 U	27 U
cis-1,3-Dichloropropene		0.87 U	360 U	720 U	1.1 U	1 U	34 U
Dibromomethane		1.2 U	490 U	1000 U	1.5 U	1.4 U	46 U
Dichlorobromomethane		0.83 U	340 U	690 U	1 U	0.97 U	32 U
Dichlorodifluoromethane		0.89 U	370 U	740 U	1.1 U	1 U	34 U
Ethyl methacrylate		2.2 U	910 U	1800 U	2.8 U	2.6 U	85 U
Ethylbenzene		0.75 U	310 U	620 U	0.94 U	0.87 U	54 J
Ethylene Dibromide		1.5 U	620 U	1200 U	1.9 U	1.7 U	58 U
Iodomethane		1 U	410 U	830 U	1.3 U	1.2 U	39 U
Isobutyl alcohol		69 R	28000 U	57000 U	87 R	80 R	2700 U
Methacrylonitrile		24 U	9900 U	20000 U	30 U	28 U	930 U
Methyl methacrylate		3.7 U	1500 U	3100 U	4.7 U	4.3 U	140 UJ
Methylene Chloride		1 U	410 UJ	830 UJ	1.3 U	1.2 U	39 U
Pentachloroethane		2.2 UJ	910 R	1800 U	2.8 UJ	2.6 UJ	85 R
Propionitrile		21 UJ	8700 U	17000 U	26 UJ	24 UJ	810 U
Styrene		0.66 U	270 U	550 U	0.83 U	0.77 U	25 U
Tetrachloroethene		0.73 U	300 U	610 U	0.92 U	0.85 U	28 U
Toluene		0.79 U	330 U	660 U	1 U	0.92 U	60 J
trans-1,2-Dichloroethene		0.97 U	400 UJ	810 UJ	1.2 U	1.1 U	37 U
trans-1,3-Dichloropropene		0.87 U	360 U	720 U	1.1 U	1 U	34 U
trans-1,4-Dichloro-2-butene		3.1 U	1300 U	2600 U	3.9 U	3.6 U	120 U
Trichloroethene		1 U	410 U	830 U	1.3 U	1.2 U	39 U
Trichlorofluoromethane		1.5 U	620 U	1200 U	1.9 U	1.7 U	58 U
Vinyl acetate		1.5 U	620 U	1200 U	1.9 U	1.7 U	58 U
Vinyl chloride		0.58 U	240 U	480 U	0.73 U	0.67 U	22 U
Xylenes, Total		2.3 U	950 U	1900 U	2.9 U	2.7 U	480

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB265	74SB265	74SB265	74SB266	74SB267	74SB267
	Sample ID	74SB265-03	74SB265-03D	74SB265-04	74SB266-03	74SB267-02	74SB267-03
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	3.0-5.0	5.0-7.0
<b>LLPAHs (ug/kg)</b>							
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA

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### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - SUBSURFACE SOIL SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB265	74SB265	74SB265	74SB266	74SB267	74SB267
	Sample ID	74SB265-03	74SB265-03D	74SB265-04	74SB266-03	74SB267-02	74SB267-03
	Date	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Depth Range	5.0-7.0	5.0-7.0	7.0-9.0	5.0-7.0	3.0-5.0	5.0-7.0
<b>Metals (mg/kg)</b>							
Antimony		0.49 U	0.41 U	0.51 U	0.15 U	0.58	0.21 U
Arsenic		2.2	2.1	2.7	2.1	2.8	1.9
Barium		57	50	47	27	58	88
Beryllium		0.19	0.19	0.17	0.062 J	0.23	0.4
Cadmium		0.17	0.13	0.16	0.078 J	0.18	0.09 J
Chromium		32	38	44	58	56	95
Cobalt		18	18	17	11	19	35
Copper		55	60	51	42	58	81
Lead		8.6 J	4.6 J	7.4	1.6	6.6	5.2
Mercury		0.01 J	0.011 J	0.013 J	0.008 J	0.006 J	0.013 J
Nickel		12	13	15	13	19	27
Selenium		0.22 J	0.21 J	0.23 J	0.13 U	0.26 J	0.37 J
Silver		0.055 J	0.047 J	0.044 J	0.038 J	0.036 J	0.036 J
Thallium		0.12 U	0.12 U	0.14 U	0.13 U	0.12 U	0.13 U
Tin		4.1 U	4 U	4.6 U	4.3 U	4 U	4.3 U
Vanadium		120	120	120	89	110	170
Zinc		46 J	42 J	39 J	26 J	51 J	63 J
<b>TPH DRO/GRO (mg/kg)</b>							
Diesel Range Organics		31 J	290 R	1100	22	44	400
Gasoline Range Organics		33 R	210 R	180	0.43	1.7	120





## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB05	74SB09	74SB22	74SB26	74SB26
	Sample ID	74GW05	74GW09	74GW22	74GW26	74GW26
	Date	5/5/2008	5/6/2008	5/5/2008	5/5/2008	5/5/2008
<b>Volatile Organic Compounds (ug/L)</b>						
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U	0.29 U	NA
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U	0.39 U	NA
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U	0.26 U	NA
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U	0.51 U	NA
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U	0.32 U	NA
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U	0.36 U	NA
1,2,3-Trichloropropane		0.42 U	0.42 U	0.42 U	0.42 U	NA
1,2-Dibromo-3-Chloropropane		0.48 U	0.48 U	0.48 U	0.48 U	NA
1,2-Dichloroethane		0.31 U	0.31 U	0.31 U	0.31 U	NA
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U	0.36 U	NA
2-Butanone (MEK)		0.60 U	1.5 U	1.3 U	7.2 U	NA
2-Chloro-1,3-butadiene		0.35 U	0.35 U	0.35 U	0.35 U	NA
2-Hexanone		0.68 U	0.68 U	0.68 U	0.68 U	NA
3-Chloro-1-propene		0.46 U	0.46 U	0.46 U	0.46 U	NA
4-Methyl-2-pentanone (MIBK)		0.60 U	0.60 U	0.60 U	0.89 J	NA
Acetone		5.0 U	7.7 J	5.0 U	30	NA
Acetonitrile		15 U	15 U	15 U	15 U	NA
Acrolein		18 R	18 R	18 R	18 R	NA
Acrylonitrile		3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	NA
Benzene		0.32 U	0.32 U	0.32 U	3.0	NA
Bromoform		0.41 U	0.41 U	0.41 U	0.41 U	NA
Bromomethane		0.50 UJ	0.50 U	0.50 UJ	0.50 U	NA
Carbon disulfide		0.17 U	0.17 U	0.17 U	0.17 U	NA
Carbon tetrachloride		0.27 U	0.27 U	0.27 U	0.27 U	NA
Chlorobenzene		0.34 U	0.34 U	0.34 U	0.34 U	NA
Chlorodibromomethane		0.30 U	0.30 U	0.30 U	0.30 U	NA
Chloroethane		1.0 UJ	1.0 U	1.0 UJ	1.0 U	NA
Chloroform		0.29 U	0.29 U	0.29 U	0.29 U	NA
Chloromethane		0.28 U	0.28 U	0.28 U	0.29 J	NA
cis-1,3-Dichloropropene		0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ	NA
Dibromomethane		0.29 U	0.29 U	0.29 U	0.29 U	NA
Dichlorobromomethane		0.34 U	0.34 U	0.34 U	0.34 U	NA
Dichlorodifluoromethane		0.33 U	0.33 UJ	0.33 U	0.33 UJ	NA
Ethyl methacrylate		1.0 U	1.0 U	1.0 U	1.0 U	NA
Ethylbenzene		0.30 U	0.30 U	0.30 U	2.7	NA
Ethylene Dibromide		0.30 U	0.30 U	0.30 U	0.30 U	NA
Iodomethane		1.0 UJ	1.0 U	1.0 UJ	1.0 U	NA
Isobutyl alcohol		19 U	19 R	19 U	19 R	NA
Methacrylonitrile		6.6 U	6.6 U	6.6 U	6.6 U	NA
Methyl methacrylate		0.38 U	0.38 U	0.38 U	0.38 U	NA
Methylene Chloride		1.0 U	1.0 U	1.0 U	1.0 U	NA
Pentachloroethane		1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB05	74SB09	74SB22	74SB26	74SB26
	Sample ID	74GW05	74GW09	74GW22	74GW26	74GW26
	Date	5/5/2008	5/6/2008	5/5/2008	5/5/2008	5/5/2008
<b>Volatile Organic Compounds (ug/L)</b>						
Propionitrile		9.2 U	9.2 U	9.2 U	9.2 U	NA
Styrene		0.36 U	0.36 U	0.36 U	0.36 U	NA
Tetrachloroethene		2.0	0.28 U	0.28 U	0.28 U	NA
Toluene		0.31 U	0.31 U	0.31 U	0.31 U	NA
trans-1,2-Dichloroethene		0.30 U	0.30 U	0.30 U	0.30 U	NA
trans-1,3-Dichloropropene		0.27 U	0.27 U	0.27 U	0.27 U	NA
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	0.83 U	0.83 U	NA
Trichloroethene		0.40 U	0.40 U	0.40 U	0.40 U	NA
Trichlorofluoromethane		0.29 UJ	0.29 U	0.29 UJ	0.29 U	NA
Vinyl acetate		0.62 U	0.62 U	0.62 U	0.62 U	NA
Vinyl chloride		0.20 U	0.20 U	0.20 U	0.20 U	NA
Xylenes, Total		0.87 U	0.87 U	0.87 U	0.87 U	NA
<b>LLPAHs (ug/L)</b>						
1-Methylnaphthalene		0.049 U	0.049 U	0.049 U	NA	NA
2-Methylnaphthalene		0.022 U	0.022 U	0.097 J	NA	NA
Acenaphthene		0.019 U	0.019 U	0.019 U	NA	NA
Acenaphthylene		0.049 U	0.049 U	0.049 U	NA	NA
Anthracene		0.021 U	0.021 U	0.021 U	NA	NA
Benzo[a]anthracene		0.025 U	0.025 U	0.025 U	NA	NA
Benzo[a]pyrene		0.024 U	0.024 U	0.024 U	NA	NA
Benzo[b]fluoranthene		0.036 U	0.036 U	0.036 U	NA	NA
Benzo[g,h,i]perylene		0.023 U	0.023 U	0.023 U	NA	NA
Benzo[k]fluoranthene		0.019 U	0.019 U	0.019 U	NA	NA
Chrysene		0.027 U	0.027 U	0.027 U	NA	NA
Dibenz(a,h)anthracene		0.023 U	0.023 U	0.023 U	NA	NA
Fluoranthene		0.049 U	0.049 U	0.049 U	NA	NA
Fluorene		0.018 U	0.018 U	0.018 U	NA	NA
Indeno[1,2,3-cd]pyrene		0.022 U	0.022 U	0.022 U	NA	NA
Naphthalene		0.049 U	0.049 U	0.049 U	NA	NA
Phenanthrene		0.017 U	0.020 J	0.017 U	NA	NA
Pyrene		0.026 U	0.026 U	0.026 U	NA	NA
<b>Total Metals (ug/L)</b>						
Antimony		0.36 U	0.36 U	0.45 U	0.56 U	NA
Arsenic		1.0 U	0.99 U	0.99 U	0.82 U	NA
Barium		97	230	950	1300	NA
Beryllium		0.078 U	0.065 U	0.065 U	0.065 U	NA
Cadmium		0.12 U	0.12 U	0.12 U	0.12 U	NA
Chromium		5.3	3.5 J	2.1 J	0.68 J	NA
Cobalt		6.0	4.3	2.4	12	NA
Copper		26	16	8.5	3.9 U	NA
Lead		1.7	0.70 U	0.16 U	0.15 U	NA
Mercury		0.080 U	0.080 U	0.080 U	0.080 U	NA
Nickel		2.4	2.6	7.5	3.5	NA
Selenium		0.600 U	0.60 U	0.60 U	0.60 U	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB05	74SB09	74SB22	74SB26	74SB26
	Sample ID	74GW05	74GW09	74GW22	74GW26	74GW26
	Date	5/5/2008	5/6/2008	5/5/2008	5/5/2008	5/5/2008
<b>Total Metals (ug/L)</b>						
Silver		0.090 U	0.090 U	0.090 U	0.090 U	NA
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	NA
Tin		0.90 U	1.3 U	1.8 U	1.0 U	NA
Vanadium		52	26	3.2 U	1.6 U	NA
Zinc		19 J	16 J	23 J	16 J	NA
<b>Dissolved Metals (ug/L)</b>						
Antimony		0.36 U	0.36 U	0.47 U	NA	NA
Arsenic		0.61 J	0.75 J	0.81 J	NA	NA
Barium		71	190	1000	NA	NA
Beryllium		0.065 U	0.065 U	0.065 U	NA	NA
Cadmium		0.12 U	0.12 U	0.12 U	NA	NA
Chromium		0.60 U	0.6 U	0.92 J	NA	NA
Cobalt		1.8	3.1	2.9	NA	NA
Copper		2.2 U	2.4 U	7.6	NA	NA
Lead		0.15 U	0.15 U	0.15 U	NA	NA
Mercury		0.080 U	0.08 U	0.08 U	NA	NA
Nickel		0.63 J	1.6	6.7	NA	NA
Selenium		0.60 U	0.6 U	0.6 U	NA	NA
Silver		0.090 U	0.09 U	0.09 U	NA	NA
Thallium		0.55 U	0.55 U	0.55 U	NA	NA
Tin		0.90 U	0.9 U	1.2 U	NA	NA
Vanadium		3.2 J	2.2 J	2.8 J	NA	NA
Zinc		6.5 U	10 J	17 J	NA	NA
<b>TPH DRO and GRO (mg/L)</b>						
Diesel Range Organics		0.18	0.62	1.0	16	NA
Gasoline Range Organics		0.012 U	0.013 J	0.012 U	0.040 J	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB26	74SB34	74SB57	74GWHYD3D	74GWHYD3
	Sample ID	74GW26	74GW34	74GW57	74GWHYD3D	74GWHYD3
	Date	7/23/2008	5/6/2008	5/6/2008	5/5/2008	5/5/2008
<b>Volatile Organic Compounds (ug/L)</b>						
1,1,1,2-Tetrachloroethane		NA	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		NA	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		NA	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		NA	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		NA	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		NA	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		NA	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane		NA	0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloroethane		NA	0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane		NA	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		NA	2.8 U	0.60 U	0.60 U	0.60 U
2-Chloro-1,3-butadiene		NA	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone		NA	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		NA	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		NA	0.60 U	0.60 U	0.60 U	0.60 U
Acetone		NA	9.4 J	5.0 U	5.0 U	5.0 U
Acetonitrile		NA	15 U	15 U	15 U	15 U
Acrolein		NA	18 R	18 R	18 R	18 R
Acrylonitrile		NA	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ
Benzene		NA	0.32 U	0.32 U	0.32 U	0.32 U
Bromoform		NA	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane		NA	0.50 U	0.50 UJ	0.50 UJ	0.50 UJ
Carbon disulfide		NA	0.17 U	0.17 U	0.17 U	0.17 U
Carbon tetrachloride		NA	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene		NA	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane		NA	0.30 U	0.30 U	0.30 U	0.30 U
Chloroethane		NA	1.0 U	1.0 U	1.0 UJ	1.0 UJ
Chloroform		NA	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane		NA	0.28 U	0.28 U	0.28 U	0.28 U
cis-1,3-Dichloropropene		NA	0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ
Dibromomethane		NA	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane		NA	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane		NA	0.33 UJ	0.33 UJ	0.33 U	0.33 U
Ethyl methacrylate		NA	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene		NA	0.30 U	0.30 U	0.30 U	0.30 U
Ethylene Dibromide		NA	0.30 U	0.30 U	0.30 U	0.30 U
Iodomethane		NA	1.0 U	1.0 U	1.0 UJ	1.0 UJ
Isobutyl alcohol		NA	19 R	19 U	19 U	19 U
Methacrylonitrile		NA	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate		NA	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride		NA	1.0 U	1.0 U	1.0 U	1.0 U
Pentachloroethane		NA	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB26	74SB34	74SB57	74GWHYD3D	74GWHYD3
	Sample ID	74GW26	74GW34	74GW57	74GWHYD3D	74GWHYD3
	Date	7/23/2008	5/6/2008	5/6/2008	5/5/2008	5/5/2008
<b>Volatile Organic Compounds (ug/L)</b>						
Propionitrile		NA	9.2 U	9.2 U	9.2 U	9.2 U
Styrene		NA	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene		NA	0.28 U	0.28 U	0.28 U	0.28 U
Toluene		NA	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene		NA	0.30 U	0.30 U	0.30 U	0.30 U
trans-1,3-Dichloropropene		NA	0.27 U	0.27 UJ	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene		NA	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene		NA	0.40 U	0.40 U	0.40 U	0.40 U
Trichlorofluoromethane		NA	0.29 U	0.29 U	0.29 UJ	0.29 UJ
Vinyl acetate		NA	0.62 U	0.62 UJ	0.62 U	0.62 U
Vinyl chloride		NA	0.20 U	0.20 U	0.20 U	0.20 U
Xylenes, Total		NA	0.87 U	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>						
1-Methylnaphthalene		NA	NA	NA	0.047 U	0.049 U
2-Methylnaphthalene		NA	NA	NA	0.022 U	0.022 U
Acenaphthene		NA	NA	NA	0.019 U	0.019 U
Acenaphthylene		NA	NA	NA	0.047 U	0.049 U
Anthracene		NA	NA	NA	0.021 U	0.021 U
Benzo[a]anthracene		NA	NA	NA	0.025 U	0.025 U
Benzo[a]pyrene		NA	NA	NA	0.024 U	0.024 U
Benzo[b]fluoranthene		NA	NA	NA	0.035 U	0.036 U
Benzo[g,h,i]perylene		NA	NA	NA	0.023 U	0.023 U
Benzo[k]fluoranthene		NA	NA	NA	0.019 U	0.019 U
Chrysene		NA	NA	NA	0.026 U	0.027 U
Dibenz(a,h)anthracene		NA	NA	NA	0.023 U	0.023 U
Fluoranthene		NA	NA	NA	0.047 U	0.049 U
Fluorene		NA	NA	NA	0.018 U	0.018 U
Indeno[1,2,3-cd]pyrene		NA	NA	NA	0.022 U	0.022 U
Naphthalene		NA	NA	NA	0.047 U	0.049 U
Phenanthrene		NA	NA	NA	0.017 U	0.017 U
Pyrene		NA	NA	NA	0.025 U	0.026 U
<b>Total Metals (ug/L)</b>						
Antimony		NA	0.80 U	0.38 U	0.36 U	0.36 U
Arsenic		NA	1.2 U	1.5 U	1.1 U	1.4 U
Barium		NA	56	110	68	69
Beryllium		NA	0.065 U	0.068 U	0.065 U	0.065 U
Cadmium		NA	0.12 U	0.12 U	0.12 U	0.12 U
Chromium		NA	1.9 J	8.1	0.60 U	0.60 U
Cobalt		NA	1.6	6.4	3.5	3.4
Copper		NA	15	29	1.2 U	2.4 U
Lead		NA	0.22 U	1.8	0.15 U	0.15 U
Mercury		NA	0.080 U	0.080 U	0.080 U	0.080 U
Nickel		NA	9.9	5.3	0.47 J	0.61 J
Selenium		NA	2.7	0.60 U	0.60 U	0.60 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB26	74SB34	74SB57	74GWHYD3D	74GWHYD3
	Sample ID	74GW26	74GW34	74GW57	74GWHYD3D	74GWHYD3
	Date	7/23/2008	5/6/2008	5/6/2008	5/5/2008	5/5/2008
<b>Total Metals (ug/L)</b>						
Silver		NA	0.090 U	0.099 U	0.090 U	0.090 U
Thallium		NA	0.55 U	0.55 U	0.55 U	0.55 U
Tin		NA	1.6 U	1.3 U	0.90 U	0.90 U
Vanadium		NA	4.0 U	43	1.3 U	1.4 U
Zinc		NA	12 J	24 J	6.5 U	6.5 U
<b>Dissolved Metals (ug/L)</b>						
Antimony		0.36 U	0.77 U	0.45 U	0.36 U	0.36 U
Arsenic		0.64 J	1.1 J	0.83 J	0.9 J	0.98 J
Barium		1700 J	56	91	58	55
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Chromium		0.6 U	1.3 J	0.60 U	0.6 U	0.60 U
Cobalt		8.4 J	1.9	4.4	2.9	3.3
Copper		1.2 U	13	1.2 U	1.2 U	3.0 U
Lead		0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Mercury		0.08 U	0.080 U	0.080 U	0.080 U	0.080 U
Nickel		1.3	9.6	2.4	0.36 J	0.64 J
Selenium		0.81 J	2.8	0.60 U	0.6 U	0.60 U
Silver		0.09 U	0.090 U	0.090 U	0.09 U	0.090 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin		0.9 U	1.2 U	0.90 U	0.9 U	0.90 U
Vanadium		0.8 U	3.7 J	1.2 J	0.93 J	1.1 J
Zinc		6.5 U	12 J	7.9 J	6.5 U	6.9 J
<b>TPH DRO and GRO (mg/L)</b>						
Diesel Range Organics		NA	0.38	0.045 J	0.028 U	0.028 U
Gasoline Range Organics		NA	0.012 U	0.012 U	0.012 U	0.012 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74GWVP1A	74GWVP1B	74GWVP2A	74GWVP2B
	Sample ID	74GWVP1A	74GWVP1B	74GWVP2A	74GWVP2B
	Date	5/6/2008	5/5/2008	5/5/2008	5/6/2008
<b>Volatile Organic Compounds (ug/L)</b>					
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane		0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloroethane		0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		0.60 U	0.60 U	0.60 U	0.60 U
2-Chloro-1,3-butadiene		0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone		0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		0.60 U	0.60 U	0.60 U	0.60 U
Acetone		5.0 U	5.0 U	5.0 U	9.5 J
Acetonitrile		15 U	15 U	15 U	15 U
Acrolein		18 R	18 R	18 R	18 R
Acrylonitrile		3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ
Benzene		0.32 U	0.32 U	0.32 U	0.32 U
Bromoform		0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane		0.50 UJ	0.50 U	0.50 U	0.50 UJ
Carbon disulfide		0.17 U	0.17 U	0.17 U	0.17 U
Carbon tetrachloride		0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene		0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane		0.30 U	0.30 U	0.30 U	0.30 U
Chloroethane		1.0 UJ	1.0 U	1.0 U	1.0 UJ
Chloroform		0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane		0.28 U	0.28 U	0.28 U	0.28 U
cis-1,3-Dichloropropene		0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ
Dibromomethane		0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane		0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane		0.33 U	0.33 UJ	0.33 UJ	0.33 U
Ethyl methacrylate		1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene		0.30 U	0.30 U	0.30 U	0.30 U
Ethylene Dibromide		0.30 U	0.30 U	0.30 U	0.30 U
Iodomethane		1.0 UJ	1.0 U	1.0 U	1.0 UJ
Isobutyl alcohol		19 U	19 R	19 R	19 U
Methacrylonitrile		6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate		0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride		1.0 U	1.0 U	1.0 U	1.0 U
Pentachloroethane		1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74GWVP1A	74GWVP1B	74GWVP2A	74GWVP2B
	Sample ID	74GWVP1A	74GWVP1B	74GWVP2A	74GWVP2B
	Date	5/6/2008	5/5/2008	5/5/2008	5/6/2008
<b>Volatile Organic Compounds (ug/L)</b>					
Propionitrile		9.2 U	9.2 U	9.2 U	9.2 U
Styrene		0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene		0.28 U	0.28 U	0.28 U	0.28 U
Toluene		0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene		0.30 U	0.30 U	0.30 U	0.30 U
trans-1,3-Dichloropropene		0.27 U	0.27 U	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene		0.40 U	0.40 U	0.40 U	0.40 U
Trichlorofluoromethane		0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate		0.62 U	0.62 U	0.62 U	0.62 U
Vinyl chloride		0.20 U	0.20 U	0.20 U	0.20 U
Xylenes, Total		0.87 U	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>					
1-Methylnaphthalene		NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA
Anthracene		NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA
Chrysene		NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA
Fluorene		NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA
Pyrene		NA	NA	NA	NA
<b>Total Metals (ug/L)</b>					
Antimony		0.36 U	0.36 U	0.36 U	0.36 U
Arsenic		0.51 U	1.0 U	0.99 U	0.59 U
Barium		9.9	74	16	17
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.26 J	0.13 J
Chromium		0.97 J	0.60 U	3.2 J	0.76 J
Cobalt		1.7	2.1	2.3	0.77 J
Copper		5.3	5.7	23	6.3
Lead		0.15 U	0.15 U	1.1 J	0.21 U
Mercury		0.080 U	0.080 U	0.080 U	0.080 U
Nickel		0.72 J	0.79 J	2.8	0.66 J
Selenium		0.60 U	0.60 U	0.60 U	0.60 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - AIRFIELD - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74GWVP1A	74GWVP1B	74GWVP2A	74GWVP2B
	Sample ID	74GWVP1A	74GWVP1B	74GWVP2A	74GWVP2B
	Date	5/6/2008	5/5/2008	5/5/2008	5/6/2008
<b>Total Metals (ug/L)</b>					
Silver		0.090 U	0.090 U	0.090 U	0.090 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U
Tin		0.90 U	0.90 U	0.90 U	0.90 U
Vanadium		5.9	6.2	20	14
Zinc		7.3 J	6.8 J	35 J	8.3 J
<b>Dissolved Metals (ug/L)</b>					
Antimony		0.36 U	0.36 U	0.44 U	0.36 U
Arsenic		0.56 U	0.84 U	0.41 U	0.61 U
Barium		8.2	64	8.4	15
Beryllium		0.073 J	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.12 U	0.12 U
Chromium		0.60 U	0.60 U	0.60 U	0.60 U
Cobalt		1.8	2.0	2.1	0.96 J
Copper		1.2 U	1.2 U	3.5 U	2.9 U
Lead		0.15 U	0.15 U	0.15 U	0.15 U
Mercury		0.080 U	0.080 U	0.080 U	0.080 U
Nickel		0.39 J	0.63 J	0.86 J	0.44 J
Selenium		0.60 U	0.60 U	0.60 U	0.60 U
Silver		0.090 U	0.090 U	0.090 U	0.090 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U
Tin		0.90 U	0.90 U	0.90 U	0.90 U
Vanadium		1.2 J	2.4 J	8.8	12
Zinc		9.1 J	7.4 J	6.5 U	6.5 U
<b>TPH DRO and GRO (mg/L)</b>					
Diesel Range Organics		0.028 U	0.082 J	0.028 U	0.028 U
Gasoline Range Organics		0.012 U	0.012 U	0.012 U	0.012 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74VP1Ca/9	74VP1Cb/9	74VP1Cb/9	74VP3a	74VP3b
Sample ID	74GWVP1Ca/9	74GWVP1Cb/9	74GWVP1Cb/9D	74GWVP3a	74GWVP3b
Date	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
<b>Volatile Organic Compounds (ug/L)</b>					
1,1,1,2-Tetrachloroethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane	0.42 U	0.42 U	0.42 U	0.42 UJ	0.42 UJ
1,2-Dibromo-3-Chloropropane	0.48 U	0.48 U	0.48 U	0.48 UJ	0.48 UJ
1,2-Dichloroethane	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone	0.68 U	9.9 J	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	44 U	11 J	36 U	19 J	13 J
Acetonitrile	15 U	15 U	15 U	15 U	15 U
Acrolein	18 U	18 U	18 U	18 U	18 U
Acrylonitrile	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ
Benzene	0.32 U	8.1	12	0.32 U	0.32 U
Bromoform	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
Carbon disulfide	0.17 U	0.44 U	0.54 J	0.17 U	0.17 U
Carbon tetrachloride	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane	1 U	1 U	1 U	1 U	1 U
Chloroform	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane	0.28 U	0.52 J	0.28 U	0.28 U	1.5
cis-1,3-Dichloropropene	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 UJ
Dibromomethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.3 U	0.3 U	0.73 J	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 U	1 U	1 U	1 U	1 U
Isobutyl alcohol	19 U	19 U	19 U	19 U	19 U
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 R	1.3 R	1.3 R	1.3 UJ	1.3 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74VP1Ca/9	74VP1Cb/9	74VP1Cb/9	74VP3a	74VP3b
Sample ID	74GWVP1Ca/9	74GWVP1Cb/9	74GWVP1Cb/9D	74GWVP3a	74GWVP3b
Date	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
<b>Volatile Organic Compounds (ug/L)</b>					
Propionitrile	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	0.27 U	0.27 U	0.27 U	0.27 UJ	0.27 UJ
trans-1,4-Dichloro-2-butene	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Vinyl chloride	0.2 U	0.26 J	0.2 U	0.2 U	0.2 U
Xylenes, Total	0.87 U	0.87 U	1.3 J	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>					
1-Methylnaphthalene	0.049 U	0.049 U	0.048 U	0.048 U	1.1 J
2-Methylnaphthalene	0.022 U	0.023 U	0.022 U	0.022 U	0.76 J
Acenaphthene	0.019 U	0.02 U	0.019 U	0.019 U	0.93 J
Acenaphthylene	0.049 U	0.049 U	0.048 U	0.048 U	0.84 J
Anthracene	0.021 U	0.022 U	0.021 U	0.021 U	1.1 J
Benzo[a]anthracene	0.025 U	0.025 U	0.025 U	0.025 U	0.95 J
Benzo[a]pyrene	0.024 U	0.025 U	0.024 U	0.024 U	1 J
Benzo[b]fluoranthene	0.036 U	0.036 U	0.035 U	0.036 U	0.89 J
Benzo[g,h,i]perylene	0.023 U	0.024 U	0.023 U	0.023 U	1.2 J
Benzo[k]fluoranthene	0.019 U	0.02 U	0.019 U	0.019 U	1 J
Chrysene	0.027 U	0.027 U	0.027 U	0.027 U	1.2 J
Dibenz(a,h)anthracene	0.023 U	0.024 U	0.023 U	0.023 U	1.3 J
Fluoranthene	0.049 U	0.049 U	0.048 U	0.048 U	1.2 J
Fluorene	0.018 U	0.12 J	0.16 J	0.018 U	0.92 J
Indeno[1,2,3-cd]pyrene	0.022 U	0.023 U	0.022 U	0.022 U	1.1 J
Naphthalene	0.049 U	0.049 U	0.048 U	0.048 U	0.49 UJ
Phenanthrene	0.017 U	0.018 U	0.017 U	0.017 U	1.2 J
Pyrene	0.026 U	0.026 U	0.026 U	0.026 U	1.3 J
<b>Total Metals (ug/L)</b>					
Antimony	0.69 U	1.1 U	1.2 U	0.67 U	0.83 U
Arsenic	1.8 U	12	11	0.86 U	0.93 U
Barium	13	66	70	23 J	27
Beryllium	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium	0.15 J	0.12 U	0.12 J	0.31 J	0.22 J
Chromium	0.62 J	0.6 U	0.6 U	0.6 U	1 J
Cobalt	0.77	2.4 J	2.7	1 J	0.14 J
Copper	2.2 U	1.8 U	2 U	6.4	1.8 U
Lead	36	81	84	0.82 U	0.15 U
Mercury	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Nickel	0.84 J	1.3	1.3	0.75 J	0.92 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP1Ca/9	74VP1Cb/9	74VP1Cb/9	74VP3a	74VP3b
	Sample ID	74GWVP1Ca/9	74GWVP1Cb/9	74GWVP1Cb/9D	74GWVP3a	74GWVP3b
	Date	5/14/2008	5/14/2008	5/14/2008	5/14/2008	5/14/2008
Selenium		0.68 J	0.6 U	0.6 U	0.6 U	0.6 U
<b>Total Metals (ug/L)</b>						
Silver		0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin		0.93 J	1.3 J	0.92 J	0.93 J	0.9 U
Vanadium		23	9.3	10 J	34	28
Zinc		6.5 U	6.5 J	9.5 J	12 J	6.5 U
<b>Dissolved Metals (ug/L)</b>						
Antimony		0.4 U	0.99 U	0.88 U	0.59 U	0.73 U
Arsenic		1.5 J	12	9.7	0.7 J	0.93 J
Barium		15	73	64	32 J	29
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Chromium		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Cobalt		0.95	3.1 J	2.5	1.5 J	0.61
Copper		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Lead		32 J	78 J	81 J	0.15 UJ	0.15 UJ
Mercury		0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Nickel		1.6	1.5	1.2	1.1	0.73 J
Selenium		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Silver		0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin		1.1 J	0.9 U	0.9 U	0.9 U	0.9 U
Vanadium		22	9.3	13 J	21	28
Zinc		6.5 U	6.5 U	6.5 U	6.5 U	6.5 U
<b>TPH DRO and GRO (mg/L)</b>						
Diesel Range Organics		1.5	2	2.4	0.38	1.4
Gasoline Range Organics		1.1 J	0.58 J	0.86 J	0.012 U	0.012 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74VP11a	74VP11b	74VP1Aa/9	74VP1Ab/9	74VP1Bb/9
Sample ID	74GWVP11a	74GWVP11b	74GWVP1Aa/9	74GWVP1Ab/9	74GWVP1Bb/9
Date	5/15/2008	5/15/2008	5/16/2008	5/18/2008	5/16/2008
<b>Volatile Organic Compounds (ug/L)</b>					
1,1,1,2-Tetrachloroethane	0.29 U	0.29 U	5.8 U	0.29 U	0.29 U
1,1,1-Trichloroethane	0.39 U	0.39 U	7.8 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	0.26 U	0.26 U	5.2 U	0.26 U	0.26 U
1,1,2-Trichloroethane	0.51 U	0.51 U	10 U	0.51 U	0.51 U
1,1-Dichloroethane	0.32 U	0.32 U	6.4 U	0.32 U	0.32 U
1,1-Dichloroethene	0.36 U	0.36 U	7.2 U	0.36 U	0.36 U
1,2,3-Trichloropropane	0.42 U	0.42 U	8.4 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane	0.48 U	0.48 U	9.6 U	0.48 U	0.48 U
1,2-Dichloroethane	0.31 U	0.31 UJ	6.2 U	0.31 UJ	0.31 U
1,2-Dichloropropane	0.36 U	0.36 U	7.2 U	0.36 U	0.36 U
2-Butanone (MEK)	0.6 U	1.4 U	82 U	0.6 U	130
2-Chloro-1,3-butadiene	0.35 U	0.35 U	7 U	0.35 U	0.35 U
2-Hexanone	0.68 U	0.68 U	14 U	0.68 U	0.68 U
3-Chloro-1-propene	0.46 U	0.46 U	9.2 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	210	0.6 U	0.6 U
Acetone	38	25	190 J	9.2 J	1000
Acetonitrile	15 U	15 U	300 U	15 U	15 U
Acrolein	18 U	18 U	360 U	18 U	18 U
Acrylonitrile	3.8 UJ	3.8 UJ	76 UJ	3.8 UJ	3.8 UJ
Benzene	0.32 U	0.32 U	2500	0.32 U	0.32 U
Bromoform	0.41 U	0.41 U	8.2 U	0.41 U	0.41 U
Bromomethane	0.5 UJ	0.5 U	10 UJ	0.5 U	0.5 UJ
Carbon disulfide	0.77 U	0.33 J	7.6 U	0.17 U	0.17 U
Carbon tetrachloride	0.27 U	0.27 U	5.4 U	0.27 U	0.27 U
Chlorobenzene	0.34 U	0.34 U	6.8 U	0.34 U	0.34 U
Chlorodibromomethane	0.3 U	0.3 U	6 U	0.3 U	0.3 U
Chloroethane	1 U	1 U	20 U	1 U	1 U
Chloroform	0.29 U	0.29 U	5.8 U	0.29 U	0.29 U
Chloromethane	0.28 U	0.28 U	5.6 U	0.28 U	0.28 U
cis-1,3-Dichloropropene	0.37 U	0.37 U	7.4 U	0.37 U	0.37 U
Dibromomethane	0.29 U	0.29 U	5.8 U	0.29 U	0.29 U
Dichlorobromomethane	0.34 U	0.34 U	6.8 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	6.6 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	20 U	1 U	1 U
Ethylbenzene	2.7	0.3 U	460	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	6 U	0.3 U	0.3 U
Iodomethane	1 U	1 U	20 U	1 U	1 U
Isobutyl alcohol	19 U	19 U	380 U	19 U	19 U
Methacrylonitrile	6.6 U	6.6 U	130 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	7.6 U	0.38 U	0.38 U
Methylene Chloride	2.1 J	1 U	20 U	1 U	1 U
Pentachloroethane	1.3 R	1.3 R	26 R	1.3 R	1.3 R

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP11a	74VP11b	74VP1Aa/9	74VP1Ab/9	74VP1Bb/9
	Sample ID	74GWVP11a	74GWVP11b	74GWVP1Aa/9	74GWVP1Ab/9	74GWVP1Bb/9
	Date	5/15/2008	5/15/2008	5/16/2008	5/18/2008	5/16/2008
<b>Volatile Organic Compounds (ug/L)</b>						
Propionitrile		9.2 U	9.2 U	180 U	9.2 U	9.2 U
Styrene		0.36 U	0.36 U	7.2 U	0.36 U	0.36 U
Tetrachloroethene		0.28 U	0.28 U	5.6 U	0.28 U	0.28 U
Toluene		0.31 U	0.88 U	3800	0.31 U	0.31 U
trans-1,2-Dichloroethene		0.3 U	0.3 U	6 U	0.3 U	0.3 U
trans-1,3-Dichloropropene		0.27 U	0.27 U	5.4 U	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	17 U	0.83 U	0.83 U
Trichloroethene		0.4 U	0.4 U	8 U	0.4 U	0.4 U
Trichlorofluoromethane		0.29 U	0.29 U	5.8 U	0.29 U	0.29 U
Vinyl acetate		0.62 U	0.62 U	12 U	0.62 U	0.62 U
Vinyl chloride		0.2 U	0.2 U	4 U	0.2 U	0.2 U
Xylenes, Total		23	0.87 U	3100	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>						
1-Methylnaphthalene		3.7 J	0.36	18 J	0.049 U	0.047 U
2-Methylnaphthalene		1.5 J	0.11 J	31 J	0.11 J	0.022 U
Acenaphthene		0.19 U	0.019 U	0.19 UJ	0.019 U	0.019 U
Acenaphthylene		0.47 U	0.047 U	0.47 UJ	0.049 U	0.047 U
Anthracene		0.21 U	0.021 U	0.21 UJ	0.021 U	0.021 U
Benzo[a]anthracene		0.25 U	0.025 U	0.25 UJ	0.025 U	0.025 U
Benzo[a]pyrene		0.24 U	0.024 U	0.24 UJ	0.024 U	0.024 U
Benzo[b]fluoranthene		0.35 U	0.035 U	0.35 UJ	0.036 U	0.035 U
Benzo[g,h,i]perylene		0.23 U	0.023 U	0.23 UJ	0.023 U	0.023 U
Benzo[k]fluoranthene		0.19 U	0.019 U	0.19 UJ	0.019 U	0.019 U
Chrysene		0.26 U	0.026 U	0.26 UJ	0.027 U	0.026 U
Dibenz(a,h)anthracene		0.23 U	0.023 U	0.23 UJ	0.023 U	0.023 U
Fluoranthene		0.47 U	0.047 U	0.47 UJ	0.049 U	0.047 U
Fluorene		0.18 U	0.018 U	0.18 UJ	0.018 U	0.018 U
Indeno[1,2,3-cd]pyrene		0.22 U	0.022 U	0.22 UJ	0.022 U	0.022 U
Naphthalene		4.1 J	0.92	120 J	0.049 U	0.047 U
Phenanthrene		0.17 U	0.017 U	0.17 UJ	0.017 U	0.017 U
Pyrene		0.25 U	0.025 U	0.25 UJ	0.026 U	0.025 U
<b>Total Metals (ug/L)</b>						
Antimony		0.54 U	0.56 U	0.7 U	0.36 U	0.36 U
Arsenic		0.78 U	2 U	1.2 U	1.3 U	0.79 J
Barium		110	350	55	41	14
Beryllium		0.065 U	0.73	0.065 U	0.065 U	0.065 U
Cadmium		0.62	13	0.17 J	0.12 U	0.12 U
Chromium		1 J	0.6 U	0.73 J	2.5 J	3.2 J
Cobalt		64	670	3.3 J	2	0.39 R
Copper		3.9 U	29	3.8 U	2.8 U	2.2 U
Lead		0.15 U	0.15 U	16	3	12
Mercury		0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Nickel		8.4	160	1.5	1.9	2.3

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP11a	74VP11b	74VP1Aa/9	74VP1Ab/9	74VP1Bb/9
	Sample ID	74GWVP11a	74GWVP11b	74GWVP1Aa/9	74GWVP1Ab/9	74GWVP1Bb/9
	Date	5/15/2008	5/15/2008	5/16/2008	5/18/2008	5/16/2008
Selenium		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
<b>Total Metals (ug/L)</b>						
Silver		0.09 U	0.21 J	0.09 U	0.09 U	0.09 UJ
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin		1.8 J	1.1 J	2 J	4.7 J	1.8 J
Vanadium		4 U	2.6 U	15	15	8.6
Zinc		35	530	48	39 J	11 J
<b>Dissolved Metals (ug/L)</b>						
Antimony		0.36 U	0.36 U	0.46 U	0.42 U	0.77 U
Arsenic		1 J	3.8	1.5 J	1.2 U	0.71 U
Barium		110	340	49	36	11
Beryllium		0.065 U	0.63	0.065 U	0.065 U	0.065 U
Cadmium		0.57	11	0.12 U	0.12 U	0.12 U
Chromium		0.61 J	0.6 U	0.6 U	2.8 J	0.6 U
Cobalt		64	680	4.1 J	2.2	1 R
Copper		1.7 U	27	1.3 U	1.2 U	1.2 U
Lead		0.15 UJ	0.15 UJ	17 J	2.6	15 J
Mercury		0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Nickel		8.6	150	1.7	1.9	0.86 J
Selenium		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Silver		0.09 UJ	0.13 J	0.09 UJ	0.09 UJ	0.09 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin		1.3 J	0.9 U	1.3 J	4 J	1.2 J
Vanadium		3.3 U	1.4 U	8.7	8.8	8.9
Zinc		29	490	46	31	6.5 U
<b>TPH DRO and GRO (mg/L)</b>						
Diesel Range Organics			1.2	5.7	0.99	1.6
Gasoline Range Organics		0.24	0.014 J	44	0.15	0.26 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74SB74	74SB84	74VP2a/9	74VP3a/9	74VP3b/9
Sample ID	74GW74	74GW84	74GWVP2a/9	74GWVP3a/9	74GWVP3b/9
Date	5/15/2008	5/17/2008	5/19/2008	5/17/2008	5/17/2008
<b>Volatile Organic Compounds (ug/L)</b>					
1,1,1,2-Tetrachloroethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloroethane	0.31 UJ	0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)	0.6 U	3.1 U	0.6 U	12 U	0.6 U
2-Chloro-1,3-butadiene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	5 U	30	10 J	58	12 J
Acetonitrile	15 U	15 U	15 U	15 U	15 U
Acrolein	18 U	18 U	18 R	18 U	18 U
Acrylonitrile	3.8 UJ	3.8 UJ	3.8 U	3.8 UJ	3.8 UJ
Benzene	0.32 U	0.32 U	0.35 J	0.32 U	0.32 U
Bromoform	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
Carbon disulfide	0.43 J	0.63 U	0.97 UJ	0.42 U	0.67 U
Carbon tetrachloride	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane	1 U	1 U	1 UJ	1 U	1 U
Chloroform	0.29 U	0.29 U	0.67 J	0.29 U	0.29 U
Chloromethane	0.28 U	0.28 U	0.28 UJ	0.28 U	0.28 U
cis-1,3-Dichloropropene	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Dibromomethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.3 U	0.3 U	0.99 J	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 U	1 U	1 U	1 U	1 U
Isobutyl alcohol	19 U	19 U	19 U	19 U	19 U
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB74	74SB84	74VP2a/9	74VP3a/9	74VP3b/9
	Sample ID	74GW74	74GW84	74GWVP2a/9	74GWVP3a/9	74GWVP3b/9
	Date	5/15/2008	5/17/2008	5/19/2008	5/17/2008	5/17/2008
<b>Volatile Organic Compounds (ug/L)</b>						
Propionitrile		9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Styrene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene		0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene		0.51 U	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene		0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate		0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Vinyl chloride		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total		0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>						
1-Methylnaphthalene		NA	NA	0.36	0.047 U	0.047 U
2-Methylnaphthalene		NA	NA	0.41	0.022 U	0.022 U
Acenaphthene		NA	NA	0.11 J	0.019 U	0.019 U
Acenaphthylene		NA	NA	0.047 U	0.047 U	0.047 U
Anthracene		NA	NA	0.021 U	0.021 U	0.021 U
Benzo[a]anthracene		NA	NA	0.025 U	0.025 U	0.025 U
Benzo[a]pyrene		NA	NA	0.024 U	0.024 U	0.024 U
Benzo[b]fluoranthene		NA	NA	0.035 U	0.035 U	0.035 U
Benzo[g,h,i]perylene		NA	NA	0.023 U	0.023 U	0.023 U
Benzo[k]fluoranthene		NA	NA	0.019 U	0.019 U	0.019 U
Chrysene		NA	NA	0.026 U	0.026 U	0.026 U
Dibenz(a,h)anthracene		NA	NA	0.023 U	0.023 U	0.023 U
Fluoranthene		NA	NA	0.047 U	0.047 U	0.047 U
Fluorene		NA	NA	0.62	0.018 U	0.018 U
Indeno[1,2,3-cd]pyrene		NA	NA	0.022 U	0.022 U	0.022 U
Naphthalene		NA	NA	0.047 U	0.047 U	0.047 U
Phenanthrene		NA	NA	0.017 U	0.042 J	0.017 U
Pyrene		NA	NA	0.027 J	0.025 U	0.025 U
<b>Total Metals (ug/L)</b>						
Antimony		3.8	3.6 U	0.36 U	0.75 U	1.1 U
Arsenic		2.6	4.7 J	2.1 J	0.86 J	1.4 J
Barium		5.9 J	160 J	9.3	71	63
Beryllium		0.065 U	0.65 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	1.2 U	0.12 U	0.39 J	0.12 U
Chromium		0.6 U	6 U	0.8 U	0.6 U	0.6 U
Cobalt		1 R	21	6.6	8.9	4
Copper		5.6	300	17	1.2 U	1.2 U
Lead		0.15 U	1.5 U	8.2	0.89 U	0.97 U
Mercury		0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Nickel		2.6	13	0.99 J	10	4.1 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB74	74SB84	74VP2a/9	74VP3a/9	74VP3b/9
	Sample ID	74GW74	74GW84	74GWVP2a/9	74GWVP3a/9	74GWVP3b/9
	Date	5/15/2008	5/17/2008	5/19/2008	5/17/2008	5/17/2008
Selenium		1.2 J	6 U	0.6 U	0.76 J	1.6 J
<b>Total Metals (ug/L)</b>						
Silver		0.09 U	0.9 UJ	0.09 U	0.09 UJ	0.09 UJ
Thallium		0.55 U	5.5 U	0.55 U	0.55 U	0.55 U
Tin		0.9 U	9 U	0.9 U	0.9 U	0.9 U
Vanadium		100	8 U	13	5.3	14
Zinc		9.1 J	75 J	6.7 J	64	25
<b>Dissolved Metals (ug/L)</b>						
Antimony		2.4 U	1.2 U	0.59 U	0.36 U	1.8 U
Arsenic		2.7	1.5 U	2.2 U	1.5 U	1.6 U
Barium		5.8	200 J	8.7 R	100	58
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.32 J	0.12 U	0.12 U	0.12 U
Chromium		0.6 U	1.6 J	1.2 U	1.5 J	0.6 U
Cobalt		1.9 R	25	3.6	91	4.1
Copper		5.4	3.3 U	1.8 U	1.2 U	1.2 U
Lead		0.15 UJ	0.24 UJ	3.9	0.31 U	1 UJ
Mercury		0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Nickel		2.3	15	0.87 J	15	5.5 J
Selenium		1.1 J	1.3 J	0.6 U	0.6 U	1.8 J
Silver		0.09 UJ	0.14 J	0.09 UJ	0.09 UJ	0.09 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin		0.9 U	1.1 J	1 U	1.5 J	0.91 J
Vanadium		120	7.2	3.4 U	1.1 U	15
Zinc		6.5 U	37	6.5 R	20	29
<b>TPH DRO and GRO (mg/L)</b>						
Diesel Range Organics		0.17	2.6	1	1.8	2.8
Gasoline Range Organics		0.012 U	0.012 U	1.6	0.22	0.12

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74VP2b/9	74VP1Ba/9	9MW02S	9MW02S
Sample ID	74GWVP2b/9	74GWVP1Ba/9	74GW9MW02S	74GW9MW02SD
Date	5/18/2008	5/19/2008	5/20/2008	5/20/2008
<b>Volatile Organic Compounds (ug/L)</b>				
1,1,1,2-Tetrachloroethane	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane	0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloroethane	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ
1,2-Dichloropropane	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)	0.6 U	0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	17 J	17 J	5 U	5 U
Acetonitrile	15 U	15 U	15 U	15 U
Acrolein	18 U	18 U	18 U	18 U
Acrylonitrile	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ
Benzene	0.32 U	0.32 U	0.32 U	0.32 U
Bromoform	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	0.17 U	0.63 J	0.17 U	0.17 U
Carbon tetrachloride	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane	1 U	1 U	1 U	1 U
Chloroform	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane	0.28 U	0.28 U	0.28 U	0.28 U
cis-1,3-Dichloropropene	0.37 U	0.37 U	0.37 U	0.37 U
Dibromomethane	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U
Ethylbenzene	0.93 J	0.3 U	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 U	1 UJ	1 UJ	1 UJ
Isobutyl alcohol	19 U	19 U	19 U	19 U
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 R	1.3 R	1.3 R	1.3 R

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74VP2b/9	74VP1Ba/9	9MW02S	9MW02S
Sample ID	74GWVP2b/9	74GWVP1Ba/9	74GW9MW02S	74GW9MW02SD
Date	5/18/2008	5/19/2008	5/20/2008	5/20/2008
<b>Volatile Organic Compounds (ug/L)</b>				
Propionitrile	9.2 U	9.2 U	9.2 U	9.2 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene	0.28 U	0.28 U	0.28 U	0.28 U
Toluene	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	0.27 U	0.27 U	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate	0.62 U	0.62 U	0.62 U	0.62 U
Vinyl chloride	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	0.87 U	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>				
1-Methylnaphthalene	0.049 U	NA	0.049 U	0.049 U
2-Methylnaphthalene	0.022 U	NA	0.022 U	0.022 U
Acenaphthene	0.14 J	NA	0.019 U	0.019 U
Acenaphthylene	0.049 U	NA	0.049 U	0.049 U
Anthracene	0.021 U	NA	0.021 U	0.021 U
Benzo[a]anthracene	0.025 U	NA	0.025 U	0.025 U
Benzo[a]pyrene	0.024 U	NA	0.024 U	0.024 U
Benzo[b]fluoranthene	0.036 U	NA	0.036 U	0.036 U
Benzo[g,h,i]perylene	0.023 U	NA	0.023 U	0.023 U
Benzo[k]fluoranthene	0.019 U	NA	0.019 U	0.019 U
Chrysene	0.027 U	NA	0.027 U	0.027 U
Dibenz(a,h)anthracene	0.023 U	NA	0.023 U	0.023 U
Fluoranthene	0.049 U	NA	0.049 U	0.049 U
Fluorene	0.69	NA	0.018 U	0.018 U
Indeno[1,2,3-cd]pyrene	0.022 U	NA	0.022 U	0.022 U
Naphthalene	0.049 U	NA	0.049 U	0.049 U
Phenanthrene	0.054 J	NA	0.017 U	0.017 U
Pyrene	0.026 U	NA	0.026 U	0.026 U
<b>Total Metals (ug/L)</b>				
Antimony	0.36 U	2.7	3.6 U	3.6 U
Arsenic	130	5.3	57	59
Barium	12	31	160	160
Beryllium	0.065 U	0.065 U	0.65 U	0.65 U
Cadmium	0.18 J	0.23 J	23	23
Chromium	0.6 U	2.3 J	6 U	6 U
Cobalt	9.4	3.8 J	480	480
Copper	64	4.1 U	150	150
Lead	1.8	4.6	4.5 U	4.3 U
Mercury	0.08 U	0.08 U	0.08 U	0.08 U
Nickel	1.5	7.5	110	110

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA A/B - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP2b/9	74VP1Ba/9	9MW02S	9MW02S
	Sample ID	74GWVP2b/9	74GWVP1Ba/9	74GW9MW02S	74GW9MW02SD
	Date	5/18/2008	5/19/2008	5/20/2008	5/20/2008
Selenium		0.6 U	0.83 J	6 U	6 U
<b>Total Metals (ug/L)</b>					
Silver		0.09 UJ	0.09 U	2.3 J	2.4 J
Thallium		0.55 U	0.55 U	5.5 U	5.5 U
Tin		0.9 U	1.8 J	9 U	9 U
Vanadium		33	8.5	8 U	8 U
Zinc		12 J	48 J	380	380
<b>Dissolved Metals (ug/L)</b>					
Antimony		0.77 U	2.7	0.36 U	3.6 R
Arsenic		120	4.5	6 J	62 R
Barium		4.5 J	22	15 R	150 R
Beryllium		0.065 U	0.065 U	0.07 U	0.79 R
Cadmium		0.12 U	0.12 U	21	20 R
Chromium		0.6 U	1.2 J	0.83 U	9 R
Cobalt		3.7	4.8 J	410	440 R
Copper		3.2 U	1.2 U	13 J	140 R
Lead		0.67 UJ	2.8	0.45 U	4.9 R
Mercury		0.08 U	0.08 U	0.08 U	0.087 R
Nickel		0.68 J	8.4	9.1 J	93 R
Selenium		0.6 U	0.65 J	0.64 J	6.7 R
Silver		0.09 U	0.09 UJ	0.2 UJ	2.1 R
Thallium		0.55 U	0.55 U	0.55 U	5.5 R
Tin		0.9 U	0.9 U	0.9 U	9 R
Vanadium		6.2	2.7 U	0.8 U	8 R
Zinc		6.5 U	9.5 J	43 R	440 R
<b>TPH DRO and GRO (mg/L)</b>					
Diesel Range Organics		0.88	1.7	0.091 U	0.084 U
Gasoline Range Organics		0.4 J	0.16	0.0069 U	0.0069 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	18GW01	74VP6Ca	74VP6Cb	74VP6Ba	13GW11	74SB145
	Sample ID	74GWVP06	74GWVP6Ca	74GWVP6Cb	74GWVP6Ba	74GWVP6Bb	74GW145
	Date	5/18/2008	5/21/2008	5/21/2008	5/21/2008	5/30/2008	5/21/2008
<b>Volatile Organic Compounds (ug/L)</b>							
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		0.42 U	0.42 U	0.42 U	0.42 U	0.42 UJ	0.42 U
1,2-Dibromo-3-Chloropropane		0.48 U	0.48 UJ	0.48 UJ	0.48 U	0.48 UJ	0.48 U
1,2-Dichloroethane		0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 UJ
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		0.6 U	64	27	1.1 U	1.2 U	0.6 U
2-Chloro-1,3-butadiene		0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone		0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		0.6 U	24	0.6 U	0.6 U	0.6 U	0.6 U
Acetone		5 U	250	61	16 J	5 U	11 J
Acetonitrile		15 U	15 U	15 U	15 U	15 U	15 U
Acrolein		18 U	18 UJ	18 UJ	18 R	18 UJ	18 U
Acrylonitrile		3.8 UJ	3.8 U	3.8 U	3.8 U	3.8 U	3.8 UJ
Benzene		0.32 U	1.1	0.32 U	0.32 U	0.32 U	0.32 U
Bromoform		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane		0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
Carbon disulfide		0.17 U	52	2.1	1.5 UJ	0.17 U	1.2 J
Carbon tetrachloride		0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene		0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane		1 U	1 U	1 U	1 UJ	1 U	1 U
Chloroform		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane		0.28 U	0.28 U	0.28 U	0.28 UJ	0.28 UJ	0.49 J
cis-1,3-Dichloropropene		0.37 U	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 U
Dibromomethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane		0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane		0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate		1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene		0.3 U	0.5 J	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane		1 U	1 U	1 U	1 U	1 U	1 UJ
Isobutyl alcohol		19 U	19 U	19 U	19 U	19 R	19 U
Methacrylonitrile		6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate		0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride		1 U	1 U	1 U	1 U	1 U	1 U
Pentachloroethane		1.3 R	1.3 UJ	1.3 UJ	1.3 R	1.3 R	1.3 R

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	18GW01	74VP6Ca	74VP6Cb	74VP6Ba	13GW11	74SB145
	Sample ID	74GWVP06	74GWVP6Ca	74GWVP6Cb	74GWVP6Ba	74GWVP6Bb	74GW145
	Date	5/18/2008	5/21/2008	5/21/2008	5/21/2008	5/30/2008	5/21/2008
<b>Volatile Organic Compounds (ug/L)</b>							
Propionitrile		9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Styrene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene		0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene		0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene		0.27 U	0.27 U	0.27 U	0.27 U	0.27 UJ	0.27 U
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate		0.62 U	0.62 U	0.62 U	0.62 U	0.62 UJ	0.62 U
Vinyl chloride		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 J
Xylenes, Total		0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>							
1-Methylnaphthalene		NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	NA
Chrysene		NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	NA
Fluorene		NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - SWMU 9 AREA C - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	18GW01	74VP6Ca	74VP6Cb	74VP6Ba	13GW11	74SB145
	Sample ID	74GWVP06	74GWVP6Ca	74GWVP6Cb	74GWVP6Ba	74GWVP6Bb	74GW145
	Date	5/18/2008	5/21/2008	5/21/2008	5/21/2008	5/30/2008	5/21/2008
<b>Total Metals (ug/L)</b>							
Antimony		0.36 U	0.74 U	0.36 U	0.36 U	0.36 U	0.36 U
Arsenic		0.94 J	1.8 J	1 J	1.9 U	2 U	1.1 U
Barium		8.6	32	20	35	4.6 J	20
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.12 U	0.12 U	6.8	0.16 J
Chromium		21	18	10	14 J	1 J	5.3
Cobalt		1.6	2.6	1 R	4.7	2.1	0.31 U
Copper		1.2 U	19	9	7.1	5 U	5.6
Lead		0.15 U	21	7.3	1.4 U	0.4 U	0.41 U
Mercury		0.27	0.08 U	0.08 U	0.08 U	0.97	0.08 U
Nickel		7.3	7.4	4.5	3.6	3.1	1.6
Selenium		0.6 U	0.77 J	0.6 U	0.6 U	0.6 U	1.3 J
Silver		0.09 UJ	0.09 U	0.09 U	0.09 U	9.7	0.09 UJ
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin		0.9 U	7.6	4.9 J	1.6 J	0.9 U	2 U
Vanadium		16	19	6.2	8.2	26	18
Zinc		19 J	54	33	140 J	9.2 J	26 J
<b>Dissolved Metals (ug/L)</b>							
Antimony		0.57 U	0.74 U	0.37 U	0.36 U	0.36 U	0.36 U
Arsenic		0.53 U	1.7 U	0.95 U	1.1 U	1.4 U	1 U
Barium		7.5	23 R	16 R	25	2.6 J	21
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.19 J	0.12 U	0.16 J	6.8	0.12 U
Chromium		0.6 U	3.1 U	1.5 U	1.3 J	0.74 J	1.1 J
Cobalt		1.8	2.3	1.6 R	5	1.5	0.61
Copper		1.7 U	1.2 U	2.6 U	1.3 U	1.3 U	4.4 U
Lead		0.15 UJ	17	2.6	0.15 U	0.15 U	0.15 U
Mercury		0.087 J	0.08 U	0.08 U	0.08 U	0.65	0.08 U
Nickel		0.39 J	1.7 J	2.4 J	2.1	2.4	0.96 J
Selenium		0.6 U	0.77 J	0.6 U	0.6 U	0.6 U	1.1 J
Silver		0.09 U	0.09 UJ	0.09 UJ	0.09 UJ	8.8 J	0.09 UJ
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin		0.9 U	6.7	3 U	0.9 U	0.9 U	2.8 J
Vanadium		13	4.9 U	2.4 U	2.3 U	17	14
Zinc		8.3 J	15 R	14 R	33	7.6 J	23
<b>TPH DRO and GRO (mg/L)</b>							
Diesel Range Organics		0.25	1.5	0.84	0.4	0.086 J	1
Gasoline Range Organics		0.012 U	1.9	1.9	0.012 U	0.012 U	0.0069 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74VP10a/DFM	74VP10a/JP5	74VP1982	74VP08a
Sample ID	74GWVP10a/DFM	74GWVP10a/JP5	74GWVP1982	74GWVP08a
Date	5/18/2008	5/19/2008	5/28/2008	5/31/2008
<b>Volatile Organic Compounds (ug/L)</b>				
1,1,1,2-Tetrachloroethane	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane	0.48 U	0.48 U	0.48 UJ	0.48 UJ
1,2-Dichloroethane	0.31 U	0.31 UJ	0.31 U	0.31 U
1,2-Dichloropropane	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)	0.6 U	0.6 U	3.4 U	0.6 U
2-Chloro-1,3-butadiene	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone	0.68 U	0.68 U	0.68 U	22
3-Chloro-1-propene	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	15 J	7.4 J	9.7 U	5 J
Acetonitrile	15 U	15 U	15 U	15 U
Acrolein	18 U	18 U	18 UJ	18 UJ
Acrylonitrile	3.8 UJ	3.8 UJ	3.8 U	3.8 U
Benzene	0.32 U	0.32 U	3.6	0.32 U
Bromoform	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
Carbon disulfide	0.17 U	0.17 U	0.17 U	2 J
Carbon tetrachloride	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane	1 U	1 U	1 U	1 U
Chloroform	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane	0.28 U	0.28 U	0.28 U	0.28 UJ
cis-1,3-Dichloropropene	0.37 U	0.37 U	0.37 U	0.37 UJ
Dibromomethane	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U
Ethylbenzene	0.3 U	0.3 U	16	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 U	1 UJ	1 U	1 U
Isobutyl alcohol	19 U	19 U	19 R	19 R
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 R	1.3 R	1.3 R	1.3 R

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	74VP10a/DFM	74VP10a/JP5	74VP1982	74VP08a
Sample ID	74GWVP10a/DFM	74GWVP10a/JP5	74GWVP1982	74GWVP08a
Date	5/18/2008	5/19/2008	5/28/2008	5/31/2008
<b>Volatile Organic Compounds (ug/L)</b>				
Propionitrile	9.2 U	9.2 U	9.2 U	9.2 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene	0.28 U	0.28 U	0.28 U	0.28 U
Toluene	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	0.27 U	0.27 U	0.27 U	0.27 UJ
trans-1,4-Dichloro-2-butene	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate	0.62 U	0.62 U	0.62 UJ	0.62 UJ
Vinyl chloride	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	0.87 U	0.87 U	19	0.87 U
<b>LLPAHs (ug/L)</b>				
1-Methylnaphthalene	1.1	1.8	16 J	NA
2-Methylnaphthalene	1	1.3	11 J	NA
Acenaphthene	0.26	0.85	0.65 J	NA
Acenaphthylene	0.049 U	0.049 U	0.49 U	NA
Anthracene	0.021 U	0.12 J	0.22 U	NA
Benzo[a]anthracene	0.025 U	0.025 U	0.25 U	NA
Benzo[a]pyrene	0.024 U	0.024 U	0.25 U	NA
Benzo[b]fluoranthene	0.036 U	0.036 U	0.36 U	NA
Benzo[g,h,i]perylene	0.023 U	0.023 U	0.24 U	NA
Benzo[k]fluoranthene	0.019 U	0.019 U	0.2 U	NA
Chrysene	0.027 U	0.027 U	0.27 U	NA
Dibenz(a,h)anthracene	0.023 U	0.023 U	0.24 U	NA
Fluoranthene	0.049 U	0.45	0.49 U	NA
Fluorene	0.42	1.3	1.4 J	NA
Indeno[1,2,3-cd]pyrene	0.022 U	0.022 U	0.23 U	NA
Naphthalene	0.049 U	0.049 U	13 J	NA
Phenanthrene	0.24	0.22	0.88 J	NA
Pyrene	0.026 U	0.31	0.26 U	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP10a/DFM	74VP10a/JP5	74VP1982	74VP08a
	Sample ID	74GWVP10a/DFM	74GWVP10a/JP5	74GWVP1982	74GWVP08a
	Date	5/18/2008	5/19/2008	5/28/2008	5/31/2008
<b>Total Metals (ug/L)</b>					
Antimony		0.55 U	0.4 U	0.74 U	0.36 U
Arsenic		1.1 J	1.8 J	4.2	1.6 U
Barium		14	56	1600	120
Beryllium		0.065 U	0.065 U	0.065 U	0.07 U
Cadmium		0.19 J	0.12 U	0.12 U	0.12 U
Chromium		0.88 J	1.4 U	2.9 J	3.6 U
Cobalt		0.88 R	1.1 R	11	2.3 J
Copper		4.1 U	2.6 U	3.9 U	7.4
Lead		0.77 U	0.88 U	0.5 U	0.63 U
Mercury		0.08 U	0.08 U	0.08 U	0.08 U
Nickel		1.4	1.3	11	2.5
Selenium		0.6 U	0.6 U	1.5 J	0.98 J
Silver		0.09 UJ	0.09 U	0.1 J	0.09 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U
Tin		2.1 J	0.9 U	3.1 J	1.9 U
Vanadium		140	5.9	12	14
Zinc		25	12 J	8.3 J	23 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP10a/DFM	74VP10a/JP5	74VP1982	74VP08a
	Sample ID	74GWVP10a/DFM	74GWVP10a/JP5	74GWVP1982	74GWVP08a
	Date	5/18/2008	5/19/2008	5/28/2008	5/31/2008
<b>Dissolved Metals (ug/L)</b>					
Antimony		0.99 U	3.5 U	0.84 U	0.48 U
Arsenic		0.96 U	11 U	3.9	1.5 U
Barium		11	380 R	1900	110
Beryllium		0.065 U	0.32 U	0.065 U	0.07 U
Cadmium		0.12 U	0.12 U	0.12 U	0.12 J
Chromium		0.6 U	7.6 U	3.2 J	0.78 U
Cobalt		2 R	4.2 R	12 B	3 J
Copper		1.8 U	6.9 U	2.3 U	3.4 U
Lead		0.48 UJ	1.4 U	0.33 U	0.34 U
Mercury		0.08 U	0.08 U	0.08 U	0.08 U
Nickel		1.2	15 J	12	1.9
Selenium		0.6 U	3 U	1.4 J	0.92 J
Silver		0.09 U	0.45 UJ	0.09 UJ	0.09 UJ
Thallium		0.55 U	2.8 U	0.55 U	0.55 U
Tin		1.1 J	4.5 U	3.3 J	1.4 U
Vanadium		130	41	11	15
Zinc		13 J	67 R	9.1 J	20 J
<b>TPH DRO and GRO (mg/L)</b>					
Diesel Range Organics [C10-C28]		1.5	1.5	8.7	0.73
Gasoline Range Organics (GRO)-C6-C10		0.21	0.031 J	0.43	0.05

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP08b	74SB273	74VP09b/JP5	74SB151
	Sample ID	74GWVP08b	74GW273	74GWVP09b/JP5	74GW151
	Date	5/31/2008	5/30/2008	7/23/2008	5/21/2008
<b>Volatile Organic Compounds (ug/L)</b>					
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane		0.48 UJ	0.48 UJ	0.48 U	0.48 U
1,2-Dichloroethane		0.31 U	0.31 U	0.31 U	0.31 UJ
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		2.2 U	3.5 U	0.66 U	0.6 U
2-Chloro-1,3-butadiene		0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone		0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		0.87 J	0.6 U	0.6 U	0.6 U
Acetone		37	9 J	5 U	5 U
Acetonitrile		15 U	15 U	15 U	15 U
Acrolein		18 UJ	18 UJ	18 U	18 U
Acrylonitrile		3.8 U	3.8 U	3.8 U	3.8 UJ
Benzene		0.32 U	0.32 U	0.32 U	0.32 U
Bromoform		0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane		0.5 UJ	0.5 UJ	0.5 UJ	0.5 U
Carbon disulfide		4.7 J	0.17 U	0.6 U	0.17 U
Carbon tetrachloride		0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene		0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane		0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane		1 U	1 U	1 UJ	1 U
Chloroform		0.29 U	1.3	0.29 U	0.29 U
Chloromethane		0.28 UJ	0.28 UJ	0.28 U	0.28 U
cis-1,3-Dichloropropene		0.37 UJ	0.37 UJ	0.37 U	0.37 U
Dibromomethane		0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane		0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane		0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate		1 U	1 U	1 U	1 U
Ethylbenzene		0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide		0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane		1 U	1 U	1 UJ	1 UJ
Isobutyl alcohol		19 R	19 R	19 U	19 U
Methacrylonitrile		6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate		0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride		1 U	1 U	1 U	1 U
Pentachloroethane		1.3 R	1.3 R	1.3 UJ	1.3 R

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP08b	74SB273	74VP09b/JP5	74SB151
	Sample ID	74GWVP08b	74GW273	74GWVP09b/JP5	74GW151
	Date	5/31/2008	5/30/2008	7/23/2008	5/21/2008
<b>Volatile Organic Compounds (ug/L)</b>					
Propionitrile		9.2 U	9.2 U	9.2 U	9.2 U
Styrene		0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene		0.28 U	0.28 U	0.28 U	0.28 U
Toluene		0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene		0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene		0.27 UJ	0.27 UJ	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene		0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane		0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate		0.62 UJ	0.62 UJ	0.62 UJ	0.62 U
Vinyl chloride		0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total		0.87 U	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>					
1-Methylnaphthalene		NA	NA	NA	NA
2-Methylnaphthalene		NA	NA	NA	NA
Acenaphthene		NA	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA
Anthracene		NA	NA	NA	NA
Benzo[a]anthracene		NA	NA	NA	NA
Benzo[a]pyrene		NA	NA	NA	NA
Benzo[b]fluoranthene		NA	NA	NA	NA
Benzo[g,h,i]perylene		NA	NA	NA	NA
Benzo[k]fluoranthene		NA	NA	NA	NA
Chrysene		NA	NA	NA	NA
Dibenz(a,h)anthracene		NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA
Fluorene		NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA
Phenanthrene		NA	NA	NA	NA
Pyrene		NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP08b	74SB273	74VP09b/JP5	74SB151
	Sample ID	74GWVP08b	74GW273	74GWVP09b/JP5	74GW151
	Date	5/31/2008	5/30/2008	7/23/2008	5/21/2008
<b>Total Metals (ug/L)</b>					
Antimony		1.6 U	1.8 U	1.5 U	0.64 U
Arsenic		2.2 U	2.2 U	3.1	2.9
Barium		20	40	58 J	210
Beryllium		0.065 U	0.17 U	0.065 U	0.07 U
Cadmium		0.29 J	0.24 J	0.26 J	0.12 U
Chromium		9.6	54	28	5 U
Cobalt		4.4	23	4.2 J	2.8
Copper		12	73	17	8.9
Lead		0.78 U	1.4 U	3.3	1.6
Mercury		0.32	0.08 U	0.08 U	0.08 U
Nickel		8.2	37	17	3.2
Selenium		1 J	1.6 J	0.6 U	0.6 U
Silver		0.19 J	0.17 J	0.1 J	0.09 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U
Tin		2.6 U	3.4 U	4.7 J	1.2 J
Vanadium		34	140	24	12
Zinc		46 J	56 J	160	15 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP08b	74SB273	74VP09b/JP5	74SB151
	Sample ID	74GWVP08b	74GW273	74GWVP09b/JP5	74GW151
	Date	5/31/2008	5/30/2008	7/23/2008	5/21/2008
<b>Dissolved Metals (ug/L)</b>					
Antimony		1.6 U	2.1 U	NA	0.36 U
Arsenic		2.3 U	1.4 U	NA	1.9 U
Barium		16	2.7 J	NA	200 R
Beryllium		0.065 U	0.065 U	NA	0.07 U
Cadmium		0.2 J	0.12 U	NA	0.12 U
Chromium		1.2 U	0.6 U	NA	1.3 U
Cobalt		3.8	4.5	NA	2.2
Copper		3.6 U	2.9 U	NA	1.2 U
Lead		0.15 U	0.25 U	NA	0.15 U
Mercury		0.09 J	0.08 U	NA	0.08 U
Nickel		5.4	9	NA	1.3 J
Selenium		1 J	1.2 J	NA	0.6 U
Silver		0.11 J	0.09 UJ	NA	0.09 UJ
Thallium		0.55 U	0.55 U	NA	0.55 U
Tin		0.9 U	1 U	NA	0.9 U
Vanadium		28	55	NA	2.2 U
Zinc		19 J	6.5 U	NA	6.8 R
<b>TPH DRO and GRO (mg/L)</b>					
Diesel Range Organics [C10-C28]		0.85	0.92	0.012 U	3.6
Gasoline Range Organics (GRO)-C6-C10		0.036 J	0.012 U	0.012 U	0.15



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP07b	74VP05a	74VP05a	74VP19b	74VP19b	74VP20
	Sample ID	74GWVP07	74GWVP05a	74GWVP05a	74GWVP19b	74GWVP19b	74GWVP20
	Date	5/21/2008	5/30/08	7/23/08	5/28/2008	7/23/2008	5/28/08
<b>Volatile Organic Compounds (ug/L)</b>							
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	NA	0.29 U	NA	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	NA	0.39 U	NA	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	NA	0.26 U	NA	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	NA	0.51 U	NA	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	NA	0.32 U	NA	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	NA	0.36 U	NA	0.36 U
1,2,3-Trichloropropane		0.42 U	0.42 UJ	NA	0.42 U	NA	0.42 U
1,2-Dibromo-3-Chloropropane		0.48 U	0.48 UJ	NA	0.48 UJ	NA	0.48 U
1,2-Dichloroethane		0.31 UJ	0.31 U	NA	0.31 U	NA	0.31 U
1,2-Dichloropropane		0.36 U	0.36 U	NA	0.36 U	NA	0.36 U
2-Butanone (MEK)		0.6 U	1.9 U	NA	3.6 U	NA	3.7 U
2-Chloro-1,3-butadiene		0.35 U	0.35 U	NA	0.35 U	NA	0.35 U
2-Hexanone		0.68 U	0.68 U	NA	0.68 U	NA	0.68 U
3-Chloro-1-propene		0.46 U	0.46 U	NA	0.46 U	NA	0.46 U
4-Methyl-2-pentanone (MIBK)		0.6 U	0.6 U	NA	0.9 J	NA	0.6 U
Acetone		7.9 J	7.8 U	NA	8.6 U	NA	17 U
Acetonitrile		15 U	15 U	NA	15 U	NA	15 U
Acrolein		18 U	18 UJ	NA	18 UJ	NA	18 UJ
Acrylonitrile		3.8 UJ	3.8 U	NA	3.8 U	NA	3.8 U
Benzene		0.32 U	0.32 U	NA	0.32 U	NA	5.3
Bromoform		0.41 U	0.41 U	NA	0.41 U	NA	0.41 U
Bromomethane		0.5 U	0.5 UJ	NA	0.5 UJ	NA	0.5 U
Carbon disulfide		0.44 J	7.9 J	NA	0.57 J	NA	0.17 U
Carbon tetrachloride		0.27 U	0.27 U	NA	0.27 U	NA	0.27 U
Chlorobenzene		0.34 U	0.34 U	NA	0.34 U	NA	0.34 U
Chlorodibromomethane		0.3 U	0.3 U	NA	0.3 U	NA	0.3 U
Chloroethane		1 U	1 U	NA	1 U	NA	1 U
Chloroform		0.29 U	0.29 U	NA	0.29 U	NA	0.29 U
Chloromethane		0.28 U	0.28 UJ	NA	0.28 U	NA	0.28 U
cis-1,3-Dichloropropene		0.37 U	0.37 UJ	NA	0.37 U	NA	0.37 U
Dibromomethane		0.29 U	0.29 U	NA	0.29 U	NA	0.29 U
Dichlorobromomethane		0.34 U	0.34 U	NA	0.34 U	NA	0.34 U
Dichlorodifluoromethane		0.33 U	0.33 U	NA	0.33 U	NA	0.33 U
Ethyl methacrylate		1 U	1 U	NA	1 U	NA	1 U
Ethylbenzene		1.5	0.3 U	NA	0.3 U	NA	34
Ethylene Dibromide		0.3 U	0.3 U	NA	0.3 U	NA	0.3 U
Iodomethane		1 UJ	1 U	NA	1 U	NA	1 U
Isobutyl alcohol		19 U	19 R	NA	19 R	NA	19 UJ
Methacrylonitrile		6.6 U	6.6 U	NA	6.6 U	NA	6.6 U
Methyl methacrylate		0.38 U	0.38 U	NA	0.38 U	NA	0.38 U
Methylene Chloride		1 U	1 U	NA	1 U	NA	1 U
Pentachloroethane		1.3 R	1.3 R	NA	1.3 R	NA	1.3 R

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP07b	74VP05a	74VP05a	74VP19b	74VP19b	74VP20
	Sample ID	74GWVP07	74GWVP05a	74GWVP05a	74GWVP19b	74GWVP19b	74GWVP20
	Date	5/21/2008	5/30/08	7/23/08	5/28/2008	7/23/2008	5/28/08
<b>Volatile Organic Compounds (ug/L)</b>							
Propionitrile		9.2 U	9.2 U	NA	9.2 U	NA	9.2 UJ
Styrene		0.36 U	0.36 U	NA	0.36 U	NA	0.47 J
Tetrachloroethene		0.28 U	0.28 U	NA	0.28 U	NA	0.28 U
Toluene		0.31 U	0.31 U	NA	0.31 U	NA	0.32 J
trans-1,2-Dichloroethene		0.3 U	0.3 U	NA	0.3 U	NA	0.3 U
trans-1,3-Dichloropropene		0.27 U	0.27 UJ	NA	0.27 U	NA	0.27 U
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	NA	0.83 U	NA	0.83 U
Trichloroethene		0.4 U	0.4 U	NA	0.4 U	NA	0.4 U
Trichlorofluoromethane		0.29 U	0.29 U	NA	0.29 U	NA	0.29 U
Vinyl acetate		0.62 U	0.62 UJ	NA	0.62 UJ	NA	0.62 U
Vinyl chloride		0.2 U	0.2 U	NA	0.2 U	NA	0.2 U
Xylenes, Total		0.87 U	0.87 U	NA	0.87 U	NA	22
<b>LLPAHs (ug/L)</b>							
1-Methylnaphthalene		NA	NA	NA	NA	NA	56
2-Methylnaphthalene		NA	NA	NA	NA	NA	50
Acenaphthene		NA	NA	NA	NA	NA	0.71 J
Acenaphthylene		NA	NA	NA	NA	NA	0.49 U
Anthracene		NA	NA	NA	NA	NA	0.4 J
Benzo[a]anthracene		NA	NA	NA	NA	NA	0.49 J
Benzo[a]pyrene		NA	NA	NA	NA	NA	0.4 J
Benzo[b]fluoranthene		NA	NA	NA	NA	NA	0.38 J
Benzo[g,h,i]perylene		NA	NA	NA	NA	NA	0.37 J
Benzo[k]fluoranthene		NA	NA	NA	NA	NA	0.37 J
Chrysene		NA	NA	NA	NA	NA	0.27 U
Dibenz(a,h)anthracene		NA	NA	NA	NA	NA	0.35 J
Fluoranthene		NA	NA	NA	NA	NA	0.49 U
Fluorene		NA	NA	NA	NA	NA	0.73 J
Indeno[1,2,3-cd]pyrene		NA	NA	NA	NA	NA	0.34 J
Naphthalene		NA	NA	NA	NA	NA	67
Phenanthrene		NA	NA	NA	NA	NA	0.54 J
Pyrene		NA	NA	NA	NA	NA	0.43 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP07b	74VP05a	74VP05a	74VP19b	74VP19b	74VP20
	Sample ID	74GWVP07	74GWVP05a	74GWVP05a	74GWVP19b	74GWVP19b	74GWVP20
	Date	5/21/2008	5/30/08	7/23/08	5/28/2008	7/23/2008	5/28/08
<b>Total Metals (ug/L)</b>							
Antimony		2 U	NA	2 U	NA	2 U	2.5 U
Arsenic		5.4	NA	1.6 J	NA	4.9	2.8
Barium		130	NA	46 J	NA	300 J	3400
Beryllium		0.065 U	NA	0.067 J	NA	0.065 U	0.065 U
Cadmium		0.12 U	NA	0.18 J	NA	0.12 U	0.12 U
Chromium		2.5 U	NA	40	NA	3.9 J	14 J
Cobalt		6.6 J	NA	5.4 J	NA	8.6 J	55
Copper		3.4 U	NA	27	NA	6.3	1.8 U
Lead		0.43 U	NA	22	NA	0.68 U	0.15 U
Mercury		0.08 U	NA	0.08 U	NA	0.08 U	0.08 U
Nickel		11	NA	25	NA	4.9	57
Selenium		0.9 J	NA	0.6 U	NA	1.5 J	0.81 J
Silver		0.09 U	NA	0.2 J	NA	0.09 U	0.09 U
Thallium		0.55 U	NA	0.55 U	NA	0.55 U	0.55 U
Tin		1.9 J	NA	3 J	NA	1.9 J	1.5 J
Vanadium		7.3	NA	27	NA	12	5.8
Zinc		55	NA	240	NA	27	190 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - JP-5 HILL AND DFM AREA - GROUNDWATER

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74VP07b	74VP05a	74VP05a	74VP19b	74VP19b	74VP20
	Sample ID	74GWVP07	74GWVP05a	74GWVP05a	74GWVP19b	74GWVP19b	74GWVP20
	Date	5/21/2008	5/30/08	7/23/08	5/28/2008	7/23/2008	5/28/08
<b>Dissolved Metals (ug/L)</b>							
Antimony		2.1 U	NA	2.1 U	NA	2 U	2.5 U
Arsenic		5.2 J	NA	0.96 J	NA	5.7	2.2 U
Barium		130 R	NA	31 J	NA	200 J	3900
Beryllium		0.065 U	NA	0.12 U	NA	0.065 U	0.065 U
Cadmium		0.14 J	NA	0.12 U	NA	0.12 U	0.38 U
Chromium		1.9 U	NA	1.8 J	NA	2.8 J	20 J
Cobalt		8.8 J	NA	2.6 J	NA	12 J	55 B
Copper		1.3 U	NA	2.9 U	NA	1.3 U	4.3 U
Lead		0.16 U	NA	0.25 U	NA	0.16 U	0.22 U
Mercury		0.08 U	NA	0.08 U	NA	0.08 U	0.08 U
Nickel		10 J	NA	8.8	NA	6.5	57
Selenium		0.75 J	NA	0.6 U	NA	1.9 J	0.79 J
Silver		0.09 UJ	NA	0.09 U	NA	0.09 U	0.37 J
Thallium		0.55 U	NA	0.55 U	NA	0.55 U	0.55 U
Tin		1.4 U	NA	0.9 U	NA	1.1 J	3.1 J
Vanadium		5.2	NA	3.6 J	NA	16	4.7 U
Zinc		54 R	NA	11 J	NA	8.5 J	220
<b>TPH DRO and GRO (mg/L)</b>							
Diesel Range Organics [C10-C28]		5.4	NA	NA	NA	NA	4.7
Gasoline Range Organics (GRO)-C6-C10		0.076	0.012 U	NA	0.11	NA	0.42

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB256	74SB236	74SB246	MW02
	Sample ID	74GW256	74GW236	74GW246	74GWMW2-VP-56
	Date	5/30/2008	5/31/2008	5/31/2008	5/29/2008
<b>Volatile Organic Compounds (ug/L)</b>					
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		0.42 UJ	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane		0.48 UJ	0.48 UJ	0.48 UJ	0.48 U
1,2-Dichloroethane		0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		0.6 U	0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene		0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone		0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		0.6 U	0.6 U	0.6 U	0.6 U
Acetone		6.3 U	5 U	5 U	5 U
Acetonitrile		15 U	15 U	15 U	15 U
Acrolein		18 UJ	18 UJ	18 UJ	18 UJ
Acrylonitrile		3.8 U	3.8 U	3.8 U	3.8 U
Benzene		0.32 U	0.32 U	0.32 U	0.32 U
Bromoform		0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane		0.5 UJ	0.5 UJ	0.5 UJ	0.5 U
Carbon disulfide		6.2 J	0.66 J	0.17 U	0.17 U
Carbon tetrachloride		0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene		0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane		0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane		1 U	1 U	1 U	1 U
Chloroform		0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane		0.28 UJ	0.28 UJ	0.28 UJ	0.28 U
cis-1,3-Dichloropropene		0.37 UJ	0.37 UJ	0.37 UJ	0.37 U
Dibromomethane		0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane		0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane		0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate		1 U	1 U	1 U	1 U
Ethylbenzene		0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide		0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane		1 U	1 U	1 U	1 U
Isobutyl alcohol		19 R	19 R	19 R	19 UJ
Methacrylonitrile		6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate		0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride		1 U	1 U	1 U	1 U
Pentachloroethane		1.3 R	1.3 R	1.3 R	1.3 R

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB256	74SB236	74SB246	MW02
	Sample ID	74GW256	74GW236	74GW246	74GWMW2-VP-56
	Date	5/30/2008	5/31/2008	5/31/2008	5/29/2008
<b>Volatile Organic Compounds (ug/L)</b>					
Propionitrile		9.2 U	9.2 U	9.2 U	9.2 UJ
Styrene		0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene		0.28 U	0.28 U	0.28 U	0.28 U
Toluene		0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene		0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene		0.27 UJ	0.27 UJ	0.27 UJ	0.27 U
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene		0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane		0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate		0.62 UJ	0.62 UJ	0.62 UJ	0.62 U
Vinyl chloride		0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total		0.87 U	0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>					
1-Methylnaphthalene		0.49 U	0.049 U	0.049 U	57 J
2-Methylnaphthalene		0.23 U	0.022 U	0.022 U	69 J
Acenaphthene		0.2 U	0.019 U	0.019 U	0.02 U
Acenaphthylene		0.49 U	0.049 U	0.049 U	1.1
Anthracene		0.22 U	0.021 U	0.021 U	0.022 U
Benzo[a]anthracene		0.25 U	0.025 U	0.036 J	0.025 U
Benzo[a]pyrene		0.25 U	0.024 U	0.024 U	0.025 U
Benzo[b]fluoranthene		0.36 U	0.036 U	0.036 U	0.036 U
Benzo[g,h,i]perylene		0.24 U	0.023 U	0.023 U	0.024 U
Benzo[k]fluoranthene		0.2 U	0.019 U	0.019 U	0.02 U
Chrysene		0.27 U	0.027 U	0.086 J	0.027 U
Dibenz(a,h)anthracene		0.24 U	0.023 U	0.023 U	0.024 U
Fluoranthene		0.49 U	0.049 U	0.073 J	0.049 U
Fluorene		0.19 U	0.018 U	0.018 U	0.019 U
Indeno[1,2,3-cd]pyrene		0.23 U	0.022 U	0.022 U	0.023 U
Naphthalene		0.49 U	0.049 U	0.049 U	6.1
Phenanthrene		0.18 U	0.025 U	0.017 U	0.018 U
Pyrene		0.26 U	0.026 U	0.11 U	0.11 J

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	74SB256	74SB236	74SB246	MW02
	Sample ID	74GW256	74GW236	74GW246	74GWMW2-VP-56
	Date	5/30/2008	5/31/2008	5/31/2008	5/29/2008
<b>Total Metals (ug/L)</b>					
Antimony		1.6 U	0.54 U	0.66 U	0.36 U
Arsenic		12	5.8	1.5 U	1.1 U
Barium		290	3.9 J	120	30
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.18 J	0.12 U
Chromium		9.6 J	2.2 U	3.6 U	0.6 U
Cobalt		7.6	0.45 U	5.6	0.76 R
Copper		9.3	1.2 U	13	2.3 U
Lead		0.78 U	0.16 U	0.39 U	0.16 U
Mercury		0.08 U	0.08 U	0.08 U	0.08 U
Nickel		8.2	1.8	2.8	0.67 J
Selenium		2.9	0.89 J	0.87 J	0.6 U
Silver		0.2 J	0.09 U	0.09 U	0.09 U
Thallium		0.55 U	0.55 U	0.55 U	0.55 U
Tin		2.1 J	0.9 U	0.9 U	0.9 U
Vanadium		31	5.8	29	2.2 U
Zinc		17 J	6.5 U	12 J	6.5 U
<b>Dissolved Metals (ug/L)</b>					
Antimony		1.6 U	0.77 U	0.82 U	0.36 U
Arsenic		9.7	6.3	1.7 U	0.83 U
Barium		300	3.3 J	110	31
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.22 J	0.12 U
Chromium		4.5 J	0.6 U	0.6 U	1.5 J
Cobalt		3.2	1	5.1	1.8 R
Copper		1.2 U	1.2 U	4.2 U	1.2 U
Lead		0.15 U	0.15 U	0.21 U	0.15 U
Mercury		0.08 U	0.08 U	0.08 U	0.08 U
Nickel		4.8	1.4	2	1.2
Selenium		2.1 J	1 J	1 J	0.6 U
Silver		0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ
Thallium		0.55 U	0.55 U	0.55 U	0.55 U
Tin		1.3 J	0.9 U	0.9 U	0.9 U
Vanadium		15	5.8	23	0.95 U
Zinc		12 J	6.5 U	8 J	6.5 U
<b>TPH DRO and GRO (mg/L)</b>					
Diesel Range Organics		1.8	0.1	0.32	7.7
Gasoline Range Organics		0.012 U	0.012 U	0.012 U	0.091

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	UGW12	UGW12	GW04
	Sample ID	74GW-12-VP-56	74GW-12-VP-56D	74GW04VP24
	Date	5/29/2008	5/29/2008	5/29/2008
<b>Volatile Organic Compounds (ug/L)</b>				
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		0.42 U	0.42 UJ	0.42 U
1,2-Dibromo-3-Chloropropane		0.48 U	0.48 UJ	0.48 U
1,2-Dichloroethane		0.31 U	0.31 U	0.31 U
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene		0.35 U	0.35 U	0.35 U
2-Hexanone		0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		0.6 U	0.6 U	0.6 U
Acetone		5 U	5 U	5 U
Acetonitrile		15 U	15 U	15 U
Acrolein		18 UJ	18 UJ	18 UJ
Acrylonitrile		3.8 U	3.8 U	3.8 U
Benzene		0.32 U	0.32 U	0.32 U
Bromoform		0.41 U	0.41 U	0.41 U
Bromomethane		0.5 U	0.5 UJ	0.5 U
Carbon disulfide		0.17 U	0.17 U	0.28 J
Carbon tetrachloride		0.27 U	0.27 U	0.27 U
Chlorobenzene		0.34 U	0.34 U	0.34 U
Chlorodibromomethane		0.3 U	0.3 U	0.3 U
Chloroethane		1 U	1 U	1 U
Chloroform		0.29 U	0.29 U	0.29 U
Chloromethane		0.28 U	0.28 UJ	0.28 U
cis-1,3-Dichloropropene		0.37 U	0.37 UJ	0.37 U
Dibromomethane		0.29 U	0.29 U	0.29 U
Dichlorobromomethane		0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane		0.33 U	0.33 U	0.33 U
Ethyl methacrylate		1 U	1 U	1 U
Ethylbenzene		0.47 J	0.42 J	0.3 U
Ethylene Dibromide		0.3 U	0.3 U	0.3 U
Iodomethane		1 U	1 U	1 U
Isobutyl alcohol		19 UJ	19 R	19 UJ
Methacrylonitrile		6.6 U	6.6 U	6.6 U
Methyl methacrylate		0.38 U	0.38 U	0.38 U
Methylene Chloride		1 U	1 U	1 U
Pentachloroethane		1.3 R	1.3 R	1.3 R



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	UGW12	UGW12	GW04
	Sample ID	74GW-12-VP-56	74GW-12-VP-56D	74GW04VP24
	Date	5/29/2008	5/29/2008	5/29/2008
<b>Volatile Organic Compounds (ug/L)</b>				
Propionitrile		9.2 UJ	9.2 U	9.2 UJ
Styrene		0.36 U	0.36 U	0.36 U
Tetrachloroethene		0.28 U	0.28 U	0.28 U
Toluene		0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene		0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene		0.27 U	0.27 UJ	0.27 U
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	0.83 U
Trichloroethene		0.4 U	0.4 U	0.4 U
Trichlorofluoromethane		0.29 U	0.29 U	0.29 U
Vinyl acetate		0.62 U	0.62 UJ	0.62 U
Vinyl chloride		0.2 U	0.2 U	0.2 U
Xylenes, Total		0.87 U	0.87 U	0.87 U
<b>LLPAHs (ug/L)</b>				
1-Methylnaphthalene		100 J	100	0.49 U
2-Methylnaphthalene		110 J	110	0.23 U
Acenaphthene		0.57 J	0.55	0.2 U
Acenaphthylene		0.49 R	0.049 U	0.49 U
Anthracene		0.51 J	0.022 U	0.22 U
Benzo[a]anthracene		0.25 R	0.025 U	0.25 U
Benzo[a]pyrene		0.25 R	0.025 U	0.25 U
Benzo[b]fluoranthene		0.36 R	0.036 U	0.36 U
Benzo[g,h,i]perylene		0.24 R	0.024 U	0.24 U
Benzo[k]fluoranthene		0.2 R	0.02 U	0.2 U
Chrysene		0.27 R	0.027 U	0.27 U
Dibenz(a,h)anthracene		0.24 R	0.024 U	0.24 U
Fluoranthene		0.49 R	0.049 U	0.49 U
Fluorene		0.19 R	0.54	0.19 U
Indeno[1,2,3-cd]pyrene		0.23 R	0.023 U	0.23 U
Naphthalene		58 J	57	0.49 U
Phenanthrene		0.18 R	0.018 U	0.18 U
Pyrene		0.26 R	0.026 U	0.26 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - FUELING PIERS AREA - GROUNDWATER SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Site ID	UGW12	UGW12	GW04
	Sample ID	74GW-12-VP-56	74GW-12-VP-56D	74GW04VP24
	Date	5/29/2008	5/29/2008	5/29/2008
<b>Total Metals (ug/L)</b>				
Antimony		0.36 U	0.36 U	1.6 U
Arsenic		2.7	2.5 U	7.3
Barium		11	12	73
Beryllium		0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.12 U
Chromium		0.6 U	0.6 U	0.6 U
Cobalt		0.65 J	0.71 J	1.2 R
Copper		2.3 U	1.8 U	4.4 U
Lead		0.15 U	0.15 U	0.44 U
Mercury		0.08 U	0.08 U	0.08 U
Nickel		0.48 J	0.47 J	1.7
Selenium		0.6 U	0.6 U	0.76 J
Silver		0.09 U	0.09 U	0.09 U
Thallium		0.55 U	0.55 U	0.55 U
Tin		0.9 U	0.9 U	0.9 U
Vanadium		2.1 U	2.1 U	34
Zinc		6.5 U	6.5 U	13 J
<b>Dissolved Metals (ug/L)</b>				
Antimony		0.36 U	0.36 U	1.7 U
Arsenic		2.2 U	2 U	5.6
Barium		12	13	85
Beryllium		0.065 U	0.065 U	0.065 U
Cadmium		0.12 U	0.12 U	0.12 U
Chromium		0.6 U	0.7 J	0.66 J
Cobalt		0.82 J	1.1 J	3 R
Copper		1.6 U	1.2 U	1.2 U
Lead		0.15 U	0.15 U	0.15 U
Mercury		0.08 U	0.08 U	0.08 U
Nickel		0.68 J	0.52 J	1.9
Selenium		0.6 U	0.6 U	0.62 J
Silver		0.09 UJ	0.09 UJ	0.09 UJ
Thallium		0.55 U	0.55 U	0.55 U
Tin		0.9 U	0.9 U	0.9 U
Vanadium		0.9 U	0.94 U	37
Zinc		8.1 J	6.5 U	6.5 U
<b>TPH DRO and GRO (mg/L)</b>				
Diesel Range Organics		5.2	4.6	8.1
Gasoline Range Organics		0.14	0.11	0.075

**Quality Assurance/Quality Control Data**

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## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC SUMMARY - TRIP BLANKS SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	74TB01	56TB01	74TB02	74TB03	QATB01	74TB04	74TB05	74TB06	74 TB07	74 TB08
Date	4/28/2008	4/29/2008	4/30/2008	5/2/2008	5/2/2008	5/4/2008	5/4/2008	5/4/2008	5/5/2008	5/5/2008
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane	NA	0.29 R	0.29 U	0.29 UJ	0.29 U	0.29 R	0.29 U	0.29 R	0.29 U	0.29 U
1,1,1-Trichloroethane	NA	0.39 R	0.39 U	0.39 UJ	0.39 U	0.39 R	0.39 U	0.39 R	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	NA	0.26 R	0.26 U	0.26 UJ	0.26 U	0.26 R	0.26 U	0.26 R	0.26 U	0.26 U
1,1,2-Trichloroethane	NA	0.51 R	0.51 U	0.51 UJ	0.51 U	0.51 R	0.51 U	0.51 R	0.51 U	0.51 U
1,1-Dichloroethane	NA	0.32 R	0.32 U	0.32 UJ	0.32 U	0.32 R	0.32 U	0.32 R	0.32 U	0.32 U
1,1-Dichloroethene	NA	0.36 R	0.36 U	0.36 UJ	0.36 U	0.36 R	0.36 U	0.36 R	0.36 U	0.36 U
1,2,3-Trichloropropane	NA	0.42 R	0.42 U	0.42 UJ	0.42 U	0.42 R	0.42 U	0.42 R	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane	NA	0.48 R	0.48 U	0.48 UJ	0.48 U	0.48 R	0.48 U	0.48 R	0.48 U	0.48 U
1,2-Dichloroethane	NA	0.31 R	0.31 U	0.31 UJ	0.31 U	0.31 R	0.31 U	0.31 R	0.31 U	0.31 U
1,2-Dichloropropane	NA	0.36 R	0.36 U	0.36 UJ	0.36 U	0.36 R	0.36 U	0.36 R	0.36 U	0.36 U
2-Butanone (MEK)	NA	0.6 R	0.6 U	0.6 UJ	0.6 U	0.6 R	0.6 U	0.6 R	0.6 U	0.6 U
2-Chloro-1,3-butadiene	NA	0.35 R	0.35 UJ	0.35 UJ	0.35 U	0.35 R	0.35 U	0.35 R	0.35 U	0.35 U
2-Hexanone	NA	0.68 R	0.68 U	0.68 UJ	0.68 U	0.68 R	0.68 U	0.68 R	0.68 U	0.68 U
3-Chloro-1-propene	NA	0.46 R	0.46 U	0.46 UJ	0.46 U	0.46 R	0.46 U	0.46 R	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)	NA	0.6 R	0.6 U	0.6 UJ	0.6 U	0.6 R	0.6 U	0.6 R	0.6 U	0.6 U
Acetone	NA	5 R	5 R	5 UJ	5 U	5 R	5 U	5 R	5 U	5 U
Acetonitrile	NA	15 R	15 UJ	15 UJ	15 U	15 R	15 U	15 R	15 U	15 U
Acrolein	NA	18 R	18 R	18 UJ	18 U	18 R	18 R	18 R	18 R	18 R
Acrylonitrile	NA	3.8 R	3.8 U	3.8 UJ	3.8 U	3.8 R	3.8 UJ	3.8 R	3.8 UJ	3.8 UJ
Benzene	NA	0.32 R	0.32 U	0.32 UJ	0.32 U	0.32 R	0.32 U	0.32 R	0.32 U	0.32 U
Bromoform	NA	0.41 R	0.41 U	0.41 UJ	0.41 U	0.41 R	0.41 U	0.41 R	0.41 U	0.41 U
Bromomethane	NA	0.5 R	0.5 U	0.5 UJ	0.5 U	0.5 R	0.5 UJ	0.5 R	0.5 UJ	0.5 UJ
Carbon disulfide	NA	0.17 R	0.17 UJ	0.17 UJ	0.17 U	0.17 R	0.17 U	0.17 R	0.17 U	0.17 U
Carbon tetrachloride	NA	0.27 R	0.27 U	0.27 UJ	0.27 U	0.27 R	0.27 U	0.27 R	0.27 U	0.27 U
Chlorobenzene	NA	0.34 R	0.34 U	0.34 UJ	0.34 U	0.34 R	0.34 U	0.34 R	0.34 U	0.34 U
Chlorodibromomethane	NA	0.3 R	0.3 U	0.3 UJ	0.3 U	0.3 R	0.3 U	0.3 R	0.3 U	0.3 U
Chloroethane	NA	1 R	1 U	1 UJ	1 U	1 R	1 U	1 R	1 UJ	1 UJ
Chloroform	NA	0.29 R	0.29 U	0.29 UJ	0.29 U	0.29 R	0.29 U	0.29 R	0.29 U	0.29 U
Chloromethane	NA	0.28 R	1.2 J	0.28 UJ	0.28 U	0.28 R	0.28 U	0.28 R	0.28 U	0.28 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC SUMMARY - TRIP BLANKS SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74TB01	56TB01	74TB02	74TB03	QATB01	74TB04	74TB05	74TB06	74 TB07	74 TB08
	Date	4/28/2008	4/29/2008	4/30/2008	5/2/2008	5/2/2008	5/4/2008	5/4/2008	5/4/2008	5/5/2008	5/5/2008
<b>Volatile Organic Compounds (ug/kg)</b>											
cis-1,3-Dichloropropene		NA	0.37 R	0.37 U	0.37 UJ	0.37 U	0.37 R	0.37 U	0.37 R	0.37 UJ	0.37 UJ
Dibromomethane		NA	0.29 R	0.29 U	0.29 UJ	0.29 U	0.29 R	0.29 U	0.29 R	0.29 U	0.29 U
Dichlorobromomethane		NA	0.34 R	0.34 U	0.34 UJ	0.34 U	0.34 R	0.34 U	0.34 R	0.34 U	0.34 U
Dichlorodifluoromethane		NA	0.33 R	0.33 U	0.33 UJ	0.33 U	0.33 R	0.33 UJ	0.33 R	0.33 U	0.33 U
Ethyl methacrylate		NA	1 R	1 U	1 UJ	1 U	1 R	1 U	1 R	1 U	1 U
Ethylbenzene		NA	0.3 R	0.3 U	0.3 UJ	0.3 U	0.3 R	0.3 U	0.3 R	0.3 U	0.3 U
Ethylene Dibromide		NA	0.3 R	0.3 U	0.3 UJ	0.3 U	0.3 R	0.3 U	0.3 R	0.3 U	0.3 U
Iodomethane		NA	1 R	1 U	1 UJ	1 U	1 R	1 U	1 R	1 UJ	1 UJ
Isobutyl alcohol		NA	19 R	19 R	19 R	19 U	19 R	19 U	19 R	19 U	19 U
Methacrylonitrile		NA	6.6 R	6.6 U	6.6 UJ	6.6 U	6.6 R	6.6 U	6.6 R	6.6 U	6.6 U
Methyl methacrylate		NA	0.38 R	0.38 UJ	0.38 UJ	0.38 U	0.38 R	0.38 U	0.38 R	0.38 U	0.38 U
Methylene Chloride		NA	1 R	1 U	1 UJ	1 U	1 R	1 U	1 R	1 U	1 U
Pentachloroethane		NA	1.3 R	1.3 UJ	1.3 UJ	1.3 UJ	1.3 R	1.3 UJ	1.3 R	1.3 UJ	1.3 UJ
Propionitrile		NA	9.2 R	9.2 U	9.2 UJ	9.2 U	9.2 R	9.2 U	9.2 R	9.2 U	9.2 U
Styrene		NA	0.36 R	0.36 U	0.36 UJ	0.36 U	0.36 R	0.36 U	0.36 R	0.36 U	0.36 U
Tetrachloroethene		NA	0.28 R	0.28 U	0.28 UJ	0.28 U	0.28 R	0.28 U	0.28 R	0.28 U	0.28 U
Toluene		NA	0.31 R	0.31 U	0.31 UJ	0.31 U	0.31 R	0.31 U	0.31 R	0.31 U	0.31 U
trans-1,2-Dichloroethene		NA	0.3 R	0.3 U	0.3 UJ	0.3 U	0.3 R	0.3 U	0.3 R	0.3 U	0.3 U
trans-1,3-Dichloropropene		NA	0.27 R	0.27 U	0.27 UJ	0.27 U	0.27 R	0.27 UJ	0.27 R	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene		NA	0.83 R	0.83 UJ	0.83 UJ	0.83 U	0.83 R	0.83 U	0.83 R	0.83 U	0.83 U
Trichloroethene		NA	0.4 R	0.4 U	0.4 UJ	0.4 U	0.4 R	0.4 U	0.4 R	0.4 U	0.4 U
Trichlorofluoromethane		NA	0.29 R	0.29 UJ	0.29 UJ	0.29 U	0.29 R	0.29 U	0.29 R	0.29 UJ	0.29 UJ
Vinyl acetate		NA	0.62 R	0.62 U	0.62 UJ	0.62 UJ	0.62 R	0.62 UJ	0.62 R	0.62 U	0.62 U
Vinyl chloride		NA	0.2 R	0.2 U	0.2 UJ	0.2 U	0.2 R	0.2 U	0.2 R	0.2 U	0.2 U
Xylenes, Total		NA	0.87 R	0.87 U	0.87 UJ	0.87 U	0.87 R	0.87 U	0.87 R	0.87 U	0.87 U
<b>TPH DRO and GRO (mg/kg)</b>											
Diesel Range Organics [C10-C28]		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline Range Organics (GRO)-C6-C10		0.012 U	NA	0.012 U	0.01 UJ	0.012 U	0.012 U	0.012 U	0.01 R	0.012 U	0.012 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC SUMMARY - TRIP BLANKS SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74TB09	74TB10	74TB11	74TB12	74TB13	74TB14	74TB15	74TB16
	Date	5/6/2008	5/6/2008	5/7/2008	5/7/2008	5/13/2008	5/14/2008	5/13/2008	5/15/2008
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 UJ	0.42 UJ	0.42 UJ
1,2-Dibromo-3-Chloropropane		0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 UJ	0.48 UJ	0.48 UJ
1,2-Dichloroethane		0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene		0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone		0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile		15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U
Acrolein		18 R	18 R	18 R	18 R	18 UJ	18 U	18 U	18 U
Acrylonitrile		3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ
Benzene		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Bromoform		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane		0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Carbon disulfide		0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Carbon tetrachloride		0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene		0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane		1 UJ	1 UJ	1 U	1 UJ	1 UJ	1 U	1 U	1 U
Chloroform		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane		0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC SUMMARY - TRIP BLANKS SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74TB09	74TB10	74TB11	74TB12	74TB13	74TB14	74TB15	74TB16
	Date	5/6/2008	5/6/2008	5/7/2008	5/7/2008	5/13/2008	5/14/2008	5/13/2008	5/15/2008
<b>Volatile Organic Compounds (ug/kg)</b>									
cis-1,3-Dichloropropene		0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ
Dibromomethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane		0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane		0.33 U	0.33 U	0.33 UJ	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane		1 UJ	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U
Isobutyl alcohol		19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Methacrylonitrile		6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate		0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Pentachloroethane		1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 U	1.3 UJ	1.3 UJ	1.3 UJ
Propionitrile		9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Styrene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene		0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene		0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene		0.27 U	0.27 U	0.27 UJ	0.27 U	0.27 UJ	0.27 UJ	0.27 UJ	0.27 UJ
trans-1,4-Dichloro-2-butene		0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane		0.29 UJ	0.29 UJ	0.29 U	0.29 UJ	0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate		0.62 U	0.62 U	0.62 UJ	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Vinyl chloride		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total		0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
<b>TPH DRO and GRO (mg/kg)</b>									
Diesel Range Organics [C10-C28]		NA	NA	NA	NA	NA	NA	NA	NA
Gasoline Range Organics (GRO)-C6-C10		0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC SUMMARY - TRIP BLANKS SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID Date	74TB17 5/13/2008	74TB18 5/15/2008	74TB19 5/15/2008	74TB20 5/15/2008	74TB21 5/16/2008	74TB22 5/17/2008	74TB23 5/18/2008	74TB24 5/17/2008	74TB25 5/19/2008
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane	0.42 UJ	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane	0.48 UJ	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloroethane	0.31 U	0.31 U	0.31 U	0.31 U	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ
1,2-Dichloropropane	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)	0.9 J	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U
Acrolein	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U
Acrylonitrile	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ
Benzene	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Bromoform	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Carbon tetrachloride	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC SUMMARY - TRIP BLANKS SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID Date	74TB17 5/13/2008	74TB18 5/15/2008	74TB19 5/15/2008	74TB20 5/15/2008	74TB21 5/16/2008	74TB22 5/17/2008	74TB23 5/18/2008	74TB24 5/17/2008	74TB25 5/19/2008
<b>Volatile Organic Compounds (ug/kg)</b>									
cis-1,3-Dichloropropene	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Dibromomethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isobutyl alcohol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 UJ	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R
Propionitrile	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	0.27 UJ	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Vinyl chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
<b>TPH DRO and GRO (mg/kg)</b>									
Diesel Range Organics [C10-C28]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline Range Organics (GRO)-C6-C10	0.012 U	0.012 U	0.012 U	0.012 U	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC SUMMARY - TRIP BLANKS

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	74TB26	74TB27	74TB28	74TB29	74TB30	74TB31	74TB32	74TB33	62TB01
Date	5/19/2008	5/21/2008	5/19/2008	5/19/2008	5/20/2008	5/21/2008	5/28/2008	5/28/2008	5/31/2008
<b>Volatile Organic Compounds (ug/kg)</b>									
1,1,1,2-Tetrachloroethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 UJ	0.32 U	0.32 U
1,1-Dichloroethene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 UJ	0.48 UJ
1,2-Dichloroethane	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U
Acrolein	18 U	18 U	18 U	18 U	18 R	18 R	18 UJ	18 UJ	18 UJ
Acrylonitrile	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U
Benzene	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Bromoform	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Carbon disulfide	0.17 U	0.17 U	0.17 U	0.17 U	0.17 UJ	0.17 UJ	0.17 U	0.17 U	0.17 U
Carbon tetrachloride	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ
Chloroform	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane	0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ	0.28 UJ	0.28 U	0.28 U	0.28 UJ

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC SUMMARY - TRIP BLANKS SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	74TB26	74TB27	74TB28	74TB29	74TB30	74TB31	74TB32	74TB33	62TB01
Date	5/19/2008	5/21/2008	5/19/2008	5/19/2008	5/20/2008	5/21/2008	5/28/2008	5/28/2008	5/31/2008
<b>Volatile Organic Compounds (ug/kg)</b>									
cis-1,3-Dichloropropene	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 UJ
Dibromomethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
Isobutyl alcohol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 R	19 U
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R
Propionitrile	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 UJ
trans-1,4-Dichloro-2-butene	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 UJ
Vinyl acetate	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 UJ	0.62 U
Vinyl chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
<b>TPH DRO and GRO (mg/kg)</b>									
Diesel Range Organics [C10-C28]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline Range Organics (GRO)-C6-C10	NA	0.007 U	0.0069 UJ	0.0069 UJ	0.012 U	0.012 U	0.012 U	0.012 U	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08
Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008	5/5/2008
<b>Volatile Organic Compounds (ug/kg)</b>								
1,1,1,2-Tetrachloroethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloroethane	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 UJ
2-Hexanone	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 UJ
4-Methyl-2-pentanone (MIBK)	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 UJ
Acrolein	18 U	18 U	18 U	18 U	18 U	18 R	18 R	18 R
Acrylonitrile	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 UJ	3.8 UJ	3.8 UJ
Benzene	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Bromoform	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Carbon disulfide	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Carbon tetrachloride	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Chloroform	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ	0.28 UJ	0.28 U
cis-1,3-Dichloropropene	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 UJ	0.37 UJ
Dibromomethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08
Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008	5/5/2008
<b>Volatile Organic Compounds (ug/kg)</b>								
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ
Isobutyl alcohol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ
Propionitrile	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene	0.31 U	0.31 U	0.31 U	0.79 J	0.9 J	0.31 U	0.31 U	0.31 U
trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 UJ
trans-1,4-Dichloro-2-butene	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 UJ	0.29 UJ	0.29 U
Vinyl acetate	0.62 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.62 U	0.62 U	0.62 U
Vinyl chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
<b>Semivolatile Organic Compounds (ug/kg)</b>								
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
1,1'-Biphenyl	0.16 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.22 UJ	NA	NA	NA
1,2,4,5-Tetrachlorobenzene	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.31 UJ	NA	NA	NA
1,2,4-Trichlorobenzene	0.12 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.17 UJ	NA	NA	NA
1,2-Dichlorobenzene	0.12 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.17 UJ	NA	NA	NA
1,3,5-Trinitrobenzene	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.27 UJ	NA	NA	NA
1,3-Dichlorobenzene	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.15 UJ	NA	NA	NA
1,3-Dinitrobenzene	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.29 UJ	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08
Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008	5/5/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>								
1,4-Dichlorobenzene	0.21 J	0.17 J	0.17 J	0.12 UJ	0.15 UJ	NA	NA	NA
1,4-Dioxane	0.48 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.64 UJ	NA	NA	NA
1,4-Naphthoquinone	0.15 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.21 UJ	NA	NA	NA
2,2'-oxybis[1-chloropropane]	0.096 UJ	0.097 UJ	0.097 UJ	0.097 UJ	0.13 UJ	NA	NA	NA
2,3,4,6-Tetrachlorophenol	0.29 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.38 UJ	NA	NA	NA
2,4,5-Trichlorophenol	0.15 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.21 UJ	NA	NA	NA
2,4,6-Trichlorophenol	0.15 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.21 UJ	NA	NA	NA
2,4-Dichlorophenol	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
2,4-Dimethylphenol	0.39 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.53 UJ	NA	NA	NA
2,4-Dinitrophenol	2.4 UJ	2.4 UJ	2.4 UJ	2.4 UJ	3.2 UJ	NA	NA	NA
2,4-Dinitrotoluene	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.23 UJ	NA	NA	NA
2,6-Dichlorophenol	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.28 UJ	NA	NA	NA
2,6-Dinitrotoluene	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
2-Acetylaminofluorene	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.26 UJ	NA	NA	NA
2-Chloronaphthalene	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.15 UJ	NA	NA	NA
2-Chlorophenol	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
2-Methylnaphthalene	0.022 UJ	0.022 UJ	0.022 UJ	0.022 UJ	0.029 UJ	NA	NA	NA
2-Methylphenol	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
2-Naphthylamine	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.4 UJ	NA	NA	NA
2-Nitroaniline	0.13 UJ	0.14 UJ	0.14 UJ	0.14 UJ	0.18 UJ	NA	NA	NA
2-Nitrophenol	0.16 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.22 UJ	NA	NA	NA
2-Picoline	0.57 UJ	0.57 UJ	0.57 UJ	0.57 UJ	0.76 UJ	NA	NA	NA
2-Toluidine	0.32 UJ	0.32 UJ	0.32 UJ	0.32 UJ	0.42 UJ	NA	NA	NA
3 & 4 Methylphenol	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
3,3'-Dichlorobenzidine	3.7 UJ	3.7 UJ	3.7 UJ	3.7 UJ	4.9 UJ	NA	NA	NA
3,3'-Dimethylbenzidine	3.7 UJ	3.7 UJ	3.7 UJ	3.7 UJ	4.9 UJ	NA	NA	NA
3-Methylcholanthrene	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.27 UJ	NA	NA	NA
3-Nitroaniline	0.28 UJ	0.28 UJ	0.28 UJ	0.28 UJ	0.37 UJ	NA	NA	NA
4,6-Dinitro-2-methylphenol	0.48 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.64 UJ	NA	NA	NA
4-Aminobiphenyl	0.67 UJ	0.68 UJ	0.68 UJ	0.68 UJ	0.9 UJ	NA	NA	NA
4-Bromophenyl phenyl ether	0.15 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.21 UJ	NA	NA	NA
4-Chloro-3-methylphenol	0.15 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.21 UJ	NA	NA	NA

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08
Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008	5/5/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>								
4-Chloroaniline	0.39 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.53 UJ	NA	NA	NA
4-Chlorophenyl phenyl ether	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
4-Nitroaniline	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.35 UJ	NA	NA	NA
4-Nitrophenol	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.24 UJ	NA	NA	NA
4-Nitroquinoline-1-oxide	0.26 R	0.26 R	0.26 R	0.26 R	0.35 R	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.27 UJ	NA	NA	NA
Acenaphthene	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ	0.026 UJ	NA	NA	NA
Acenaphthylene	0.048 UJ	0.049 UJ	0.049 UJ	0.049 UJ	0.064 UJ	NA	NA	NA
Acetophenone	0.47 J	0.42 J	0.39 J	0.35 J	0.35 J	NA	NA	NA
alpha,alpha-Dimethyl phenethylamine	1.2 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.7 UJ	NA	NA	NA
Aniline	0.39 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.53 UJ	NA	NA	NA
Anthracene	0.021 UJ	0.021 UJ	0.021 UJ	0.021 UJ	0.028 UJ	NA	NA	NA
Aramite, Total	0.48 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.64 UJ	NA	NA	NA
Benzo[a]anthracene	0.025 UJ	0.025 UJ	0.025 UJ	0.025 UJ	0.033 UJ	NA	NA	NA
Benzo[a]pyrene	0.024 UJ	0.024 UJ	0.024 UJ	0.024 R	0.032 UJ	NA	NA	NA
Benzo[b]fluoranthene	0.036 UJ	0.036 UJ	0.036 UJ	0.036 R	0.047 UJ	NA	NA	NA
Benzo[g,h,i]perylene	0.023 UJ	0.023 UJ	0.023 UJ	0.023 R	0.031 UJ	NA	NA	NA
Benzo[k]fluoranthene	0.019 UJ	0.019 UJ	0.019 UJ	0.019 R	0.026 UJ	NA	NA	NA
Benzyl alcohol	0.15 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.21 UJ	NA	NA	NA
Bis(2-chloroethoxy)methane	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
Bis(2-chloroethyl)ether	0.13 UJ	0.14 UJ	0.14 UJ	0.14 UJ	0.18 UJ	NA	NA	NA
Bis(2-ethylhexyl) phthalate	0.39 J	12	0.34 UJ	0.34 UJ	0.45 UJ	NA	NA	NA
Butyl benzyl phthalate	0.16 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.22 UJ	NA	NA	NA
Chrysene	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.036 UJ	NA	NA	NA
Diallate	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.26 UJ	NA	NA	NA
Dibenz(a,h)anthracene	0.023 UJ	0.023 UJ	0.023 UJ	0.023 R	0.031 UJ	NA	NA	NA
Dibenzofuran	0.096 UJ	0.097 UJ	0.097 UJ	0.097 UJ	0.13 UJ	NA	NA	NA
Diethyl phthalate	0.42 J	0.3 J	0.27 J	0.18 UJ	0.24 UJ	NA	NA	NA
Dimethyl phthalate	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.23 UJ	NA	NA	NA
Di-n-butyl phthalate	1.6 J	1.3 J	1.2 J	0.32 J	0.42 J	NA	NA	NA
Di-n-octyl phthalate	0.096 UJ	0.097 UJ	0.097 UJ	0.097 R	0.13 UJ	NA	NA	NA
Dinoseb	0.48 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.64 UJ	NA	NA	NA

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08
Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008	5/5/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>								
Ethyl methanesulfonate	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.31 UJ	NA	NA	NA
Fluoranthene	0.048 UJ	0.049 UJ	0.049 UJ	0.049 UJ	0.064 UJ	NA	NA	NA
Fluorene	0.018 UJ	0.018 UJ	0.018 UJ	0.018 UJ	0.024 UJ	NA	NA	NA
Hexachlorobenzene	0.15 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.21 UJ	NA	NA	NA
Hexachlorobutadiene	0.12 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.17 UJ	NA	NA	NA
Hexachlorocyclopentadiene	0.48 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.64 UJ	NA	NA	NA
Hexachloroethane	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
Hexachlorophene	48 R	49 R	49 R	49 R	64 R	NA	NA	NA
Hexachloropropene	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.15 UJ	NA	NA	NA
Indeno[1,2,3-cd]pyrene	0.022 UJ	0.022 UJ	0.022 UJ	0.022 R	0.029 UJ	NA	NA	NA
Isophorone	0.14 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.19 UJ	NA	NA	NA
Isosafrole	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.4 UJ	NA	NA	NA
Methapyrilene	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.35 UJ	NA	NA	NA
Methyl methanesulfonate	0.45 UJ	0.46 UJ	0.46 UJ	0.46 UJ	0.6 UJ	NA	NA	NA
Naphthalene	0.048 UJ	0.049 UJ	0.049 UJ	0.049 UJ	0.064 UJ	NA	NA	NA
Nitrobenzene	0.13 UJ	0.14 UJ	0.14 UJ	0.14 UJ	0.18 UJ	NA	NA	NA
N-Nitro-o-toluidine	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.32 UJ	NA	NA	NA
N-Nitrosodiethylamine	0.32 UJ	0.32 UJ	0.32 UJ	0.32 UJ	0.42 UJ	NA	NA	NA
N-Nitrosodimethylamine	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.26 UJ	NA	NA	NA
N-Nitrosodi-n-butylamine	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.24 UJ	NA	NA	NA
N-Nitrosodi-n-propylamine	0.12 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.17 UJ	NA	NA	NA
N-Nitrosodiphenylamine	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.23 UJ	NA	NA	NA
N-Nitrosomethylethylamine	0.28 UJ	0.28 UJ	0.28 UJ	0.28 UJ	0.37 UJ	NA	NA	NA
N-Nitrosomorpholine	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.26 UJ	NA	NA	NA
N-Nitrosopiperidine	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.29 UJ	NA	NA	NA
N-Nitrosopyrrolidine	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.33 UJ	NA	NA	NA
p-Dimethylamino azobenzene	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.79 UJ	NA	NA	NA
Pentachlorobenzene	0.27 UJ	0.27 UJ	0.27 UJ	0.27 UJ	0.36 UJ	NA	NA	NA
Pentachloronitrobenzene	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.4 UJ	NA	NA	NA
Pentachlorophenol	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.24 UJ	NA	NA	NA
Phenacetin	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.27 UJ	NA	NA	NA
Phenanthrene	0.017 UJ	0.017 UJ	0.017 UJ	0.017 UJ	0.023 UJ	NA	NA	NA



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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08
Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008	5/5/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>								
Phenol	0.17 J	0.14 UJ	0.14 UJ	0.14 UJ	0.18 UJ	NA	NA	NA
p-Phenylene diamine	2.4 UJ	2.4 UJ	2.4 UJ	2.4 UJ	3.2 UJ	NA	NA	NA
Pronamide	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.33 UJ	NA	NA	NA
Pyrene	0.026 UJ	0.026 UJ	0.026 UJ	0.026 UJ	0.035 UJ	NA	NA	NA
Pyridine	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.29 UJ	NA	NA	NA
Safrole, Total	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.31 UJ	NA	NA	NA
<b>Pesticides/PCBs (ug/kg)</b>								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (technical)	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA
Isodrin	NA	NA	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1016	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221	NA	NA	NA	NA	NA	NA	NA	NA

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER01	ER02	ER03	ER04	ER05	ER06	ER07	ER08
Date	4/28/2008	4/29/2008	4/30/2008	5/1/2008	5/2/2008	5/3/2008	5/4/2008	5/5/2008
<b>Pesticides/PCBs (ug/kg)</b>								
PCB-1232	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260	NA	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>								
Antimony	0.36 UJ	0.36 UJ	0.36 UJ	0.36 UJ	0.36 UJ	0.36 U	0.36 U	0.36 U
Arsenic	0.28 UJ	0.28 UJ	0.28 UJ	0.28 UJ	0.28 UJ	0.46 J	0.33 J	0.41 J
Barium	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 U	14
Beryllium	0.065 UJ	0.065 UJ	0.065 UJ	0.065 UJ	0.065 UJ	0.065 U	0.065 U	0.065 U
Cadmium	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 U	0.12 U	0.12 J
Chromium	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.6 U	0.7 J
Cobalt	0.029 UJ	0.029 UJ	0.029 UJ	0.029 UJ	0.029 UJ	0.029 U	0.029 U	0.087 J
Copper	2.1 J	1.9 J	2.1 J	1.2 UJ	1.2 UJ	3.6 J	5.2	15
Lead	0.48 J	0.15 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.15 U	0.15 U	0.83 J
Mercury	0.08 UJ	0.08 UJ	0.08 UJ	0.08 UJ	0.08 UJ	0.08 U	0.08 U	0.08 U
Nickel	0.32 UJ	0.32 UJ	0.32 UJ	0.32 UJ	0.32 UJ	0.32 U	0.32 U	0.95 J
Selenium	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.6 U	0.6 U
Silver	0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ	0.09 U	0.09 U	0.09 U
Thallium	0.55 UJ	0.55 UJ	0.55 UJ	0.55 UJ	0.55 UJ	0.55 U	0.55 U	0.55 U
Tin	1.1 J	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ	0.9 U	0.9 U	0.9 U
Vanadium	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	1.2 J	1.1 J	1.5 J
Zinc	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 U	6.5 U	40 J
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics [C10-C28]	0.12	0.03 U	0.028 U	NA	NA	0.03 U	0.028 U	0.028 U
Gasoline Range Organics (GRO)-C6-C10	0.012 U	0.012 U	0.012 U	NA	NA	0.012 U	0.012 U	0.012 U

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	ER09	ER10	74ER11	74ER12	74ER13	74ER14	74ER15	74ER16	74ER17
	Date	5/6/2008	5/7/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008	5/19/2008
<b>Volatile Organic Compounds (ug/kg)</b>										
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		0.42 U	0.42 U	0.42 UJ	0.42 UJ	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane		0.48 U	0.48 U	0.48 UJ	0.48 UJ	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
1,2-Dichloroethane		0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 UJ	0.31 UJ	0.31 UJ
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Chloro-1,3-butadiene		0.35 UJ	0.35 UJ	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone		0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		0.46 UJ	0.46 UJ	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile		15 UJ	15 UJ	15 U	15 U	15 U	15 U	15 U	15 U	15 U
Acrolein		18 R	18 R	18 U	18 U	18 U	18 U	18 U	18 U	18 U
Acrylonitrile		3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ	3.8 UJ
Benzene		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Bromoform		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane		0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
Carbon disulfide		0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Carbon tetrachloride		0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene		0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane		1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane		0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
cis-1,3-Dichloropropene		0.37 UJ	0.37 UJ	0.37 UJ	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Dibromomethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER09	ER10	74ER11	74ER12	74ER13	74ER14	74ER15	74ER16	74ER17
Date	5/6/2008	5/7/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008	5/19/2008
<b>Volatile Organic Compounds (ug/kg)</b>									
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isobutyl alcohol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R
Propionitrile	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Tetrachloroethene	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene	0.31 U	0.31 U	0.31 U	0.52 J	3	3.6	2.3	1.9	1.2
trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	0.27 UJ	0.27 UJ	0.27 UJ	0.27 UJ	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Vinyl acetate	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Vinyl chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
<b>Semivolatile Organic Compounds (ug/kg)</b>									
1-Methylnaphthalene	NA	NA	0.047 U	0.049 U	NA	NA	NA	NA	NA
1,1'-Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER09	ER10	74ER11	74ER12	74ER13	74ER14	74ER15	74ER16	74ER17
Date	5/6/2008	5/7/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008	5/19/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>									
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Naphthoquinone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-oxybis[1-chloropropane]	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	0.022 U	0.022 U	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	0.019 U	0.019 U	NA	NA	NA	NA	NA
2-Naphthylamine	NA	NA	0.047 U	0.049 U	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	0.021 U	0.021 U	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	0.025 U	0.025 U	NA	NA	NA	NA	NA
2-Picoline	NA	NA	0.024 U	0.024 U	NA	NA	NA	NA	NA
2-Toluidine	NA	NA	0.035 U	0.036 U	NA	NA	NA	NA	NA
3 & 4 Methylphenol	NA	NA	0.023 U	0.023 U	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	0.019 U	0.019 U	NA	NA	NA	NA	NA
3,3'-Dimethylbenzidine	NA	NA	0.026 U	0.027 U	NA	NA	NA	NA	NA
3-Methylcholanthrene	NA	NA	0.023 U	0.023 U	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	0.047 U	0.049 U	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	0.018 U	0.018 U	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	0.022 U	0.022 U	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NA	NA	0.047 U	0.049 U	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	0.017 U	0.017 U	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER09	ER10	74ER11	74ER12	74ER13	74ER14	74ER15	74ER16	74ER17
Date	5/6/2008	5/7/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008	5/19/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>									
4-Chloroaniline	NA	NA	0.025 U	0.026 U	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	0.019 U	0.019 U	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	0.047 U	0.049 U	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha,alpha-Dimethyl phenethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	0.021 U	0.021 U	NA	NA	NA	NA	NA
Aramite, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	NA	NA	0.025 U	0.025 U	NA	NA	NA	NA	NA
Benzo[a]pyrene	NA	NA	0.024 U	0.024 U	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	NA	NA	0.035 U	0.036 U	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	NA	NA	0.023 U	0.023 U	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	NA	NA	0.019 U	0.019 U	NA	NA	NA	NA	NA
Benzyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	0.026 U	0.027 U	NA	NA	NA	NA	NA
Diallate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	0.023 U	0.023 U	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dinoseb	NA	NA	NA	NA	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER09	ER10	74ER11	74ER12	74ER13	74ER14	74ER15	74ER16	74ER17
Date	5/6/2008	5/7/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008	5/19/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>									
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	0.047 U	0.049 U	NA	NA	NA	NA	NA
Fluorene	NA	NA	0.018 U	0.018 U	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorophene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	NA	NA	0.022 U	0.022 U	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isosafrole	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	0.047 U	0.049 U	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-butylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethylethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylamino azobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenacetin	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	0.017 U	0.017 U	NA	NA	NA	NA	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK

#### SWMU 74 - FUEL PIPELINES AND HYDRANT PITS

#### PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION

#### NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	ER09	ER10	74ER11	74ER12	74ER13	74ER14	74ER15	74ER16	74ER17
	Date	5/6/2008	5/7/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008	5/19/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>										
Phenol		NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Phenylene diamine		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide		NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene		NA	NA	0.025 U	0.026 U	NA	NA	NA	NA	NA
Pyridine		NA	NA	NA	NA	NA	NA	NA	NA	NA
Safrole, Total		NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Pesticides/PCBs (ug/kg)</b>										
4,4'-DDD		NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE		NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT		NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin		NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC		NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (technical)		NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzilate		NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC		NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin		NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I		NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II		NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate		NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin		NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde		NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone		NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)		NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor		NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide		NA	NA	NA	NA	NA	NA	NA	NA	NA
Isodrin		NA	NA	NA	NA	NA	NA	NA	NA	NA
Kepone		NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor		NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene		NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1016		NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221		NA	NA	NA	NA	NA	NA	NA	NA	NA



## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	ER09	ER10	74ER11	74ER12	74ER13	74ER14	74ER15	74ER16	74ER17
Date	5/6/2008	5/7/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008	5/19/2008
<b>Pesticides/PCBs (ug/kg)</b>									
PCB-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Metals (mg/kg)</b>									
Antimony	0.36 U	0.36 U	0.54 J	0.67 J	0.55 J	0.66 J	0.36 U	0.36 U	0.36 U
Arsenic	0.52 J	0.35 J	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Barium	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Beryllium	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
Cadmium	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Chromium	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.68 J	0.6 U
Cobalt	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.037 J	0.029 U
Copper	3.9 J	1.9 J	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	3.9 J	1.2 U
Lead	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Mercury	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Nickel	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Selenium	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Silver	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Thallium	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Tin	0.98 J	0.9 U	1.2 J	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
Vanadium	1.7 J	0.8 U	1.1 J	0.99 J	1.1 J	1.1 J	0.8 U	0.94 J	0.8 U
Zinc	7.3 J	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U
<b>TPH DRO/GRO (mg/kg)</b>									
Diesel Range Organics [C10-C28]	0.028 U	0.028 U	0.027 U	0.028 U	0.027 U	0.027 U	NA	NA	NA
Gasoline Range Organics (GRO)-C6-C10	0.012 U	0.012 U	0.012 U	0.012 U	0.014 J	0.014 J	NA	NA	NA

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74ER18	74ER19	74ER20	74ER21	ER22	ER24	FB01
	Date	5/20/2008	5/21/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	5/2/2008
<b>Volatile Organic Compounds (ug/kg)</b>								
1,1,1,2-Tetrachloroethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,1-Trichloroethane		0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,1,2,2-Tetrachloroethane		0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-Trichloroethane		0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
1,1-Dichloroethane		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,1-Dichloroethene		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2,3-Trichloropropane		0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
1,2-Dibromo-3-Chloropropane		0.48 U	0.48 U	0.48 UJ	0.48 UJ	0.48 UJ	0.48 U	0.48 U
1,2-Dichloroethane		0.31 UJ	0.31 UJ	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloropropane		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
2-Butanone (MEK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.1 J	0.69 J
2-Chloro-1,3-butadiene		0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
2-Hexanone		0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U
3-Chloro-1-propene		0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
4-Methyl-2-pentanone (MIBK)		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone		8.4 J	5 U	6.7 J	7 J	5 U	6.6 J	5 U
Acetonitrile		15 U	15 U	15 U	15 U	15 U	15 U	15 U
Acrolein		18 U	18 U	18 UJ	18 UJ	18 UJ	18 UJ	18 U
Acrylonitrile		3.8 UJ	3.8 UJ	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U
Benzene		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1.2	0.32 U
Bromoform		0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane		0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
Carbon disulfide		0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Carbon tetrachloride		0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chlorobenzene		0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorodibromomethane		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethane		1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Chloroform		0.32 J	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Chloromethane		0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ	0.28 U	0.28 UJ
cis-1,3-Dichloropropene		0.37 U	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U
Dibromomethane		0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID	74ER18	74ER19	74ER20	74ER21	ER22	ER24	FB01
Date	5/20/2008	5/21/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	5/2/2008
<b>Volatile Organic Compounds (ug/kg)</b>							
Dichlorobromomethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Ethyl methacrylate	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Iodomethane	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
Isobutyl alcohol	19 U	19 U	19 R	19 R	19 R	19 UJ	19 U
Methacrylonitrile	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Methyl methacrylate	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methylene Chloride	1.1 J	1 U	1 U	1 U	1 U	1 U	1 U
Pentachloroethane	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 R	1.3 UJ
Propionitrile	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 UJ	9.2 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.38 J	0.36 U
Tetrachloroethene	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Toluene	0.31 U	0.49 J	0.31 U	0.31 U	0.31 U	0.5 J	0.31 U
trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	0.27 U	0.27 U	0.27 U	0.27 U	0.27 UJ	0.27 U	0.27 U
trans-1,4-Dichloro-2-butene	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
Trichloroethene	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 UJ	0.29 U	0.29 U
Vinyl acetate	0.62 U	0.62 U	0.62 UJ	0.62 UJ	0.62 U	0.62 U	0.62 UJ
Vinyl chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylenes, Total	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
<b>Semivolatile Organic Compounds (ug/kg)</b>							
1-Methylnaphthalene	0.049 U	NA	0.049 U	0.049 U	NA	NA	NA
1,1'-Biphenyl	NA	NA	NA	NA	0.17 U	0.49 UJ	0.17 UJ
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	0.23 U	0.5 UJ	0.23 UJ
1,2,4-Trichlorobenzene	NA	NA	NA	NA	0.13 U	0.69 UJ	0.13 UJ
1,2-Dichlorobenzene	NA	NA	NA	NA	0.13 U	0.49 UJ	0.13 UJ
1,3,5-Trinitrobenzene	NA	NA	NA	NA	0.2 U	4.9 UJ	0.2 UJ
1,3-Dichlorobenzene	NA	NA	NA	NA	0.12 U	0.49 UJ	0.12 UJ
1,3-Dinitrobenzene	NA	NA	NA	NA	0.22 U	0.55 UJ	0.22 UJ

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74ER18	74ER19	74ER20	74ER21	ER22	ER24	FB01
	Date	5/20/2008	5/21/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	5/2/2008
Semivolatile Organic Compounds (ug/kg)								
1,4-Dichlorobenzene		NA	NA	NA	NA	0.12 U	0.49 UJ	0.16 J
1,4-Dioxane		NA	NA	NA	NA	0.49 U	2.5 UJ	0.49 UJ
1,4-Naphthoquinone		NA	NA	NA	NA	0.16 U	0.97 UJ	0.16 UJ
2,2'-oxybis[1-chloropropane]		NA	NA	NA	NA	0.097 U	0.49 UJ	0.097 UJ
2,3,4,6-Tetrachlorophenol		NA	NA	NA	NA	0.29 U	0.49 UJ	0.29 UJ
2,4,5-Trichlorophenol		NA	NA	NA	NA	0.16 U	0.78 UJ	0.16 UJ
2,4,6-Trichlorophenol		NA	NA	NA	NA	0.16 U	0.49 UJ	0.16 UJ
2,4-Dichlorophenol		NA	NA	NA	NA	0.15 U	0.97 UJ	0.15 UJ
2,4-Dimethylphenol		NA	NA	NA	NA	0.4 U	1.1 UJ	0.4 UJ
2,4-Dinitrophenol		NA	NA	NA	NA	2.4 UJ	9.7 UJ	2.4 UJ
2,4-Dinitrotoluene		NA	NA	NA	NA	0.17 U	0.49 UJ	0.17 UJ
2,6-Dichlorophenol		NA	NA	NA	NA	0.21 U	0.49 UJ	0.21 UJ
2,6-Dinitrotoluene		NA	NA	NA	NA	0.15 U	0.49 UJ	0.15 UJ
2-Acetylaminofluorene		NA	NA	NA	NA	0.19 U	0.54 UJ	0.19 UJ
2-Chloronaphthalene		NA	NA	NA	NA	0.12 U	0.49 UJ	0.12 UJ
2-Chlorophenol		NA	NA	NA	NA	0.15 U	0.97 UJ	0.15 UJ
2-Methylnaphthalene	0.022 U	NA		0.022 U	0.023 U	0.022 U	0.49 UJ	0.022 UJ
2-Methylphenol		NA	NA	NA	NA	0.15 U	0.62 UJ	0.15 UJ
2-Naphthylamine		NA	NA	NA	NA	1.1 UJ	0.97 UJ	1.1 UJ
2-Nitroaniline		NA	NA	NA	NA	0.14 U	4.9 UJ	0.14 UJ
2-Nitrophenol		NA	NA	NA	NA	0.17 U	4.9 UJ	0.17 UJ
2-Picoline		NA	NA	NA	NA	0.57 U	0.65 UJ	0.57 UJ
2-Toluidine		NA	NA	NA	NA	0.32 U	0.49 UJ	0.32 UJ
3 & 4 Methylphenol		NA	NA	NA	NA	0.15 U	0.97 UJ	0.15 UJ
3,3'-Dichlorobenzidine		NA	NA	NA	NA	3.7 UJ	3.1 UJ	3.7 UJ
3,3'-Dimethylbenzidine		NA	NA	NA	NA	3.7 U	0.49 UJ	3.7 UJ
3-Methylcholanthrene		NA	NA	NA	NA	0.2 U	0.49 UJ	0.2 UJ
3-Nitroaniline		NA	NA	NA	NA	0.28 UJ	2.7 UJ	0.28 UJ
4,6-Dinitro-2-methylphenol		NA	NA	NA	NA	0.49 U	4.9 UJ	0.49 UJ
4-Aminobiphenyl		NA	NA	NA	NA	0.68 U	0.49 UJ	0.68 UJ
4-Bromophenyl phenyl ether		NA	NA	NA	NA	0.16 U	0.49 UJ	0.16 UJ
4-Chloro-3-methylphenol		NA	NA	NA	NA	0.16 U	0.5 UJ	0.16 UJ

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74ER18	74ER19	74ER20	74ER21	ER22	ER24	FB01
	Date	5/20/2008	5/21/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	5/2/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>								
4-Chloroaniline		NA	NA	NA	NA	0.4 U	4.7 UJ	0.4 UJ
4-Chlorophenyl phenyl ether		NA	NA	NA	NA	0.15 U	0.97 UJ	0.15 UJ
4-Nitroaniline		NA	NA	NA	NA	0.26 UJ	1.9 UJ	0.26 UJ
4-Nitrophenol		NA	NA	NA	NA	0.18 U	9.7 UJ	0.18 UJ
4-Nitroquinoline-1-oxide		NA	NA	NA	NA	0.26 R	4.9 R	0.26 R
7,12-Dimethylbenz(a)anthracene		NA	NA	NA	NA	0.2 U	0.97 UJ	0.2 UJ
Acenaphthene		0.019 U	NA	0.019 U	0.02 U	0.019 U	0.019 UJ	0.019 UJ
Acenaphthylene		0.049 U	NA	0.049 U	0.049 U	0.049 U	0.049 UJ	0.049 UJ
Acetophenone		NA	NA	NA	NA	0.31 J	0.49 UJ	0.38 J
alpha,alpha-Dimethyl phenethylamine		NA	NA	NA	NA	1.3 U	9.7 UJ	1.3 UJ
Aniline		NA	NA	NA	NA	0.4 UJ	8.3 UJ	0.4 UJ
Anthracene		0.021 U	NA	0.021 U	0.022 U	0.021 U	0.51 UJ	0.021 UJ
Aramite, Total		NA	NA	NA	NA	0.49 U	0.49 UJ	0.49 UJ
Benzo[a]anthracene		0.025 U	NA	0.025 U	0.025 U	0.025 U	0.025 UJ	0.025 UJ
Benzo[a]pyrene		0.024 U	NA	0.024 U	0.025 U	0.024 U	0.024 UJ	0.024 UJ
Benzo[b]fluoranthene		0.036 U	NA	0.036 U	0.036 U	0.036 U	0.036 UJ	0.036 UJ
Benzo[g,h,i]perylene		0.023 U	NA	0.023 U	0.024 U	0.023 UJ	0.023 UJ	0.023 UJ
Benzo[k]fluoranthene		0.019 U	NA	0.019 U	0.02 U	0.019 U	0.019 UJ	0.019 UJ
Benzyl alcohol		NA	NA	NA	NA	0.16 U	0.78 UJ	0.16 UJ
Bis(2-chloroethoxy)methane		NA	NA	NA	NA	0.15 U	0.49 UJ	0.15 UJ
Bis(2-chloroethyl)ether		NA	NA	NA	NA	0.14 U	0.57 UJ	0.14 UJ
Bis(2-ethylhexyl) phthalate		NA	NA	NA	NA	0.34 U	0.91 UJ	0.34 UJ
Butyl benzyl phthalate		NA	NA	NA	NA	0.42 J	0.72 UJ	0.17 UJ
Chrysene		0.027 U	NA	0.027 U	0.027 U	0.027 U	0.027 UJ	0.027 UJ
Diallate		NA	NA	NA	NA	0.19 U	0.34 UJ	0.19 UJ
Dibenz(a,h)anthracene		0.023 U	NA	0.023 U	0.024 U	0.023 U	0.023 UJ	0.023 UJ
Dibenzofuran		NA	NA	NA	NA	0.097 U	0.49 UJ	0.097 UJ
Diethyl phthalate		NA	NA	NA	NA	0.18 U	0.49 UJ	0.33 J
Dimethyl phthalate		NA	NA	NA	NA	0.17 U	4.9 UJ	0.17 UJ
Di-n-butyl phthalate		NA	NA	NA	NA	0.63 J	0.97 J	1.2 J
Di-n-octyl phthalate		NA	NA	NA	NA	0.097 U	0.74 UJ	0.097 UJ
Dinoseb		NA	NA	NA	NA	0.49 U	4.9 UJ	0.49 UJ

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74ER18	74ER19	74ER20	74ER21	ER22	ER24	FB01
	Date	5/20/2008	5/21/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	5/2/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>								
Ethyl methanesulfonate		NA	NA	NA	NA	0.23 U	0.54 UJ	0.23 UJ
Fluoranthene		0.049 U	NA	0.049 U	0.049 U	0.049 U	0.049 UJ	0.049 UJ
Fluorene		0.018 U	NA	0.018 U	0.019 U	0.018 U	0.018 UJ	0.018 UJ
Hexachlorobenzene		NA	NA	NA	NA	0.16 U	0.49 UJ	0.16 UJ
Hexachlorobutadiene		NA	NA	NA	NA	0.13 U	4.9 UJ	0.13 UJ
Hexachlorocyclopentadiene		NA	NA	NA	NA	0.49 U	4.9 UJ	0.49 UJ
Hexachloroethane		NA	NA	NA	NA	0.15 U	0.49 UJ	0.15 UJ
Hexachlorophene		NA	NA	NA	NA	49 R	39 R	49 R
Hexachloropropene		NA	NA	NA	NA	0.12 U	0.49 UJ	0.12 UJ
Indeno[1,2,3-cd]pyrene		0.022 U	NA	0.022 U	0.023 U	0.022 U	0.022 UJ	0.022 UJ
Isophorone		NA	NA	NA	NA	0.15 U	0.49 UJ	0.15 UJ
Isosafrole		NA	NA	NA	NA	0.3 U	30 UJ	0.3 UJ
Methapyrilene		NA	NA	NA	NA	0.26 U	4.9 UJ	0.26 UJ
Methyl methanesulfonate		NA	NA	NA	NA	0.46 U	0.49 UJ	0.46 UJ
Naphthalene		0.049 U	NA	0.049 U	0.049 U	0.049 U	0.065 J	0.049 UJ
Nitrobenzene		NA	NA	NA	NA	0.14 U	0.49 UJ	0.14 UJ
N-Nitro-o-toluidine		NA	NA	NA	NA	0.24 U	0.97 UJ	0.24 UJ
N-Nitrosodiethylamine		NA	NA	NA	NA	0.32 U	0.49 UJ	0.32 UJ
N-Nitrosodimethylamine		NA	NA	NA	NA	0.19 U	1.2 UJ	0.19 UJ
N-Nitrosodi-n-butylamine		NA	NA	NA	NA	0.18 U	0.97 UJ	0.18 UJ
N-Nitrosodi-n-propylamine		NA	NA	NA	NA	0.13 U	0.49 UJ	0.13 UJ
N-Nitrosodiphenylamine		NA	NA	NA	NA	0.17 U	0.71 UJ	0.17 UJ
N-Nitrosomethylethylamine		NA	NA	NA	NA	0.28 U	4.9 UJ	0.28 UJ
N-Nitrosomorpholine		NA	NA	NA	NA	0.19 U	0.57 UJ	0.19 UJ
N-Nitrosopiperidine		NA	NA	NA	NA	0.22 U	0.97 UJ	0.22 UJ
N-Nitrosopyrrolidine		NA	NA	NA	NA	0.25 U	0.97 UJ	0.25 UJ
p-Dimethylamino azobenzene		NA	NA	NA	NA	0.6 U	0.58 UJ	0.6 UJ
Pentachlorobenzene		NA	NA	NA	NA	0.27 U	0.55 UJ	0.27 UJ
Pentachloronitrobenzene		NA	NA	NA	NA	0.3 U	0.97 UJ	0.3 UJ
Pentachlorophenol		NA	NA	NA	NA	0.18 U	4.9 UJ	0.18 UJ
Phenacetin		NA	NA	NA	NA	0.2 U	0.49 UJ	0.2 UJ
Phenanthrene		0.017 U	NA	0.017 U	0.018 U	0.017 U	0.49 UJ	0.017 UJ

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### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74ER18	74ER19	74ER20	74ER21	ER22	ER24	FB01
	Date	5/20/2008	5/21/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	5/2/2008
<b>Semivolatile Organic Compounds (ug/kg)</b>								
Phenol		NA	NA	NA	NA	0.14 U	0.14 UJ	0.14 UJ
p-Phenylene diamine		NA	NA	NA	NA	2.4 U	9.7 UJ	2.4 UJ
Pronamide		NA	NA	NA	NA	0.25 U	0.97 UJ	0.25 UJ
Pyrene		0.026 U	NA	0.026 U	0.026 U	0.026 U	0.026 UJ	0.026 UJ
Pyridine		NA	NA	NA	NA	0.22 UJ	9.7 UJ	0.22 UJ
Safrole, Total		NA	NA	NA	NA	0.23 U	0.49 UJ	0.23 UJ
<b>Pesticides/PCBs (ug/kg)</b>								
4,4'-DDD		NA	NA	NA	NA	0.0059 U	0.0057 UJ	NA
4,4'-DDE		NA	NA	NA	NA	0.0098 U	0.0095 UJ	NA
4,4'-DDT		NA	NA	NA	NA	0.015 U	0.015 UJ	NA
Aldrin		NA	NA	NA	NA	0.006 U	0.0058 UJ	NA
alpha-BHC		NA	NA	NA	NA	0.0081 U	0.0079 UJ	NA
beta-BHC		NA	NA	NA	NA	0.0082 U	0.008 UJ	NA
Chlordane (technical)		NA	NA	NA	NA	0.049 U	0.048 UJ	NA
Chlorobenzilate		NA	NA	NA	NA	0.14 U	0.14 UJ	NA
delta-BHC		NA	NA	NA	NA	0.0069 U	0.0067 UJ	NA
Dieldrin		NA	NA	NA	NA	0.0078 U	0.0076 UJ	NA
Endosulfan I		NA	NA	NA	NA	0.0055 U	0.0053 UJ	NA
Endosulfan II		NA	NA	NA	NA	0.005 U	0.0049 UJ	NA
Endosulfan sulfate		NA	NA	NA	NA	0.007 U	0.0068 UJ	NA
Endrin		NA	NA	NA	NA	0.0078 U	0.0076 UJ	NA
Endrin aldehyde		NA	NA	NA	NA	0.009 U	0.0087 UJ	NA
Endrin ketone		NA	NA	NA	NA	0.0091 U	0.0088 UJ	NA
gamma-BHC (Lindane)		NA	NA	NA	NA	0.0059 U	0.0057 UJ	NA
Heptachlor		NA	NA	NA	NA	0.0045 U	0.0044 UJ	NA
Heptachlor epoxide		NA	NA	NA	NA	0.007 U	0.0068 UJ	NA
Isodrin		NA	NA	NA	NA	0.0099 U	0.0096 UJ	NA
Kepone		NA	NA	NA	NA	0.05 U	0.049 UJ	NA
Methoxychlor		NA	NA	NA	NA	0.023 U	0.022 UJ	NA
Toxaphene		NA	NA	NA	NA	1.3 U	1.3 UJ	NA
PCB-1016		NA	NA	NA	NA	0.097 U	0.094 UJ	NA
PCB-1221		NA	NA	NA	NA	0.4 U	0.39 UJ	NA

## APPENDIX B

### SUMMARY OF ANALYTICAL RESULTS - QA/QC- EQUIPMENT RINSATES AND FIELD BLANK SWMU 74 - FUEL PIPELINES AND HYDRANT PITS PHASE I OF THE CORRECTIVE MEASURES STUDY INVESTIGATION NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

	Sample ID	74ER18	74ER19	74ER20	74ER21	ER22	ER24	FB01
	Date	5/20/2008	5/21/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	5/2/2008
<b>Pesticides/PCBs (ug/kg)</b>								
PCB-1232		NA	NA	NA	NA	0.083 U	0.081 UJ	NA
PCB-1242		NA	NA	NA	NA	0.096 U	0.093 UJ	NA
PCB-1248		NA	NA	NA	NA	0.083 U	0.081 UJ	NA
PCB-1254		NA	NA	NA	NA	0.091 U	0.088 UJ	NA
PCB-1260		NA	NA	NA	NA	0.1 U	0.097 UJ	NA
<b>Metals (mg/kg)</b>								
Antimony		0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 UJ
Arsenic		0.28 U	0.28 U	0.44 U	0.48 U	0.48 J	0.52 J	0.28 UJ
Barium		2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
Beryllium		0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 UJ
Cadmium		0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ
Chromium		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 UJ
Cobalt		0.029 U	0.077 J	0.029 U	0.029 U	0.029 U	0.029 U	0.029 UJ
Copper		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	2.1 J
Lead		0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.38 J
Mercury		0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 UJ
Nickel		0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 UJ
Selenium		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 UJ
Silver		0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 UJ	0.09 UJ
Thallium		0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 UJ
Tin		0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	1.6 J	0.9 UJ
Vanadium		0.8 U	0.86 J	1.3 J	1.1 J	1.3 J	0.8 U	0.8 UJ
Zinc		6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 U	6.5 UJ
<b>TPH DRO/GRO (mg/kg)</b>								
Diesel Range Organics [C10-C28]		0.068 U	0.071 U	0.11	0.051 J	0.028 U	0.028 J	0.028 UJ
Gasoline Range Organics (GRO)-C6-C10		0.0069 U	0.0069 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U



**APPENDIX C**  
**DATA VALIDATION REPORT SUMMARIES**

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**TEST AMERICA SAVANNAH SDG 36289-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

July 15, 2008  
 SDG# SWMU36289-2, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36289-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VDA App IN	LE-PAH	DRO/GRO	GRO	Metals
74SB01-00	680-36289-20	soil	X	X	X		X
74SB01-02	680-36289-21	soil	X	X	X		X
74SB01-04	680-36289-22	soil	X	X	X		X
74SB02-03	680-36289-21	soil	X		X		X
74SB02-05	680-36289-24	soil	X		X		X
74SB03-01	680-36289-25	soil	X		X		X
74SB03-04	680-36289-26	soil	X		X		X
74TR01	680-36289-27	water				X	

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSEA/ICSEAB Standards
- CRDL Standards
- Blanks
- Internal Standards \*
- Surrogate Recoveries

• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	NA
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on current quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

### **PAH**

No qualifications to the data were required.

### **DRO/GRO**

Blank contamination was noted and qualification was required in the samples in this SDG.

One sample analyzed for GRO required qualification due to high surrogate recoveries.

## **Metals**

The CRDL standard analyzed for mercury was above the QC limit. All reported positive results for mercury up to 2X CRDL were qualified as estimated J.

The IC SAB standards exhibited non-compliant recoveries below the QC limit for the analyte cadmium. Based on Region II guidelines all positive and non-detect results for cadmium were qualified as estimated J/UJ.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spikes of sample 74SB02-03 analyzed for the metals fraction exhibited non-compliant recoveries below the QC limits for antimony and barium. All results for antimony and barium in the metals samples were qualified as estimated J/UJ. Chromium exhibited high recoveries in both spike aliquots so positive results for chromium were qualified as estimated J. One of the recoveries was above 200% but the other one was not so the results were not rejected.

## **Specific Evaluation of Data**

### **Data Completeness**

Resubmissions were required for the PAH fraction. All calibration forms were missing from the data package. The laboratory was contacted and all requested Form VI and VII's were submitted. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 04/28/08 and samples were received at the laboratory 04/30/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RND, %D	Samples	Q Flag
IC 05/02/08	acrolein isobutyl alcohol	0.0298 0.0260	all samples	JR
CC 05/08/08	acrolein isobutyl alcohol 3-chloro-1-propene acetone	0.01636 0.01517 118.6% 0.01908	all samples	JR
	acetonitrile acrylonitrile 2-chloro-1,3-butadiene propionitrile bromomethane vinyl acetate	15.6% 12.0% 70.5% 25.1% 4.1% 22.2%		J/LJ

## CRDL Standards

### Metals

The CRDL standard associated with the metals analysis exhibited a non-compliant recovery above the upper QC limit for the analyte mercury (140.0%). Based on Region II guidelines, reported positive results for mercury up to 2X the reporting limit were qualified as estimated J in 74SB01-02, 74SB01-04 and 74SB02-05.

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte cadmium (80%/78%). Based on Region II guidelines, reported positive and non-detect results for cadmium were qualified as estimated J/LJ in all samples.

## Blanks

### DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36289-2

this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
ER02	DRO	0.12 mg/L or 4.0 mg/Kg	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB01-04, 74SB02-03, 74SB02-05, 74SB04-01, 74SB04-04	DRO	U

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.12121 ug/L	>MDL, up to RL	U
	beryllium	0.0323 ug/l	>MDL, up to RL	U
	silver	0.0313 ug/L	>MDL, up to RL	U

Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL, up to RL	antimony	U
74SB01-04	beryllium	U
all samples >MDL, up to RL	silver	U

### Surrogate Recoveries

#### DRO/GRO

One sample analyzed for GRO exhibited a non-compliant surrogate recovery above the QC limits. The reported positive result for GRO in sample 74SB01-00 (190%) was qualified as estimated J.

### Matrix Spikes

#### Metals

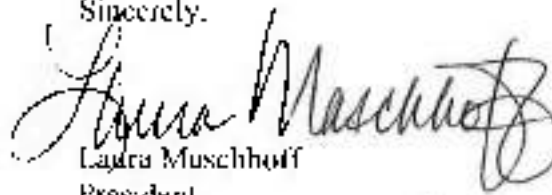
The matrix spikes of sample 74SB02-03 analyzed for the metals fraction exhibited non-compliant %R's for antimony, barium and chromium, requiring qualification in the field.

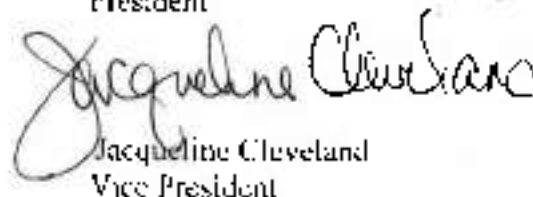
samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB02-03	serimony	all samples	72/74	J0.0
	barium		39/51	
	chromium	all samples	201/149	J

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Muschhoff  
President

  
Jacqueline Cleveland  
Vice President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q Flag
all samples	acrolein isobutyl alcohol	+/-	I/R
all samples	acrolein isobutyl alcohol 3-chloro-1-propene acetone	+/-	I/R
all samples	acetonitrile acrylonitrile 2-chloro-1,3-butadiene propionitrile bromomethane vinyl acetate	+/-	I/CI

### SVOA

Sample ID	Compound	Results	Q Flag
all samples	hexachlorophene	+/-	I/R
all samples	4-nitroquinoline-1-oxide hexachlorophene	+/-	I/R
all samples	4-nitrophenol 1,4-dinitrotoluene 2,4-dinitro-2-methyl phenol dibenz(a,h)anthracene benzo(a,h,i)perylene n-nitrosomorpholine n-nitrosopiperidine hexachloropropene n-nitroso-di-n-butylamine methapyrrole arsenic, total	+/-	I/CI
69GW26, 69GW27	di-n-butylphthalate	-	U at reported value
69GW26, 69GW27	bis(2-ethylhexyl)phthalate	-	U at reported value

## Summary of Data Qualifications, continued

### PAH

Sample ID	Compound	Results	Q flag
No qualifications were required			

### DRO/ARO

Sample ID	Compound	Results	Q flag
74SB01-04, 74SB02-03, 74SB02-05, 74SB04-01, 74SB04-04	DRO	J	U
74SB01-00	ARO		J

### Metals

Sample ID	Analyte	Results	Q flag
74SB01-02, 74SB01-04, 74SB02-05	mercury	-	J
all samples	cadmium	-/-	PCU
all samples >MDL up to RL	antimony	>MDL up to RL	U
74SB01-04	beryllium	>MDL up to RL	U
all samples >MDL up to RL	silver	>MDL up to RL	U
all samples	antimony barium	U/-	J/UJ
all samples	chromium	-	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* The guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL; result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- I/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

C - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36289-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

June 19, 2008  
SDG# SWMU36289-4, Test America-Savannah  
NAPR SWMU 56, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36289-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (826013-Rev 2, January 2006- SOP #11W-24 and 82701D-Rev 3, October 2006- SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7470A). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	TL-PATH	TMetals	DMetals
56TB01	680-36289-19	water	X			
56SW02	680-36289-14	water		X	X	X
56SW03	680-36289-15	water		X	X	X
56SW04	680-36289-16	water		X	X	X
56SW04D	680-36289-17	water		X	X	X
56SW05	680-36289-18	water		X	X	X

The following quality control samples were provided with this SDG: sample 56TB01-trip blank; sample 56SW04D-field duplicate of sample 56SW04

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- Initial/Continuing Calibrations \*
- ICSEA/ICSAB Standards \*
- CRDL Standards \*
- Blanks \*
- Internal Standards \*
- Surrogate Recoveries \*

- Laboratory Control Samples \*
- Matrix Spike Recoveries \*
- Matrix Duplicate RPDs \*
- Serial Dilutions \*
- Field Duplicates \*
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* \* indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on data quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary.

### **VOA**

All sample vials for sample S6T1B01 were received at the laboratory with headspace. According to Region II guidelines when all the vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, all positive results are qualified as estimated (E) and non-detected results are rejected (R).

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

### **PAH**

All samples were re-extracted out of extraction holding time due to non-compliant LCS recoveries. The re-extracted LCS exhibited compliant recoveries; therefore the re-extracted sample batch was used.

### **Metals**

The ICSSAB standards exhibited non-compliant recoveries below the QC limit for the analytes cadmium and silver. Based on Region II guidelines all positive and non-detect results for cadmium and silver in the field samples were qualified as estimated NAU.

Blank contamination was noted and qualification was required in the samples in this SDG.

The MS/MSD pair (from SDG SWM136360-5) of sample 69GW11 exhibited non-compliant recoveries for the analyte mercury that were below the QC limits. All results for mercury in the total metals samples were qualified as estimated (E).

The analyte cobalt exhibited non-comparable results between the total metals and dissolved metals analysis in all of the samples. Based on Region II validation guidelines the reported results for cobalt were rejected in the samples.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets.

#### **Sample Condition**

##### **VOA**

All sample vials for sample 56TBU1 were received at the laboratory with headspace. According to Region II guidelines when all the vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, all positive results are qualified as estimated (E) and non-detected results are rejected (R).

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 04/29/08 and samples were received at the laboratory 04/30/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exceptions.

##### **PAH**

All samples in the data package were re-extracted out of extraction holding time due to non-compliant LCS recoveries. The re-extracted LCS exhibited compliant recoveries, therefore the re-extracted sample batch was used. All re-extracted samples were qualified as estimated (E).

#### **Initial/Continuing Calibration**

##### **VOA**



Calibration standards exhibited RREs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRE, %RSD, %D	Samples	Q Flag
IC 04/29/08	isobutyl alcohol	0.0458	all samples	NR
QC 05/02/08	2-chloro-1,3-butadiene	27.7%	56T01	E/L
	metaacrylonitrile	10.4%		
	isobutyl alcohol	32.5%		
	methyl methacrylate	23.2%		
	trans-1,4-dichloro-2-butene	33.9%		
	pentachloroethane	31.2%		
	dichlorodifluoromethane	26.3%		

### ICSA/IC SAB Standards

#### Metals

The associated final IC SAB standard exhibited non-compliant recoveries less than the lower QC limit for the analyte cadmium (77%/72%) and silver (78%/78%). Based on Region II guidelines, reported positive and non-detect results for cadmium and silver were qualified as estimated E/L in all samples.

#### Blanks

#### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details. (t & c in the following table refer to total and dissolved blank contamination concentrations)

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBW	arsenic	0.89361 ug/L (d) + 8.551 ug/L (t)	<MDL up to RL	U
	chromium	0.00552 ug/L (d) + 0.3561 ug/L (t)	<MDL up to RL	U
	cobalt	0.06651 ug/L	<MDL up to RL	U
	tin	2.88851 ug/L	<MDL up to RL	U
	vanadium	0.0191 ug/L (d) + 2.61191 ug/L (t)	<MDL up to RL	U
ICB/CCB	ammonia	0.14379 ug/L (d)	<MDL up to RL	U
	copper	0.0091 ug/L (t)	<MDL up to RL	U
	tin	0.2181 ug/L (t)	<MDL up to RL	U

\* There were no t/c, d/c, blanks assigned to these surface water samples. All action levels were made based on project's QC blank tracking. Please note when qualifying samples for t/c, B contamination, as stated, blanks are there just prior to or just following a C/C. Therefore, not all analytes in all samples are flagged for t/c contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
56SW02F, 56SW03F	antimony	U
all samples	arsenic	U
all samples	cadmium	U
56SW02, 56SW03, 56SW04, 56SW04D	cobalt	U
56SW02F, 56SW03F, 56SW04F	iron	U
56SW02F, 56SW03F, 56SW04, 56SW04F, 56SW04D, 56SW04DF, 56SW05F	vanadium	U

## Matrix Spike Recoveries

### Metals

The matrix spikes (from SDG SWMU36360-5) of sample 69GW11 exhibited non-compliant %Rs for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
69GW11	mercury	all total samples	72.7% to 74.4%	UU

## Identification/Quantitation

### PAH

The LCS associated with samples, 56SW02, 56SW03, 56SW04, 56SW04D and 56SW05, exhibited non-compliant recoveries. These samples were re-extracted, the re-extracted batch exhibited compliant recoveries for the LCS. Therefore, the initial analysis of these samples was not used in favor of the re-extraction.

### Metals

Region II requires a detailed comparison of the results between the total and dissolved sample analyses. This comparison between total and dissolved results is made only when both of the following conditions are met: first, the dissolved concentration is greater than the total concentration, and 2<sup>nd</sup>, that the dissolved concentration is greater than or equal to 5X the MDL. The analyte cobalt met both of these conditions in all samples. Based on the guidelines (>20%RPD results are qualified, >50%RPD results are rejected) the positive results reported for cadmium were rejected in all samples. Please note that cobalt in these samples was significantly higher in the dissolved analysis. The cobalt results in almost all of the total samples (except 56SW05) were negated due to blank contamination. However, the cobalt concentrations in the dissolved samples were above the RL in all cases so they were not flagged due to the low concentration blank contamination. The RPDs between total and dissolved results were greater than 50% in all cases (51% up to 164%).

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Masenhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
56TB01	all results	ND	JR
56TB01	isobutyl alcohol	ND	NR
56TB01	2-chloro-1,3-butadiene methacrylonitrile n-butyl alcohol methyl methacrylate trans-1,4-dichloro-2-butene pentachloroethane dichlorodifluoromethane	ND	JJJ

### PAH

Sample ID	Compound	Results	Q flag
56SW00RE, 56SW03RE, 56SW04RE, 56SW04DRE, 56SW05RE	all results	ND	JJJ
56SW07, 56SW03, 56SW04, 56SW04D, 56SW05	all results	ND	R

### Total & Dissolved Metals

Sample ID	Analyte	Results	Q flag
all samples	cadmium silver	ND	JJJ
56SW02F, 56SW03F	antimony	<MDL up to RL	U
all samples	arsenic	<MDL up to RL	U
all samples	chromium	<MDL up to RL	U
56SW02, 56SW03, 56SW04, 56SW04D	cobalt	MDL up to RL	U
56SW02F, 56SW03F, 56SW04	tin	<MDL up to RL	U
56SW02F, 56SW03F, 56SW04, 56SW04F, 56SW04D, 56SW04DF, 56SW05F	vanadium	<MDL up to RL	U
all total metals samples	mercury	ND	JJJ
all samples	cobalt	ND	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R -** Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J -** Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ -** Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa*

**No Action -** The sample result is greater than the RL and greater than ten times (10X) the blank value.

**U -** The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non detect at the reported concentration, when the FB result is less or greater than the RL.

**R -** Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

**J -** Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
*	non-detect result

**TEST AMERICA SAVANNAH SDG 36360-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

July 14, 2008  
SDG# SWMU36360-1, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36360-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006; SOP #IIW-24 and 8270D-Rev 3, October 2006; SOP #IIW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	1,1-PAT	DRO/GRO	Metals
74SB05-01	680-36360-1	soil	X		X	X
74SB05-011	680-36360-2	soil	X		X	X
74SB05-02	680-36360-3	soil	X		X	X
74SB06-01	680-36360-4	soil	X		X	X
74SB06-02	680-36360-5	soil	X		X	X
74SB07-02	680-36360-6	soil	X		X	X
74SB07-04	680-36360-7	soil	X		X	X
74SB09-02	680-36360-8	soil	X		X	X
74SB09-05	680-36360-9	soil	X		X	X
74SB10-02	680-36360-10	soil	X		X	X
74SB10-04	680-36360-11	soil	X		X	X
74SB11-02	680-36360-12	soil	X		X	X
74SB11-04	680-36360-13	soil	X	X	X	X
74SB11-04D	680-36360-14	soil	X	X	X	X
74SB12-03	680-36360-15	soil	X		X	X
74SB12-05	680-36360-16	soil	X		X	X
74SB13-01	680-36360-17	soil	X		X	X
74SB13-00D	680-36360-18	soil	X		X	X
74SB13-02	680-36360-19	soil	X		X	X
74SB13-04	680-36360-20	soil	X		X	X
74SB06-01 MS	680-36360-4MS	soil	X		X	X
74SB06-01 MS2	680-36360-4MSD	soil	X		X	X
74SB13-01 MS	680-36360-17MS	soil	X			
74SB13-00 MS1	680-36360-17MS1	soil	X			
74SB13-04 MS	680-36360-13MS	soil		X	X	X
74SB13-04 MS1	680-36360-13MS1	soil		X	X	X



The following quality control samples were provided with this SDG: sample 74SB05-01D-field duplicate of sample 74SB05-01; sample 74SB11-04D-field duplicate of sample 74SB11-04; and sample 74SB13-00D-field duplicate of sample 74SB13-00.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	+
• Blanks	
• Internal Standards	+
• Surrogate Recoveries	
• Laboratory Control Samples	+
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	+
• Field Duplicates	
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to

Michael Baker, Jr., Inc.  
NAIPR SWMU74, Puerto Rico  
SDG# SWMU36360-1

high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

### **PAH**

No qualifications to the data were required.

### **DRO/GRO**

Blank contamination was noted and qualification was required in the samples in this SDG.

Two samples analyzed for GRO required qualification due to high surrogate recoveries

The field duplicate pair of samples 74SB05-01E and 74SB05-01D exhibited GRO results that did not compare. The field sample exhibited a non-detect result and the duplicate exhibited a result that was well above the reporting limit. The reported results for GRO in this field duplicate pair were qualified as estimated J/UJ.

### **Metals**

The LCSAB standards exhibited non-compliant recoveries below the QC limit for the analyte cadmium. Based on Region II guidelines all positive and non-detect results for cadmium were qualified as estimated J/UJ.

Blank contamination was noted and qualification was required in the samples in this SDG.

One or more of the three matrix spikes pairs submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD for the analytes antimony, barium and lead. All results for antimony, barium and lead in the metals samples were qualified as estimated J/UJ.

The field duplicate pairs exhibited non-compliant RPDs or absolute differences for several analytes. These analytes were qualified as estimated or rejected in the field duplicate pairs.

## Specific Evaluation of Data

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 04/29-30/08 and samples were received at the laboratory 05/02/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### VOA

Calibration standards exhibited RRF's and %D's that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/02/08	acrolein isobutyl alcohol	0.0298 0.0260	74SB05-01, 74SB05-02, 74SB06-01, 74SB07-02, 74SB09-02, 74SB07-04, 74SB09-05, 74SB10-02, 74SB10-04, 74SB11-0412, 74SB12-03, 74SB13-09, 74SB11-02, 74SB11-01, 74SB13-000, 74SB13-02, 74SB13-04	J/R

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/06/08	acrolein isobutyl alcohol acetone	0.01580 0.01628 0.04795	74SB05-01, 74SB05-02, 74SB06-01, 74SB07-02, 74SB09-02, 74SB07-04, 74SB09-05, 74SB10-02, 74SB10-04, 74SB11-0413, 74SB12-03, 74SB13-00	L/R J/U
	acetonitrile 3-chloro-1-propene methyl methacrylate vinyl acetate 2-butanone 4-methyl-2-pentanone 2-hexanone	22.6% 42.8% 77.4% 42.0% 34.9% 21.7% 75.7%		
CC 05/08-08	isobutyl alcohol	0.01565	74SB11-02, 74SB11-04, 74SB13-0013, 74SB13-02, 74SB13-04	L/R J/U
	acetone acetonitrile 3-chloro-1-propene pentachloroethane	27.6% 2.1% 42.5% 23.2%		
CC 05/13/08	acrolein isobutyl alcohol acetone	0.03503 0.01701 0.04542	74SB06-02, 74SB05-01D	L/R J/U
	acetonitrile 3-chloro-1-propene acrylonitrile 2-chloro-1,3-butadiene propionitrile pentachloroethane	24.0% 24.1% 30.6% 31.8% 22.9% 20.7%		
IC 05/02/08	acrolein acetonitrile propionitrile isobutyl alcohol	0.0250 0.0406 0.0414 0.0126	74SB12-05	L/R
CC 05/08/08	acrolein acetonitrile isobutyl alcohol acetone	0.02680 0.03051 0.01971 0.03963	74SB12-05	L/R J/U
	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane	53.5% 36.6% 40.8% 28.1% 46.4% 24.9%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte cadmium (79%/79%). Based on Region II guidelines, reported positive and non-detect results for cadmium were qualified as estimated J/U in all samples.

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Btk 5-6	acetone	181 ug/Kg	50 ug/Kg	2X RL
	2-butanone	2.91	25	
Method Btk 5-13	acetone	4810 ug/Kg	2000 ug/Kg	2X RL
FB01	2-butanone	0.601 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table

Sample ID	Compound	Q Flag
74SB05-01, 74SB05-02, 74SB06-01, 74SB07-02, 74SB07-04, 74SB09-02, 74SB09-05, 74SB10-02, 74SB10-04, 74SB11-04D, 74SB06-02	acetone	U at reported value
74SB05-02, 74SB06-01, 74SB07-02, 74SB07-04, 74SB09-02, 74SB10-02, 74SB11-04D, 74SB12-03, 74SB13-00, 74SB05-01D, 74SB06-02, 74SB11-02, 74SB11-04, 74SB13-02, 74SB13-04	2-butanone	U at reported value

## Blanks

### DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
BR02	DRO	0.12 mg/L or 4.0 mg/Kg	RL	U

Associated samples and required qualifications are noted in the following table

Sample ID	Compound	Q Flag
74SB05-02, 74SB06-01, 74SB07-02, 74SB07-04, 74SB09-02, 74SB09-05, 74SB10-02, 74SB10-04, 74SB11-02, 74SB11-04, 74SB11-04D, 74SB12-03, 74SB12-05, 74SB12-02, 74SB13-04	DRO	U

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.06681 ug/l	>MDL up to RL	U
	silver	0.0171 ug/L	> MDL up to RL	U

Please note, water exhibiting samples for CCB contamination as noted, samples are those just prior to, or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples (MDL up to RL)	antimony	U
74SB13-04	silver	U

## **Surrogate Recoveries**

### DRO/GRO

Two samples analyzed for GRO exhibited non-compliant surrogate recovery above the QC limits. The reported positive results for GRO in samples 74SB13-00 (129%) and 74SB13-00D (144%) were qualified as estimated J.

## **Matrix Spikes**

### Metals

The matrix spikes pairs submitted in this SDG exhibited non-compliant %R's for antimony, barium and lead, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analyte	Samples	%R	Q Flag
74SB13-04	antimony	all samples	47/54	J/U
	barium		14.19	
74SB13-00	antimony	all samples	62.59	J/U
	lead		74.65	
74SB06-01	antimony	all samples	72.68	J/U

## Field Duplicates

### DRO/GRO

The field duplicate pair of samples 74SB05-01 and 74SB05-01D exhibited GRO results that did not compare. The field sample exhibited a non-detect result and the duplicate exhibited a result that was well above the reporting limit. The reported results for GRO in this field duplicate pair were qualified as estimated J/IJ.

### Metals

The field duplicate pair of samples 74SB05-01 and 74SB05-01D exhibited metals results that did not compare. The analyte barium exhibited a RPD that was  $\geq 35\%$  but less than 120% and was qualified as estimated J in both samples.

The field duplicate pair of samples 74SB11-04 and 74SB11-04D exhibited metals results that did not compare. The analytes chromium, cobalt, copper, nickel and vanadium exhibited RPDs that were  $\geq 35\%$  but  $< 120\%$  and were qualified as estimated J in both samples. The analyte mercury exhibited an absolute difference that was greater than 2X RL and was rejected R in both samples.

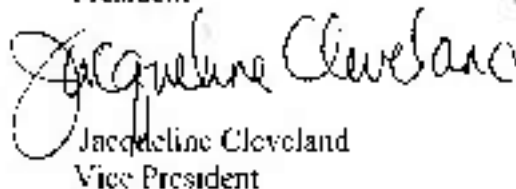
The field duplicate pair of samples 74SB13-00 and 74SB13-00D exhibited metals results that did not compare. The analyte barium exhibited a RPD that was  $\geq 35\%$  but less than 120% and was qualified as estimated J in both samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36360-1

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## Summary of Data Qualifications

VQA

Sample ID	Compound	Results	Q flag
74SB05-01, 74SB05-02, 74SB06-01, 74SB07-02, 74SB09-02, 74SB07-04, 74SB09-05, 74SB10-02, 74SB10-04, 74SB11-04D, 74SB12-03, 74SB13-00, 74SB11-02, 74SB11-04, 74SB13-00D, 74SB13-02, 74SB13-04	acrolein isobutyl alcohol	1/-	J-R
74SB05-01, 74SB05-02, 74SB06-01, 74SB07-02, 74SB09-02, 74SB07-04, 74SB09-05, 74SB10-02, 74SB10-04, 74SB12-04D, 74SB12-03, 74SB13-00	acrolein isobutyl alcohol acetone	1/-	J-R
74SB05-01, 74SB05-02, 74SB06-01, 74SB07-02, 74SB09-02, 74SB07-04, 74SB09-05, 74SB10-02, 74SB10-04, 74SB11-04D, 74SB12-03, 74SB13-00	acetonitrile 3-chloro-1-propene methyl methacrylate vinyl acetate 2-butanone 4-methyl-2-pentanone 2-hexanone	+/-	J-UJ
74SB11-02, 74SB11-04, 74SB13-00D, 74SB13-02, 74SB13-04	isobutyl alcohol	+/-	J-R
74SB11-02, 74SB11-04, 74SB13-00D, 74SB13-02, 74SB13-04	acetone acetonitrile 3-chloro-1-propene pentachloroethane	+/-	J-UJ
74SB06-02, 74SB05-01D	acrolein isobutyl alcohol acetone	+/-	J-R
74SB06-02, 74SB05-01D	acetonitrile 3-chloro-1-propene acrylonitrile 2-chloro-1,3-butadiene propionitrile pentachloroethane	-/-	J-UJ
74SB12-05	acrolein acetonitrile propionitrile isobutyl alcohol	1/-	J-R
74SB12-05	acrolein acetonitrile isobutyl alcohol acetone	+/-	J-R
74SB12-05	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane	1/-	J-UJ

Michael Baker, Jr., Inc.  
NAPR SWMU174, Puerto Rico  
SLOG# SWMU36360-1

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## Summary of Data Qualifications, continued

### VOA

Sample ID	Compound	Results	Q flag
74SB05-01, 74SB05-02, 74SB06-01, 74SB07-02, 74SB07-04, 74SB09-02, 74SB09-05, 74SB10-02, 74SB10-04, 74SB11-04D, 74SB06-02	acetone	-	U at reported value
74SB05-02, 74SB06-01, 74SB07-02, 74SB07-04, 74SB09-02, 74SB10-02, 74SB11-04D, 74SB12-03, 74SB13-00, 74SB05-01D, 74SB06-02, 74SB11-02, 74SB11-04, 74SB13-02, 74SB13-04, 74SB13-00D	2-butanone	+	U at reported value

### PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB05-02, 74SB06-01, 74SB07-02, 74SB07-04, 74SB09-02, 74SB09-05, 74SB10-02, 74SB10-04, 74SB11-02, 74SB11-04, 74SB11-04D, 74SB12-03, 74SB12-05, 74SB13-02, 74SB13-04	DRO	+	U
74SB13-00, 74SB13-00D	GRO	+	J
74SB05-01, 74SB05-01D	GRO	1/-	J/U

### Metals

Sample ID	Analyte	Results	Q flag
all samples	cadmium	1/-	J/U
all samples >MDL up to R1.	antimony	>MDL up to R1.	U
74SB13-04	silver	>MDL up to R1.	U
all samples	antimony barium lead	1/-	J/U
74SB05-01, 74SB05-01D, 74SB13-00, 74SB13-00D	barium	-	J
74SB11-04, 74SB11-04D	chromium cobalt copper nickel vanadium	-	J
74SB11-04, 74SB11-04D	mercury	-	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36360-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Mason Township, PA 15108

July 14, 2008  
SDG# SWMU36360-2, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36360-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006; SOP #HW-24 and 8270D-Rev 3, October 2006; SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	GRO	Metals
74SB14-02	680-36360-21	soil	X		X		X
74SB14-03	680-36360-22	soil	X		X		X
74SB15-02	680-36360-23	soil	X		X		X
74SB15-03	680-36360-24	soil	X		X		X
74SB16-02	680-36360-25	soil	X		X		X
74SB16-04	680-36360-26	soil	X	X	X		X
74SB16-04D	680-36360-27	soil	X	X	X		X
74TB02	680-36360-28	soil	X			X	
74SB14-03MS	680-36360-22MS	soil					X
74SB14-03MSD	680-36360-22MSD	soil					X

The following quality control samples were provided with this SDG: sample 74SB16-04D-field duplicate of sample 74SB16-04; and sample 74TB02-trip blank.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations \*

- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks
- Internal Standards \*
- Surrogate Recoveries
- Laboratory Control Samples \*
- Matrix Spike Recoveries
- Matrix Duplicate RPDs
- Serial Dilutions \*
- Field Duplicates
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on minimum quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

One sample exhibited high surrogate recoveries that required qualification to positive results.

The field duplicate pair did not exhibit comparable results that resulted in qualifications to the data for three compounds.

## **PAH**

One sample exhibited zero percent surrogate recovery that required qualifications to the data.

## **DRO/GRO**

Blank contamination was noted and qualification was required in the samples in this SDG.

Two samples analyzed for GRO required qualification due to high surrogate recoveries.

The field duplicate pair of samples 74SB16-04 and 74SB16-04D exhibited a non-compliant RPD for the target compound DRO. The reported positive results in the field duplicate pair were qualified as estimated J.

## **Metals**

The ICSAB standards exhibited non-compliant recoveries below the QC limit for the analyte cadmium. Based on Region II guidelines all positive and non-detect results for cadmium and silver in the metals samples were qualified as estimated J/UJ.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spikes of sample 74SB14-03 analyzed for the metals fraction exhibited non-compliant recoveries below the QC limits for antimony, cobalt and lead. All results for antimony and cobalt in the metals samples were qualified as estimated J/UJ. Lead exhibited negative recoveries so all reported positive and non-detect results for lead were rejected R based on Region II guidance.

The matrix duplicate of sample 74SB14-03 analyzed for the metals fraction exhibited a non-compliant RPD for the analyte chromium. All results for chromium were qualified as estimated J/UJ.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.



## Technical Holding Times

According to chain of custody records, sampling was performed on 04/30/08 and samples were received at the laboratory 05/02/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 04/29/08	isobutyl alcohol	0.6443	74TB02	JR
CC 05/06/08	acrolein	0.81585	74TB02	JR
	isobutyl alcohol	0.81628		
	acetone	0.04793		
	acetonitrile	27.9%		JCU
	7-chloro-1,3-butadiene	53.6%		
	isobutyl alcohol	40.4%		
	methyl methacrylate	23.7%		
	trans-1,4-dichloro-2-butene	39.1%		
	pentachloroethane	32.4%		
	chloroethane	21.8%		
	trichlorofluoromethane	13.5%		
	acetone	21.3%		
	carbon disulfide	22.9%		
CC 05/08/08	isobutyl alcohol	0.01965	74SB14-02,	JR
	acetone	21.6%	74SB14-03,	JCU
	acetonitrile	21.1%	74SB15-02,	
	3-chloro-1-propene	42.5%	74SB15-03,	
	pentachloroethane	25.2%	74SB16-04D	
CC 05/10/08	acrolein	0.03757	74SB16-02	JR
	isobutyl alcohol	0.02072		JCU
	acetone	0.04912		
	3-chloro-1-propene	53.5%		
	acrylonitrile	22.0%		
CC 05/14/08	pentachloroethane	42.5%	74SB16-04	JR
	acrolein	0.04041		
	isobutyl alcohol	0.02375		
	acetone	0.04700		JCU
	iodoethane	36.5%		
	3-chloro-1-propene	71.0%		
	pentachloroethane	43.1%		
	4-methyl-2-pentanone	20.5%		
	2-hexanone	20.5%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte cadmium (74%/79%). Based on Region II guidelines, reported positive and non-detect results for cadmium were qualified as estimated (U) in all metals samples.

### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blk 5-10	acetone	9.41 ug/Kg	50 ug/Kg	2X RL
Method Blk 5-14	acetone	9602 ug/Kg	2600 ug/Kg	2X RL
FB01	2-butanone	0.691 ug/L	16 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB16-02, 74SB16-04	acetone	U at reported value
74SB14-02, 74SB14-03, 74SB15-02, 74SB15-03, 74SB16-02, 74SB16-04D	2-butanone	U at reported value

#### DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
FR02	DRO	0.12 mg/L or 4.0 mg/Kg	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB14-02, 74SB 4-03, 74SB15-02, 74SB15-01, 74SB16-02	DRO	U

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CUB	antimony	0.117300 ug/L	> MDL, up to RL	U
	silver	0.0171 ug/l	> MDL, up to RL	U

Please note, when qualifying samples for CUB contamination, a vented sample is those just prior to or just following a CUB. Therefore, not all analytes in all samples are flagged for CUB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples	antimony	U
all samples	silver	U

### Surrogate Recoveries

#### VOA

Sample 74SB16-04D exhibited high recovery surrogate 4-bromofluorobenzene at 126% (QC limit 65-124%); therefore all positive results were qualified as estimated (J)

#### PAH

Duplicate sample 74SB16-04D exhibited 0% recovery for surrogate o-terphenyl. The sample was analyzed at a 1:10 dilution; however, the native sample 74SB16-04 was also analyzed at a 1:10 dilution and the surrogate result for this sample was within QC limits. Therefore all positive results were qualified as estimated (J) and non-detected results were qualified as rejected (R)

## DRO/GRO

Two samples analyzed for GRO exhibited non-compliant surrogate recoveries above the QC limits. The reported positive results for GRO in samples 74SB16-04 (238%) and 74SB16-04D (265%) were qualified as estimated J.

## **Matrix Spikes**

### Metals

The matrix spikes of sample 74SB14-03 analyzed for the metals fraction exhibited non-compliant %R's for antimony, cobalt and lead requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB14-03	antimony	all samples	65% / 60%	JAJ
	cobalt		47% / 47%	
	lead	all samples	-7% - 15%	R

## **Field Duplicate**

### VOA

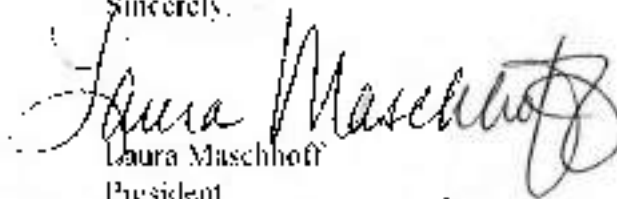
The field duplicate pair of samples 74SB16-04 and 74SB16-04D exhibited non-comparable results for ethyl methacrylate with 200% RPD, isobutyl alcohol with 200% RPD and methyl methacrylate with 200 % RPD. The results for these compounds were qualified estimated (JAJ).

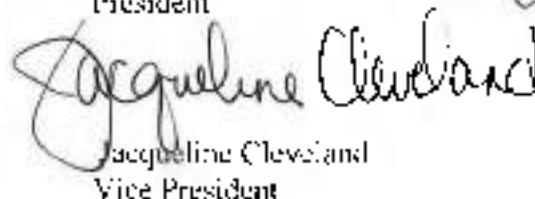
### DRO

The field duplicate pair of samples 74SB16-04 and 74SB16-04D exhibited non-compliant RPDs for the target compound DRO (137%). The results for DRO in the field duplicate pair were qualified as estimated J.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74TB02	isobutyl alcohol	+	JR
74TB02	acetoin isobutyl alcohol acetone	+	JR
74TB02	acetonitrile 2-chloro-1,3-butadiene isobutyl alcohol methyl methacrylate trans-1,4-dichloro-2-butene pentachloroethane chloromethane trichlorofluoromethane acetone carbon disulfide	+	JUU
74SB14-02, 74SB14-03, 74SB15-02, 74SB15-03, 74SB16-04D	isobutyl alcohol	+	JR
74SB14-02, 74SB14-03, 74SB15-02, 74SB15-03, 74SB16-04D	acetone acetonitrile 3-chloro-1-propene pentachloroethane	+	JUU
74SB16-02	acetoin isobutyl alcohol acetone	+	JR
74SB16-02	3-chloro-1-propene acetonitrile pentachloroethane	+	JUU
74SB16-04	acetoin isobutyl alcohol acetone	+	JR
74SB16-04	iodomethane 3-chloro-1-propene pentachloroethane 4-methyl-2-pentanone 2-hexanone	+	JUU
74SB16-02, 74SB16-04	acetone	+	U at reported value
74SB14-02, 74SB14-03, 74SB15-02, 74SB15-03, 74SB16-02, 74SB16-04D	2-butanone	+	U at reported value
74SB16-04D	all results	+	J
74SB16-04, 74SB16-04D	ethyl methacrylate, isobutyl alcohol methyl methacrylate	+	JUU

## Summary of Data Qualifications, continued

### PAH

Sample ID	Compound	Results	Q flag
74SB16-04D	all results	+/-	J/R

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB14-02, 74SB14-03, 74SB15-02, 74SB15-03, 74SB16-02	DRO	-J	U
74SB16-04, 74SB16-04D	GRO	+	J
74SB16-04, 74SB16-04D	DRO	+	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples	cadmium	+/-	J/U
all samples	antimony	+ >MDL up to RL	U
all samples	silver	+ >MDL up to RL	U
all samples	antimony cobalt	+/-	J/U
all samples	lead	+/-	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL; result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.



## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36419-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

July 14, 2008  
 SDG# SWMU36419-3, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU 36419-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-2-1 and 8270D-Rev 3, October 2006- SOP #HW-2-2), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	II-PAH	DRO/GRO	GRO	Metals
74SB30-03	680-36419-7	soil	X		X		X
74SB30-04	680-36419-8	soil	X		X		X
74SB31-02	680-36419-9	soil	X	X	X		X
74SB31-03	680-36419-10	soil	X		X		X
74SB32-02	680-36419-11	soil	X		X		X
74SB32-03	680-36419-12	soil	X		X		X
74SB32-0310	680-36419-12	soil	X		X		X
74SB33-01	680-36419-14	soil	X		X		X
74SB33-02	680-36419-15	soil	X		X		X
74SB34-01	680-36419-16	soil	X		X		X
74SB34-01	680-36419-17	soil	X		X		X
74SB34-02	680-36419-18	soil	X	X	X		X
74SB38-02	680-36419-19	soil	X		X		X
74SB38-04	680-36419-20	soil	X		X		X
74SB39-03	680-36419-21	soil	X		X		X
74SB39-05	680-36419-22	soil	X		X		X
74SB39-01	680-36419-23	soil	X		X		X
74SB39-03	680-36419-24	soil	X		X		X
74SB39-02	680-36419-25	soil	X		X		X
74SB39-05	680-36419-26	soil	X		X		X
74JB03	680-36419-26	water				X	
74SB34-01 MS	680-36419-16MS	soil	X		X		X
74SB34-03 MS11	680-36419-16MS11	soil	X		X		X
74SB34-02 MS	680-36419-18MS	soil		X	X		X
74SB34-02 MS10	680-36419-18MS10	soil		X	X		X

The following quality control samples were provided with this SDG: sample 74SBJ2-03D-field duplicate of sample 74SBJ2-03; and sample 74TB03-trip blank

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	
• Technical Holding Times	
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page

### **All Organic Fractions**

All organic fraction samples were received at the laboratory at an elevated temperature above 10°C. In accordance with Region II guidelines the sample results for the VOA, L1PAH, GRO and DRO fractions were qualified as estimated (J/U). Please note the metals samples were received in a cooler with a temperature of 8.8 °C.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36419-3

## VOA

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

## PAH

See note under All Organic Fractions.

## DRO/GRO

One sample was reanalyzed 15 days outside the holding time for GRO analysis. This RA sample was not used in favor of the results reported from the original analysis.

Blank contamination was noted in the method blank associated with the GRO samples in this SDG. Qualifications were added to the data.

Three samples analyzed for GRO required qualification due to high surrogate recoveries.

## Metals

The IC SAB standards exhibited non-compliant recoveries below the QC limit for the analytes cadmium and silver on run #1 and out above the QC limit for zinc on run #2. Based on Region II guidelines all positive and non-detect results for cadmium and silver were qualified as estimated J/UJ in associated samples. All positive results for zinc were qualified as estimated J in associated samples.

Blank contamination was noted and qualification was required in the samples in this SDG.

The MS/MSD analysis of sample 74SB34-00 exhibited non-compliant recoveries requiring qualification for three analytes and the MS/MSD analysis of sample 74SB36-02 exhibited non-compliant recoveries requiring qualification for one analyte.

The serial dilution of sample 74SB34-00 exhibited a non-compliant %D for the vanadium. All results for vanadium in the samples were qualified as estimated J(U).

The field duplicate pair of samples 74SB32-03 and 74SB32-03D exhibited non-compliant RPDs for several analytes. Results were qualified as estimated in the field duplicate pair.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. General clarification questions were asked of the laboratory regarding the GRO and DRO fractions. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/01-02/08 and samples were received at the laboratory 05/05/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Sample Condition**

#### **All Organic Fractions**

All VOA samples were received at the laboratory at an elevated temperature of 17.6°C. All PAH and DRO samples were received at the laboratory at an elevated temperature of 12.8°C. All GRO samples were received at the laboratory at an elevated temperature of 15.8°C. In accordance with the Region II guidelines, all samples received above 10°C are qualified as estimated (E/U), qualifications were added to the data.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited RRF's and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Sample(s)	Q Flag
IC 05-02/08	acrolein acetonitrile propionitrile isobutyl alcohol	0.0250 0.0206 0.0414 0.0126	74SB31-02, 74SB31-03, 74SB32-02, 74SB32-03, 74SB32-0313, 74SB33-01, 74SB33-02, 74SB34-00, 74SB34-01, 74SB34-02, 74SB38-02, 74SB39-03, 74SB39-03, 74SB35-01, 74SB35-03, 74SB36-02, 74SB36-03	J/R
CC 05-07-08	acrolein acetonitrile isobutyl alcohol acetone	0.02369 0.07482 0.01593 0.01798	74SB31-02, 74SB31-03, 74SB32-02, 74SB32-03, 74SB32-0313,	J/R
	iodomethane 3-chloro-1-propene 2-chloro-1,3-butadiene propionitrile methyl methacrylate bromomethane 4-methyl-2-pentanone 2-hexanone 1,2-dibromo-1-chloropropane	28.2% 29.3% 28.7% 24.0% 21.1% 23.9% 22.2% 21.6% 27.7%	74SB33-0310, 74SB33-01, 74SB33-02, 74SB34-00, 74SB34-01, 74SB34-02, 74SB38-02, 74SB39-03, 74SB39-03, 74SB35-01	M/J
CC 05-07-08	acrolein isobutyl alcohol acetone	0.01949 0.01853 0.04128	74SB35-03, 74SB36-02, 74SB36-03	J/R
	acetonitrile 3-chloro-1-propene propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone	33.5% 27.9% 42.5% 39.2% 39.3% 26.0% 39.7% 33.2% 23.9% 22.6% 26.2%		M/J

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/13/08	acrolein	0.03593	74SR03-03	J-R
	isobutyl alcohol	0.01701		
	acetone	0.02827		
	acetonitrile	24.0%		J/U
	3-chloro-1-propene	24.1%		
	acrylonitrile	30.6%		
	2-chloro-1,3-butadiene	21.8%		
CC 05/14/08	propionitrile	22.9%	74SR03-04, 74SR08-04	J-R
	pentachloroethane	20.9%		
	acrolein	0.04611		
	isobutyl alcohol	0.02375		J/U
	acetone	0.04760		
	isofornethane	16.5%		
	3-chloro-1-propene	7.0%		
	pentachloroethane	43.3%		
	4-methyl-2-pentanone	20.5%		
	2-hexanone	20.5%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte cadmium (78%) and silver (77%/74%). Based on Region II guidelines, reported positive and non-detect results for cadmium and silver were qualified as estimated J/U in all samples analyzed on Run #1 (lab IDs 36419-7 through 36419-24). The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (128%/127%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples analyzed on Run #2 (lab IDs 36419-25 and 36419-26).

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.



Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blk 5/12	acetone	5800 ug/Kg	2000 ug/Kg	2X RL
Method Blk 5/14	acetone	9600 ug/Kg	2000 ug/Kg	2X RL
	2-butanone	1100	1000	2X RL
TR01	2-butanone	0.650 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB30-03, 74SB23-04	acetone	H at reported value
74SB28-04, 74SB34-00	2-butanone	U at reported value

## DRO/GRO

The associated method blanks exhibited contamination as noted in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the RL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
MB 680-105730-4	GRO	6.100 mg/Kg	RL	U
MB 680-105907-5	GRO	0.0390 mg/Kg	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB33-02, 74SB34-01, 74SB34-02, 74SB28-02, 74SB29-03, 74SB16-02	GRO	U at reported value

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.101800 ug/L	> MDL up to RL	H

Please note, when qualifying samples for CCB contamination, associated samples are those not prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
74SB34-00, 74SB36-02, 74SB28-04	antimony	U

### Surrogate Recoveries

#### DRO/GRO

For the GRO analysis, samples 74SB30-03, 74SB34-00 and 74SB28-04 exhibited high recoveries for the surrogate compound *m,m*-trifluorotoluene at 307%, 187% and 138% respectively (QC limit 53-121%); therefore positive results were qualified as estimated (E)

### Matrix Spikes

#### Metals

The matrix spikes of sample 74SB34-00 analyzed for the metals exhibited non-compliant %R's for antimony, lead, mercury and chromium that required qualification in the field samples. The matrix spikes of sample 74SB36-02 exhibited non-compliant %R's for antimony. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB34-00	antimony	all samples	52% / 56%	JUL
	chromium		11% / 12%	
	lead		53% / 53%	
	mercury		165.8% / 160.8%	J
74SB36-02	antimony	all samples	53% / 53%	JUL

### Serial Dilutions

#### Metals

The serial dilution of sample 74SB34-00 analyzed for the metals exhibited a non-compliant %D for vanadium that required qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

SD	Analytes	Samples	%D	Q Flag
74SB34-00	vanadium	all samples	15.8%	JUL

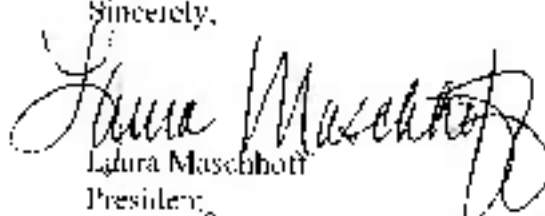
## Field Duplicate

### Metals


The field duplicate pair of samples 74SB32-03 and 74SB32-03D exhibited non-compliant RPDs ( $\geq 35\%$  but  $< 120\%$ ) for barium (65%), chromium (37%), cobalt (43%) copper (45%) and nickel (65%). The results for these analytes were qualified estimated J.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual I.S. with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	oil results	++	PU
74SB31-02, 74SB31-03, 74SB32-02, 74SB32-03, 74SB32-03D, 74SB33-01, 74SB33-02, 74SB34-00, 74SB34-01, 74SB34-02, 74SB38-02, 74SB39-01, 74SB29-05, 74SB35-01, 74SB35-02, 74SB36-02, 74SB36-05	acrolein acetonitrile propionitrile isobutyl alcohol	++	JR
74SB31-02, 74SB31-03, 74SB32-02, 74SB32-03, 74SB32-03D, 74SB33-01, 74SB33-02, 74SB34-00, 74SB34-01, 74SB34-02, 74SB38-02, 74SB29-05, 74SB39-05, 74SB35-01	acrolein acetonitrile isobutyl alcohol acetone	++	JR
74SB31-02, 74SB31-03, 74SB32-02, 74SB32-03, 74SB32-03D, 74SB33-01, 74SB33-02, 74SB34-00, 74SB34-01, 74SB34-02, 74SB38-02, 74SB39-01, 74SB29-05, 74SB35-01	iodomethane 3-chloro-1-propene 2-chloro-1,3-butadiene propionitrile methyl methacrylate bromomethane 4-methyl-2-pentene 2-hexanone 1,2-dibromo-3-chloropropane	++	PU
74SB35-03, 74SB36-02, 74SB36-05	acrolein isobutyl alcohol acetone	++	JR
74SB35-03, 74SB36-02, 74SB36-05	acetonitrile 3-chloro-1-propene propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone	++	PU
74SB30-03	acrolein isobutyl alcohol acetone	++	JR
74SB30-03	acetonitrile 3-chloro-1-propene acrylonitrile 2-chloro-1,3-butadiene propionitrile perchloroethane	++	PU
74SB30-04, 74SB28-04	acrolein isobutyl alcohol acetone	++	JR

## Summary of Data Qualifications, continued

### VOA

Sample ID	Compound	Results	Q flag
74SB30-02, 74SB28-04	iodomethane 3-chloro-1-propanol pentachloroethane 4-methyl-2-pentanone 2-hexanone	U	I/L
74SB36-03, 74SB28-04	acetone	I	U at reported value
74SB28-04, 74SB34-00	2-butanone	I	U at reported value

### PAH

Sample ID	Compound	Results	Q flag
all samples	all results	U	I/L

### DRUG/GRU

Sample ID	Compound	Results	Q flag
all samples	DRUG GRU	U	I/L
74SB30-02, 74SB34-01, 74SB34-02, 74SB28-02, 74SB29-01, 74SB36-02	GRU	U	U
74SB36-01, 74SB34-00, 74SB28-01	GRU	I	U

### Metals

Sample ID	Analyte	Results	Q flag
all samples except 74SB36-02, 74SB36-05	cadmium silver	U	I/L
74SB36-02, 74SB36-05	zinc	-	I
74SB34-00, 74SB28-02, 74SB28-04	antimony	MDL up to RL	U
all samples	antimony chromium lead	U	I/L
all samples	mercury	-	I
all samples	vanadium	U	I/L
74SB32-03, 74SB32-0310	barium chromium cobalt copper nickel	-	I

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- I/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36419-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Anside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

July 29, 2008  
 SDG# SWMU36419-4, Test America-Savannah  
 NAPIR Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36419-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #IIW-24 and 8270J-Rev 3, October 2006- SOP #IIW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	SVOA App IX	DRO/GRO	GRO	Metals
ER01	680-36419-37	water	X	X	X		X
ER02	680-36419-38	water	X	X	X		X
ER03	680-36419-39	water	X	X	X		X
ER04	680-36419-40	water	X	X			X
ER05	680-36419-41	water	X	X			X
ER01	680-36419-42	water	X	X	X		X
ER02	680-36419-43	water	X	X	X		X
QA1901	680-36419-44	water	X			X	

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations \*
- ICSA/ICSA Standards \*
- CRDI Standards \*
- Blanks \*
- Internal Standards \*
- Surrogate Recoveries \*

• Laboratory Control Samples	•
• Matrix Spike Recoveries	NA
• Matrix Duplicate RPDs	NA
• Serial Dilutions	•
• Field Duplicates	NA
• Identification/Quantitation	
• Reporting Limits	•
• Tentatively Identified Compounds	NA

• - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

#### **VOA**

The continuing calibrations exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

#### **SVOA**

One sample was re-extracted out of holding time due to non-compliant surrogate recoveries; qualifications were added to the data.

All samples were received at the laboratory at an elevated temperature above 10°C. In accordance with Region II guidelines the samples were qualified as estimated (ETC).

The initial and continuing calibrations exhibited some compounds with low RRF values, which resulted in the qualification of non-detected values as rejected for those compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Two samples exhibited low internal standard area recoveries that resulted in qualifications to the associated compounds.

Two of the associated LCS exhibited non-compliant results that required one compound to be qualified as estimated.

### **DRO/GRO**

Two DRO samples were received at the laboratory at an elevated temperature above 10°C. In accordance with Region II guidelines the samples FB01 and FB02 were qualified as estimated (J/U).

### **Metals**

All samples were received at the laboratory at an elevated temperature above 10°C. In accordance with Region II guidelines the samples were qualified as estimated (J/U).

The associated LCSA/LCSAB standards exhibited non-compliant recoveries for the analytes silver and cadmium. These analytes were qualified as estimated in all samples.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 04/28-05/02/08 and samples were received at the laboratory 05/05/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exceptions.

#### **SVOA**

The re-extraction of sample ER04RE exceeded the extraction holding time; therefore all results were qualified as estimated (J/U).

## Sample Condition

### SVOA

All samples were received at the laboratory at an elevated temperature of 11.8°C. In accordance with the Region II guidelines, therefore all samples received above 10°C are qualified as estimated (J/U).

### DRO/QRO

Two DRO samples were received at the laboratory at an elevated temperature of 11.8°C. In accordance with the Region II guidelines, therefore the DRO results in samples FB01 and FB02 were qualified as estimated J/U.

### Metals

The metals samples were received in a cooler with a temperature of 11.8°C. All reported results in the samples in this SDG were qualified as estimated J/U.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRF's and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/08/08	pentachloroethane vinyl acetate	67.2% 30.1%	ER01, ER02, ER03, ER04, ER05	J/U
CC 05/09/05	pentachloroethane vinyl acetate	67.6% 28.9%	FB02, QATB01	J/U
CC 05/11/08	pentachloroethane chloromethane bromomethane vinyl acetate	80.9% 24.1% 24.3% 25.0%	FB01	J/U

### SVOA

Calibration standards exhibited RRF's and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/01:08	hexachlorophene	0.0466	ER01, ER02, ER03, ER05, ER01, ER02	J/R
CC 05/13:08	4-nitroquinoline-1-oxide	0.03507	ER01	J/R
	hexachlorophene	0.03126		J/U
	n-nitrosomorpholine	23.3%		
	hexachloropropene	32.6%		
	n-nitroso-di-n-butylamine	28.6%		
	methapyrilene	32.7%		
	3,3-dimethylbenzidine	45.6%		
CC 05/14:08	aramite, total	38.7%	ER02, ER03, ER05, ER01, ER02	J/R
	4-nitrophenol	23.5%		J/U
	4,6-dinitro-2-methylphenol	43.1%		
	4-nitroquinoline-1-oxide	0.03234		
	hexachlorophene	0.04782		
	4-nitrophenol	23.4%		
	2,4-dinitrotoluene	11.9%		
	4,6-dinitro-2-methylphenol	42.7%		
	dibenz(a,h)anthracene	23.8%		
	benzo(g,h,i)perylene	23.3%		
IC 05/28:08	n-nitrosomorpholine	24.0%	ER04RE	J/R
	hexachloropropene	32.5%		
	n-nitroso-di-n-butylamine	29.0%		
	methapyrilene	39.1%		
	aramite, total	33.3%		
	4-nitroquinoline-1-oxide	0.0276		
	4-nitroquinoline-1-oxide	0.02872		
	hexachlorophene	0.04642		
CC 05/29:08	3-nitroaniline	20.1%	ER04RE	J/U
	4-nitrophenol	20.5%		
	1-nitroaniline	29.0%		
	3,3-dimethylbenzidine	46.5%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte cadmium (78%) and silver (77%/74%). Based on Region II guidelines, reported positive and non-detect results for cadmium and silver were qualified as estimated (J/U) in all samples.

### Internal Standards

### SVOA

Sample ER05 exhibited a low recovery for internal standard perylene-d12; therefore all associated compounds were qualified as estimated (J/U).

Sample ER04RE exhibited an extremely low recovery for internal standard perylene-d12; therefore all associated compounds positive results were qualified as estimated (E) and non-detected compounds were qualified as rejected (R).

## **LCS**

### SVOA

The LCS associated for sample ER01 exhibited low recovery for hexachlorocyclopentadiene at 7%. The results for this compound were qualified as estimated (E/U) in sample ER01.

The LCS associated for samples ER02, ER03, ER05, FB01 and FB02 exhibited low recovery for hexachlorocyclopentadiene at 4%. The results for this compound were qualified as estimated (E/U) in these samples.

## **Identification/Quantitation**

### VOA

Sample FB02 was reanalyzed to confirm positive results in the initial analysis. The reanalysis exhibited concurring results. The reanalysis was not used in favor of the initial analysis.

### SVOA

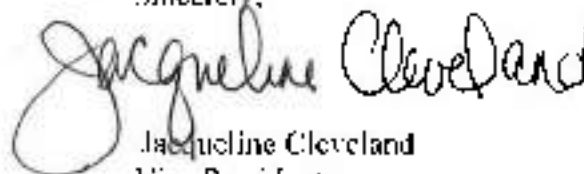
All samples were re-extracted out of holding time due to non-compliant LCS recoveries. The re-extracted samples were not used, except for sample ER04RE, due to exceeded holding times.

Sample ER04 was not used due to low surrogate recoveries. The sample was re-extracted and exhibited compliant surrogate recoveries; therefore the initial analysis was not used in favor of the re-extraction.

Sample ER04REERA was not used due to non-compliant internal standard recoveries.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Jacqueline Cleveland  
Vice President

Michael Baker, Jr., Inc.  
NAPR Puerto Rico  
SDG# SWMU36419-4

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## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
ER01, ER02, ER03, ER04, ER05	pentachloromethane vinyl acetate	+/	J/JJ
FB02, QA1001	pentachloroethane vinyl acetate	+/	J/JJ
FB01	pentachloroethane chloromethane bromomethane vinyl acetate	+/	J/JJ
FB02RA	all results	+/	R

### SVOA

Sample ID	Compound	Results	Q flag
ER04RE	all results	+/	J/JJ
all samples	all results	+/	J/JJ
ER01, ER02, ER03, ER05, FB01, FB02	hexachlorophene	+/	J/R
ER01	4-nitroquinoline-1-oxide hexachlorophene	+/	J/R
ER01	n-nitrosomorpholine hexachloropropene n-nitroso-di-n-butylamine methapyrilene 3,3-dimethylbenzidine aramite, total 4-nitrophenol 4,6-dinitro-2-methylphenol	+/	J/JJ
ER02, ER03, ER05, FB01, FB02	4-nitroquinoline-1-oxide hexachlorophene	+/	J/R
ER02, ER03, ER05, FB01, FB02	4-nitrophenol 2,4-dinitrotoluene 4,6-dinitro-2-methylphenol dibenz(a,h)anthracene benzo(g,h,i)perylene n-nitrosomorpholine hexachloropropene n-nitroso-di-n-butylamine methapyrilene aramite, total	+/	J/JJ
ER04RE	1-nitroquinoline-1-oxide	+/	J/R
ER04RE	4-nitroquinoline-1-oxide hexachlorophene	+/	J/R
ER04RE	3-nitroaniline 4-nitrophenol 4-nitroaniline 3,3-dimethylbenzidine	+/	J/JJ

Michael Baker, Jr., Inc.  
NAPR Puerto Rico  
SDC# SWM136419-4

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007

## Summary of Data Qualifications, continued

### SVOA

ER05	all compounds associated with: perylene-d12	-/-	J/U
ER04RE	all compounds associated with perylene-d12	-/-	I/R
ER01, ER02, ER03, ER05, FB01, FB02	hexachlorocyclopentadiene	+/+	J/U
ER01RE, ER02RE, ER03RE, ER05RE, FB01RE, FB02RE	all results	+/+	R
ER04, ER04RE/A	all results	+/+	R

### DRO/GRO

Sample ID	Compound	Results	Q flag
FB01, FB02	DRO	+/+	J/U

### Metals

Sample ID	Analyte	Results	Q flag
all samples	all analytes	-/-	J/U
all samples	cadmium silver	-/-	J/U



## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
E	estimated value
UL	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
IN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/JJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- Li - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36419-5**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

July 14, 2008  
 SDG# SWMU36419-5, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36419-5. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #IIW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	Metals
74SB37-01	680-36419-27	soil	X	X	X
74SB37-02	680-36419-28	soil	X	X	X
74SB37-02D	680-36419-29	soil	X	X	X
74SB38-01	680-36419-30	soil	X	X	X
74SB38-02	680-36419-31	soil	X	X	X
74SB39-02	680-36419-32	soil	X	X	X
74SB39-04	680-36419-33	soil	X	X	X
74SB40-02	680-36419-34	soil	X	X	X
74SB40-04	680-36419-35	soil	X	X	X
74TB03	680-36419-36	soil	X		
74SB40-04MS	680-36419-35MS	soil		X	
74SB40-04MSD	680-36419-35MSD	soil		X	

The following quality control samples were provided with this SDG: sample 74SB37-02D-field duplicate of sample 74SB37-02; and sample 74TB03-trip blank.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*

- Initial/Continuing Calibrations
- ICSEA/ICSAB Standards
- CRDL Standards
- Blanks
- Internal Standards \*
- Surrogate Recoveries
- Laboratory Control Samples \*
- Matrix Spike Recoveries
- Matrix Duplicate RPDs
- Serial Dilutions \*
- Field Duplicates
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **All Organic Fractions**

All organic fraction samples were received at the laboratory at an elevated temperature above 10°C. In accordance with Region II guidelines the sample results for the VOA, GRO and DRO fractions were qualified as estimated (E/U/L). Please note the metals samples were received in a cooler with a temperature of 8.8 °C.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

## **DRO/GRO**

Blank contamination was noted in the method blank associated with the GRO samples in this SDG. Qualifications were added to the data.

## **Metals**

The CRDL standard analyzed for mercury was below the QC limit. All reported positive and non-detect results for mercury up to 2X CRDL were qualified as estimated J/U/L.

The ICNAB standards exhibited non-compliant recoveries above the QC limit for zinc. Based on Region II guidelines all positive results for zinc were qualified as estimated J in associated samples.

Blank contamination was noted and qualification was required in the samples in this SDG.

The MS/MSD analysis of sample 74SB36-02 (from SDG SWMU06419-3) exhibited non-compliant recoveries requiring qualification for one analyte.

The matrix duplicate analysis of sample 74SB40-04 exhibited a non-compliant RPD for mercury. The analyte was qualified as estimated in the samples.

The field duplicate pair of samples 74SB37-02 and 74SB37-02D exhibited non-compliant RPDs for several analytes. Results were qualified as estimated or rejected in the field duplicate pair based on Region II guidelines.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. General clarification questions were asked of the laboratory regarding the GRO and DRO fractions. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/02/08 and samples were received at the laboratory 05/05/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Sample Condition

### All Organic Fractions

All VOA samples were received at the laboratory at an elevated temperature of 17.6°C. All DRO samples were received at the laboratory at an elevated temperature of 12.8°C. All GRO samples were received at the laboratory at an elevated temperature of 15.8°C. In accordance with the Region II guidelines, all samples received above 10°C are qualified as estimated (J/E/J), qualifications were added to the data.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/02/08	acrolein acetonitrile propionitrile isobutyl alcohol	0.0250 0.0406 0.0414 0.0126	74SB37-01, 74SB37-02, 74SB37-02D, 74SB38-01, 74SB38-02, 74SB39-02, 74SB39-04, 74SB40-02, 74SB40-04	J/R
CC 05/07/08	acrolein acetonitrile isobutyl alcohol acetone	0.01919 0.02637 0.01853 0.04128	74SB37-01, 74SB37-02, 74SB37-02D, 74SB38-01, 74SB38-02, 74SB39-02, 74SB39-04, 74SB40-02, 74SB40-04	J/R
	3-chloro-1-propene propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone	27.9% 43.5% 39.2% 39.3% 26.0% 39.7% 33.2% 23.9% 11.6% 26.2%		J/U
IC 05/07/08	isobutyl alcohol	0.0489	74TB03	J/R
CC 05/09/08	pentachloroethane vinyl acetate	67.6% 28.9%	74TB03	J/U

## CRDL Standards

### Metals

The CRDL standard associated with the metals analysis exhibited a non-compliant recovery below the lower QC limit for the analyte mercury (65.5%). Based on Region II guidelines, reported positive and a non-detect results for mercury up to 2X the reporting limit were qualified as estimated J/UJ in the samples.

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (128%/127%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### DRO/GRO

The associated method blanks exhibited contamination as noted in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDE but less than the RL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
MB 680-104740/4	GRO	0.101 mg/Kg	RL	U
MB 680-105907/5	GRO	0.0891 mg/Kg	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB33-02, 74SB34-01, 74SB34-02, 74SB38-02, 74SB29-03, 74SB36-02	GRO	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ICB	antimony	0.081471 ug/l.	>MDL, up to RL	U
	beryllium	0.0181 ug/l.	> MDL, up to RL	U
CCB	silver	0.0271 ug/l	>MDL, up to RL	U



Please note, when evaluating samples for PCB contamination, associated samples are those just prior to or just following a PCB. Therefore, not all analytes in all samples are flagged for PCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL, but less than RL	antimony	L
74SB37-01, 74SB37-02, 74SB37-02D	beryllium	U
all samples >MDL, but less than RL	silver	U

### Matrix Spikes

#### Metals

The matrix spikes of sample 74SB36-02 (from SDG SWMU36419-3) exhibited non-compliant %R's for antimony. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB36-02	antimony	all samples	53% / 53%	J/U

### Matrix Duplicate

#### Metals

The matrix duplicate of sample 74SB40-04 exhibited a non-compliant %D for mercury that required qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB40-04	mercury	all samples	35.7%	J/L

### Field Duplicate

#### Metals

The field duplicate pair of samples 74SB37-02 and 74SB37-02D exhibited non-compliant RPDs ( $\geq 35\%$  but  $< 120\%$ ) for barium (83%), copper (55%), vanadium (113%) and nickel (54%) and a non-compliant absolute difference for lead ( $> \pm 2 \times RL$ ). The results for these analytes were qualified estimated J. The field duplicate pair of samples 74SB37-02 and 74SB37-02D exhibited non-compliant RPDs ( $> 120\%$ ) for chromium (129%) and a non-compliant absolute difference for cobalt ( $> \pm 4 \times RL$ ). The results for these analytes were rejected R.

A summary of qualifications required is provided on the following page. Please do not  
hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q Flag
all samples	all results	-/-	L/U
74SB37-01, 74SB37-02, 74SB37-02D, 74SB38-01, 74SB38-02, 74SB39-02, 74SB39-04, 74SB40-02, 74SB40-04	acrolein acetonitrile propionitrile isobutyl alcohol	-/-	J/R
74SB37-01, 74SB37-02, 74SB37-02D, 74SB38-01, 74SB38-02, 74SB39-02, 74SB39-04, 74SB40-02, 74SB40-04	acrolein acetonitrile isobutyl alcohol acetone	+/-	J/R
74SB37-01, 74SB37-02, 74SB37-02D, 74SB38-01, 74SB38-02, 74SB39-02, 74SB39-04, 74SB40-02, 74SB40-04	3-chloro-1-propene propenitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone	1/-	L/U
74TD03	isobutyl alcohol	-	J/R
74TD03	perfluoromethane vinyl acetate	-/-	L/U

### DRO/GRO

Sample ID	Compound	Results	Q Flag
all samples	DRO GRO	1/-	L/U
74SB37-01, 74SB39-02	GRO	1/	U

## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q flag
all samples	mercury	1/2 up to 2X RL	J/U
all samples	zinc	+	J
all samples >MDL but less than RL	antimony	>MDL up to RL	U
74SB37-01, 74SB37-02, 74SB37-02D	beryllium	>MDL up to RL	U
all samples >MDL but less than RL	silver	>MDL up to RL	U
all samples	antimony	-/-	J/U
all samples	mercury	-/-	J/U
74SB37-02, 74SB37-02D	barium copper vanadium nickel lead	+	J
74SB37-02, 74SB37-02D	chromium cobalt	-/-	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinse blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the PB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the PB value when the PB value is greater than the RL.

J - Sample result is greater than the PB value but less than 10X the PB value when PB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
-	positive result
-	non-detect result

TEST AMERICA SAVANNAH SDG 36426-1

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

July 16, 2008  
SDG# SWMU36426-1, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36426-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #1W-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lub ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	Metals
74VP1B-01	680-36426-1	soil	X		X	X
74VP1B-03	680-36426-2	soil	X		X	X
74VP1B-05	680-36426-3	soil	X		X	X
74VP1B-03D	680-36426-4	soil	X		X	X
74VP1B-04	680-36426-5	soil	X		X	X
74VP1B-04X	680-36426-6	soil	X		X	X
74SB21-02	680-36426-7	soil	X		X	X
74SB21-04	680-36426-8	soil	X		X	X
74SB22-01	680-36426-9	soil	X	X	X	X
74SB22-03	680-36426-10	soil	X	X	X	X
74SB22-03D	680-36426-11	soil	X	X	X	X
74SB22-04	680-36426-12	soil	X	X	X	X
74SB22-02	680-36426-13	soil	X	X	X	X
74SB22-03	680-36426-14	soil	X	X	X	X
74SB24-03	680-36426-15	soil	X	X	X	X
74SB24-05	680-36426-16	soil	X	X	X	X
74SB25-04	680-36426-17	soil	X	X	X	X
74SB25-05	680-36426-18	soil	X	X	X	X
74SB26-02	680-36426-19	soil	X		X	X
74SB26-02D	680-36426-20	soil	X		X	X
74SB22-01 MS	680-36426-10MS	soil	X	X	X	X
74SB22-03 MSD	680-36426-10MSD	soil	X	X	X	X

The following quality control samples were provided with this SDG: sample 74VP1B-03D-field duplicate of sample 74VP1B-03; sample 74SB22-03D-field duplicate of sample 74SB22-03; and sample 74SB26-02D-field duplicate of sample 74SB26-02.



The samples were evaluated based on the following criteria:

• Data Completeness	-
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• Initial/Continuing Calibrations	
• ICSA/ICSA-B Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

Three samples exhibited high recovery for one surrogate; therefore positive results were qualified as estimated.

One of the field duplicate pairs did not exhibit comparable results for one compound that resulted in qualifying the compound as estimated.

### PAH

One sample exhibited low results for an internal standard that resulted in qualifying the associated compounds as estimated.

One sample exhibited zero percent surrogate recovery; therefore positive results were qualified as estimated and non-detected results were rejected.

The associated MS/MSD exhibited non-compliant recoveries for several compounds that resulted in qualify these compound positive results.

The submitted field duplicate pair did not exhibit comparable results for several compounds; results were qualified as estimated.

### DRO/GRO

One sample exhibited an internal standard recovery above the QC limits in the GRO fraction. The reported positive result for GRO in the sample was qualified as estimated J.

Four samples analyzed for GRO required qualification due to high surrogate recoveries.

The field duplicate pair of samples 74SB22-03 and 74SB22-03D exhibited GRO and DRO results that did not compare. The reported results for GRO and DRO in this field duplicate pair were qualified as estimated J.

One sample was reanalyzed outside holding time. This sample was not used in favor of the original analysis.

### Metals

The CCV standard associated with one sample for barium was recovered above the QC limit. The reported positive result for barium in the sample was qualified as estimated J.

The ICSSB standards exhibited non-compliant recoveries above the QC limit for the analyte zinc. Based on Region II guidelines all positive results for zinc in the samples were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36426-1

The MS/MSD analysis of sample 74SB22-03 exhibited non-compliant recoveries requiring qualification for two analytes and the MS/MSD analysis of sample 56SB08-02 (from SDG SWMU36426-6) exhibited non-compliant recoveries requiring qualification for one analyte.

The matrix duplicate analysis of sample 74SB22-03 exhibited non-compliant RPDs for five analytes. The analytes were qualified as estimated in the samples.

The serial dilution of sample 74SB22-03 exhibited non-compliant %Ds for barium and vanadium. All results for barium and cobalt in the samples were qualified as estimated /UJ

The field duplicate pair of samples 74VP1B and 74VP1BD exhibited non-compliant RPDs for three analytes that required qualification as estimated. The field duplicate pair of samples 74SB22-03 and 74SB22-03D exhibited non-compliant RPDs for six analytes that required qualification as estimated and two analytes that required rejection.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file. Please note that the Form 6 tabulating calibration factors for the target compound for the DRO calibration curve was not present in the data package. This Form 6 was located in another SDG and was copied for this data package.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/2-3/08 and samples were received at the laboratory 05/06/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRI's and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRI, %RSD, %D	Samples	Q Flag
IC 05/02/08	acrolein acetonitrile propionitrile isobutyl alcohol	0.0250 0.0406 0.0414 0.0126	74SB24-01, 74SB24-05, 74SB25-04, 74SB25-05, 74SB26-02, 74SB26-02D, 74SB23-02, 74VP1B-01, 74VP2B-03, 74VP1B-03, 74VP1B-03D, 74VP1B-04, 74VP1B-04X, 74SB41-04, 74SB22-00, 74SB22-03D	I/R
CC 05/09/08	acrolein acetonitrile isobutyl alcohol acetone	0.03639 0.03129 0.01939 0.04075	74VP2B-01, 74VP2B-03, 74VP1B-03, 74VP1B-03D,	I/R
	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene pentachloroethane bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone	53.6% 38.4% 47.3% 28.8% 40.7% 20.2% 33.9% 20.9% 27.5% 22.0%	74VP1B-04, 74VP1B-04X, 74SB41-04, 74SB22-00,	AIJ
CC 05/10/08	acrolein acetonitrile isobutyl alcohol acetone	0.03587 0.03049 0.01877 0.01146	74SB22-03D	I/R
	3-chloro-1-propene propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane	21.8% 49.6% 36.5% 47.9% 20.7% 29.6% 25.9%		AIJ

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/11/08	acrolein	0.04036	74SB04-05, 74SB24-05, 74SB25-04, 74SB25-05, 74SB26-02, 74SB26-02D, 74SB27-02,	J/R
	acetonitrile	0.03368		
	isobutyl alcohol	0.02004		
	acetone	0.04291		
	propionitrile	54.1%		J/U
	methacrylonitrile	43.2%		
	methyl methacrylate	46.6%		
	ethyl methacrylate	28.4%		
	trans-1,4-dichloro-2-butene	32.2%		
	vinyl acetate	50.7%		
IC 05/12/08	acetonitrile	0.0356	74SB41-02	J/R
	isobutyl alcohol	0.0211		
CC 05/15/08	isobutyl alcohol	0.02161	74SB41-02	J/R
	acetone	0.04056		
	acetonitrile	89.8%		J/U
CC 05/14/08	methacrylonitrile	21.7%		
	acrolein	0.04041	74SB22-03, 74SB23-03	J/R
	isobutyl alcohol	0.02375		
	acetone	0.04700		
	diethyl ether	23.4%		J/U
	iodomethane	36.5%		
	3-chloro-1-propene	71.0%		
	pentachloromethane	43.3%		
	chloromethane	20.1%		
	4-methyl-2-pentanone	20.5%		
	2-hexanone	20.5%		
CC 05/16/08	methyl acetate	44.8%		
	isobutyl alcohol	0.02010	74SB22-04	J/R
	acetone	0.04588		
	diethyl ether	39.9%		J/U
	acrolein	38.6%		
	iodomethane	21.1%		
	3-chloro-1-propene	54.7%		
	pentachloroethane	30.5%		
	bromomethane	75.5%		
	chloroethane	25.8%		
	4-methyl-2-pentanone	22.4%		
	2-hexanone	23.6%		

### Metals

One CCV standard exhibited a recovery above the QC limits. A summary of this non-compliance and affected samples are noted in the following table. Sample results are qualified as indicated.

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Standard ID	Analyte	%R	Samples	Q Flag
CCV7	barium	111%	74SB22-03	J

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries above than the upper QC limit for the analyte zinc (128%/127%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blk 5/14	acetone	9601 ug/Kg	2000 ug/Kg	2X RL
	2-butanone	1101	1000	
Method Blk 5/16	acetone	5701 ug/Kg	2000 ug/Kg	2X RL
	2-butanone	1101	1000	
FB01	2-butanone	0.691 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB22-03, 74SB22-04	acetone	U at reported value
74SB22-03, 74SB22-04, 74VP2H-01, 74VP1B-01, 74VP1B-03B, 74SB22-00, 74SB26-02D	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ICB	antimony	0.081471 ug/L	>MDL up to RL	U
CCB	beryllium	0.0181 ug/L	MDL up to RL	U
	silver	0.0931 ug/L	>MDL up to RL	U

Please note: when qualifying samples for CCB contamination, associated samples are those that provide an LSL following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
74SB41-02, 74SB41-04, 74SB25-04	beryllium	U
all samples >MDL up to RL	silver	U

## Internal Standards

### PAH

Sample 74SB25-05 exhibited low internal standard area results for standard perylene-d12. All associated compounds were qualified as estimated (J/UJ).

### DRO/GRO

The GRO analysis of sample 74SB22-03 exhibited high internal standard area results. The reported positive result for GRO was qualified as estimated J in the sample.

### Surrogates

### VOA

The following samples exhibited high recoveries for the surrogates listed; required qualifications are noted in the following table.

Sample ID	Non-compliant Surrogate	% Rec	QC Limits	Qualifier
74SB22-03D	4-bromofluorobenzene	172	65-124	J
74-SB26-02	4-bromofluorobenzene	198	65-124	J
74-SB26-02D	4-bromofluorobenzene	199	65-124	J

### PAH

Sample 74SB22-03D exhibited zero percent recovery for surrogate o-terphenyl. All positive results were qualified as estimated (J) and non-detected results were qualified as rejected (R). This sample was analyzed at a 1:10 dilution; however since the native sample and associated matrix spike and matrix spike duplicate were also ran at a 1:10 dilution and acceptable surrogate recoveries were exhibited the duplicate sample has been qualified.

## DRO/GRO

Four samples analyzed for GRO exhibited non-compliant surrogate recovery above the QC limits. The reported positive results for GRO in samples 74SB22-03 (134%), 74SB22-03D (164%), 74SB23-03 (150%) and 74SB26-02D (140%) were qualified as estimated J.

## **Matrix Spike/Matrix Spike Duplicate**

### PAH

The matrix spike and matrix spike duplicate associated with sample 74SB22-03 and duplicate 74SB22-03D did not exhibit recoveries within criteria for several compounds that the native sample exhibited positive results. Due to non-compliant recoveries the following compound positive results were qualified as estimated: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene and pyrene.

### Metals

The matrix spikes of sample 74SB22-03 exhibited non-compliant %Rs for two analytes that required qualification in the samples. The matrix spikes of sample 56SB08-02 exhibited non-compliant %Rs for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples is noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB22-03	antimony	all samples	59.60	J/UJ
	lead		58.187	
56SB08-02	antimony	all samples	47.49	J/UJ

## **Matrix Duplicates**

### Metals

The matrix duplicate of sample 74SB22-03 exhibited non-compliant %Ds for five analytes that required qualification in the field samples. The matrix duplicate of sample 56SB08-02 exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB22-03	cobalt	all samples	102.8	J/UJ
	copper		91.5	
	lead		51.8	
	vanadium		65.2	
	zinc		40.9	
56SB08-02	cobalt	all samples	58.6	J/UJ

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## Serial Dilutions

### Metals

The serial dilution of sample 74SB22-03 analyzed for the metals exhibited non-compliant %Ds for barium and vanadium that required qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

SD	Analytes	Samples	%D	Q Flag
74SB22-03	barium	all samples	19.4	J/UJ
	vanadium		10.6	

### Field Duplicate

#### VOA

Sample 74SB22-03 and duplicate sample 74SB22-03D did not exhibit comparable result for acetone with 200% RPD, therefore results were qualified as estimated (J/UJ).

#### PAH

Sample 74SB22-03 and duplicate sample 74SB22-03D did not exhibit comparable results for fluorene with 117% RPD, phenanthrene with 200% RPD, anthracene with 200% RPD, fluoranthene with 98% RPD, benzo(b)fluoranthene with 99% RPD and benzo(k)fluoranthene with 200% RPD. These compounds were qualified as estimated (J/UJ).

#### DRO/GRO

Sample 74SB22-03 and duplicate sample 74SB22-03D did not exhibit comparable results for GRO (122% RPD) or DRO (84%). The reported results for GRO and DRO were qualified as estimated J in the field duplicate pair.

#### Metals

The field duplicate pair of samples 74VP1B-03 and 74VP1B-03D exhibited metals results that did not compare. The analytes barium, chromium and copper exhibited RPDs that were  $\geq 35\%$  but less than 120% and were qualified as estimated J in both samples.

The field duplicate pair of samples 74SB22-03 and 74SB22-03D exhibited metals results that did not compare. The analytes chromium, copper, nickel, vanadium and zinc exhibited RPDs that were  $\geq 35\%$  but  $< 120\%$  and were qualified as estimated J in both samples. The analytes cobalt exhibited a RPD that was greater than 120% and lead exhibited an absolute difference that was greater than 1/- 4X RL and were rejected R in both samples.

## Identification/Quantitation

### VOA

Sample 74SB22-03DRA was not used in favor of the initial analysis due to non-compliant surrogate recoveries.

### PAH

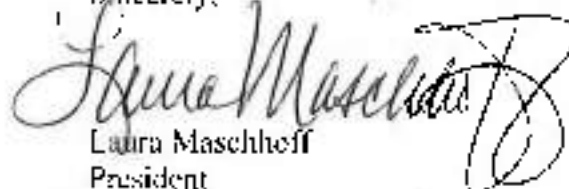
Sample 74SB25-05RA was not used in favor of the initial analysis due to non-compliant internal standard area recoveries.

### DRO/GRO

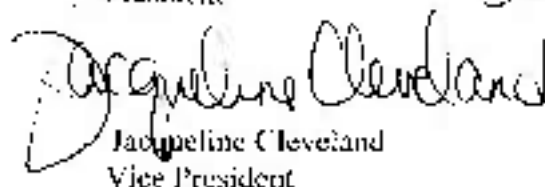
The GRO analysis of sample 74VP1B-04XRA was not used in favor of the initial analysis.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

VOA

Sample ID	Compound	Results	Q flag
74SB24-03, 74SB24-05, 74SB25-04, 74SB25-05, 74SB26-02, 74SB26-02D, 74SB23-02, 74VP2B-01, 74VP2B-03, 74VP1B-01, 74VP1B-03D, 74VP1B-04, 74VP1B-04X, 74SB41-04, 74SB22-00, 74SB22-03D	acrolein acetonitrile propionitrile isobutyl alcohol	+/+	J/R
74VP2B-01, 74VP2B-03, 74VP1B-03, 74VP1B-03D, 74VP1B-04, 74VP1B-04X, 74SB41-04, 74SB22-00	acrolein acetonitrile isobutyl alcohol acetone	+/+	J/R
74VP2B-01, 74VP2B-03, 74VP1B-03, 74VP1B-03D, 74VP1B-04, 74VP1B-04X, 74SB41-04, 74SB22-00	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene pentachloroethane bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone	+/+	J/U
74SB22-03D	acrolein acetonitrile isobutyl alcohol acetone	+/+	J/R
74SB22-03D	3-chloro-1-propene propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane	+/+	J/U
74SB24-03, 74SB24-05, 74SB25-04, 74SB25-05, 74SB26-02, 74SB26-02D, 74SB23-02	acrolein acetonitrile isobutyl alcohol acetone	+/+	J/R
74SB24-03, 74SB24-05, 74SB25-04, 74SB25-05, 74SB26-02, 74SB26-02D, 74SB23-02	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene vinyl acetate 2-butanone bromochloromethane 4-methyl-2-pentanone 2-hexanone	+/+	J/U

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# Summary of Data Qualifications, continued

## VOA

Sample ID	Compound	Results	Q flag
74SB41-02	acetonitrile isobutyl alcohol	ND	PR
74SB41-02	isobutyl alcohol acetone	ND	PR
74SB41-02	acetonitrile methacrylonitrile	ND	J/U
74SB22-03, 74SB23-03	acrolein isobutyl alcohol acetone	ND	PR
74SB22-03, 74SB23-03	diethyl ether iodomethane 3-chloro-1-propanol pentachloroethane chloroethane 4-methyl-2-pentanone 2-hexanone methyl acetate	ND	J/U
74SB22-04	isobutyl alcohol acetone	ND	PR
74SB22-04	diethyl ether acrolein iodomethane 3-chloro-1-propanol pentachloroethane bromomethane chloroethane 4-methyl-2-pentanone 2-hexanone	ND	J/U
74SB22-03, 74SB23-04	acetone	U	U at reported value
74SB22-03, 74SB22-04, 74VP2B-01, 74VP2B-01, 74VP2B-03B, 74SB22-00, 74SB26-02D	2-butanone	U	U at reported value
74SB22-03D, 74-SB26-02, 74-SB26-02D	all results	-	J
74SB22-03, 74SB22-03D	acetone	ND	J/U
74SB22-03DRA	all results	ND	R

## Summary of Data Qualifications, continued

### PAL

Sample ID	Compound	Results	Q flag
74SB25-05	all compounds associated with: perylene-12	+	J/CJ
74SB22-01D	all results	+	J/R
74SB22-03, 74SB22-03D	benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, pyrene	+	J
74SB22-03, 74SB22-03D	fluorene, phenanthrene, anthracene, fluoranthene, benzochloranthrene, benzokylfluoranthene	+/	J/CJ
74SB25-05RA	all results	+/	R

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB22-03	GRO	+	J
74SB22-03, 74SB22-03D, 74SB23-03, 74SB24-02D	GRO	+	J
74SB23-03, 74SB22-03D	GRO DRO	+	J
74VP1B-04XRA	GRO	+/	R

### Metals

Sample ID	Analyte	Results	Q flag
74SB22-03	barium	+	J
all samples	zinc	+	J
all samples ~MDL up to RL	antimony	~MDL up to RL	C
74SB41-02, 74SB41-04, 74SB25-04	beryllium	~MDL up to RL	C
all samples ~MDL up to RL	silver	~MDL up to RL	C
all samples	antimony zinc	+/	J/CJ
all samples	cobalt copper lead vanadium zinc	+/	J/CJ
all samples	barium vanadium	+/	J/CJ

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
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## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q flag
74VP18-03 and 74VP18-03D	barium chromium copper	-	J
74SB22-03 and 74SB22-03D	chromium copper nickel vanadium zinc	-	J
74SB22-03 and 74SB22-03D	cobalt lead	+	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected, the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This qualifier is used when the laboratory is reporting non-detects to the MDL. \*\* This qualifier is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

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NAPR SWMU74, Puerto Rico  
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## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/LJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use replicate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36426-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

July 16, 2008  
SDG# SWMU36426-2, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36426-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VQA App IX	DRO/GRO	Metals
74SB26-01	680-36426-21	soil	X	X	X
74SB27-01	680-36426-22	soil	X	X	X
74SB27-03	680-36426-23	soil	X	X	X
74SB42-01	680-36426-24	soil	X	X	X
74SB42-04	680-36426-25	soil	X	X	X
74SB43-03	680-36426-26	soil	X	X	X
74SB43-04	680-36426-27	soil	X	X	X
74SB44-04	680-36426-28	soil	X	X	X
74SB44-05	680-36426-29	soil	X	X	X
74SB48-01	680-36426-30	soil	X	X	X
74SB48-01D	680-36426-31	soil	X	X	X
74SB49-04	680-36426-32	soil	X	X	X
74SB49-05	680-36426-33	soil	X	X	X
74SB50-03	680-36426-34	soil	X	X	X
74SB50-04	680-36426-35	soil	X	X	X
74SB51-01	680-36426-36	soil	X	X	X
74SB51-03	680-36426-37	soil	X	X	X
74SB52-03	680-36426-38	soil	X	X	X
74SB52-04	680-36426-39	soil	X	X	X
74SB53-01	680-36426-40	soil	X	X	X
74SB51-UMMS	680-36426-36MS	soil		X	X
74SB51-UMMSD	680-36426-36MSD	soil		X	X

The following quality control samples were provided with this SDG: sample 74SB48-01D-field duplicate of sample 74SB48-01.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

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NAPR SWMU74, Puerto Rico  
SDG# SWMC36426-2

## **DRO/GRO**

Three samples analyzed for GRO required qualification due to high surrogate recoveries.

## **Metals**

The IC SAB standards exhibited non-compliant recoveries above the QC limit for the analyte zinc. Based on Region II guidelines all positive results for zinc in the metals samples were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spikes of sample 748B51-00 analyzed for the metals fraction exhibited non-compliant recoveries below the QC limits for antimony and chromium. All results for antimony in the metals samples were qualified as estimated J. Chromium was recovered less than 10% in both the MS & MSD. Therefore, positive and non-detect results for chromium were rejected R based on Region II guidance.

The submitted field duplicate pair exhibited non-compliant RPDs for two analytes, requiring qualification in the field duplicate pair.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/03/08 and samples were received at the laboratory 05-06/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

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Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/02/08	acrolein acetonitrile propionitrile isobutyl alcohol	0.0250 0.0105 0.0414 0.0126	74SB48-01, 74SB44-05, 74SB44-04, 74SB43-04, 74SB44-01, 74SB42-04, 74SB42-03, 74SB51-03, 74SB51-00, 74SB50-04, 74SU50-03, 74SB49-05, 74SB49-04, 74SB48-01 D, 74SB52-04, 74SB53-04, 74SB52-03	J/R
CC 05/10/08	acrolein acetonitrile isobutyl alcohol acetone	0.03587 0.03049 0.01877 0.01146	74SB48-01, 74SB44-05, 74SB44-04, 74SB43-04, 74SB43-03, 74SB42-04, 74SB42-03, 74SB51-03, 74SU51-00, 74SB50-04, 74SU50-03, 74SB49-05, 74SB49-04, 74SB48-01 D, 74SB52-04, 74SB53-04	J/R
	3-chloro-1-propene propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane	21.8% 49.6% 16.5% 47.9% 20.7% 29.6% 23.9%		J/U
CC 05/11/08	acrolein acetonitrile isobutyl alcohol acetone	0.04016 0.03368 0.02004 0.04297	74SB52-03	J/R
	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene vinyl acetate 2-butanone bromochloromethane 4-methyl-2-pentanone 2-hexanone	54.1% 43.2% 46.6% 28.4% 12.2% 30.7% 15.3% 24.0% 37.0% 31.8%		J/U

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05-14-08	acrolein isobutyl alcohol acetone	0.00041 0.02375 0.04700	74SB27-03, 74SB26-05, 74SB27-03	NR
	iodomethane 3-chloro-1-propene pentachloroethane chloroethane 4-methyl-2-pentanone 2-hexanone	36.5% 71.0% 43.3% 20.1% 20.5% 20.5%		NC

### ICSA/ICSAB Standards

#### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (128%/127%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated I in all samples.

#### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method B.k S/14	acetone	9600 ug/Kg	2000 ug/Kg	2X RL
PH01	2-butanone	6.69J ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB27-05	acetone	U at reported value
74SB51-00	2-butanone	U at reported value

#### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36426-2

flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ICB	antimony	0.081471 ug/L	>MDL up to RL	U
CCH	beryllium	6.0181 ug/L	>MDL up to RL	U
	silver	0.0191 ug/L	>MDL up to RL	U

The concentration noted for the CCBs is the highest concentration in all the associated CCBs. However, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analyses in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
74SB27-03, 74SB42-03, 74SB42-04	beryllium	U
74SB26-05, 74SB27-03, 74SB27-05, 74SB13-03, 74SB43-04, 74SB44-04	silver	U

### Surrogate Recoveries

#### DRO/GRO

Three samples analyzed for GRO exhibited non-compliant surrogate recoveries above the QC limits. The reported positive results for GRO in samples 74SB26-05 (227%), 74SB27-03 (128%) and 74SB27-05 (141%) were qualified as estimated J.

### Matrix Spikes

#### Metals

The matrix spikes of sample 74SB51-00 analyzed for the metals fraction exhibited non-compliant %R's for antimony and chromium, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB51-00	antimony	all samples	61% / 69%	J/JJ
	lead	all samples	-22% / 8%	R

### Field Duplicate

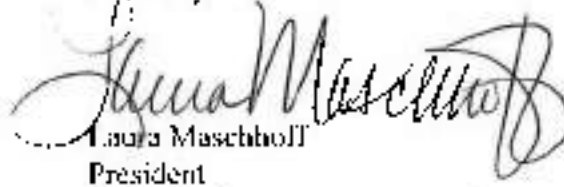
#### Metals

The field duplicate pair of samples 74SB48-01 and 74SB48-01D exhibited non-compliant RPDs for two analytes. The analyte nickel exhibited an RPD ≥35% but less than 120% and was qualified as estimated J in the field duplicate pair. The analyte chromium exhibited an RPD >120% and was rejected in the field duplicate pair.

Michael Baker, Jr., Inc.  
NAIR SWMU74, Puerto Rico  
SDG# SWMU36426-2

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q Flag
74SB48-01, 74SB44-05, 74SB44-04, 74SB43-04, 74SB43-03, 74SB42-04, 74SB42-03, 74SB51-03, 74SB51-00, 74SB50-04, 74SB50-03, 74SB49-05, 74SB49-04, 74SB48-01D, 74SB52-04, 74SB53-04, 74SB52-03	acrolein acetonitrile propionitrile isobutyl alcohol	+	JR
74SB48-01, 74SB44-05, 74SB44-04, 74SB43-04, 74SB43-03, 74SB42-04, 74SB42-03, 74SB51-03, 74SB51-00, 74SB50-04, 74SB50-03, 74SB49-05, 74SB49-04, 74SB48-01D, 74SB52-04, 74SB53-04	acrolein acetonitrile isobutyl alcohol acetone	+	JR
74SB48-01, 74SB44-05, 74SB44-04, 74SB43-04, 74SB43-03, 74SB42-04, 74SB42-03, 74SB51-03, 74SB51-00, 74SB50-04, 74SB50-03, 74SB49-05, 74SB49-04, 74SB48-01D, 74SB52-04, 74SB53-04	3-chloro-1-propene propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene bromomethane	+	JUJ
74SB52-03	acrolein acetonitrile isobutyl alcohol acetone	+	JR
74SB52-03	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene vinyl acetate 2-butanone bromochloromethane 4-methyl-2-pentanone 2-hexanone	+	JUJ
74SB27-05, 74SB26-05, 74SB27-03	acrolein isobutyl alcohol acetone	+	JR
74SB27-05, 74SB26-05, 74SB27-03	iodomethane 3-chloro-1-propene pentachloroethane chloroethane 4-methyl-2-pentanone 2-hexanone	+	JUJ
74SB27-05	acetone	+	U at reported value
74SB51-00	2-butanone	+	U at reported value

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36426-2

### Summary of Data Qualifications, continued

DRO:GRO

Sample ID	Compound	Results	Q flag
74SB26-05, 74SB27-03, 74SB27-05	GRQ	+	J

## Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	-	J
all samples	antimony	+ >MDL up to RL	U
74SB27-03, 74SB42-05, 74SB42-04	beryllium	+ >MDL up to RL	U
74SB26-05, 74SB27-03, 74SB27-05, 74SB43-03, 74SB43-04, 74SB44-01	silver	+ >MDL up to RL	U
all samples	antimony	-/-	1,0,0
all samples	chromium	-/-	R
74SB48-01, 74SB48-01D	nickel	-	J
74SB48-01, 74SB48-01D	chromium	-/-	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/CJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinse blank associated with soils to qualify water samples and vice versa*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36426-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

July 16, 2008  
 SDG# SWMU36426-3, Test America-Savannah  
 NAPIR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36426-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	Metals
74SB53-05	680-36426-41	soil	X	X	X
74SB54-03	680-36426-42	soil	X	X	X
74SB54-04	680-36426-43	soil	X	X	X
74SB55-02	680-36426-44	soil	X	X	X
74SB55-03	680-36426-45	soil	X	X	X
74SB56-03	680-36426-46	soil	X	X	X
74SB56-04	680-36426-47	soil	X	X	X
74SB57-03	680-36426-48	soil	X	X	X
74SB57-04	680-36426-49	soil	X	X	X
74SB58-03	680-36426-50	soil	X	X	X
74SB58-04	680-36426-51	soil	X	X	X
74SB59-04	680-36426-52	soil	X	X	X
74SB59-05	680-36426-53	soil	X	X	X
74SB60-04	680-36426-54	soil	X	X	X
74SB60-05	680-36426-55	soil	X	X	X
74SB61-03	680-36426-56	soil	X	X	X
74SB61-03	680-36426-57	soil	X	X	X
74SB61-04	680-36426-58	soil	X	X	X
74SB61-04D	680-36426-59	soil	X	X	X
74SB62-03	680-36426-60	soil	X	X	X
74SB53-05MS	680-36426-41MS	soil		X	X
74SB53-05MSD	680-36426-41MSD	soil		X	X

The following quality control samples were provided with this SDG: Sample 74SB61-04D was the field duplicate of sample 74SB61-04.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	*
• Field Duplicates	*
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

Blank contamination was noted in the GRO fraction and qualification was required in the samples in this SDG.

### **Metals**

The ICSAB standards exhibited non-compliant recoveries above the QC limit for the analyte zinc. Based on Region II guidelines all positive results for zinc in the metals samples were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spikes of sample 74SB51-00 analyzed for the metals fraction exhibited non-compliant recoveries below the QC limits for antimony and chromium. All results for antimony in the metals samples were qualified as estimated J/UJ. Chromium was recovered less than 10% in both the MS & MSD. Therefore, positive and non-detect results for chromium were rejected R based on Region II guidance.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/03/08 and samples were received at the laboratory 05/06/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

#### **Initial/Continuing Calibration**

#### **VOA**



Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/02/08	acrolein acetonitrile propionitrile isobutyl alcohol	0.0250 0.0406 0.0414 0.0126	74SB53-05, 74SB54-03, 74SB54-04, 74SB55-02, 74SB55-03, 74SB56-03, 74SB56-04, 74SB57-03, 74SB57-04, 74SB58-03, 74SB58-04	J/R
CC 05/11/08	acrolein acetonitrile isobutyl alcohol acetone	0.04036 0.03368 0.02004 0.04291	74SB53-05, 74SB54-03, 74SB54-04, 74SB55-02, 74SB55-03, 74SB56-03, 74SB56-04, 74SB57-03, 74SB57-04, 74SB58-03, 74SB58-04	J/R
	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene vinyl acetate 2-butanone 4-methyl-2-pentanone	54.1% 43.2% 46.6% 28.4% 32.2% 30.7% 35.3% 37.0%		J/LI
IC 05/12/08	acetonitrile isobutyl alcohol	0.0356 0.0211	74SB59-05, 74SB60-05, 74SB61-00, 74SB61-03, 74SB61-04D, 74SB62-03, 74SB59-04, 74SB60-04, 74SB61-04	J/R
CC 05/13/08	isobutyl alcohol acetone	0.02138 0.04359	74SB59-05, 74SB60-05, 74SB61-00, 74SB61-03, 74SB61-04D, 74SB62-03, 74SB59-04, 74SB60-04	J/R
	acetonitrile pentachloroethane	86.3% 30.9%		J/LI
CC 05/14/08	acetonitrile isobutyl alcohol acetone	102.1% 0.02361 0.03496	74SB61-04	J/R
	methacrylonitrile pentachloroethane	32.0% 40.6%		J/LI

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (128%/127%/128%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FB01	2-butanone	0.69 ug/l.	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB54-03, 74SB54-04, 74SB55-02, 74SB60-04, 74SB61-00, 74SB61-03, 74SB61-04, 74SB61-04D, 74SB62-03	2-butanone	U at reported value

#### DRO/GRO

The associated method blanks exhibited contamination as noted in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the RL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
MB 680-106032/5	GRO	0.0842 mg/Kg	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB54-03, 74SB54-04, 74SB55-02, 74SB56-03, 74SB56-04	GRO	U at reported value

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ICB	antimony	0.08147 ug/L	>MDL up to RL	U
	beryllium	0.0181 ug/L	>MDL up to RL	U
CCB	silver	0.0231 ug/L	>MDL up to RL	U

The concentration noted for the CCBs is the highest concentration in all the associated CCBs. However, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
all samples >MDL up to RL	beryllium	U
all samples >MDL up to RL	silver	U

## **Matrix Spikes**

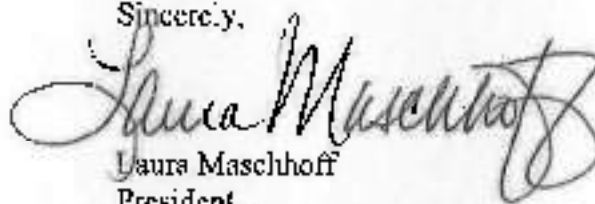
### Metals

The matrix spikes of sample 74SB53-05 analyzed for the metals fraction exhibited non-compliant %R's for antimony, arsenic, chromium, and selenium, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

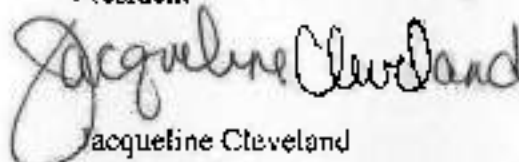
MS	Analytes	Samples	%R	Q Flag
74SB53-05	antimony	all samples	49% / 54%	N/U
	arsenic	all samples	58% / 62%	N/U
	chromium	all samples	30% / 41%	N/U
	selenium	all samples	73% / 73%	N/U

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

A handwritten signature in cursive script, reading "Laura Maschhoff".

Laura Maschhoff  
President

A handwritten signature in cursive script, reading "Jacqueline Cleveland".

Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB53-05, 74SB54-03, 74SB54-04, 74SB55-02, 74SB55-03, 74SB56-03, 74SB56-04, 74SB57-03, 74SB57-04, 74SB58-03, 74SB58-04	acrolein acetonitrile propionitrile isobutyl alcohol	+/	J/R
74SB53-05, 74SB54-03, 74SB54-04, 74SB55-02, 74SB55-03, 74SB56-03, 74SB56-04, 74SB57-03, 74SB57-04, 74SB58-03, 74SB58-04	acrolein acetonitrile isobutyl alcohol acetone	+/-	J/R
74SB53-05, 74SB54-03, 74SB54-04, 74SB55-02, 74SB55-03, 74SB56-03, 74SB56-04, 74SB57-03, 74SB57-04, 74SB58-03, 74SB58-04	propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene vinyl acetate 2-butanone 4-methyl-2-pentanone	+/-	J/UJ
74SB59-05, 74SB60-05, 74SB61-00, 74SB61-03, 74SB61-04D, 74SB62-03, 74SB59-04, 74SB60-04, 74SB61-04	acetonitrile isobutyl alcohol	-/-	J/R
74SB59-05, 74SB60-05, 74SB61-00, 74SB61-03, 74SB61-04D, 74SB62-03, 74SB59-04, 74SB60-04	isobutyl alcohol acetone	+/-	J/R
74SB59-05, 74SB60-05, 74SB61-00, 74SB61-03, 74SB61-04D, 74SB62-03, 74SB59-04, 74SB60-04	acetonitrile pentachloroethane	+/	J/UJ
74SB61-04	acetonitrile isobutyl alcohol acetone	+/-	J/R
74SB61-04	methacrylonitrile pentachloroethane	+/-	J/UJ
74SB54-03, 74SB54-04, 74SB55-02, 74SB60-04, 74SB61-00, 74SB61-03, 74SB61-04, 74SB61-04D, 74SB62-03	2-butanone	r	U at reported value

## Summary of Data Qualifications, continued

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB54-03, 74SB54-04, 74SB55-02, 74SB56-03, 74SB56-04	GRO	-J	U

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	I	J
all samples	antimony	- >MDL up to RL	L
all samples	beryllium	- >MDL up to RL	U
all samples	silver	- >MDL up to RL	U
all samples	antimony arsenic chromium selenium	+/-	NOJ

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
I	estimated value
UI	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL, when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36426-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 4, 2008  
 SDG# SWMU36426-4, Test America-Savannah  
 NAPIR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36426-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (826013-Rev 2, January 2006- SOP #HW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO-GRO	GRO	Metals
74SB63-03	680-36426-61	soil	X	X		X
74SB63-04	680-36426-62	soil	X	X		X
74SB64-03	680-36426-63	soil	X	X		X
74SB64-04	680-36426-64	soil	X	X		X
74SB65-03	680-36426-65	soil	X	X		X
74SB65-04	680-36426-66	soil	X	X		X
74SB66-03	680-36426-67	soil	X	X		X
74SB66-04	680-36426-68	soil	X	X		X
74SB66-041	680-36426-69	soil	X	X		X
74SB67-03	680-36426-70	soil	X	X		X
74SB67-04	680-36426-71	soil	X	X		X
74SB68-03	680-36426-72	soil	X	X		X
74SB69-04	680-36426-73	soil	X	X		X
74SB69-03	680-36426-74	soil	X	X		X
74SB69-04	680-36426-75	soil	X	X		X
74SB70-03	680-36426-76	soil	X	X		X
74SB70-04	680-36426-77	soil	X	X		X
74FB04	680-36426-78	water	X		X	
74FB05	680-36426-79	water	X		X	
74FB06	680-36426-80	water	X		X	
74SB65-03MS	680-36426-65MS	soil				X
74SB65-03MS1J	680-36426-65MS1J	soil				X

The following quality control samples were provided with this SDG: sample 74SB66-04D-field duplicate of sample 74SB66-04; and samples 74TB04, 74TB05 and 74TB06-trip blanks.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	*
• CRDI Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The sample vials for sample 74TB04 and 74TB06 were received at the laboratory with headspace. According to Region II guidelines when all the vials for a sample have air

bubbles or the VOA vial analyzed had air bubbles, all positive results were qualified as estimated (E) and non-detected results were rejected (R).

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blank associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

The vial used for the analysis of one sample for GRO had headspace, therefore the reported result required rejection.

### **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for three analytes for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated J/LJ in the samples. Positive results for barium were flagged as estimated J in the samples. Positive and non-detect results for mercury were rejected R in the samples.

The associated matrix duplicate exhibited a non-compliant RPD for one analyte for which qualifications were required. Positive and non-detect results for copper were qualified as estimated in the samples.

The submitted field duplicate pair exhibited non-compliant RPDs for two analytes. These analytes required qualification in the field duplicate pair.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

## Sample Condition

### VOA

The sample vials for samples 74TB04 and 74TB06 were received at the laboratory with headspace. According to Region II guidelines when all the vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, all positive results were qualified as estimated (E) and non-detected results were rejected (R).

### GRO

The sample vial used for the GRO analysis of sample 74TB06 contained headspace. Based on Region II guidelines the reported non-detect result was rejected R.

## Technical Holding Times

According to chain of custody records, sampling was performed on 05/04/08 and samples were received at the laboratory 05/06/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/13/08	acrolein	0.03674	74TB04, 74TB05, 74TB06	J/R
	acrylonitrile	52.5%		J/U
	pentachloroethane	76.0%		
	dichlorodifluoromethane	20.5%		
	benzonitrile	39.5%		
	vinyl acetate	28.0%		
	trans-1,2-dichloropropene	20.9%		

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/10/08	acetonitrile isobutyl alcohol	0.0356 0.0211	74SB63-03, 74SB63-04, 74SB64-03, 74SB64-04, 74SB65-03, 74SB65-04, 74SB66-03, 74SB66-04, 74SB66-04D, 74SB67-03, 74SB67-04, 74SB68-03, 74SB68-04, 74SB69-04, 74SB70-04, 74SB69-03, 74SB70-03	J/R
CC 05/13/08	isobutyl alcohol acetone	0.03138 0.04359	74SB63-03, 74SB63-04, 74SB64-03	J/R
	acetonitrile pentachloroethane	86.3% 30.9%		F/U
CC 05/14/08	acetonitrile isobutyl alcohol acetone	102.1% 0.02361 0.03496	74SB64-04, 74SB65-03, 74SB65-04, 74SB66-03, 74SB66-04, 74SB66-04D, 74SB67-03, 74SB67-04, 74SB68-03, 74SB68-04, 74SB69-04, 74SB70-04	J/R
	methacrylonitrile pentachloroethane	32.0% 40.6%		F/U
CC 05/14/08	acrolein isobutyl alcohol acetone	0.04653 0.02484 0.04037	74SB69-03, 74SB70-03	J/R
	acetonitrile 2-chloro-1,3-butadiene methacrylonitrile pentachloroethane	88.7% 24.0% 26.6% 31.8%		J/U

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36426-4

to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FB01	2-butanone	0.691 ug/l.	10 ug/l.	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB70-04	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
FB01	lead	0.381 ug/l.	>MDL, up to RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
74SB67-04	lead	U

### **Matrix Spike Recoveries**

#### Metals

The matrix spikes of sample 74SB65-03 analyzed for the metals fraction exhibited non-compliant %R's for antimony, barium and mercury that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB65-03	antimony	all samples	70%-72%	J/U
	barium	all samples	148%-269%	J
	mercury	all samples	-4.2/-8.4%	R

### **Matrix Duplicates**

#### Metals

The matrix duplicate of sample 74SB65-03 exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB65-03	copper	all samples	32.5%	I/U

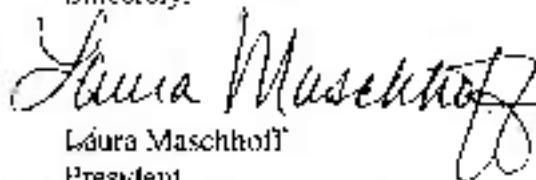
### Field Duplicates

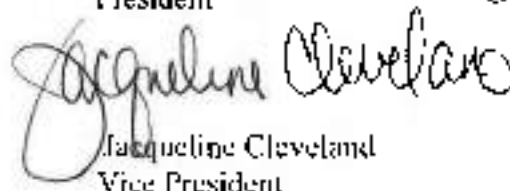
#### Metals

The field duplicate pair of samples 74SB66-04 and 74SB66-04D exhibited non-compliant RPD >35% but less than 120% for the analytes cobalt (63%) and copper (86%). These analytes were flagged as estimated J in the field duplicate pair. The analyte mercury (0.152) exhibited an absolute difference > 4X CRDL. This analyte was rejected R in the field duplicate pair. All qualifications were made based on the Region II guidance.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual F.S with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74TB04, 74TB06	all results	-/-	I/R
74TB04, 74TB05, 74TB06	acrolein	+	I/R
74TB04, 74TB05, 74TB06	acrylonitrile pentachloroethane dichlorodifluoromethane bromomethane vinyl acetate trans-1,3-dichloropropene	-/-	I/U
74SB63-03, 74SB63-04, 74SB64-03, 74SB64-04, 74SB65-03, 74SB65-04, 74SB66-03, 74SB66-04, 74SB66-04D, 74SB67-03, 74SB67-04, 74SB68-03, 74SB68-04, 74SB69-04, 74SB70-04, 74SB69-03, 74SB70-03	acetonitrile isobutyl alcohol	-/-	I/R
74SB63-03, 74SB63-04, 74SB64-03	isobutyl alcohol acetone	-/-	I/R
74SB63-03, 74SB63-04, 74SB64-03	acetonitrile <del>pentachloroethane</del>	-/-	I/U
74SB64-04, 74SB65-03, 74SB65-04, 74SB66-03, 74SB66-04, 74SB66-04D, 74SB67-03, 74SB67-04, 74SB68-03, 74SB68-04, 74SB69-04, 74SB70-04	acetonitrile isobutyl alcohol acetone	-/-	I/R
74SB64-04, 74SB65-03, 74SB65-04, 74SB66-03, 74SB66-04, 74SB66-04D, 74SB67-03, 74SB67-04, 74SB68-03, 74SB68-04, 74SB69-04, 74SB70-04	methacrylonitrile pentachloroethane	-/-	I/U
74SB69-03, 74SB70-03	acrolein isobutyl alcohol acetone	-/-	I/R
74SB69-03, 74SB70-03	acetonitrile 2-chloro-1,3-butadiene methacrylonitrile pentachloroethane	-/-	I/U
74SB70-04	2-butanone	+	U at reported value

## Summary of Data Qualifications, continued

### DRO/GRO

Sample ID	Compound	Results	Q flag
74TB06	GRO	-	R

### Metals

Sample ID	Analyte	Results	Q flag
74SB67-04	lead	< MDL up to RL	U
all samples	antimony	1/-	PU
all samples	barium	+	I
all samples	mercury	1/-	R
all samples	copper	1/-	PU
74SB65-04, 74SB66-04D	cefall copper	+	I

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UQ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL,**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/JJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note -- Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value

L - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RI	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
-	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36489-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 4, 2008  
 SDG# SWMU36489-1, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes:

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36489-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	Metals
74SB71-00	680-36489-1	soil	X	X	X
74SB71-03	680-36489-2	soil	X	X	X
74SB71-04	680-36489-3	soil	X	X	X
74SB71-01D	680-36489-4	soil	X	X	X
74SB72-03	680-36489-5	soil	X	X	X
74SB72-04	680-36489-6	soil	X	X	X
74SB73-03	680-36489-7	soil	X	X	X
74SB73-04	680-36489-8	soil	X	X	X
74SB74-03	680-36489-9	soil	X	X	X
74SB74-04	680-36489-10	soil	X	X	X
74SB75-03	680-36489-11	soil	X	X	X
74SB75-04	680-36489-12	soil	X	X	X
74SB76-03	680-36489-13	soil	X	X	X
74SB76-04	680-36489-14	soil	X	X	X
74SB76-01	680-36489-15	soil	X	X	X
74SB77-03	680-36489-16	soil	X	X	X
74SB77-04	680-36489-17	soil	X	X	X
74SB79-03	680-36489-18	soil	X	X	X
74SB79-04	680-36489-19	soil	X	X	X
74SB80-03	680-36489-20	soil	X	X	X
74SB71-03 MS	680-36489-2MS	soil	X	X	X
74SB71-04 MS	680-36489-2MS	soil	X	X	X

The following quality control samples were provided with this SDG: sample 74SB71-04D-field duplicate of sample 74SB71-04; and sample 74SB76-03D-field duplicate of sample 74SB76-03.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• IC/SA/IC/SA Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Michael Baker, Jr., Inc  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36489-J

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

One sample analyzed for GRO exhibited a high surrogate recovery. The GRO result in that sample was qualified as estimated J.

### **Metals**

The IC5A3 standards analyzed for the metals fraction exhibited non-compliant recoveries for the analyte silver. All results for silver in the samples were qualified as estimated JUU.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for one analyte for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated JUU in the samples.

The associated matrix duplicate exhibited a non-compliant RPD for one analyte for which qualifications were required. Positive and non-detect results for barium were qualified as estimated in the samples.

The associated serial dilution analysis exhibited a non-compliant %Ds for two analytes for which qualifications were required. Positive and non-detect results for copper and zinc were qualified as estimated in the samples.

The submitted field duplicate pair exhibited non-compliant RPDs for four analytes. Those analytes required qualification in the field duplicate pair.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.



## Technical Holding Times

According to chain of custody records, sampling was performed on 05/05/08 and samples were received at the laboratory 05/07/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRF's and %D's that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/12/08	acrolein isobutyl alcohol acetone	0.03328 0.01477 0.04651	74SB71-00, 74SB71-02, 74SB71-04.	J/R
	acetonitrile 3-chloro-1-propene acrylonitrile pentachloroethane	26.7% 54.7% 24.3% 38.4%	74SB71-04D, 74SB72-03, 74SB72-04, 74SB73-01, 74SB73-04, 74SJ074-03, 74SB74-04, 74SB75-03, 74SB75-04, 74SB76-03, 74SB76-03D, 74SB76-04	J/U
CC 05/12/08	acrolein isobutyl alcohol acetone	0.03763 0.01708 0.03883	74SB77-03, 74SB77-04, 74SB79-03,	J/R
	acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane	26.1% 56.9% 29.3% 22.7% 22.0%	74SB79-04, 74SB80-03	J/U

## ICSA/ICSAB Standards

### Metals

The associated ICSAB standards exhibited non-compliant recoveries less than the lower QC limit for the analytes silver (77%/77%/76%/76%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/U in all samples.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36489-1

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank 05/12/08	acetone	181 ug/Kg	50	TX RL
FB01	2-butanone	0.691 ug/L	10 ug/L	TX RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB72-03, 74SB72-04, 74SB73-03, 74SB74-03, 74SB74-04, 74SB76-04	acetone	U at reported value
74SB71-04, 74SB71-04D	acetone	U
74SB71-03, 74SB71-04, 74SB71-04D, 74SB77-03, 74SB76-04, 74SB80-03	2-butanone	U at reported value
74SB71-00	2-butanone	U

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ICB	antimony	0.159501 ug/L	>MDL up to RL	U
CCB	cadmium	0.0741 ug/L	>MDL up to RL	U
FB01	lead	0.381 ug/L	>MDL up to RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
74SB71-00, 74SB71-03	antimony	U
74SB71-03, 74SB71-04, 74SB71-04D	cadmium	U
74SB76-03, 74SB76-04, 74SB77-04	lead	U

## Surrogates

### URO-GRO

Sample 74SB71-00 analyzed for the GRO fraction exhibited a non-compliant surrogate recovery (205%) above the upper QC limit. The reported positive result for GRO in the sample was qualified as estimated J.

## Matrix Spike Recoveries

### Metals

The matrix spikes of sample 74SB71-03 analyzed for the metals fraction exhibited non-compliant %R's for antimony that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB71-03	antimony	all samples	34% / 54%	EUJ

## Matrix Duplicates

### Metals

The matrix duplicate of sample 74SB71-03 exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB71-03	barium	all samples	65.5%	EUJ

## Serial Dilutions

### Metals

The serial dilution of sample 74SB71-03 exhibited non-compliant %Ds for two analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

SD	Analytes	Samples	RPD	Q Flag
74SB71-03	copper	all samples	11.5%	EUJ
	zinc		12.4%	

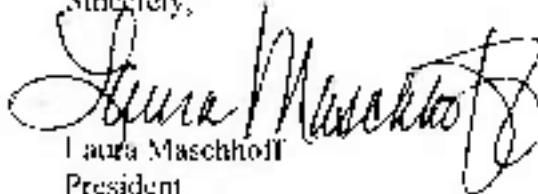
### Metals

The field duplicate pair of samples 74SB76-03 and 74SB76-03D exhibited non-compliant RPD >35% but <120% for the analytes barium (58%), cobalt (76%), lead (51%) and zinc


(77%). These analytes were flagged as estimated J in the field duplicate pair. Please note that the reported result for lead in sample 74SB76-03 was flagged U due to field blank contamination so this result was flagged as UJ. All qualifications were made based on the Region II guidance.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB71-00, 74SB71-03, 74SB71-04, 74SB71-01D, 74SB72-03, 74SB72-04, 74SB73-03, 74SB73-04, 74SB74-03, 74SB74-04, 74SB75-03, 74SB75-04, 74SB76-03, 74SB76-03D, 74SB76-04	acrolein isobutyl alcohol acetone	+	1/R
74SB71-00, 74SB71-03, 74SB71-04, 74SB71-04D, 74SB72-03, 74SB72-04, 74SB73-03, 74SB73-04, 74SB74-03, 74SB74-04, 74SB75-03, 74SB75-04, 74SB76-03, 74SB76-03D, 74SB76-04	acetonitrile 3-chloro-1-propene acrylonitrile pentachloroethane	+	1/U
74SB77-03, 74SB77-04, 74SB79-03, 74SB79-04, 74SB80-03	acrolein isobutyl alcohol acetone	+	2/R
74SB77-03, 74SB77-04, 74SB79-03, 74SB79-04, 74SB80-03	acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane	+	1/U
74SB72-03, 74SB72-04, 74SB73-03, 74SB74-03, 74SB74-04, 74SB76-04	acetone	-	U at reported value
74SB71-04, 74SB71-04D	acetone	-	U
74SB71-03, 74SB71-04, 74SB71-04D, 74SB72-03, 74SB76-04, 74SB80-03	2-butanone	+	U at reported value
74SB71-00	2-butanone	+	U

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB71-00	GRO	+	1

## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	ND	NAJ
74SB71-00, 74SB71-01	antimony	< MDL up to RL	U
74SB71-03, 74SB71-04, 74SB71-04D	cadmium	< MDL up to RL	U
74SB76-03, 74SB76-04, 74SB77-04	lead	< MDL up to RL	U
all samples	antimony	ND	NAJ
all samples	barium	ND	NAJ
all samples	copper	ND	NAJ
	zinc	ND	NAJ
74SB76-03, 74SB76-03D	barium	ND	NAJ
	cobalt		
	lead		
	zinc		

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U*	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note: Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use routine blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- C - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36489-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

August 6, 2008  
SDG# SWMU36489-2, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36489-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	PROGRO	Metals
74S080-04	680-36489-21	soil	X	X	X
74S081-06	680-36489-22	soil	X	X	X
74S081-03	680-36489-23	soil	X	X	X
74S081-04	680-36489-24	soil	X	X	X
74S081-011	680-36489-25	soil	X	X	X
74S087-03	680-36489-26	soil	X	X	X
74S097-04	680-36489-27	soil	X	X	X
74S098-03	680-36489-28	soil	X	X	X
74S098-04	680-36489-29	soil	X	X	X
74S099-03	680-36489-30	soil	X	X	X
74S099-04	680-36489-31	soil	X	X	X
74S1100-03	680-36489-32	soil	X	X	X
74S1100-04	680-36489-33	soil	X	X	X
74S1107-00	680-36489-34	soil	X	X	X
74S1101-03	680-36489-35	soil	X	X	X
74S1101-0311	680-36489-36	soil	X	X	X
74S1101-04	680-36489-37	soil	X	X	X
74S1102-04	680-36489-38	soil	X	X	X
74S1102-05	680-36489-39	soil	X	X	X
74S1103-03	680-36489-40	soil	X	X	X
74S081-03 MS	680-36489-23MS	soil	X	X	X
74S081-03 MS1	680-36489-23MS1	soil	X	X	X
74S081-03 MS	680-36489-23MS	soil	X	X	X
74S081-03 MS1	680-36489-23MS1	soil	X	X	X

The following quality control samples were provided with this SDG: sample 74SB81-04D-field duplicate of sample 74SB81-04; and sample 74SB101-03D-field duplicate of sample 74SB101-03.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSEA/ICSA Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### Overall Evaluation of Data/Potential Usability Issues

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### VOA

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36489-2

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

One sample analyzed for GRO exhibited a non-compliant internal standard recovery below the QC limit. The GRO result in the sample was qualified as estimated J/UJ

One sample analyzed for GRO exhibited a high surrogate recovery. The GRO result in that sample was qualified as estimated J.

The field duplicate pair of samples 74SB81-04 and 74SB81-04D exhibited a non-compliant RPD for the target compound DRO. The DRO results in the field duplicate pair were qualified as estimated J. Please note that it appears that the field duplicate contains a high concentration of higher molecular weight hydrocarbons. This is likely to affect the quantitation of DRO in the field duplicate.

### **Metals**

The ICSAH standards analyzed for the metals fraction exhibited non-compliant recoveries for the analytes silver and zinc. All results for silver in the samples were qualified as estimated J/UJ and all positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDGI.

The associated matrix spikes exhibited non-compliant %Rs for three analytes for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated J/UJ in the samples. Positive results for lead were qualified as estimated J. Positive and non-detect results for chromium were rejected.

The associated matrix duplicate exhibited a non-compliant RPD for one analyte for which qualifications were required. Positive and non-detect results for barium were qualified as estimated in the samples.

The associated serial dilution analysis exhibited a non-compliant %D for one analyte for which qualifications were required. Positive and non-detect results for zinc were qualified as estimated in the samples.

The submitted field duplicate pair exhibited non-compliant RPDs for three analytes. Those analytes required qualification in the field duplicate pair.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required for two metals samples because results were calculated incorrectly. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/05-06/08 and samples were received at the laboratory 05/07/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/12/08	acrolein	0.03762	74SB80-04,	JR
	isobutyl alcohol	0.01705	74SB81-00,	
	acetone	0.03883	74SB81-03,	I/U
	acetonitrile	26.1%	74SB81-04,	
	3-chloro-1-propene	36.9%	74SB81-04D,	
	acrylonitrile	29.3%	74SB97-03	
CC 05/13/08	propionitrile	22.7%		JR
	pentachloroethane	22.0%		
	acrolein	0.04458	74SB97-04,	I/U
	isobutyl alcohol	0.01811	74SB98-03,	
	iodomethane	40.3%	74SB98-04,	
	acetonitrile	22.2%	74SB99-03,	
	3-chloro-1-propene	38.4%	74SB99-04,	
	pentachloroethane	46.1%	74SB100-03,	
	chloroethane	53.1%	74SB100-04,	
	acetone	29.8%	74SB101-00,	
	1,2,3-trichloropropane	30.2%	74SB101-03,	
	1,2-dibromo-3-chloropropane	41.1%	74SB101-03D,	
CC 05/14/08			74SB101-04	JR
	isobutyl alcohol	0.01511	74SB102-05,	
	iodomethane	22.6%	74SB103-03	I/U
	acetonitrile	27.9%		
	pentachloroethane	23.0%		
	chloroethane	58.4%		
	acetone	33.9%		
	1,2-dibromo-3-chloropropane	29.2%		

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/19/08	acrolein isobutyl alcohol	0.0496 0.0369	74SB102-04	J/R
CC 05/19/08	isobutyl alcohol	0.03699	74SB102-04	J/R
	acrolein perfluorooctane	26.5% 30.6%		J/U

### ICSA/ICSAB Standards

#### Metals

The associated ICSAB standards exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (78%/79%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/U in all samples. The associated ICSAB standards exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (132%/132%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

#### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank 05/15/08	acetone	1.1 ug/Kg	50	2X RL
FB01	2-butanone	0.690 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB102-03, 74SB103-03	acetone	L at reported value
74SB88-04, 74SB88-00, 74SB97-04, 74SB98-03, 74SB100-04, 74SB101-00, 74SB101-03	2-butanone	L at reported value
74SB100-04	2-butanone	L

#### Metals

Associated blanks exhibited contamination as noted in the following table. The

laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ICB	antimony	0.086351 ug/l.	<MDL, up to RL	U
UCB	beryllium	0.0241 ug/l.	<MDL, up to RL	U
	silver	0.0183 ug/l.	<MDL, up to RL	U

Please note, when qualifying samples for UCB contamination, associated samples are those first prior to or just following a UCB. Therefore, for all analytes in all samples are flagged for C1. B contamination.

Associated samples and required qualifications are noted in the following table:

Sample ID	Analyte	Q Flag
all samples >MDL, but < RL	antimony	U
74SB101-02, 74SB102-05	beryllium	U
all samples > MDL, but < RL	silver	U

## Internal Standards

### DRO/GRO

Sample 74SB101-00 analyzed for the GRO fraction exhibited a non-compliant internal standard recovery below the lower QC limit. The reported positive or non-detect result for GRO in the sample was qualified as estimated J/U.

### Surrogates

#### DRO/GRO

Sample 74SB81-00 analyzed for the GRO fraction exhibited a non-compliant surrogate recovery (164%) above the upper QC limit. The reported positive result for GRO in the sample was qualified as estimated J.

## Matrix Spike Recoveries

### Metals

The matrix spikes of samples 74SB81-03 and 74SB101-03 analyzed for the metals fraction exhibited non-compliant %R's for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB81-03	antimony	all samples	63% / 51%	J/U
	chromium		253% / 279%	R
	lead		155% / 152%	J
74SB101-03	antimony		40% / 55%	J/U
	chromium		140% / 159%	J

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NAPR SWMU74, Puerto Rico  
SDG# SWMU36489-2

## Matrix Duplicates

### Metals

The matrix duplicate of sample 74SB81-03 exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB81-03	barium	all samples	38.2%	JUJ

### Serial Dilutions

#### Metals

The serial dilution of sample 74SB81-03 exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

SD	Analytes	Samples	RPD	Q Flag
74SD81-03	zinc	all samples	14.5%	JUJ

## Field Duplicates

### DRO/GRO

The field duplicate pair of samples 74SB81-04 and 74SB81-04D exhibited a non-compliant RPD >100% for the target compound DRO. The DRO results in the field duplicate pair were qualified as estimated J. Please note that it appears that the field duplicate contains a high concentration of higher molecular weight hydrocarbons. This is likely to affect the quantitation of DRO in the field duplicate.

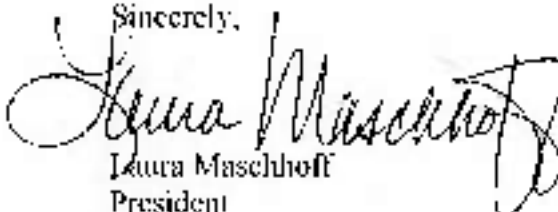
### Metals

The field duplicate pair of samples 74SB101-03 and 74SB101-03D exhibited non-compliant RPD >35% but <120% for the analytes barium (49%), lead (62%) and selenium (60%). These analytes were flagged as estimated J in the field duplicate pair.



A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB80-04, 74SB81-00, 74SB81-03, 74SB81-04, 74SB81-04D, 74SB97-03	acrolein isobutyl alcohol acetone	+/-	I/R
74SB80-04, 74SB81-00, 74SB81-03, 74SB81-04, 74SB81-04D, 74SB97-03	acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane	+/-	I/UJ
74SB97-04, 74SB98-03, 74SB98-04, 74SB99-03, 74SB99-04, 74SB100-03, 74SB100-04, 74SB101-00, 74SB101-03, 74SB101-03D, 74SB101-04	acrolein isobutyl alcohol	+/-	I/R
74SB97-04, 74SB98-03, 74SB98-04, 74SB99-03, 74SB99-04, 74SB100-03, 74SB100-04, 74SB101-00, 74SB101-03, 74SB101-03D, 74SB101-04	iodomethane acetonitrile 3-chloro-1-propene pentachloroethane chloroethane acetone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/-	I/UJ
74SB102-05, 74SB103-03	isobutyl alcohol	+/	I/R
74SB102-05, 74SB103-03	iodomethane acetonitrile pentachloroethane chloroethane acetone 1,2-dibromo-3-chloropropane	+/-	I/UJ
74SB103-04	acrolein isobutyl alcohol	+/-	I/R
74SB102-04	isobutyl alcohol	+/-	I/R
74SB102-04	acrolein pentachloroethane	+/-	I/UJ
74SB102-05, 74SB103-03	acetone	+	U at reported value
74SB80-04, 74SB81-00, 74SB97-04, 74SB98-03, 74SB100-04, 74SB101-00, 74SB101-03	2-butanone	+	U at reported value
74SB100-03	2-butanone	+	U

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB101-00	GRO	+/-	I/UJ
74SB81-00	GRO	+	J
74SB81-04, 74SB81-04D	DRO	+	J

Michael Baker, Jr., Inc.  
NAPR SWMU174, Puerto Rico  
SDG# SWMU36489-2

## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	nd	J/U
all samples	zinc	+	J
all samples	antimony	< 5MDL up to R1	U
74SB101-04, 74SB102-05	beryllium	< 5MDL up to R1	U
all samples	lead	< 5MDL up to R1	U
all samples	antimony	nd	F/U
all samples	chromium	nd	R
all samples	lead	+	J
all samples	barium	nd	J/U
all samples	zinc	nd	J/U
74SB101-03, 74SB101-03D	barium	+	J
	lead		
	scandium		

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL; result is reported as non-detect at the reported concentration when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- ND - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note – Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- Q - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36489-3**

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# DataQual

## Environmental Services, LLC

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100 Airside Drive  
Moon Township, PA 15108

August 6, 2008  
SDG# SWMU36489-3, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36489-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL PAH	DRO/GRO	Metals
74SB107-03	680-36489-41	soil	X		X	X
74SD108-00	680-36489-42	soil	X		X	X
74SH104-01	680-36489-43	soil	X		X	X
74SH105-01	680-36489-44	soil	X		X	X
74SH105-01	680-36489-45	soil	X		X	X
74SH106-01	680-36489-46	soil	X		X	X
74SH106-04	680-36489-47	soil	X		X	X
74VP108-03	680-36489-48	soil	X	X	X	X
74VP108-04	680-36489-49	soil	X	X	X	X
74VP11A-01	680-36489-50	soil	X		X	X
74VP11A-04	680-36489-51	soil	X		X	X
74SB82-03	680-36489-52	soil	X		X	X
74SB82-04	680-36489-53	soil	X		X	X
74SB82-04C	680-36489-54	soil	X		X	X
74SB83-02	680-36489-55	soil	X		X	X
74SB107-03	680-36489-56	soil	X		X	X
74SB107-03A	680-36489-57	soil	X		X	X
74SB107-05	680-36489-58	soil	X		X	X
74SB108-03	680-36489-59	soil	X		X	X
74SB108-04	680-36489-60	soil	X		X	X
74SB82-03 MS	680-36489-52MS	soil	X		X	X
74SB82-03 MSB	680-36489-52MSB	soil	X		X	X
74SB83-02 MS	680-36489-55MS	soil	X		X	X
74SB83-02 MSB	680-36489-55MSB	soil	X		X	X

The following quality control samples were provided with this SDG: sample 74SB82-04D-field duplicate of sample 74SB82-04; and sample 74SB107-03D-field duplicate of sample 74SB107-03.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSEA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to



high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

One sample exhibited non-compliant surrogate recoveries that resulted in qualifying results as estimated.

One of the laboratory control samples exhibited non-compliant recoveries that resulted in qualifying results as estimated.

### **LL PAH**

No qualifications to the data were required.

### **GRO/GRO**

Two samples for GRO were reanalyzed fourteen days outside the holding time. Results in samples 74VP3B-03RA and 74VP3B-04RA are rejected, R.

Three samples analyzed for GRO exhibited high surrogate recoveries. The GRO results in these samples were qualified as estimated J.

### **Metals**

The ICSSAH standards analyzed for the metals fraction exhibited non-compliant recoveries for the analyte silver. All results for silver in the samples were qualified as estimated J/U.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for three analytes for which qualifications were required. Positive and non-detect results for antimony, copper and zinc were flagged as estimated J/U in the samples.

The submitted field duplicate pairs exhibited non-compliant RPDs for some analytes. Those analytes required qualification in the field duplicate pairs.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required for one metals sample because results were calculated incorrectly. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/5-6/08 and samples were received at the laboratory 05/7/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exception.

#### DRO/GRO

Two samples for GRO were reanalyzed fourteen days outside the holding time. Results in samples 74VP3B-03RA and 74VP3B-04RA are rejected, R.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 03/14/08	isobutyl alcohol	0.01511	74SB103-04,	JR
	iodomethane	22.6%	74SB104-03,	JUL
	acetonitrile	27.9%	74SB104-04,	
	pentachloroethane	23.0%	74SB105-03,	
	chloroethane	58.4%	74SB105-04,	
	acetone	33.9%	74SB106-01,	
	1,2-dibromo-3-chloropropane	29.2%	74SB106-04,	
			74VP11A-04	
CC 05/16/08	acetaldehyde	0.0427	74SB82-03,	JR
	isobutyl alcohol	0.01636	74SB82-04,	JUL
	iodomethane	47.7%	74SB82-04D,	
	acetonitrile	23.7%	74SB82-02,	
	3-chloro-1-propene	79.8%	74SB107-03,	
	pentachloroethane	52.2%	74SB107-03D,	
	bromomethane	35.5%	74SB107-05,	
	chloroethane	29.8%	74SB108-03,	
	acetone	40.7%	74SB108-04,	
	carbon disulfide	21.2%		
	1,2,3-trichloropropane	22.0%		
	1,2-dibromo-3-chloropropane	28.3%		

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SDG# SWMU36489-3

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05-12-08	acetonitrile isobutyl alcohol	0.0056 0.0211	74VP3B-03	J/R
CC 05-16-08	acetonitrile	98.0%	74VP3B-03	J/R
	isobutyl alcohol	0.02718		
	acetone	0.03952		J/U
	propionitrile methacrylonitrile pentachloroethane	21.0% 39.6% 20.5%		
IC 05-15-08	acrolein	0.0496	74VP11A-03, 74VP3B-04	J/R
	isobutyl alcohol	0.0369		
CC 05-19-08	isobutyl alcohol	0.03699	74VP11A-03, 74VP3B-04	J/R
	acetone	0.04399		
	acrolein	26.5%		J/U
	pentachloroethane	30.6%		

### ICSA/ICSAB Standards

#### Metals

The associated ICSAB standards exhibited non-compliant recoveries less than the lower QC limit for the analytes silver (77%/77%/76%/76%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/U in all samples.

#### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	111 ug/Kg	50 ug/Kg	2X RL
FB01	2-butanone	0.690 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB103-01, 74SB104-03, 74SB104-04, 74SB105-04, 74SB106-01, 74VP11A-04	acetone	U at reported value
74SB106-01	acetone	U
74SB105-03, 74SB106-01, 74SB107-03D, 74SB108-04	2-butanone	U at reported value

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NAPR SWMU74, Puerto Rico  
SDG# SWMU36489-3

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ICB	antimony	0.159560 ug/L	MDL up to RL	1

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples -MDL but < RL	antimony	U

## Surrogate Recoveries

### VOA

Sample 74SB108-04 exhibited low recovery for dibromofluoromethane at 48% (QC limit 65-124%); the sample was re-analyzed with similar results. Due to low recoveries, all results for this sample were qualified as estimated (J/U).

### DRO/GRO

Three samples analyzed for the GRO fraction exhibited high surrogate recoveries. The reported positive results for GRO in samples 74VP3B-03 (229%), 74VP3B-04 (220%), and 74SB108-04 (346%) were qualified as estimated J.

## Matrix Spike Recoveries

### Metals

The matrix spikes of samples 74SB82-03 and 74SB83-02 analyzed for the metals fraction exhibited non-compliant %R's for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB82-03	copper	all samples	52%-42%	J/U
	zinc		68%-68%	J/U
74SB83-02	antimony		52%-64%	J/U

## Field Duplicates

### Metals

The field duplicate pair of samples 74SB82-04 and 74SB82-04D exhibited non-compliant RPD  $>15\%$  but  $<120\%$  for the analytes chromium (83%), cobalt (47%), nickel (76%) and zinc (63%) and field duplicate pair of samples 74SB82-04 and 74SB82-04D exhibited non-compliant RPD  $>35\%$  but  $<120\%$  for the analytes chromium (83%). These analytes were flagged as estimated 1 in the field duplicate pair.

#### **Identification/Quantitation**

##### VOA

Sample 74SB108-04 was re-analyzed due to non-compliant surrogate recoveries. Due to similar results the re-analysis was not used in favor of the initial analysis.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB103-04, 74SB104-03, 74SB104-04, 74SB105-03, 74SB105-04, 74SB106-01, 74SB106-04, 74VP11A-04	isobutyl alcohol	-/-	I/R
74SB103-04, 74SB104-03, 74SB104-04, 74SB105-03, 74SB105-04, 74SB106-01, 74SB106-04, 74VP11A-04	iodomethane acetonitrile pentachloroethane chloroethane acetone 1,2-dibromo-3-chloropropane	-/-	PUU
74SB82-03, 74SB82-04, 74SB82-04D, 74SB83-02, 74SB107-03, 74SB107-03D, 74SB107-05, 74SB108-03, 74SB108-04	acrolein isobutyl alcohol	-/-	I/R
74SB82-03, 74SB82-04, 74SB82-04D, 74SB83-02, 74SB107-03, 74SB107-03D, 74SB107-05, 74SB108-03, 74SB108-04	iodomethane acetonitrile 3-chloro-1-propene pentachloroethane bromomethane chloroethane acetone carbon disulfide 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	-/-	PUU
74VP3B-03	acetonitrile isobutyl alcohol	-/-	I/R
74VP3B-04	acetonitrile isobutyl alcohol acetone	-/-	I/R
74VP3B-03	propionitrile methacrylonitrile pentachloroethane	-/-	PUU
74VP11A-03, 74VP3B-04	acrolein isobutyl alcohol	-/-	I/R
74VP11A-03, 74VP3B-04	isobutyl alcohol acetone	-/-	I/R
74VP11A-03, 74VP3B-04	acrolein pentachloroethane	-/-	PUU
74SB108-04	all results	-/-	PUU
74SB104-03, 74SB106-01	carbon disulfide	-	J
74SB108-04RA	all results	-/-	R

### LLPAI

Sample ID	Compound	Results	Q flag
No qualifications			

## Summary of Data Qualifications, continued

### DRO/GRO

Sample ID	Compound	Results	Q flag
74VP3B-03RA, 74VP3B-04RA	GRO	+	R
74VP3B-03, 71VP3B-04, 74ST108-04	GRO	+	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	+	JJJ
all samples	antimony	+ (M.D. up to RL)	J
all samples	antimony copper zinc	+	JJJ
71SB82-01, 74SB82-04D	chromium cobalt nickel zinc	+	J
74SB107-03, 74SB107-03D	cobalt	+	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration when the ICB/CCB/PB result is less or greater than the RL.



## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J(U) - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36489-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

July 16, 2008  
 SDG# SWMU36489-4, Test America-Savannah  
 NAPR SWMU74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36489-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006; SOP #HW-24 and 8270D-Rev 3, October 2006; SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL PAH	DRO/GRO	GRO	TMetals	DMetals
74TB07	680-36489-61	water	X			X		
74TB08	680-36489-62	water	X			X		
74TB09	680-36489-63	water	X			X		
74TB10	680-36489-64	water	X			X		
74GW02	680-36489-65	water	X	X	X		X	X
74GW05	680-36489-66	water	X	X	X		X	X
74GWHYD3D	680-36489-67	water	X	X	X		X	X
74GWHYD3	680-36489-68	water	X	X	X		X	X
74GWVP1A	680-36489-69	water	X		X		X	X
74GWVP2H	680-36489-70	water	X		X		X	X
74GW34	680-36489-71	water	X		X		X	X
74GW19	680-36489-72	water	X	X	X		X	X
74GWVP1H	680-36489-73	water	X		X		X	X
74GW26	680-36489-74	water	X		X		X	X
74GWVP2A	680-36489-75	water	X		X		X	X
74GWHYD3 MS	680-36489-68MS	water	X	X	X		X	X
74GWHYD3 MSD	680-36489-68MSD	water	X	X	X		X	X

The following quality control samples were provided with this SDG: sample 74GWHYD3D-field duplicate of sample 74GWHYD3; and samples 74TB07, 74TB08, 74TB09 and 74TB10- trip blanks.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples \*
- Matrix Spike Recoveries \*
- Matrix Duplicate RPDs \*
- Serial Dilutions \*
- Field Duplicates \*
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blank associated with samples in this batch. Qualifications were added to the data.

### **PAH**

No qualifications to the data were required.

### **DRO/GRO**

No qualifications to the data were required.

### **Metals**

The ICSA13 standards exhibited non-compliant recoveries above the QC limit for the analyte zinc. Based on Region II guidelines all positive results for zinc in the samples were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The analyte cobalt was qualified as estimated in samples 74GWVP2B and 74GWVP2BF due to an RPD >20% between the total and dissolved results.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/05-08/08 and samples were received at the laboratory 05/07/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/14/08	acrolein	0.02622	74TB07, 74TB08,	J/R
	iodomethane	30.8%	74TB09, 74TB10,	J/U
	acrylonitrile	56.3%	74GW22,	
	pentachloroethane	87.6%	74GW05,	
	bromomethane	20.4%	74GWHYD3D,	
	chloroethane	31.5%	74GWHYD3,	
	trichlorofluoromethane	22.3%	74GWVP1A,	
	cis-1,3-dichloropropene	20.8%	74GWVP2B	
CC 05/15/08	acrolein	0.02246	74GW34,	J/R
	isobutyl alcohol	0.04918	74GW09,	
	acrylonitrile	56.3%	74GWVP1B,	J/U
	pentachloroethane	78.6%	74GW26,	
	dichlorodifluoromethane	28.7%	74GWVP2A	
	cis-1,3-dichloropropene	22.9%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (132%/129%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FB01	2-butanone	0.697 ug/L	10 ug/L	2X RL

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NAPR SWMU74, Puerto Rico  
SDG# SWMT36489-4

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GW22, 74GW34, 74GW09, 74GW26	2-butanone	L, at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBWL - total	arsenic	0.38861 ug/L	>MDL up to RL	U
	copper	3.81751 ug/L	>MDL up to RL	U
	tin	1.09501 ug/L	>MDL up to RL	U
	vanadium	0.86151 ug/L	>MDL up to RL	U
PBWL dissolved	copper	1.30101 ug/L	>MDL up to RL	U
ICB	antimony	0.076841 ug/L	>MDL up to RL	U
CCB (total)	beryllium	0.0231 ug/L	>MDL up to RL	U
CCB (dissolved)	arsenic	0.0811 ug/L	>MDL up to RL	U
	tin	0.2421 ug/L	>MDL up to RL	U
FB01	lead	0.381 ug/L	>MDL up to RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
all total samples >MDL up to RL: 74GWVP1AF, 74GWVP2BF, 74GWVP1BF, 74GWVP2AF	arsenic	U
all samples >MDL up to RL	copper	U
all total samples >MDL up to RL & 74GW22F	tin	U
all total samples >MDL up to RL	vanadium	U
all total samples >MDL up to RL	beryllium	U
all samples >MDL up to RL	lead	U

### Identification/Quantitation

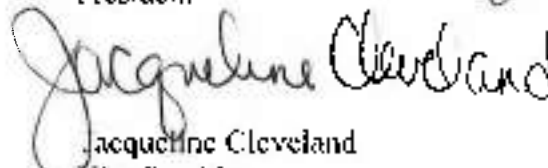
#### Total & Dissolved Metals

The analyte cobalt was qualified as estimated J in samples 74GWVP2B and 74GWVP2BF due to a %D > 20% between total and dissolved results.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74TB07, 74TB08, 74TB09, 74TB10, 74GW22, 74GW05, 74GWHYD10, 74GWHYD3, 74GWVP1A, 74GWVP2B	acrolein	U	NR
74TB07, 74TB08, 74TB09, 74TB10, 74GW22, 74GW05, 74GWHYD3D, 74GWHYD5, 74GWVP1A, 74GWVP2B	acetonitrile acrylonitrile pentachloroethane bromomethane chloroethane trichlorofluoromethane cis-1,3-dichloropropene	+/+	NR
74GW34, 74GW09, 74GWVP1B, 74GW26, 74GWVP2A	aceton isobutyl alcohol	+/+	NR
74GW34, 74GW09, 74GWVP1B, 74GW26, 74GWVP2A	acrylonitrile pentachloroethane dichlorodifluoromethane cis-1,3-dichloropropene	U	FL
74GW23, 74GW34, 74GW09, 74GW26	2-butanone	+	U at reported value

### PAH

Sample ID	Compound	Results	Q flag
No qualifications required.			

### DRO/GRQ

Sample ID	Compound	Results	Q flag
No qualifications required.			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	+	J
all samples >MDL up to RL	anthracene	+ >MDL up to RL	U
all total samples >MDL up to RL, 74GWVP1AF, 74GWVP2BF, 74GWVP1BF, 74GWVP2AF	arsenic	+ >MDL up to RL	U
all samples >MDL up to RL	copper	+ >MDL up to RL	U
all total samples >MDL up to RL & 74GW22F	tin	+ >MDL up to RL	U
all total samples >MDL up to RL	vanadium	+ >MDL up to RL	U
all total samples >MDL up to RL	beryllium	+ >MDL up to RL	U
all samples >MDL up to RL	lead	+ >MDL up to RL	U
74GWVP2A, 74GWVP2B	coalt	+	J

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36489-4  
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## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/JJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note -- Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL; result is reported as non-detected at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36517-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 5, 2008  
 SDG# SWMU36517-1, Test America-Savannah  
 NAPK SWMU 74, Puerto Rico

Dear Mr. Kimes:

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36517-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL PAH	DRO/GRO	Metals
74SB84-03	680-36517-1	soil	X		X	X
74SB85-03	680-36517-2	soil	X		X	X
74SB85-01	680-36517-3	soil	X		X	X
74SB86-03	680-36517-4	soil	X		X	X
74SB86-03B	680-36517-5	soil	X		X	X
74SB86-04	680-36517-6	soil	X	X	X	X
74SB109-04	680-36517-7	soil	X		X	X
74SB109-05	680-36517-8	soil	X		X	X
74SB110-04	680-36517-9	soil	X		X	X
74SB110-05	680-36517-10	soil	X		X	X
74SB87-03	680-36517-13	soil	X		X	X
74SB88-03	680-36517-16	soil	X		X	X
74SB89-03	680-36517-17	soil	X		X	X
74SB90-02	680-36517-18	soil	X		X	X
74SB91-06	680-36517-19	soil	X		X	X
74SB91-03	680-36517-20	soil	X		X	X
74SB91-03D	680-36517-21	soil	X		X	X
74SB92-03	680-36517-22	soil	X		X	X
74SB92-04	680-36517-23	soil	X		X	X
74SB93-03	680-36517-24	soil	X		X	X
74SB93-03 MS	680-36517-20MS	soil	X		X	X
74SB93-03 MSD	680-36517-20MSD	soil	X		X	X
74SB84-03 MS	680-36517-1 MS	soil	X		X	X
74SB84-03 MSD	680-36517-1 MSD	soil	X		X	X

The following quality control samples were provided with this SDG: sample 74SB86-03D-field duplicate of sample 74SB86-03; and sample 74SB91-03D-field duplicate of sample 74SB91-03.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• Initial/Continuing Calibrations	
• ICSEA/ICSAB Standards	*
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36517-1

Page 2

002

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

One sample exhibited non-compliant surrogate recoveries that resulted in qualifying results as estimated.

### **LI. PAH**

No qualifications to the data were required.

### **DRO/GRO**

One sample analyzed for GRO exhibited a non-compliant surrogate recovery that resulted in the qualification of results as estimated.

### **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for several analytes for which qualifications were required. Positive and non-detect results for antimony and chromium were flagged as estimated J/UJ in the samples. Positive results for cobalt were qualified as estimated and positive results for barium were rejected R.

The associated matrix duplicate exhibited a non-compliant RPD for one analyte for which qualifications were required. Positive and non-detect results for barium required qualification as estimated J/UJ in the samples. However, please note that barium was rejected in all samples due to spike recoveries greater than 200%.

The field duplicate pairs exhibited non-compliant RPDs for several analytes. These analytes were qualified in the field duplicate pairs based on Region II guidelines.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required. One sample in the metals fraction was improperly reported due to an error in the final volume. Corrections were requested and received from the laboratory. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

## Technical Holding Times

According to chain of custody records, sampling was performed on 05/5-6/08 and samples were received at the laboratory 05/8/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Component(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/12/08	acetonitrile isobutyl alcohol	0.0356 0.0211	74SB81-03, 74SB85-03, 74SB85-04, 74SB86-03, 74SB86-03D, 74SB86-04, 74SB109-04, 74SB110-05, 74SB87-03, 74SB88-03, 74SB110-04, 74SB89-03, 74SB91-00, 74SB91-01, 74SB91-03D, 74SB92-03, 74SB92-04, 74SB93-03, 74SB90-02	J/R
CC 05/14/08	acetone isobutyl alcohol	0.04653 0.02484	74SB84-03, 74SB85-03, 74SB85-04,	J/R
	acetonitrile 2-chloro-1,3-butadiene methacrylonitrile pentachloroethane	0.04927 88.7% 24.0% 26.6% 31.8%	74SB86-03, 74SB86-03D, 74SB86-04, 74SB109-04, 74SB110-05, 74SB87-03, 74SB88-03	J/UJ



Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/15/08	isobutyl alcohol acetone	0.02161 0.04056	74SB110-04, 74SB89-03, 74SB91-00, 74SB91-03, 74SB91-03D, 74SB92-03, 74SB92-04, 74SB93-03	JR
	acetonitrile methacrylonitrile	89.8% 21.7%		JUJ
CC 05/15/08	acrolein isobutyl alcohol acetone acetonitrile	0.04881 0.02425 0.04211 92.5%	74SB90-02	JR
	2-chloro-1,3-butadiene methacrylonitrile pentachloroethane	21.5% 25.9% 38.9%		JUJ
IC 05/18/08	acrolein isobutyl alcohol	0.0496 0.0369	74SB109-05	JR
CC 05/19/08	isobutyl alcohol acetone	0.03699 0.04390	74SB109-05	JR
	acrolein pentachloroethane	26.5% 30.6%		JUJ

## Blanks

### VQA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FB01	2-butanone	0.691 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB90-02, 74SB91-00	2-butanone	U at reported value

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank

flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ER07	arsenic	0.331 ug/l	<MDL up to RL	U
	copper	5.2 ug/l	Is > blank level up to 10X blank level	J

\* Field QC blank qualifications were made using QC blank trackup.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
74SB85-04, 74SB88-03, 74SB93-03	arsenic	U
74SB84-03, 74SB110-05, 74SB93-03	copper	J

### Surrogate Recoveries

#### VOA

Sample 74SB86-04 exhibited high recovery for 4-bromofluorobenzene at 136% (QC limit 65-124%); the sample was re-analyzed with similar results. Due to high recoveries, all positive results for this sample were qualified as estimated (J).

#### DRO/GRO

The GRO analysis of sample 74SB91-00 exhibited a high surrogate recovery (142%). The reported positive result for GRO in the sample was qualified as estimated J.

### Matrix Spike Recoveries

#### Metals

The matrix spikes of samples 74SB84-03 & 74SB91-03 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table. Please note that cobalt was not rejected in the samples because the MS recovery in 74SB84-03 was <200%.

MS	Analytes	Samples	%R	Q Flag
74SB84-03	antimony	all samples	61%/61%	J,LF
	cobalt		197%/241%	J+
74SB91-03	antimony	all samples	70%/70%	MUJ
	chromium		73%/130%	
	barium		130%/261%	R

### Matrix Duplicates

#### Metals

The matrix duplicate of sample 74SB84-03 exhibited a non-compliant RPD for one analyte that required qualification in the field samples. A summary of this non-compliance and affected samples is noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB84-03	barium	all samples	17.3%	NO

#### Metals

The field duplicate pair of samples 74SB86-03 and 74SB86-03D exhibited non-compliant RPD >35% but <120% for the analytes cobalt, nickel and zinc. These analytes were flagged as estimated in the field duplicate pair. The analytes barium and chromium exhibited RPDs >120% and the analyte lead exhibited an absolute difference > 4X CRDL. These analytes were rejected in the field duplicate pair. The field duplicate pair of samples 74SB91-03 and 74SB91-03D exhibited non-compliant RPD >35% but <120% for the analytes chromium and nickel. These analytes were flagged as estimated in the field duplicate pair. The analyte lead exhibited an absolute difference > 4X CRDL. This analyte was rejected in the field duplicate pair. All qualifications were made based on the Region II guidance.

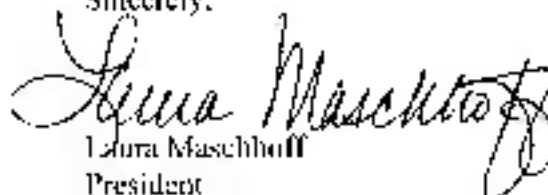
#### Identification/Quantitation

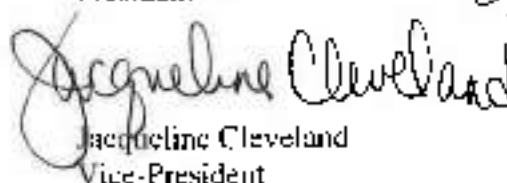
#### VOA

Sample 74SB86-04 was re-analyzed due to non-compliant surrogate recoveries. Due to similar results the re-analysis was not used in favor of the initial analysis.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice-President

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36517-1  
Page 7

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB84-03, 74SB85-03, 74SB85-04, 74SB86-03, 74SB86-03D, 74SB86-04, 74SB109-04, 74SB110-05, 74SB87-03, 74SB88-03, 74SB110-04, 74SB89-03, 74SB91-00, 74SB91-03, 74SB91-03D, 74SB92-03, 74SB92-04, 74SB93-03, 74SB90-02	acetonitrile isobutyl alcohol	+/+	J/R
74SB84-03, 74SB85-03, 74SB85-04, 74SB86-03, 74SB86-03D, 74SB86-04, 74SB109-04, 74SB110-05, 74SB87-03, 74SB88-03	acrolein isobutyl alcohol acetone	+/+	J/R
74SB84-03, 74SB85-03, 74SB85-04, 74SB86-03, 74SB86-03D, 74SB86-04, 74SB109-04, 74SB110-05, 74SB87-03, 74SB88-03	acetonitrile 2-chloro-1,3-butadiene methacrylonitrile pentachloroethane	+/+	F/U
74SB110-04, 74SB89-03, 74SB91-00, 74SB91-03, 74SB91-03D, 74SB92-03, 74SB92-04, 74SB93-03	isobutyl alcohol acetone	+/+	J/R
74SB110-04, 74SB89-03, 74SB91-00, 74SB91-03, 74SB91-03D, 74SB92-03, 74SB92-04, 74SB93-03	acetonitrile methacrylonitrile	+/+	F/U
74SB90-02	acrolein isobutyl alcohol acetone acetonitrile	+/+	J/R
74SB90-02	2-chloro-1,3-butadiene methacrylonitrile pentachloroethane	+/+	F/U
74SB109-05	acrolein isobutyl alcohol	+/+	J/R
74SB109-05	isobutyl alcohol acetone	+/+	J/R
74SB109-05	acrolein pentachloroethane	+/+	F/U
74SB90-02, 74SB91-03	2-butanone	+	C at reported value
74SB86-04	all results	+	J
74SB86-04RA	all results	+/+	R

### LL PAH

Sample ID	Compound	Results	Q flag
No qualifications			

## Summary of Data Qualifications, continued

### DRD/GRD

Sample ID	Compound	Results	Q flag
74SB91-03	GRD	-	J

### Metals

Sample ID	Analyte	Results	Q flag
74SB85-03, 74SB88-03, 74SB93-03	arsenic	<MDL up to RL	L
74SB84-03, 74SB110-03, 74SB93-03	copper	< blank level & up to 10X blank level	J
all samples	antimony	+/L	1/11
	chromium		
all samples	barium	-	R
all samples	cobalt	-	J
all samples	barium	+/L	1/11
74SB86-03, 74SB86-0313	cobalt	-	J
	nickel		
	zinc		
74SB86-03, 74SB86-0313	barium	-	R
	chromium		
	lead		
74SB91-03, 74SB91-0313	chromium	-	J
	nickel		
74SB91-03, 74SB91-0313	lead	-	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### ICB/CCB/PB Action:

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value
U -	The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL.. result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL..

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL..

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL..

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

TEST AMERICA SAVANNAH SDG 36517-2

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 5, 2008  
 SDG# SWMC36517-2, Test America-Savannah  
 NAPR SWMC 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMC 36517-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #ITW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A and 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL PAH	DRO/GRO	Metals
74SB93-02	680-36517-25	soil	X		X	X
74SB94-03	680-36517-26	soil	X		X	X
74SB94-04	680-36517-27	soil	X		X	X
74SB111-08	680-36517-28	soil	X		X	X
74SB111-03	680-36517-29	soil	X		X	X
74SB111-03D	680-36517-30	soil	X		X	X
74SB111-05	680-36517-31	soil	X	X	X	X
74SB112-04	680-36517-32	soil	X		X	X
74SB112-45	680-36517-33	soil	X		X	X
74SB113-48	680-36517-34	soil	X	X	X	X
74SB113-45	680-36517-35	soil	X	X	X	X
74VPIC69-02	680-36517-36	soil	X		X	X
74VPIC69-04	680-36517-37	soil	X		X	X
74VPIC69-03	680-36517-38	soil	X		X	X
74VPIC69-04	680-36517-39	soil	X		X	X
74SB87-04	680-36517-48	soil	X		X	X
74SB113-03 MS	680-36517-29MS	soil	X		X	X
74SB113-03 MSD	680-36517-29MSD	soil	X		X	X

The following quality control samples were provided with this SDG: sample 74SB111-03D-field duplicate of sample 74SB111-03.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	*
• ICSA/ICSAB Standards	*
• CRDL Standards	*
• Blanks	*
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	*
• Matrix Duplicate RPDs	*
• Serial Dilutions	*
• Field Duplicates	*
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36517-2  
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One sample exhibited non-compliant surrogate recoveries that resulted in the qualification of results as estimated. This sample was re-analyzed due to non-compliant surrogate recoveries. The re-analysis was not used in favor of the initial analysis.

The field duplicate pair did not exhibit comparable results for one compound that resulted in the qualification of results as estimated.

### **LI PAH**

No qualifications to the data were required.

### **DRO/GRO**

One sample analyzed for GRO exhibited a non-compliant surrogate recovery that resulted in the qualification of results as estimated.

### **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of the e-mail correspondence are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/7/08 and samples were received at the laboratory 05/8/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

#### **Initial/Continuing Calibration**

##### **VOA**

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/12/08	acetonitrile isobutyl alcohol	0.0156 0.0211	74SB93-04, 74SB94-03, 74SB94-04, 74SB111-00, 74SB111-03, 74SB111-03D, 74SB111-05	J/R
CC 05/15/08	isobutyl alcohol acetone	0.02161 0.04056	74SB93-04, 74SB94-03, 74SB94-04, 74SB111-00, 74SB111-03, 74SB111-03D, 74SB111-05	J/R
	acetonitrile methacrylonitrile	89.8% 21.7%		J/U
IC 05/18/08	acrolein isobutyl alcohol	0.0196 0.0369	74SB112-05, 74SB113-05, 74VP1Cb/9-02, 74VP1Cb/9-04, 74VP1Aa/9-03, 74VP1Aa/9-04, 74SB87-04, 74SB112-04, 74SB113-04	J/R
CC 05/19/08	isobutyl alcohol acetone	0.03699 0.04399	74SB112-05, 74SB113-05, 74VP1Cb/9-02, 74VP1Cb/9-04, 74VP1Aa/9-03, 74VP1Aa/9-04, 74SB87-01	J/R
	acrolein pentachloroethane	26.5% 30.6%		J/U
CC 05/19/08	isobutyl alcohol	0.03533	74SB112-04, 74SB113-04	J/R
	pentachloroethane	23.5%		J/U

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	3.21 ug/Kg	50 ug/Kg	2X RL
FBM	2-butanone	0.691 ug/L	10 ug/L	2X RL

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36517-2

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Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB112-04, 74SB113-04	acetone	U at reported value
74SB111-00, 74SB111-03, 74SB111-05, 74VP1Cb9-04	2-butanone	U at reported value

#### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ER07	arsenic	0.333 ug/L	>MDL up to RL	U

\* Field QC Blank qualifications were made using QC Blank tracking

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
74SB93-04, 74SB94-03, 74SB94-04	arsenic	U

#### **Surrogate Recoveries**

##### VOA

Sample 74SB113-05 exhibited low recovery for dibromofluoromethane at 30% (QC limit 65-124%); the sample was re-analyzed with similar results. Due to low recoveries, all results for this sample were qualified as estimated (J/U).

##### DRO/GRO

The GRO analysis of sample 74SB113-05 exhibited a high surrogate recovery (140%). The reported positive result for GRO in the sample was qualified as estimated J.

#### **Field Duplicate**

##### VOA

Sample 74SB111-03 and duplicate sample 74SB111-03D did not exhibit comparable results for acetone with 111% RPD; therefore the results for this compound were qualified as estimated (J).

## Identification/Quantitation

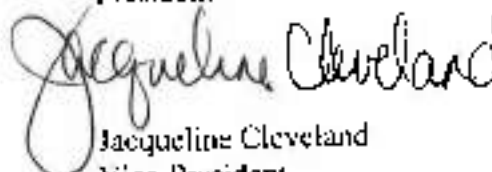
### VOA

Sample 74SB113-05 was re-analyzed due to non-compliant surrogate recoveries. Due to similar results the re-analysis was not used in favor of the initial analysis.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschloff  
President

  
Jacqueline Cleveland  
Vice-President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB93-04, 74SB94-03, 74SB94-04, 74SB111-00, 74SB111-03, 74SB111-03D, 74SB111-05	acetonitrile isobutyl alcohol	+/-	J/R
74SB93-04, 74SB94-03, 74SB94-04, 74SB111-00, 74SB111-03, 74SB111-03D, 74SB111-05	isobutyl alcohol acetone	+/-	J/R
74SB93-04, 74SB94-03, 74SB94-04, 74SB111-00, 74SB111-03, 74SB111-03D, 74SB111-05	acetonitrile methacrylonitrile	+/-	J/UJ
74SB112-05, 74SB113-05, 74VPICb-9-02, 74VPICb-9-04, 74VP1Aa-9-03, 74VP1Aa-9-04, 74SB87-04, 74SB112-04, 74SB113-04	acrolein isobutyl alcohol	+/-	J/R
74SB112-05, 74SB113-05, 74VPICb-9-02, 74VPICb-9-04, 74VP1Aa-9-03, 74VP1Aa-9-04, 74SB87-04	isobutyl alcohol acetone	+/-	J/R
74SB112-05, 74SB113-05, 74VPICb-9-02, 74VPICb-9-04, 74VP1Aa-9-03, 74VP1Aa-9-04, 74SB87-04	acrolein pentachloroethane	+/-	J/UJ
74SB112-04, 74SB113-04	isobutyl alcohol	+/-	J/R
74SB112-04, 74SB113-04	pentachloroethane	+/-	J/UJ
74SB112-04, 74SB113-04	acetone	-	U at reported value
74SB111-00, 74SB111-03, 74SB111-05, 74VPICb-9-04	2-butanone	+	U at reported value
74SB111-03, 74SB111-03D	acetone	+	J
74SB113-05	all results	+	J/UJ
74SB113-05RA	all results	+/-	R

### LI PAH

Sample ID	Compound	Results	Q flag
No qualifications			

## Summary of Data Qualifications, continued

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB113-05	GRO	+	J

### Metals

Sample ID	Analyte	Results	Q flag
74SB93-02, 74SB94-03, 74SB94-04	arsenic	>MDL up to RI.	U



## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect (U) at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect (U).

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### ICB/CCB/PB Action:

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
P	positive result
.	non-detect result

**TEST AMERICA SAVANNAH SDG 36517-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airsides Business Park  
100 Airside Drive  
Moon Township, PA 15108

July 16, 2008  
SDG# SWMU36517-3, Test America-Savannah  
NAPR SWMU74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36517-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	II PAH	DRO/GRO	GRO	TMetals	DMetals
74GW57	680-36517-11	water	X		X		X	X
74GW09	680-36517-12	water		X	X		X	X
74GW26	680-36517-14	water			X		X	
74TB11	680-36517-40	water	X			X		
74TB12	680-36517-41	water	X			X		

The following quality control samples were provided with this SDG: samples 74TB11, and 74TB12-trip blanks.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks

• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	NA
• Matrix Duplicate RPDs	NA
• Serial Dilutions	*
• Field Duplicates	NA
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values some compounds were qualified as estimated.

### **PAH**

No qualifications to the data were required.

### **DRO/GRO**

No qualifications to the data were required.

### **Metals**

The IC SAB standards exhibited non-compliant recoveries above the QC limit for the analyte zinc. Based on Region II guidelines all positive results for zinc in the samples were qualified as estimated J.

Michael Baker, Jr., Inc.  
NAPR SWMU174, Puerto Rico  
SDG# SWMU36517-3

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Blank contamination was noted and qualification was required in the samples in this SDG.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/06-07/08 and samples were received at the laboratory 05/08/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

#### **Initial/Continuing Calibration**

##### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/14/08	acrolein	0.02622	74TB12	J/R
	iodomethane	10.8%		J/U
	acrylonitrile	56.3%		
	pentachloroethane	87.6%		
	bromomethane	20.4%		
	chloroethane	31.5%		
	trichlorofluoromethane	22.3%		
	cis-1,3-dichloropropene	20.8%		
CC 05/13/08	acrolein	0.02624	74QW57, 74TB11	J/R
	acrylonitrile	53.5%		J/U
	pentachloroethane	76.0%		
	dichlorodifluoromethane	20.3%		
	bromomethane	39.5%		
	vinyl acetate	28.0%		
	cis-1,3-dichloropropene	23.7%		
	trans-1,3-dichloropropene	20.9%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (132%/129%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated I in all samples.

### Blanks

#### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

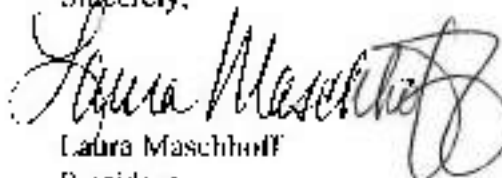
Blank ID	Analyte	Concentration	Action Level	Q Flag
PBW1 - total	arsenic	0.38861 ug/L	>MDL up to RL	U
	copper	3.81751 ug/L	>MDL up to RL	U
	tin	1.09501 ug/L	>MDL up to RL	U
	vanadium	0.86151 ug/L	>MDL up to RL	U
PBW1 -- dissolved	copper	1.30101 ug/L	>MDL up to RL	U
ICB	antimony	0.076841 ug/L	>MDL up to RL	U
CCB (total)	beryllium	0.0241 ug/L	>MDL up to RL	U
	silver	0.0211 ug/L	>MDL up to RL	U
FB01	lead	0.381 ug/L	>MDL up to RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
all total samples >MDL up to RL	arsenic	U
74GW26, 74GW69F	copper	U
all total samples >MDL up to RL & 74GW34F	tin	U
74GW34, 74GW26	vanadium	U
74GW57	beryllium	U
74GW57	silver	U
74GW09, 74GW34	lead	U

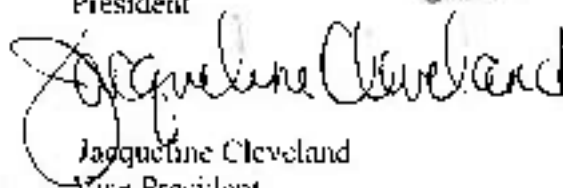
A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff

President



Jacqueline Cleveland

Vice President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74TB12	acrolein	1/-	J/R
74TB12	bromomethane acrylonitrile pentachloroethane bromomethane chloroethane trichlorofluoromethane cis-1,3-dichloropropene	+/-	J/UJ
74GW57, 74TB11	acrolein	1/-	J/R
74GW57, 74TB11	acrylonitrile pentachloroethane dichlorodifluoromethane bromomethane vinyl acetate cis-1,3-dichloropropene trans-1,3-dichloropropene	1/-	J/UJ

### PAU

Sample ID	Compound	Results	Q flag
No qualifications required.			

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	+	J
all samples >MDL up to RL	antimony	- >MDL up to RL	U
all total samples >MDL up to RL	arsenic	+ >MDL up to RL	U
74GW26, 74GW09F	copper	+ >MDL up to RL	U
all total samples >MDL up to RL & 74GW34F	tin	1 >MDL up to RL	U
74GW34, 74GW26	vanadium	1 >MDL up to RL	U
74GW57	beryllium	+ >MDL up to RL	U
74GW57	silver	1 >MDL up to RL	U
74GW09, 74GW34	lead	+ >MDL up to RL	U

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL,**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
1. - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- I - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- I/L - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

I - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36517-5**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airsides Business Park  
100 Airside Drive  
Moon Township, PA 15108

July 30, 2008  
SDG# SWMU36517-5, Test America-Savannah  
NAPR Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36517-5. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #IIV-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IN	ORO/GRO	Metals
ER06	680-36517-43	water	X	X	X
ER07	680-36517-44	water	X	X	X
ER08	680-36517-45	water	X	X	X
ER09	680-36517-46	water	X	X	X
ER10	680-36517-47	water	X	X	X

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSEA/ICSEAB Standards
- CRDI Standards \*
- Blanks \*
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples \*
- Matrix Spike Recoveries NA

- Matrix Duplicate RPDs NA
- Serial Dilutions \*
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibrations exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

### **DRO/GRO**

No qualification of the data was required.

### **Metals**

The associated ICSA/ICSAB standards exhibited non-compliant recoveries for the analyte zinc. Positive results for this analyte were qualified as estimated in all samples.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification

questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/03-07/08 and samples were received at the laboratory 05/08/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited RRF's and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/14/08	acrolein	0.02622	ER06, ER07	J/R
	iodomethane	10.8%		J/U
	acrylonitrile	36.3%		
	pentachloroethane	87.6%		
	bromomethane	20.4%		
	chloromethane	11.5%		
	trichlorofluoromethane	22.3%		
	cis-1,3-dichloropropene	20.8%		
CC 05/16/08	acrolein	128.9%	ER08, ER09, ER10	J/R
	iodomethane	59.2%		J/U
	acetonitrile	33.6%		
	3-chloro-1-propene	23.7%		
	acrylonitrile	36.0%		
	2-chloro-1,3-butadiene	22.5%		
	pentachloroethane	79.8%		
	bromomethane	23.3%		
	chloroethane	37.1%		
	cis-1,3-dichloropropene	22.0%		
	trans-1,3-dichloropropene	20.4%		

### ICSA/ICSAB Standards

#### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (132%/129%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Jacqueline Cleveland  
Vice President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
ER06, ER07	acrolein	+/	JR
ER06, ER07	iodomethane acrylonitrile pentachloroethane bromomethane chloromethane trichlorofluoromethane cis-1,3-dichloropropene	+/	(R)
ER08, ER09, ER10	acrolein	+/	JR
ER08, ER09, ER10	iodomethane acetonitrile 1-chloro-1-propene acrylonitrile 2-chloro-1,3-butadiene pentachloroethane bromomethane chloromethane cis-1,3-dichloropropene trans-1,3-dichloropropene	+/	(R)

### DRUGS

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	enc	1	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UL	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
IN	analyte has been tentatively identified, estimated value
R	result is rejected, the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### ICB/CCB/PB Action:

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- [U] - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinse blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value

!! - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the PB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36711-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 4, 2008  
 SDG# SWMU36711-1, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36711-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-21 and 8270D-Rev 3, October 2006- SOP #IHW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A and 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL PAH	DRO-GRO	GRO	Metals
74-SB95-01	680-36711-1	soil	X		X		X
74-SB95-04	680-36711-2	soil	X		X		X
74-SB96-03	680-36711-3	soil	X		X		X
74-SB96-03D	680-36711-4	soil	X		X		X
74-SB96-05	680-36711-5	soil	X		X		X
74-SB121-00	680-36711-6	soil	X		X		X
74-SB121-05	680-36711-7	soil	X		X		X
74-SB121-05D	680-36711-8	soil	X		X		X
74-VP1Ba/9-05	680-36711-9	soil	X	X	X		X
74-VP1Ba/9-05D	680-36711-10	soil	X	X	X		X
74-VP1Ba/9-09	680-36711-11	soil	X	X	X		X
74-VP15/9-05	680-36711-12	soil	X	X	X		X
74-VP15/9-07	680-36711-13	soil	X	X	X		X
74TB13	680-36711-14	water	X			X	
74-SB121-05 MS	680-36711-7MS	soil	X		X		X
74-SB121-05 MSD	680-36711-7MSD	soil	X		X		X

The following quality control samples were provided with this SDG: sample 74-SB96-03D-field duplicate of sample 74-SB96-03; sample 74-SB121-05D-field duplicate of sample 74-SB121-05; sample 74-VP1Ba/9-05D-field duplicate of sample 74-VP1Ba/9-05; and sample 74TB13-trip blank.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36711-1

## **LL PAH**

No qualifications to the data were required.

## **DRO/GRO**

One sample analyzed for GRO exhibited a high surrogate recovery. The GRO result in this sample was qualified as estimated J.

## **Metals**

The IC SAB standards analyzed for the metals fraction exhibited non-compliant recoveries for the analyte zinc. All positive results for zinc in the samples were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for two analytes for which qualifications were required. Positive and non-detect results for antimony and chromium were flagged as estimated J/UJ in the samples.

The submitted field duplicate pairs exhibited non-compliant RPDs for some analytes. Those analytes required qualification in the field duplicate pairs.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/13/08 and samples were received at the laboratory 05/14/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

### **VOA**

Calibration standards exhibited RREs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRE, %RSD, %D	Samples	Q Flag
IC 05/12/08	acetonitrile isobutyl alcohol	0.0356 0.0211	74SB95-03, 74SB95-04, 74SB96-03, 74SB96-03D, 74SB96-05, 74SB121-00, 74-SB121-05, 74SB121-05D, 74-VP1Ba-9-05, 74-VP1Ba-9-05D	J/R
CC 05/15/08	acrolein isobutyl alcohol acetone acetonitrile	0.04881 0.02425 0.04211 92.5%	74SB95-03, 74SB95-04, 74SB96-03, 74SB96-03D,	J/R
	2-chloro-1,3-butadiene methacrylonitrile pentachloroethane	21.5% 25.0% 38.9%	74SB96-05, 74SB121-00, 74-SB121-05, 74SB121-05D, 74-VP1Ba-9-05, 74-VP1Ba-9-05D	J/UJ
IC 05/18/08	acrolein isobutyl alcohol	0.0496 0.0369	74-VP1Ba-9-09DL, 74VP3b-9-05	J/R
CC 05/20/08	isobutyl alcohol	0.03902	74-VP1Ba-9-09DL,	J/R
	iodomethane 3-chloro-1-propene pentachloroethane	37.6% 30.3% 34.4%	74VP3b-9-05	J/UJ
CC 05/22/08	acrolein acrylonitrile bromomethane chloroethane cis-1,3-dichloropropene trans-1,3-dichloropropene	24.3% 21.1% 24.1% 39.2% 22.1% 23.2%	74TB13	J/UJ
CC 05/27/08	isobutyl alcohol	0.02524	74-VP3b-9-07DL,	J/R
	acetonitrile acetone	32.5% 55.9%		J/UJ

#### ICSA/ICSAB Standards

##### Metals

The associated ICSAB standards exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (130%-128%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.



## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Methad Blank	acetone	610f ug/Kg	2000 ug/Kg	2X RL
FB01	2-butanone	0.69J ug/L	10 ug/l.	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74-VP3b-9-05	acetone	U at reported value
74-VP1Ba-9-05, 74-VP1Ba-9-05D	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.09545J ug/L	>MDL, up to RL	U
ER09	arsenic	0.52f ug/L	>MDL up to RL	U

\* Field QC blank qualifications were made using QC blank tracking. Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
74SB121-00, , 74VP1Ba-9-05, 74VP1Ba-9-05D	antimony	L
74SB95-03, 74SB95-04, 74VP1Ba-9-09, 74VP3b-9-07	arsenic	L

## Matrix Spike Recoveries

### Metals

The matrix spikes of sample 74SB121-05 analyzed for the metals fraction exhibited non-compliant %R's for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB121-05	antimony	all samples	69%/63%	P(U)
	chromium		123%/73%	P(U)

## Field Duplicates

### Metals

The field duplicate pair of samples 74SB96-03 and 74SB96-03D exhibited a non-compliant RPD >120% for the analyte barium (137%) and the field duplicate pair of samples 74SB121-05 and 74SB121-05D exhibited non-compliant RPD >120% for the analyte barium (141%). Therefore, barium in both field duplicate pairs was rejected R. The field duplicate pair of samples 74SB121-05 and 74SB121-05D exhibited a non-compliant RPD >35% but <120% for the analyte lead (54%) and the field duplicate pair of samples 74VP1Ba/9-05 and 74VP1Ba/9-05D exhibited a non-compliant RPD >35% but <120% for the analyte lead (37%). Therefore, lead in both field duplicate pairs was qualified as estimated J.

## Identification/Quantitation

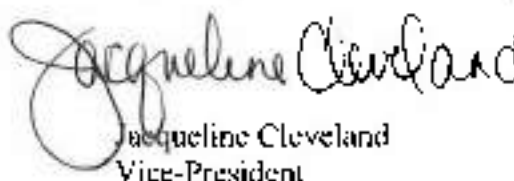
### VOA

Samples 74-VP1Ba/9-09 and 74-VP3b/9-07 were re-analyzed due to non-compliant surrogate and internal standard area recoveries. The re-analysis of these samples was performed at a dilution due to evidence of matrix effect; compliant results were exhibited. Therefore, the initial analysis was not used in favor of the re-analysis.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice-President

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36711-1

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB95-03, 74SD95-04, 74SB96-03, 74SB96-03D, 74SB96-05, 74SD121-00, 74-SB121-05, 74SB121-05D, 74-VP1Ba/9-05, 74-VP1Ba/9-05D	acetonitrile isobutyl alcohol	+-	I/R
74SB95-03, 74SB95-04, 74SB96-03, 74SB96-03D, 74SB96-05, 74SB121-00, 74-SB121-05, 74SD121-05D, 74-VP1Ba/9-05, 74-VP1Ba/9-05D	acrolein isobutyl alcohol acetone acetonitrile	+-	I/R
74SB95-03, 74SB95-04, 74SB96-03, 74SB96-03D, 74SB96-05, 74SD121-00, 74-SB121-05, 74SB121-05D, 74-VP1Ba/9-05, 74-VP1Ba/9-05D	2-chloro-1,3-butadiene methacrylonitrile pentachloroethane	+-	I/U
74-VP1Ba/9-09DL, 74VP3b/9-05	acrolein isobutyl alcohol	+-	I/R
74-VP1Ba/9-09DL, 74VP3b/9-05	isobutyl alcohol	+-	I/R
74-VP1Ba/9-09DL, 74VP3b/9-05	indomethane 3-chloro-1-propene pentachloroethane	+-	I/U
741B13	acrolein acrylonitrile bromomethane chloroethane cis-1,3-dichloropropene trans-1,3-dichloropropene	+-	I/U
74-VP3b/9-07DL	isobutyl alcohol	+-	I/R
74-VP3b/9-07DL	acetonitrile acetone	+-	I/U
74-VP3b/9-05	acetone	-	U at reported value
74-VP1Ba/9-05, 74-VP1Ba/9-05D	2-butanone	+	U at reported value
74-VP1Ba/9-09, 74-VP3b/9-07	all results	+-	R

### LL PAH

Sample ID	Compound	Results	Q flag
No qualifications			

## Summary of Data Qualifications, continued

### DRO/GRO

Sample ID	Compound	Results	Q flag
74VP3B-9-07	GRO	-	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	+	J
74SB121-00, 74VP1Ba-9-05, 74VP1Ba-9-05D	antimony	1 >MDL up to RL	U
74SB95-03, 74SB95-04, 74VP1Ba-9-09, 74VP3b-9-07	arsenic	1 >MDL up to RL	U
all samples	antimony chromium	1/-	J/U
74SB96-01, 74SB96-03D, 74SB121-05, 74SB121-05D	barium	1	R
74SB121-05, 74SB121-05D, 74VP1Ba-9-05, 74VP1Ba-9-05D	lead	1	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/JJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36766-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 6, 2008  
 SDG# SWMU36766-1, Test America-Savannah  
 NAPIR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36766-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL PAH	DRO/GRO	DRO	GRO	Metals
74SBI14-04	680-36766-1	soil	X		X			X
74SBI14-05	680-36766-2	soil	X	X	X			X
74SBI15-03	680-36766-3	soil	X		X			X
74SBI15-05	680-36766-4	soil	X		X			X
74SBI16-04	680-36766-5	soil	X		X			X
74SBI16-05	680-36766-6	soil	X		X			X
74SBI16-15D	680-36766-7	soil	X		X			X
74SBI17-01	680-36766-8	soil	X		X			X
74SBI17-04	680-36766-9	soil	X		X			X
74SBI18-03	680-36766-10	soil	X		X			X
74SBI18-05	680-36766-11	soil	X		X			X
74SBI19-04	680-36766-12	soil	X		X			X
74SBI19-05	680-36766-13	soil	X		X			X
74SBI20-04	680-36766-14	soil	X		X			X
74SBI20-05	680-36766-15	soil	X		X			XX
74SBI26-02	680-36766-16	soil	X		X			X
74SBI26-05	680-36766-17	soil	X		X			X
74SBI26-05B	680-36766-18	soil	X		X			X
74SBI27-03	680-36766-19	soil	X		X			X
74SBI27-04	680-36766-20	soil	X		X			X
74SBI27-04MS	680-36766-20MS	soil				X		
74SBI27-04MSD	680-36766-20MSD	soil				X		
74SBI18-04MS	680-36766-10MS	soil						X
74SBI18-04MSD	680-36766-10MSD	soil						X
741B14	680-36766-29	water	X				X	



The following quality control samples were provided with this SDG: sample 74SB116-05D-field duplicate of sample 74SB116-05; sample 74SB126-05D-field duplicate of sample 74SB126-05; and sample 74TB14-trip blank.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• IC/SA/IC/SA/B Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to

high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

### **LL PAH**

No qualifications to the data were required.

### **DRO/GRO**

No qualifications to the data were required.

### **Metals**

The ICNAB standard exhibited non-compliant recoveries above the QC limits for the analyte zinc. All reported positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited a non-compliant %R for one analyte for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated J/UJ in the samples.

The associated serial dilution exhibited a non-compliant RPD for one analyte for which qualifications were required. Positive and non-detect results for zinc required qualification as estimated J/UJ in the samples.

The field duplicate pairs exhibited non-compliant RPDs for several analytes. These analytes were qualified in the field duplicate pairs based on Region II guidelines.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the meta's fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

## Technical Holding Times

According to chain of custody records, sampling was performed on 05/13-14/08 and samples were received at the laboratory 05/15/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRF's and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/16/08	isobutyl alcohol	0.02477	74SB114-04,	J/R
	acetone	0.03866	74SB114-05,	
	acrolein	22.1%	74SB115-03,	J/U
	iodomethane	22.7%	74SB115-05,	
	pentachloroethane	31.8%	74SB116-04,	
	3-octanone	26.3%	74SB116-05,	
	4-methyl-2-pentanone	21.6%	74SB116-05D,	
IC 05/18/08	2-hexanone	26.7%	74SB117-03,	J/R
			74SB117-04,	
			74SB118-03,	
			74SB118-05,	
			74SB119-04,	
			74SB119-05,	
			74SB120-01,	
			74SB120-05	
	acrolein	0.0496	74SB126-02,	
	isobutyl alcohol	0.0369	74SB126-05,	
			74SB126-05D,	
CC 05/19/08			74SB127-03,	J/R
			74SB127-04	
	isobutyl alcohol	0.03525	74SB126-02,	J/U
	pentachloroethane	23.5%	74SB126-05,	
			74SB126-05D,	
CC 05/23/08			74SB127-03,	
			74SB127-04	
	acrylonitrile	31.7%	74TB14	J/U
	pentachloroethane	73.5%		
	bromomethane	33.6%		
	cis-1,3-dichloropropene	25.5%		
	trans-1,3-dichloropropene	29.3%		
	1,1,2-trichloropropane	21.6%		
	1,2-dibromo-3-chloropropane	34.0%		

## ICSA/ICSAB Standards

### Metals

The associated ICSAB standards exhibited non-compliant recoveries above than the upper QC limit for the analyte zinc (130%-128%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	5.21 ug/Kg	50 ug/Kg	2X RL
FD01	2-butanone	0.691 ug/l	10 ug/l	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB126-02, 74SB1176-05, 74SB126-050, 74SB127-03, 74SB127-04	acetone	U at reported value
74SB124-04, 74SB126-02	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.088121 ug/L	>MDL, up to RL	U
LR09	arsenic	0.0521 ug/L	>MDL, up to RL	U
	copper	3.91 ug/L	>MDL, up to RL	U

\* For QC blank qualifications were made using 1X blank testing. Please note, when qualifying samples for CCB contamination, associated samples are those run prior to or just following a CCB. Therefore, not all analyte - CCB samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples > MDL but < RL	antimony	U
74SB127-04	arsenic	U
74SB127-04	copper	U

### Matrix Spike Recoveries

#### Metals

The matrix spikes of sample 74SB118-03 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB118-03	antimony	all samples	62%/53%	UU

### Serial Dilutions

#### Metals

The serial dilution of sample 74SB118-03 exhibited a non-compliant %D for zinc that required qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

SD	Analytes	Samples	RPD	Q Flag
74SB118-03	zinc	all samples	42.6%	UU

### Field Duplicates

#### Metals

The field duplicate pair of samples 74SB116-05 and 74SB116-05D exhibited a non-compliant RPD >35% but <120% for the analyte cobalt (50%) and field duplicate pair of samples 74SB126-05 and 74SB126-05D exhibited non-compliant RPDs >35% but <120% for the analytes barium (53%), cobalt (78%), nickel (38%) and zinc (57%). These analytes were flagged as estimated J in the respective field duplicate pairs.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice-President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB114-04, 74SB114-05, 74SB115-03, 74SB115-05, 74SB116-04, 74SB116-05, 74SB116-05D, 74SB117-03, 74SB117-04, 74SB118-03, 74SB118-05, 74SB119-04, 74SB119-05, 74SB120-04, 74SB120-05	isobutyl alcohol acetone	+/-	J/R
74SB114-04, 74SB114-05, 74SB115-03, 74SB115-05, 74SB116-04, 74SB116-05, 74SB116-05D, 74SB117-03, 74SB117-04, 74SB118-03, 74SB118-05, 74SB119-04, 74SB119-05, 74SB120-04, 74SB120-05	acrolein iodomethane pentachloroethane 2-butanone 1-methyl-2-pentanone 2-hexanone	+/-	J/L
74SB126-02, 74SB126-05, 74SB126-05D, 74SB127-03, 74SB127-04	acrolein isobutyl alcohol	+/-	J/R
74SB126-02, 74SB126-05, 74SB126-05D, 74SB127-03, 74SB127-04	isobutyl alcohol	+/-	J/R
74SB126-02, 74SB126-05, 74SB126-05D, 74SB127-03, 74SB127-04	pentachloroethane	+/-	J/L
741B14	acrylonitrile pentachloroethane bromomethane cis-1,3-dichloropropene trans-1,3-dichloropropene 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/-	J/L
74SB126-02, 74SB126-05, 74SB126-05D, 74SB127-03, 74SB127-04	acetone	+	U at reported value
74SB114-04, 74SB126-02	2-butanone	+	U at reported value

### EL PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO-GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc		J
all samples	antimony	< MDL up to RL	U
74SB127-04	arsenic	< MDL up to RL	U
74SB127-04	copper	< MDL up to RL	U
all samples	antimony	17-	17U
all samples	zinc	17-	17U
74SB116-05, 74SB116-05D	cobalt	1	J
74SB126-05, 74SB126-05D	barium cobalt nickel zinc	1	J



## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RI **	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RI and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- I - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- BLI - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

I - The sample result is greater than or equal to the MDL but less than or equal to the RL; result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

I - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36766-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 6, 2008  
 SDG# SWMU36766-2, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36766-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LI PAH	DRO/GRO	Metals
74SB128-03	680-36766-21	soil	X		X	X
74SB128-05	680-36766-22	soil	X		X	X
74SB129-02	680-36766-23	soil	X		X	X
74SB129-03	680-36766-24	soil	X		X	X
74SB129-05	680-36766-25	soil	X		X	X
74SB130-05	680-36766-26	soil	X		X	X
74VP209-08	680-36766-27	soil	X	X	X	X
74VP209-10	680-36766-28	soil	X	X	X	X
74SB128-03VLS	680-36766-21VLS	soil				X
74SB128-03MSL	680-36766-21MSL	soil				X

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks
- Internal Standards \*

- Laboratory Control Samples \*
- Matrix Spike Recoveries \*
- Matrix Duplicate RPDs \*
- Serial Dilutions \*
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

#### **VOA**

The initial and continuing calibration exhibited some compounds with low RRT values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

One sample exhibited low surrogate recovery that resulted in qualifications to the data.

#### **LL PAH**

No qualifications to the data were required.

#### **DRO/GRO**

No qualifications to the data were required.

## Metals

The ICSSAB standard exhibited non-compliant recoveries above the QC limits for the analyte zinc. all reported positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for one analyte for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated J/UJ in the samples.

## Specific Evaluation of Data

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/13-14/08 and samples were received at the laboratory 05/15/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/18/08	acrolein isobutyl alcohol	0.6496 0.6368	all samples	J/R
CC 05/19/08	isobutyl alcohol	0.83525	74SB128-03, 74SB128-05, 74SB129-03, 74SB130-03, 74SB130-05, 74VP2A/9-08	J/R
	pentachloroethane	23.5%		J-UJ

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/20/08	isobutyl alcohol	0.03902	74SB129-02, 74VP2A/9-08, 74VP2A/9-10	J/R
	iodomethane	17.6%		J/U
	3-chloro-1-propene	30.3%		
	pentachloromethane	38.4%		

## ICSA/ICSAB Standards

### Metals

The associated ICSAB standards exhibited non-compliant recoveries above than the upper QC limit for the analyte zinc (130%/128%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	5.2J ug/Kg	50 ug/Kg	2X RL
Method Blank	acetone	4.5J ug/Kg	50 ug/Kg	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB128-03, 74SB128-05, 74SB129-03, 74SB130-03, 74SB130-05, 74SB129-02, 74VP2A/9-10	acetone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.09576J ug/L	>MDL up to RL	U
GR09	arsenic	0.052J ug/L	>MDL up to RL	U

\* Field QC blank qualifications were made using QC blank tracking. Please note when qualifying samples for CCB contamination.

Michael Baker, Jr., Inc  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36766-2

estimated samples are those post-prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB confirmation.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
74SB128-03, 74SB128-05	antimony	U
74SJ128-03	arsenic	U

## Surrogates

### VOA

Sample 74VP2a/9-08 exhibited low surrogate recovery for dibromofluoromethane at 59% (QC limit 65-124%); therefore all results were qualified as estimated (E/JJ).

## Matrix Spike Recoveries

### Metals

The matrix spikes of sample 74SB128-03 exhibited a non-compliant %R for an analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB128-03	antimony	all samples	65%/64%	JJJ

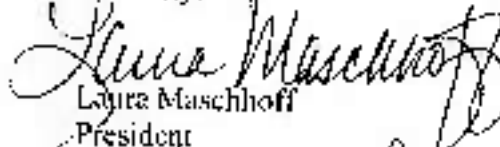
## Identification/Quantitation

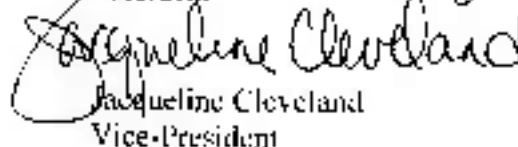
### VOA

Sample 74VP2a/9-08 was re-analyzed due to non-compliant surrogate recoveries. The re-analysis of this sample exhibited similar results. Therefore, the re-analysis was not used in favor of the initial analysis.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice-President

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36766-2



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	acrolein	ND	J/R
	isobutyl alcohol	ND	J/R
74SB128-03, 74SB128-05, 74SB129-03, 74SB130-03, 74SB130-05, 74VP2A/9-08	isobutyl alcohol	ND	J/R
74SB128-03, 74SB128-05, 74SB129-03, 74SB130-03, 74SB130-05, 74VP2A/9-08	pentachloroethane	ND	J/UJ
74SB129-02, 74VP2A/9-08, 74VP2A/9-10	isobutyl alcohol	ND	J/R
74SB129-02, 74VP2A/9-08, 74VP2A/9-10	isobutyl alcohol 1-chloro-1-propene pentachloroethane	ND	J/UJ
74SB128-03, 74SB128-05, 74SB129-03, 74SB130-03, 74SB130-05, 74SB129-02, 74VP2A/9-10 74VP2A/9-08	acetone		U at reported value
74VP2A/9-08RA	all results	ND	J/UJ
	all results	ND	R

### LL PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	ND	J
74SB128-03, 74SB128-05	antimony	< MDL up to RL	U
74SB128-03	arsenic	< MDL up to RL	U
all samples	antimony	ND	J/UJ

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UL	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36806-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

August 6, 2008  
SDG# SWMC36806-1, Test America-Savannah  
NAPR SWML 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMC36806-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #EW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	Metals
74SB141-01	680-36806-1	soil	X	X	X
74SB141-03	680-36806-2	soil	X	X	X
74SB141-05	680-36806-3	soil	X	X	X
74SB141-05D	680-36806-4	soil	X	X	X
74SB142-02	680-36806-5	soil	X	X	X
74SB142-04	680-36806-6	soil	X	X	X
74SB143-02	680-36806-7	soil	X	X	X
74SB143-04	680-36806-8	soil	X	X	X
74SB144-03	680-36806-9	soil	X	X	X
74SB144-05	680-36806-10	soil	X	X	X
74SB157-04	680-36806-11	soil	X	X	X
74SB157-05	680-36806-12	soil	X	X	X
74SB158-03	680-36806-13	soil	X	X	X
74SB158-04	680-36806-14	soil	X	X	X
74SB122-03	680-36806-15	soil	X	X	X
74SB122-04	680-36806-16	soil	X	X	X
74SB123-03	680-36806-17	soil	X	X	X
74SB123-05	680-36806-18	soil	X	X	X
74SB124-02	680-36806-19	soil	X	X	X
74SB124-05	680-36806-20	soil	X	X	X
74SB141-03 MS	680-36806-2MS	soil	X	X	X
74SB141-05 MS3	680-36806-2MS3	soil	X	X	X

The following quality control samples were provided with this SDG: sample 74SB141-05D, field duplicate of sample 74SB141-05.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	+
• Surrogate Recoveries	+
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	
• Field Duplicates	*
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

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NAPR SWMU74, Puerto Rico  
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## **DRO/GRO**

No qualifications to the data were required.

## **Metals**

The IC/SAB standard exhibited non-compliant recoveries above the QC limits for the analyte zinc. all reported positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for two analytes for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated J/UJ and positive results for nickel were qualified as estimated J.

The associated matrix duplicates exhibited non-compliant RPDs for two analytes for which qualifications were required. Positive and non-detect results for barium and cobalt were flagged as estimated J/UJ.

The associated serial dilution exhibited a non-compliant RPD for one analyte for which qualifications were required. Positive and non-detect results for zinc required qualification as estimated J/UJ in the samples.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/13-14/08 and samples were received at the laboratory 05/16/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

## **VOA**

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/18/08	acrolein isobutyl alcohol	0.0419% 0.0369	all samples	J-R
CC 05/20/08	isobutyl alcohol	0.03902	74SB141-00,	J-R
	iodomethane	37.6%	74SB141-03,	J/U
	3-chloro-1-propene	10.3%	74SB142-04,	
	pentachloroethane	38.4%	74SB143-02	
CC 05/20/08	acrolein isobutyl alcohol acetone	0.04801 0.03361 0.04896	74SB141-05, 74SB141-05D, 74SB142-02, 74SB143-04, 74SB144-03, 74SB144-05, 74SB157-04, 74SB158-03, 74SB158-04, 74SB122-03, 74SB122-04, 74SB123-03, 74SB123-05, 74SB124-02, 74SB124-05	J-R
CC 05/21/08	isobutyl alcohol	0.03526	74SB157-05	J-R
	iodomethane	21.8%		J/U
	pentachloroethane	22.7%		
	chloroethane	27.0%		

## ICSA/ICSAB Standards

### Metals

The associated ICSAB standards exhibited non-compliant recoveries above than the upper QC limit for the analyte zinc (124%/124%/123%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG4 SWMU36806-1



contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Verked Blank	acetone	4.5J ug/Kg	50 ug/Kg	2X RL
1-B01	2-butanone	0.69J ug/l	10 ug/l	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB141-03, 74SB141-03, 74SB142-04	acetone	U at reported value
74SB158-03, 74SB158-04, 74SB124-02	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDI for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ER11	antimony	0.54J ug/l	<MDL up to RL	U

\* The Q/C blank qualifications were made using Q/C blank tracking.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples < MDL, but < RL	antimony	U

### **Matrix Spike Recoveries**

#### Metals

The matrix spikes of sample 74SB141-03 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB141-03	antimony	all samples	62%/73%	J/UJ
	nickel		135%/155%	J

### **Matrix Duplicates**

#### Metals

The matrix duplicate of sample 74SB141-03 exhibited non-compliant %Ds for two analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

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NAPR SWMU74, Puerto Rico  
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MD	Analytes	Samples	RPD	Q Flag
74SB141-03	barium	all samples	94.0%	J/U
	cobalt		42.9%	

### Serial Dilutions

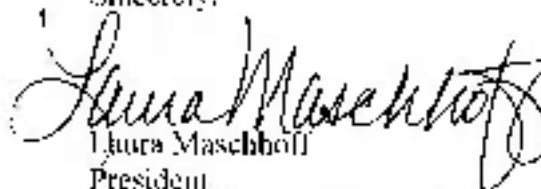
#### Metals

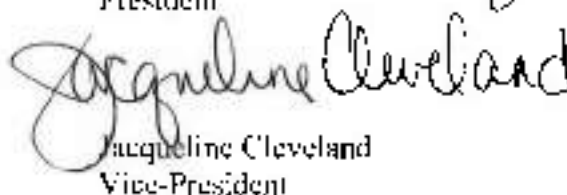
The serial dilution of sample 74SB141-03 exhibited a non-compliant %D for zinc that required qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

SD	Analytes	Samples	RPD	Q Flag
74SB141-03	zinc	all samples	10.9%	J/U

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice-President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	acrolein isobutyl alcohol	U	J/R
74SB141-00, 74SB141-03, 74SB142-04, 74SB143-02	isobutyl alcohol	U	J/R
74SB141-00, 74SB141-03, 74SB142-04, 74SB143-02	iodomethane 3-chloro-1-propene pentachloroethane	U	J/UJ
74SB141-05, 74SB141-05D, 74SB142-02, 74SB143-04, 74SB144-03, 74SB144-05, 74SB157-04, 74SB158-03, 74SB158-04, 74SB122-01, 74SB122-04, 74SB123-03, 74SB123-05, 74SB124-02, 74SB124-05	acrolein isobutyl alcohol acetone	U	J/R
74SB157-05	isobutyl alcohol	U	J/R
74SB157-05	iodomethane pentachloroethane chloroethane	U	J/UJ
74SB141-00, 74SB141-03, 74SB142-04	acetone	U	U at reported value
74SB158-03, 74SB158-04, 74SB124-02	2-butanone	U	U at reported value

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	U	J
all samples	antimony	+ 1-MDL up to RI	U
all samples	antimony	U	J/UJ
all samples	nickel	U	J
all samples	barium cobalt	U	J/UJ
all samples	zinc	U	J/UJ

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the field. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- MAJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL; result is reported as non-detect at the reported concentration when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36806-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 6, 2008  
 SDG# SWMU36806-2, Test America-Savannah  
 NAPIR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36806-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	DRO	Metals
74SB159-03	680-36806-23	soil	X	X		X
74SB159-05	680-36806-24	soil	X	X		X
74SB160-01	680-36806-25	soil	X	X		X
74SB160-05	680-36806-26	soil	X	X		X
74SB146-02	680-36806-27	soil	X	X		X
74SB146-07D	680-36806-28	soil	X	X		X
74SB146-05	680-36806-29	soil	X	X		X
74SB147-03	680-36806-31	soil	X	X		X
74SB147-04	680-36806-31	soil	X	X		X
74SB148-02	680-36806-32	soil	X	X		X
74SB148-04	680-36806-33	soil	X	X		X
74SB149-04	680-36806-34	soil	X	X		X
74SB149-06	680-36806-35	soil	X	X		X
74SB150-02	680-36806-36	soil	X	X		X
74SB150-06	680-36806-37	soil	X	X		X
74SB152-03	680-36806-38	soil	X	X		X
74SB152-05	680-36806-39	soil	X	X		X
74SB153-02	680-36806-40	soil	X	X		X
74SB153-04	680-36806-41	soil	X	X		X
74VP083-03	680-36806-42	soil	X	X		X
74SB156-03MS	680-36806-23MS	soil				X
74SB159-05MSD	680-36806-23MSD	soil				X
74SB147-05MS	680-36806-30MS	soil			X	
74SB147-03MSD	680-36806-30MSD	soil			X	

The following quality control samples were provided with this SDG: sample 74SB146-02D-field duplicate of sample 74SB146-02.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• IC/SA/IC/SA Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWM1136806-2



Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

No qualifications to the data were required.

### **Metals**

The IC SAB standard exhibited non-compliant recoveries above the QC limits for the analyte zinc. All reported positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for three analytes for which qualifications were required. Positive and non-detect results for cobalt, zinc and mercury were qualified as estimated J/UJ.

The associated matrix duplicates exhibited non-compliant RPDs for five analytes for which qualifications were required. Positive and non-detect results for barium, chromium, cobalt, copper and vanadium were flagged as estimated J/UJ.

The field duplicate pair of samples 74SB146-02 and 74SB146-02D exhibited non-compliant RPDs for two analytes for which qualifications were required. The reported positive results for cobalt required qualification as estimated J and the reported results for cadmium were rejected R in the field duplicate pair.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/13-15/08 and samples were received at the laboratory 05/16/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

#### **Initial/Continuing Calibration**

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NAPR SWMU74, Puerto Rico  
SDG# SWMU36806-2

## VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/18/08	acrolein isobutyl alcohol	0.0296 0.0369	all samples	J/R
CC 05/21/08	isobutyl alcohol	0.03526	74SB160-04,	J/R
	iodomethane	27.8%	74SB160-05,	J/U
	pentachloroethane	22.7%	74SB146-02,	
	chloroethane	27.0%	74SB146-0212, 74SB146-05, 74SB147-03, 74SB148-04, 74SB150-02, 74SB150-06	
CC 05/21/08	acrolein	0.04224	74SB159-03,	J/R
	isobutyl alcohol	0.03444	74SB159-05,	
	acetone	0.01723	74SB147-04,	
	iodomethane	13.7%	74SB148-02,	J/U
CC 05/22/08	chloroethane	13.0%	74SB149-04, 74SB149-06, 74SB152-03	
	acrolein	0.04713	74SB152-05,	J/R
	isobutyl alcohol	0.01646	74SB153-02,	
	pentachloroethane	23.1%	74V100A-07,	J/U
	chloroethane	32.4%	74SB153-04	

## ICSA/ICSAB Standards

### Metals

The associated ICSAB standards exhibited non-compliant recoveries above than the upper QC limit for the analyte zinc (124%/124%/123%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated if in all samples.

### Blanks

## VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank

contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	6.41 ug/Kg	50 ug/Kg	2X RL
FB01	2-butanone	0.691 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table

Sample ID	Compound	Q Flag
74SB152-03, 74VP08a-02, 74SB153-04	acetone	U at reported value
74SB149-04, 74SB149-06, 74SB152-03, 74SB153-02	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ER11	antimony	0.541 ug/L	>MDL, up to RL	U

\* Field "X" blank qualifications were made using "X" blank tracking

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples > MDL, but < RL	antimony	U

### **Matrix Spike Recoveries**

#### Metals

The matrix spikes of sample 74SB159-03 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB159-03	cobalt	all samples	124%+13%	J/UJ
	zinc		129%+63%	
	mercury		34.2%+9%	

### **Matrix Duplicates**

#### Metals

The matrix duplicate of sample 74SB159-03 exhibited non-compliant %Ds for five analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table:

MD	Analytes	Samples	RPD	Q Flag
74SB159-03	barium	all samples	105.6%	J.H.
	chromium		67.5%	
	cobalt		41.6%	
	copper		52.9%	
	vanadium		57.6%	


## Field Duplicates

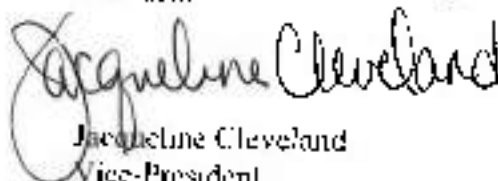
### Metals

The field duplicate pair of samples 74SB146-02 and 74SB146-02D exhibited non-compliant RPD >35% but less than 120% for the analyte cobalt (40%). This analyte was flagged as estimated J in the field duplicate pair. The analyte cadmium (0.89) exhibited an absolute difference > 4X CRDL. This analyte was rejected R in the field duplicate pair. All qualifications were made based on the Region II guidance.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice-President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	acrolein isobutyl alcohol	U	JR
74SB160-04, 74SB160-05, 74SB146-02, 74SB146-02D, 74SB146-05, 74SB147-03, 74SB148-04, 74SB150-02, 74SB150-06	isobutyl alcohol	U	JR
74SB160-04, 74SB160-05, 74SB146-02, 74SB146-02D, 74SB146-05, 74SB147-03, 74SB148-04, 74SB150-02, 74SB150-06	dimethane pentachloroethane chloroethane	U	J/U
74SB159-03, 74SB159-05, 74SB147-04, 74SB148-02, 74SB149-04, 74SB149-06, 74SB152-03	acrolein isobutyl alcohol acetone	U	JR
74SB159-03, 74SB159-05, 74SB147-04, 74SB148-02, 74SB149-04, 74SB149-06, 74SB152-03	bromomethane chloroethane	U	J/U
74SB153-05, 74SB153-02, 74VP08A-07, 74SB153-04	acrolein isobutyl alcohol	U	JR
74SB152-05, 74SB153-02, 74VP08A-07, 74SB153-04	pentachloroethane chloroethane	U	J/U
74SB152-05, 74VP08A-07, 74SB153-04	acetone	+	U as reported value
74SB149-04, 74SB149-06, 74SB152-03, 74SB153-02	2-butanone		U as reported value

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	I	I
all samples	antimony	+ <MDL up to RL	II
all samples	cobalt zinc mercury	+/-	I/II
all samples	barium chromium cobalt copper vanadium	+/-	I/II
74SB146-02, 74SB146-02D	cobalt	+	I
74SB146-02, 74SB146-02D	cadmium	+	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
E	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U.	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note -- Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36806-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 19, 2008  
 SDG# SWMU36806-3, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36806-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP 4HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	GRO	TMetals	DMetals
74GWVPICb5	680-36806-44	water	X	X	X		X	X
74GWVPICb1	680-36806-45	water	X	X	X		X	X
74GWVPICa	680-69806-46	water	X	X	X		X	X
74GWVPICb	680-69806-47	water	X	X	X		X	X
74GWVPICa	680-69806-48	water	X	X			X	
74ER11	680-69806-49	water	X	X	X		X	
74TR12	680-69806-50	water	X	X	X		X	
74TB15	680-69806-51	water	X			X		
74TB16	680-69806-52	water	X			X		
74TB17	680-69806-53	water	X			X		
74GWVPICbMS	680-36806-44MS	water					X	X
74GWVPICbMSD	680-36806-44MSD	water					X	X
74ER12MS	680-69806-50MS	water				X		
74TB12MSD	680-69806-50MSD	water				X		

The following quality control samples were provided with this SDG: sample 74GWVPICb1-field duplicate of sample 74GWVPICb; samples 74ER11 and 74ER12-equipment blanks; and samples 74TB15, 74TB16 and 74TB17-trip blanks.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*

• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	*
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	*
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

## **PAH**

One sample exhibited high surrogate results that resulted in qualifying positive results as estimated.

## **DRO/GRO**

Three samples analyzed for GRO required qualification due to high surrogate recoveries.

## **Metals**

The IC/SAB standards associated with the dissolved metals samples exhibited non-compliant recoveries below the QC limit for the analyte silver. Based on Region II guidelines all positive and non-detect results for silver in the dissolved metals samples were qualified as estimated J/U.

Blank contamination was noted and qualification was required in the samples in this SDG.

The serial dilution analysis of sample 74CWP1ChF exhibited a non-compliant %D for the analyte lead. All results for lead in the dissolved metals samples were qualified as estimated J/U.

The total/dissolved metals analysis comparison exhibited %Ds greater than 20% but less than or equal to 50% for analytes in three pairs. These analytes were qualified as estimated in the sample pairs.

## **Specific Evaluation of Data**

### **Data Completeness**

Resubmissions were required. The DRO fraction required resubmission due to incomplete continuing calibration forms. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/13-15/08 and samples were received at the laboratory 05/16/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRF's and %D's that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/21/08	acrylonitrile pentachloroethane bromomethane cis-1,3-dichloropropene trans-1,3-dichloropropene 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	21.7% 73.5% 33.6% 25.5% 29.3% 2.6% 34.0%	74TR11, 74TR12, 74TB15, 74TB16, 74TB17, 74GWVP3B, 74GWVP3A	PU
CC 05/27/08	pentachloroethane	91.8%	74GWVP1Cb2,	LR
	acrylonitrile	23.7%	74GWVP1Ca	PU
CC 05/28/08	pentachloroethane	91.1%	74GWVP1Cb	LR
	acrylonitrile bromomethane	26.6% 32.7%		PU

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the dissolved metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (76%/76%/76%). Based on Region II guidelines, reported positive and non-detect results for silver in the dissolved metals samples were qualified as estimated (E) in all samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U, at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blk	carbon disulfide	0.333 ug/L	2 ug/L	RL
Method Blk	acetone	7.23 ug/l	25 ug/l	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GWVP1Cb	carbon disulfide	U at reported value
74GWVP1CbD, 74GWVP1Ca	acetone	U at reported value

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBLK - TM	arsenic	0.29891 ug/L	>MDL, up to RL	C
	antimony	0.5570 ug/L	> MDL, up to RL	C
ICB - DM	antimony	0.1595 ug/L	> MDL, up to RL	U
FBO	copper	2.11 ug/L	> MDL, up to RL	U
	lead	0.38J ug/L	> MDL, up to RL	U

Field Blank associations were made based on tracking provided by the client. Please note: when qualifying samples for UCH contamination, associated samples are those just prior to or just following a UCH. Therefore, not all analytes in all samples are flagged for UCH contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
74GWVP3A, 74GWVP3B, 74GWVP1Ca	arsenic	U
74GWVP1Cb, 74GWVP1CbD, 74GWVP3B, 74GWVP1Ca	copper	U
74GWVP3A	lead	U

## Surrogate Recoveries

### PAH

Sample 74GWVP3B high surrogate recoveries for o-terphenyl at 130% (QC limits 44-123%); therefore all positive results were qualified as estimated (J).

### DRO/GRO

Three samples analyzed for GRO exhibited non-compliant surrogate recovery above the QC limits. The reported positive results for GRO in samples 74GWVP1Cb (164%) 74GWVP1CbD (206%) and 74GWVP1Ca (146%) were qualified as estimated J.

## Serial Dilutions

### Metals

The serial dilution of sample 74GWVP1CJ3 associated with the dissolved metals analysis exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of this non-compliance and affected samples is noted in the following table.

SD	Analytes	Samples	RPD	Q Flag
74GWVP1CJ3	lead	dissolved metals samples	12.9%	JJJ

### Identification/Quantitation


#### Metals

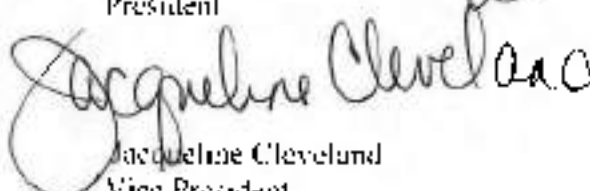
The total and dissolved metals analysis exhibited %Ds > 20% but less than or equal to 50% for several analytes. Elements exhibiting > 20% but less than or equal to 50% difference between total and dissolved concentrations were qualified as estimated J based on the Region II guidelines. Specific action is noted in the following table.

Sample ID	Analyte	%D	Q Flag
74GWVP1CJ3, 74GWVP1CJ4	cobalt	29%	J
74GWVP1CJ3, 74GWVP1CJ4	vanadium	30%	J
74GWVP1A, 74GWVP1AF	barium	39%	J
	cobalt	50%	J

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74ER11, 74ER12, 74TB15, 74TB16, 74TB17, 74GWVP3B, 74GWVP3A	acrylonitrile pentachloroethane bromomethane cis-1,3-dichloropropene trans-1,3-dichloropropene 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/-	J/IJ
74GWVP1Cb, 74GWVP1Ca	pentachloroethane	+	J/R
74GWVP1Cb, 74GWVP1Ca	acrylonitrile	+/-	J/IJ
74GWVP1Cb	pentachloroethane	+/-	J/R
74GWVP1Cb	acrylonitrile bromomethane	+/-	J/IJ
74GWVP1Cb	carbon disulfide	+	U at reported value
74GWVP1Cb, 74GWVP1Ca	acetone	+	U at reported value

### PAH

Sample ID	Compound	Results	Q flag
74GWVP3B	all results	+	J

### DRO/GRG

Sample ID	Compound	Results	Q flag
74GWVP1Cb, 74GWVP1Cb, 74GWVP1Ca	GRG	+	J

### Metals

Sample ID	Analyte	Results	Q flag
all dissolved metals samples	silver	+/-	J/IJ
all samples <MDL up to RL	antimony	<MDL up to RL	U
74GWVP3A, 74GWVP3B, 74GWVP1Ca	arsenic	<MDL up to RL	U
74GWVP1Cb, 74GWVP1Cb, 74GWVP3B, 74GWVP1Ca	copper	<MDL up to RL	U
74GWVP1A	lead	<MDL up to RL	U
all dissolved metals samples	lead	+/-	J/IJ
74GWVP1Cb, 74GWVP1CbF	cobalt	-	J
74GWVP1Cb, 74GWVP1CbF	vanadium	+	J
74GWVP3A, 74GWVP3AF	barium	+	J
	cobalt		



## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36806-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

August 5, 2008  
SDG# SWMU36806-4, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36806-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #IW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IN	DRO/GRO	Metals
74SB125-03	680-36806-21	soil	X	X	X
74SB125-05	680-36806-22	soil	X	X	X
74VJ08a-10	680-36806-43	soil	X	X	X
74SB125-01MS	680-36806-21MS	soil			X
74SB125-03MSD	680-36806-21MSD	soil			X

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations \*
- ICSA/ICSAB Standards \*
- CRDL Standards \*
- Blanks \*
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples \*
- Matrix Spike Recoveries \*

- Matrix Duplicate RPDs \*
- Serial Dilutions \*
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

## **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method blank associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

No qualifications to the data were required.

### **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for several analytes for which qualifications were required. Positive and non-detect results for antimony, arsenic, and cobalt were flagged as estimated *J/LJ* in the samples.

## **Specific Evaluation of Data**

## Data Completeness

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO and GRO fractions. A copy of the e-mail correspondence is included in the project file.

## Technical Holding Times

According to chain of custody records, sampling was performed on 05/13-15/08 and samples were received at the laboratory 05/16/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/18/08	acrolein isobutyl alcohol	0.0496 0.0369	all samples	J/R
CC 05/21/08	isobutyl alcohol	0.03526	73SB125-03	J/R
	iodomethane	23.8%		J/U
	pentachloroethane chloroethane	22.7% 27.0%		J/U
CC 05/21/08	acrolein isobutyl alcohol acetone	0.04224 0.03444 0.04723	74SB125-03	J/R
	bromomethane chloroethane	43.7% 32.0%		J/U
CC 05/22/08	acrolein isobutyl alcohol	0.04713 0.01646	74VP08a-10	J/R
	pentachloroethane chloroethane	23.3% 32.4%		J/U

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36806-4

the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	6.4J ug/Kg	50 ug/Kg	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74VP08a-10	acetone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBS	antimony	0.1156J ug/L	>MDL, up to RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL but <RL	antimony	U

### Matrix Spike Recoveries

#### Metals

The matrix spikes of samples 74SB125-03 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table. Please note that mercury had a recovery below 10% in the associated MSD. However, the validator did not reject the reported results for mercury because the MS recovery was above 10%.

MS	Analytes	Samples	%R	Q Flag
74SB125-03	antimony	all samples	53%/48%	JAU
	cobalt		48%/72%	
74SB153-03	mercury	74SB125-03, 74SB125-05	57%/49%	JAU

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

Handwritten signature of Laura Maschhoff in cursive script.

Laura Maschhoff  
President

Handwritten signature of Jacqueline Cleveland in cursive script.

Jacqueline Cleveland  
Vice-President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	acrolein isobutyl alcohol	+/-	I/R
73SB125-03	isobutyl alcohol	+/-	I/R
73SB125-03	bromomethane pentachloroethane chloroethane	+/-	I/CI
74SB125-05	acrolein isobutyl alcohol acetone	+/-	I/R
74SB125-05	bromomethane chloroethane	+/-	I/CI
74VP08a-10	acrolein isobutyl alcohol	+/-	I/R
74VP08a-11	pentachloroethane chloroethane	+/-	I/CI
74VP08a-10	acetone	+	U at reported value

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	antimony	>MDL up to RL	U
all samples	antimony coulalt	+/-	I/CI
74SB125-03, 74SB125-05	mercury	+/-	I/CI

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
(i)	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects at the MDL. \*\* This guideline is used when the laboratory is reporting non-detects at the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36880-1**

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# DataQual

Michael Baker, Jr., Inc. Environmental Services, LLC  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 19, 2008  
 SDG# SWMU36880-1, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36880-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015, DRO and 8015, GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	II, PAH	DRO	GRO	Metals
74SB131-00	680-36880-1	soil	X		X	X	X
74SB131-03	680-36880-2	soil	X		X	X	X
74SB131-03D	680-36880-3	soil	X		X	X	X
74SB131-05	680-36880-4	soil	X		X	X	X
74SB132-01	680-36880-5	soil	X	X	X	X	X
74SB132-05	680-36880-6	soil	X		X	X	X
74SB133-04	680-36880-7	soil	X		X	X	X
74SB133-05	680-36880-8	soil	X		X	X	X
74SB134-04	680-36880-9	soil	X		X	X	X
74SB134-05	680-36880-10	soil	X		X	X	X
74SB135-03	680-36880-11	soil	X		X	X	X
74SB135-05	680-36880-12	soil	X		X	X	X
74SB136-03	680-36880-13	soil	X		X	X	X
74SB136-03D	680-36880-14	soil	X		X	X	X
74SB136-05	680-36880-15	soil	X		X	X	X
74SB137-03	680-36880-16	soil	X		X	X	X
74SB138-01	680-36880-17	soil	X		X	X	X
74SB138-02	680-36880-18	soil	X		X	X	X
74SB138-04	680-36880-19	soil	X		X	X	X
74SB139-03	680-36880-20	soil	X		X	X	X
74SB131-03 MS	680-36880-2MS	soil	X		X	X	X
74SB131-03 MSD	680-36880-2MSD	soil	X		X	X	X

The following quality control samples were provided with this SDG: sample 74SB131-03D-field duplicate of sample 74SB131-03; and sample 74SB136-03D-field duplicate of sample 74SB136-03.

The samples were evaluated based on the following criteria:

• Data Completeness	•
• Sample Condition	•
• Technical Holding Times	•
• GC/MS Tuning	•
• GC Performance	•
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	•
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	•
• Serial Dilutions	•
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

Michael Baker, Jr., Inc  
NAPR SWMU174, Puerto Rico  
SID# SWMU36880-1

One sample exhibited non-compliant surrogate recoveries that resulted in qualifications to the data.

### **LL PAH**

No qualifications to the data were required.

### **DRO/GRO**

The associated GRO fraction rinse blank exhibited contamination and qualification was required in the samples in this SDG.

### **Metals**

The IC SAB standard exhibited non-compliant recoveries for the analytes silver and zinc. Silver was recovered below the QC limits and zinc was recovered above the QC limits. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated J/UJ and positive results for zinc were qualified as estimated J in the field samples.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for several analytes for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated J/UJ in the samples. Positive results for barium and cobalt were flagged as estimated J in the samples.

The field duplicate pair of samples 74SB131-03 and 74SB131-03D exhibited non-compliant RPD >35% but less than 120% for the analytes barium and vanadium. The field duplicate pair of samples 74SB136-03 and 74SB136-03D exhibited non-compliant RPD >35% but less than 120% for the analytes barium, chromium, cobalt and lead. These analytes were flagged as estimated J in the field duplicate pair. All qualifications were made based on the Region II guidance.

### **Specific Evaluation of Data**

#### **Data Completeness**

Resubmissions were required for the low level PAH fraction. The laboratory submitted Forms V and VII and raw data for the incorrect sample file. The laboratory was contacted and corrected forms and raw data were submitted. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were



asked of the laboratory regarding the GROUND fraction. A copy of these e-mail correspondences is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/15/08 and samples were received at the laboratory 05/17/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/18/08	acrolein isobutyl alcohol	6.0496 6.0369	74SB131-01, 74SB131-05, 74SB133-04, 74SB135-03, 74SB131-03D, 74SB137-04	JR
CC 05/22/08	acrolein isobutyl alcohol	0.04513 0.01646	74SB131-01, 74SB131-05,	JR
	pentachloroethane chloroethane	23.3% 32.4%	74SB133-04, 74SB135-03	NU
CC 05/27/08	acrolein isobutyl alcohol acetone	0.01622 0.01743 0.04664	74SB131-03D, 74SB137-04	JR
	bromomethane	77.9%		NU
CC 05/24/08	pentachloromethane	163.2%	74SB135-05,	JR
	acrolein	28.3%	74SB136-03,	NU
	acetonitrile	37.2%	74SB136-03D,	
	acrylonitrile	22.4%	74SB136-05,	
	propionitrile	41.2%	74SB137-03,	
	methacrylonitrile	22.1%	74SB138-04,	
	isobutyl alcohol	57.3%	74SB139-03,	
	chloroethane	32.5%	74SB138-03	
	vinyl acetate	20.1%		
CC 05/27/08	pentachloroethane	175.3%	74SB131-00, 74SB132-04, 74SB132-05, 74SB133-05, 74SB134-01, 74SB134-05	JR
	2-hexanone	23.0%		NU

## ICSA/CSAB Standards

### Metals

The associated ICSA standards exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (78%/78%/76%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J in all samples. The associated CSAB standards exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (122%/121%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	6.43 ug/Kg	50 ug/Kg	2X RL
FB01	2-butanone	0.697 ug/L	10 ug/L	RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB131-03, 74SB131-05, 74SB131-04, 74SB135-03	acetone	U at reported value
74SB131-05, 74SB136-03, 74SB136-03D, 74SB136-05, 74SB137-03, 74SB138-03, 74SB138-04	2-butanone	U at reported value

#### DRO/GRO

The associated GRO rinse blank exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Compound	Concentration	Action Level
ER13	GRO	0.014 ug/Kg	<MDL up to RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples <MDL up to RL	GRS	U

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBS	antimony	0.776101 mg/Kg	<MDL up to RL	U

\* Field QC blank qualifications were marked using (X) blank flagging. Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples < MDL up to RL	antimony	U

### Surrogates

#### VOA

Sample 74SB131-03D exhibited high surrogate recovery for dibromofluoromethane at 127% recovery (QC limit 65-124%), therefore all positive results were qualified as estimated (J)

### Matrix Spike Recoveries

#### Metals

The matrix spikes of samples 74SB131-03 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table. Please note that one of the recoveries for barium was above 200%. However, the validator did not reject the reported results for barium because the other recovery was not above 200%.

MS	Analytes	Samples	%R	Q Flag
74SB131-03	antimony	all samples	61% & 63%	J/JJ
	barium		203% & 186%	J+
	cobalt		187% & 154%	

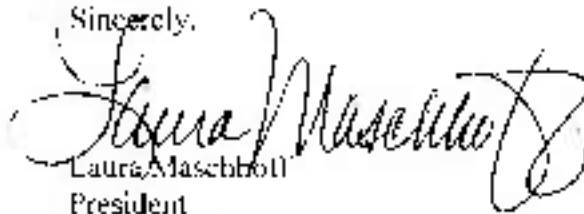
## Field Duplicates

### Metals

The field duplicate pair of samples 74SB131-03 and 74SB131-03D exhibited non-compliant RPD >35% but less than 120% for the analytes barium and vanadium. The field duplicate pair of samples 74SB136-03 and 74SB136-03D exhibited non-compliant RPD >35% but less than 120% for the analytes barium, chromium, cobalt and lead. These analytes were flagged as estimated in the field duplicate pair. All qualifications were made based on the Region II guidance.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Masciboll  
President



Jacqueline Cleveland  
Vice-President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB131-03, 74SB131-05, 74SB135-04, 74SB135-03, 74SB131-03D, 74SB137-04	acrolein isobutyl alcohol	+/-	J/R
74SB131-03, 74SB131-05, 74SB132-04, 74SB135-03	acrolein isobutyl alcohol	+/-	J/R
74SB131-03, 74SB131-05, 74SB137-04, 74SB135-03	pentachloroethane chloroethane	+/-	J/U
74SB131-03D, 74SB137-04	acrolein isobutyl alcohol acetone	+	J/R
74SB131-03D, 74SB137-04	bromomethane	+/-	J/U
74SB135-05, 74SB136-03, 74SB136-03D, 74SB136-05, 74SB137-03, 74SB138-04, 74SB139-03, 74SB138-03	pentachloroethane	+/-	J/R
74SB135-05, 74SB136-03, 74SB136-03D, 74SB136-05, 74SB137-03, 74SB138-04, 74SB139-03, 74SB138-03	acrolein acetonitrile acrylonitrile propionitrile methacrylonitrile isobutyl alcohol chloroethane vinyl acetate	-	F/U
74SB131-05, 74SB132-04, 74SB132-05, 74SB135-05, 74SB134-04, 74SB134-05	pentachloroethane	+/-	J/R
74SB131-05, 74SB132-04, 74SB132-05, 74SB133-05, 74SB134-04, 74SB134-05	2-hexanone	+/-	J/U
74SB131-03, 74SB131-05, 74SB133-04, 74SB135-03	acetone	+	U at reported value
74SB131-05, 74SB136-03, 74SB136-03D, 74SB136-05, 74SB137-03, 74SB138-03, 74SB138-04	2-butanone	+	U at reported value
74SB131-03D	all results	-	J

### LL PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
all samples -MDL up to RL	GRO	-J	U

## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	ND	PL
all samples	zinc	.	J
all samples	antimony	MID up to RL	U
all samples	antimony	ND	PL
all samples	barium	.	J
	cobalt	.	J
74SB131-03, 74SB131-01D	barium vanadium	.	J
74SB136-03, 74SB136-03	barium chromium cobalt lead	.	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36880-1

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/LJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration when the LB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36880-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airsides Business Park  
100 Airside Drive  
Moon Township, PA 15108

August 19, 2008  
SDG# SWMU36880-2, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36880-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #IIV-24 and 8270D-Rev 3, October 2006- SOP #IIV-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 \_DRO and 8015 \_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL PAH	DRO/GRO	Metals
74SB139-02	680-36880-21	soil	X		X	X
74SB140-04	680-36880-22	soil	X		X	X
74SB140-03	680-36880-23	soil	X		X	X
74SB154-04	680-36880-24	soil	X		X	X
74SB154-05	680-36880-25	soil	X		X	X
74SB155-03	680-36880-26	soil	X		X	X
74SB155-05	680-36880-27	soil	X		X	X
74SB156-04	680-36880-28	soil	X		X	X
74SB156-05	680-36880-29	soil	X	X	X	X
74SB156-03D	680-36880-30	soil	X	X	X	X
74SB151-00	680-36880-31	soil	X		X	X
74SB151-01	680-36880-32	soil	X		X	X
74SB151-01D	680-36880-33	soil	X		X	X
74SB161-00	680-36880-34	soil	X		X	X
74SB161-00D	680-36880-35	soil	X		X	X
74SB161-04	680-36880-36	soil	X		X	X
74SB161-04D	680-36880-37	soil	X		X	X
74SB161-05	680-36880-38	soil	X		X	X
74SB162-04	680-36880-39	soil	X		X	X
74SB162-05	680-36880-40	soil	X		X	X
74SB161-05 MS	680-36880-38MS	soil	X		X	X
74SB161-05 MS1D	680-36880-38MS1D	soil	X		X	X

The following quality control samples were provided with this SDG: sample 74SB156-05D-field duplicate of sample 74SB156-05; sample 74SB151-01D-field duplicate of sample 74SB151-01; sample 74SB161-00D-field duplicate of sample 74SB161-00; and sample 74SB161-04D-field duplicate of sample 74SB161-04.

The samples were evaluated based on the following criteria.

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• Initial/Continuing Calibrations	
• ICSA/ICSA Standards	
• CRDL Standards	*
• Blanks	*
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial and continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to

high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

The associated matrix spike and matrix spike duplicate exhibited a low recovery for one compound that resulted in qualifications to the data.

### **LLPAH**

One of the field duplicate pairs did not exhibit comparable results for two compounds that resulted in qualifying data.

### **DRO/GRO**

One continuing calibration standard for the DRO fraction exhibited a non-compliant %D that resulted in the qualification of three DRO results as estimated J.

The associated GRO fraction rinse blank exhibited contamination and qualification was required in the samples in this SDG.

The MS/MSD analyzed for the DRO fraction exhibited varying non-compliant recoveries that resulted in the qualification of the DRO result in native sample as estimated J.

The GRO field duplicate pair of samples 74SB156-05 & 74SB156-05D exhibited an RPD of 179%. The result in the field duplicate was less than the RL and was therefore flagged as U at the reported concentration due to rinse blank contamination. The results were qualified as estimated J/U and it should be noted that the possibility of a field sampling issue exists in these results.

### **Metals**

The ICSAB standard exhibited non-compliant recoveries for the analytes silver and zinc. Silver was recovered below the QC limits and zinc was recovered above the QC limits. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated J/U and positive results for zinc were qualified as estimated J in the field samples.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for several analytes for which qualifications were required. Positive and non-detect results for antimony, barium, chromium and lead were flagged as estimated J/U in the samples.

The associated matrix duplicate exhibited non-compliant RPDs for several analytes for which qualifications were required. Positive and non-detect results for chromium, cobalt and barium were flagged as estimated M/UJ in the samples.

The field duplicate pair of samples 74SB151-01 and 74SB151-01D exhibited a non-compliant RPD >35% but less than 120% for the analyte cobalt. The field duplicate pair of samples 74SB161-00 and 74SB161-00D exhibited non-compliant RPDs >35% but less than 120% for the analytes copper and zinc. These analytes were flagged as estimated in the respective field duplicate pairs only. All qualifications were made based on the Region II guidance.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GLO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/14-16/08 and samples were received at the laboratory 05/17/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/18/08	acrolein isobutyl alcohol	0.0496 0.0369	74SB139-05, 74SB140-04, 74SB140-05, 74SB154-04, 74SB154-05, 74SB155-04, 74SB155-05, 74SB156-04, 74SB156-05, 74SB156-05D, 74SB151-00, 74SB151-01, 74SB161-00, 74SB161-00D, 74SB161-04	JR

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/22/08	acrolein isobutyl alcohol acetone	0.04622 0.01743 0.04664	74SB139-05	J/R
	bromomethane	27.9%		J/UJ
CC 05/23/08	isobutyl alcohol acetone	0.01817 0.04603	74SB140-04, 74SB140-05,	J/R
	isomethane 3-chloro-1-propene acrylonitrile methyl methacrylate pentachloroethane bromomethane	22.6% 26.1% 22.5% 22.2% 21.7% 28.9%	74SB154-04, 74SB154-05, 74SB155-04, 74SB155-05, 74SB156-04, 74SB156-05, 74SB156-05D, 74SB151-00 74SB151-01, 74SB161-00, 74SB161-00D, 74SB161-04	J/UJ
CC 05/24/08	pentachloroethane	163.2%	74SB161-05,	J/R
	acrolein acetonitrile acrylonitrile propionitrile methacrylonitrile isobutyl alcohol chloromethane vinyl acetate	28.3% 27.2% 22.4% 41.2% 22.1% 57.1% 32.5% 20.1%	74SB151-01D, 74SB161-01D	J/UJ
CC 05/27/08	pentachloroethane	172.3%	74SB162-04,	J/R
	2-hexanone	23.0%	74SB162-05	J/UJ

## DRO/GRO

One calibration standard exhibited a non-compliant %D for DRO. A summary of this non-compliance and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	%D	Samples	Q Flag
QE270127	DRO	18.7%	74SB156-04, 74SB156-05, 74SB156-05D	J

## ICSA/ICSAB Standards

### Metals

The associated ICSAB standards exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (78%/78%/76%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/UJ in all samples. The associated ICSAB standards exhibited non-compliant recoveries above the upper QC

limit for the analyte zinc (122%/121%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated 1 in all samples.

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CROQL, are qualified as 11 at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FB01	2-butanol	0.650 ug/L	10 ug/L	RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB151-00, 74SB151-01, 74SB151-01D, 74SB161-00 74SB161-00D, 74SB161-04, 74SB161-04D, 74SB161-05	2-butanol	11 at reported value

### DRO/GRO

The associated GRO rinse blank exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Compound	Concentration	Action Level
LR13	GRO	0.014 mg/Kg	>MDL, up to RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples <MDL, up to RL	GRO	U

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBS	antimony	0.2033 mg/Kg	<MDL, up to RI	U

\* Field U.S. Blank quality controls were made using QC Blank tracking. Please note: when qualifying samples for PCB contamination, associated samples are those just prior to or just following a U.S. Blank. Therefore, not all analytes in all samples are flagged for PCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples <MDL, up to RI	antimony	U

### Matrix Spike Recoveries

#### VOA

The matrix spike and matrix spike duplicate associated with samples 74SB151-01 and 74SB151-01D exhibited low recoveries for styrene with 74% and 66% recoveries (QC limits 75-123%); therefore the results for this compound were qualified as estimated for these samples.

#### Metals

The matrix spikes of samples 74SB161-05 & 74SB151-01 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table. Please note that some of the recoveries were below 10% or above 200%. However, the validator did not reject the reported results for those analytes because not all of the recoveries for a particular analyte were below 10% or above 200%.

MS	Analytes	Samples	%R	Q Flag
74SB161-05	antimony	all samples	51%&54%	JUU
	barium		178%&47%	
	tin		139%&141%	
74SB151-01	antimony	all samples	49%&57%	JUU
	chromium		158%&56%	
	lead		30%&10%	
	tin		145%&136%	

#### DRO/GRO

The DRO fraction matrix spike and matrix spike duplicate associated with samples 74SB151-01 and 74SB151-01D exhibited varying non-compliant recoveries; therefore the results for DRO were qualified as estimated J in these samples.



## Matrix Duplicates

### Metals

The matrix duplicate of samples 74SB151-01 & 74SB161-05 exhibited non-compliant %Ds for several analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table

MD	Analytes	Samples	RPD	Q Flag
74SB151-01	chromium	all samples	27.8%	EUI
	cobalt		26.4%	
74SB161-05	barium	all samples	20.6%	EUI

## Field Duplicates

### VOA

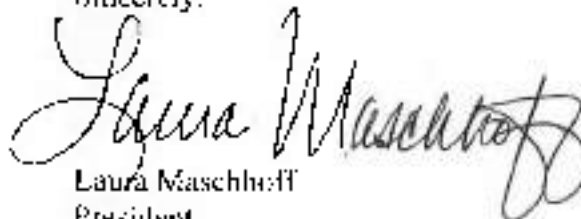
Sample 74SB156-05 and duplicate 74SB156-05D did not exhibit comparable results for fluorene and phenanthrene with 200% RPD for both compounds. These compounds were qualified as estimated (EUI) in both samples.

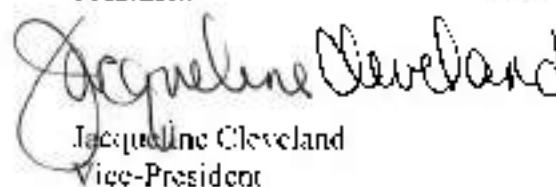
### Metals

The field duplicate pair of samples 74SB151-01 and 74SB151-01D exhibited a non-compliant RPD >35% but less than 120% for the analyte cobalt. The field duplicate pair of samples 74SB161-00 and 74SB161-00D exhibited non-compliant RPDs >35% but less than 120% for the analytes copper and zinc. These analytes were flagged as estimated in the respective field duplicate pairs only. All qualifications were made based on the Region II guidance.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice-President

Michael Baker, Jr., Inc  
NAPR SWMU74, Puerto Rico  
SDC# SWMU36880-2

Page 8

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## Summary of Data Qualifications

VOA

Sample ID	Compound	Results	Q flag
74SB139-05, 74SB140-04, 74SB140-05, 74SB154-04, 74SB154-05, 74SB155-04, 74SB155-05, 74SB156-04, 74SB156-05, 74SB156-05D, 74SB151-00, 74SB151-01, 74SB161-00, 74SB161-00D, 74SB161-04	acrolein isobutyl alcohol	+/	J/R
74SB139-05	acrolein isobutyl alcohol acetone	+/	J/R
74SB139-05	bromomethane	++	J/LJ
74SB140-04, 74SB140-05, 74SB154-04, 74SB154-05, 74SB155-04, 74SB155-05, 74SB156-04, 74SB156-05, 74SB156-05D, 74SB151-00, 74SB151-01, 74SB161-00, 74SB161-00D, 74SB161-04	isobutyl alcohol acetone	+/	J/R
74SB140-04, 74SB140-05, 74SB154-04, 74SB154-05, 74SB155-04, 74SB155-05, 74SB156-04, 74SB156-05, 74SB156-05D, 74SB151-00, 74SB151-01, 74SB161-00, 74SB161-00D, 74SB161-04	iudomethane 3-chloro-1-propene acrylonitrile methyl methacrylate pentachloromethane bromomethane	++	J/LJ
74SB161-05, 74SB151-01D, 74SB161-04D	pentachloromethane	++	J/R
74SB161-05, 74SB151-01D, 74SB161-04D	acrolein acetonitrile acrylonitrile propionitrile methacrylonitrile isobutyl alcohol chloroethane vinyl acetate	++	J/LJ
74SB162-04, 74SB162-05	pentachloroethane	+/	J/R
74SB151-00, 74SB151-01, 74SB151-01D, 74SB161-00, 74SB161-00D, 74SB161-04, 74SB161-04D, 74SB161-05	2-butanone	+	U at reported value
74SB162-04, 74SB162-05	2-hexanone	++	J/LJ
74SB151-01, 74SB151-01D	styrene	++	J/LJ

### U. PAH

Sample ID	Compound	Results	Q flag
74SB156-05, 74SB156-05D	fluorene phenanthrene	++	J/LJ

## Summary of Data Qualifications, continued

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB156-04, 74SB156-05, 74SB156-05D	DRO	-	J
all samples --MDL up to RL	GRO	J	U
74SB151-01, 74SB151-01D	DRO	-	J
74SB156-05, 74SB156-05D	GRO	U	J/U

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	U	J/U
all samples	zinc	-	J
all samples	antimony	--MDL up to RL	U
all samples	antimony barium chromium lead	U	J/U
all samples	chromium cobalt barium	U	J/U
74SB151-01, 74SB151-01D	cobalt	-	J
74SB161-00, 74SB161-00D	copper zinc	-	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J(U) - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinse blank associated with soils to qualify water samples and vice versa*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36880-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 20, 2008  
 SDG# SWMU36880-3, Test America-Savannah  
 NAPIR SWMU 74, Puerto Rico

Dear Mr. Kinnes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36880-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO-GRO	Metals
74SB163-03	680-36806-41	soil	X	X	X
74SB163-04	680-36806-42	soil	X	X	X
74SB163-01	680-36806-41MS	soil			X
74SB163-02	680-36806-41MS2	soil			X

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples \*
- Matrix Spike Recoveries
- Matrix Duplicate RPDs \*

- Serial Dilutions \*
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

### **DRO/GRO**

No qualification to the data was required.

### **Metals**

The IC SAB standard exhibited non-compliant recoveries above the QC limit for the analyte zinc. Based on Region II guidelines all positive results for zinc in the field samples were qualified as estimated I.

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for one analyte for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated I/I in the samples.



## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/14-16/08 and samples were received at the laboratory 05/17/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/27/08	pentachloromethane	173.3%	74SB162-03,	J/R
	2-hexanone	23.0%	74SB163-04	J/JJ

### **ICSA/ICSAB Standards**

#### **Metals**

The associated ICSAB standards exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (126%/126%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

#### **Blanks**

#### **Metals**

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
74ERL3	antimony	0.551 mg/Kg	>MDL up to RL	U

\* Field QC blank qualifications were made using QC blank 7466 mg. Please note, when qualifying samples for UCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for UCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples	antimony	U

## Matrix Spike Recoveries

### Metals

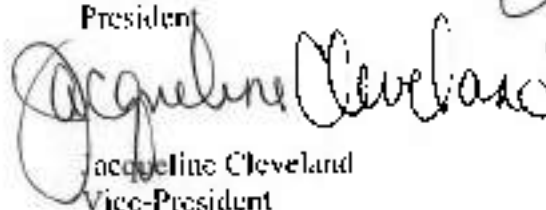
The matrix spikes of samples 74SB163-03 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB163-03	antimony	all samples	62%-60%	NAU

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschloff  
President

  
Jacqueline Cleveland  
Vice-President

Michael Baker, Jr., Inc.  
NAPR SWMU174, Puerto Rico  
SDG# SWMU36880-3

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SR163-03, 74SR163-04	pentachlorocyclopentadiene	+	FR
74SR163-03, 74SR163-04	2-hexanone	+	FR

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	+	J
all samples	antimony	<MDL up to RL	U
all samples	antimony	+	FR

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/JJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36880-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 19, 2008  
 SDG# SWMU36880-4, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36880-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	DRO	GRO	TMetals	DMetals
74GWVP11B	680-36880-41	water	X	X	X			X	X
74UWVP11Aa	680-36880-43	water	X	X			X	X	X
74GWVP11B-9	680-36880-46	water	X				X		
74GW74	680-36880-47	water	X		X			X	X
74GWVP11A	680-36880-48	water	X	X			X	X	X
74GWVP11Ca	680-36880-49	water				X			X
74ER13	680-36880-49	water	X		X			X	
74ER14	680-36880-50	water	X		X			X	
74TB18	680-36880-51	water	X				X		
74TB19	680-36880-52	water	X				X		
74TB20	680-36880-53	water	X				X		

The following quality control samples were provided with this SDG: samples 74ER13 and 74ER14-equipment blanks; samples 74TB18, 74TB19 and 74TB20-trip blanks.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*

• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	†
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	*
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	NA
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blank associated with samples in this batch. Qualifications were added to the data.

One sample required a dilution to obtain results within the calibration range.

### **PAH**

Two samples exhibited non-compliant surrogate results that resulted in qualifications to the data.



## **DRO/GRO**

One sample analyzed for GRO required qualification due to a high surrogate recovery.

## **Metals**

The IC SAB standards associated with the dissolved metals samples exhibited non-compliant recoveries below the QC limit for the analyte silver. Based on Region II guidelines all positive and non-detect results for silver in the dissolved metals samples were qualified as estimated J/UJ.

Blank contamination was noted and qualification was required in the samples in this SDG.

The serial dilution analysis of sample 74C'WVP1CbF1 from SDG SWMU36806-3) exhibited a non-compliant %D for the analyte lead. All results for lead in the dissolved metals samples were qualified as estimated J/UJ.

The total/dissolved metals analysis comparison exhibited a %D greater than 20% but less than or equal to 50% for one analyte in one pair and a %D greater than 50% for one analyte in one pair. These analytes were qualified based on Region II guidelines.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required. Calculation and transcription issues were noted in the GRO fraction. Corrections were requested and received from the laboratory. A copy of the email correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/14/08 and samples were received at the laboratory 05/17/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRF's and %D's that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/26/08	pentachloroethane	91.1%	74TH20, 74TH19,	J/R
	acrylonitrile	26.6%	74TB18, 74ER14,	J/U
	bromomethane	32.7%	74FR13, 74GWVP11A, 74GWVP11B-9, 74GWVP11Aa	
CC 05/29/08	pentachloroethane	101.0%	74GWVP11B,	J/R
	acrylonitrile	21.2%	74GW74	J/U
	1,2-dichloroethane	24.8%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the dissolved metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (76%/76%/76%). Based on Region II guidelines, reported positive and non-detect results for silver in the dissolved metals samples were qualified as estimated J/UJ in all samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the

CRQI, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method BIE	carbon disulfide	0.330 ug/L	2 ug/L	RL
ER12	toluene	0.520 ug/L	1 ug/L	RL
FB01	2-butanone	0.690 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GWVP11A, 74GWVP1Aa	carbon disulfide	U at reported value
74GWVP11B, 74GW74	toluene	U at reported value
74GWVP11B, 74GWVP1Aa	acetone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBIK - TM	arsenic	0.29891 ug/L	< MDL up to RL	U
	vanadium	1.11491 ug/L	< MDL up to RL	U
	antimony	0.5370 ug/L	< MDL up to RL	U
ICB - DM	antimony	0.1595 ug/L	< MDL up to RL	U
FB01	copper	2.11 ug/L	< MDL up to RL	U
	lead	0.380 ug/L	< MDL up to RL	U
ER12	vanadium	0.990 ug/L	< MDL up to RL	U

Field Blank concentrations were made based on tracking provided by the client. Please note: when qualifying samples for CYH contamination, associated samples are those just prior to or just following all CYH. Therefore, not all non-yet-analyzed samples are flagged for CYH contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
74GWVP11B, 74GWVP1Aa, 74GWVP11A	arsenic	U
74GWVP1Aa, 74GWVP11A, 74GWVP1AaF, 74GWVP11AF	copper	U
74GWVP11A	lead	U
74GWVP11B, 74GWVP11A, 74GWVP11BF, 74GWVP11AF	vanadium	U

### Surrogate Recoveries

#### PAH

Sample 74GWVP11A high surrogate recoveries for o-terphenyl at 141% (QC limits 44-123%); therefore all positive results were qualified as estimated (E). Sample

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NAPR SWMU74, Puerto Rico  
SDG# SWMU36880-4

74GWVP1Aa exhibited 0% recovery for *o*-terphenyl. The laboratory cited that matrix effect and a dilution of 1:10 was the cause for this recovery; therefore all results were qualified as estimated (J/UJ).

#### DRO/GRO

One sample analyzed for GRO exhibited a non-compliant surrogate recovery above the QC limits. The reported positive result for GRO in sample 74GWVP1Bb/9 (128%) was qualified as estimated J.

#### **Serial Dilutions**

##### Metals

The serial dilution of sample 74GWVP1CB (from SDG SWMU36806-3) associated with the dissolved metals analysis exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of this non-compliance and affected samples is noted in the following table.

SD	Analytes	Samples	RPD	Q Flag
74GWVP1CB	lead	dissolved metals samples	12.9%	J/UJ

#### **Identification/Quantitation**

##### NDA

Sample 74GWVP1Bb/9 was analyzed at a dilution to obtain results within the calibration range. For this sample, all results that were above the calibration range in the initial analysis were rejected in favor of the corresponding result in the diluted analysis.

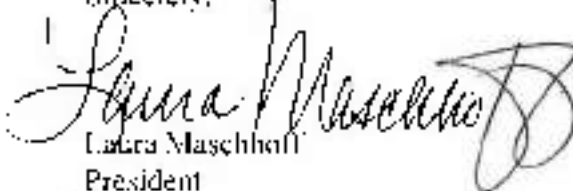
##### Metals

The total and dissolved metals analysis exhibited one result with a %D's >20% but less than or equal to 50%. The total and dissolved metals analysis exhibited one result with a %D >50%. Results were qualified based on the Region II guidelines. Specific action is noted in the following table.

Sample ID	Analyte	%D	Q Flag
74GWVP1Aa, 74GWVP1Aaf	cobalt	72%	J
74GW74, 74GW74f	cobalt	90%	R

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual FS with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74TB20, 74TB19, 74TB18, 74ER14, 74ER13, 74GWVP11A, 74GWVP11Bb9, 74GWVP1Aa	pentachloroethane	+	J/R
74TB20, 74TB19, 74TB18, 74ER14, 74ER13, 74GWVP11A, 74GWVP11Bb9, 74GWVP1Aa	acrylonitrile bromomethane	+/-	J/U
74GWVP11B, 74GW74	pentachloroethane	+	J/R
74GWVP11B, 74GW74	acrylonitrile 1,2-dichloroethane	+	J/U
74GWVP11A, 74GWVP1Aa	carbon disulfide	+	U at reported value
74GWVP11B, 74GW74	toluene	+	U at reported value
74GWVP11B, 74GWVP1Aa	acetone	+	U at reported value
74GWVP11Bb9	acetone	-	R
74GWVP11Bb9/DL	all results except acetone	+/-	R

### PAH

Sample ID	Compound	Results	Q flag
74GWVP11A	all results	-	J
74GWVP1Aa	all results	+/-	J/U

### DRO/GRO

Sample ID	Compound	Results	Q flag
74GWVP11Bb9	GRO	+	J

### Metals

Sample ID	Analyte	Results	Q flag
all dissolved metals samples	silver	+/-	J/U
all samples >MDL up to RL	antimony	>MDL up to RL	U
74GWVP11B, 74GWVP1Aa, 74GWVP11A	arsenic	>MDL up to RL	U
74GWVP1Aa, 74GWVP11A, 74GWVP1AaF, 74GWVP11AF	copper	>MDL up to RL	U
74GWVP11A	lead	>MDL up to RL	U
74GWVP11B, 74GWVP11A, 74GWVP11BF, 74GWVP11AF	vanadium	>MDL up to RL	U
all dissolved metals samples	lead	+/-	J/U
74GWVP1Aa, 74GWVP1AaF	cobalt	-	J
74GW74, 74GW74F	cobalt	+	R

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NAPR SWMU74, Puerto Rico  
SDG# SWMU36880-4

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
E	estimated value
UL	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL,**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/L - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use +insate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value

G - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36891-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

August 22, 2008  
SDG# SWMU36891-1, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36891-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #1W-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRG and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LC PAH	DRO-GRO	DRO	Metals
74SB164-04	680-36891-1	soil	X		X		X
74SB164-05	680-36891-2	soil	X		X		X
74SB165-01	680-36891-3	soil	X		X		X
74SB165-04	680-36891-4	soil	X		X		X
74SB166-04	680-36891-5	soil	X		X		X
74SB166-04D	680-36891-6	soil	X		X		X
74SB166-05	680-36891-7	soil	X		X		X
74SB167-04	680-36891-8	soil	X		X		X
74SB167-05	680-36891-9	soil	X		X		X
74SB168-04	680-36891-10	soil	X		X		X
74SB168-05	680-36891-11	soil	X		X		X
74SB169-04	680-36891-12	soil	X		X		X
74SB169-05	680-36891-13	soil	X		X		X
74SBVP05a-04	680-36891-14	soil	X		X		X
74SBVP05a-09	680-36891-15	soil	X		X		X
74SB145-05	680-36891-16	soil	X		X		X
74SB145-09	680-36891-17	soil	X		X		X
74SBVP05b-05	680-36891-18	soil	X	X	X		X
74SBVP05b-05	680-36891-19	soil	X	X	X		X
74SBVP10a-05	680-36891-20	soil	X	X	X		X
74SBVP05b-03MS	680-36891-13MS	soil		X			
74SBVP05b-03MSD	680-36891-13MSD	soil		X			
74SB164-04MS	680-36891-1MS	soil				X	
74SB164-04MSD	680-36891-1MSD	soil				X	
74SB165-04MS	680-36891-3MS	soil					X
74SB165-04MSD	680-36891-3MSD	soil					X

The following quality control samples were provided with this SDG: sample 74SB166-04D-field duplicate of sample 74SB166-04.

The samples were evaluated based on the following criteria:

• Data Completeness	†
• Sample Condition	†
• Technical Holding Times	†
• GC/MS Tuning	†
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	×
• CRDL Standards	×
• Blanks	
• Internal Standards	†
• Surrogate Recoveries	
• Laboratory Control Samples	†
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	†
• Field Duplicates	
• Identification/Quantitation	×
• Reporting Limits	×
• Tentatively Identified Compounds	NA

† - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

One sample exhibited non-compliant surrogate recoveries that resulted in qualifications to the data.

One of the laboratory control samples exhibited low recoveries that resulted in qualifications to the associated samples.

### **LL PAH**

No qualifications to the data were required.

### **DRO/GRO**

One continuing calibration standard for the DRO fraction exhibited a non-compliant %D that resulted in the qualification of ten DRO results as estimated J.

The associated DRO fraction rinse blank exhibited contamination and qualification was required in the samples in this SDG.

One sample analyzed for GRO required qualification due to a non-compliant surrogate recovery below the QC limits.

### **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited non-compliant %Rs for two analytes for which qualifications were required. Positive and non-detect results for antimony and chromium were flagged as estimated J/U in the samples.

The associated matrix duplicate exhibited non-compliant RPDs for one analyte for which qualifications were required. Positive and non-detect results for barium were flagged as estimated J/U in the samples.

The field duplicate pair of samples 74SB166-04 and 74SB166-04D exhibited a non-compliant RPD >35% but less than 120% for the analyte barium. This analyte was flagged as estimated in the field duplicate pair. All qualifications were made based on the Region II guidance.

### **Specific Evaluation of Data**

#### **Data Completeness**

Michael Baker, Jr., Inc  
NAPR SWMU74, Puerto Rico  
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The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/16-17/08 and samples were received at the laboratory 05/20/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/25/08	pentachloromethane	149.7%	74SB164-04, 74SB164-05, 74SB165-04, 74SB165-05, 74SB166-04, 74SB166-05, 74SB167-04, 74SB167-05, 74SB168-04, 74SB168-05, 74SB169-04, 74SB169-05, 74SBVP05a-04, 74SBVP05a-09, 74SB145-05	JR
CC 05/27/08	pentachloroethane	173.3%	74SB166-04D, 74SB145-09,	JR
	2-hexanone	23.6%	74SBVP10a/JP5H11-04	PLJ
CC 05/27/08	isobutyl alcohol	0.02675	74SBVP9b/JP5H11-05	JR
	acetonitrile	26.5%		PLJ
	methyl methacrylate	24.9%		
	pentachloroethane	24.5%		
	bromomethane	44.5%		
	acetone	12.7%		
	2-butanone	31.6%		
	4-methyl-2-pentanone	15.1%		
	2-nonanone	28.7%		
	1,2,3-trichloropropane	23.0%		
	1,1-dibromo-3-chloropropane	26.5%		
CC 05/29/08	pentachloroethane	91.9%	74SBVP9b/JP5H11-03	JR

### DRO/GRO

One calibration standard exhibited a non-compliant %D for DRO. A summary of this non-compliance and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	%D	Samples	Q Flag
QE270127	DRO	18.7%	74SB164-04, 74SB164-05, 74SB165-04, 74SB165-05, 74SB166-04, 74SB166-04D, 74SB166-05, 74SB167-04, 74SB167-05, 74SB168-04	J

### **Blanks**

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	8.32 ug/Kg	50 ug/Kg	2X RL
FB01	2-butanone	0.69 ug/L	10 ug/L	RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SBVP9bJP5H111-05	acetone	U at reported value
74SB164-04, 74SB167-04, 74SB169-04, 74SBVP05a-04, 74SB115-05, 74SBVP9bJP5H111-04	2-butanone	U at reported value

### DRO/GRO

The associated DRO rinse blank exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Compound	Concentration	Action Level
ER15	DRO	0.076 ng/Kg	>MDL up to RL

Associated samples and required qualifications are noted in the following table.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36891-1

Sample ID	Compound	Q Flag
all samples - MDL up to RL	DRO	U

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.115600 ug/L	-MDL up to RL	U

\* Field/CL blank qualifications were made using CL Blank tracking. Please note: when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples	antimony	U

### Surrogates

#### VOA

Sample 74SBVP10a/JP5Hill-04 exhibited high surrogate recovery for 4-bromofluorobenzene at 244% recovery (QC limit 65-124%); therefore all positive results were qualified as estimated (J). The sample was re-analyzed at a dilution to show matrix effect, however the diluted sample was not used.

#### DRO/GRO

One sample analyzed for GRO exhibited non-compliant surrogate recovery below the QC limits and required qualification. The reported positive result for GRO in sample 74SBVP9b/JP5Hill-05 (29%) was qualified as estimated (J).

### Laboratory Control Sample

#### VOA

The LCS associated with sample 74SBVP9b/JP5Hill-03 exhibited low recovery for chloroethane with 22% recovery; results for this compound were qualified as estimated (J/U).

### Matrix Spike Recoveries

#### Metals

The matrix spikes of samples 74SB165-04 exhibited non-compliant %Rs for analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB165-04	antimony	all samples	57%/37%	E/J
	chromium		12%/67%	

### Matrix Duplicates

#### Metals

The matrix duplicate of samples 74SB165-04 exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB165-04	barium	all samples	74.5%	E/J

### Field Duplicates

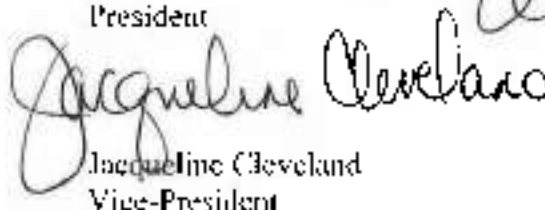
#### Metals

The field duplicate pair of samples 74SB166-04 and 74SB166-04D exhibited a non-compliant RPD >35% but less than 120% for the analytes barium (56%). This analyte were flagged as estimated J in the field duplicate pair. All qualifications were made based on the Region II guidance.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschloff  
President

  
Jacqueline Cleveland  
Vice-President

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36891-1



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB164-04, 74SB164-05, 74SB165-04, 74SB165-05, 74SB166-04, 74SB166-05, 74SB167-04, 74SB167-05, 74SB168-04, 74SB168-05, 74SB169-04, 74SB169-05, 74SBVP05a-04, 74SBVP05a-09, 74SB145-05	pentachloroethane	+/	J/R
74SB166-04D, 74SB145-09, 74SBVP10a/JP5H11-01	pentachloroethane	+/	J/R
74SB166-04D, 74SB145-09, 74SBVP10a/JP5H11-04	2 hexanone	+/	J/U
74SBVP9b/JP5H11-05	isobutyl alcohol	-/-	J/R
74SBVP9b/JP5H11-05	acetonitrile methyl methacrylate pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/	J/U
74SBVP9b/JP5H11-03	pentachloroethane	-/-	J/R
74SBVP9b/JP5H11-05	acetone	-	U at reported value
74SB164-04, 74SB167-04, 74SB169-04, 74SBVP05a-04, 74SB145-05, 74SBVP9b/JP5H11-03	2-butanone	-	U at reported value
74SBVP10a/JP5H11-04	all results	+	J
74SBVP10a/JP5H11-04DL	all results	+/	R
74SBVP9b/JP5H11-03	chloroethane	+/	J/U

### LL PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB164-04, 74SB164-05, 74SB165-04, 74SB165-05, 74SB166-04, 74SB166-04D, 74SB166-05, 74SB167-04, 74SB167-05, 74SB168-04	DRO	+	J
all samples -MDL up to RL	DRO	+J	U
74SBVP9b/JP5H11-05	GRO	+	J

Michael Baker, Jr., Inc  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36891-1

## Summary of Data Qualifications

### Metals

Sample ID	Analyte	Results	Q flag
all samples	actinometry	MDL up to R1,	L
all samples	arsimony	17.	PUJ
	chromium		
all samples	barium	17.	PUJ
74S1166-04, 74S18166-0413	barium	1	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
E	estimated value
UQ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
EN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDE. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL; result is reported as non-detect at the reported concentration when the ICB-CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- JUD - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36891-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 22, 2008  
 SDG# SWMU36891-2, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36891-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	II PAH	DRO/GRO	Metals
74SRVP10a/DP5100-05	680-36891-21	soil	X	X	X	X
74SB170-04	680-36891-22	soil	X	X	X	X
74SB170-05	680-36891-23	soil	X		X	X
74SB171-00	680-36891-24	soil	X		X	X
74SB171-04	680-36891-25	soil	X		X	X
74SB171-05	680-36891-26	soil	X		X	X
74SB171-0510	680-36891-27	soil	X		X	X
74SB172-04	680-36891-28	soil	X		X	X
74SB172-05	680-36891-29	soil	X		X	X
74SB173-04	680-36891-30	soil	X		X	X
74SB173-05	680-36891-31	soil	X		X	X
74SB174-04	680-36891-32	soil	X		X	X
74SB174-05	680-36891-33	soil	X	X	X	X
74SB175-04	680-36891-34	soil	X		X	X
74SB175-05	680-36891-35	soil	X		X	X
74SB176-04	680-36891-36	soil	X		X	X
74SB176-05	680-36891-37	soil	X		X	X
74SB176-0510	680-36891-38	soil	X		X	X
74SB177-04	680-36891-39	soil	X		X	X
74SB177-05	680-36891-40	soil	X		X	X
74SB177-04 MS	680-36891-24 MS	soil	X		X	X
74SB171-04 MS10	680-36891-25 MS10	soil	X		X	X

The following quality control samples were provided with this SDG: sample 74SB171-05D-field duplicate of sample 74SB171-05; and sample 74SB176-05D-field duplicate of sample 74SB176-05.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations \*
- ICSEA/ICSAB Standards \*
- CRDL Standards \*
- Blanks
- Internal Standards
- Surrogate Recoveries
- Laboratory Control Samples
- Matrix Spike Recoveries
- Matrix Duplicate RPDs
- Serial Dilutions \*
- Field Duplicates
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

One sample exhibited high internal standard area recoveries that resulted in qualifications to associated compounds.

One sample exhibited non-compliant surrogate recoveries that resulted in qualifications to the data.

One of the laboratory control samples exhibited low recoveries that resulted in qualifications to the associated samples.

### **LL PAH**

One sample required a dilution to obtain results within the calibration range.

### **DRO/GRO**

The associated DRO fraction rinse blank exhibited contamination and qualification was required in the samples in this SDG.

One sample analyzed for GRO required qualification due to a non-compliant surrogate recovery below the QC limits.

### **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spikes exhibited a non-compliant %R for two analytes for which qualifications were required. Positive and non-detect results for antimony were flagged as estimated J/UJ in the samples. Positive and non-detect results for mercury were rejected due to recoveries above 200%.

The associated matrix duplicate exhibited non-compliant RPDs for two analytes for which qualifications were required. Positive and non-detect results for cobalt and lead were flagged as estimated J/UJ in the samples.

The field duplicate pair of samples 74SB171-05 and 74SB171-05D exhibited a non-compliant RPD  $\geq 35\%$  but less than 120% for the analyte cobalt. This analyte was flagged as estimated in the field duplicate pair. All qualifications were made based on the Region II guidance.



## Specific Evaluation of Data

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/16-17/08 and samples were received at the laboratory 05/20/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/27/08	isobutyl alcohol	0.02524	74SB171-05,	J/R
	acetonitrile	32.5%	74SB171-05/D,	J/U
	dichlorodifluoromethane	29.0%	74SB172-04,	
	acetone	55.4%	74SB173-04,	
			74SB173-05,	
CC 05/27/08			74SB174-04	
	isobutyl alcohol	0.02675	74SB170-05,	J/R
	acetonitrile	26.5%	74SB171-06,	J/U
	methyl methacrylate	24.9%	74SB171-04,	
	pentachloroethane	24.5%	74SB172-05,	
	bromomethane	44.5%	74SB175-04,	
	acetone	22.7%	74SB170-04,	
	2-butanone	31.6%	74SB176-04,	
	4-methyl-2-pentanone	25.1%	74SB176-05,	
	2-hexanone	28.7%	74SB176-05/D,	
	1,2,3-trichloropropane	23.0%	74SB177-04,	
CC 05/29/08	1,2 dibromo-3-chloropropane	26.5%	74SB177-05	
	pentachloroethane	91.4%	74SBVP10a-JP5U1111-05DL	J/R

Standard ID	Compound(s)	RRE, %RSD, %D	Samples	Q Flag
CC 05/30/08	acrolein	0.04882	74SR174-05DL	FR
	isobutyl alcohol	0.02395		
	iodomethane	20.9%		J/LJ
	acetonitrile	41.8%		
	3-chloro-1-propene	24.3%		
	acrylonitrile	31.1%		
	propionitrile	22.1%		
	pentachloroethane	51.1%		
	bromomethane	50.5%		
	acetone	12.4%		
	2-butanone	32.3%		
	4-methyl-2-pentanone	31.3%		
CC 05/30/08	2-hexanone	33.7%	74SR175-05	FR
	1,2-dibromo-3-chloropropane	32.3%		
	isobutyl alcohol	0.01828		J/LJ
	acrolein	36.3%		
	acetonitrile	39.5%		
	acrylonitrile	25.3%		
	pentachloroethane	11.2%		
	bromomethane	43.2%		
	acetone	23.5%		
	2-butanone	33.5%		
	4-methyl-2-pentanone	29.6%		
	2-hexanone	29.6%		
	1,2,3-trichloropropane	22.3%		

## Blanks

### YQA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as JJ at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	8 JJ ug/Kg	50 ug/Kg	2X RL
Method Blank	acetone	20J ug/Kg	50 ug/Kg	2X RL
FD01	2-butanone	0.69J ug/L	10 ug/L	RI

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB171-05, 74SB172-04, 74SB173-04, 74SB173-05, 74SB174-04, 74SB170-05, 74SB175-04, 74SB170-04, 74SB170-04, 74SB176-05, 74SB176-05D, 74SB177-04, 74SB177-05, 74SB171-05D	acetone	U at reported value
74SBVP10a/JP51111-05DL	2-butanone	U at reported value

### DRO/GRO

The associated DRO rinse blank exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Compound	Concentration	Action Level
BR15	DRO	0.036 mg/Kg	>MDL up to RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples >MDL up to RL	DRO	U

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBS	antimony	0.08777J mg/Kg	>MDL up to RL	U

\* Field QC blank qualifications were made using CR blank tracking. Please note, when qualifying samples for PCB contamination, associated samples are those corresponding and following a CRB. Therefore, not all analytes in all samples are flagged for PCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples	antimony	U

### Internal Standards

### VOA

Sample 74SB174-05DL exhibited high internal standard area recovery for 1,2-dichloromethane-d4; therefore all associated compound positive results were qualified as estimated (J).

## Surrogates

### VOA

Sample 74SB174-05DL exhibited low surrogate recovery for dibromofluoromethane at 27% recovery (QC limit 65-124%); therefore all results were qualified as estimated (J/U). The initial analysis of the sample exhibited surrogate results below 10% therefore the sample was re-analyzed at a dilution to show matrix effect.

## Laboratory Control Sample

### VOA

The LCS associated with sample 74SBVP102/PPSHill-05DL exhibited low recovery for chloroethane with 22% recovery; results for this compound were qualified as estimated (J/U).

## Matrix Spikes

### Metals

The matrix spikes of samples 74SB171-04 exhibited non-compliant %Rs for two analytes that required qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB171-04	antimony	all samples	47% <sup>1</sup> /49% <sup>1</sup>	J/U
	mercury		26% <sup>1</sup> 34% <sup>2</sup> /25% <sup>1</sup> 3%	R

## Matrix Duplicates

### Metals

The matrix duplicate of samples 74SB171-04 exhibited non-compliant %Ds for two analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB171-04	cobalt	all samples	48.7%	J/U
	lead		37.7%	

## Field Duplicates

### Metals

The field duplicate pair of samples 74SB171-05 and 74SB171-05D exhibited a non-compliant RPD >35% but less than 120% for the analyte cobalt (36%). This analyte were flagged as estimated J in the field duplicate pair. All qualifications were made based on the Region II guidance.

## Identification/Quantitation

### VOA

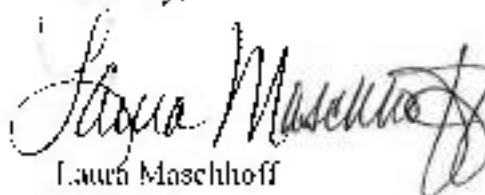
The initial analysis of samples 74SBVP10a/JP5Till-05 and 74SB174-05 were not used, in favor of the re-analysis, due to non-compliant surrogate and internal standard area recoveries.

### LL PAH

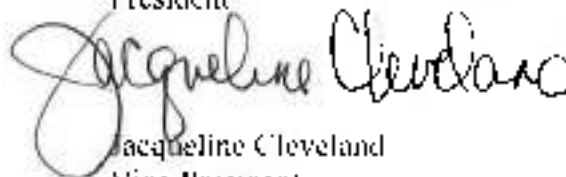
Sample 74SB174-05 was analyzed at a dilution to obtain results within the calibration range. The J-flagged results in the initial analyses were rejected in favor of the corresponding results in the diluted analyses. In the diluted analysis compound benzo(k)fluoranthene was diluted out; therefore the result from the initial analysis was used and qualified as estimated (J) since the result was above the calibration range.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice-President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q Flag
74SB171-05, 74SB171-05D, 74SB172-04, 74SB173-04, 74SB173-05, 74SB174-04	isobutyl alcohol	+	J/R
74SB171-05, 74SB171-05D, 74SB172-04, 74SB173-04, 74SB173-05, 74SB174-04	acetonitrile dichlorodifluoromethane acetone	+	J/U
74SB176-05, 74SB171-05, 74SB171-04, 74SB172-05, 74SB175-04, 74SB170-04, 74SB176-04, 74SB176-05, 74SB176-05D, 74SB177-04, 74SB177-05	isobutyl alcohol	+	J/R
74SB170-05, 74SB171-05, 74SB171-04, 74SB172-05, 74SB175-04, 74SB170-04, 74SB176-04, 74SB176-05, 74SB176-05D, 74SB177-04, 74SB177-05	acetonitrile methyl methacrylate pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+	J/U
74SBVP10a/JP5111D-05D1.	pentachloroethane	+	J/R
74SB174-05D1.	acrolein isobutyl alcohol	+	J/R
74SB174-05D1.	iodoethane acetonitrile 3-chloro-1-propanol acrylonitrile propionitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2-dibromo-3-chloropropane	+	J/U
74SB175-05	isobutyl alcohol	+	J/R
74SB175-05	acrolein acetonitrile acrylonitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane	+	J/U

### Summary of Data Qualifications, continued

Sample ID	Compound	Results	Q flag
74SB171-05, 74SB172-04, 74SB173-04, 74SB173-05, 74SB174-04, 74SB170-05, 74SB175-04, 74SB170-04, 74SB176-04, 74SB176-05, 74SB176-05D, 74SB177-04, 74SB177-05, 74SB171-05D	acetone	+	U at reported value
74SBVP10a/JP5Hill-05DL	2-betarene	+	U at reported value
74SB174-05DL	all compounds associated with: 1,2-dichloroethane (d)	+	J
74SB174-05DL	all results	+/	J/U
74SBVP10a/JP5Hill-05DL	chloroethane	+/	J/U
74SBVP10a/JP5Hill-05, 74SB174-05	all results	+/	R

### LL PAH

Sample ID	Compound	Results	Q flag
74SB174-05	benzo(a)anthracene benzo(a)pyrene benzo(b)fluoranthene chrysene fluoranthene fluorene anthracene pyrene	+	R
74SB174-05DL	1-methylnaphthalene 2-methylnaphthalene acenaphthene acenaphthylene benzo(g,h,i)perylene benzo(k)fluoranthene dibenz(a,h)anthracene indeno(1,2,3-cd)pyrene naphthalene phenanthrene	+	R
74SB174-05	benzo(k)fluoranthene	+	J

### DRO/GRO

Sample ID	Compound	Results	Q flag
all samples ~MOL up to R1	DRO	+J	U
74SB174-04	GRO	+/	J/U

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36891-2

## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q Flag
all samples	antimony	MDL up to RL	U
all samples	antimony	++	JJJ
all samples	mercury	++	R
all samples	cobalt	++	JJJ
	lead		
74SB171-05, 74SB171-05D	cobalt	+	J



## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36891-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 22, 2008  
 SDG# SWMU36891-3, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36891-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006; SOP #11W-24 and 8270D-Rev 3, October 2006; SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	Metals
74SBVT10a/DPM-04	680-36891-41	soil	X	X	X	X
74SBVT10b/DPM-05	680-36891-42	soil	X	X	X	X
74SBVT11b/DPM-04	680-36891-43	soil	X		X	X
74SBVT11b/DPM-05	680-36891-44	soil	X		X	X
74SBVPAa-04	680-36891-45	soil	X		X	X
74SBVPBa-03	680-36891-46	soil	X		X	X
74SBVPBa-04	680-36891-47	soil	X		X	X
74SBVPBa-05	680-36891-48	soil	X		X	X
74SBVPBa-07	680-36891-49	soil	X		X	X
74SB206-04	680-36891-50	soil	X		X	X
74SB206-05	680-36891-51	soil	X		X	X
74SB201-03	680-36891-52	soil	X		X	X
74SB201-04	680-36891-53	soil	X		X	X
74SB201-04D	680-36891-54	soil	X		X	X
74SB201-05	680-36891-55	soil	X		X	X
74SBVPAa-07	680-36891-56	soil	X		X	X
56SB202-04	680-36891-57	soil	X		X	X
74SB202-05	680-36891-58	soil	X		X	X
74SB203-04	680-36891-59	soil	X		X	X
74SB203-05	680-36891-60	soil	X		X	X
74SB201-05 MS	680-36891-55MS	soil	X		X	X
74SB201-05 MSD	680-36891-55MSD	soil	X		X	X

The following quality control sample was provided with this SDG: sample 74SB201-04D—field duplicate of sample 74SB201-04.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSEA/CSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	
• Matrix Spike Recoveries	*
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

## **PAH**

No qualifications to the data were required.

## **DRO/GRO**

One sample was reanalyzed outside the holding time for the GRO fraction. This sample was rejected in favor of the result reported from the original analysis of the sample.

Blank contamination was noted and qualification was required in the samples in this SDG.

One sample analyzed for GRO required qualification due to high surrogate recoveries.

## **Metals**

The IC SAB standards exhibited non-compliant recoveries below the QC limit for the analytes silver and zinc. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated (E/U) and positive results for zinc were qualified as estimated (E).

Blank contamination was noted and qualification was required in the samples in this SDG.

The serial dilution analysis exhibited a non-compliant %D for one analyte and qualification was required for the analyte cobalt. All results for cobalt in the metals samples were qualified as estimated (E/U).

The field duplicate pair exhibited a non-compliant absolute difference for one analyte. The analyte lead was rejected in the field duplicate pair based on Region II guidelines.

## **Specific Evaluation of Data**

### **Data Completeness**

Resubmissions were required for the metals fraction. The SDG was received with the wrong form 1s. Form 1's that were submitted were from SDG SWMU 36891-2. The laboratory was contacted and the correct Form 1's were submitted. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36891-3

According to chain of custody records, sampling was performed on 05/17-18/08 and samples were received at the laboratory 05/20/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the exception of one reanalysis.

#### DRO/GRO

Sample 74SBVP6Cb-07 was reanalyzed outside the holding time due to a non-compliant surrogate recovery in the original analysis. This sample reanalysis was rejected R in favor of the result reported from the original analysis.

#### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/28/08	pentachloromethane	132.1%	74SBVP10b-DFM-04,	JR
	acrylonitrile	26.2%	74SBVP10b-DFM-05,	JUJ
	ethyl methacrylate	21.6%	74SBVP11b-UPSHIL-04,	
	trans-1,4-dichloro-2-butene	22.0%	74SBVP11b-UPSHIL-05,	
	2-butanone	26.1%	74SBVP6Aa-04, 74SBVP6Ba-03,	
	4-methyl-2-pentanone	22.8%	74SBVP6Ba-04, 74SBVP6Cb-04,	
	2-hexanone	25.6%	74SB200-04, 4SB200-05,	
CC 05/30/08			74SB201-00, 74SB201-04,	
			74SB201-04b, 74SB201-05,	
			74SB202-04, 74SB202-05,	
			74SB203-04, 74SB203-05	
	acrolein	0.04882	74SBVP6Cb-07	JR
	isobutyl alcohol	0.02395		
	iodomethane	20.9%		JUJ
	acetonitrile	41.8%		
	3-chloro-1-propene	24.3%		
	acrylonitrile	31.1%		
	propionitrile	22.1%		
	pentachloromethane	51.1%		
	bromomethane	50.5%		
	acetone	22.4%		
	2-butanone	32.3%		
	4-methyl-2-pentanone	31.3%		
	2-hexanone	33.7%		
	1,2-dichloro-3-chloropropane	32.7%		

Standard ID	Compound(s)	RRE, %RSD, %D	Samples	Q Flag
QC 05/31/98	isobutyl alcohol	0.02358	74SBVP6Aa-07	P/R
	acrolein	26.0%		J/U
	acetonitrile	44.9%		
	3-chloro-1-propene	30.4%		
	propionitrile	24.7%		
	ethyl methacrylate	23.4%		
	pentachloroethane	55.2%		
	bromomethane	51.7%		
	acetone	25.0%		
	2-butanone	34.9%		
	2-hexanone	34.2%		
	1,2-dibromo-3-chloropropane	28.5%		

### ICSA/ICSAB Standards

#### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (78%/77%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/U in all samples. The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries greater than the upper QC limit for the analyte zinc (125%/124%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

#### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FB01	2-butanone	0.691 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SBVP10b/DFM-04, 74SBVP10b/DFM-05, 74SBVP11b/PS1B-04, 74SB200-05, 74SB201-00, 74SB201-05	2-butanone	U at reported value

Michael Baker, Jr., Inc  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36891-3



## DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the RL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
FR15	DRO	0.0365 ug/L	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples <MDL up to RL	DRO	U

## **Surrogate Recoveries**

### DRO/GRO

One sample analyzed for GRO exhibited a non-compliant surrogate recovery above the QC limits. The reported positive result for GRO in sample 74SBVP6C b-07 (181%) was qualified as estimated J.

## **Serial Dilutions**

### Metals

The matrix duplicate of samples 74SB201-05 exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB201-05	cobalt	all samples	12%	JUU

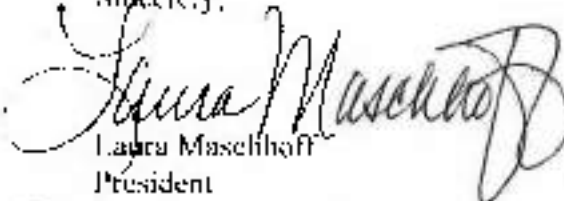
## **Field Duplicates**

### Metals

The field duplicate pair of samples 74SB201-04 and 74SB201-04D exhibited metals results for one analyte that did not compare. The analyte lead exhibited an absolute difference that was more than 4X +/- the RL and was rejected R in both samples according to the Region II guidelines.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maselhoff  
President

  
Jacqueline Cleveland  
Vice President

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## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SBVP10b-DFM-04, 74SBVP10b-DFM-05, 74SBVP11b/JP5H11-04, 74SBVP11b/JP5H11-05, 74SBVP6Aa-04, 74SBVP6Ba-03, 74SBVP6Ba-04, 74SBVP6Cb-04, 74SB200-04, 74SB200-05, 74SB201-00, 74SB201-04, 74SB201-04D, 74SB201-05, 74SB202-04, 74SB202-05, 74SB203-04, 74SB203-05	pentachloroethane	+/	J/R
74SBVP10b-DFM-04, 74SBVP10b-DFM-05, 74SBVP11b/JP5H11-04, 74SBVP11b/JP5H11-05, 74SBVP6Aa-04, 74SBVP6Ba-03, 74SBVP6Ba-04, 74SBVP6Cb-04, 74SB200-04, 74SB200-05, 74SB201-00, 74SB201-04, 74SB201-04D, 74SB201-05, 74SB202-04, 74SB202-05, 74SB203-04, 74SB203-05	acrylonitrile ethyl methacrylate trans-1,4-dichloro-2-butene 2-butanone 4-methyl-2-pentanone 2-hexanone	+/	J/U
74SBVP6Cb-07	acrolein isobutyl alcohol	+/	J/R
74SBVP6Cb-07	iodomethane acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2-dibromo-3-chloropropane	+/	J/U
74SBVP6Aa-07	isobutyl alcohol	+/	J/R
74SBVP6Aa-07	acrolein acetonitrile 3-chloro-1-propene propionitrile ethyl methacrylate pentachloroethane bromomethane acetone 2-butanone 2-hexanone 1,2-dibromo-3-chloropropane	+/	J/U
74SBVP10b-DFM-04, 74SBVP10b-DFM-05, 74SBVP11b/JP5H11-04, 74SB200-05, 74SB201-00, 74SB201-05	2-butanone		U, at reported value

## Summary of Data Qualifications

### PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SBVP6C'h-01RA	GRO	+	R
all samples	DRO	<MDL up to RL	J
74SBVP6C'h-07	GRO	-	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	+/	JUU
all samples	zinc	+	J
all samples	cobalt	+/	JUU
74SB201-04, 74SB201-04D	lead	+	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

L	not detected above the reported sample quantitation limit
J	estimated value
LJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect L.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- IAJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
-	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36891-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

August 22, 2008  
SDG# SWMU36891-4, Test America-Savanna  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36891-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015, DRO and 8015, GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	Metals
74SD204-01	680-36891-61	soil	X		X	X
74SD204-05	680-36891-62	soil	X		X	X
74SD205-04	680-36891-63	soil	X		X	X
74SD205-05	680-36891-64	soil	X		X	X
74SDVPI96-05	680-36891-65	soil	X	X	X	X
74SDVPI96-05	680-36891-66	soil	X	X	X	X
74SD205-6IMS	680-36891-63IMS	soil				X
74SD205-6IMSD	680-36891-63MSD	soil				X

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks
- Internal Standards
- Surrogate Recoveries

- Laboratory Control Samples
- Matrix Spike Recoveries
- Matrix Duplicate RPDs
- Serial Dilutions
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

#### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

Two of the laboratory control samples exhibited low recoveries that required associated sample compounds to be qualified as estimated.

#### **PAH**

One sample exhibited high surrogate recovery that resulted in qualifying positive results.

#### **DRO/GRO**

Two samples were reanalyzed outside the holding time for the GRO fraction. These samples were rejected in favor of the results reported from the original analyses of the samples.

One continuing calibration standard exhibited a non-compliant %D and associated samples required qualification.

Blank contamination was noted and qualification was required in the samples in this SDG.

One sample analyzed for GRO exhibited a high internal standard recovery. The reported positive result in the sample was qualified as estimated J.

Two samples analyzed for GRO required qualification due to non-compliant surrogate recoveries.

### **Metals**

The IC/SAB standards exhibited non-compliant recoveries below the QC limit for the analytes silver and zinc. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated J/UJ and positive results for zinc were qualified as estimated J.

The matrix spikes pair submitted in this SDG exhibited non-compliant recoveries and the samples required qualification for the analytes barium and cobalt. All results for barium were qualified as estimated J/UJ and all positive results for cobalt were qualified as estimated J.

The associated matrix duplicate exhibited non-compliant RPDs for three analytes for which qualifications were required. Positive and non-detect results for barium, cobalt and nickel were flagged as estimated J/UJ in the samples.

The serial dilution analysis exhibited a non-compliant %D for one analyte and qualification was required for the analyte copper. All results for copper in the samples were qualified as estimated J/UJ.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

## Technical Holding Times

According to chain of custody records, sampling was performed on 05/18/08 and samples were received at the laboratory 05/20/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the exception of two re-analyses for the GRO fraction.

### DRO/GRO

Samples 74SBVP19b-03DL and 74SBVP19b-05RA were reanalyzed outside the holding time due to a non-compliant surrogate or internal standard recovery in the original analysis. These sample re-analyses were rejected in favor of the results reported from the original analyses.

### Initial/Continuing Calibration

#### VQA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05-28-08	pentacloroethane	132.1%	74SB204-04, 74SB204-05	J/R
	acrylonitrile	26.7%		J/U
	ethyl methacrylate	21.6%		
	trans-1,4-dichloro-2-butene	22.0%		
	2-butanone	20.1%		
	4-methyl-2-pentanone	22.8%		
	2-hexanone	25.6%		
CC 05-28-08	pentacloroethane	181.2%	74SB205-04, 74SB205-05	J/R
	acrolein	26.4%		J/U
	acrylonitrile	35.5%		
	2-chloro-1,3-butadiene	25.7%		
CC 05-29-08	pentacloroethane	91.9%	74SBVP19b-05	J/R
CC 05-31-08	pentacloroethane	132.9%	74SBVP19b-03	J/R
	propionitrile	21.2%		J/U
	isobutyl alcohol	29.5%		
	chloroethane	31.6%		

### DRO/GRO

One calibration standard exhibited a non-compliant %D for DRO. A summary of this non-compliance and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	%D	Samples	Q Flag
QE270127	DRO	18.7%	74SRVP19h-03	J

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (78%/77%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/U in all samples. The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries greater than the upper QC limit for the analyte zinc (125%/124%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated J in all samples.

### Blanks

#### VIA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
1301	2-butanone	0.69 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SRVP19h-05	2-butanone	U at reported value

#### DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the RL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
ER-5	DRO	0.036 mg/L	RI	L

Associated samples and required qualifications are noted in the following table

Sample ID	Compound	Q Flag
74SB204-05	DRO	L

### Internal Standards

#### DRO:GRO

In the GRO analysis sample 74SBVP19b-03 exhibited an internal standard recovery above the QC limit. The reported positive result for GRO in the sample was qualified as estimated J.

### Surrogate Recoveries

#### PAH

Sample 74SBVP19b-03 exhibited high recovery for o-terphenyl at 170% (QC limits 29-122%); therefore the positive results were qualified as estimated (J) for this sample.

#### DRO:GRO

Two samples analyzed for GRO exhibited non-compliant surrogate recoveries. Sample 74SBVP19b-03 exhibited a recovery below the QC limits (28%) and the GRO result was qualified as estimated (J/U). Sample 74SBVP19b-05 exhibited a recovery above the QC limits (133%) and the reported positive result for GRO was qualified as estimated J.

### Laboratory Control Samples

#### VOA

The LCS associated with sample 74SBVP19b-05 exhibited low recovery for chloroethane at 22% recovery (QC limit 26-166%); therefore the compound was qualified as estimated (J/U) in this sample.

The LCS associated with sample 74SBVP19b-03 exhibited low recovery for chloroethane at 20% recovery (QC limit 26-166%); therefore the compound was qualified as estimated (J/U) in this sample.

## Matrix Spikes

### Metals

The matrix spikes pair submitted in this SDG exhibited non-compliant %R's for barium and cobalt, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table. Although some recoveries were >200% the other recoveries for the analytes were not > 200% so the results were not rejected.

MS	Analytes	Samples	%R	Q Flag
74SB205-04	barium	all samples	42% / 21.0%	PLJ
	cobalt		147% / 58.1%	

## Matrix Duplicates

### Metals

The matrix duplicate of samples 74SB205-04 exhibited non-compliant %Ds for three analytes that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB205-04	barium	all samples	52.8%	PLJ
	cobalt		69.1%	
	nickel		51.2%	

## Serial Dilutions

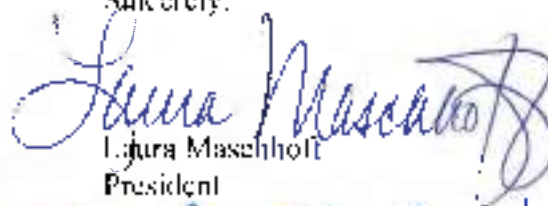
### Metals

The matrix duplicate of samples 74SB205-04 exhibited a non-compliant %D for one analyte that required qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	RPD	Q Flag
74SB205-04	copper	all samples	71.5%	PLJ

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB204-04, 74SB204-05	perchloroethane	+	J/R
74SB204-04, 74SB204-05	acrylonitrile ethyl methacrylate trans-1,4-dichloro-3-butene 2-butanone 4-methyl-2-pentanone 2-hexanone	+	J/U
74SB205-04, 74SB205-05	perchloroethane	+	J/R
74SB205-04, 74SB205-05	acrolein acrylonitrile 2-chloro-1,3-butadiene	+	J/U
74SBVP19b-05	perchloroethane	+	J/R
74SBVP19b-03	perchloroethane	+	J/R
74SBVP19b-03	propionitrile isobutyl alcohol chloroethane	+	J/U
74SBVP19b-05	2-butanone	+	U at reported value
74SBVP19b-05, 74SBVP19b-07	chloroethane	+	J/U

### PAH

Sample ID	Compound	Results	Q flag
74SBVP19b-03	all results	+	J

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SBVP19b-03(DL), 74SBVP19b-05(RA)	GRO	+	R
74SBVP19b-03	DRO	+	J
74SB204-05	DRO	+	U
74SBVP19b-03	GRO	+	J
74SBVP19b-03	GRO	+	J/U
74SBVP19b-05	GRO	+	J

## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q Flag
all samples	silver	ND	JUD
all samples	zinc	ND	J
all samples	barium	ND	JUD
all samples	cobalt	ND	J
all samples	barium cobalt nickel	ND	J
all samples	copper	ND	JUD

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
E	estimated value
UL	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL, but less than or equal to the RL; result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/JJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note – Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36891-5**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 22, 2008  
 SDG# SWMU36891-5, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36891-5. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006; SOP #HW-24 and 8270D-Rev 3, October 2006; SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LE-PAH	DRO/GRO	DRO	GRO	TMetals	DMetals
74GWVP1Aa	680-36891-69	water				X			
74GWVP1Bb9	680-36891-70	water		X				X	X
74GWVP21a9	680-36891-71	water	X	X	X			X	X
74GWVP3a9	680-36891-72	water	X	X	X			X	
74GW34	680-36891-73	water	X		X			X	X
74GWVP06	680-36891-74	water	X		X			X	X
74GWVP10aDFM	680-36891-75	water	X	X	X			X	X
74GWVP2b9	680-36891-76	water	X	X	X			X	X
74GWVPA3a9	680-36891-77	water	X				X		
74TB21	680-36891-78	water	X				X		
74TB22	680-36891-79	water	X				X		
74TB23	680-36891-80	water	X				X		
74TB24	680-36891-81	water	X				X		
74ER15	680-36891-82	water	X		X			X	
74ER16	680-36891-83	water	X		X			X	
74ER17	680-36891-84	water	X		X			X	

The following quality control samples were provided with this SDG: samples 74ER15, 74ER16 and 74ER17-equipment blanks; samples 74TB21, 74TB22, 74TB23 and 74TB24-trip blanks.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	*
• Matrix Spike Recoveries	NA
• Matrix Duplicate RPDs	NA
• Serial Dilutions	
• Field Duplicates	NA
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page. Please note that the reviewer added an H to the sample ID to indicate dissolved metals analysis when necessary.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

## **PAH**

No qualifications to the data were required.

## **DRO/GRO**

One sample analyzed for GRO required qualification due to high surrogate recoveries.

## **Metals**

The ICSAB standards associated with the total metals samples exhibited non-compliant recoveries below the QC limit for the analyte silver. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated J/UJ in the total metals samples.

Blank contamination was noted and qualification was required in the samples in this SDG.

The serial dilution analysis associated with the dissolved metals samples (from SDG SWMU 36806-3) exhibited a non-compliant %D for the analyte lead. All results for lead in the dissolved metals samples were qualified as estimated J/UJ.

The %differences between total and dissolved results were above 20% for some analytes and above 50% for cobalt in two samples. Those above 20% were flagged as estimated in both the total and dissolved sample. Those above 50% were rejected in both the total and dissolved sample. These qualifications were made according to Region II guidelines.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. The validator noticed a form calculation error in the continuing calibration forms for the GRO fraction. This error was also present in SDG SWMU36806-3. The correction submitted for that SDG was also used for this one. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/14-19/08 and samples were received at the laboratory 05/20/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36891-5



## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRF's and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/28/08	pentachloroethane	91.1%	74GWVP3b/9,	L/R
	acrylonitrile	26.6%	74GWVP3a/9,	L/U
	bromomethane	12.7%	74GW84, 74GWVP06, 74GWVP10a/DEM	
CC 05/19/08	pentachloroethane	117.0%	74GWVP12b/9,	L/R
	acrylonitrile	31.2%	74GWVP1Ab/9,	L/U
	1,2-dichloroethane	74.8%	74TB21, 74TB27, 74TB23, 74TB24, 74ER15, 74ER16, 74ER17	

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (77%/77%-76%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated L/U in all total metals samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	carbon disulfide	0.33 ug/L	2.0 ug/L	RL
FB01	2-butanone	0.69 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36891-5

Sample ID	Compound	Q Flag
74GWVP3b/9, 74GWVP3a/9, 74GW54, 74GWVP06, 74GWVP10a,DFM	carbon disulfide	U at reported value
74GWVP3a/9, 74GW54	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBW 73M	antimony	0.557003 ug/L	>MDL up to RL	U
	arsenic	0.29891 ug/l	> MDL up to RL	U
ICB 4M	antimony	0.159501 ug/L	> MDL up to RL	U
FR01	copper	2.11 ug/l	> MDL up to RL	U
	lead	0.181 ug/l	>MDL up to RL	U

Please note, when qualifying samples for C/D contamination, associated samples are those just prior to or just following a C/D. Therefore, not all analytes in SD samples are flagged for C/D contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
all dissolved metals samples >MDL up to RL	arsenic	U
all samples > MDL up to RL	copper	U
all samples up to RL	lead	U

### Surrogate Recoveries

#### DRO/GRO

One sample analyzed for GRO exhibited non-compliant surrogate recovery above the QC limits and required qualification. The reported positive result for GRO in sample 74GWVP2b/9 (153%) was qualified as estimated 1.

### Serial Dilution

#### Metals

The serial dilution analysis (from SDG SWMU36806-3) associated with the dissolved metals samples in this SDG exhibited a non-compliant %D's for lead and qualification was required in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

SD	Analytes	Samples	%D	Q Flag
74SBVP13, 14	lead	all dissolved metals samples	17.9	J, C, U

## Identification/Quantitation

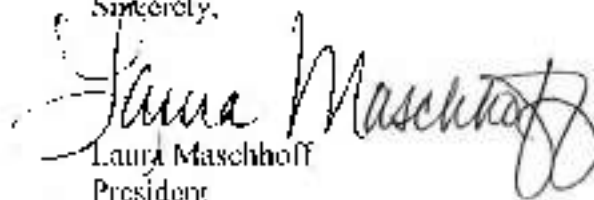
### Metals

The total and dissolved metals analysis exhibited %Ds  $\geq 20\%$  but less than or equal to 50% for several analytes. Elements exhibiting  $\geq 20\%$  but less than or equal to 50% difference between total and dissolved concentrations were qualified as estimated J based on the Region II guidelines. One analyte exhibited %Ds  $\geq 50\%$  in two samples. This analyte required rejection R based on Region II guidelines. Specific action is noted in the following table

Sample ID	Analyte	%D	Q Flag
74GWWP11B14, 74GWWP11B19F	cobalt	156%	R
74GWWP08, 74GWWP06	cobalt	127%	R
74GWWP350, 74GWWP359F	nickel	31%	J
74GWB4, 74GWB4F	barium	25%	J

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74GWVP1b9, 74GWVP3a9, 74GW84, 74GWVP06, 74GWVP10a/DEM	pentachloroethane	+/-	J/R
74GWVP3b9, 74GWVP3a9, 74GW84, 74GWVP06, 74GWVP10a/DEM	acrylonitrile bromomethane	U/-	J/U
74GWVP2b9, 74GWVP1Ab9, 74TB21, 74TB22, 74TB23, 74TB24, 74ER15, 74ER16, 74ER17	pentachloroethane	+/-	J/R
74GWVP2b9, 74GWVP1Ab9, 74TB21, 74TB22, 74TB23, 74TB24, 74ER15, 74ER16, 74ER17	acrylonitrile 1,2-dichloroethane	+/-	J/U
74GWVP3b9, 74GWVP3a9, 74GW84, 74GWVP06, 74GWVP10a/DEM	carbon disulfide	+	U at reported value
74GWVP3a9, 74GW84	2-butanone	+	U at reported value

### PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRD/GRO

Sample ID	Compound	Results	Q flag
74SBVP2a9	GRO	-	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	+/-	J/U
all samples	antimony	>MDL up to RI	U
all dissolved metals samples	arsenic	>MDL up to RI	U
all samples	copper	>MDL up to RI	U
all samples	lead	>MDL up to RI	U
all dissolved metals samples	lead	+	J
74GWVP1Bb9, 74GWVP1Bb9F	cobalt	+	R
74GWVP06, 74GWVP10a/	cobalt	+	R
74GWVP3b9, 74GWVP3b9F	nickel	+	J
74GW84, 74GW84F	barium	+	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CIB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CIB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- JJJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36925-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

September 8, 2008  
 SDG# SWMU36925-1, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36925-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	Metals
74SB184-04	680-36925-1	soil	X	X	X
74SB184-05	680-36925-2	soil	X	X	X
74SB184-03	680-36925-3	soil	X	X	X
74SB188-04	680-36925-4	soil	X	X	X
74SB189-03	680-36925-5	soil	X	X	X
74SB189-05	680-36925-6	soil	X	X	X
74SB190-03	680-36925-7	soil	X	X	X
74SB190-05	680-36925-8	soil	X	X	X
74SB191-03	680-36925-9	soil	X	X	X
74SB191-05	680-36925-10	soil	X	X	X
74SB191-03D	680-36925-11	soil	X	X	X
74SB191-05	680-36925-12	soil	X	X	X
74SB192-03	680-36925-13	soil	X	X	X
74SB192-05	680-36925-14	soil	X	X	X
74SB198-04	680-36925-15	soil	X	X	X
74SB198-05	680-36925-16	soil	X	X	X
74SB199-04	680-36925-17	soil	X	X	X
74SB199-05	680-36925-18	soil	X	X	X
74SB180-04	680-36925-19	soil	X	X	X
74SB180-05	680-36925-20	soil	X	X	X
74SB191-05 MS	680-36925-12MS	soil	X	X	X
74SB191-05 MSD	680-36925-12MSD	soil	X	X	X

The following quality control samples were provided with this SDG: sample 74SB191-03D—field duplicate of sample 74SB191-03.



The samples were evaluated based on the following criteria.

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	*
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

## **DRO/GRO**

Blank contamination was noted and qualification was required in the samples in this SDG.

The field duplicate pair of samples 74SB191-03 and 74SB191-03D exhibited DRO results that did not compare. The reported results for DRO in this field duplicate pair were qualified as estimated J/UJ.

## **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spike pair submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD for the analytes antimony, cobalt, copper and lead. All results for antimony in the metals samples were qualified as estimated J/UJ and all positive results for cobalt, copper and lead were qualified as estimated J.

The matrix duplicate submitted in this SDG exhibited non-compliant RPDs for two analytes, barium and cobalt. All results for barium and cobalt were qualified as estimated J/UJ.

The field duplicate pairs exhibited non-compliant RPDs or absolute differences for several analytes. These analytes were qualified as estimated or rejected in the field duplicate pairs.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/19/08 and samples were received at the laboratory 05/21/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

# VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/28/08	pentachloroethane	181.0%	74SB184-01,	J,R
	acrolein	26.4%	74SB184-05,	J,U
	acrylonitrile	35.5%	74SB188-03,	
	2-chloro-1,3-butadiene	25.2%	74SB188-04,	
			74SB189-03,	
			74SB189-05,	
			74SB190-03,	
			74SB190-05,	
			74SB191-00,	
			74SB191-03,	
			74SB191-03D,	
			74SB191-05,	
			74SB192-03,	
			74SB192-05,	
			74SB178-04,	
			74SB178-05,	
			74SB179-01,	
			74SB179-05	
CC 05/30/08	acrolein	0.04882	74SB189-01,	J,R
	isobutyl alcohol	0.02395	74SB189-05	J,U
	iodomethane	20.9%		
	acetonitrile	41.8%		
	3-chloro-1-propene	24.3%		
	acrylonitrile	31.1%		
	propionitrile	22.1%		
	pentachloroethane	51.1%		
	bromomethane	59.5%		
	acetone	22.4%		
	2-butanone	32.2%		
	4-methyl-2-pentanone	31.3%		
	2-hexanone	33.7%		
	1,2-dibromo-3-chloropropane	32.7%		

## Blanks

## VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U at the reported concentration when affected by blank

Michael Baker, Jr., Inc.  
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contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FB01	2-butanone	0.690 ug/L	20 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB188-03, 74SB188-04, 74SB190-03, 74SB191-00, 74SB191-03, 74SB191-0312	2-butanone	U at reported value

## DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
ER17	DRO	0.05353 ug/L	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples >MDL, but <RL	DRO	U

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.10290 ug/L	>MDL, up to RL	U

Please note, when qualifying samples for CCB contamination, associated samples, as those just prior to or just following a CCB. There for, all analytes at all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL, up to RL	antimony	U

## Matrix Spikes

### Metals

The matrix spikes pair submitted in this SDG exhibited non-compliant %R's for antimony, cobalt, copper and lead, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB191-05	antimony	all samples	43.41	J/L/J
	cobalt		159.101	J
	copper		137.158	
	lead		127.195	

## Matrix Duplicates

### Metals

The matrix duplicate submitted in this SDG exhibited non-compliant %R's for barium & cobalt, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	%RPD	Q Flag
74SB191-05	barium	all samples	144	J/L/J
	cobalt		57.3	

## Field Duplicates

### DRO/GRO

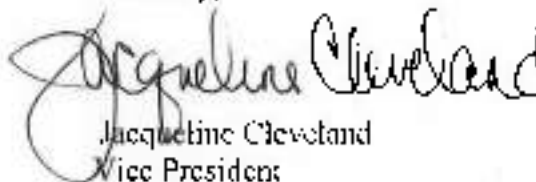
The field duplicate pair of samples 74SB191-03 and 74SB191-03D exhibited DRO results that did not compare (136% RPD). The reported results for DRO in this field duplicate pair were qualified as estimated J/UJ.

### Metals

The field duplicate pair of samples 74SB191-03 and 74SB191-03D exhibited metals results that did not compare. The analyte barium exhibited a RPD that was >120% (157%) and was rejected R in both samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jacqueline Cleveland".

Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB184-04, 74SB184-05, 74SB188-03, 74SB188-04, 74SB189-03, 74SB189-05, 74SB190-03, 74SB190-05, 74SB191-00, 74SB191-03, 74SB191-03D, 74SB191-05, 74SB192-03, 74SB192-05, 74SB178-04, 74SB178-05, 74SB179-04, 74SB179-05	pentachloroethane	+/-	J/R
74SB184-04, 74SB184-05, 74SB188-03, 74SB188-04, 74SB189-03, 74SB189-05, 74SB190-03, 74SB190-05, 74SB191-00, 74SB191-03, 74SB191-03D, 74SB191-05, 74SB192-03, 74SB192-05, 74SB178-04, 74SB178-05, 74SB179-04, 74SB179-05	acrolein acrylonitrile 2-chloro-1,3-butadiene	-	J/U
74SB180-04, 74SB180-05	acrolein isobutyl alcohol	U	J/R
74SB180-04, 74SB180-05	indomethane acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-1-pentanol 2-hexanone 1,2-dibromo-1-chloropropane	U	J/U
74SB188-03, 74SB188-04, 74SB190-03, 74SB191-00, 74SB191-03, 74SB191-03D	2-butanone	U	U at reported value

### DRO/GRO

Sample ID	Compound	Results	Q flag
all samples	DRO	>MDL but <RL	U
74SB191-03, 74SB191-03D	DRO	+	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples >MDL up to RL	antimony	>MDL up to RL	U
all samples	antimony	+/-	J/U
all samples	cobalt copper lead	-	J
all samples	barium cobalt	+/-	J/U
74SB191-03, 74SB191-03D	barium	+	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration when the ICB/CCB/PB result is less or greater than the RL.



## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- JLJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note -- Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinse blank associated with soils to qualify water samples and vice versa*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
-	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36925-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

September 8, 2008  
 SDG# SWMU36925-2, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36925-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/CRO	Metals
74SB181-00	680-36925-21	soil	X	X	X
74SB181-04	680-36925-22	soil	X	X	X
74SB181-05	680-36925-23	soil	X	X	X
74SB181-05D	680-36925-24	soil	X	X	X
74SB182-04	680-36925-25	soil	X	X	X
74SB182-05	680-36925-26	soil	X	X	X
74SB183-04	680-36925-27	soil	X	X	X
74SB183-05	680-36925-28	soil	X	X	X
74SB185-03	680-36925-29	soil	X	X	X
74SB185-05	680-36925-30	soil	X	X	X
74SB185-05	680-36925-31	soil	X	X	X
74SB185-05	680-36925-32	soil	X	X	X
74SB187-05	680-36925-33	soil	X	X	X
74SB187-04	680-36925-34	soil	X	X	X
74SB206-04	680-36925-35	soil	X	X	X
74SB206-04D	680-36925-36	soil	X	X	X
74SB206-05	680-36925-37	soil	X	X	X
74SB207-04	680-36925-38	soil	X	X	X
74SB207-05	680-36925-39	soil	X	X	X
74SB209-04	680-36925-40	soil	X	X	X
74SB181-04 MS	680-36925-22MS	soil	X	X	X
74SB181-04 MSD	680-36925-22MSD	soil	X	X	X

The following quality control samples were provided with this SDG: sample 74SB181-05D-field duplicate of sample 74SB181-05 and sample 74SB206-04D-field duplicate of sample 74SB206-04.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### Overall Evaluation of Data/Potential Usability Issues

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### VOA

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

## **DRO/GRO**

Due to a high %D value in the associated continuing calibration, DRO was qualified as estimated J/LJ in all samples.

DRO contamination was noted in the associated rinse blank and qualification was required in the samples in this SDG.

## **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The associated matrix spike exhibited non-compliant %Rs for one analyte for which qualifications were required. Positive and non-detect results for antimony were qualified as estimated J/UJ.

The associated serial dilution exhibited a non-compliant %D for one analyte. Positive and non-detect results for the analyte zinc were qualified as estimated J/UJ in the samples.

The field duplicate pairs exhibited non-compliant RPDs >35% but less than 120% for the analytes barium, cobalt and an absolute difference >2X the CRDL for the analyte mercury. These analytes were flagged as estimated in the respective field duplicate pair. All qualifications were made based on the Region II guidance.

## **Specific Evaluation of Data**

### **Data Completeness**

Resubmissions were required for the VOA fraction. The data package did not contain Form III. The laboratory was contacted and forms were submitted. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/19/08 and samples were received at the laboratory 05/21/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/29/08	isobutyl alcohol	0.02437	74SB182-04,	J/R
	acrolein	32.0%	74SB183-04,	J/U
	acetonitrile	24.7%	74SB183-05,	
	acrylonitrile	22.4%	74SB185-03,	
	methyl methacrylate	25.3%	74SB185-05,	
	pentachloroethane	32.1%	74SB186-03,	
	chloroethane	51.3%	74SB186-05,	
	2-butanone	24.6%	74SB187-03,	
	4-methyl-2-pentanone	22.6%	74SB187-04,	
	2-hexanone	26.3%	74SB206-04,	
	1,2-dibromo-3-chloropropane	26.3%	74SB206-04D	
CC 06/30/08	acrolein	0.04882	74SB181-00,	J/R
	isobutyl alcohol	0.02395	74SB181-04,	
	iodomethane	20.9%	74SB181-05,	J/U
	acetonitrile	41.8%	74SB181-05D,	
	3-chloro-1-propene	24.3%	74SB182-05,	
	acrylonitrile	31.1%	74SB206-05,	
	propionitrile	22.1%	74SB207-04,	
	pentachloroethane	51.1%	74SB207-05,	
	bromomethane	50.5%	74SB209-04	
	acetone	23.4%		
	2-butanone	32.2%		
	4-methyl-2-pentanone	31.3%		
	2-hexanone	33.7%		
	1,2-dibromo-3-chloropropane	32.7%		

### DRO/GRO

The CCV QE300095, analyzed on 5/31/08 at 0248 exhibited a non-compliant %D for DRO (16.1%). All samples were associated with this CCV so the reported positive and non-detect results for DRO were qualified as estimated J/U.

### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36925-2

to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FR17	toluene	1.2 ug/L	1 ug/L	RL
FB01	2-butanone	0.69J ug/L	1G ug/L	RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB185-03, 74SB185-05	toluene	U at reported value
74SB185-03, 74SB185-05, 74SB207-05	2-butanone	U at reported value

### DROGRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
FR17	DRO	0.05351 ug/L	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples >MDL but <RL	DRO	U

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.07970J ug/L	>MDL up to RL	U

\* Field QC blank qualifications were made using QC blank tracking. Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, metal analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL <RL	antimony	U

## Matrix Spikes

### Metals

The matrix spike pair submitted in this SDG exhibited non-compliant %R's for antimony requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB181-04	antimony	all samples	65/67	JUJ

### Serial Dilutions

#### Metals

The serial dilution of sample 74SB181-04 exhibited a non-compliant %D for zinc that required qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

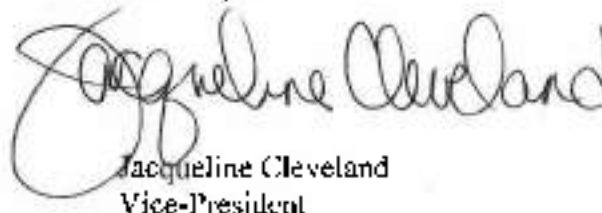
SD	Analytes	Samples	RPD	Q Flag
74SB181-04	zinc	all samples	14.3%	JUJ

#### Metals

The field duplicate pair of samples 74SB206-04 and 74SB206-04D exhibited non-compliant RPD >35% but less than 120% for the analyte cobalt (+2%) and an absolute difference >2X the CRDL for the analyte mercury (0.066). The field duplicate pair of samples 74SB181-05 and 74SB181-05D exhibited a non-compliant RPD >35% but less than 120% for the analyte barium (37%). These analytes were flagged as estimated J in the field duplicate pair. All qualifications were made based on the Region II guidance.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual LLC with any questions regarding this validation report.

Sincerely,



Jacqueline Cleveland  
Vice-President

Michael Baker, Jr., Inc.  
NAFR SWMU74, Puerto Rico  
SDG# SWMU36925-2

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## Summary of Data Qualifications

VOA

Sample ID	Compound	Results	Q flag
74SB182-04, 74SB183-04, 74SB183-05, 74SB185-05, 74SB185-05, 74SB186-03, 74SB186-05, 74SB187-03, 74SB187-04, 74SB206-04, 74SB206-04D	isobutyl alcohol	+	J/R
74SB182-04, 74SB183-04, 74SB183-05, 74SB185-05, 74SB185-05, 74SB186-03, 74SB186-05, 74SB187-03, 74SB187-04, 74SB206-04, 74SB206-04D	acrolein acetonitrile acrylonitrile methyl methacrylate pentachloroethane chloroethane 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2-dibromo-3-chloropropane	+	J/J
74SB181-00, 74SB181-04, 74SB181-05, 74SB181-05D, 74SB182-05, 74SB206-05, 74SB207-04, 74SB207-05, 74SB209-04	acrolein isobutyl alcohol	+	J/R
74SB181-00, 74SB181-04, 74SB181-05, 74SB181-05D, 74SB182-05, 74SB206-05, 74SB207-04, 74SB207-05, 74SB209-04	iodomethane acetonitrile 2-chloro-1-propene acrylonitrile propionitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2-dibromo-3-chloropropane	+	J/J
74SB185-03, 74SB185-05	toluene	+	U at reported value
74SB185-03, 74SB185-05, 74SB207-05	2-butanone	+	U at reported value

## Summary of Data Qualifications

### DRO/GRO

Sample ID	Compound	Results	Q flag
all samples	DRO	ND	J/UJ
all samples	DRO	>MDL, but <RL	U

### Metals

Sample ID	Analyte	Results	Q flag
all samples	antimony	>MDL, up to RL	U
all samples	antimony	ND	J/UJ
all samples	zinc	ND	J/UJ
74SB206-04, 74SB206-04D	cobalt	+	J
	mercury		
74SB181-05, 74SB181-05D	barium	+	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected, the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL,**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## **Glossary of Qualification Flags and Abbreviations, continued**

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note -- Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### **General Abbreviations**

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36925-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 8, 2008  
SDG# SWMU36925-3, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36925-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B and 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL PAH	DRO-GRO	DRO	Metals
74SP210-05	680-36925-41	soil	X	X	X		X
74SL210-04	680-36925-42	soil	X	X	X		X
74SH210-05	680-36925-43	soil			X		X
74SB210-05MS	680-36925-43MS	soil				X	
74SB210-05MSD	680-36925-43MSD	soil				X	
74SH210-04MS	680-36925-42MS	soil					X
74SB210-04MSD	680-36925-42MSD	soil					X

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times
- GC/MS Tuning \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards \*
- CRDL Standards \*
- Blanks \*
- Internal Standards \*
- Surrogate Recoveries
- Laboratory Control Samples

- Matrix Spike Recoveries
- Matrix Duplicate RPDs
- Serial Dilutions \*
- Field Duplicates NA
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

#### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

One sample exhibited non-compliant surrogate recoveries that resulted in qualifying results as estimated.

One of the laboratory control samples exhibited low recovery a compound that resulted in qualifications to the associated samples.

One sample required a dilution to obtain results within the calibration range.

#### **LL PAH**

One sample exhibited non-compliant surrogate recoveries that resulted in qualifying results as estimated.

#### **DRO/GRO**

Two necessary dilutions were performed on GRO samples outside the analysis holding time. The GRO results in these samples were qualified as estimated I.

Blank contamination was noted for DRO in the associated rinse blank and qualification was required in the samples in this SDG.

The original analyses of two samples were rejected in favor of the dilution analyses results for two GRO samples.

### **Metals**

The matrix spike pair submitted in this SDG exhibited non-compliant recoveries requiring qualification in both the MS and the MSD for the analyte antimony. All results for antimony in the metals samples were qualified as estimated JAJ.

### **Specific Evaluation of Data**

#### **Data Completeness**

Resubmissions were required for the VOA fraction. The data package did not contain Form IIIs, the laboratory was contacted and forms were submitted. Resubmission was required for the GRO fraction. The data package was submitted without a case narrative. This was requested and received from the laboratory. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/19/08 and samples were received at the laboratory 05/21/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

#### **Initial/Continuing Calibration**

##### **VOA**

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated



Standard ID	Compound(s)	IRF, %RSD, %D	Samples	Q Flag
CC 05/30/08	isobutyl alcohol	0.01828	74SB209-03	J/R
	acrolein	46.3%		E/U
	acetonitrile	39.5%		
	acrylonitrile	75.3%		
	pentachloroethane	37.2%		
	bromomethane	45.2%		
	acetone	23.5%		
	2-butanone	33.3%		
	4-methyl-2-pentanone	39.6%		
	2-hexanone	39.6%		
	1,2,2-trichloropropane	22.3%		
CC 06/02/08	pentachloroethane	126.2%	74SB210-04	J/R
	acrolein	38.2%		E/U
	methyl methacrylate	21.2%		
	acetone	54.7%		
	2-butanone	42.5%		
	carbon tetrachloride	21.9%		
	2-hexanone	17.8%		

## Blanks

### DRO/GRO

The associated rmse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
ER17	DRO	0.65351 ug/L	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples >MDL but <RL	DRO	U

## Surrogate Recoveries

### VOA

Sample 74SB210-04 exhibited high recovery for toluene-d8 at 140% (QC limit 65-132%); the sample was re-analyzed with similar results. Due to high recoveries, all positive results for this sample were qualified as estimated (J).

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36925-3

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## LL PAH

Sample 74SB210-05 exhibited high recovery for o-terphenyl at 124% (QC limit 29-122%). Due to high recoveries, all positive results for this sample were qualified as estimated (J).

## **Laboratory Control Samples**

### VOA

The LCS associated with sample 74SB210-04 exhibited low recovery for chloroethane with 22% recovery (QC limit 26-166%); therefore results were qualified as estimated (J/U).

## **Matrix Spike Recoveries**

### Metals

The matrix spikes pair submitted in this SDG exhibited non-compliant %R's for antimony, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB210-04	antimony	all samples	64/65	J/U

## **Identification/Quantitation**

### VOA

Sample 74SB210-04 was re-analyzed due to non-compliant surrogate recoveries. Due to similar results the re-analysis was not used in favor of the initial analysis.

Sample 74SB210-04 exhibited above calibration range results for ethylbenzene and xylene, total therefore results for these compounds were used from the corresponding dilution.

### DRO/GRO

The samples 74SB210-04 and 74SB210-05 were rejected R in favor of the results reported from the dilution analyses of these samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Jacqueline Cleveland  
Vice-President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB209-05	isobutyl alcohol	+/-	J/R
74SB209-05	acrolein acetonitrile acrylonitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane	+/-	J/UJ
74SB210-04	pentachlorobenzene	+/-	J/R
74SB210-04	acrolein methyl methacrylate acetone 2-butanone carbon tetrachloride 2-hexanone	+/-	J/UJ
74SB210-04	all results	-	J
74SB210-04DL	all results	+/-	R
74SB210-04	chloroethane	+/-	J/UJ
74SB210-04	ethylbenzene and xylene, total	-	R
74SB210-04DL	all results except ethylbenzene and xylene, total	+/-	R

### LL PAH

Sample ID	Compound	Results	Q flag
74SB210-05	all results	-	J

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB210-04DL, 74SB210-05DL	GRO	-	J
all samples	DRO	< MDL but < RL	L
74SB210-04, 74SB210-05	GRO	+/-	R

### Metals

Sample ID	Analyte	Results	Q flag
all samples	antimony	+/-	J/UJ

Michael Baker, Jr., Inc  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36925-3  
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## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

L	not detected above the reported sample quantitation limit
J	estimated value
U	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected, the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/LI - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

L - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36925-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

August 8, 2008  
 SDG# SWMU36925-4, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36925-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LI PAH	DRO/GRO	GRO	TMetals	DMetals
74GWVP2ac9	680-36925-44	water	X	X	X		X	X
74GWVP3CA/JP5F1E1	680-36925-45	water	X	X	X		X	X
74GWVP1Jag9	680-36925-46	water	X			X		
74TB25	680-36925-47	water	X			X		
74TB26	680-36925-48	water	X			X		

The following quality control samples were provided with this SDG: samples 74TB25 and 74TB26-trip blanks.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks



• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	NA
• Serial Dilutions	*
• Field Duplicates	NA
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method blanks associated with samples in this batch. Qualifications were added to the data.

### **PAH**

No qualifications to the data were required.

### **DRO/GRO**

No qualifications to the data were required.

### **Metals**

The ICSSAB standards exhibited a non-compliant recovery below the QC limit for silver and a non-compliant recovery above the QC limit for zinc. Based on Region II guidelines all positive and non-detect results for silver and all positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spike pair submitted in this SDG exhibited non-compliant recoveries for the dissolved metals analytes. The analytes arsenic, copper, and nickel were recovered above the QC limit but below 200% (in at least one spike sample) and positive results were qualified as estimated J in all dissolved metals samples. The analytes barium and zinc were recovered above 200% in both the MS and MSD and positive and non-detect results were rejected R in all dissolved metals samples.

The total/dissolved metals analysis comparison exhibited %Ds greater than 50% for three analytes in one pair. Two of these analytes were not qualified because the total sample was analyzed without dilution but the dissolved sample was analyzed with dilution. The analyte cobalt was rejected in sample pair 74GWWP10A/JP5HII and 74GWWP10A/JP5HIII based on Region II guidelines.

### **Specific Evaluation of Data**

#### **Data Completeness**

Resubmissions were required. Data was missing from the package for an ICP-MS tune. This tune was requested and received from the laboratory. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/19/08 and samples were received at the laboratory 05/21/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

#### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/29/08	pentachloroethane	101.0%	74TB25, 74TB26	JR
	acrylonitrile	21.2%		J/U
	1,2-dichloroethane	24.8%		
CC 05/30/08	pentachloroethane	94.5%	74GWVP10A, 74GWVP10B, 74GWVP10C, 74GWVP10D, 74GWVP10E, 74GWVP10F, 74GWVP10G, 74GWVP10H, 74GWVP10I, 74GWVP10J, 74GWVP10K, 74GWVP10L, 74GWVP10M, 74GWVP10N, 74GWVP10O, 74GWVP10P, 74GWVP10Q, 74GWVP10R, 74GWVP10S, 74GWVP10T, 74GWVP10U, 74GWVP10V, 74GWVP10W, 74GWVP10X, 74GWVP10Y, 74GWVP10Z	JR
	iodomethane	25.8%		J/U
	acrylonitrile	23.5%		
	1,2-dichloroethane	21.8%		
CC 06/02/08	acrolein	99.0%	74GWVP25-9	JR
	pentachloroethane	92.3%		
	chloromethane	32.5%		J/U
	chloroethane	35.2%		
	carbon disulfide	23.8%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the dissolved metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (76%/76%/76%) and a recovery above the QC limit for the analyte zinc (121%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/U and reported positive results for zinc were qualified as estimated J in all dissolved metals samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	carbon disulfide	0.291 ug/L	2.0 ug/L	RI

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GWVP2a-9	carbon disulfide	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBLK - DM	arsenic	0.00632 ug/L	> MDL up to RL	U
	chromium	1.33603 ug/L	> MDL up to RL	U
	tin	4.37102 ug/l	> MDL up to RL	U
CCB - TM	antimony	0.94342 ug/l	> MDL up to RL	U
CCB - DM	antimony	0.081543 ug/L	> MDL up to RL	U
	lead	0.0601 ug/l	> MDL up to RL	U
ER-6	copper	3.91 ug/l	> MDL up to RL	U
	chromium	0.683 ug/l	> MDL up to RL	U
	vanadium	0.943 ug/l	> MDL up to RL	U
FB01	lead	0.181 ug/l	> MDL up to RL	U

Field Blank associations were made based on tracking provided by the client. Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples > MDL up to RL	antimony	U
all dissolved metals samples > MDL up to RL	arsenic	U
all samples > MDL up to RL	chromium	U
all dissolved metals samples > MDL up to RL	tin	U
all samples > MDL up to RL	lead	U
all samples > MDL up to RL	copper	U
all samples > MDL up to RL	vanadium	U

### Matrix Spikes

### Metals

The matrix spikes pair associated with the samples in this SDG (from SDG SWMU36978-4) for the dissolved metals fraction exhibited non-compliant %R's above the QC limits for arsenic, barium, copper, nickel and zinc, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74GW9MW02SL	arsenic	all dissolved metals samples	159:157	J
	copper		205:199	
	nickel		169:171	
	barium		235,227	R
	zinc		470,478	

## Identification/Quantitation

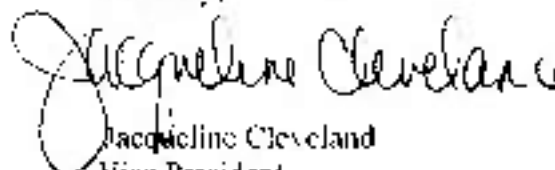
### Metals

The total and dissolved metals analysis exhibited a %D greater than 50% for one analyte. Elements exhibiting >50% difference was rejected based on the Region II guidelines. Specific action is noted in the following table. Please note that there were three analytes that exhibited %Ds greater than 50% in the sample pair. However, two of these analytes were not qualified because the total sample was analyzed without dilution and the dissolved sample was analyzed with dilution.

Sample ID	Analyte	%D	Q Flag
74GWVP10A/JP5HILL 74GWVP10A/JP5HILL	cobalt	282%	R

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74TB25, 74TB26	pentachloroethane	1/-	J/R
74TB25, 74TB26	acrylonitrile 1,2-dichloroethane	1/-	J/UJ
74GWVP10A/JP5HIL, 74GWVP1Ba.9	pentachloroethane	1/-	J/R
74GWVP10A/JP5HIL, 74GWVP1Ba.9	iodomethane acrylonitrile 1,2-dichloroethane	1/-	J/UJ
74GWVP2a.9	acrolein pentachloroethane	1/-	J/R
74GWVP2a.9	chloromethane chloroethane carbon disulfide	+/-	J/UJ
74GWVP2a.9	carbon disulfide		L at reported value

### PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications			

### Metals

Sample ID	Analyte	Results	Q flag
all dissolved metals samples	silver	1/-	J/UJ
all dissolved metals samples	cnc	1	J
all samples	antimony	<MDL up to RL	U
all dissolved metals samples	arsenic	<MDL up to RL	U
all samples	chromium	<MDL up to RL	U
all dissolved metals samples	tin	<MDL up to RL	U
all samples	lead	<MDL up to RL	U
all samples	copper	<MDL up to RL	U
all samples	vanadium	<MDL up to RL	U
all dissolved metals samples	arsenic copper nickel	+	J
all dissolved metals samples	barium zinc	+	R
74GWVP10A/JP5HIL, 74GWVP10A/JP5HILE	cobalt	+	R

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36925-4

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL,**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## **Glossary of Qualification Flags and Abbreviations, continued**

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J(L) - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## **General Abbreviations**

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36978-1 and SDG 36978-5**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airsides Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 8, 2008  
SDG# SWMU36978-1 and SWMU36978-5, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36978-1 and SWMU36978-5. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	GRO	Metals
74SB213-03	680-36978-1	soil	X			X	
74SB211-00	680-36978-2	soil	X		X		X
74SB211-03	680-36978-3	soil	X		X		X
74SB211-03D	680-36978-4	soil	X		X		X
74SB211-04	680-36978-5	soil	X		X		X
74SB213-03	680-36978-6	soil	X		X		X
74SB215-03	680-36978-7	soil	X		X		X
74SB216-03	680-36978-8	soil	X		X		X
74SB216-05	680-36978-9	soil	X		X		X
74SB216-05D	680-36978-10	soil	X		X		X
74SB218-03	680-36978-11	soil	X		X		X
74SB218-05	680-36978-12	soil	X		X		X
74SBVP210-05	680-36978-13	soil	X		X		X
74SBVP210-06	680-36978-14	soil	X	X	X		X
74SBVP1982-05	680-36978-15	soil	X		X		X
74SB221-00	680-36978-16	soil	X		X		X
74SB221-00(1)	680-36978-17	soil	X		X		X
74SB221-02	680-36978-18	soil	X	X	X		X
74SBVP1982-03	680-36978-19	soil	X	X	X		X
74SB221-02D	680-36978-20	soil	X	X	X		X
74SB211-04 MS	680-36978-5MS	soil	X		X		X
74SB211-04 MSD	680-36978-5MSD	soil	X		X		X
74SB221-02 MS	680-36978-18MS	soil	X	X	X		X
74SB221-02 MSD	680-36978-18MSD	soil	X	X	X		X

The following quality control samples were provided with this SDG: sample 74SB211-03D-field duplicate of sample 74SB211-03; sample 74SB216-05D-field duplicate of sample 74SB216-05; sample 74SB221-02D-field duplicate of sample 74SB221-02; and sample 74SB221-00D-field duplicate of sample 74SB221-00.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	*
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	
• Laboratory Control Samples	
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

## VOA

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

Two samples exhibited non-compliant surrogate results that resulted in qualifications to the data.

Two of the laboratory control samples exhibited low recoveries that required associated sample compounds to be qualified as estimated.

One of the field duplicate pairs did not exhibit comparable results. Qualifications were added to the data.

## PAH

No qualifications to the data were required.

## DRO/GRO

Please note that sample 74SB210-05 was reported on a wet weight basis for the GRO fraction. According to the laboratory there was not enough sample provided to perform the percent moisture determination.

Two samples analyzed for GRO required qualification as estimated due to holding times that were exceeded by 1 day.

Blank contamination was noted in the rinse blank analyzed for DRO and qualification was required in the samples in this SDG.

Four samples analyzed for GRO required qualification due to high surrogate recoveries.

The field duplicate pairs of samples 74SB221-02/74SB221-02D and 74SB221-00/74SB221-00D exhibited DRO results that were not comparable. The reported results for DRO in these field duplicate pairs were qualified as estimated J.

Two samples analyzed for GRO were rejected in favor of the original analyses because the re-analyses were outside of holding time. Two samples analyzed for GRO were rejected in favor of the re-analysis due to QC issues in the original analyses.

## **Metals**

One of the matrix spikes pairs submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD for the analyte mercury. All positive results for mercury were qualified as estimated J.

The serial dilution analysis of sample 74SB211-04 exhibited non-compliant %Ds for the analytes copper and zinc. These analytes were qualified as estimated J.

One of the field duplicate pairs exhibited a non-compliant RPD for barium. This analyte was qualified as estimated in the field duplicate pairs.

## **Specific Evaluation of Data**

### **Data Completeness**

Resubmissions were required for the VOA and GRO fractions. The laboratory was contacted because the submitted Form Is did not have dry weight corrected results. All samples were reprocessed with dry weight correction and new Form Is were submitted with the exception of sample 74SB210-05 (680-36978-1). This sample was reported without dry weight correction since the laboratory did not receive bulk sample. This sample was reported under SDG# SWMU36978-5 due to computer limitations.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/19-20/08 and samples were received at the laboratory 05/22/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exceptions.

### **GRO/GRO**

The reported GRO results for samples 74SBVP20-06DL and 74SBVP1982-03DL were qualified as estimated J because the analytical holding time was exceeded by one day.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited RREs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRR, %RSD, %D	Samples	Q Flag
CC 05/10/08	isobutyl alcohol	0.01878	74SB211-00,	J/R
	acrolein	36.5%	74SB211-03,	J/LJ
	acetonitrile	39.5%	74SB211-01D,	
	acrylonitrile	25.3%	74SB213-03,	
	pentachloroethane	37.2%	74SB215-03,	
	bromomethane	45.2%	74SB216-05,	
	acetone	23.5%	74SB216-05D,	
	2-butanone	33.3%	74SBVP20-05,	
	4-methyl-2-pentanone	29.6%	74SBVP20-06,	
	2-hexanone	29.6%	74SBVP1982-05,	
CC 06/01/08	1,2,3-trichloropropane	22.3%	74SB221-00,	J/R
			74SB221-00D,	
			74SB221-012,	
			74SB211-04	
	pentachloroethane	121.3%	74SB218-03,	
	acrolein	0.04480	74SB218-05,	
CC 06/02/08	acrylonitrile	17.5%	74SB221-02D	J/LJ
	acetone	28.0%		
	2-butanone	21.6%		
	2-hexanone	25.9%		
	pentachloroethane	126.2%	74SBVP1982-03,	
	acrolein	18.2%	74SB216-03,	
	methyl methacrylate	21.2%	74SB210-05	J/LJ
	4-methyl-2-pentanone	24.6%		
	2-hexanone	21.0%		

## Blanks

## VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
BR17	toluene	1.2 ug/L	1.0 ug/l	RL
FB01	2-butanone	0.640 ug/l.	10 ug/l.	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB216-03, 74SB218-03, 74SB218-05, 74SBVP1982-03, 74SB221-02D	toluene	U at reported value
74SB211-00, 74SB211-03, 74SB211-04, 74SB213-03, 74SB215-03, 74SBVP20-05, 74SBVP1982-05, 74SB221-00	2-butanone	U at reported value

#### DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
ER17	DRO	0.0533 ug/L	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all sample results >MDL, but less than RL	DRO	U

#### **Surrogate Recoveries**

##### VOA

Sample 74SB210-05 exhibited high surrogate results for 4-bromofluorobenzene at 144% (QC limits 65-124%) that resulted in qualifying all positive results as estimated (J). Sample 74SBVP1982-03 exhibited low surrogate results for dibromofluoromethane at 62% (QC limits 65-124%); therefore all results were qualified as estimated (J/U).

##### DRO/GRO

Four samples analyzed for GRO exhibited non-compliant surrogate recovery above the QC limits. The reported positive results for GRO in samples 74SB210-005 (124%), 74SBVP20-06DL (126%), 74SBVP1982-03DL (505%) and 74SBVP20-05 (124%) were qualified as estimated J.

#### **Laboratory Control Samples**

##### VOA

The LCS associated with samples 74SB218-03, 74SB218-05 and 74SB221-02D exhibited low recovery for chloroethane at 22% recovery (QC limit 26-166%); therefore the compound was qualified as estimated (J/U) in these samples. The LCS associated

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with samples 74SBVP1982-03, 74SB216-03 and 74SB210-05 exhibited low recovery for chloroethane at 22% recovery (QC limit 26-166%); therefore the compound was qualified as estimated (J/UJ) in these samples.

### Matrix Spikes

#### Metals

One of the matrix spike pairs submitted in this SDG exhibited non-compliant %R's for mercury, requiring qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB221-02	mercury	all samples	183.8-190.4	J

### Serial Dilution

#### Metals

The serial dilution analysis exhibited non-compliant %D's for copper and zinc, requiring qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

SD	Analytes	Samples	%D	Q Flag
74SB211-04	copper	all samples	10.8	J/UJ
	zinc		12.9	

### Field Duplicates

#### VOA

Sample 74SB211-03 and duplicate sample 74SB211-03D exhibited non-comparable results for acetone with 118% RPD. Results for acetone were qualified as estimated (J) in both samples.

#### DRO/GRO

The field duplicate pairs of samples 74SB221-02/74SB221-02D and samples 74SB221-00/74SB221-00D exhibited DRO results that did not compare. The reported results for DRO in these field duplicate pairs were qualified as estimated J.

#### Metals

The field duplicate pair of samples 74SB221-00 and 74SB221-00D exhibited metals results that did not compare. The analyte barium exhibited a RPD that was ≥35% but less than 120% and was qualified as estimated J in both samples.



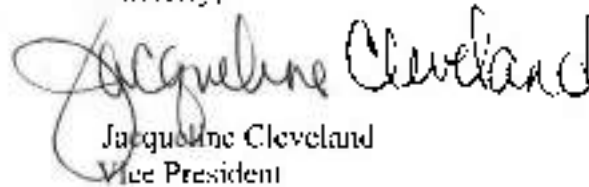
## Compound Identification/Quantitation

### DRO/GRU

The following samples were rejected in favor of the original analysis or the reanalysis due to various quality control issues. The reported GRU results in samples 74SBVP1982-03, 74SBVP20-06, 74SB210-05DL and 74SB215-03RA were rejected R.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB211-00, 74SB211-03, 74SB211-03D, 74SB213-03, 74SB215-03, 74SB216-05, 74SB216-05D, 74SBVP20-05, 74SBVP20-06, 74SBVP1982-05, 74SB221-00, 74SB221-00D, 74SB221-02, 74SB211-04	isobutyl alcohol	+	JR
74SB211-00, 74SB211-03, 74SB211-03D, 74SB213-03, 74SB215-03, 74SB216-05, 74SB216-05D, 74SBVP20-05, 74SBVP20-06, 74SBVP1982-05, 74SB221-00, 74SB221-00D, 74SB221-02, 74SB211-04	acrolein acetonitrile acrylonitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane	+	JUJ
74SB218-03, 74SB218-05, 74SB221-02D	pentachloroethane acrolein	+	JR
74SB218-03, 74SB218-05, 74SB221-02D	acrylonitrile acetone 2-butanone 2-hexanone	+	JUJ
74SBVP1982-03, 74SB216-03, 74SB210-05	pentachloroethane	+	JR
74SBVP1982-03, 74SB216-03, 74SB210-05	acrolein methyl methacrylate 4-methyl-2-pentanone 2-hexanone	+	JUJ
74SB216-03, 74SB218-03, 74SB218-05, 74SBVP1982-03, 74SB221-02D	toluene	-	U at reported value
74SB211-00, 74SB211-03, 74SB211-04, 74SB213-03, 74SB215-03, 74SBVP20-05, 74SBVP1982-05, 74SB221-00	2-butanone	-	U at reported value
74SB210-05	all results	-	J
74SBVP1982-03	all results	+	JUJ
74SB218-03, 74SB218-05, 74SB221-02D, 74SBVP1982-03, 74SB216-03, 74SB210-05	chloroethane	+	JUJ
74SB211-03, 74SB211-03D	acetone	-	J

### PAH

Sample ID	Compound	Results	Q flag
No qualifications			

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## Summary of Data Qualifications, continued

### DRO:GRO

Sample ID	Compound	Results	Q flag
74SBVBVP20-06DL, 74SBVP1982-03DL	GRO	+	J
all samples	DRO	< MDL, < RL	U
74SB210-005, 74SBVP20-06DL, 74SBVP1982-03DL, 74SBVBVP20-05	GRO	-	J
74SB221-02, 74SB221-02D, 74SB221-00, 74SB221-00D	DRO	+	J
74SBVP1982-03, 74SBVP20-06, 74SB210-05DL, 74SB215-03RA	GRO	+	R

### Metals

Sample ID	Analyte	Results	Q flag
all samples	mercury	+	J
all samples	copper zinc	+/+	UU
74SB221-00, 74SB221-00D	barium	+	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL, but less than or equal to the RL; result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 36978-2**

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# DataQual

Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 8, 2008  
SDG# SWMU36978-2, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36978-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	GRO	Metals
74SB222-03	680-36978-21	soil	X	X	X		X
74SB223-03	680-36978-22	soil	X	X	X		X
74SB224-04	680-36978-23	soil	X		X		X
74SB224-05	680-36978-24	soil	X		X		X
74SB225-04	680-36978-25	soil	X		X		X
74SB225-05	680-36978-26	soil	X		X		X
74SB226-04	680-36978-27	soil	X		X		X
74SB226-05	680-36978-28	soil	X	X	X		X
74SB226-05D	680-36978-29	soil	X	X	X		X
74SB227-04	680-36978-30	soil	X		X		X
74SB227-05	680-36978-31	soil	X	X	X		X
74SB193-03	680-36978-32	soil	X		X		X
74SB193-05	680-36978-33	soil	X		X		X
74SB194-03	680-36978-34	soil	X		X		X
74SB194-05	680-36978-35	soil	X		X		X
74SB195-03	680-36978-36	soil	X		X		X
74SB195-05	680-36978-37	soil	X		X		X
74SB196-03	680-36978-38	soil	X		X		X
74SB196-03D	680-36978-39	soil	X		X		X
74SB196-05	680-36978-40	soil	X		X		X
74SB223-03MS	680-36978-22MS	soil				X	
74SB223-03MSD	680-36978-22MSD	soil				X	
74SB194-03MS	680-36978-34MS	soil					X
74SB194-03MSD	680-36978-34MSD	soil					X

The following quality control samples were provided with this SDG: sample 74SB226-05D -field duplicate of sample 74SB226-05; and sample 74SB196-03D-field duplicate of sample 74SB196-03.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

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NAPR SWMU74, Puerto Rico  
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Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

Two of the laboratory control samples exhibited low recoveries that required associated sample compounds to be qualified as estimated.

### **PAH**

No qualifications to the data were required.

### **DRO/GRO**

Blank contamination was noted for DRO in the associated rinse blank and qualification was required in the samples in this SDG.

The field duplicate pair of samples 74SB226-05 and 74SB226-05D exhibited DRO results that did not compare. The reported results for DRO in this field duplicate pair were qualified as estimated J.

### **Metals**

The IC SAB standards exhibited non-compliant recoveries above the QC limit for the analyte zinc. Based on Region II guidelines all positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spike pair submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD for the analyte antimony. All results for antimony in the metals samples were qualified as estimated J/UJ.

The serial dilution analysis submitted in this SDG exhibited a non-compliant %D for the analyte vanadium. All results for vanadium in the metals samples were qualified as estimated J/UJ.

### **Specific Evaluation of Data**

#### **Data Completeness**

Resubmissions were required for the VOA fraction. The laboratory was contacted as the submitted Form Is did not have dry weight corrected results. All samples were reprocessed with dry weight correction and new Form Is were submitted.

## Technical Holding Times

According to chain of custody records, sampling was performed on 05/19-20/08 and samples were received at the laboratory 05/22/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

## Initial/Continuing Calibration

### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/31/08	isobutyl alcohol	0.02358	74SB222-03,	J/R
	acrolein	26.9%	74SB224-05,	J/U
	acetonitrile	44.9%	74SB225-04,	
	3-chloro-1-propene	30.4%	74SB225-05,	
	propionitrile	24.7%	74SB226-04,	
	ethyl methacrylate	23.4%	74SB227-04,	
	pentachloroethane	55.2%	74SB191-03,	
	bromomethane	51.7%	74SB193-05,	
	acetone	25.0%	74SB194-05,	
	2-butanone	34.9%	74SB195-03,	
	2-hexanone	34.2%	74SB195-05,	
	1,2-dibromo-3-chloropropane	28.5%	74SB196-03, 74SB196-03D	
CC 06/01/08	pentachloroethane	123.1%	74SB223-03	J/R
	acrolein	0.04480		J/U
	acrylonitrile	37.5%		
	acetone	38.0%		
	2-butanone	21.6%		
	2-hexanone	35.9%		
CC 06/01/08	acrolein	0.04454	74SB194-03, 74SB196-05	J/R
	isobutyl alcohol	0.01504		J/U
	acetonitrile	42.2%		
	3-chloro-1-propene	36.5%		
	acrylonitrile	30.7%		
	propionitrile	34.5%		
	pentachloroethane	34.4%		
	bromomethane	37.3%		
	2-butanone	29.8%		
	4-methyl-2-pentanone	28.7%		
	2-hexanone	29.8%		
	1,2,3-trichloropropane	22.9%		
	1,2-dibromo-3-chloropropane	28.7%		

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/02/08	pentachloroethane	151.9%	74SB224-01, 74SB226-05, 74SB226-05D, 74SB227-05	NR
	acrolein	28.7%		UD
	acrylonitrile	21.8%		
	chloroethane	45.5%		
	acetone	21.9%		
	2-hexanone	26.0%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analyte zinc (125%/124%/122%). Based on Region II guidelines, reported positive results for zinc were qualified as estimated ) in all samples.

### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	9.91 ug/Kg	50 ug/Kg	2X RL
Method Blank	toluene	361 ug/Kg	200 ug/Kg	RL
ER18	acetone	8.4 ug/L	25 ug/L	2X RL
FB01	2-butanone	0.693 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB224-04, 74SB226-05, 74SB226-05D, 74SB227-05	toluene	U at reported value
74SB194-03, 74SB196-05, 74SB222-03, 74SB224-05, 74SB225-04, 74SB225-05, 74SB226-04, 74SB226-05, 74SB227-04, 74SB193-03, 74SB193-05, 74SB194-03, 74SB194-05, 74SB195-03, 74SB195-05, 74SB196-03, 74SB196-03D, 74SB196-05	acetone	U at reported value
74SB222-03, 74SB223-03, 74SB224-03, 74SB225-04, 74SB225-05, 74SB226-04, 74SB226-05, 74SB226-05D, 74SB227-04, 74SB194-03, 74SB195-03, 74SB195-05, 74SB196-05	2-butanone	U at reported value

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NAPR SWMU174, Puerto Rico  
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## DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
ER18	DRO	0.068 mg/L	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all sample results >MDL but less than RL	DRO	U

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	silver	0.0221 ug/L	>MDL up to RL	U

Please note, when qualifying samples for CCB contamination, associated samples are those just prior to and just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	silver	U

## Laboratory Control Samples

### VOA

The LCS associated with sample 74SB223-03 exhibited low recovery for chloroethane at 22% recovery (QC limit 26-166%); therefore the compound was qualified as estimated (J/U) in this sample.

The LCS associated with samples 74SB224-04, 74SB226-05, 74SB226-05D and 74SB227-05 exhibited low recoveries for chloroethane at 24% recovery (QC limit 26-166%), 1,2-dichloroethane at 59% (QC limits 62-140%); methylene chloride at 62% (QC limits 65-126%) and trans-1,2-dichloroethene at 64% (QC limits 66-127%); therefore these compounds were qualified as estimated (J/U) in these samples.

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## Matrix Spikes

### Metals

The matrix spike pair submitted in this SDG exhibited non-compliant %R's for antimony, requiring qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB194-03	antimony	all samples	34/32	J/UJ

## Serial Dilution

### Metals

The serial dilution analysis in this SDG exhibited a non-compliant %D for vanadium, requiring qualification in the field samples. A summary of this non-compliance and affected samples are noted in the following table.

SD	Analytes	Samples	%D	Q Flag
74SB194-03	vanadium	all samples	11.9	J/UJ


## Field Duplicates

### DRO/GRO

The field duplicate pair of samples 74SB226-05 and 74SB226-05D exhibited DRO results that did not compare. The reported results for GRO in this field duplicate pair were qualified as estimated J/UJ.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual bS with any questions regarding this validation report.

Sincerely,

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB222-03, 74SB224-03, 74SB225-04, 74SB225-05, 74SB226-04, 74SB227-04, 74SB193-03, 74SB193-05, 74SB194-05, 74SB195-03, 74SB195-05, 74SB196-03, 74SB196-05D	isobutyl alcohol	+	FR
74SB222-03, 74SB224-03, 74SB225-04, 74SB225-05, 74SB226-04, 74SB227-04, 74SB193-03, 74SB193-05, 74SB194-05, 74SB195-03, 74SB195-05, 74SB196-03, 74SB196-05D	acrolein acetonitrile 3-chloro-1-propene propionitrile ethyl methacrylate pentachloroethane bromomethane acetone 2-butanone 2-hexanone 1,2-dibromo-3-chloropropane	+/-	UU
74SB223-03	pentachloroethane acrolein	+	FR
74SB223-03	acrylonitrile acetone 2-butanone 2-hexanone	+	UU
74SB194-03, 74SB196-05	acrolein isobutyl alcohol	+	FR
74SB194-03, 74SB196-05	acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+	UU
74SB224-04, 74SB226-05, 74SB226-05D, 74SB227-05	pentachloroethane	+	FR
74SB224-04, 74SB226-05, 74SB226-05D, 74SB227-05	acrolein acrylonitrile chloromethane acetone 2-hexanone	+	UU
74SB224-04, 74SB226-05, 74SB226-05D, 74SB227-05	toluene	+	U at reported value

### Summary of Data Qualifications

Sample ID	Compound	Results	Q flag
74SB194-03, 74SB196-05, 74SB222-03, 74SB224-05, 74SB225-04, 74SB225-05, 74SB226-04, 74SB226-05, 74SB227-04, 74SB193-03, 74SB193-05, 74SB194-03, 74SB194-05, 74SB195-03, 74SB195-05, 74SB196-03, 74SB196-05D, 74SB196-05	acetone	-	U at reported value
74SB222-03, 74SB222-05, 74SB224-05, 74SB225-04, 74SB225-05, 74SB226-04, 74SB226-05, 74SB226-05D, 74SB227-04, 74SB194-03, 74SB195-03, 74SB195-05, 74SB196-05	2-butanone	-	U at reported value
74SB223-03	chloroethane	+	J/UJ
74SB224-04, 74SB226-05, 74SB226-05D, 74SB227-05	chloroethane, 1,2-dichloroethane, methylene chloride, trans-1,2-dichloroethene	+/+	J/UJ

### PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
all samples	DRO	<MDL up to RL	U
74SB226-05, 74SB226-05D	DRO	+	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	-	J
all samples <MDL up to RL	silver	<MDL up to RL	U
all samples	antimony	+/+	J/UJ
all samples	vanadium	+	J/UJ

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

11	not detected above the reported sample quantitation limit
1	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected, the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.



## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinstate blank associated with soils to qualify water samples and vice versa*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

- RL - reporting limit
- IDL - instrument detection limit
- MDL - method detection limit
- CRDL - contract required detection limit
- CRQL - contract required quantitation limit
- - positive result
- non-detect result

**TEST AMERICA SAVANNAH SDG 36978-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

September 12, 2008  
 SDG# SWMU36978-3, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36978-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (#260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	Metals
74SB197-03	680-36978-41	soil	X		X	X
74SB197-05	680-36978-42	soil	X		X	X
74SB228-04	680-36978-43	soil	X		X	X
74SB228-05	680-36978-44	soil	X	X	X	X
74SB229-04	680-36978-45	soil	X		X	X
74SB229-05	680-36978-46	soil	X		X	X
74SB230-04	680-36978-47	soil	X		X	X
74SB230-05	680-36978-48	soil	X	X	X	X
74SB231-00	680-36978-49	soil	X		X	X
74SB231-04	680-36978-51	soil	X		X	X
74SB231-05	680-36978-52	soil	X		X	X
74SB231-05D	680-36978-53	soil	X		X	X
74SB232-04	680-36978-54	soil	X		X	X
74SB232-05	680-36978-55	soil	X		X	X
74SB233-04	680-36978-56	soil	X		X	X
74SB233-05	680-36978-57	soil	X		X	X
74SB234-04	680-36978-58	soil	X		X	X
74SB234-05	680-36978-59	soil	X		X	X
74SB235-04	680-36978-60	soil	X		X	X
74SB235-05	680-36978-61	soil	X		X	X
74SB231-04 MS	680-36978-51 MS	soil	X		X	X
74SB231-04 MSD	680-36978-51 MSD	soil	X		X	X

The following quality control samples were provided with this SDG: sample 74SB231-05D field duplicate of sample 74SB231-05.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks
- Internal Standards
- Surrogate Recoveries
- Laboratory Control Samples
- Matrix Spike Recoveries \*
- Matrix Duplicate RPDs \*
- Serial Dilutions \*
- Field Duplicates \*
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

One sample was analyzed out of holding time limits by one day; therefore all positive results were qualified as estimated and non-detected results were rejected.

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for those compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36978-3

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Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

One sample exhibited low internal standard area recoveries that resulted in qualifying all associated compounds as estimated.

One of the samples exhibited high surrogate recoveries that resulted in qualifying all positive results as estimated.

Three of the laboratory control samples exhibited low recoveries that required associated sample compounds to be qualified as estimated.

### **PAH**

No qualifications to the data were required.

### **DRO/GRO**

Blank contamination was noted in the associated DRO rinse blank and qualification was required in the samples in this SDG.

One sample analyzed for GRO required qualification due to a high surrogate recovery.

The field duplicate pair of samples 74SB231-05 and 74SB231-05D exhibited DRO results that did not compare. The reported results for DRO in this field duplicate pair were qualified as estimated J.

### **Metals**

The IC SAB standards exhibited non-compliant recoveries below the QC limit for the analyte silver. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated J/UJ.

Blank contamination was noted and qualification was required in the samples in this SDG.

The field duplicate pair exhibited non-compliant RPDs or absolute differences for several analytes. These analytes were qualified as estimated or rejected in the field duplicate pairs.

### **Specific Evaluation of Data**

#### **Data Completeness**

Resubmissions were required for the VOA & GRO fractions. The laboratory was contacted as the submitted Form Is did not have dry weight corrected results. All samples were reprocessed with dry weight correction and new Form I's were submitted. Also, three samples were incorrectly calculated for the GRO fraction. Correction to these sample results was requested and received. Clarification questions were asked of the laboratory regarding the metals fraction. Copies of these e-mail correspondences are included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/20/08 and samples were received at the laboratory 05/22/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exceptions.

#### VOA

Sample 74SB235-04 exceeded the Region II analysis holding by one day; therefore all positive results were qualified as estimated (E) and non-detected results were qualified as rejected (R).

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/01/08	acrolein	0.04454	74SB197-03,	NR
	isobutyl alcohol	0.01504	74SB197-05,	
	acetonitrile	12.2%	74SB228-04,	E/U
	3-chloro-1-propene	36.5%	74SB229-04,	
	acrylonitrile	30.7%	74SB230-04,	
	propionitrile	24.5%	74SB231-00,	
	pentachloroethane	34.4%	74SB231-04,	
	bromomethane	37.3%	74SB231-05,	
	2-butanone	29.8%	74SB231-05D,	
	4-methyl-2-pentanone	28.7%	74SB232-04,	
	2-hexanone	29.8%	74SB232-05,	
	1,2,3-trichloropropane	22.9%	74SB233-04	
	1,2-dibromo-3-chloropropane	28.7%		

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06-02-08	pentachloroethane	151.9%	74SB238-05, 74SB239-05	I/R
	acrolein	28.7%		I/U
	acrylonitrile	21.8%		
	chloroethane	45.5%		
	acetone	21.9%		
	2-hexanone	26.0%		
CC 06-02-08	isobutyl alcohol	0.02344	74SB233-05, 74SB234-04	I/R
	acetonitrile	36.7%		I/U
	acrylonitrile	22.1%		
	propionitrile	25.5%		
	pentachloroethane	24.1%		
	bromomethane	63.1%		
	acetone	24.7%		
	2-butanone	35.5%		
	4-methyl-2-pentanone	32.2%		
	2-hexanone	35.4%		
	1,2,3-trichloropropane	27.7%		
	1,2-dibromo-3-chloropropane	33.6%		
CC 06-02-08	pentachloroethane	126.2%	74SB239-05	I/R
	acrolein	38.2%		I/U
	methyl methacrylate	21.2%		
	4-methyl-2-pentanone	24.6%		
	2-hexanone	21.9%		
CC 06-01-08	isobutyl alcohol	0.02448	74SB234-05, 74SB235-05	I/R
	acetonitrile	28.2%		I/U
	3-chloro-1-propene	46.5%		
	pentachloroethane	27.4%		
	bromomethane	35.3%		
	2-butanone	24.9%		
	4-methyl-2-pentanone	22.3%		
	2-hexanone	26.6%		
	1,2,3-trichloropropane	21.4%		
	1,2-dibromo-3-chloropropane	22.3%		
CC 06-01-08	isobutyl alcohol	0.01018	74SB235-04	I/R
	acrolein	52.3%		I/U
	acetonitrile	54.4%		
	3-chloro-1-propene	25.4%		
	acrylonitrile	26.5%		
	propionitrile	38.1%		
	pentachloroethane	27.1%		
	dichlorodifluoromethane	48.1%		
	chloromethane	30.4%		
	bromomethane	43.4%		
	acetone	21.5%		
	2-butanone	34.5%		
	4-methyl-2-pentanone	27.2%		
	2-hexanone	34.5%		
	1,2,3-trichloropropane	28.9%		
	1,2-dibromo-3-chloropropane	34.2%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (77%/77%/76%/76%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/UJ in all samples.

### Blanks

#### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	131 ug/Kg	50 ug/Kg	2X RL
Method Blank	acetone	9.91 ug/Kg	5 ug/Kg	2X RL
Method Blank	toluene	361 ug/Kg	200 ug/Kg	RL
Method Blank	acetone	6.41 ug/Kg	50 ug/Kg	2X RL
UR18	acetone	8.4 ug/L	25 ug/L	2X RL
	chloroform	0.321 ug/L	1 ug/L	RL
	methylene chloride	1.11 ug/L	5 ug/L	2X RL
FB11	2-butanone	0.602 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB228-05	toluene	U at reported value
74SB234-05, 74SB235-05, 74SB197-03, 74SB197-05, 74SB228-04, 74SB229-04, 74SB230-04, 74SB231-00, 74SB231-04, 74SB231-05, 74SB231-05D, 74SB232-04, 74SB232-05, 74SB233-04, 74SB235-04, 74SB233-05	acetone	U at reported value
74SB197-03, 74SB197-05, 74SB230-04, 74SB231-00, 74SB231-04, 74SB231-05, 74SB231-05D, 74SB232-04, 74SB232-05, 74SB233-04, 74SB233-05, 74SB234-04, 74SB235-04, 74SB235-05	2-butanone	U at reported value
74SB231-04	chloroform	U at reported value
74SB228-05, 74SB235-04	methylene chloride	U at reported value



## DRO/GRO

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
LR18	DRO	0.068J ug/L	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples >MDL but <RL	DRO	U

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
ICH	antimony	0.13950 ug/L	>MDL, up to RL	U
FB01	copper	2.1J ug/L	>MDL up to RL	U
	lead	0.38J ug/L	>MDL, up to RL	U

Please note: when qualifying samples for ICH contamination, associated samples are those just prior to or just following a ICH. Therefore, not all analytes in all samples are flagged for ICH contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
all samples >MDL up to RL	copper	U
all samples >MDL up to RL	lead	U

## Internal Standards

### VOA

Sample 74SB229-05 exhibited low internal standard area recovery for 1,4-difluorobenzene; therefore all associated results were qualified as estimated (J/UJ).

## **Surrogate Recoveries**

### VOA

Sample 74SB229-05 exhibited high recoveries for toluene-d8 at 171% (QC limit 65-132%) and 4-bromofluorobenzene at 244% (QC limit 65-124%); therefore all positive results were qualified as estimated (J).

### DRO/GRO

One sample analyzed for GRO exhibited a non-compliant surrogate recovery above the QC limits. The reported positive result for GRO in sample 74SB228-05 (158%) was qualified as estimated J.

## **Laboratory Control Samples**

### VOA

The LCS associated with sample 74SB229-05 exhibited low recovery for chloroethane at 22% recovery (QC limit 26-166%); therefore the compound was qualified as estimated (J/CJ) in this sample.

The LCS associated with samples 74SB228-05 and 74SB230-05 exhibited low recoveries for chloroethane at 24% recovery (QC limit 26-166%), 1,2-dichloroethane at 59% (QC limits 62-140%), methylene chloride at 62% (QC limits 65-126%) and trans-1,2-dichloroethene at 64% (QC limits 66-127%); therefore these compounds were qualified as estimated (J-LIJ) in these samples.

The LCS associated with sample 74SB235-04 exhibited low recovery for 1,2-dibromo-3-chloropropane at 54% recovery (QC limit 62-140%) and 1,2,3-trichloropropane at 60% recovery (QC limit 65-132%); therefore these compounds were qualified as estimated (J/CJ) in this sample.

## **Field Duplicates**

### DRO/GRO

The field duplicate pair of samples 74SB231-05 and 74SB231-05D exhibited DRO results that did not compare (117%). The reported results for DRO in this field duplicate pair were qualified as estimated J/UJ.

### Metals

The field duplicate pair of samples 74SB231-05 and 74SB231-05D exhibited metals results that did not compare. The analytes cobalt (47%), vanadium (67%), and zinc (60%) exhibited RPDs that were  $\geq 35\%$  but less than 120% and were qualified as

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estimated J in both samples. The analyte lead (1.42) exhibited an absolute difference greater than  $\pm 2X$  the RI, and was qualified as estimated J in both samples

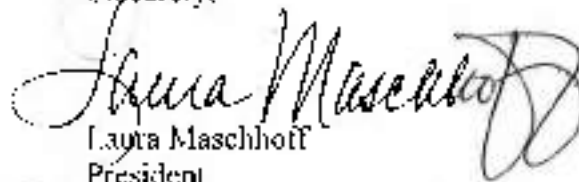
**Identification/Quantitation**

VOA

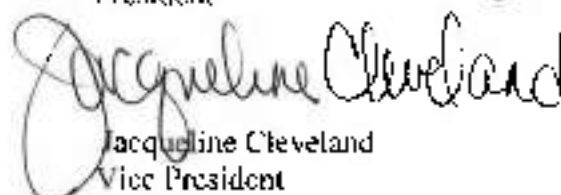
Sample 74SB229-05 was re-analyzed due to non-compliant surrogate recoveries. The re-analysis also exhibited non-compliant recoveries therefore the initial analysis was used.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB235-04	all results	+/	J/R
74SB197-03, 74SB197-05, 74SB228-04, 74SB229-04, 74SB230-04, 74SB231-00, 74SB231-04, 74SB231-05, 74SB231-05D, 74SB232-04, 74SB232-05, 74SB233-04	acrolein isobutyl alcohol	+/	J/R
74SB197-03, 74SB197-05, 74SB228-04, 74SB229-04, 74SB230-04, 74SB231-00, 74SB231-04, 74SB231-05, 74SB231-05D, 74SB232-04, 74SB232-05, 74SB233-04	acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	-/-	J/UJ
74SB228-05, 74SB230-05	pentachloroethane	+/-	J/R
74SB228-05, 74SB230-05	acrolein acrylonitrile chloroethane acetone 2-hexanone	+/	J/UJ
74SB232-05, 74SB234-04	isobutyl alcohol	-/-	J/R
74SB233-05, 74SB234-04	acetonitrile acrylonitrile propionitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/	J/UJ
74SB229-05	pentachloroethane	+/-	J/R
74SB229-05	acrolein methyl methacrylate 4-methyl-2-pentanone 2-hexanone	+/	J/UJ
74SB234-05, 74SB235-05	isobutyl alcohol	-/-	J/R

## Summary of Data Qualifications, continued

VQA, continued

Sample ID	Compound	Results	Q flag
74SB234-05, 74SB235-05	acetonitrile 3-chloro-1-propene pentachloromethane bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/	J/UJ
74SB235-04	isobutyl alcohol	+/	J/R
74SB235-04	acrolein acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane dichlorodifluoromethane chloromethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+/	J/UJ
74SB228-05	toluene	+	U at reported value
74SB234-05, 74SB235-05, 74SB197-05, 74SB197-05, 74SB228-04, 74SB229-04, 74SB230-04, 74SB231-05, 74SB231-04, 74SB231-05, 74SB231-05D, 74SB232-04, 74SB232-05, 74SB233-04, 74SB233-05	acetone	+	U at reported value
74SB197-03, 74SB197-05, 74SB236-04, 74SB231-00, 74SB231-04, 74SB231-05, 74SB231-05D, 74SB232-04, 74SB232-05, 74SB233-04, 74SB233-05, 74SB234-04, 74SB235-04, 74SB235-05	2-butanone	+	U at reported value
74SB231-04	chloroform	+	U at reported value
74SB228-05, 74SB235-04	methylene chloride	+	U at reported value
74SB229-05	all compounds associated with: 1,4-difluorobenzene	+/	J/UJ

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG6 SWMU36978-3  
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## Summary of Data Qualifications, continued

### VOA, continued

Sample ID	Compound	Results	Q flag
74SB229-05	all results	+	J
74SB229-05	chloroethane	-/-	J/U
74SB228-05, 74SB230-05	chloroethane, 1,2-dichloroethane, methylene chloride, trans-1,2-dichloroethene	-/-	J/U
74SB215-04	1,2-dibromo-1-chloropropane 1,2,3-trichloropropane	+/+	J/U
74SB229-04RA	all results	U/-	R

### PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
all samples	DRO	-J >MDL up to RL	U
74SB228-05	GRO	+	J
74SB231-05, 74SB231-05D	DRO	+	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	U/-	J/U
all samples	antimony	>MDL up to RL	U
all samples	copper	>MDL up to RL	U
all samples	lead	>MDL up to RL	U
74SB231-05, 74SB231-05D	cobalt vanadium zinc lead	+	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/LJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 36978-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

September 8, 2008  
 SDG# SWMU36978-4, Test America-Savannah  
 NAPIR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU36978-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VDA App IX	LL-PAH	DRO/GRO	DRO	GRO	TMetals	DMetals
74GW9MW02S	680-36978-62	water	X	X	X			X	X
74GW9MW02SD	680-36978-63	water	X	X	X			X	X
74GW151	680-36978-64	water	X		X			X	X
74c-WVP107	680-36978-65	water	X		X			X	X
74GWVPIBb9	680-36978-66	water				X			
74GWVPIAb9	680-36978-67	water		X					
74GWVPIbCb	680-36978-68	water	X		X			X	X
74GWVPIbCa	680-36978-69	water	X				X	X	X
74GW145	680-36978-70	water	X				X		
74ER18	680-36978-71	water	X	X	X			X	
74ER19	680-36978-72	water	X		X			X	
74TB27	680-36978-73	water	X				X		
74TB28	680-36978-74	water	X				X		
74TB29	680-36978-75	water	X				X		
74GW9MW02S MS	680-36978-62MS	water	X	X	X			X	X
74GW9MW02S MSD	680-36978-62MSD	water	X	X	X			X	X

The following quality control samples were provided with this SDG: sample 74GW9MW02SD-field duplicate of sample 74GW9MW02S; samples 74ER18 and 74ER19-equivalent blanks; and samples 74TB27, 74TB28 and 74TB29-trip blanks.

The samples were evaluated based on the following criteria:

- Data Completeness

\*

• Sample Condition	•
• Technical Holding Times	
• GC/MS Tuning	•
• GC Performance	•
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	•
• Blanks	
• Internal Standards	•
• Surrogate Recoveries	•
• Laboratory Control Samples	•
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	•
• Serial Dilutions	•
• Field Duplicates	•
• Identification/Quantitation	
• Reporting Limits	•
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

### **PAH**

No qualifications to the data were required.

## **DRO/GRO**

Two samples for the GRO fraction were analyzed one day outside the holding time. The reported results in these samples were qualified as estimated.

Blank contamination was noted in the rinse blank associated with the DRO fraction and qualification was required in the samples in this SDG.

## **Metals**

The LCSAB standards exhibited a non-compliant recovery below the QC limit for silver and a non-compliant recovery above the QC limit for zinc. Based on Region II guidelines all positive and non-detect results for silver and all positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spike pair submitted in this SDG exhibited non-compliant recoveries for the dissolved metals analytes. The analytes arsenic, copper, and nickel were recovered above the QC limit but below 200% (in at least one spike sample) and positive results were qualified as estimated J in all dissolved metals samples. The analytes barium and zinc were recovered above 200% in both the MS and MSO and positive and non-detect results were rejected R in all dissolved metals samples.

Based on an issue discussed in the Identification/Quantitation section of this report, it is the professional opinion of the validator that the field duplicate sample 74GW9MW02SDF should not be used to assess precision. Therefore, sample 74GW9MW02SDF is rejected. R.

The total/dissolved metals analysis comparison exhibited %Ds greater than 20% but less than or equal to 50% for one analyte in one pair and a %D greater than 50% for one analytes in one pair. These analytes were qualified as estimated or rejected in the associated sample pair based on Region II guidelines.

## **Specific Evaluation of Data**

### **Data Completeness**

Resubmissions were required for the metals fraction. Data was missing from the package for an ICP-MS tune. This tune was requested and received from the laboratory. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36978-4

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correspondences is included in the project file. Please note: the lab reported a CRDL standard on one of the submitted Form 2B's that was not associated with the samples in this SDG. The validator did not use these results in the validation process.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/16-21/08 and samples were received at the laboratory 05/22/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exception.

#### DRO/GRO

Two samples for the GRO fraction were analyzed 1 day out of the analytical holding time. The reported results in samples 74TB28 and 74TB29 were qualified as estimated J.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited RRFs and %Ds that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 05/10/08	pentachloroethane	93.9%	74TB28, 74TB29,	J/R
	trichloromethane	25.9%	74LR19, 74LR18,	J/D
	acrylonitrile	25.5%	74GW9MW02S1,	
	1,2-dichloroethane	21.8%	74GW9MW02S,	
			74TB27,	
			74GW151,	
			74GWVP07,	
			74GW145	
CC 06/03/08	acrolein	65.3%	74GWVP6Cb,	J/D
	pentachloroethane	79.4%	74GWVP6Ca	
	bromochloromethane	28.6%		
	1,2-dibromo-3-chloropropane	38.6%		

### ICSA/ICSAB Standards

#### Metals

The ICSAB standards associated with the dissolved metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (76%/76%/76%) and a recovery above the QC limit for the analyte zinc (121%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated

LDU and reported positive results for zinc were qualified as estimated J in all dissolved metals samples.

## Blanks

### DRO/CRQ

The associated rinse blank exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Action Level	Q Flag
ER16	DRO	0.038 ug/L	RL	U

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
all samples >MDL, but less than RL	DRO	U

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBLK DM	arsenic	0.03063J ug/L	<MDL up to RL	U
	chromium	1.3360J ug/L	< MDL up to RL	U
	tin	4.3710J ug/L	> MDL up to RL	U
CYB IM	antimony	0.9434J ug/L	> MDL up to RL	U
CCB DM	antimony	0.08154J ug/L	<MDL up to RL	U
	beryllium	0.028J ug/L	< MDL up to RL	U
	lead	0.060J ug/L	< MDL up to RL	U
	silver	0.021J ug/L	< MDL up to RL	U
FB01	lead	0.38J ug/L	> MDL up to RL	U
74ER16	chromium	0.68J ug/L	< MDL up to RL	U
	copper	3.9J ug/L	> MDL up to RL	U
	vanadium	0.94J ug/L	> MDL up to RL	U

Field Blank assignments were made based on tracking provided by the client. Please note, when qualifying samples for CCB contamination, a suspected sample are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all total metals samples > MDL up to RL	antimony	U
74GWVP03F, 74GWVP6CBF, 74GWVP6CAF	antimony	U
all dissolved metals samples > MDL up to RL	arsenic	U
all metals samples > MDL up to RL	chromium	U
all dissolved metals samples > MDL up to RL	tin	U
74GW9MW02SF, 74GW9MW02SDF	beryllium	U
all metals samples > MDL up to RL	lead	U
74GW9MW02SF, 74GW9MW02SDF	silver	U
all samples > MDL up to RL	copper	U
all samples > MDL up to RL	vanadium	U

### Matrix Spikes

#### Metals

The matrix spikes pair submitted in this SDG for the dissolved metals fraction exhibited non-compliant %R's above the QC limits for arsenic, barium, copper, nickel and zinc, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74GW9MW02SF	arsenic	all dissolved metals samples	159/157	J
	copper		205/199	
	nickel		169/171	
	barium		235/227	R
	zinc		470/478	

### Field Duplicates

#### Metals

For field duplicate pair 74GW9MW02SF/74GW9MW02SDF, it appears that the results reported from the 10X dilution in the field duplicate sample are biased high by approximately a factor of 10. Positive results reported from the undiluted analysis of the field duplicate exhibited acceptable reproducibility with the associated field sample. It is unclear to the validator what happened in this situation. The results reported in the dissolved analysis field duplicate are actually reproducible with the total analysis field duplicate results. Perhaps the field duplicate did not get filtered. However, because of the anomalous results, it is the professional opinion of the validator that this field duplicate sample should not be used to assess precision. Therefore, the field duplicate sample 74GW9MW02SDF is rejected, R.

## Identification/Quantitation

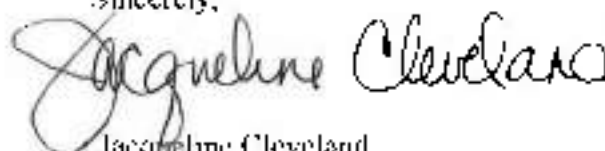
### Metals

The total and dissolved metals analysis exhibited %Ds >20% but less than or equal to 50% for one analyte and greater than 50% for one analyte. Elements exhibiting >20% but less than or equal to 50% difference between total and dissolved concentrations were qualified as estimated J and elements exhibiting >50% difference were rejected based on the Region II guidelines. Specific action is noted in the following table.

Sample ID	Analyte	%D	Q Flag
74GWVP07, 74GWVP07I	cobalt	22%	J
74GWVP6Cb, 74GWVP6CbF	cobalt	60%	R

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Jacqueline Cleveland  
Vice President



## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74TB28, 74TB29, 74ER19, 74ER18, 74GW9MW02SD, 74GW9MW02S, 74TB27, 74GW151, 74GWVP07, 74GW145	pentachloroethane	✓	NR
74TB28, 74TB29, 74ER19, 74ER18, 74GW9MW02SD, 74GW9MW02S, 74TB27, 74GW151, 74GWVP07, 74GW145	iodomethane acrylonitrile 1,2-dichloroethane	✓	J/U
74GWVP6CH, 74GWVP6Ca	acrolein pentachloroethane bromomethane 1,2-dibromo-3-chloropropane	✓	J/U

### PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
74TB28, 74TB29	GRO	✓	J/U
all samples	DRO	>MDL but <RL	U

### Metals

Sample ID	Analyte	Results	Q flag
all dissolved metals samples	silver	✓	J/U
all dissolved metals samples	zinc	✓	J
all total metals field samples, 74GWVP07F, 74GWVP6CBF, 74GWVP6CaF	antimony	>MDL up to RL	U
all dissolved metals samples	arsenic	>MDL up to RL	U
all field samples	chromium	>MDL up to RL	U
all dissolved metals samples	tin	>MDL up to RL	U
74GW9MW02SE, 74GW9MW02SDE	beryllium	>MDL up to RL	U
all field samples	lead	>MDL up to RL	U
74GW9MW02SE, 74GW9MW02SDE	silver	>MDL up to RL	U
all field samples	copper	>MDL up to RL	U
all field samples	vanadium	>MDL up to RL	U

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU36978-4

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## Summary of Data Qualifications, continued

### Metals

Sample ID	Analyte	Results	Q flag
all dissolved metals samples	arsenic copper nickel	-	J
all dissolved metals samples	barium zinc	+	R
74GWVP07, 74GWVP07F	cobalt	-	J
71GWVP6Cb, 74GWVP6CbF	cobalt	+	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected: the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting times, etc. to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- (1) - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/LJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
•	positive result
•	non-detect result

**TEST AMERICA SAVANNAH SDG 37020-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airsides Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 20, 2008  
SDG# SWMU37020-1, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37020-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #01W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOC App IX	LL-PAH	DRO/GRO	Metals
74SB265-03	680-37020-1	soil	X		X	X
74SB265-03B	680-37020-2	soil	X		X	X
74SB265-04	680-37020-3	soil	X		X	X
74SB266-03	680-37020-4	soil	X		X	X
74SB267-02	680-37020-5	soil	X		X	X
74SB267-03	680-37020-6	soil	X		X	X
74SB268-03	680-37020-7	soil	X		X	X
74SB268-05	680-37020-8	soil	X	X	X	X
74SB269-04	680-37020-9	soil	X		X	X
74SB269-05	680-37020-10	soil	X	X	X	X
74SB263-03	680-37020-11	soil	X		X	X
74SB263-04	680-37020-12	soil	X		X	X
74SB263-03	680-37020-13	soil	X		X	X
74SB264-03	680-37020-14	soil	X	X	X	X
74SB255-03	680-37020-15	soil	X		X	X
74SB256-03B	680-37020-16	soil	X		X	X
74SB259-04	680-37020-17	soil	X		X	X
74SB258-03	680-37020-18	soil	X		X	X
74SB258-05	680-37020-19	soil	X		X	X
74SB259-03	680-37020-20	soil	X		X	X
74SB263-04MS	680-37020-12MS	soil				X
74SB263-04MSB	680-37020-12MSB	soil				X

The following quality control sample was provided with this SDG: sample 74SB265-03D -field duplicate of sample 74SB265-03; sample 74SB256-03D-field duplicate of sample 74SB256-03.

The samples were evaluated based on the following criteria:

- |                                    |    |
|------------------------------------|----|
| • Data Completeness                | *  |
| • Sample Condition                 | *  |
| • Technical Holding Times          |    |
| • GC/MS Tuning                     | *  |
| • GC Performance                   | *  |
| • Initial/Continuing Calibrations  |    |
| • ICSA/ICSAB Standards             |    |
| • CRDL Standards                   | *  |
| • Blanks                           |    |
| • Internal Standards               | *  |
| • Surrogate Recoveries             |    |
| • Laboratory Control Samples       |    |
| • Matrix Spike Recoveries          | *  |
| • Matrix Duplicate RPDs            | *  |
| • Serial Dilutions                 |    |
| • Field Duplicates                 |    |
| • Identification/Quantitation      |    |
| • Reporting Limits                 | *  |
| • Tentatively Identified Compounds | NA |

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D and low RRF values, in the continuing calibrations, some compounds were qualified as estimated and rejected.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

Two samples exhibited high surrogate recoveries that resulted in qualifying positive results as estimated.

Two of the laboratory control samples exhibited low recoveries that resulted in qualifying compounds in associated samples as estimated.

One of the field duplicate pairs did not exhibit comparable results for one compound that resulted in qualifications.

### **LL-PAH**

No qualifications to the data were required.

### **DRO/GRO**

Two samples for DRO were re-extracted outside holding time because the field duplicate results didn't agree. These RE samples were rejected in favor of the original analysis.

Several samples were analyzed for GRO one day outside the analytical holding time due to necessary dilutions or for confirmation of surrogate recoveries. These samples were qualified as estimated J/UJ.

Two samples analyzed for GRO required qualification due to high surrogate recoveries.

The field duplicate pair of samples 74SB265-03 and 74SB265-03D exhibited GRO & DRO results that did not compare. The reported results for GRO and DRO in this field duplicate pair were qualified as estimated J.

Several samples were reported from reanalysis runs. The original analyses were rejected R in favor of these reanalysis runs.

### **Metals**

The ICSAB standards exhibited non-compliant recoveries below the QC limit for the analyte silver and above the QC limit for the analyte zinc. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated J/UJ and all positive results for zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.



The SD pair of sample 74SB263-04 exhibited one analyte that was above the QC limit. Zinc was qualified as estimated in the samples.

The field duplicate pair of samples 74SB265-03 and 74SB265-03D exhibited a non-compliant RPD for the analyte lead. Therefore, lead was qualified as estimated in the field duplicate pairs.

### **Specific Evaluation of Data**

#### **Data Completeness**

Resubmissions were required for the GRO and DRO fractions. Several sample results in the GRO fraction and one sample in the DRO fraction were incorrectly calculated. Corrections were requested and received from the laboratory. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/20-21/08 and samples were received at the laboratory 05/23/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exception.

#### **DRO/GRO**

The following samples were analyzed for GRO one day outside the holding time. Results were qualified as estimated in samples 74SB265-03DL, 74SB265-03DRA, 74SB269-04DL, 74SB269-05DL, and 74SB256-03RA.

#### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited %Ds and RRP values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRT, %RSD, %D	Samples	Q Flag
CC 06/02/08	isobutyl alcohol	0.0234	74SB265-03,	J/R
	acetonitrile	16.7%	74SB266-03,	J/UJ
	acrylonitrile	22.1%	74SB267-02,	
	propionitrile	25.5%	74SB263-04,	
	pentachloroethane	24.1%	74SB264-03,	
	bromomethane	63.1%	74SB264-04,	
	acetone	24.7%	74SB256-03,	
	2-butanone	35.5%	74SB256-03D	
	4-methyl-2-pentanone	37.2%		
	2-hexanone	35.4%		
	1,2,3-trichloropropane	27.7%		
	1,2-dibromo-3-chloropropane	33.6%		
CC 06/02/08	pentachloroethane	126.2%	74SB267-03	J/R
	acrolein	38.2%		J/UJ
	methyl methacrylate	21.2%		
	4-methyl-2-pentanone	34.6%		
	2-hexanone	21.0%		
CC 06/02/08	isobutyl alcohol	0.02347	74SB256-04,	J/R
	acrolein	39.1%	74SB258-03,	J/UJ
	iodomethane	24.4%	74SB258-05,	
	acetonitrile	37.1%	74SB259-03,	
	3-chloro-1-propene	55.9%	74SB263-03	
	2-chloro-1,1-butadiene	32.2%		
	pentachloroethane	39.0%		
	2-butanone	38.1%		
	4-methyl-2-pentanone	28.9%		
	2-hexanone	33.4%		
	bromoform	23.0%		
	1,2,3-trichloropropane	25.7%		
	1,2-dibromo-3-chloropropane	36.8%		
CC 06/02/08	pentachloroethane	151.5%	74SB265-03D,	J/R
	acrolein	28.7%	74SB265-04,	J/UJ
	acrylonitrile	21.8%	74SB268-01,	
	chloroethane	45.5%	74SB268-05	
	acetone	21.9%		
	2-hexanone	26.0%		
CC 06/03/08	pentachloroethane	104.8%	74SB269-04,	J/R
	acrolein	57.7%	74SB269-05	J/UJ
	isobutyl alcohol	32.9%		
	methyl methacrylate	47.5%		
	acetone	43.8%		
	4-methyl-2-pentanone	31.4%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (79%) and greater than the

upper QC limit for the analyte zinc (122%/123%/123%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/U and reported positive results for zinc were qualified as estimated J in all samples.

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	toluene	35J ug/Kg	200 ug/Kg	RI.
Method Blank	toluene	36J ug/Kg	200 ug/Kg	RI.
Method Blank	acetone	7.3J ug/Kg	50 ug/Kg	2X RI.
FB01	2-butanone	0.69J ug/l.	10 ug/l.	2X RI.

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB256-04, 74SB258-03, 74SB258-05, 74SB259-01, 74SB263-01, 74SB266-03, 74SB267-02, 74SB267-03, 74SB263-01, 74SB264-03, 74SB256-03, 74SB256-01D	acetone	U at reported value
74SB269-04, 74SB269-05, 74SB265-03D, 74SB268-03	toluene	U at reported value
74SB265-03, 74SB266-03, 74SB267-02, 74SB263-03, 74SB263-04, 74SB264-03, 74SB264-04, 74SB256-03, 74SB256-04, 74SB258-03, 74SB258-05, 74SB259-03	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.09049J ug/L	>MDL, up to RI	U

Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL, up to RI.	antimony	U

## Surrogate Recoveries

### VOA

Sample 74SB265-03 exhibited high surrogate recovery for 4-bromofluorobenzene at 163% (QC limit 65-124%); therefore positive results were qualified as estimated (J).

Sample 74SB264-04 exhibited high surrogate recovery for 4-bromofluorobenzene at 260% (QC limit 65-124%); therefore positive results were qualified as estimated (J).

### DRO/GRO

Two samples analyzed for GRO exhibited non-compliant surrogate recovery above the QC limits. The reported positive results for GRO in samples 74SB265-03DL (123%) and 74SB268-05 (186%) were qualified as estimated J.

## Laboratory Control Samples

### VOA

The LCS associated with samples 74SB265-03D, 74SB265-04, 74SB268-03 and 74SB268-05 exhibited low recoveries for chloroethane at 24% (QC limit 26-166%), 1,2-dichloroethane at 59% (QC limit 62-140%), methylene chloride at 62% (QC limit 65-126%) and trans-1,2-dichloroethene at 64% (QC limit 66-127%); therefore results for these compounds were qualified as estimated (J/UJ).

The LCS associated with sample 74SB267-03 exhibited low recovery for chloroethane at 22% (QC limit 26-166%); therefore results for this compound was qualified as estimated (J/UJ).

## Serial Dilutions

### Metals

The serial dilution analysis submitted in this SDG exhibited a non-compliant %D for zinc, requiring qualification in the field samples. A summary of this non-compliance and affected samples is noted in the following table.

MS	Analytes	Samples	%D	Q Flag
74SB263-04	zinc	all samples	11.8	EU

## **Field Duplicates**

### VOA

Sample 74SB265-03 and duplicate sample 74SB265-03D exhibited non-comparable results for acetone with 200% RPD; therefore results were qualified as estimated for this compound in both samples.

### DRO/GRO

The field duplicate pair of samples 74SB265-03(DL) and 74SB265-03D(RA) exhibited DRO and GRO results that did not compare. The reported results for DRO and GRO in this field duplicate pair were qualified as estimated J.

### Metals

The field duplicate pair of samples 74SB265-03 and 74SB265-03D exhibited metals results that did not compare. The analyte lead exhibited a RPD that was 235% but less than 120% and was qualified as estimated J in both samples.

## **Identification/Quantitation**

### DRO/GRO

The following samples analyzed for GRO were rejected R in favor of the dilution or reanalysis: 74SB265-03, 74SB265-03D, 74SB269-04, 74SB269-05 and 74SB256-03.

The following samples analyzed for DRO were rejected R in favor of the original analysis: 74SB265-03 RE and 74SB265-03D RE.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Handwritten signature of Jacqueline Cleveland in blue ink.

Jacqueline Cleveland  
Vice President

Michael Baker, Jr., Inc.  
NAIR SWMU74, Puerto Rico  
SDG# SWMU37020-1

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## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q Flag
74SB265-03, 74SB266-03, 74SB267-02, 74SB263-04, 74SB264-03, 74SB264-04, 74SB256-03, 74SB256-03D	isobutyl alcohol	+	J/R
74SB265-03, 74SB266-03, 74SB267-02, 74SB263-04, 74SB264-03, 74SB264-04, 74SB256-03, 74SB256-03D	acetonitrile acrylonitrile propionitrile pentachloroethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+	J/LJ
74SB267-03	pentachloroethane	+	J/R
74SB267-03	acrolein methyl methacrylate 4-methyl-2-pentanone 2-hexanone	+	J/LJ
74SB256-04, 74SB258-03, 74SB258-05, 74SB259-03, 74SB263-03	isobutyl alcohol	+	J/R
74SB256-04, 74SB258-03, 74SB258-05, 74SB259-03, 74SB263-03	acrolein iodomethane acetonitrile 3-chloro-1-propene 2-chloro-1,3-butadiene pentachloroethane 2-butanone 4-methyl-2-pentanone 2-hexanone bromoforn 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+	J/LJ
74SB265-03D, 74SB265-04, 74SB268-03, 74SB268-05	pentachloroethane	+	J/R
74SB265-03D, 74SB265-04, 74SB268-03, 74SB268-05	acrolein acrylonitrile chloromethane acetone 2-hexanone	+	J/LJ
74SB269-04, 74SB269-05	pentachloroethane	+	J/R
74SB269-04, 74SB269-05	acrolein isobutyl alcohol methyl methacrylate acetone 4-methyl-2-pentanone	+	J/LJ

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB256-04, 74SB258-03, 74SB258-05, 74SB259-03, 74SB263-03, 74SB266-03, 74SB267-02, 74SB267-03, 74SB263-04, 74SB264-02, 74SB256-03, 74SB256-03D	acetone	+	L at reported value
74SB269-04, 74SB269-05, 74SB265-03D, 74SB268-03	toluene	---	L at reported value
74SB265-03, 74SB266-03, 74SB267-02, 74SB263-03, 74SB263-04, 74SB264-03, 74SB264-04, 74SB256-03, 74SB256-04, 74SB258-03, 74SB258-05, 74SB259-03	2-butanone	-	L at reported value
74SB265-03, 74SB264-04	all results	-	J
74SB265-03D, 74SB265-04, 74SB268-03, 74SB268-05	chloroethane, 1,2-dichloroethane, methylene chloride, trans-1,2-dichloroethene	+/-	PLJ
74SB267-03	chloroethane	+/-	PLJ
74SB265-03, 74SB265-03D	acetone	+	PLJ

### PAH

Sample ID	Compound	Results	Q flag
No qualifications required			

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB265-03DL, 74SB265-03DRA, 74SB269-04DL, 74SB269-05DL, 74SB256-03RA	GRO	-	J
74SB265-03DL, 74SB268-05	GRO	-	J
74SB265-03, 74SB265-03D	DRO	-	J
74SB265-03DL, 74SB265-03DRA	GRO	-	J
74SB265-03, 74SB265-03D, 74SB269-04, 74SB269-05, 74SB256-03	GRO	+/-	R
74SB265-03RE, 74SB265-03DRE	DRO	---	R

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	+/-	PLJ
all samples	zinc	+	J
all samples >MDL up to RL	antimony	>MDL up to RL	L
all samples	zinc	+/-	PLJ
74SB265-03, 74SB265-03D	lead	+	J

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU37020-1

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## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCR/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- C - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCR/PB result is less or greater than the RL.



## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- LUJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 37020-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 15, 2008  
SDG# SWMU37020-2, Test America-Savannah  
NAPR SWML 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37020-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO/GRO	Metals
74SH219-01	680-37020-21	soil	X		X	X
74SB260-03	680-37020-22	soil	X		X	X
74SB260-04	680-37020-23	soil	X	X	X	X
74SB261-01	680-37020-24	soil	X		X	X
74SB261-03	680-37020-25	soil	X		X	X
74SB261-0211	680-37020-26	soil	X		X	X
74SB262-03	680-37020-27	soil	X		X	X
74SB236-04	680-37020-28	soil	X		X	X
74SB236-05	680-37020-29	soil	X		X	X
74SH236-0511	680-37020-30	soil	X		X	X
74SH217-01	680-37020-31	soil	X		X	X
74SB217-05	680-37020-32	soil	X		X	X
74SB238-04	680-37020-33	soil	X		X	X
74SH238-05	680-37020-34	soil	X		X	X
74SB239-04	680-37020-35	soil	X		X	X
74SB239-05	680-37020-36	soil	X		X	X
74SB240-04	680-37020-37	soil	X		X	X
74SB240-05	680-37020-38	soil	X		X	X
74SB241-01	680-37020-39	soil	X		X	X
74SB241-04	680-37020-40	soil	X		X	X
74SB261-03 MS	680-37020-25MS	soil	X		X	X
74SB261-03 MSD	680-37020-25MSD	soil	X		X	X

The following quality control sample was provided with this SDG: sample 74SB261-03D-field duplicate of sample 74SB261-03; sample 74SB236-05D-field duplicate of sample 74SB236-05.

The samples were evaluated based on the following criteria.

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	*
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D and low RRF values, in the continuing calibrations, some compounds were qualified as estimated and rejected.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

Two of the laboratory control samples exhibited low recoveries for two compounds that resulted in qualifying results as estimated.

### **LL-PAH**

No qualifications to the data were required.

### **DRO/GRO**

Two samples were analyzed for GRO six days outside the analytical holding time. These results were qualified as estimated J/UJ.

The field duplicate pair of samples 74SB261-03 and 74SB261-03D exhibited DRO results that did not compare. The reported results for DRO in this field duplicate pair were qualified as estimated J/UJ.

### **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spikes pair exhibited required qualification for non-compliant recoveries in both the MS and the MSD for the analytes chromium and copper. All results for chromium and copper in the metals samples were qualified as estimated J/UJ.

The serial dilution analysis exhibited non-compliant %Ds for five analytes. All results for barium, chromium, cobalt, nickel, and vanadium were qualified as estimated J/UJ.

One of the field duplicate pairs exhibited a non-compliant RPD for one analyte. Zinc was qualified as estimated in the field duplicate pair.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

#### **Technical Holding Times**

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU37020-2  
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According to chain of custody records, sampling was performed on 05/21/08 and samples were received at the laboratory 05/23/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exception.

#### DRO/GRO

Samples 74SB261-03 and 74SB237-04 were analyzed for GRO six days outside the holding time. The MS/MSD of sample 74SB261-03 were also analyzed outside the holding time. The reported GRO results in samples 74SB261-03 and 74SB237-04 were qualified as estimated J/JJ.

#### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited %Ds and RRF values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/02/08	isobutyl alcohol	0.02347	74SB239-04,	J/R
	acrolein	39.1%	74SB260-04,	J/JJ
	iodomethane	24.4%	74SB261-00,	
	acetonitrile	37.1%	74SB261-03,	
	3-chloro-1-propene	55.9%	74SB236-04,	
	2-chloro-1,3-butadiene	32.2%	74SB236-05,	
	pentachloromethane	30.0%	74SB237-04,	
	2-butanone	28.3%	74SB237-05,	
	4-methyl-2-pentanone	28.9%	74SB238-04	
	2-hexanone	32.4%		
	bromoforn	23.0%		
	1,2,3-trichloropropane	25.7%		
	1,2-dichloro-3-chloropropane	36.8%		
CC 06/02/08	pentachloromethane	13.9%	74SB261-03/D	J/R
	acrolein	28.7%		J/JJ
	acrylonitrile	21.8%		
	chloroethane	45.5%		
	acetone	21.9%		
	2-hexanone	26.0%		

Standard ID	Compound(s)	RRF, %RSD, %ID	Samples	Q Flag
CC 06.03.08	isobutyl alcohol	0.02448	74SB238-05,	J/R
	acetonitrile	28.2%	74SB239-01,	J/U
	3-chloro-1-propene	46.5%	74SB239-05,	
	pentachloroethane	27.4%	74SB240-01,	
	bromomethane	25.3%	74SB240-05,	
	2-butanone	24.9%	74SB241-00,	
	4-methyl-2-pentanone	22.3%	74SB241-01	
	2-hexanone	20.6%		
	1,2,3-trichloropropane	21.4%		
	1,2-dibromo-3-chloropropane	22.3%		
CC 06.03.08	acrolein	0.03924	74SB260-03,	J/R
	isobutyl alcohol	0.01018	74SB262-03,	J/U
	acetonitrile	24.4%	74SB266-0510	
	3-chloro-1-propene	25.4%		
	acrylonitrile	26.5%		
	propionitrile	38.1%		
	pentachloroethane	27.1%		
	dichlorodifluoromethane	48.1%		
	chloromethane	20.4%		
	bromomethane	43.4%		
	acetone	21.5%		
	2-butanone	34.5%		
	4-methyl-2-pentanone	27.2%		
	2-hexanone	34.5%		
	bromoforn	21.2%		
	1,2,3-trichloropropane	38.9%		
	1,2-dibromo-3-chloropropane	34.2%		

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL, are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	1.37 ug/Kg	50 ug/Kg	2X RL
Method Blank	acetone	6.41 ug/Kg	50 ug/Kg	2X RL
Method Blank	toluene	361 ug/Kg	400 ug/Kg	7X RL
Method Blank	acetone	7.31 ug/Kg	50 ug/Kg	2X RL
PR01	2-butanone	0.641 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Michael Baker, Jr., Inc.  
NAPR SWMU174, Puerto Rico  
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Sample ID	Compound	Q Flag
74SB239-04, 74SB239-05, 74SB240-04, 74SB240-05, 74SB241-00, 74SB241-04, 74SB260-03, 74SB262-03, 74SB236-05D, 74SB259-04, 74SB260-04, 74SB261-00, 74SB261-03, 74SB236-04, 74SB236-05, 74SB237-04, 74SB237-05, 74SB238-04	acetone	U at reported value
74SB261-03D	toluene	U at reported value
74SB259-04, 74SB260-03, 74SB260-04, 74SB261-03D, 74SB262-03, 74SB236-05D, 74SB237-05, 74SB239-04, 74SB239-05, 74SB240-04, 74SB240-05, 74SB241-00, 74SB241-04	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	beryllium	0.020 ug/L	MDL up to RL	U
FB01	copper	2.13 ug/L	MDL up to RL	U

Please note, when qualifying samples for CCB (certain only), associated samples are those listed prior to or just following a CCB therefore not all analytes at all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	beryllium	U
all samples >MDL up to RL	copper	U

### **Laboratory Control Samples**

#### VOA

The LCS associated with samples 74SB260-03, 74SB262-03 and 74SB236-05D exhibited low recoveries for 1,2-dibromo-3-chloropropane at 58% (QC limit 62-140%) and 1,2,3-trichloropropane at 60% (QC limit 65-132%); therefore results for these compounds were qualified as estimated (J/UJ).

The LCS associated with sample 74SB261-03D exhibited low recoveries for chloroethane at 24% (QC limit 26-166%), 1,2-dichloroethane at 59% (QC limit 62-140%), methylene chloride at 62% (QC limit 65-126%) and trans-1,2-dichloroethene at 64% (QC limit 66-127%); therefore results for these compounds were qualified as estimated (J/UJ).



## Matrix Spikes

### Metals

The matrix spikes pair submitted in this SDG exhibited non-compliant %R's for chromium and copper, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB261-03	chromium	all samples	127.44	J/JJ
	copper		65.47	

## Serial Dilution

### Metals

The serial dilution submitted in this SDG exhibited non-compliant %D's for several analytes, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

SD	Analytes	Samples	%D	Q Flag
74SB261-03	barium	all samples	21.4	J/JJ
	chromium		17.7	
	cobalt		16.6	
	nickel		15.1	
	vanadium		18.1	

## Field Duplicates

### DRO/GRO

The field duplicate pair of samples 74SB261-03 and 74SB261-03D exhibited DRO results that did not compare (168%). The reported results for DRO in this field duplicate pair were qualified as estimated J/JJ.

### Metals

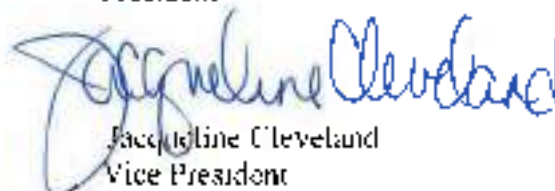
The field duplicate pair of samples 74SB261-03 and 74SB261-03D exhibited metals results that did not compare. The analyte zinc exhibited a RPD that was  $\geq 35\%$  but less than 120% (46%) and was qualified as estimated J in both samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

VOA

Sample ID	Compound	Results	Q Aug
74SB259-04, 74SB260-04, 74SB261-03, 74SB261-03, 74SB236-04, 74SB236-05, 74SB237-04, 74SB237-05, 74SB238-04	isobutyl alcohol	+	JR
74SB259-04, 74SB260-04, 74SB261-03, 74SB261-03, 74SB236-04, 74SB236-05, 74SB237-04, 74SB237-05, 74SB238-04	acrolein iodomethane acetonitrile 3-chloro-1-propene 2-chloro-1,3-butadiene pentachloroethane 2-butanone 4-methyl-2-pentanone 2-hexanone bromoform 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+	JUJ
74SB261-03D	pentachloroethane	+	JR
74SB261-03D	acrolein acrylonitrile chloroethane acetone 2-hexanone	+	JUJ
74SB238-05, 74SB239-04, 74SB239-05, 74SB240-04, 74SB240-05, 74SB241-00, 74SB241-04	isobutyl alcohol	+	JR
74SB238-05, 74SB239-04, 74SB239-05, 74SB240-04, 74SB240-05, 74SB241-00, 74SB241-04	acetonitrile 3-chloro-1-propene pentachloroethane bromomethane 2-butanone 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+	JUJ
74SB260-03, 74SB262-03, 74SB236-05D	acrolein, isobutyl alcohol	+	JR
74SB260-03, 74SB262-03, 74SB236-05D	acetonitrile 3-chloro-1-propene acrylonitrile propionitrile pentachloroethane trichloroethoxyethane chloromethane bromomethane acetone 2-butanone 4-methyl-2-pentanone 2-hexanone bromoform 1,2,3-trichloropropane 1,2-dibromo-3-chloropropane	+	JUJ

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU37020-2  
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## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74SB239-04, 74SB239-05, 74SB240-04, 74SB240-05, 74SB241-00, 74SB241-04, 74SB260-03, 74SB262-03, 74SB236-05D, 74SB239-04, 74SB260-04, 74SB261-00, 74SB261-03, 74SB236-04, 74SB236-05, 74SB237-04, 74SB237-05, 74SB238-04	acetone	+	U at reported value
74SB261-03D	toluene		U at reported value
74SB259-04, 74SB260-03, 74SB260-04, 74SB261-03D, 74SB262-03, 74SB236-05D, 74SB237-05, 74SB239-04, 74SB239-05, 74SB240-04, 74SB240-05, 74SB241-00, 74SB241-04	2-butanone	-	U at reported value
74SB260-03, 74SB262-03, 74SB236-05D	1,2-dibromo-3-chloropropane 1,1,3-trichloropropane	+/-	J/U
74SB261-03D	chloroethane, 1,2-dichloroethane, methylene chloride, trans-1,2-dichloroethene	-	J/U

### PAH

Sample ID	Compound	Results	Q flag
No qualifications required			

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB261-03 and 74SB237-04	GRO	+/-	J/U
74SB261-03, 74SB261-03D	DRO	+	J

### Metals

Sample ID	Analyte	Results	Q flag
all samples ~MDL up to RL	beryllium	~MDL up to RL	U
all samples ~MDL up to RL	copper	~MDL up to RL	U
all samples	chromium copper	+	J/U
all samples	barium chromium cobalt nickel vanadium	+/-	J/U
74SB261-03, 74SB261-03D	zinc	+	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MGL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL, but less than or equal to the RL; result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## **Glossary of Qualification Flags and Abbreviations, continued**

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinse blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## **General Abbreviations**

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 37020-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

September 15, 2008  
 SDG# SWMU37020-3, Test America-Savannah  
 NAPIR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37020-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	Metals
74SB241-04D	680-37020-41	soil	X	X	X
74SB241-05	680-37020-42	soil	X	X	X
74SB245-03	680-37020-43	soil	X	X	X
74SB245-05	680-37020-44	soil	X	X	X
74SB246-03	680-37020-45	soil	X	X	X
74SB246-04D	680-37020-46	soil	X	X	X
74SB246-05	680-37020-47	soil	X	X	X
74SB247-03	680-37020-48	soil	X	X	X
74SB248-03	680-37020-49	soil	X	X	X
74SB249-03	680-37020-50	soil	X	X	X
74SB250-03	680-37020-51	soil	X	X	X
74SB250-05	680-37020-52	soil	X	X	X
74SB251-03	680-37020-53	soil	X	X	X
74SB251-03	680-37020-54	soil	X	X	X
74SB251-04D	680-37020-55	soil	X	X	X
74SB251-05	680-37020-56	soil	X	X	X
74SB252-03	680-37020-57	soil	X	X	X
74SB253-03	680-37020-58	soil	X	X	X
74SB254-03	680-37020-59	soil	X	X	X
74SB255-03	680-37020-60	soil	X	X	X
74SB251-03 MS	680-37020-42MS	soil	X	X	X
74SB241-05 MS/D	680-37020-42MS/D	soil	X	X	X
74SB251-03 MS	680-37020-56MS	soil	X	X	X
74SB251-03 MS/D	680-37020-56MS/D	soil	X	X	X



The following quality control sample was provided with this SDG: sample 74SB246-03D-field duplicate of sample 74SB246-03; sample 74SB251-03D-field duplicate of sample 74SB251-03.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D and low RRF values, in the continuing calibrations, some compounds were qualified as estimated and rejected

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

One of the laboratory control samples exhibited low recoveries for two compounds that resulted in qualifying results as estimated.

One of the field duplicate pairs did not exhibit comparable results that resulted in qualifying one compound as estimated.

### **DRO/GRO**

Three samples were analyzed for GRO six days outside the analytical holding time. These results were qualified as estimated J/UJ.

The field duplicate pair of samples 74SB246-03 and 74SB246-03D exhibited DRO results that did not compare. The reported results for DRO in this field duplicate pair were qualified as estimated J/UJ.

### **Metals**

The IC.SAH standard associated with the samples exhibited non-compliant recoveries for the analytes silver and zinc. Silver was qualified as estimated J/UJ and positive results for zinc were qualified as estimated J in all samples.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spikes pair exhibited required qualification for non-compliant recoveries in both the MS and the MSD for the analyte antimony. All results for antimony in the metals samples were qualified as estimated J/UJ.

One of the field duplicate pairs exhibited non-compliant RPDs for three analytes. Cobalt was qualified as estimated and chromium and vanadium were rejected in the field duplicate pair.

### **Specific Evaluation of Data**

#### **Data Completeness**

Resubmissions were required for two metals samples that were incorrectly calculated. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

## Technical Holding Times

According to chain of custody records, sampling was performed on 05/21/08 and samples were received at the laboratory 05/23/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exception.

### DRO/GRO

Samples 74SB248-03, 74SB250-03 and 74SB250-05 were analyzed for GRO six days outside the holding time. The reported GRO results in samples 74SB248-03, 74SB250-03 and 74SB250-05 were qualified as estimated J/U.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited %Ds and RRF values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 060308	isobutyl alcohol	0.02448	74SB241-04D,	J/R
	acetonitrile	28.2%	74SB241-05,	J/U
	3-chloro-1-propene	46.5%	74SB245-03,	
	pentachloroethane	27.4%	74SB245-05,	
	bromomethane	25.3%	74SB246-03,	
	2-butanone	24.9%	74SB246-03D,	
	4-methyl-2-pentanone	11.3%	74SB247-03	
	2-hexanone	29.6%		
	1,2,3-trichloropropane	21.4%		
	1,2-dibromo-3-chloropropane	22.3%		
CC 060308	acrolein	0.03024	74SB246-05,	J/R
	isobutyl alcohol	0.01018	74SB249-03,	J/U
	acetonitrile	54.4%	74SB250-03,	
	3-chloro-1-propene	25.4%	74SB250-05,	
	acrylonitrile	26.5%	74SB251-00,	
	propionitrile	38.1%	74SB251-03	
	pentachloroethane	27.1%		
	dichlorodifluoromethane	48.1%		
	chloromethane	20.4%		
	bromomethane	13.4%		
	acetone	21.5%		
	2-butanone	34.5%		
	4-methyl-2-pentanone	21.2%		
	2-hexanone	34.5%		
	bromoform	21.2%		
	1,2,3-trichloropropane	28.9%		
	1,2-dibromo-3-chloropropane	34.2%		

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU37020-3

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06.04'08	isobutyl alcohol	0.00870	74SB251-03,	JR
	acetonitrile	57.7%	74SB253-03,	JUJ
	3-chloro-1-propene	44.6%	74SB251-03D,	
	propionitrile	40.5%	74SB252-03,	
	trans-1,4-dichloro-2-butene	23.2%	74SB253-03,	
	bromomethane	78.2%	74SB248-03,	
	acetone	23.3%	74SB254-03	
	2-butanone	29.2%		
	4-methyl-2-pentanone	28.7%		
	2-hexanone	31.1%		
	1,2,3-trichloropropane	23.6%		
	1,2-dibromo-3-chloropropane	29.9%		

### ICSA/ICSAB Standards

#### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (77%/77%) and greater than the upper QC limit for the analyte zinc (121%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated JUJ and reported positive results for zinc were qualified as estimated J in all samples.

#### Blanks

##### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	131 ug/Kg	50 ug/Kg	2X RL
Method Blank	acetone	6.4J ug/Kg	50 ug/Kg	2X RL
FBI	2-butanone	0.69J ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB241-04D, 74SB241-05, 74SB245-03, 74SB245-05, 74SB246-03, 74SB246-03D, 74SB247-03, 74SB246-05, 74SB249-03, 74SB250-03, 74SB250-05, 74SB251-00, 74SB251-03	acetone	U at reported value
74SB241-04D, 74SB241-05, 74SB245-03, 74SB245-05, 74SB246-03, 74SB246-03D, 74SB246-05, 74SB247-03, 74SB249-03, 74SB250-03, 74SB250-05, 74SB251-00, 74SB251-03, 74SB252-03, 74SB253-03	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBS	zinc	0.822 mg/Kg	>MDL up to RL	U
FB01	copper	2.11 ug/L	>MDL up to RL	U
	lead	0.381 ng/L	>MDL up to RL	U

Please note, when conducting samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	zinc	U
all samples >MDL up to RL	copper	U
all samples >MDL up to RL	lead	U

### **Laboratory Control Samples**

#### VOA

The LCS associated with samples 74SB246-05, 74SB249-03, 74SB250-03, 74SB250-05, 74SB251-00 and 74SB251-03 exhibited low recoveries for 1,2-dibromo-3-chloropropane at 58% (QC limit 62-140%) and 1,2,3-trichloropropane at 60% (QC limit 65-132%), therefore results for these compounds were qualified as estimated (J/U).

### **Matrix Spikes**

#### Metals

**TEST AMERICA SAVANNAH SDG 37020-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 15, 2008  
SDG# SWMU37020-4, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37020-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	DRO	GRO	Metals
74GWPB8a	6801-37020-61	water	X	X			
74GWP145	6801-37020-62	water			X		X
74GWP66a	6801-37020-63	water			X		
7414330	6801-37020-64	water	X			X	
7414331	6801-37020-65	water	X			X	

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDL Standards \*
- Blanks
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples \*
- Matrix Spike Recoveries NA

• Matrix Duplicate RPDs	NA
• Serial Dilutions	NA
• Field Duplicates	NA
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

- \* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated and rejected.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

No qualifications were required.

### **Metals**

The IC SAB standards exhibited non-compliant recoveries below the QC limit for the analyte cadmium. Based on Region II guidelines all positive and non-detect results for cadmium were qualified as estimated J/UJ.

Blank contamination was noted and qualification was required in the samples in this SDG.



## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required for the VOA fraction. The laboratory was contacted as the submitted Form Is did not have dry weight corrected results. All samples were reprocessed with dry weight correction and new Form I's were submitted. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/20-21/08 and samples were received at the laboratory 05/23/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited %IDs that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CL 06/02/08	acrolein	93.0%	74TB30, 74TB31, 74G1WVP6Ba	J/R
	pentachloroethane	97.1%		
	chloromethane	32.5%		J/U
	chloroethane	35.2%		
	carbon disulfide	23.8%		

### **ICSA/ICSAB Standards**

#### **Metals**

The ICSAB standards associated with the metals analysis exhibited a non-compliant recoveries less than the lower QC limit for the analyte silver (79%) and above the upper QC limit for the analyte zinc (122%/123%, 123%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/UJ and positive results for the analyte zinc were qualified as estimated J in the sample.

### **Blanks**

#### **VOA**

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	carbon disulfide	0.293 ug/l.	2 ug/l.	RL
FB01	2-butanone	0.697 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GWYP13a	carbon disulfide	U at reported value
74GWYPDa	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBLK	arsenic	0.030541 ug/L	>MDL up to RL	U
ICB	cobalt	0.0071 ug/L	> MDL up to RL	U
CCB	tin	0.1953 ug/L	>MDL up to RL	U
FB01	lead	0.381 ug/L	> MDL up to RL	U

Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

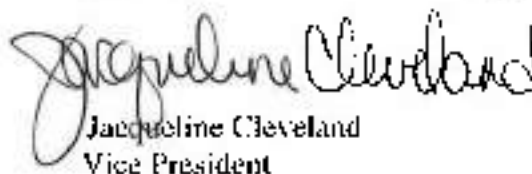
Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
74GW145	arsenic cobalt tin lead	U

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschloff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74TB30, 74TB31, 74GWVP6Ba	acrolein pentaachloroethane	+/-	J/R
74TB30, 74TB31, 74GWVP6Ba	chloromethane chloroethane carbon disulfide	+/-	I/U
74GWVPBa	carbon disulfide	+	U at reported value
74GWVPBa	2-butanone	+	U at reported value

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
74GW145	silver	+/-	I/U
	zinc	+	J
	arsenic	>MDL up to RL	U
	cobalt		
	tin lead		

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/II - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 37125-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

September 15, 2008  
 SDG# SWMU37125, Test America-Savannah  
 NAPR SWMU, 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU 37125. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006, SOP #HW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO/GRO	GRO	Metals
74SB271-01	680-37125-1	soil	X	X		X
74SB271-05	680-37125-2	soil	X	X		X
74SB271-08	680-37125-3	soil	X	X		X
74SB271-03	680-37125-4	soil	X	X		X
74SB271-07D	680-37125-5	soil	X	X		X
74SB271-05	680-37125-6	soil	X	X		X
74SB272-04	680-37125-7	soil	X	X		X
74SB272-05	680-37125-8	soil	X	X		X
74SB274-01	680-37125-9	soil	X	X		X
74SB273-05	680-37125-10	soil	X	X		X
74SB274-03	680-37125-11	soil	X	X		X
74SB274-05	680-37125-12	soil	X	X		X
74SB275-03	680-37125-13	soil	X	X		X
74SB275-05	680-37125-14	soil	X	X		X
74SB283-02	680-37125-15	soil	X	X		X
74SB284-02	680-37125-16	soil	X	X		X
74SB284-05	680-37125-17	soil	X	X		X
74SB285-02	680-37125-18	soil	X	X		X
74SB285-05	680-37125-19	soil	X	X		X
74TB32	680-37125-20	soil	X		X	
74SB271-07 MS	680-37125-4MS	soil	X	X		X
74SB271-03 MS0	680-37125-4MS0	soil	X	X		X

The following quality control sample was provided with this SDG: sample 74SB271-03D - field duplicate of sample 74SB271-03D; and sample 74TB32-trip blank.



The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	
• Serial Dilutions	*
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated and rejected.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

The associated matrix spike and matrix spike duplicate exhibited one compound with low recovery; therefore the results for this compound in the associated sample were qualified as estimated.

## **DRO/GRO**

No qualifications to the data were required.

## **Metals**

The ICSAB standards exhibited non-compliant recoveries above the QC limit for the analytes chromium and zinc. Based on Region II guidelines all positive results for chromium and zinc were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spike pair exhibited required qualification for non-compliant recoveries in both the MS and the MSD for the analyte antimony. All results for antimony in the metals samples were qualified as estimated J/UJ.

The matrix duplicate analysis exhibited a non-compliant RPD for one analyte. All results for barium were qualified as estimated J/UJ.

The field duplicate pair exhibited non-compliant RPDs for two analytes. Zinc was qualified as estimated J and barium was rejected R in the field duplicate pair.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/28/08 and samples were received at the laboratory 05/29/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU37125

Page 3



## VOA

Calibration standards exhibited %Ds values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06-07-08	pentachloroethane	222.1%	all soil samples	J/R
	chloroethane	33.6%		J/UJ
	acetone	26.2%		
	2-butanone	27.6%		
	1,1,1-trichloroethane	30.0%		
	carbon tetrachloride	29.0%		
	cis-1,3-dichloropropene	28.7%		
	4-methyl-2-pentanone	44.2%		
CC 06-18-08	pentachloroethane	100.6%	741B32	J/R
	acrolein	57.7%		J/UJ
	bromomethane	43.6%		
	1,2-dichloroethane	21.8%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above the upper QC limit for the analytes chromium (126%/124%) and zinc (122%). Based on Region II guidelines, reported positive and non-detect results for chromium and zinc were qualified as estimated J/UJ in all samples.

### Blanks

## VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CROL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Method Blank	acetone	7.9J ug/L	50 ug/L	2X RL
7-IER18	acetone	8.4J ug/Kg	25 ug/Kg	2X RL
FB04	2-butanone	0.69J ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU37125

Sample ID	Compound	Q Flag
74SB270-04, 74SB270-05, 74SB271-00, 74SB271-03, 74SB271-03D, 74SB272-04, 74SB272-05, 74SB273-04, 74SB273-05, 74SB274-03, 74SB274-05, 74SB279-03, 74SB279-05, 74SB283-02, 74SB284-02, 74SB284-05, 74SB285-02, 74SB285-05	acetone	L at reported value
74SB271-00	2-butanone	L at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.082201 ug/L	>MDL, up to RL	U

Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL, up to RL	antimony	U

### **Matrix Spikes**

#### **VOA**

The matrix spike and matrix spike duplicate associated with sample 74SB271-03 and duplicate 74SB271-03D exhibited low recoveries of 43% and 57% for styrene (QC limits 75-123%); therefore the compound was qualified as estimated (J/U).

### Metals

The matrix spike pair submitted in this SDG exhibited non-compliant %R's for antimony, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB271-03	antimony	all samples	41.38	J(U)

### **Matrix Duplicates**

#### Metals

The matrix duplicate analysis submitted in this SDG exhibited a non-compliant %D for barium, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MD	Analytes	Samples	%D	Q Flag
74SB271-03	barium	all samples	169.5	PLJ

### Field Duplicates

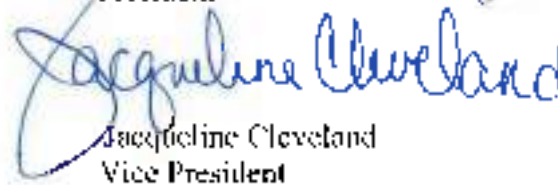
#### Metals

The field duplicate pair of samples 74SB271-03 and 74SB271-03D exhibited metals results that did not compare. The analyte zinc (48%) exhibited a RPD that was  $\geq 35\%$  but less than 120% and was qualified as estimated J in both samples. The analyte barium (162%) exhibited a RPD that was  $>120\%$  and was rejected R in both samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschnoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all soil samples	pentachloroethane	+/	J/R
all soil samples	chloroethane acetone 2-butanone 1,1,1-trichloroethane carbon tetrachloride cis-1,3-dichloropropene 4-methyl-2-pentanone	+/-	J/LJ
74TB32	pentachloroethane	+/-	J/R
74TB32	acrolein bromomethane 1,2-dichloroethane	+/	J/LJ
74SB270-04, 74SB270-05, 74SB271-00, 74SB271-03, 74SB271-03D, 74SB272-04, 74SB272-05, 74SB273-04, 74SB273-05, 74SB274-03, 74SB274-05, 74SB279-03, 74SB279-05, 74SB283-02, 74SB284-02, 74SB284-05, 74SB285-02, 74SB285-05	acetone	+	U at reported value
74SB271-00	2-butanone	+	U at reported value
74SB271-03, 74SB271-03D	styrene	+/	J/LJ

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	chromium cnc	+	J
all samples >MDL up to RL	antimony	>MDL up to RL	U
all samples	antimony	+/-	J/LJ
all samples	barium	+/	J/LJ
74SB271-03, 74SB271-03D	zinc	+	J
74SB271-03, 74SB271-03D	barium	+	R

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

- U not detected above the reported sample quantitation limit  
J estimated value  
UJ reported quantitation limit is qualified as estimated  
N analyte has been tentatively identified  
JN analyte has been tentatively identified, estimated value  
R result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

- NA The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
- U\* The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
- RL\*\* The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 37178-1**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 15, 2008  
SDG# SWMU37178-1, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37178-1. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VQA App IX	DRO/GRO	Merits
74SB275-03	680-37178-1	soil	X	X	X
74SB275-03D	680-37178-2	soil	X	X	X
74SB277-02	680-37178-3	soil	X	X	X
74SB278-03	680-37178-4	soil	X	X	X
74SB280-02	680-37178-5	soil	X	X	X
74SB280-03	680-37178-6	soil	X	X	X
74SB281-01	680-37178-7	soil	X	X	X
74SB281-02	680-37178-8	soil	X	X	X
74SB281-05	680-37178-9	soil	X	X	X
74SB281-05D	680-37178-10	soil	X	X	X
74SB282-02	680-37178-11	soil	X	X	X
74SB282-05	680-37178-12	soil	X	X	X
74SB281-05 MS	680-37178-9MS	soil	X	X	X
74SB281-05 MSD	680-37178-9MSD	soil	X	X	X

The following quality control sample was provided with this SDG: sample 74SB275-03D -field duplicate of sample 74SB275-03; and sample 74SB281-05D-field duplicate of sample 74SB281-05.

The samples were evaluated based on the following criteria:

• Data Completeness	*
• Sample Condition	*
• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	*
• Matrix Spike Recoveries	
• Matrix Duplicate RPDs	*
• Serial Dilutions	
• Field Duplicates	
• Identification/Quantitation	*
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D and low RRF values, in the continuing calibrations, some compounds were qualified as estimated and rejected.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

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Two samples analyzed for GRO required qualification due to low MS/MSD recoveries.

## **Metals**

The IC/SAB standards exhibited non-compliant recoveries below the QC limit for the analyte silver. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated L/U.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spike pair exhibited required qualification for non-compliant recoveries in both the MS and the MSD for the analyte antimony. All results for antimony in the metals samples were qualified as estimated L/U.

The serial dilution analysis exhibited a non-compliant %D for one analyte. All results for zinc were qualified as estimated L/U.

The field duplicate pairs exhibited non-compliant RPDs. Barium and zinc were qualified as estimated in one or both of the field duplicate pairs.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/28-29/08 and samples were received at the laboratory 05/30/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited %Ds and RRF values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/09/08	isobutyl alcohol	0.04323	all samples	NR
	perchloroethane	177.6%		
	acetonitrile	25.9%		U
	acrylonitrile	28.9%		
	propionitrile	27.9%		
	methacrylonitrile	21.9%		
	methyl methacrylate	21.4%		
	trans-1,4-dichloro-2-butene	24.1%		
	chloroethane	42.1%		
	acetone	29.7%		
	2-butanone	28.7%		
	1,1,1-trichloroethane	30.7%		
	carbon tetrachloride	27.9%		
	cis-1,3-dichloropropene	27.1%		
	4-methyl-2-pentene	46.9%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (79%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated (E) in all samples.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
74BK18	acetone	8.41 ug/Kg	25 ug/Kg	2X RL
FB21	2-butanone	0.691 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74SB275-01, 74SB275-01D, 74SB277-02, 74SB278-03, 74SB280-01, 74SB280-05, 74SB281-00, 74SB281-00, 74SB282-02, 74SB282-05	acetone	U at reported value
74SB281-00	2-butanone	U at reported value

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## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	cadmium	0.0481 ug/L	> MDL up to RL	U
	selenium	0.1551 ug/L	> MDL up to RL	U

Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples <MDL up to RL	cadmium	U
all samples <MDL up to RL	selenium	U

## Matrix Spikes

### DRO/GRO

The MS/MSD pair of sample 74SB281-05 exhibited low recoveries for GRO in both spikes (24%/21%). The reported non-detect results for GRO in the samples 74SB281-05 and 74SB281-05D were qualified as estimated UJ.

## Metals

The matrix spikes pair submitted in this SDG exhibited non-compliant %R's for antimony, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

MS	Analytes	Samples	%R	Q Flag
74SB281-05	antimony	all samples	50/50	J/U

## Serial Dilution

### Metals

The serial dilution submitted in this SDG exhibited a non-compliant %D for one analyte, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

SD	Analytes	Samples	%D	Q Flag
74SB281-05	zinc	all samples	11.3	J/U

## Field Duplicates

### Metals

The field duplicate pair of samples 74SB275-03 and 74SB275-03D exhibited metals results that did not compare. The analytes barium (78%) and zinc (44%) exhibited RPDs that were  $\geq 35\%$  but less than 120% and was qualified as estimated J in both samples.

The field duplicate pair of samples 74SB281-05 and 74SB281-05D exhibited metals results that did not compare. The analyte barium (46%) exhibited a RPD that was  $\geq 35\%$  but less than 120% and was qualified as estimated J in both samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	isobutyl alcohol pentachloroethane	+	J,R
all samples	acetonitrile acrylonitrile propionitrile methacrylonitrile methyl methacrylate trans-1,4-dichloro-2-butene chloroethane acetone 2-butanone 1,1,1-trichloroethane carbon tetrachloride cis-1,3-dichloropropene 4-methyl-2-pentanone	+	J,U
74SB275-03, 74SB275-03D, 74SB277-02, 74SB278-03, 74SB280-02, 74SB280-05, 74SB281-00, 74SB281-00D, 74SB282-02, 74SB282-05	acetone	+	U at reported value
74SB281-00	2-butanone	+	U at reported value

### DRO/GRO

Sample ID	Compound	Results	Q flag
74SB281-03, 74SB281-05D	GRO	-	U

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	+	J,U
all samples	cadmium	>MDL up to RL	U
all samples	selenium	>MDL up to RL	U
all samples	antimony	+	J,U
all samples	zinc	+	J,U
74SB275-03, 74SB275-03D	barium zinc	+	J
74SB281-03, 74SB281-05D	barium	+	J



## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- I - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinse blank associated with soils to qualify water samples and vice versa*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- I - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 37178-2**

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TEST AMERICA SAVANNAH SDG 37226-4

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

September 15, 2008  
 SDG# SWMU37226-4, Test America-Savannah  
 NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37226-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #IHW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	LL-PAH	DRO	GRO	DRO/GRO	TMetals	DMetals
74UGW04VP24	680-37226-28	water	X	X			X	X	X
74GWM12VP56	680-37226-29	water	X	X			X	X	X
74GW12VP56	680-37226-30	water	X	X			X	X	X
74GW12VP56D	680-37226-31	water	X	X			X	X	X
74GWVP6BA	680-37226-32	water						X	X
74GW145	680-37226-33	water							X
74GWVP3a9	680-37226-34	water							X
74GWVPIAb9	680-37226-35	water			X			X	X
74GWVP1Ba9	680-37226-36	water			X			X	X
74GWVIMBe	680-37226-37	water	X				X	X	X
74GW05a	680-37226-38	water	X			X			
74GW256	680-37226-39	water	X	X			X	X	X
74GW12VP56 MS	680-37226-30MS	water	X	X			X	X	X
74GW12VP56 MSD	680-37226-30MSD	water	X	X			X	X	X

The following quality control sample was provided with this SDG: sample 74GW12VP56D-field duplicate of sample 74GW12VP56.

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*

• Technical Holding Times	*
• GC/MS Tuning	*
• GC Performance	*
• Initial/Continuing Calibrations	
• ICSA/ICSAB Standards	
• CRDL Standards	*
• Blanks	
• Internal Standards	*
• Surrogate Recoveries	*
• Laboratory Control Samples	
• Matrix Spike Recoveries	*
• Matrix Duplicate RPDs	*
• Serial Dilutions	*
• Field Duplicates	*
• Identification/Quantitation	
• Reporting Limits	*
• Tentatively Identified Compounds	NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

The initial calibration exhibited some compounds with low RRI values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

One of the laboratory control samples exhibited high recovery for one compound that resulted in qualifications for associated samples.

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SDG# SWMU37226-4

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## **LL-PAH**

One sample exhibited high surrogate recoveries that resulted in qualifying all positive results as estimated. Two samples exhibited low surrogate recoveries that resulted in qualifications.

Two samples required dilutions to obtain results within the calibration range.

## **DRO/GRO**

Blank contamination was noted and qualification was required in the samples in this SDG.

Two samples analyzed for GRO required qualification due to high surrogate recoveries.

The field duplicate pair of samples 74SB05-01 and 74SB05-01D exhibited GRO results that did not compare. The field sample exhibited a non-detect result and the duplicate exhibited a result that was well above the reporting limit. The reported results for GRO in this field duplicate pair were qualified as estimated J/UJ.

## **Metals**

The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries above the QC limit for the analytes chromium (126/124/122) and zinc (122). Based on Region II guidelines all positive results for chromium and zinc in the total metals samples were qualified as estimated J. The ICSAB standards associated with the dissolved metals analysis exhibited non-compliant recoveries below the QC limit for the analyte antimony (79). Based on Region II guidelines all positive and non-detect results for antimony in the dissolved metals samples were qualified as estimated J/UJ.

Blank contamination was noted and qualification was required in the samples in this SDG.

The total/dissolved metals analysis comparison exhibited %Ds greater than 20% but less than or equal to 50% for one analyte in one pair and a %D greater than 50% for one analytes in one pair. These analytes were qualified as estimated or rejected in the associated sample pair based on Region II guidelines.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification

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questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/29-30/08 and samples were received at the laboratory 05/31/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited %Ds and RRF values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/07/08	isobutyl alcohol	11.6489	74GW12VP56D, 74GWVP6Bb, 74GW05a, 74GW256	JR
CC 06/09/08	pentachloroethane	91.3%	74GW12VP56D.	JR
	acrolein	42.2%	74GWVP6Bb,	JUJ
	chloromethane	20.7%	74GW05a,	
	bromomethane	38.7%	74GW256	
	vinyl acetate	24.3%		
	cis-1,3-dichloropropene	23.3%		
	trans-1,3-dichloropropene	73.7%		
	1,2-dibromo-3-chloropropane	37.6,		
	1,2,3-trichlorobenzene	20.5%		
CC 06/11/08	pentachloroethane	107.5%	74UGW04VP24,	JR
	acrolein	63.1%	74GW7-2VP56,	JUJ
	propionitrile	20.4%	74GW12VP56	
	isobutyl alcohol	34.0%		

### ICSA/ICSAB Standards

#### Metals

The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries greater than the upper QC limit for the analytes chromium (126%/124%/122%) and zinc (122%). Based on Region II guidelines, reported positive results for chromium and zinc were qualified as estimated JUJ in all total metals samples.



The IC SAB standards associated with the dissolved metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (79%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/UJ in all dissolved metals samples.

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
741R21	acetone	7.61 ug/L	25 ug/L	2X RL
FB01	2-butanone	0.691 ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GW05a, 74GW256	acetone	U at reported value
74GWVP6Bb, 74GW05a	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBLK - TM	arsenic	0.54351 ug/L	>MDL up to RL	U
	vanadium	0.91751 ug/L	> MDL up to RL	U
CCB - TM	antimony	0.075631 ug/L	> MDL up to RL	U
PBLK - DM	arsenic	0.33421 ug/L	<MDL up to RL	U
ICB - DM	antimony	0.081601 ug/L	>MDL up to RL	U
FB01	lead	0.381 ug/L	> MDL up to RL	U
	copper	2.11 ug/L	> MDL up to RL	U
74ER21	vanadium	1.11 ug/L	> MDL up to RL	U

Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

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NAPR SWMU74, Puerto Rico  
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Sample ID	Analyte	Q Flag
all samples >MDL up to RL	arsenic	U
all samples >MDL up to RL	antimony	U
all samples >MDL up to RL	copper	U
all samples >MDL up to RL	lead	U
all samples >MDL up to RL	vanadium	U

## Surrogate Recoveries

### LL PAH

Sample 74GW256 exhibited high recovery for o-terphenyl with 131% recovery (QC limit 44-123%); therefore all positive results were qualified as estimated (J).

Sample 74GW12VP56 exhibited zero percent recovery for surrogate o-terphenyl. All positive results were qualified as estimated (J) and non-detected results were qualified as rejected (R). This sample was analyzed at a 1:10 dilution; however since associated matrix spike and matrix spike duplicate were also run at a 1:10 dilution and acceptable surrogate recoveries were exhibited the sample has been qualified.

Sample 74GWM2-2VP56DI. exhibited zero percent recovery for surrogate o-terphenyl. All positive results were qualified as estimated (J) and non-detected results were qualified as rejected (R). This sample was analyzed at a 1:10 dilution; since other samples were analyzed at this dilution and exhibited surrogate recoveries the sample was qualified.

## Laboratory Control Samples

### VOA

The laboratory control sample associated with samples 74GW05A and 74GW256 exhibited high recovery for carbon disulfide at 137% (QC limit 55-131%); therefore the positive results for this compound were qualified as estimated (J).

## Identification/Quantitation

### LL PAH

Sample 74GWM2-2VP56 exhibited above calibration range results for 1-methylnaphthalene and 2-methylnaphthalene; therefore results for these compounds were used from the corresponding dilution.

Sample 74GW12VP56 exhibited above calibration range results for 1-methylnaphthalene, 2-methylnaphthalene and naphthalene; therefore results for these compounds were used from the corresponding dilution.

## Metals

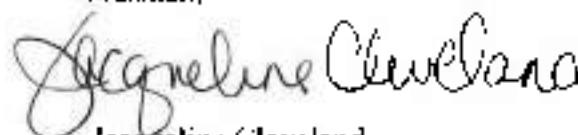
The total and dissolved metals analysis exhibited %Ds >20% but less than or equal to 50% for one analyte and greater than 50% for one analyte. Elements exhibiting >20% but less than or equal to 50% difference between total and dissolved concentrations were qualified as estimated J and elements exhibiting >50% difference were rejected based on the Region II guidelines. Specific action is noted in the following table.

Sample ID	Analyte	%D	Q Flag
74UGW04VP24, 74UGW04VP24F	cobalt	150%	R
74GWM2-2VP56, 74GWM2-2VP56F	cobalt	137%	R
74GW12VP56, 74GW12VP56F	cobalt	26%	J
74GW12VP56D, 74GW12VP56DF	cobalt	55%	J
74GWVP1Ba/9, 74GWVP1Ba/9F	cobalt	26%	J

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
74GW12VP56D, 74GWVP6Bb, 74GW05a, 74GW256	isobutyl alcohol	+/-	J/R
74GW12VP56D, 74GWVP6Bb, 74GW05a, 74GW256	pentachloroethane	+/-	J/R
74GW12VP56D, 74GWVP6Bb, 74GW05a, 74GW256	acrolein chloromethane bromomethane vinyl acetate cis-1,3-dichloropropene trans-1,3-dichloropropene 1,2-dibromo-3-chloropropane 1,2,3-trichlorobenzene	+/-	J/UJ
74GW04VP24, 74GW2-2VP56, 74GW12VP56	pentachloroethane	+/-	J/R
74GW04VP24, 74GW2-2VP56, 74GW12VP56	acrolein propionitrile isobutyl alcohol	+/-	J/UJ
74GW05a, 74GW256	acetone	+	U at reported value
74GWVP6Bb, 74GW05a	2-butanone	+	U at reported value
74GW05a, 74GW256	carbon disulfide	+	J

### PAH

Sample ID	Compound	Results	Q flag
74GW256	all results	+	J
74GW12VP56, 74GWM2-2VP56DL	all results	+/-	J/R
74GWM2-2VP56	1-methylnaphthalene, 2-methylnaphthalene	+	R
74GWM2-2VP56DL	all results except 1-methylnaphthalene, 2-methylnaphthalene	+/-	R
74GW12VP56	1-methylnaphthalene, 2-methylnaphthalene, naphthalene	+	R
74GW12VP56DL	all results except 1-methylnaphthalene, 2-methylnaphthalene, naphthalene	+/-	R

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
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## Summary of Data Qualifications, continued

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
all total metals samples	chromium zinc	-	J
all dissolved metals samples	silver	+-	RLJ
a.l field samples	arsenic	>MDL up to RL	U
a'l field samples	antimony	>MDL up to RL	U
all field samples	vanadium	>MDL up to RL	U
all field samples	copper	>MDL up to RL	U
all field samples	lead	>MDL up to RL	U
74UGW04VP24, 74UGW04VP24F	cobalt	-	R
74GWM2-2VP56, 74GWM2-2VP56F	cobalt	-	R
74GW12VP56, 74GW12VP56F	cobalt	-	J
74GW12VP56D, 74GW12VP56DF	cobalt	-	J
74GWVP1Ba/9, 74GWVP1Ba/9F	cobalt	-	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL. result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 37251-3**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 29, 2008  
SDG# SWMU37251-3, Test America-Savannah  
NAPR SWMU 62, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU 37251-3. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A) or the organic methods for hydrocarbons (SW-846 methods 8015, DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VQA App IX	LL PAH	DRO/GRO	GRO	Metals
621B01	680-37251-20	water	X				
621B02	680-37251-21	water	X	X	X		X
621B03	680-37251-33	water	X			X	

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICUSA/ICSA3 Standards
- CRDL Standards \*
- Blanks \*
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples \*
- Matrix Spike Recoveries NA
- Matrix Duplicate RPDs NA

- Serial Dilutions \*
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

### **LL-PAH**

No qualifications to the data were required

### **DRO/GRO**

No qualifications to the data were required.

### **Metals**

No qualifications to the data were required

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification

questions were asked of the laboratory regarding the GROUND fraction. A copy of these e-mail correspondences is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 05/31-06/01/08 and samples were received at the laboratory 06/03/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### Initial/Continuing Calibration

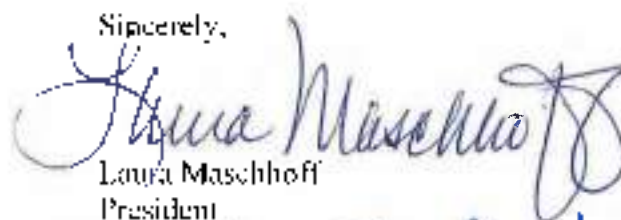
NOA

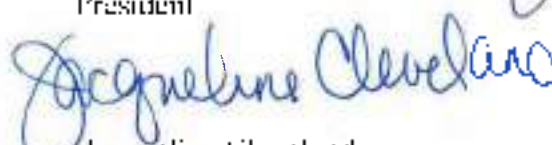
Calibration standards exhibited %Ds values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC-06/08-108	pentachloroethane	105.7%	all samples	JR
	acrolein	50.5%		J/U
	chloromethane	51.1%		
	bromomethane	50.7%		
	chloroethane	26.0%		
	trichlorobromomethane	21.2%		
	cis-1,2-dichloropropene	21.8%		
	trans-1,2-dichloropropene	21.1%		
	1,2-dibromo-3-chloropropane	50.3%		

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

Michael Baker, Jr., Inc.  
NAPR SWMU62, Puerto Rico  
SDGW SWMU37251-3

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## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	pentachloroethane	+/+	J/R
all samples	acrolein	+/+	L/L
	chloromethane		
	bromomethane		
	chloroethane		
	trichlorofluoromethane		
	cis-1,3-dichloropropene		
	trans-1,3-dichloropropene		
	1,2-dibromo-3-chloropropane		

### LL PAH

Sample ID	Compound	Results	Q flag
No qualifications			

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications			

### Metals

Sample ID	Analyte	Results	Q flag
No qualifications			

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* It is guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R -** Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J -** Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- JJJ -** Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa*

**No Action -** The sample result is greater than the RL and greater than ten times (10X) the blank value.

**U -** The sample result is greater than or equal to the MDL, but less than or equal to the RL; result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

**R -** Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

**J -** Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 37251-6**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 20, 2008  
SDG# SWMU37251-6, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37251-6. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (#260B-Rev 2, January 2006- SOP #11W-24 and 8270D-Rev 3, October 2006- SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	EE-PAH	DRO/GRO	GRO	TMetals	DMetals
74GW236	686-37251-70	water	X	X	X		N	X
74GW238A	686-37251-71	water	X		X		X	X
74GW238B	686-37251-72	water	X		X		X	X
74GW246	686-37251-73	water	X	X	X		X	X
74GW271	686-37251-74	water	X		X		X	X
74GW295A	686-37251-75	water				X		

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards
- CRDI Standards \*
- Blanks
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples



- Matrix Spike Recoveries \*
- Matrix Duplicate RPDs \*
- Serial Dilutions \*
- Field Duplicates NA
- Identification/Quantitation
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on current quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

#### **VOA**

The initial calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

One of the laboratory control samples exhibited high recovery for one compound that resulted in qualifications for associated samples.

#### **LL-PAH**

Blank contamination was noted in the method blank associated with samples in this batch. Qualifications were added to the data.

#### **DRO/GRO**

No qualifications were required.

#### **Metals**

## **Metals**

The ICSAB standards associated with the dissolved metals analysis exhibited non-compliant recoveries above the QC limit for the analyte zinc (124/122) and below the QC limit for the analyte silver (78/79). Based on Region II guidelines all positive results for zinc and all positive and non-detect results for silver in the dissolved metals samples were qualified as estimated J or J/U.I. The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries above the QC limit for the analyte zinc (79). Based on Region II guidelines all positive results for zinc in the total metals samples were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

One sample exhibited a %D between the total and dissolved result that was greater than 20% but less than 50%. This result was qualified as estimated J in both samples.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/30-31/08 and samples were received at the laboratory 06/03/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### **Initial/Continuing Calibration**

#### **VOA**

Calibration standards exhibited %Ds and RRF values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 05/07/08	isobutyl alcohol	0.0489	all samples	I/R
CC 06/09/03	pentachloroethane	93.1%	all samples	I/R
	acrolein	42.2%		ND
	chloromethane	20.7%		
	bromomethane	18.7%		
	vinyl acetate	24.3%		
	cis-1,3-dichloropropene	33.3%		
	trans-1,3-dichloropropene	23.7%		
	1,2-dibromo-3-chloropropane	17.6%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the dissolved metals analysis exhibited non-compliant recoveries above the QC limit for the analyte zinc (124/122) and below the QC limit for the analyte silver (78/79). Based on Region II guidelines all positive results for zinc and all positive and non-detect results for silver in the dissolved metals samples were qualified as estimated J or M/U. The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries above the QC limit for the analyte zinc (79). Based on Region II guidelines all positive results for zinc in the total metals samples were qualified as estimated J.

### Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
ER22	2-butanone	0.79J ug/L	10 ug/L	2X RL
FB01	2-butanone	0.69J ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GWVP08B, 74GW273	2-butanone	U at reported value

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU37251-6

## LI PAH

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Blank ID	Compound	Concentration	Reporting Limit	Action Level
Methed Blank	phenanthrene	0.141 ug/L	0.20 ug/L	RL
	pyrene	0.0343 ug/L	0.20 ug/L	RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GW236	phenanthrene	U at reported value
74GW246	pyrene	U at reported value

## Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
PBLK - TM	arsenic	0.41241 ug/L	>MDL up to RL	U
	chromium	1.58001 ug/L	> MDL up to RL	U
	cobalt	0.03861 ug/L	>MDL up to RL	U
	lead	0.21681 ug/L	> MDL up to RL	U
FCB - TM	antimony	0.088611 ug/L	> MDL up to RL	U
CCB - TM	beryllium	0.0141 ug/L	> MDL up to RL	U
	tin	0.1831 ug/L	> MDL up to RL	U
PBLK - DM	arsenic	0.28261 ug/L	>MDL up to RL	U
	lead	0.20591 ug/L	>MDL up to RL	U
CCB - DM	tin	0.2181 ug/L	>MDL up to RL	U
FB01	copper	2.11 ug/L	> MDL up to RL	U
ER23	chromium	1.61 ug/L	> MDL up to RL	U

Please note, when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analytes in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
all samples >MDL up to RL	antimony	U
all samples >MDL up to RL	arsenic	U
all samples >MDL up to RL	lead	U
all samples >MDL up to RL	tin	U
all samples >MDL up to RL	chromium	U
all samples >MDL up to RL	copper	U
all total metals samples > MDL up to RL	beryllium	U
all total metals samples >MDL up to RL	cobalt	U

## Laboratory Control Samples

### VOA

The laboratory control sample associated with samples 74GW236, 74GWVP08A and 74GWVP08B exhibited high recovery for carbon disulfide at 137% (QC limit 55-131%); therefore the positive results for this compound were qualified as estimated (J)

### Identification/Quantitation

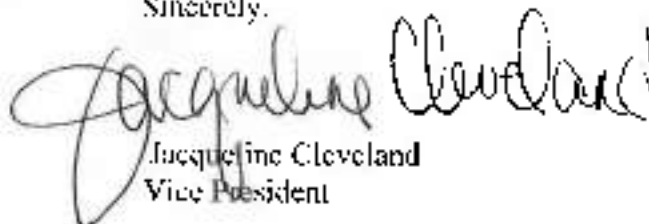
#### Metals

The total and dissolved metals analysis exhibited %Ds >20% but less than or equal to 50% for one analyte. Elements exhibiting >20% but less than or equal to 50% difference between total and dissolved concentrations were qualified as estimated J based on the Region II guidelines. Specific action is noted in the following table.

Sample ID	Analyte	%D	Q Flag
74GWVP08A, 74GWVP08B	cobalt	30%	J

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Jacqueline Cleveland  
Vice President

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU37251-6

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## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	isobutyl alcohol	+	J/R
all samples	pentachloroethane	+	J/R
all samples	acrolein chloromethane bromomethane vinyl acetate cis-1,3-dichloropropene trans-1,3-dichloropropene 1,2-dibromo-3-chloropropane		F/U
74GWVP08B, 74GW273	2-butanone	+	U at reported value
74GW236, 74GWVP08A, 74GWVP08B	carbon disulfide	+	J

### PAH

Sample ID	Compound	Results	Q flag
74GW236	phenanthrene	-	U at reported value
74GW246	pyrene	-	U at reported value

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	+	J
all dissolved metals samples	silver	+	J/U
all samples	antimony	>MDL up to RL	U
all samples	arsenic	>MDL up to RL	U
all samples	lead	>MDL up to RL	U
all samples	tin	>MDL up to RL	U
all samples	chromium	>MDL up to RL	U
all samples	copper	>MDL up to RL	U
all total metals samples	beryllium	>MDL up to RL	U
all total metals samples	cobalt	>MDL up to RL	U
74GWVP08A, 74GWVP08AJ	cobalt	-	J

Michael Baker, Jr., Inc.  
NAPR SWMT74, Puerto Rico  
SDG# SWMU37251-6

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## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL but less than or equal to the RL; result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- JJJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note -- Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinse blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- I - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result



**TEST AMERICA SAVANNAH SDG 37369-4**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
 Airside Business Park  
 100 Airside Drive  
 Moon Township, PA 15108

November 21, 2008  
 SDG# SWMU 37369-1, Test America-Savannah  
 NAPR, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU 37369-4. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006; SOP #11W-24 and 8270D-Rev 3, October 2006; SOP #11W-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOC App IX	UV-SVOC App IX	Pesticides	PCBs	DRO	GRO	Metals
PR24	6801-37369-29	water	X	X	X	X	X	X	X
PR25	6801-37369-30	water	X	X	X	X	X	X	X
PR26	6801-37369-31	water	X	X	X			X	X
PR27	6801-37369-32	water	X	X	X		X	X	X
PR28	6801-37369-33	water	X	X					X

The samples were evaluated based on the following criteria:

- ◆ Data Completeness \*
- ◆ Sample Condition \*
- ◆ Technical Holding Times
- ◆ GC/MS Tuning \*
- ◆ GC Performance \*
- ◆ Initial Confirming Calibrations
- ◆ ICNARC/CSAB Standards
- ◆ CRDL Standards \*
- ◆ Blanks \*
- ◆ Internal Standards \*
- ◆ Surrogate Recoveries \*
- ◆ Laboratory Control Samples \*
- ◆ Matrix Spike Recoveries NA

- Matrix Duplicate RPDs NA
- Serial Dilutions \*
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on target quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

### **SVOA**

All samples exceeded extraction-holding time, which required qualifications to the data.

The initial and continuing calibrations exhibited some compounds with low RRP values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %RSD and %D values, in the initial and continuing calibrations, some compounds were qualified as estimated.

### **Pesticides/PCBs**

Two samples were extracted outside the recommended extraction holding time of 7 days from sampling for water samples. Results in these samples were qualified as estimated (U).

## **DRO/GRO**

Two samples for the DRO fraction were extracted outside the recommended extraction holding time of 7 days from sampling for water samples. Results in these samples were qualified as estimated (J/U) for DRO.

## **Metals**

The IC/SAB standards exhibited non-compliant recoveries requiring qualification in the field samples. The analyte silver was recovered below the lower QC limit. Based on Region II guidelines all positive and non-detect results for silver were qualified as estimated (J/U).

## **Specific Evaluation of Data**

### **Data Completeness**

Resubmissions were required for the pesticide/PCB fraction due to incorrectly reported retention times and retention time windows. The laboratory provided all necessary corrected forms. A copy of the e-mail communication is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the DRO fraction. A copy of these e-mail correspondences is included in the project file.

Please note that for the QC spikes in the Pesticide/PCB fraction, raw data final concentrations do not reflect the actual concentration in the extract. The data on the quantitation pages was not reflective of the extraction information. Results were checked and reported results were correct. Also for QC spikes, the Form 108 did not always reflect the reported results. The final results were calculated as if the spikes were soil samples. However, all reported results were calculated and reflected in both the forms and raw data correctly. No qualifications were required.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 5/31/06, 04/08 and samples were received at the laboratory 06/05/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements with the following exceptions.

### **SVOA**

All samples exceeded extraction holding time by 8 to 12 days; therefore all results were qualified as estimated (J/U).

Michael Baker, Jr., Inc.  
NAPR, Puerto Rico  
SDG# SWMU37369-4

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### Pest/PCB

Samples ER24 and ER25 were extracted 2 to 3 days outside the extraction holding time. Therefore, all reported results were qualified as estimated J/UJ in the samples.

### DRO/GRO

For the DRO fraction, samples ER24 and ER25 were extracted 2 to 3 days outside the extraction holding time. Therefore, all reported DRO results were qualified as estimated J/UJ in the samples.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited %Ds values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/11/08	pentachloromethane	167.5%	all samples	JR
	acrolein	43.1%		J/UJ
	propionitrile	20.9%		
	isobutyl alcohol	34.0%		

#### SVOA

Calibration standards exhibited %RSD, %Ds and RRF values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/21/08	pentachloronitrobenzene	0.0081	all samples	JR
	benzo(k)fluoranthene	16.5%		J/UJ
	benzo(a)pyrene	15.9%		
CC 06/25/08	4-nitroquinoline-1-oxide	0.07497	all samples	JR
	2,1-dinitrophenol	20.7%		J/UJ
	4,6-dinitro-2-methylphenol	21.5%		
	3,3'-dichlorobenzidine	47.9%		
	indeno(1,2,3-cd)pyrene	29.1%		
	2,6-dimethylphenanthrene	20.7%		
	hexachlorophene	21.0%		
	aromatic total	25.4%		
	thionazin	20.5%		
	phorate	22.7%		
	disulfoton	20.6%		
	carbofent	26.9%		

## ICSA/ICSAB Standards

### Metals

The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (78%/79%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/UJ in all samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Muschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	pentachloroethane	ND	JR
all samples	acrolein propionalde isobutyl alcohol	ND	JR

### SVOA

Sample ID	Compound	Results	Q flag
all samples	all results	ND	JR
all samples	pentachlorobenzene	ND	JR
all samples	benzofluoranthene benzo(a)pyrene	ND	JR
all samples	1-nitroquinoline-1-oxide	ND	JR
all samples	2,4-dinitrophenol 4,6-dinitro-2-methylphenol 3,3'-dichlorobenzidine indeno(1,2,3-cd)pyrene 2,2-dimethyl-2-ethylamine hexachlorophene arsenic, total thionazir phorate disulfotee lanthan	ND	JR

### Pesticides/PCBs

Sample ID	Compound	Results	Q flag
ER24, ER25	all compounds	ND	JR

### DRUGRO

Sample ID	Compound	Results	Q flag
ER24, ER25	DRG	ND	JR

### Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	ND	JR

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects at the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

No Action -	The sample result is greater than the RL and greater than ten times (10X) the blank value.
U -	The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.



## **Glossary of Qualification Flags and Abbreviations, continued**

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/U - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note - Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinse blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

C - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

## **General Abbreviations**

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 37634-2 and SDG 37613-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airsides Business Park  
100 Airside Drive  
Moon Township, PA 15108

October 7, 2008

SDG# SWMU37634-2 and SWMU37613-2, Test America-Savannah  
NAPR SWMU 71, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37634-2 and SWMU37613-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006-SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the organic methods for hydrocarbons (SW-846 methods 8015 DRO and 8015 GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	SVOA App IX	DRO	GRO
71C/W04	680-37634-11	water	X			X
	680-37613-11	water		X		
74C/WV1R39	680-37613-9	water			X	

The samples were evaluated based on the following criteria:

- |                                   |    |
|-----------------------------------|----|
| • Data Completeness               | •  |
| • Sample Condition                | •  |
| • Technical Holding Times         |    |
| • GC/MS Tuning                    | •  |
| • GC Performance                  | •  |
| • Initial/Continuing Calibrations |    |
| • Blanks                          | •  |
| • Internal Standards              | •  |
| • Surrogate Recoveries            | •  |
| • Laboratory Control Samples      | •  |
| • Matrix Spike Recoveries         | NA |
| • Field Duplicates                | NA |
| • Identification/Quantitation     | •  |
| • Reporting Limits                | •  |

- ♦ Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

#### **VOA**

Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated

#### **SVOA**

The continuing calibration exhibited some compounds with low RRF values, which resulted in qualifying non-detected values as rejected for these compounds. Due to high %RSD and %D values, in the initial and continuing calibrations, some compounds were qualified as estimated.

#### **DRO/GRO**

The DRO sample was extracted eighteen days outside the extraction holding time. The reported result was qualified as estimated J and should be considered potentially biased low

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the DRO/GRO fractions. A copy of these e-mail correspondences is included in the project file.

### Technical Holding Times

According to chain of custody records, sampling was performed on 06/11/08 and samples were received at the laboratory 06/13/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

### DRO/GRO

The DRO sample 74GWV1Ba9 was extracted eighteen days outside the recommended extraction holding time of seven days from sampling for water samples. The reported positive result in this sample was qualified as estimated J and should be considered potentially biased low.

### Initial/Continuing Calibration

#### VOA

Calibration standards exhibited %Ds values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/20/08	acrolein	92.2%	71GW014	J/R
	pentachloroethane	122.6%		
	isobutyl alcohol	21.7%		J/UJ
	dichlorodifluoromethane	33.6%		
	chloromethane	34.8%		
	bromomethane	28.8%		
	chloroethane	23.7%		
	trichlorofluoromethane	23.6%		
	carbon disulfide	20.6%		

#### SVOA

Calibration standards exhibited %RSD, %Ds and RRF values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 06/21/08	benzo(k)fluoranthene	16.50%	all samples	J/UJ
	benzo(a)pyrene	15.98%		

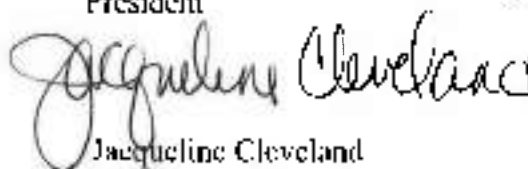
Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/27/08	4-nitroquinoline-1-oxide	10.0/945	71GW04	IR
	2,4-dinitrophenol	41.1%		ADD
	4-nitrophenol	74.3%		
	4,6-dinitro-2-methylphenol	25.1%		
	3,3'-dichlorobenzidine	29.2%		
	dinoseb	21.4%		
	phorate	39.0%		
	dimethoate	23.9%		
	disulfoton	29.5%		
	famphur	33.0%		
	2-naphthylamine	38.3%		
	3,3'-dimethylbenzidine	41.0%		
	hexachlorophene	51.8%		
	arsenite, total	20.7%		

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
71GW04	acrolein	ND	J/R
	pentachloroethane		
71GW04	isobutyl alcohol	ND	J/UJ
	dichlorodifluoromethane		
	chloromethane		
	bromomethane		
	chloroethane		
	trichlorofluoromethane		
	carbon disulfide		

### SVOA

Sample ID	Compound	Results	Q flag
all samples	benzo(k)fluoranthene	ND	J/UJ
	benzo(a)pyrene		
71GW04	4-nitroquinoline-1-oxide	ND	J/R
71GW04	2,4-dinitrophenol	ND	J/UJ
	4-nitrophenol		
	4,6-dinitro-2-methylphenol		
	3,3'-dichlorobenzidine		
	dinoseb		
	phorate		
	dimethoate		
	disulfoton		
	famphur		
	2-naphthylamine		
	3,3'-dimethylbenzidine		
	hexachlorophene		
	aramite, total		

### DRO/GRO

Sample ID	Compound	Results	Q flag
14GWVIBw9	DRO	-	J

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.



## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL, and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- I/U - Sample result is less than 10X RL, when blank result is below the negative RL.

### **Field QC Blank action:**

*Note – Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL, and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**TEST AMERICA SAVANNAH SDG 38888-2**

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# DataQual

## Environmental Services, LLC

Michael Baker, Jr., Inc.  
Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108

September 15, 2008  
SDG# SWMU38888-2, Test America-Savannah  
NAPR SWMU 74, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU38888-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #EW-24), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7470A) or the organic methods for hydrocarbons (SW-846 methods 8015\_DRO and 8015\_GRO). Therefore, alternative worksheets were provided. Region II flagging conventions were used. All areas of concern are discussed in the body of the report and a summary of data qualifications is provided.

Sample ID	Lab ID	Matrix	VOA App IX	DRO	GRO	TMetals	DMetals
740WVP19B	680-38888-25	water		X		X	X
740WVP19HMS	680-38888-25HMS	water		X		X	X
740WVP19BMSD	680-38888-25MSD	water		X		X	X
740WVP15A	680-38888-26	water				X	X
740WVP19H-JP5-1111	680-38888-27	water	X		X	X	X
741B34	680-38888-29	water	X		X		

The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*
- GC Performance \*
- Initial/Continuing Calibrations
- ICSA/ICSAB Standards \*
- CRDL Standards \*
- Blanks
- Internal Standards \*
- Surrogate Recoveries \*
- Laboratory Control Samples \*

- Matrix Spike Recoveries \*
- Matrix Duplicate RPDs \*
- Serial Dilutions
- Field Duplicates NA
- Identification/Quantitation \*
- Reporting Limits \*
- Tentatively Identified Compounds NA

\* - indicates that qualifications were not required based on this criteria

### **Overall Evaluation of Data/Potential Usability Issues**

A summary of qualifications applied to the sample results are noted below for the fractions validated. Specific details regarding qualification of the data are addressed in the Specific Evaluation section of this narrative. If an issue is not addressed there were no actions required based on unmet quality criteria. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

Blank contamination was noted in the QC blanks associated with samples in this batch. Qualifications were added to the data.

### **DRO/GRO**

No qualifications were required.

### **Metals**

Blank contamination was noted and qualification was required in the samples in this SDG.

The serial dilution analysis for both the total and dissolved fractions exhibited non-compliant %Ds for the analytes barium and cobalt. All results for barium and cobalt in the metals samples were qualified as estimated J/UJ.

One sample exhibited %Ds between the total and dissolved results that were greater than 20% but less than 50%. These results were qualified as estimated J in both samples.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets. Clarification questions were asked of the laboratory regarding the GRO/DRO fraction. A copy of these e-mail correspondences is included in the project file.

#### **Technical Holding Times**

According to chain of custody records, sampling was performed on 07/23/08 and samples were received at the laboratory 07/25/08. All sample preparation and analysis was performed within Region II and/or method holding time requirements.

#### **Initial/Continuing Calibration**

##### **VOA**

Calibration standards exhibited %Ds and RRF values that were non-compliant. A summary of these non-compliances and affected samples are noted in the following table. Sample results are qualified as indicated.

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 07/23/08	iodomethane pentachloroethane bromomethane chloroethane vinyl acetate	34.1% 67.6% 23.3% 28.8% 40.6%	all samples	JUL

#### **Blanks**

##### **VOA**

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL, but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

Michael Baker, Jr., Inc.  
NAPR SWMU74, Puerto Rico  
SDG# SWMU38888-2  
Page 3

Blank ID	Compound	Concentration	Reporting Limit	Action Level
FB01	2-butanone	0.691 ug/L	1.0 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
74GWVP09B-JP5-Hill	2-butanone	U at reported value

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

Blank ID	Analyte	Concentration	Action Level	Q Flag
CCB	antimony	0.0921 ug/L	>MDL up to RL	U
FB01	copper	2.11 ug/L	>MDL up to RL	U
	lead	0.381 ug/L	>MDL up to RL	U

Please note: when qualifying samples for CCB contamination, associated samples are those just prior to or just following a CCB. Therefore, not all analyses in all samples are flagged for CCB contamination.

Associated samples and required qualifications are noted in the following table.

Sample ID	Analyte	Q Flag
a1 samples <MDL up to RL	antimony	U
a1 samples <MDL up to RL	copper	U
a1 samples <MDL up to RL	lead	U

### **Serial Dilution**

### Metals

The serial dilution submitted in this SDG exhibited non-compliant %Ds for two analyte, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

SD	Analytes	Samples	%D	Q Flag
74GWVP19B	barium cobalt	all total metals samples	100% 99%	J/U
74GWVP19BF	barium cobalt	all dissolved metals samples	15% 13%	J/U

## Identification/Quantitation

### Metals

The total and dissolved metals analysis exhibited %Ds >20% but less than or equal to 50% for one analyte. Elements exhibiting >20% but less than or equal to 50% difference between total and dissolved concentrations were qualified as estimated J based on the Region II guidelines. Specific action is noted in the following table.

Sample ID	Analyte	%D	Q Flag
74GWVP19B, 74GWVP19BF	cobalt	40%	J
	vanadium	22%	J

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,

  
Laura Maschhoff  
President

  
Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

Sample ID	Compound	Results	Q flag
all samples	indomethane perchloroethane bromomethane chloroethane vinyl acetate	-/-	J/U
74GW VP09B, JP5-Jill	2-butanone	+	1 at reported value

### DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

### Metals

Sample ID	Analyte	Results	Q flag
all samples	antimony	>MIDL up to RL	U
all samples	copper	>MIDL up to RL	U
all samples	lead	>MIDL up to RL	U
all samples	barium zinc	-/-	J/U
74GW VP19B, 74GW VP19UF	cobalt vanadium	+	J



## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

U	not detected above the reported sample quantitation limit
J	estimated value
UJ	reported quantitation limit is qualified as estimated
N	analyte has been tentatively identified
JN	analyte has been tentatively identified, estimated value
R	result is rejected; the presence or absence of the analyte cannot be verified

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

NA	The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.
U*	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration.
RL,**	The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL, but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- JCL - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinseate blank associated with soils to qualify water samples and vice versa*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

RL	reporting limit
IDL	instrument detection limit
MDL	method detection limit
CRDL	contract required detection limit
CRQL	contract required quantitation limit
+	positive result
-	non-detect result

**PUERTO RICAN CHEMIST CERTIFICATIONS**

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# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36289-2, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36289-4, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36360-1, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36360-2, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36419-3, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz





## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36419-4, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number  
680-36410-5, and to the best of my knowledge, the results are correct and reliable

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36426-1, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36426-2, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36426-3**, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36426-4, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36489-1, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz.



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36489-2**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz





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I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36489-3, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



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I Herby certify that I have reviewed the Quality Assurance Data for Project Number  
**680-36489-4**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36517-1, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36517-2, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36517-3, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36517-5, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36711-1, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36766-1, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz





## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number  
**680-36766-2**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number  
680-36806-1, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36806-2, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36806-3, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36806-4**, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36880-1, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz.



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36880-2**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36880-3**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz





## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36880-4**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36891-1**, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36891-2, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36891-3**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



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I Herby certify that I have reviewed the Quality Assurance Data for Project Number  
680-36891-4, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36891-5**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36925-1**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz.



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36925-2**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz





## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number  
680-36925-3, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36925-4, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36978-1**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36978-2**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz.



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36978-3, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-36978-4**, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz.



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-36978-5, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-37020-1**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz





## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-37020-2**, and to the best of my knowledge, the results are correct and **reliable**.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37020-3, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37020-4, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz.



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37125-1, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37178-1, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37178-2, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-37226-4**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I hereby certify that I have reviewed the Quality Assurance Data for Project Number 680-37251-3, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz





## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number  
**680-37251-6**, and to the best of my knowledge, the results are correct and reliable

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37363-4, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz.



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number  
680-37406-3, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37406-4, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number ~~686~~-37613-2, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



**PUERTO RICO CERTIFICATION**

I Herby certify that I have reviewed the Quality Assurance Data for Project Number **680-38888-2**, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz.



**APPENDIX D**  
**SUPPORTING DATA EVALUATION**

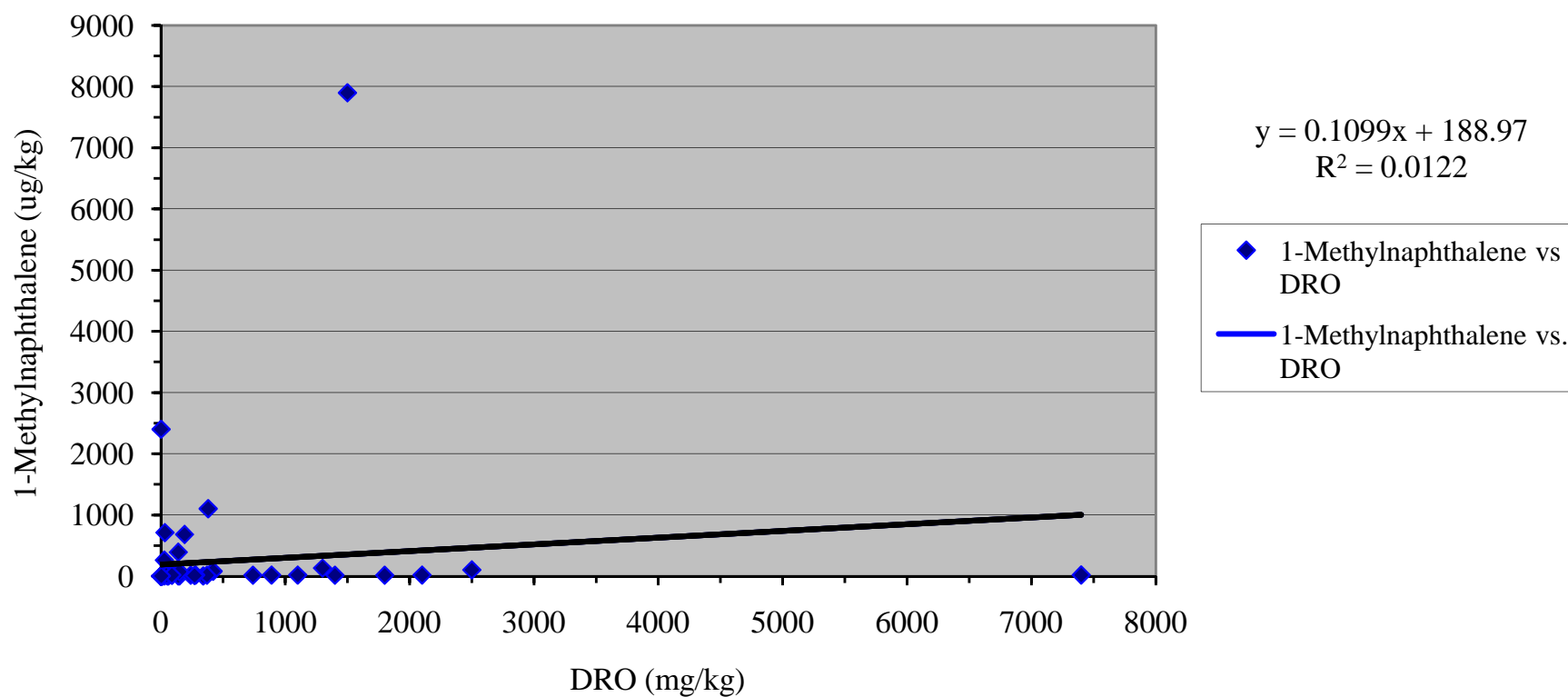
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## **PAH/DRO Correlation Plots**

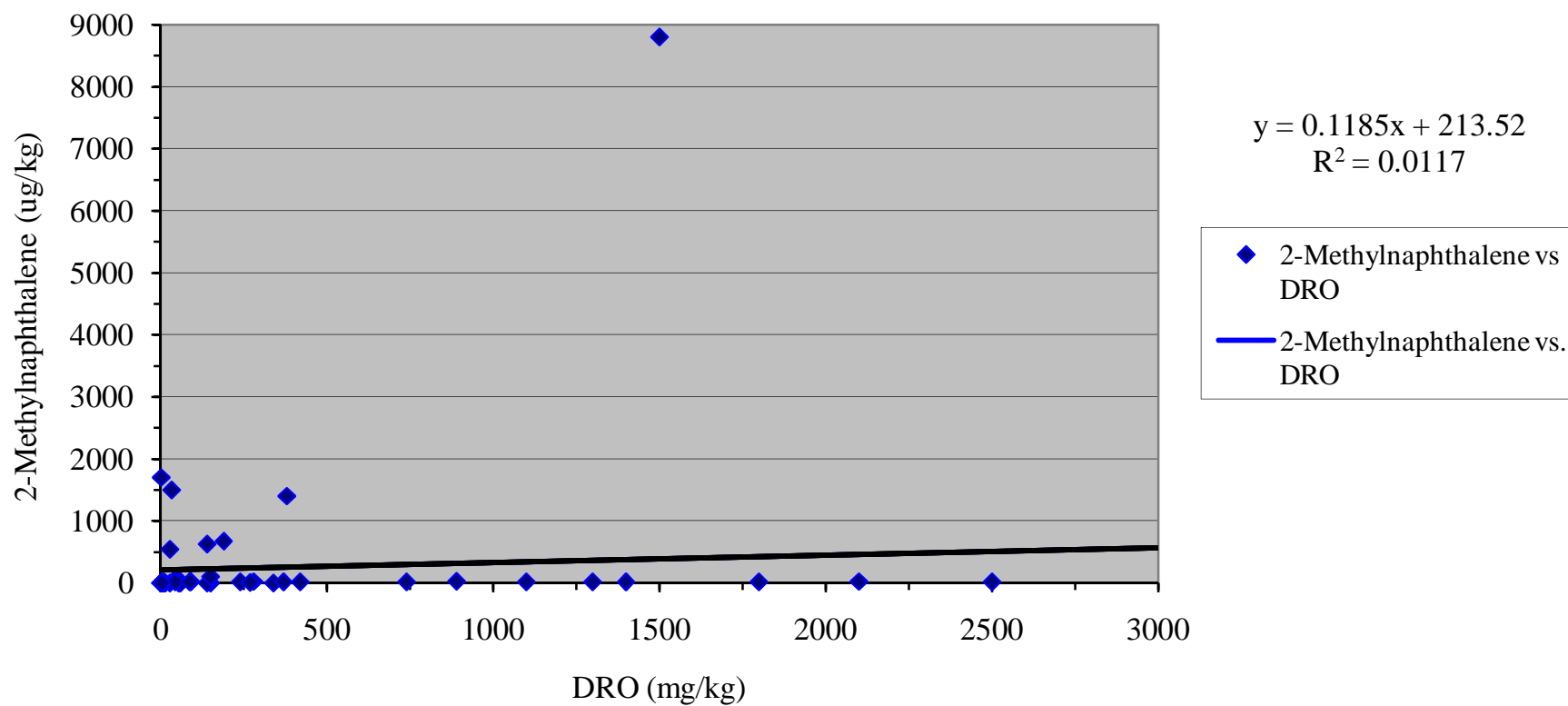
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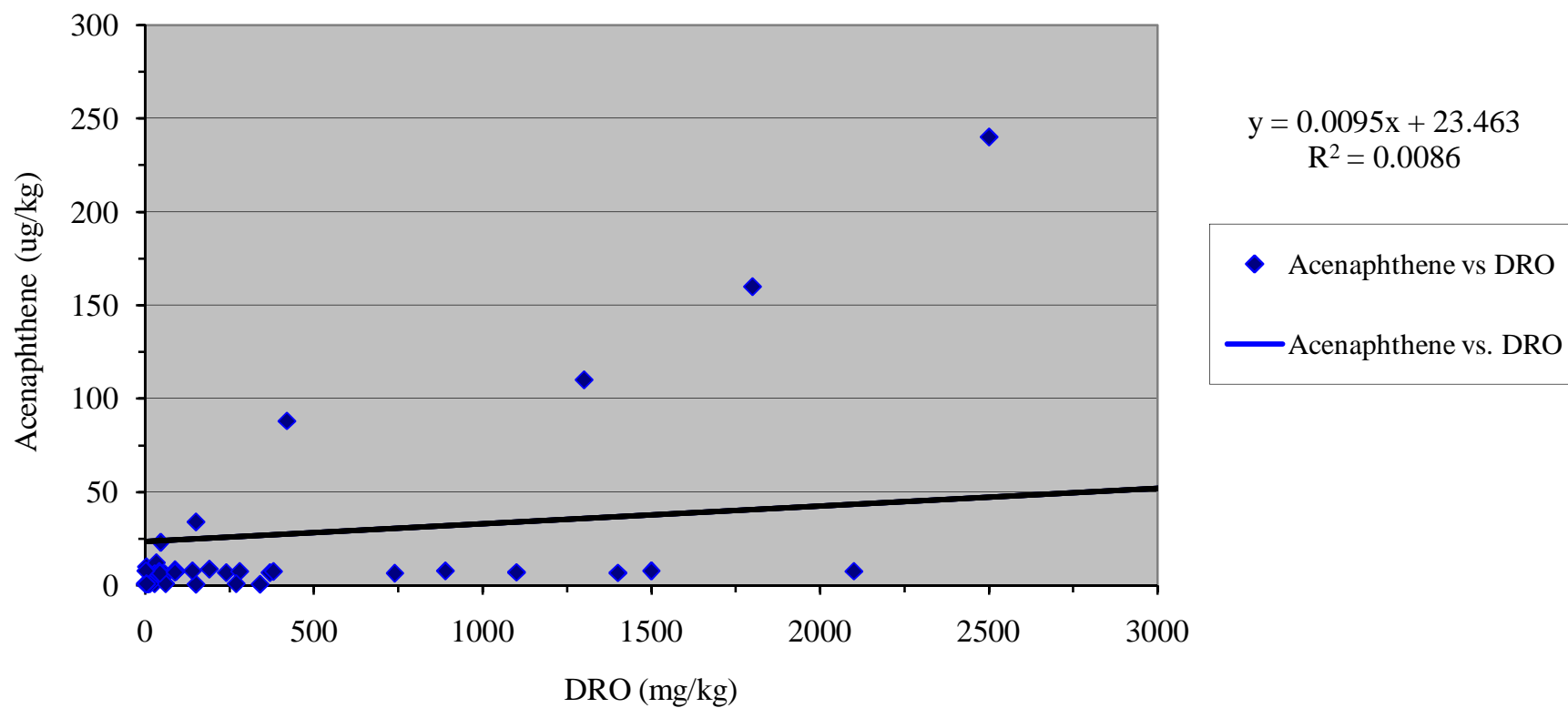
**Figure D-1**  
**1-Methylnaphthalene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



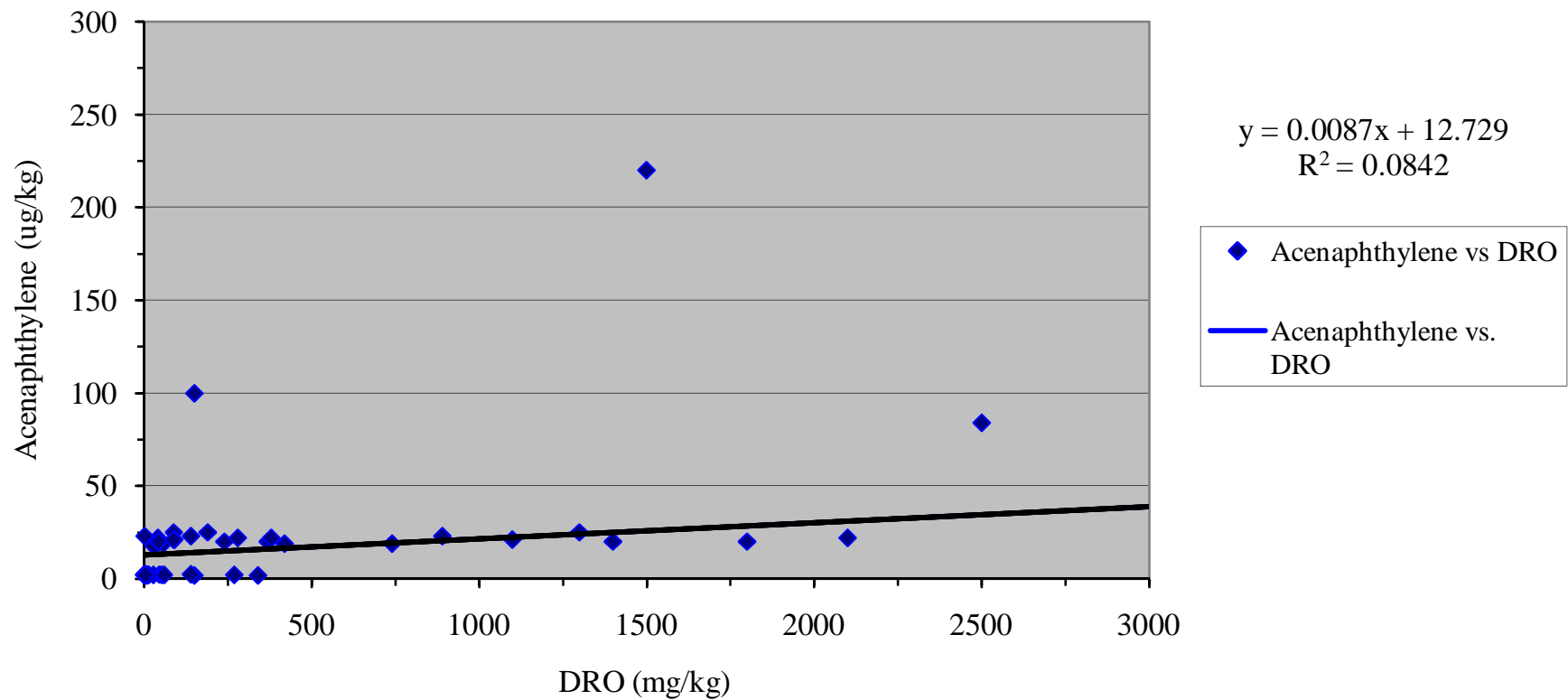
**Figure D-2**  
**2-Methylnaphthalene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



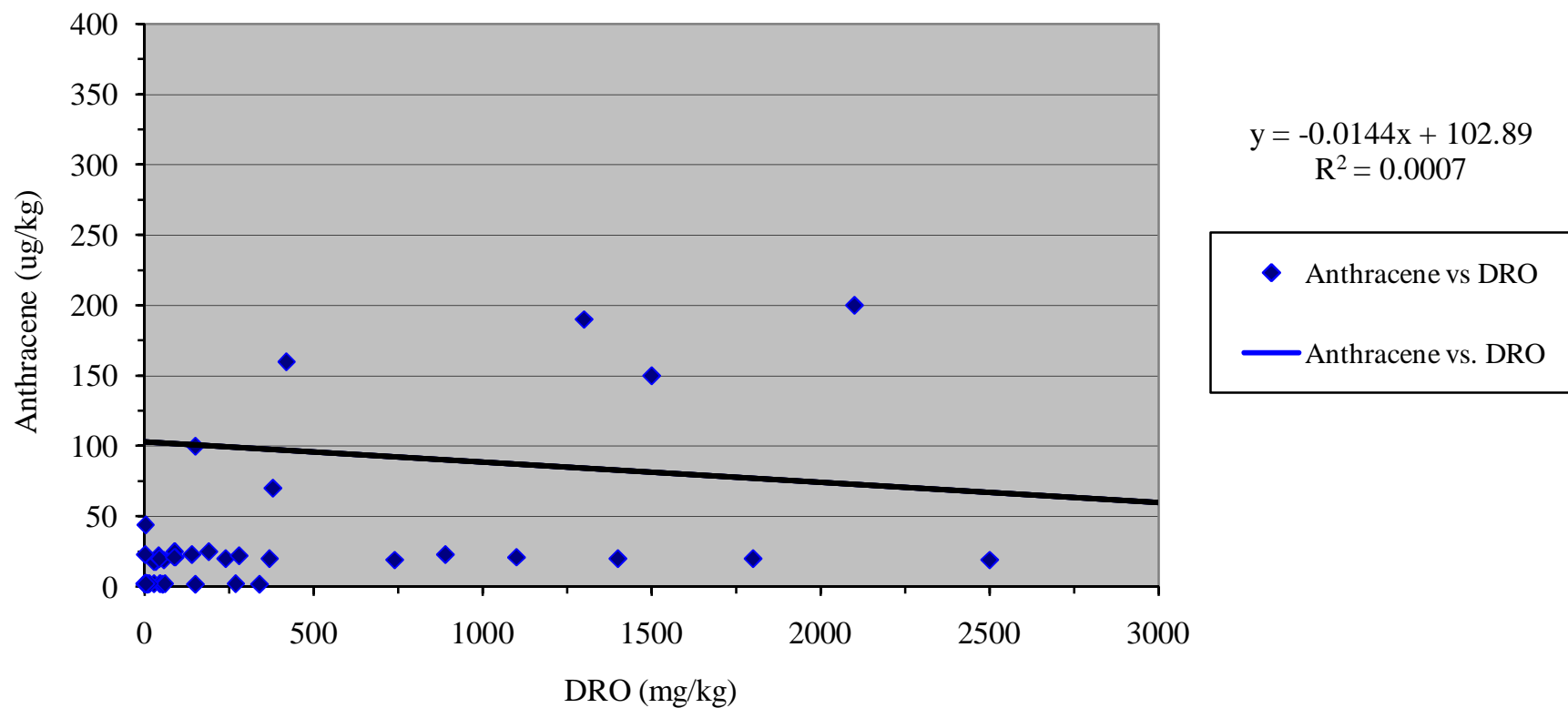
**Figure D-3**  
**Acenaphthene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



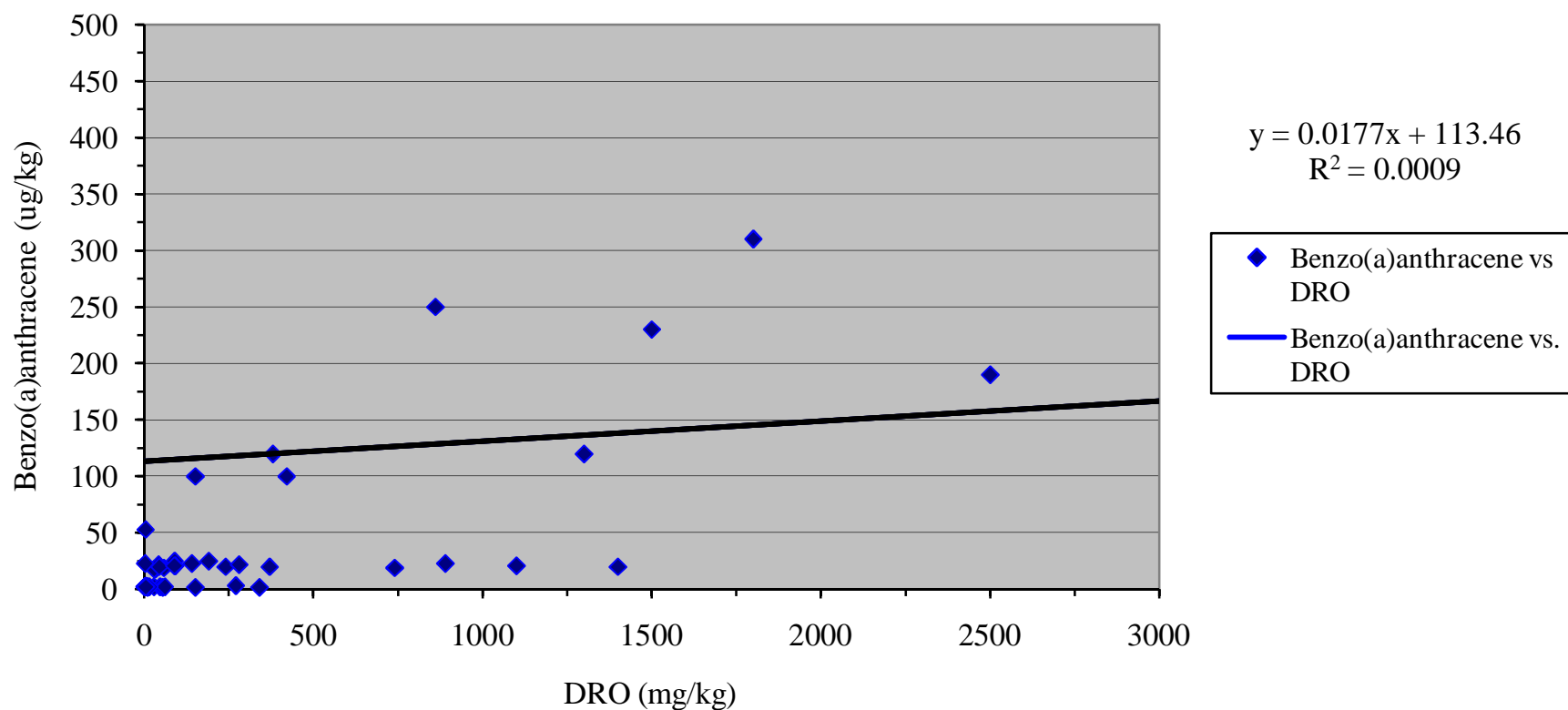
**Figure D-4**  
**Acenaphthylene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



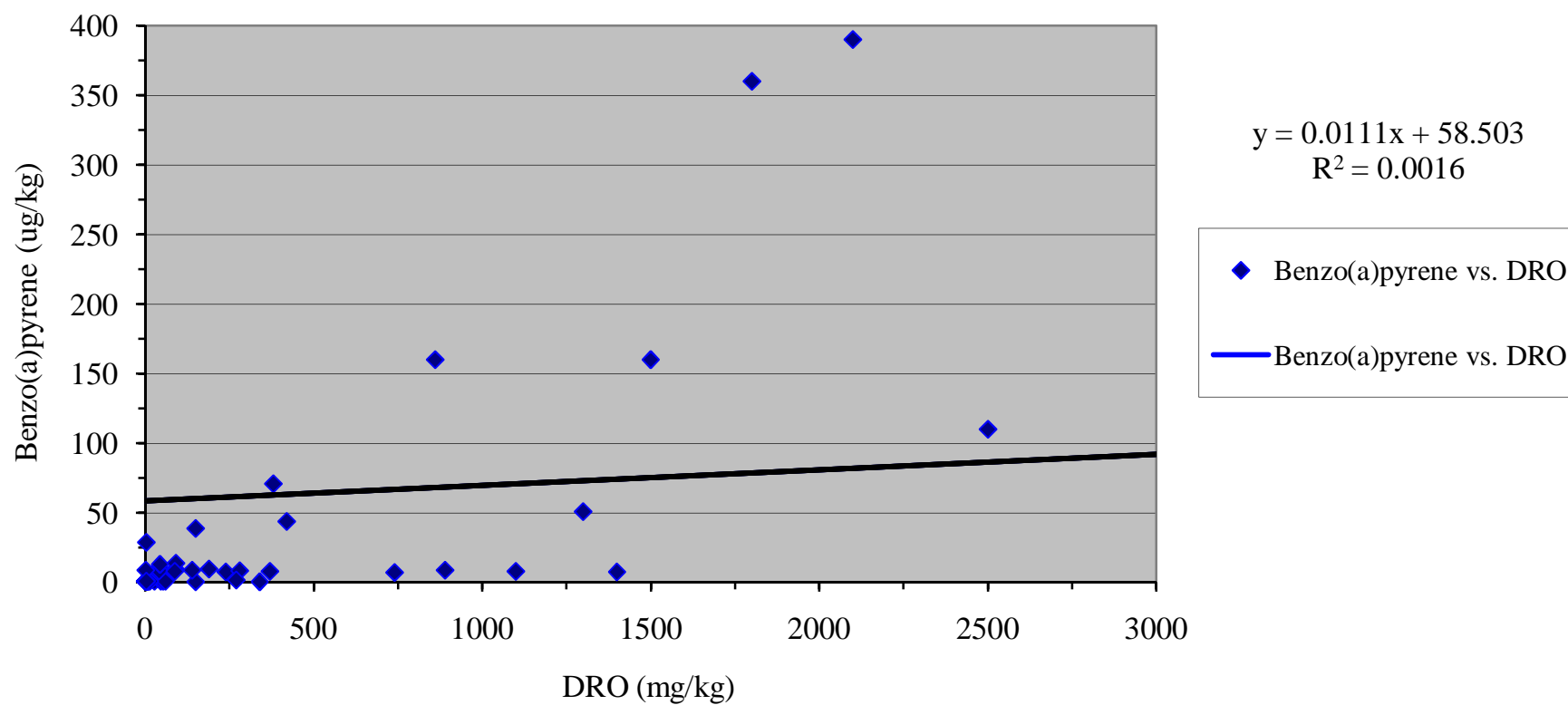
**Figure D-5**  
**Anthracene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



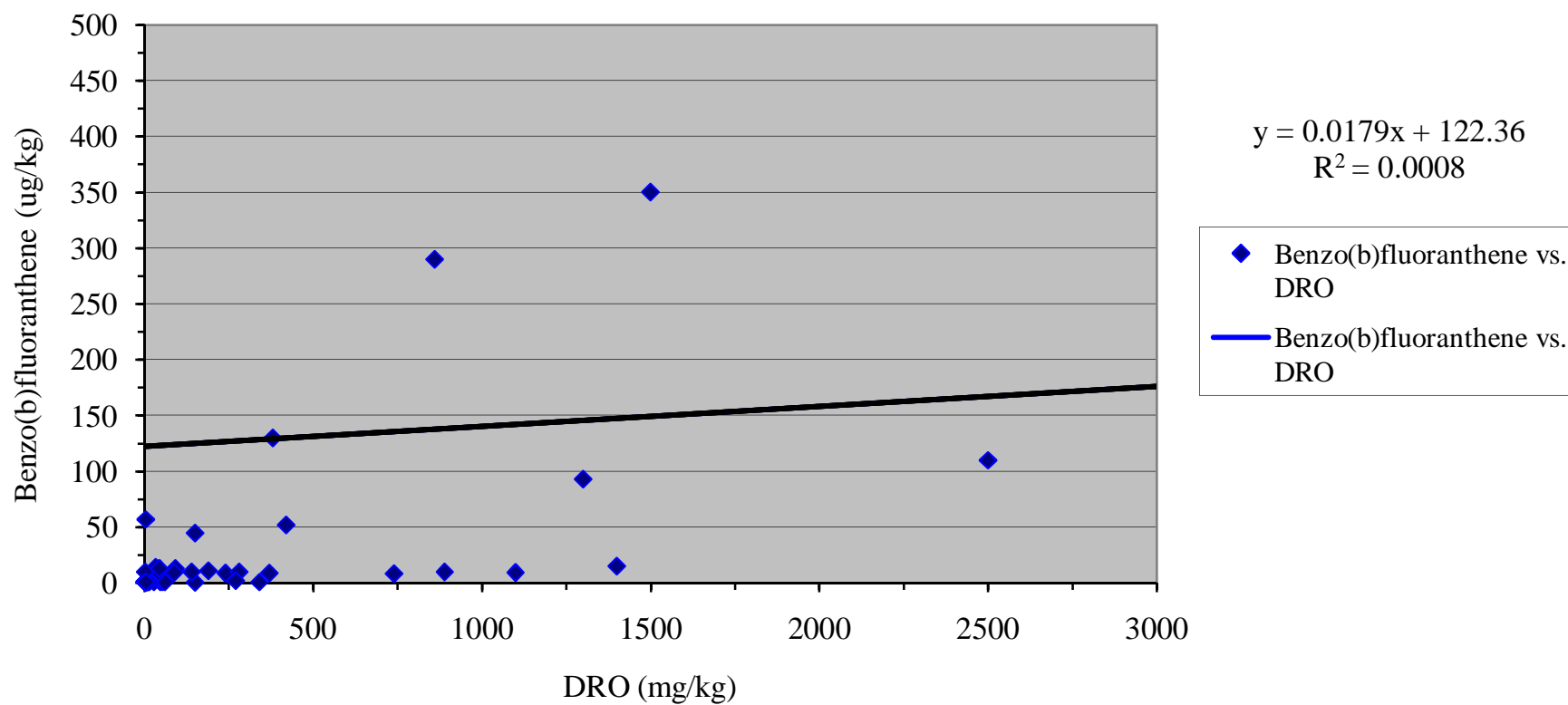
**Figure D-6**  
**Benzo(a)anthracene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



**Figure D-7**  
**Benzo(a)pyrene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**

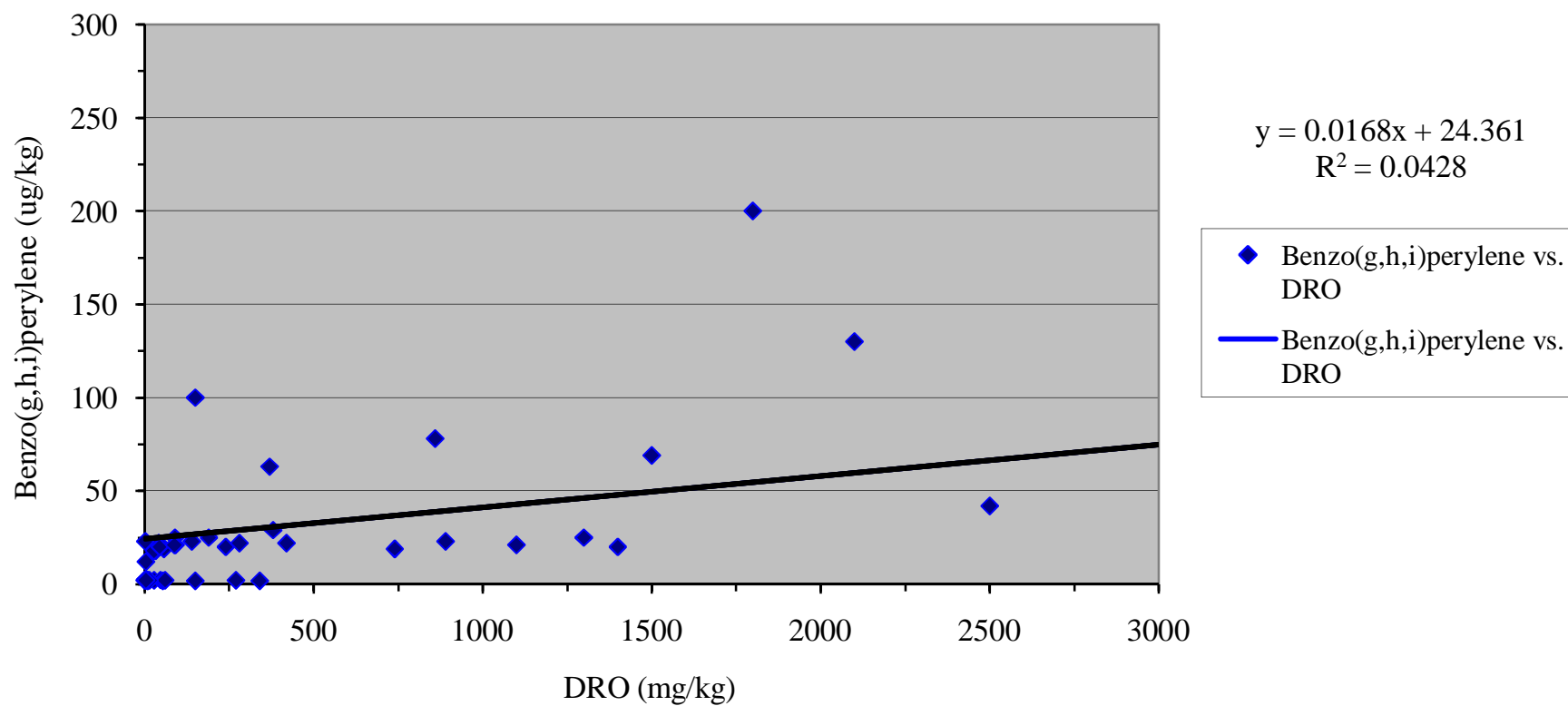


**Figure D-8**  
**Benzo(b)fluoranthene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**

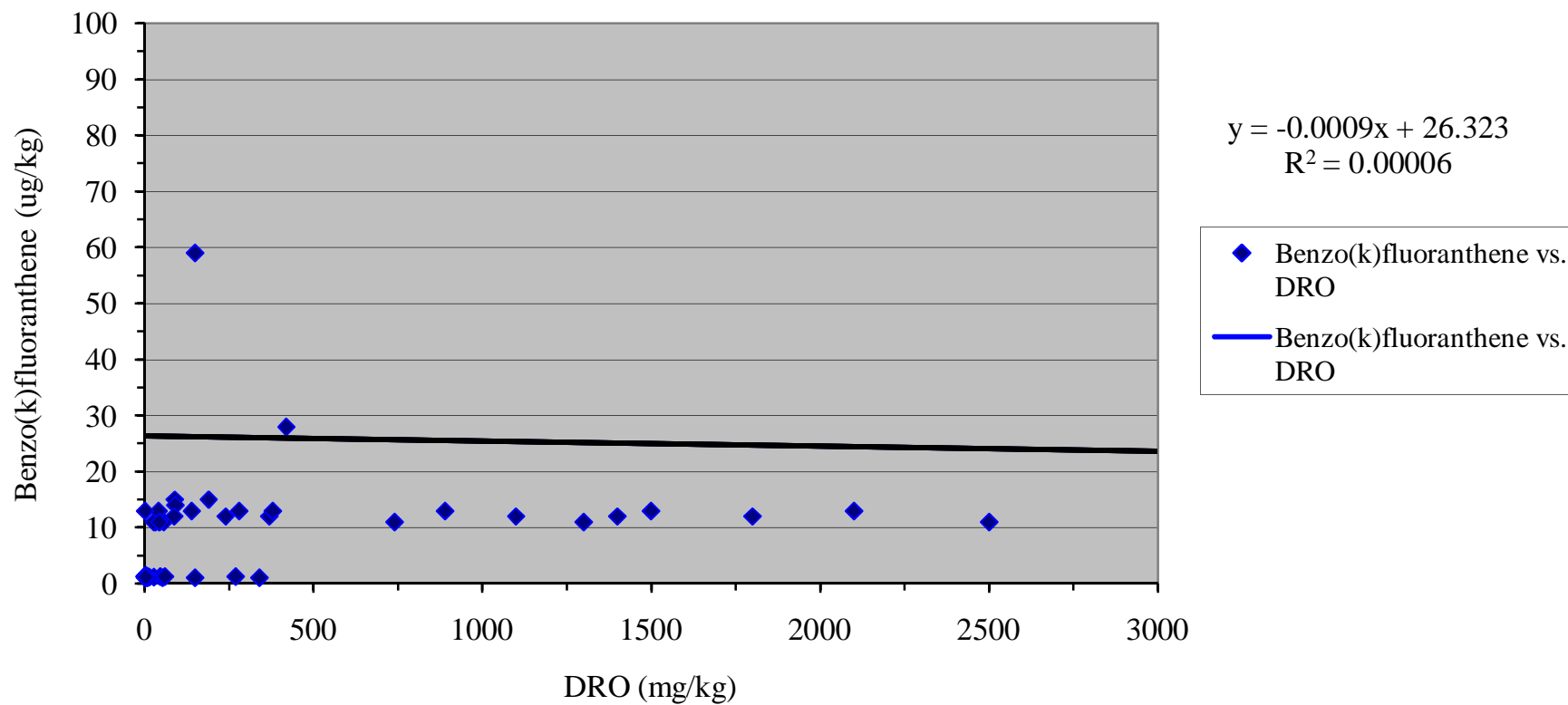




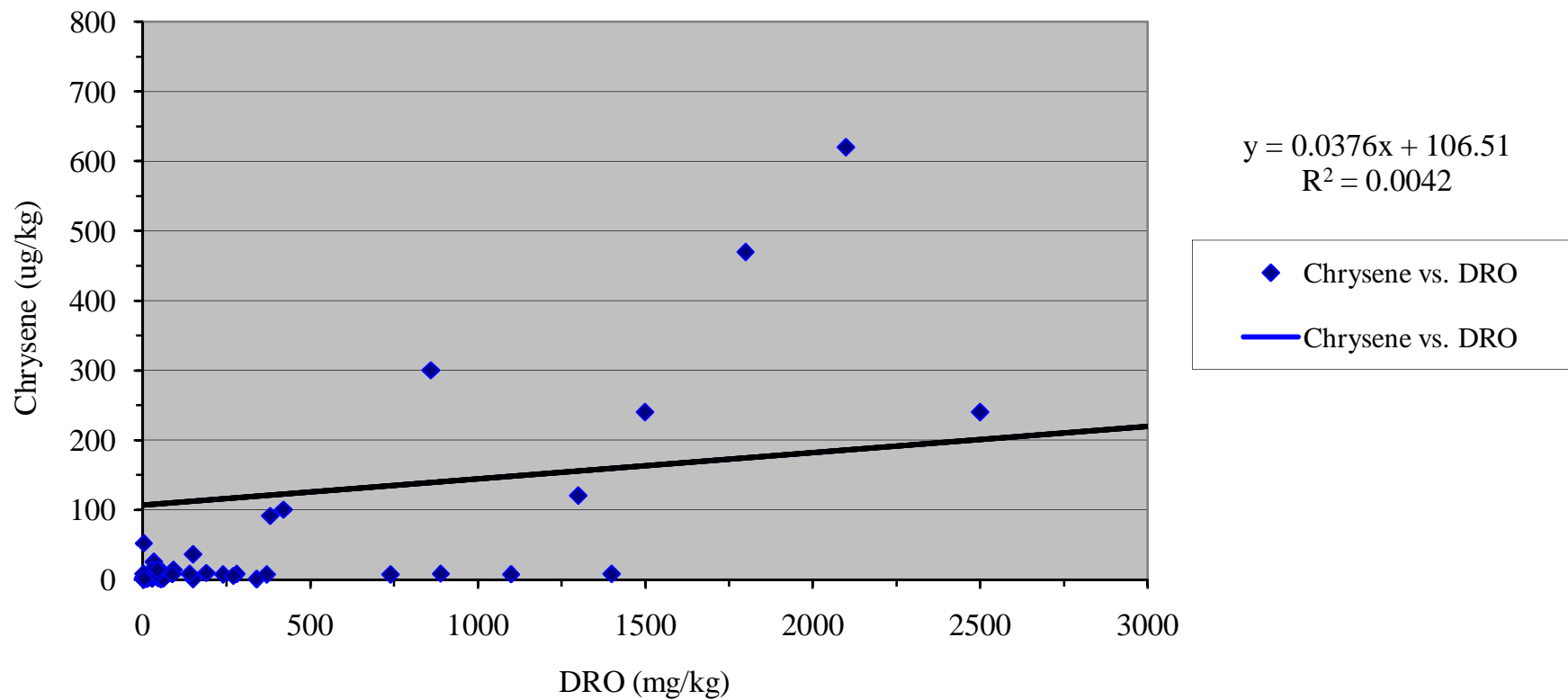
**Figure D-9**  
**Benzo(g,h,i)perylene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



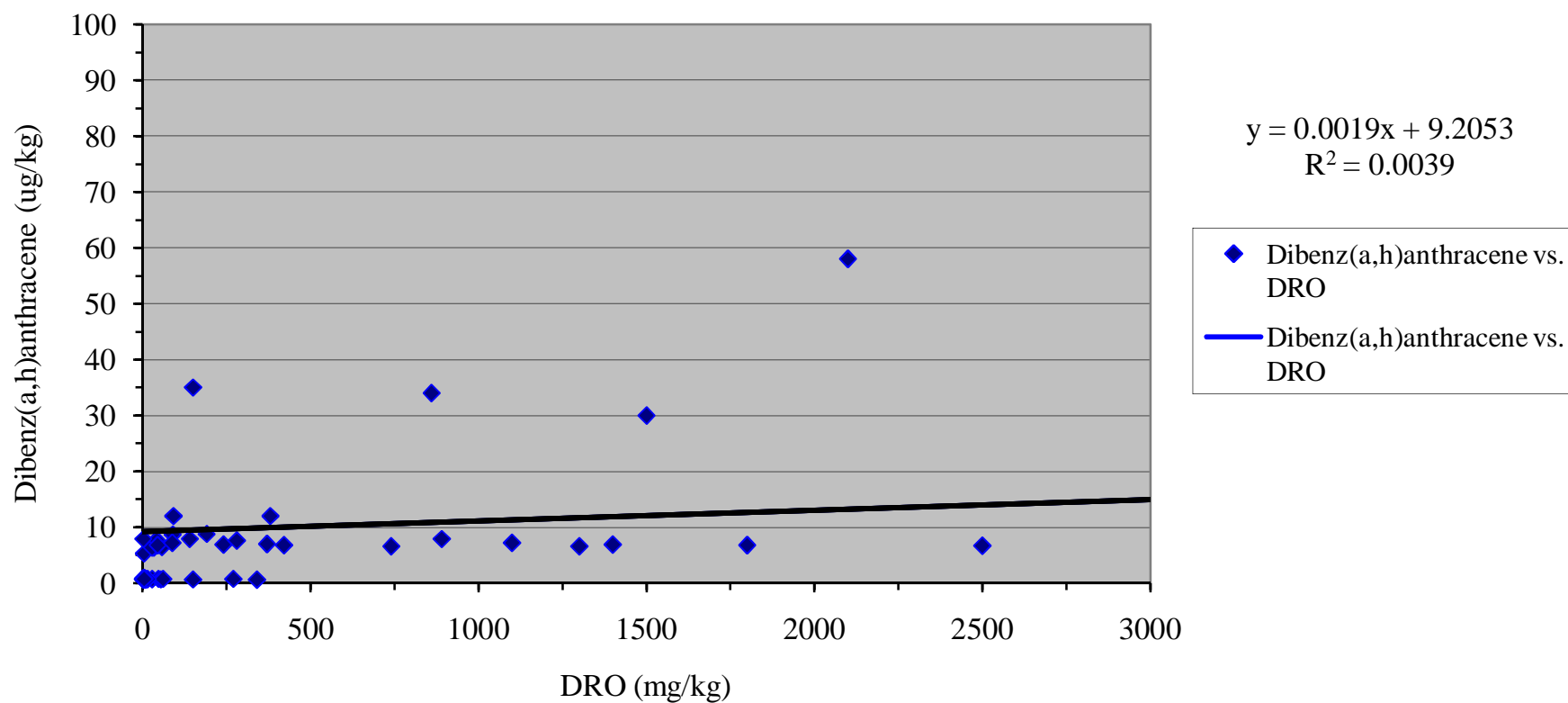
**Figure D-10**  
**Benzo(k)fluoranthene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



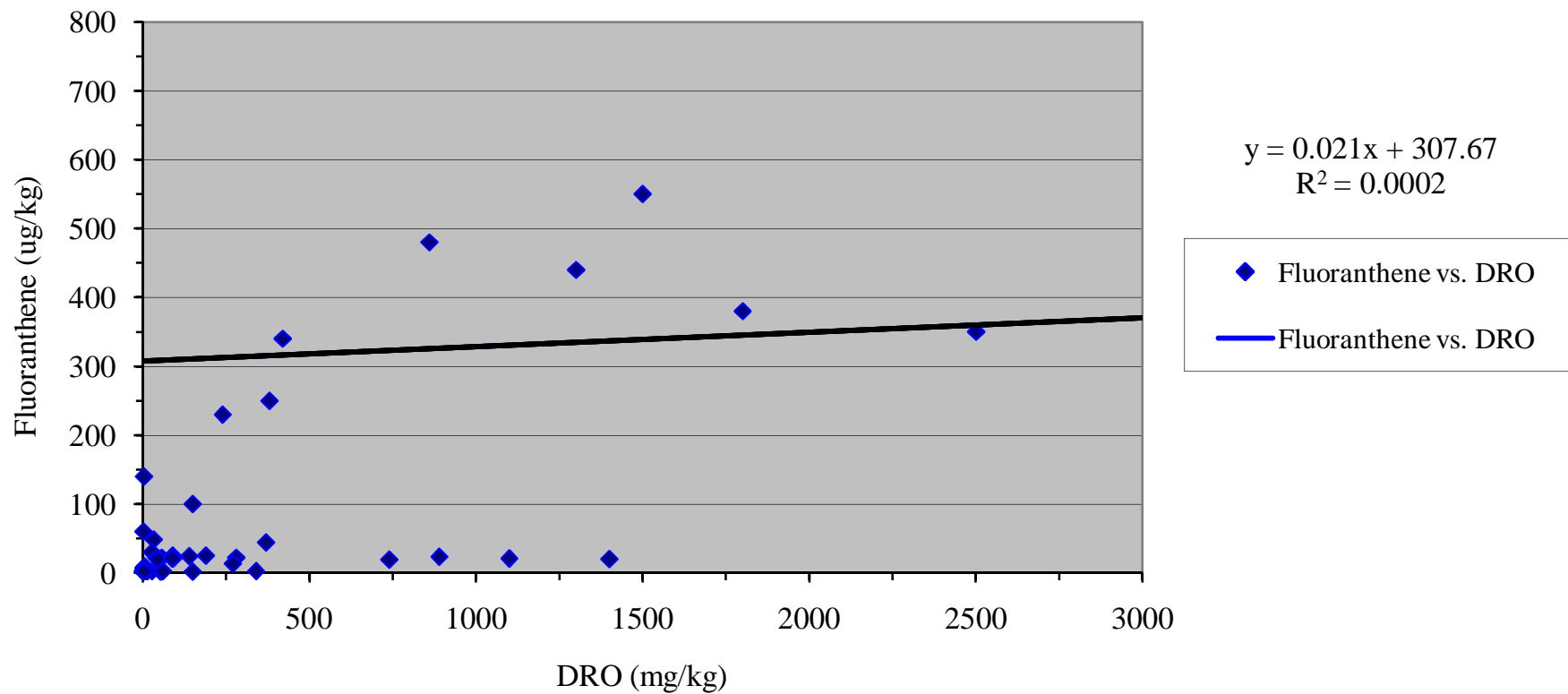
**Figure D-11**  
**Chrysene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



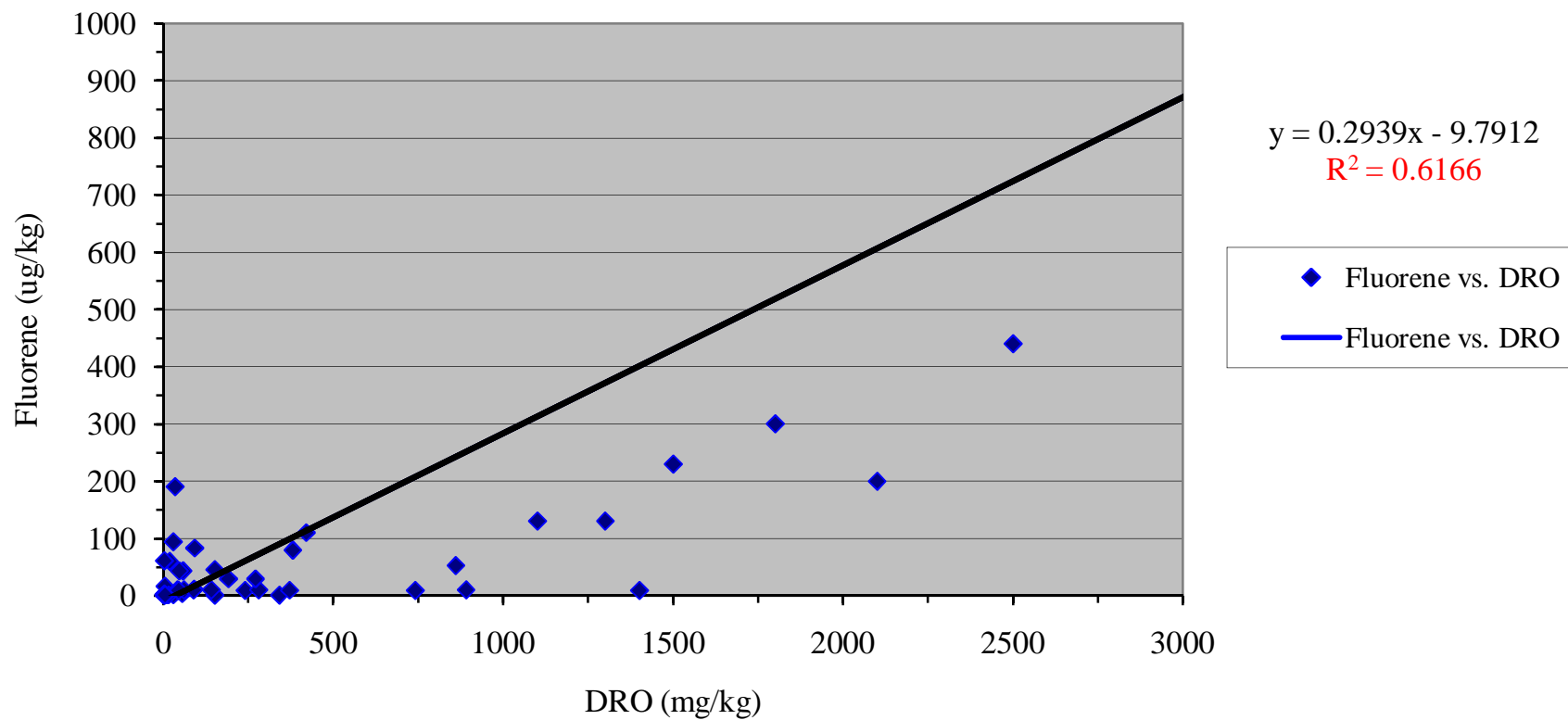
**Figure D-12**  
**Dibenz(a,h)anthracene and DRO in Soil: Surface and Subsurface Soil data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



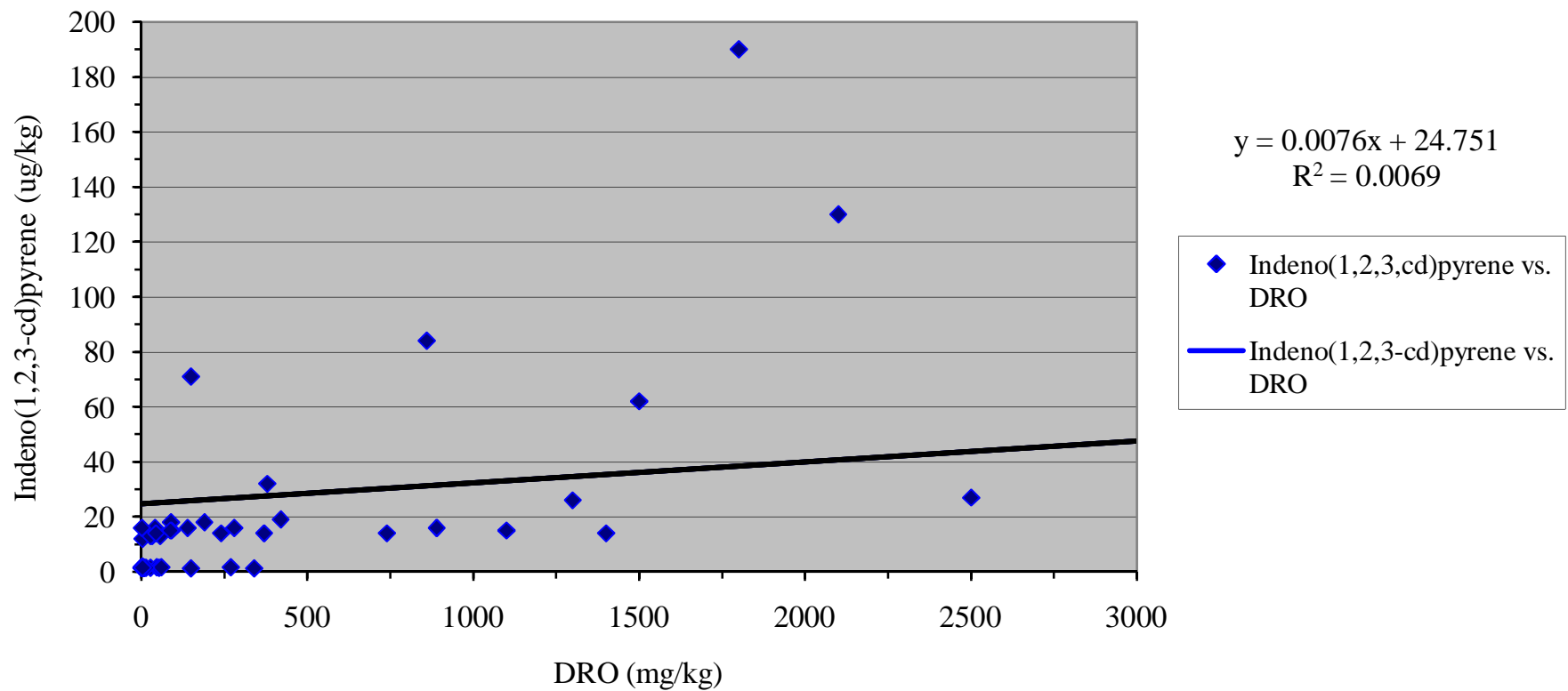
**Figure D-13**  
**Fluoranthene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



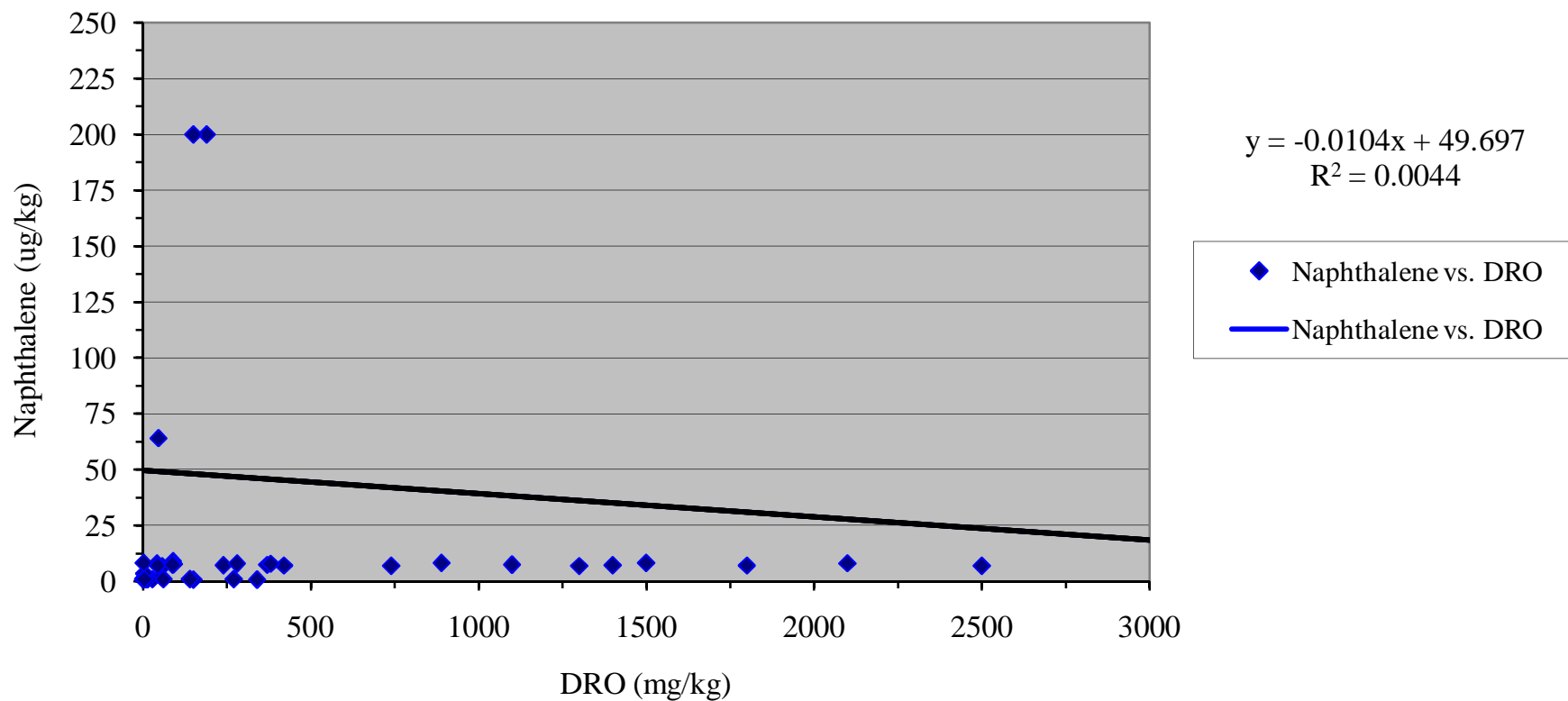
**Figure D-14**  
**Fluorene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



**Figure D-15**  
**Indeno(1,2,3-cd)pyrene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**

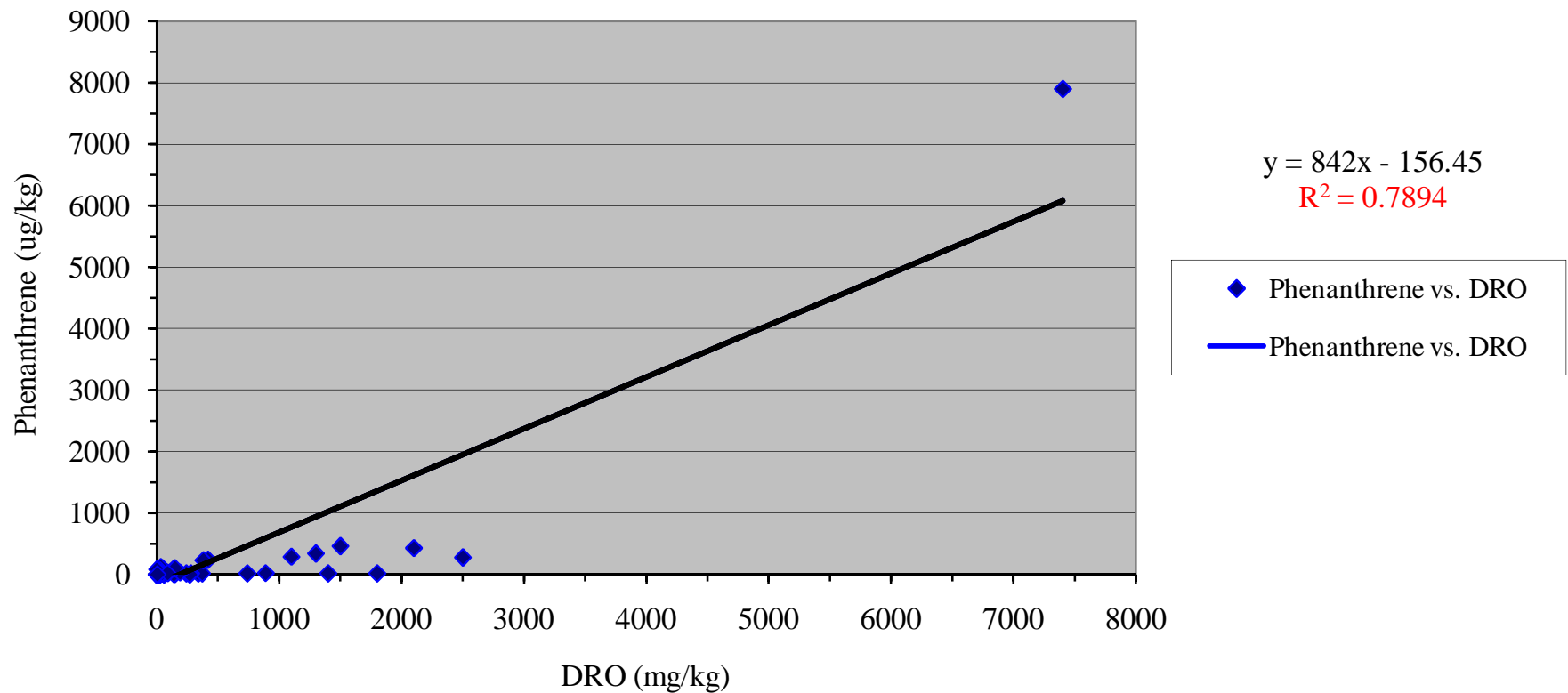


**Figure D-16**  
**Naphthalene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**

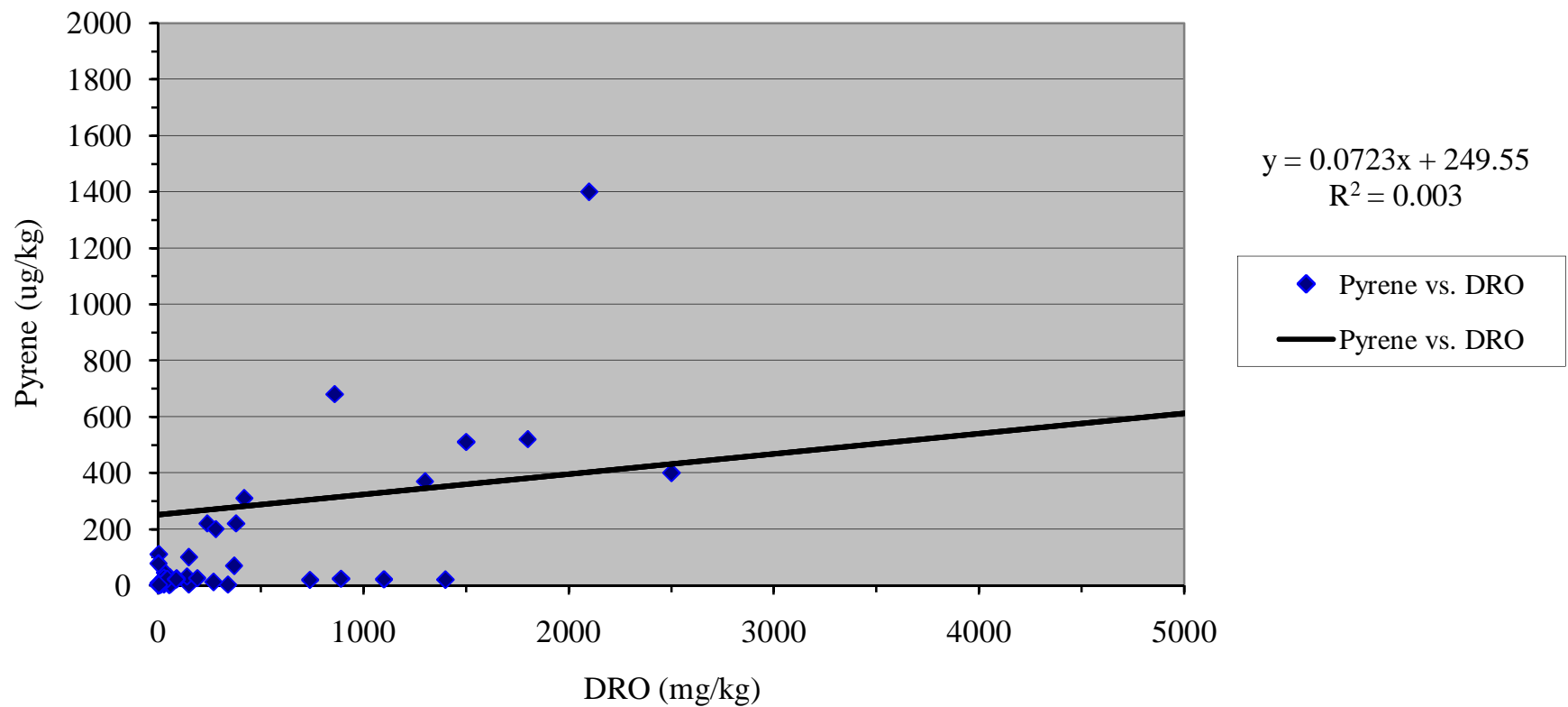




**Figure D-17**  
**Phenanthrene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



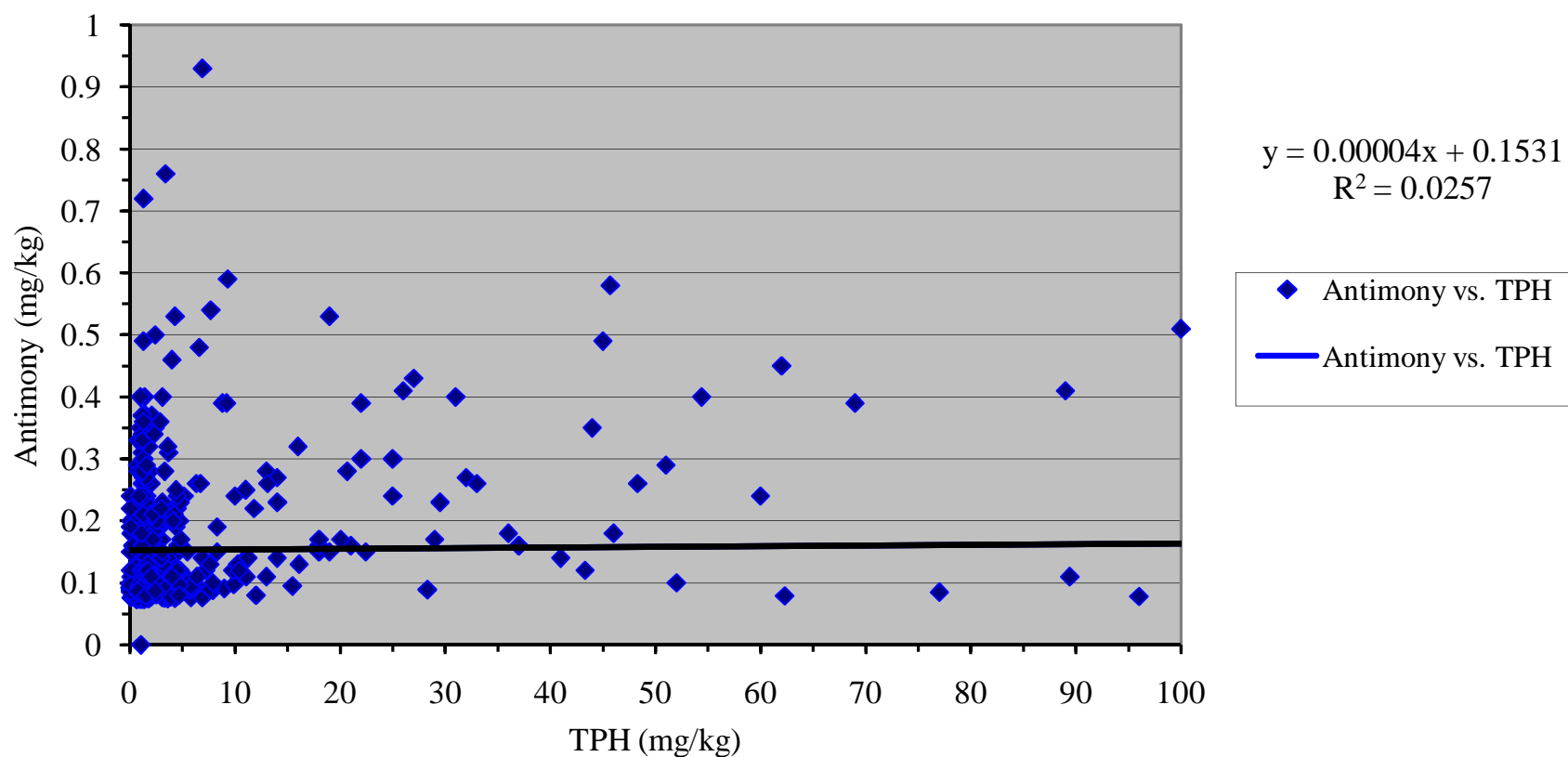
**Figure D-18**  
**Pyrene and DRO in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



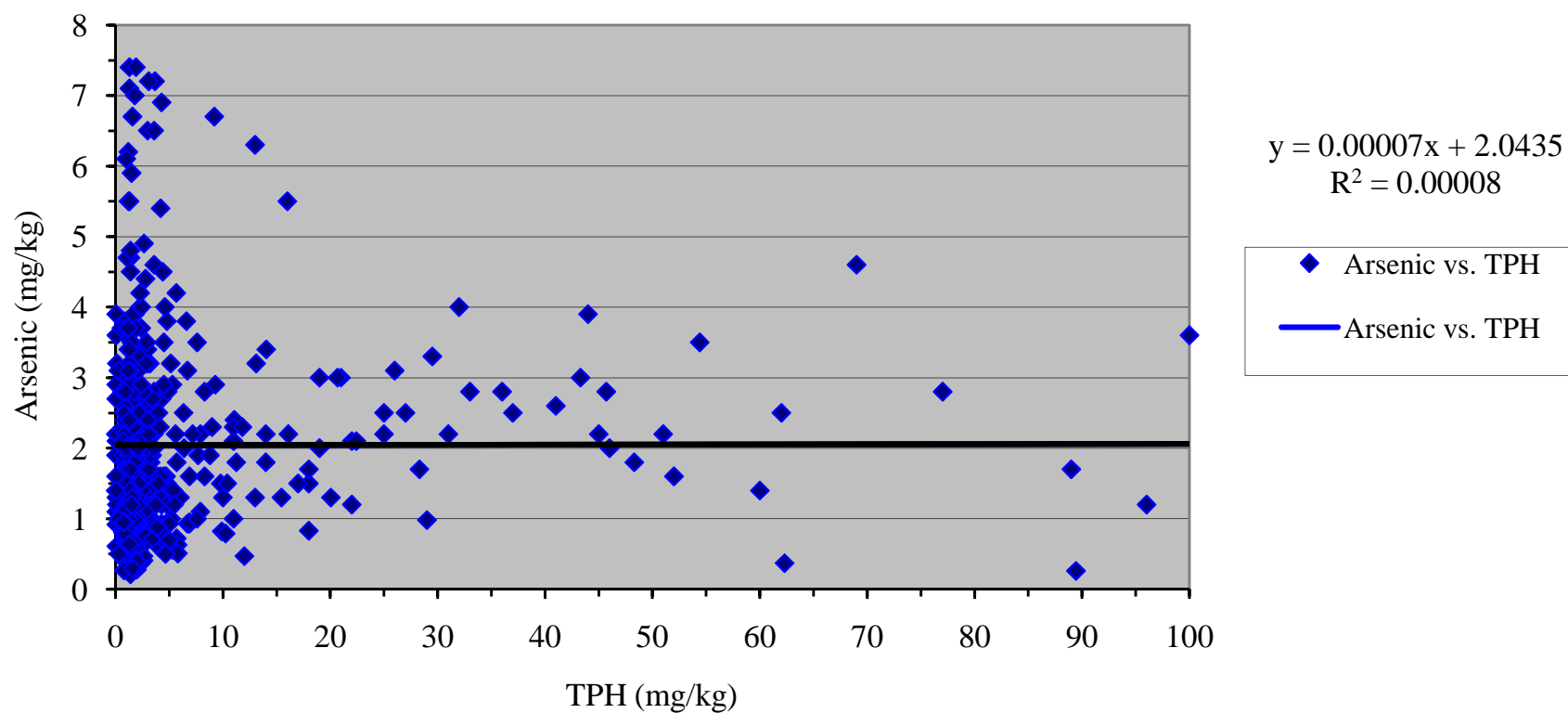
## **Metals/TPH Correlation Plots**

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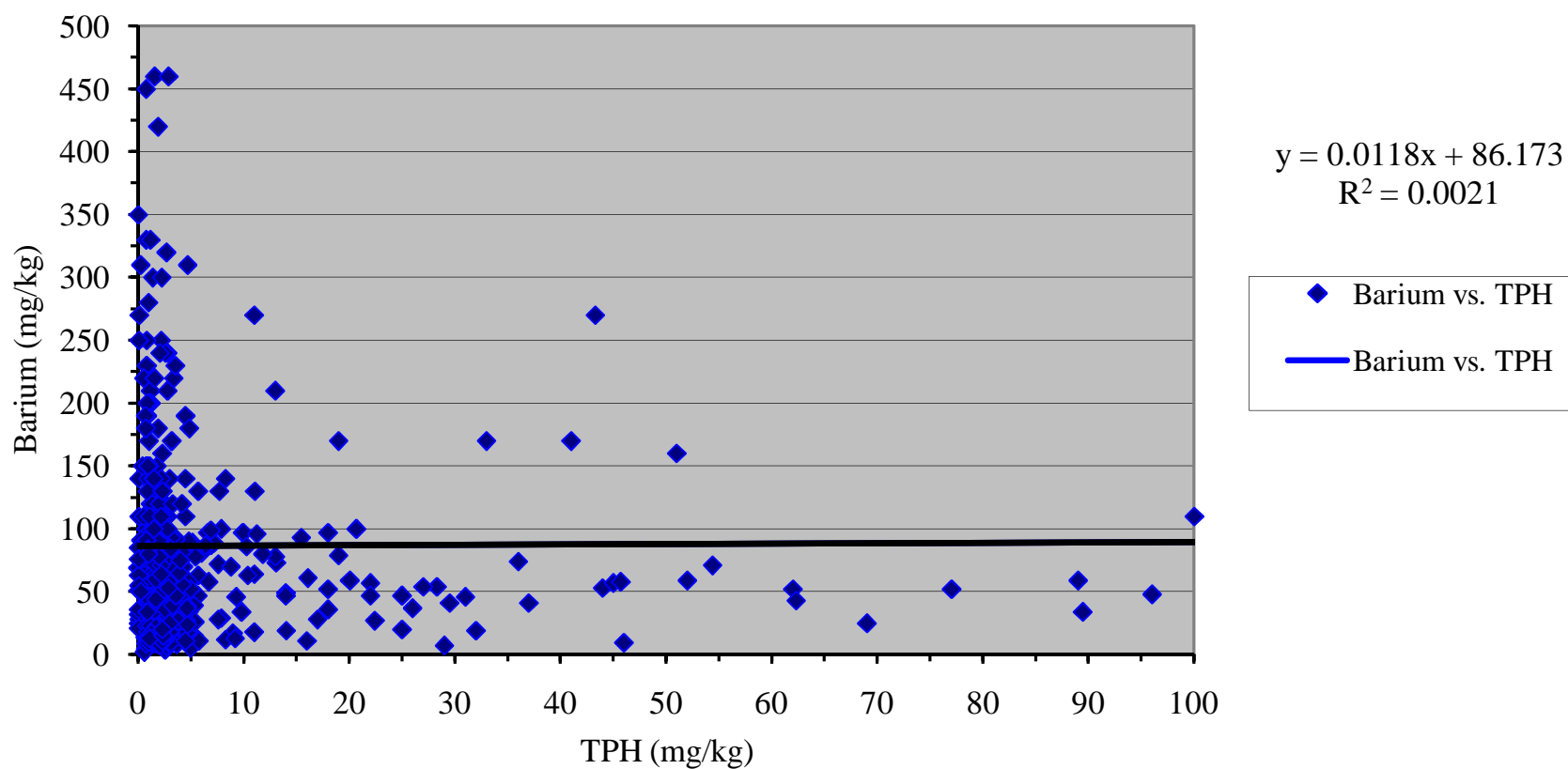
**Figure D-19**  
**Antimony and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
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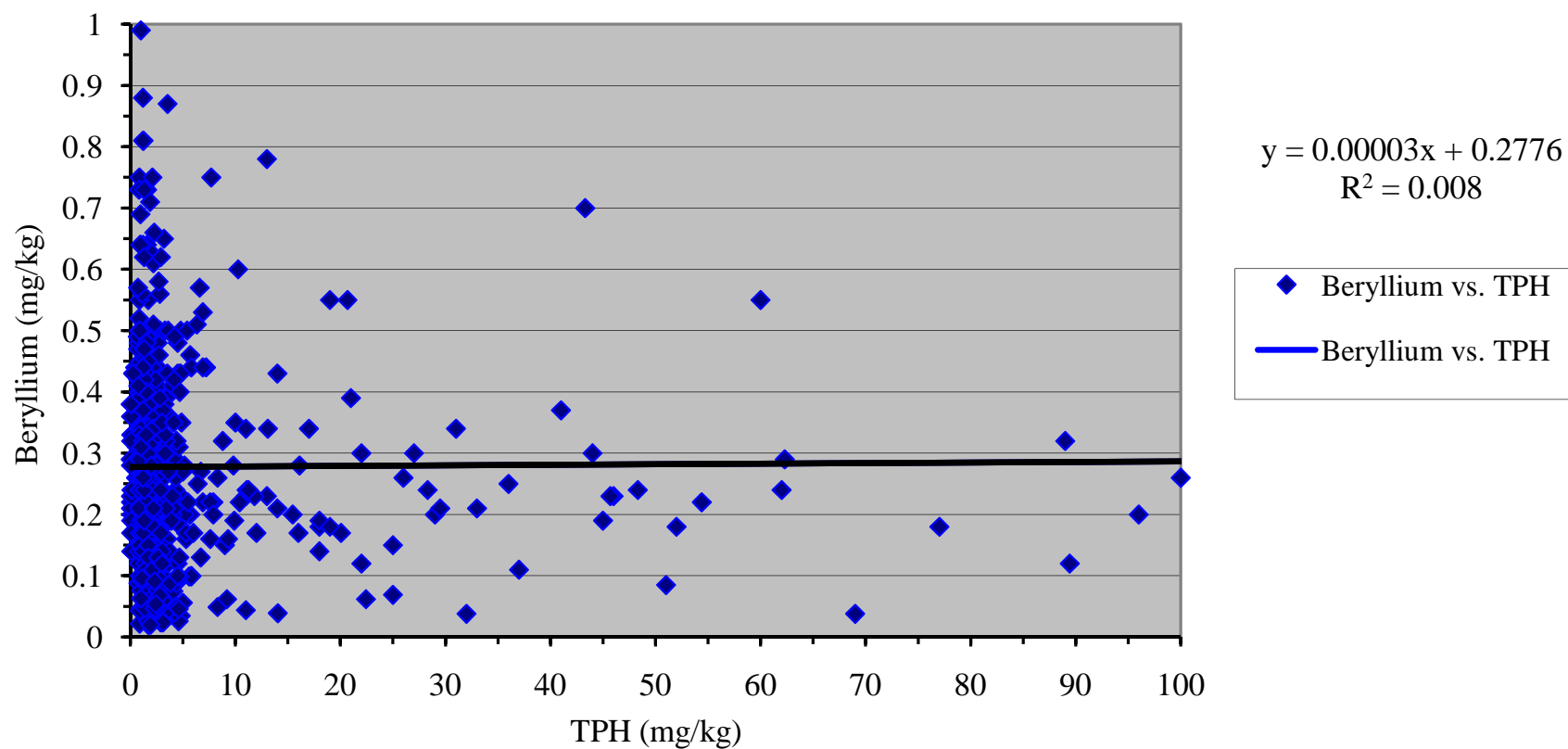
**Figure D-20**  
**Arsenic and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



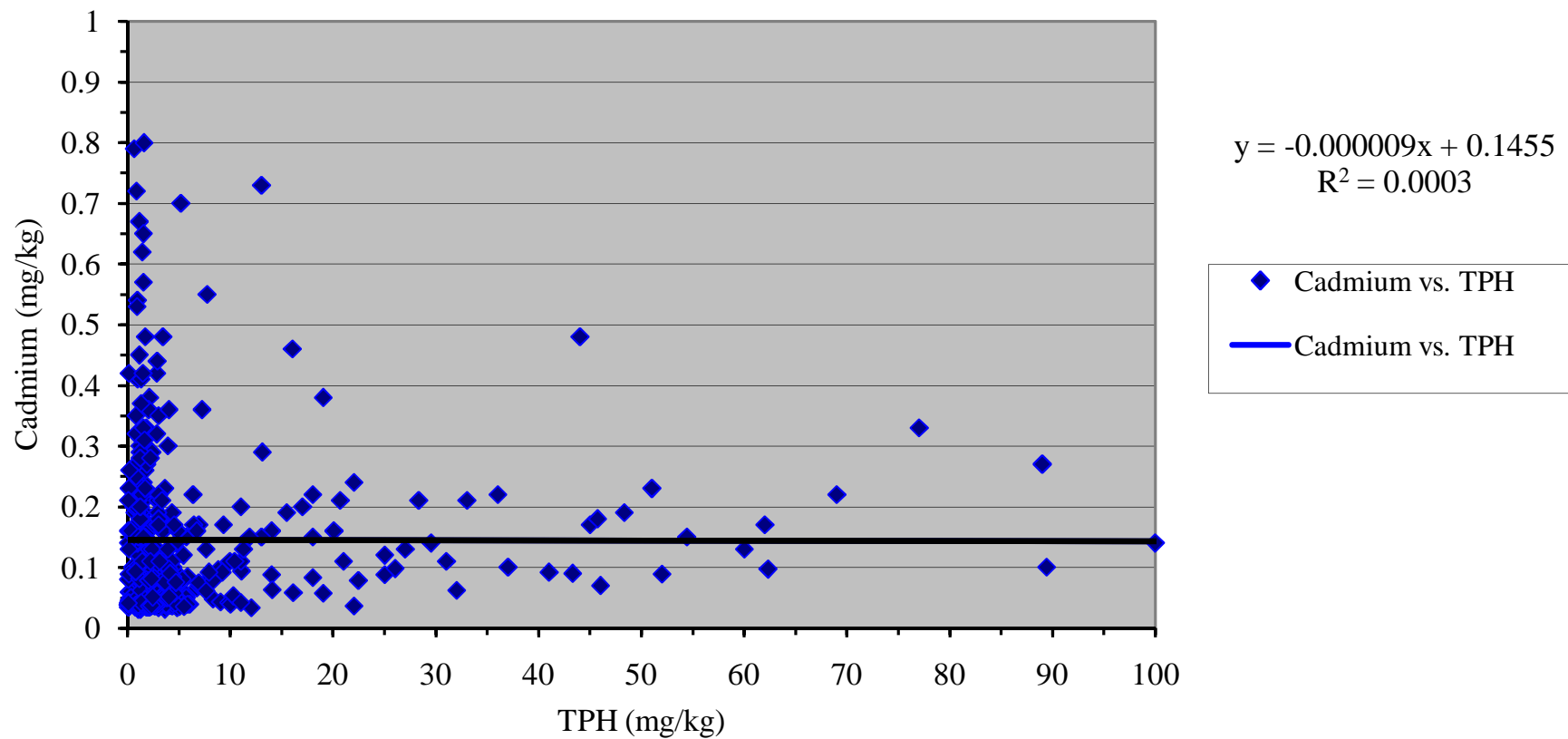
**Figure D-21**  
**Barium and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
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**Figure D-22**  
**Beryllium and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**

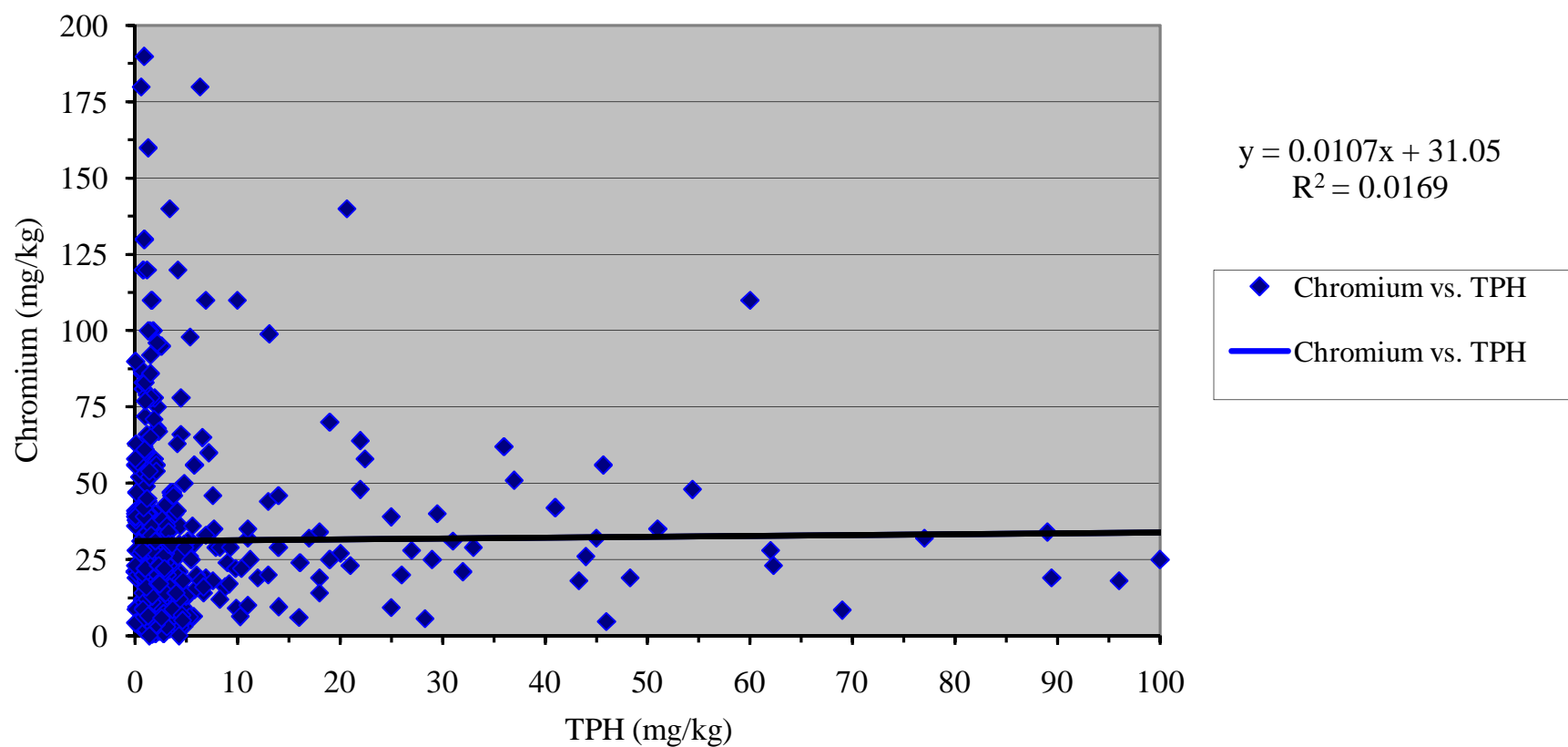


**Figure D-23**  
**Cadmium and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**

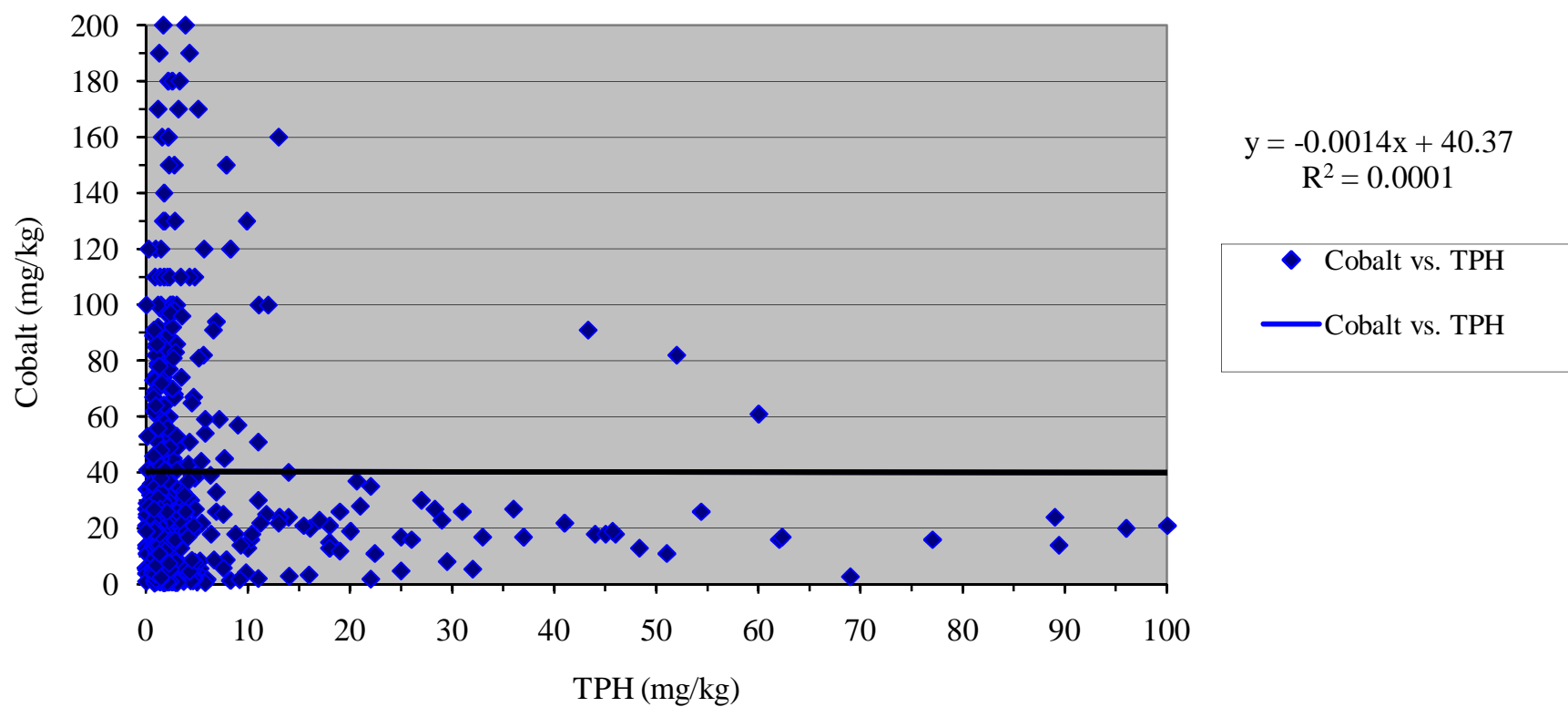




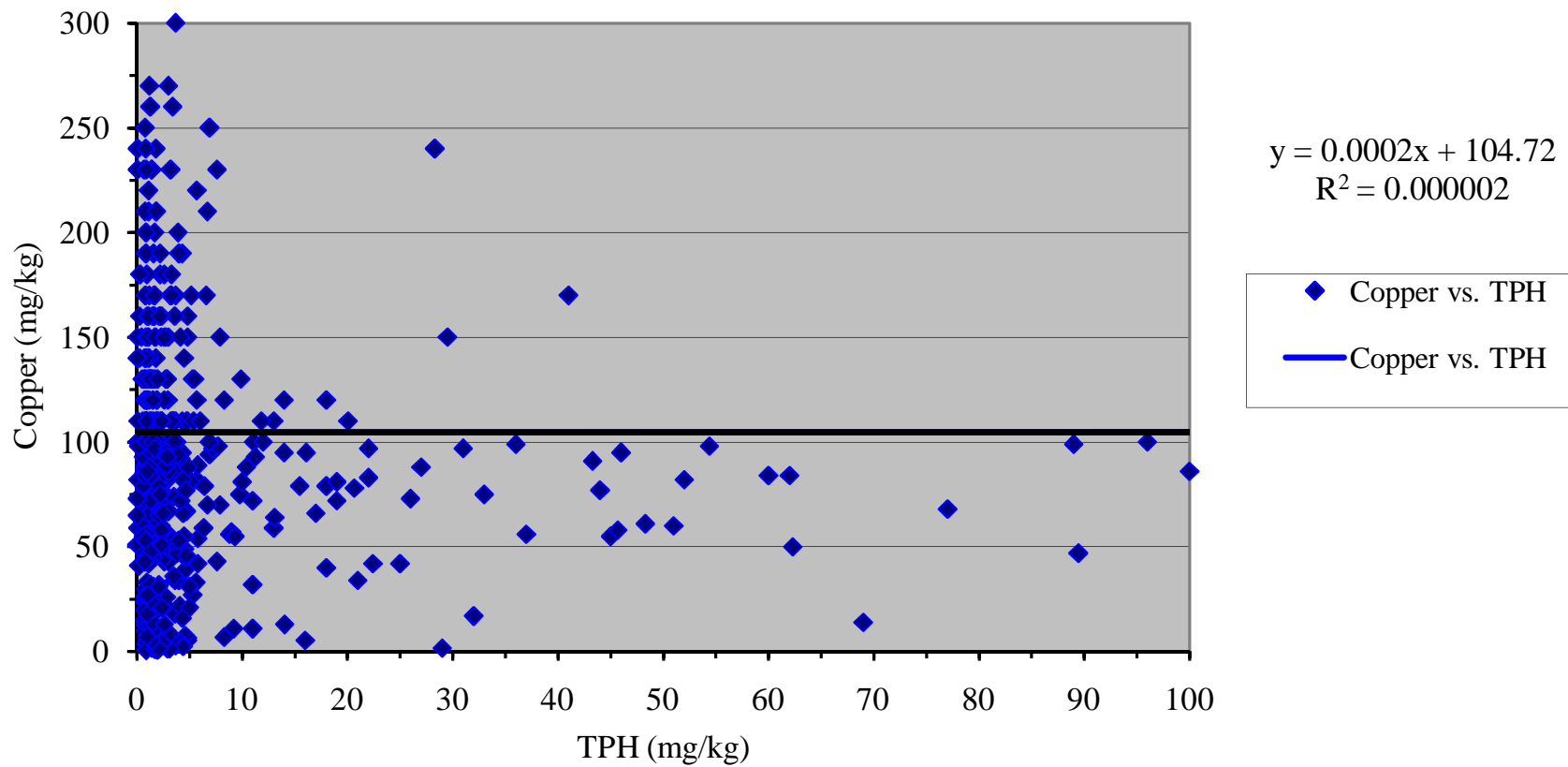
**Figure D-24**  
**Chromium and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



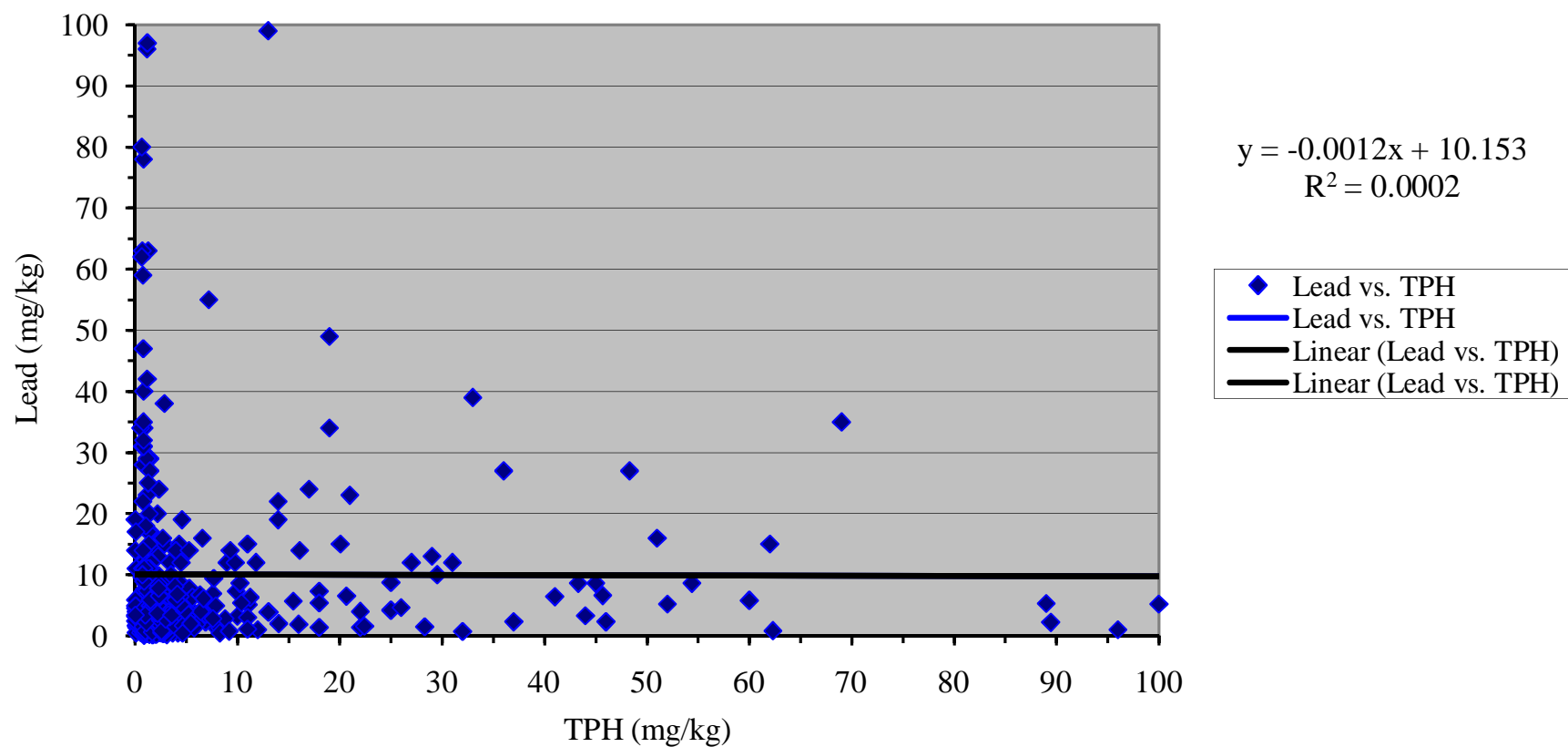
**Figure D-25**  
**Cobalt and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
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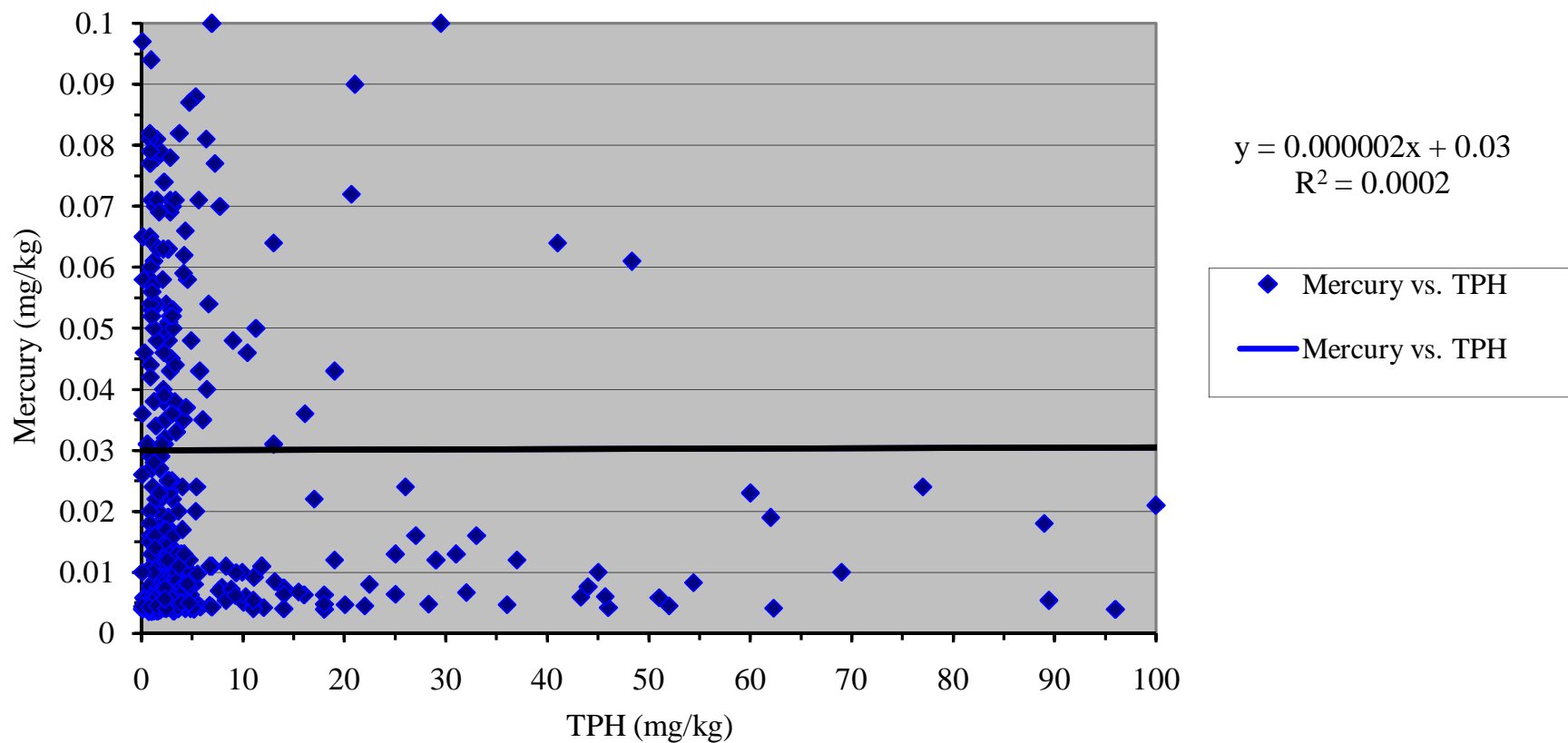
**Figure D-26**  
**Copper and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



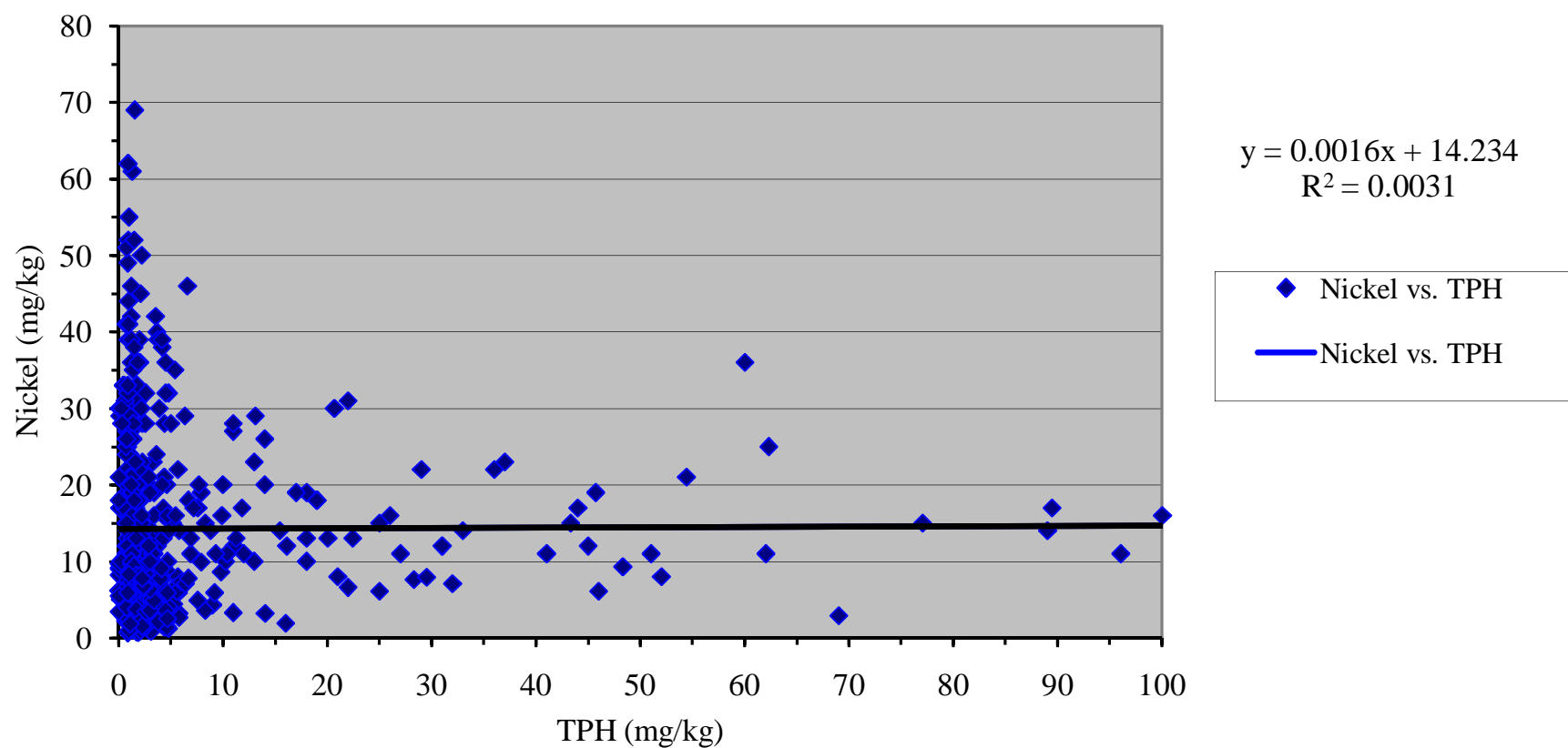
**Figure D-27**  
**Lead and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



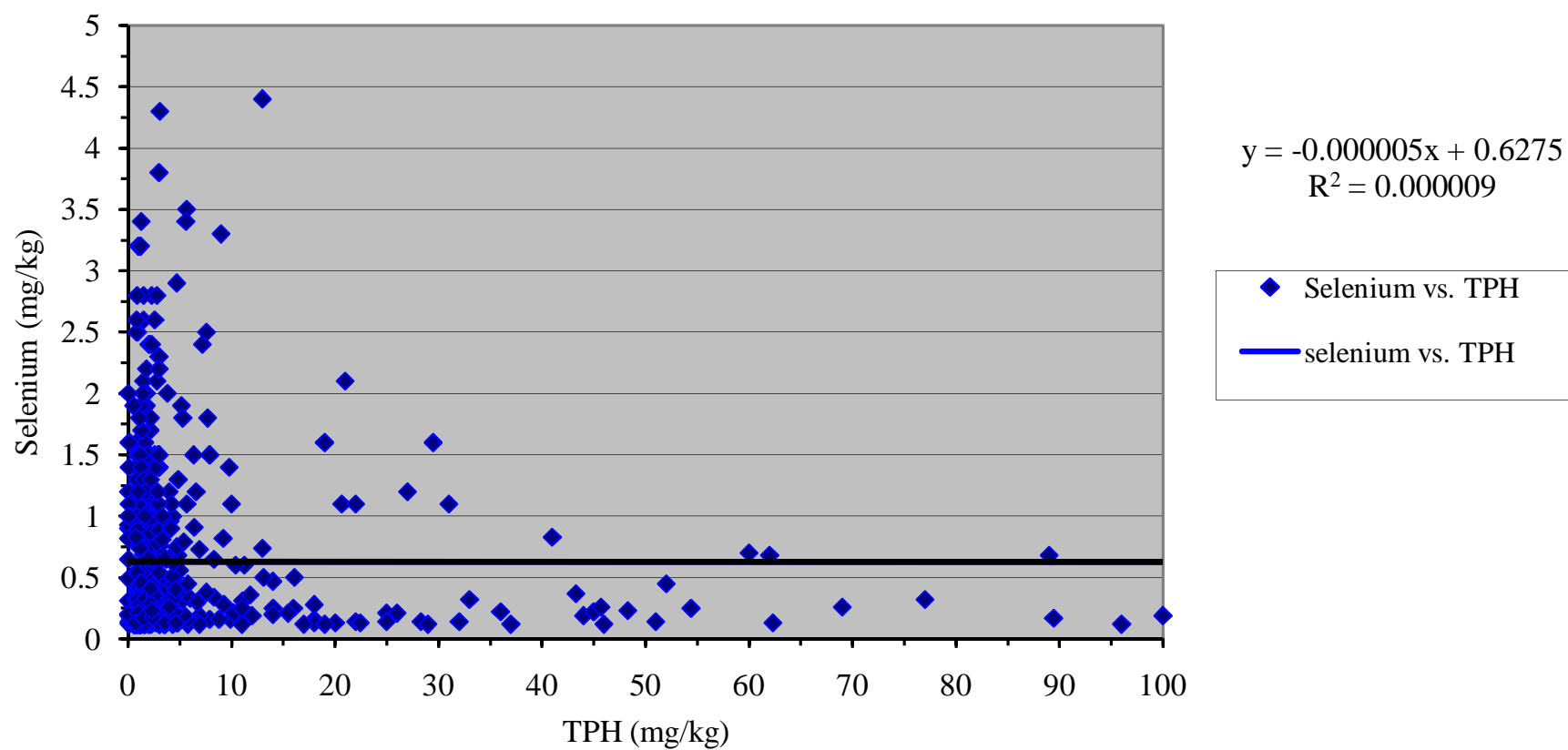
**Figure D-28**  
**Mercury and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



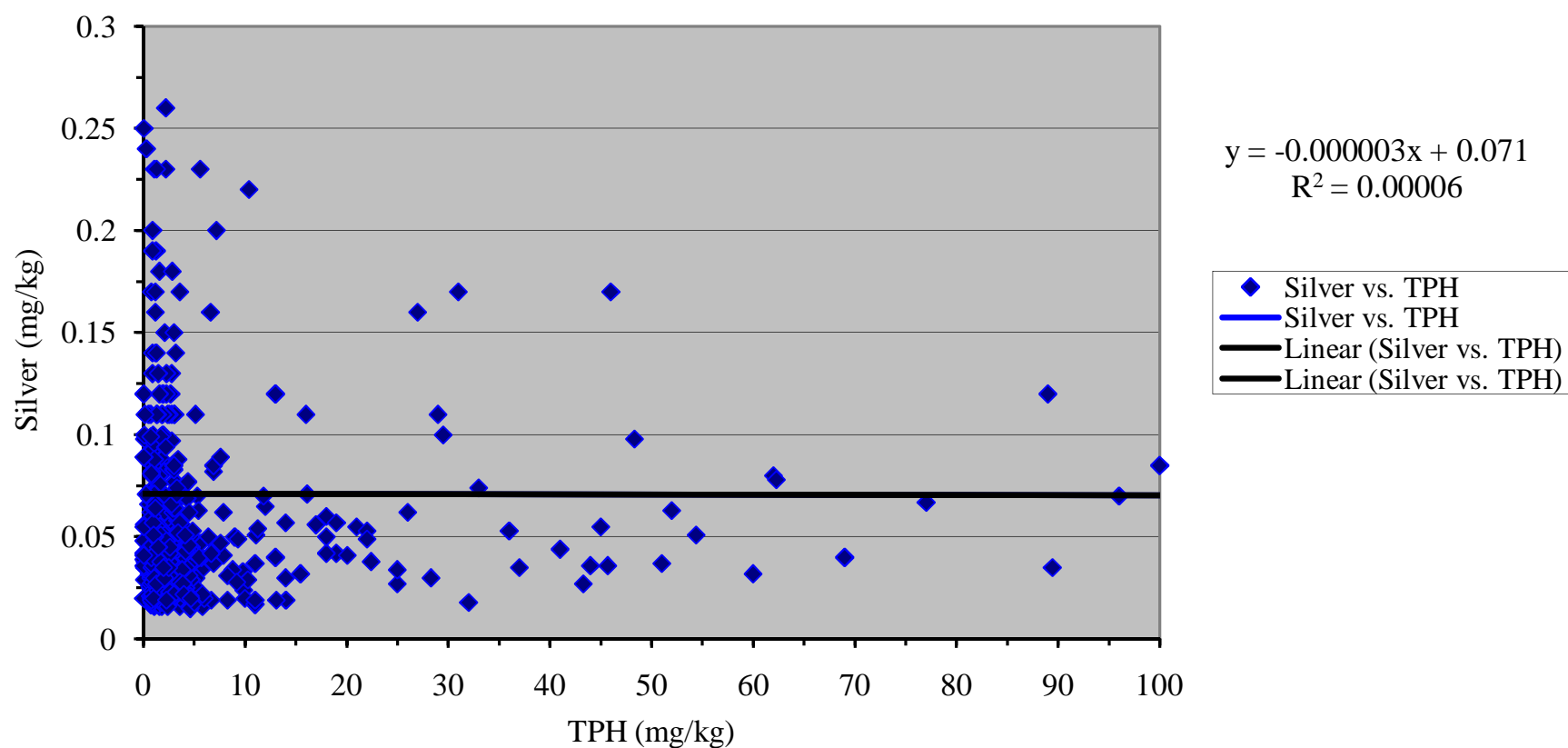
**Figure D-29**  
**Nickel and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
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**Figure D-30**  
**Selenium and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**

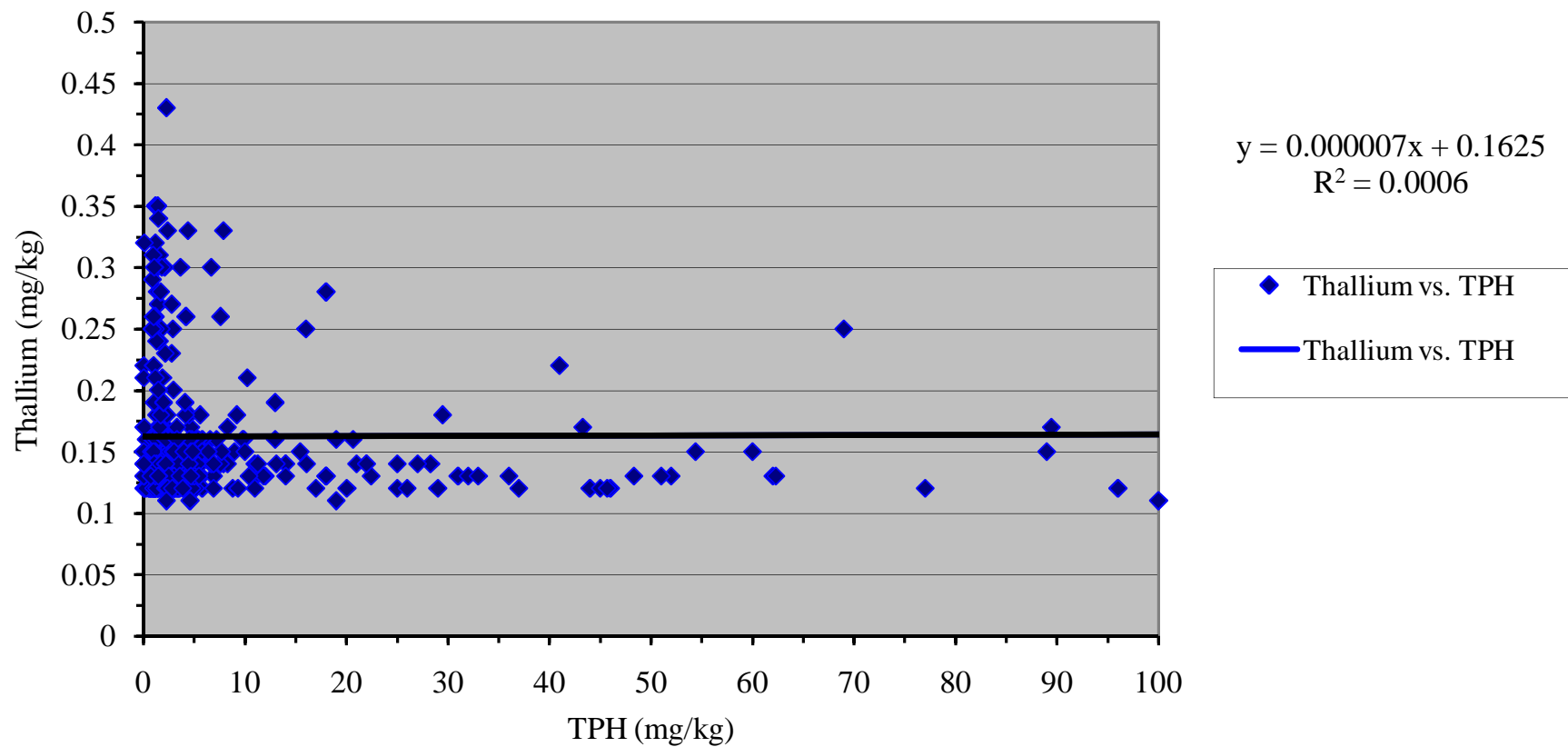


**Figure D-31**  
**Silver and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**

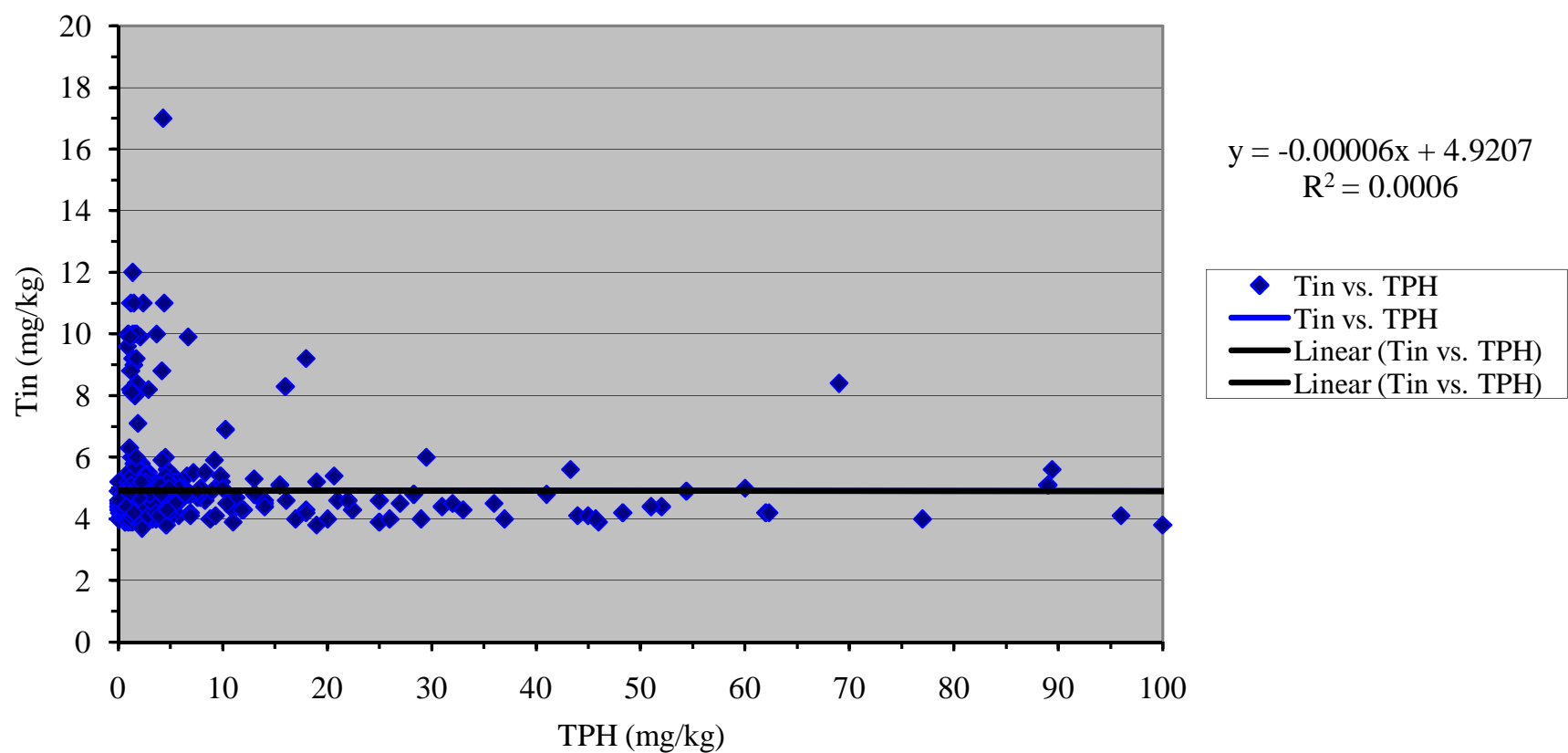




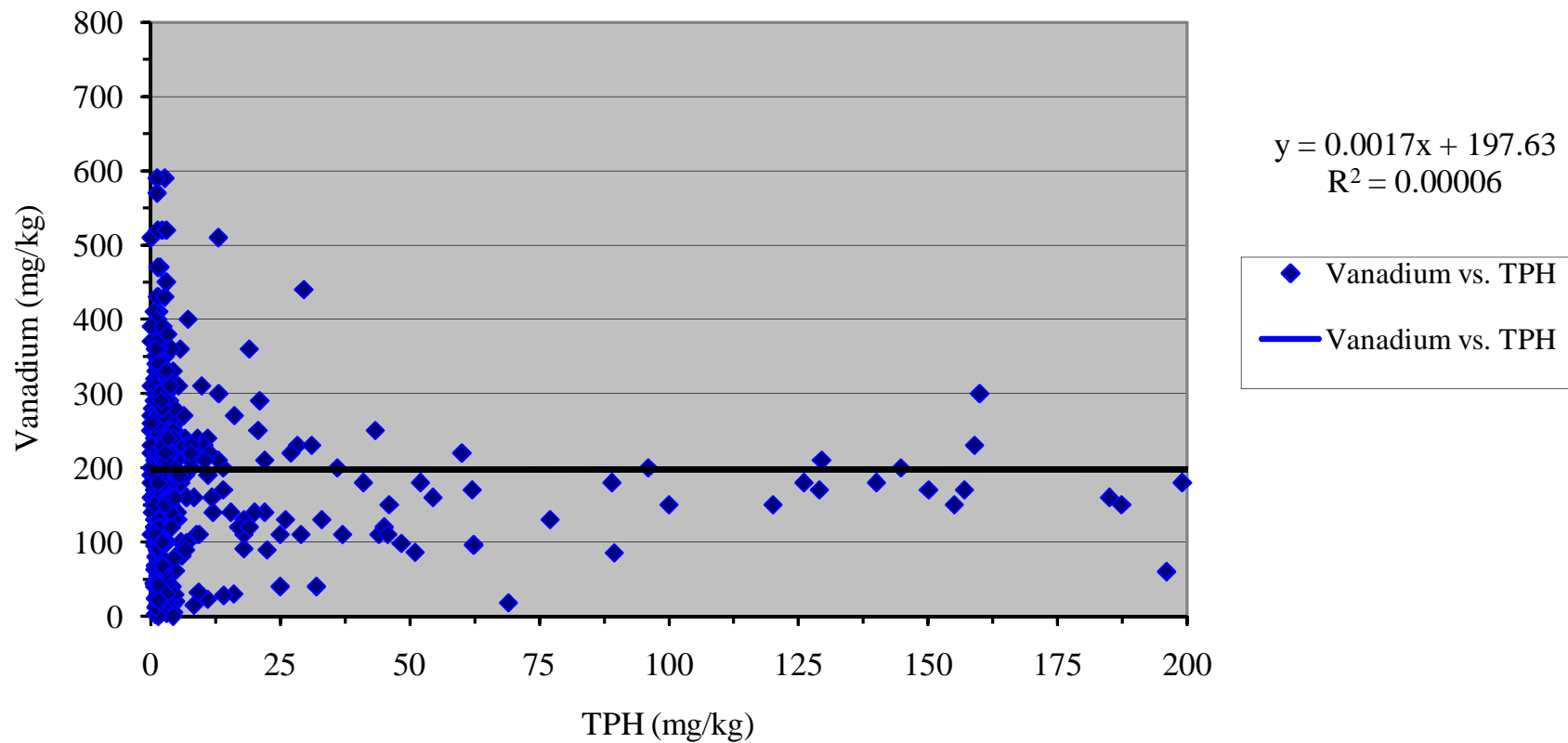
**Figure D-32**  
**Thallium and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
**Naval Activity Puerto Rico, Ceiba, Puerto Rico**



**Figure D-33**  
**Tin and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
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**Figure D-34**  
**Vanadium and TPH in Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
**Phase I of the CMS Investigation**  
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**Figure D-35**  
**Zinc and TPH in Subsurface Soil: Surface and Subsurface Soil Data Set**  
**SWMU 74 - Fuel Pipelines and Hydrant Pits**  
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