



**FINAL
PHASE I RCRA FACILITY INVESTIGATION
REPORT
SWMU 78 – POLE YARD**



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



Prepared for:

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



Prepared by:

Baker

Michael Baker Jr., Inc.
Moon Township, PA

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

June 12, 2009

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

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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.

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Date: June 12, 2009

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LIST OF ACRONYMS AND ABBREVIATIONS

AFWTF	Atlantic Fleet Weapons Training Facility
Baker	Michael Baker Jr., Inc.
bgs	below ground surface
BRAC	Base Realignment and Closure
CADD	Computer Aided Design and Drafting
CERCLA	Comprehensive Environmental Recovery, Compensation, and Liabilities Act
CCME	Canadian Council of Ministers of the Environment
CERFA	Community Environmental Response Facilitation Act
CRQL	Contract Required Quantitation Limit
CSF	Cancer Slope Factor
DGPS	Differential Global Positioning System
DO	Delivery Order
DPT	Direct Push Technology
DRO	Diesel-range Organics
Eco-SSL	Ecological Screening Level
ECP	Environmental Condition of Property
EPA	Environmental Protection Agency
F	Fahrenheit
GIS	Geographic Information System
GPS	Global Positioning System
GRO	Gasoline-range Organics
HQ	Hazard Quotient
HSA	Hollow-Stem Auger
IAS	Initial Assessment Study
IDW	Investigation-Derived Waste
ILCR	Incremental Lifetime Cancer Risk
IUR	Inhalation Unit Risk
LLPAH	Low-level Polynuclear Aromatic Hydrocarbon
LOAEC	Lowest Observed Adverse Effect Concentration
MATC	Maximum Acceptable Toxicant Concentration
MC	Macro-Core®
MDL	Method Detection Limit

LIST OF ACRONYMS AND ABBREVIATIONS

(continued)

MGD	Million Gallons per Day
MHSPE	Ministry of Housing, Spatial Planning and Environment
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MS/MSD	Matrix Spike/Matrix Spike Duplicate
msl	Mean Sea Level
NAD	North American Datum
NAPR	Naval Activity Puerto Rico
NAVFAC	Naval Facilities Engineering Command
NEESA	Naval Energy and Environmental Support Activity
NOAEC	No Observed Adverse Effect Concentration
NSRR	Naval Station Roosevelt Roads
PAH	Polyaromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
PMO	Program Management Office
QA/QC	Quality Assurance/Quality Control
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RfC	Reference Concentration
RfD	Reference Dose
RFI	RCRA Facility Investigation
RPD	Relative Percent Difference
RRF	Relative Response Factor
SDG	Sample Delivery Group
SE	Southeast
SL	Screening Level
SVOC	Semi-volatile Organic Compound
SWMU	Solid Waste Management Unit
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This document presents the results of the Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) report for Solid Waste Management Unit (SWMU) 78 (Pole Yard) at Naval Activity Puerto Rico, Ceiba, Puerto Rico. 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 RCRA 7003 Administrative Order on Consent 'Consent Order' (USEPA Docket No. RCRA-02-2007-7301) to Naval Activity Puerto Rico (NAPR) (USEPA, 2007). The Order sets out the Navy's corrective action obligations under RCRA and replaces the 1994 RCRA permit for NAPR. Following a public comment period, the Consent Order became effective on January 29, 2007. In accordance with the Consent Order, Section VIII, Paragraph 26, the USEPA must be notified no later than 15 days after discovery of any release of hazardous waste and/or constituents found after the effective date of the Consent Order. SWMU 78 was designated by the USEPA after the discovery of the release of potential hazardous constituents from a transformer storage pad at NAPR and official notification by the Navy. The Final Phase I RFI Work Plan (Baker, 2008a) was approved by USEPA on May 13, 2008. This Phase I RFI report presents the findings of the Phase I RFI field investigation that was conducted in May 2008 in accordance with the approved Work Plans.

1.1 Purpose of Report

A Phase I RFI is required as outlined in the NAPR RCRA 7003 Order issued by USEPA Region II. The RCRA Order provides for the development of a work plan, field investigation, and reporting on the findings of the investigation with recommendations of follow-up actions necessary to ensure protection of human health and the environment. This report has been prepared to document the findings of the May 2008 Phase I RFI field investigation for SWMU 78 and serves as the basis for determining the nature of impacts from the potential release of hazardous constituents at the site.

1.2 Objectives

The objectives of the RFI are to:

- Determine whether a release has occurred to the environmental media at the site, to the extent practical, from the completion of field activities (surface and subsurface soil sampling) as described in the approved 2008 Phase I RFI Work Plan (Baker, 2008a).
- Screen for potential human health risks posed by the site; and
- Screen for potential ecological risks posed by the site.

Specific elements of the 2008 field effort performed to support this RFI include:

- Surface soil sampling at 16 locations; six locations surrounding the north east corner of the raised, concrete curbed pad (including one sample at the area of suspected release); three locations north of the concrete pad along Hollandia Street where spools of wire were identified; two locations west and south around the perimeter of the concrete pad;

and five locations further south of the concrete pad in an area that was once used for storage trailers and as a laydown area;

- Subsurface soil sampling (number of samples and depths dependant upon depth of visual contamination impact) at 16 locations; six locations surrounding the north east corner of the raised concrete curbed pad; three locations north of the concrete pad along Hollandia Street where spools of wire were identified; two locations west and south around the perimeter of the concrete pad; and five locations further south of the concrete pad in an area that was once used for storage trailers and as a laydown area.

1.3 Organization of the Phase I RFI Report

This report is organized into eight sections. Sections 1.0 and 2.0 of this document present the purpose and objectives of this Phase I RFI Report and provide a brief summary of the background of NAPR and the history of SWMU 78. Section 3.0 discusses the climatology, topography and regional geology, hydrology and hydrogeology for NAPR. The scope of the field investigation is provided in Section 4.0. Section 5.0 presents and discusses the physical results of the study area observed during the Phase I RFI including the site geology/hydrogeology and other pertinent current conditions. Section 6.0 presents the laboratory analytical results performed on the environmental samples and quality assurance/quality control (QA/QC) samples collected during the Phase I RFI with a comparison to appropriate human health and ecological screening values and background values. Section 7.0 presents the conclusions and recommendations from the Phase I RFI. Finally, Section 8.0 presents the references.

2.0 SITE BACKGROUND

This section provides the background of NAPR and SWMU 78. This section also includes a description of the recent discovery of SWMU 78.

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 10 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 37,000), which is about 5 miles north of NAPR off Route 3. Ceiba (population approximately 17,000) adjoins the west boundary of NAPR (see Figure 2-1).

The facility was commissioned in 1943 as a Naval Operations Base, and finally re-designated a Naval Station in 1957. Naval Station Roosevelt Roads (NSRR) 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 6 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.

The USEPA issued a RCRA 7003 Administrative Order on Consent 'Consent Order' (USEPA Docket No. RCRA-02-2007-7301) to NAPR. The Order sets out the Navy's corrective action obligations under RCRA and replaces the 1994 RCRA permit for NAPR. Following a public comment period, the Consent Order became effective on January 29, 2007.

2.2 SWMU 78 Description and History

SWMU 78 covers an area of approximately 3.1 acres and is located on the edge of a steep slope off of Gilbert Island Street (which is off of Hollandia Street), near the intersection of Forrestal Drive and Valley Forge Road, as shown on Figures 2-3 and 2-4.

SWMU 78 was recently identified by the Navy and designated by the USEPA. As mentioned in Section 1.0, the Navy is required under the Consent Order to notify the USEPA no later than 15 days after discovery of any release of hazardous waste and/or constituents found after the

effective date of the Consent Order. A base employee, who is also a Restoration Advisory Board (RAB) member, informed the Navy of the suspected release during the June 14, 2007 RAB meeting based on his observation of the area. Baker and Navy personnel visited the area on June 15, 2007 and 19, 2007, respectively, and confirmed the presence of stained soil and stressed vegetation. The Navy provided notification to the USEPA in a letter dated June 29, 2007 that there was a newly discovered release of potential hazardous constituents identified at the transformer pad at the Pole Yard. The USEPA responded in a letter dated August 21, 2007 that affirmed that the transformer storage pad as well as the area surrounding the storage pad in the Pole Yard was likely impacted by past releases, and designated the area as SWMU 78. The USEPA also requested in the letter that the Navy prepare a Phase I RFI Work Plan for this SWMU. This is in accordance with the NAPR RCRA 7003 Consent Order, Section VIII, Paragraph 26. The Phase I Work Plan was prepared to conduct the field investigation necessary to determine whether or not releases of solid and/or hazardous wastes or hazardous constituents are present both immediately adjacent to the transformer storage pad and in the area surrounding the storage pad (Baker, 2008a). The Phase I Work Plan was approved by the USEPA on May 13, 2008.

The suspected release at the SWMU 78 is associated with a raised concrete curbed pad that is currently storing approximately 25 transformers. The concrete pad was not present in aerial photographs of NAPR as late as 1995 (see Figure 2-4). The pad has a concrete berm surrounding the perimeter that acts as secondary containment. A valve was installed in the berm to allow for the drainage of accumulated rainwater. Standing water, with a slight oily sheen, was observed in the bermed area and on the concrete pad. A small area (approximately 10 feet by 3 feet) of stained soil and stressed vegetation was observed at the discharge of the drainage valve (see Photograph A-5 in Appendix A).

Based on existing information, soil appeared to be the medium primarily impacted by the release. Constituents associated with transformer dielectric fluid (reported to be mineral oil), including total recoverable petroleum hydrocarbons and polychlorinated biphenyls (PCBs), were thought to likely be the potential chemicals of concern. It should be noted that all PCB-contaminated transformers and equipment were removed from NSRR prior to 1998 except for one remaining PCB-containing transformer located in Building 386 (NAVFAC Atlantic, 2005).

2.3 Previous Investigations

There have been no previous investigations conducted to date at SWMU 78.

3.0 PHYSICAL CHARACTERISTICS OF 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.

3.1 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.

3.2 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.

3.3 Geology, Hydrology, and Hydrogeology

Subsections 3.3.1 through 3.3.4 below present descriptions of the geologic, hydrologic, and hydrogeologic conditions across NAPR. These are generally applicable, but may or may not be specifically applicable, to the SWMU 78 area. In 2004, Baker conducted a series of Phase II Environmental Condition of Property (ECP) investigations across NAPR. The following subsections discuss relevant information gained from the ECP investigations.

3.3.1 Soils

The soil associations found at NAPR are predominantly of two types typical of humid areas, namely the Swamps-Marshes Association and the Mabi-Rio-Arriba-Cayagua Association, as well as the Descalabrado-Guayama Association, which is typical of dry areas. In addition, isolated areas of the Caguabo-Mucara-Naranjito Association, the Coloso-Toa-Bajura Association, and the Jacana Amelia-Fraternidad Association are found at NAPR.

The Swamps-Marshes and Mabi-Rio-Arriba-Cayagua associations cover over one half of NAPR's surface area and are equally distributed. Primarily the Descalabrado-Guayama and Caguabo-Mucara-Naranjito associations cover the remaining area.

The Swamps-Marshes Association consists of deep, very poorly drained soils. This association is found in level or nearly level areas that are slightly above sea level but are wet, and when the tide is high, are covered or affected by saltwater or brackish water. The soils are sandy or clayey, and contain organic materials from decaying mangrove trees. Coral, shells, and marl at varying depths underlie them. The high concentration of salt inhibits the growth of all vegetation except mangrove trees, and in small-scattered patches, other salt-tolerant plants.

The Mabi-Rio-Arriba-Cayagua Association consists generally of deep, somewhat poorly drained and moderately well drained, nearly level to moderately steep soils found on foot and side slopes, terraces, and alluvial fans. Soils of this association at NAPR are basically clayey.

The Descalabrado-Guayama Association generally consists of shallow, well drained, strongly sloping to very steep soils on volcanic uplands. Soils of this association are found primarily in the hilly areas located directly inland and adjacent to the soils of the Swamps-Marshes Association.

The Caguabo-Mucara-Naranjito Association consists generally of shallow and moderately deep, well drained, sloping to very steep soils on volcanic uplands. This association consists of soils that formed in residual material weathered from volcanic rocks. This association is represented at NAPR by soils of the Sabana series, which are found on the side slopes and the hilly terrain west

of Langley Drive in the Fort Bundy area. These soils are suited for pasture and woodland. Steep slopes, susceptibility to erosion, and depth to bedrock are the main limitations for farming and for recreation and urban areas.

The Coloso-Toa-Bajura Association consists of deep, moderately well drained to poorly drained, nearly level soils found on floodplains. This soil association extends along the western boundary of NAPR and around the airfield. The soils of this association formed in fine-textured and moderately fine-textured sediment of mixed origin on floodplains. The Coloso soils are deep and somewhat poorly drained; the Toa soils are deep and moderately well drained; and the Bajura soils and Maunabo soils are deep and poorly drained. The Reilly soils, also part of this association, are shallow sand and gravel and are excessively drained; they lie adjacent to streams. The minor soils are Talante, Vivi, Fortuna, Vega Alta, and Vega Baja. The Talante, Vivi, Fortuna, and Vega Baja soils are found on floodplains, while the Vega Alta soils occupy slightly higher positions on terraces.

The Jacana-Amelia-Fraternidad Association consists generally of moderately deep and deep, well drained and moderately well drained, nearly level to strongly sloping soils on terraces, alluvial fans, and foot slopes. This association is represented at NAPR by soils of the Jacana series, which consist of moderately deep, well-drained soils found on the foot slopes and low rolling hills along Langley Drive and just east of the airfield. These soils formed in fine-textured sediment and residuum derived from basic volcanic rocks.

3.3.2 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 Daguao Formation, and the Figuera Lava. The Peña Pobre fault zone traverses NAPR.

3.3.3 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 Daguao River and Quebrada Seca Stream (a tributary to Rio Daguao) collect surface waters from the hills immediately north of NAPR and, in periods of heavy rain, flooding on NAPR occurs. The Daguao-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 a new 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.

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 wells have been developed on site from these layers. Some wells had been developed upgradient of NAPR in Ceiba, some three kilometers from base headquarters, but were abandoned due to high levels of salinity.

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.

The NAPR potable water treatment plant receives raw water from the Rio Blanco through a 27-inch reinforced concrete pipe that replaced the old, open channel. The intake is located at the foot of the El Yunque rain forest. This buried raw water line traverses a distance of 14 miles from the intake to the NAPR boundary. A raw water reservoir is located at the water treatment plant and has a 45 million gallon capacity. Additionally, there are two fire protection storage reservoirs with a total capacity of 520,000 gallons.

NAPR has been served for over 30 years by the present treatment facility. The plant (Building 88) has a capacity of 4.0 million gallons per day (MGD). Water flows by gravity into a 45 million-gallon raw water storage basin from which the plant draws its supply at a rate of 1.3 MGD on average. Treatment consists of pre-chlorination, coagulation sedimentation, filtration, and post-chlorination.

3.3.4 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 wells have been developed on site from these layers. Some wells had been developed upgradient of NAPR in Ceiba, some three kilometers from base headquarters, but were abandoned due to high levels of salinity.

In 2004, Baker conducted a Phase II ECP investigation involving 20 sites throughout NAPR (NAVFAC, 2005). Some consistent stratigraphic trends were observed during the ECP, which is

discussed in this subsection. For the sake of simplicity, 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 in some areas, particularly the airfield, and generally consists of sand and gravel with lesser amounts of silt and clay.

SWMU 78 is located in an upland area of NAPR. At this site, a thin residuum of soil overlying bedrock is expected to be present. A site-specific discussion of the hydrogeology based on the Phase I RFI of SWMU 78 is provided in Section 5.0 of this report.

4.0 PHASE I RCRA FACILITY INVESTIGATION ACTIVITIES

This section summarizes the Phase I RFI investigation field work, analytical, and data validation activities that were conducted during the May 2008 investigation. The work was conducted in accordance with the Final Phase I RFI Work Plan for SWMU 78 (Baker, 2008a). Figure 4-1 depicts sampling locations at SWMU 78.

The field activities conducted at SWMU 78 primarily consisted of the following:

- The collection of surface soil and subsurface soil samples from 16 locations. All soil samples were submitted for laboratory analysis of Appendix IX volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) (including low-level polynuclear aromatic hydrocarbons [LLPAHs]), PCBs, total petroleum hydrocarbons (TPH) diesel-range organics (DRO)/gasoline-range organics (GRO), and metals.
- Other field activities were also conducted in support of the investigation of this SWMU including utility clearance, surveying, management of investigation derived wastes, and QA/QC sampling.

Section 4.1 provides a more detailed discussion of surface and subsurface soil sampling activities. Section 4.2 discusses the temporary monitoring well installation proposed in the Work Plan.

The environmental samples collected from the site were analyzed at a fixed-base laboratory and the data was validated by an independent third party. A summary matrix showing the primary environmental samples collected and the analyses conducted on each sample is shown in Table 4-1. Field duplicates and matrix spike/matrix spike duplicate (MS/MSD) samples and the analyses conducted on these samples are also shown in Table 4-1. Other QA/QC samples (trip blanks, field blanks, and equipment rinsates) collected and the analyses conducted on these samples are shown in Table 4-2. The analytical parameter lists and the contract required quantitation limits are shown in Table 4-3.

Field notes containing descriptions of the site activities, soil boring logs, chain-of-custody records, and site photographs are presented in Appendix A. Analytical results are presented in Appendix B. Data Validation report summaries are provided in Appendix C.

4.1 Surface and Subsurface Soil Sampling

Surface soil and subsurface soil samples were collected from the soil boring locations shown on Figure 4-1. Six soil borings (78SB01 through 78SB04, 78SB06 and 78SB07) were advanced outside of the northeast corner of the raised concrete pad where visible soil staining and stressed vegetation from the suspected release had been previously observed. This area is approximately 10 feet by 3 feet and is beneath the drainage valve that was installed in the concrete curb to release rainwater from the pad. Staining of soil was observed within the 0 to 1.5 foot interval at 78SB01; however no odor was apparent and photoionization detector (PID) readings were below the lower limit of the instrument. None of the other locations in the vicinity of the borings were noted to be stained or exhibiting an odor or elevated PID readings.

Two additional borings were advanced west (78SB05) and south (78SB08) around the perimeter of the concrete pad to determine if the area around the pad had been impacted by alleged past releases/activities at the SWMU. Three soil borings (78SB09 through 78SB11) were advanced in the vicinity of spools of wire that were present north of the raised concrete curbed pad.

In the southern portion of the SWMU, three soil borings (78SB12 through 78SB14) were advanced within the lay down area where concrete posts were present. Finally, two soil borings (78SB15 and 78SB16) were located in the area of the storage trailers. These locations were as predetermined in the Work Plan. Field observations such as stained soil or stressed vegetation did not indicate a release of chemicals in the lay down area or in the vicinity of the storage trailers.

Soil borings were advanced using a direct push rig (Geoprobe 66DT rig operated by JFA Geologists and Environmental Scientists, Puerto Rico) and samples were collected using 4-foot Macro-Cores®. The Work Plan specified the collection of 2-foot split-spoon samples during monitoring well installation using hollow-stem auger (HSA) rigs; however because a direct push technology (DPT) rig was opted, the soil samples were collected using Macro-Cores®. It was determined during planning that the deviation would not result in loss of data quality. Soil boring logs are presented in Appendix A.

Soil samples were field-screened for non-specific, total VOCs using a PID equipped with an 11.7 eV probe and calibrated to isobutylene. The PID readings were recorded on the drilling logs for each boring (Appendix A). The field screening procedure for soils collected using the Geoprobe Macro-Core® (MC) Sampler (disposable plastic liner) involved making a longitudinal cut along the entire length of the Geoprobe MC liner, separating the two edges of the liner, and screening the entire length of the soil core with a PID. Measurable organic vapors above background levels were not observed in any of the 16 boreholes or during the general PID air monitoring.

Surface soil samples were collected from 16 locations (78SB01 through 78SB16) using Macro-Cores® during boring advancement from a depth of 0.0 to 1.0 foot below ground surface (bgs). Surface soil samples were collected after removing any vegetation and topsoil/root zones. The samples were transferred directly into pre-labeled sample jars and placed on ice. Including field duplicates from 78SB01 and 78SB08, a total of 18 surface soil samples were analyzed for Appendix IX VOCs, SVOCs including LLPAHs, PCBs, TPH DRO/ GRO, and metals. Table 4-1 provides a summary of the surface soil samples collected at SWMU 78.

Two subsurface soil samples were collected from each boring location unless refusal and/or poor recovery were encountered (as with 78SB05, 78SB13, and 78SB14). Sample depth intervals ranged from of 1 to 3 feet bgs to 9 to 11 feet bgs, plus field duplicates from three locations (78SB01, 78SB03, and 78SB11), for a total of 32 samples. Field observations and PID readings did not indicate the presence of specific zones of contamination. The presence of groundwater was not apparent; therefore the field geologist's discretion was used to indicate the water-bearing zone. The sampling depths were selected based on the field geologist's discretion to represent the variability in the predominantly clayey soil type in the shallower depths, account for potential vertical migration of surface contaminants (all potential releases at the SWMU were to surface soil), and observations of moisture, dampness or saturated soil in the deeper depths. Based on these factors, random sample collection was performed from 1.0 to 3.0, 3.0 to 5.0, or 5.0 to 7.0 feet bgs. One deeper sample was collected within the weathered bedrock at location 78SB11 from 9.0 to 11.0 feet bgs. The presence of weathered rock and Geoprobe® refusal at four locations eliminated some of the deeper sampling options. Soil boring logs are presented in Appendix A. The samples were transferred directly into pre-labeled sample jars and placed on ice. Subsurface soil samples were analyzed for Appendix IX VOCs, SVOCs (including LLPAHs), PCBs, TPH DRO/GRO, and metals, similar to the surface soil samples, and as summarized on Table 4-1.

4.2 Temporary Monitoring Well Installation and Groundwater Sampling

Installation of a single monitoring well was proposed in the Work Plan at the location of soil boring 78SB01 if field observations such as significant staining, stressed vegetation, and/or if PID measurements recorded during soil boring advancement indicated that contamination was suspected to extend to the bedrock interface. No such indications were present in the subsurface

soil at 78SB01. Additionally, no signs of groundwater were encountered during the direct push sampling. In an attempt to induce groundwater to enter the boring, the boring at 78SB01 was repeated advancing a larger diameter (3.25-inch internal diameter) hollow stem auger to a depth of approximately 12 feet bgs where competent bedrock was encountered. However no signs of groundwater were encountered. Therefore, a monitoring well was not installed at this location nor was a groundwater sample obtained for laboratory analysis.

4.3 Investigation Derived Waste

Disposable sampling tools were used for soil sampling to the extent practicable, in order to minimize the generation of liquid investigation-derived waste (IDW) from decontamination. Surface and subsurface soil samples were collected using the Geoprobe® direct push technology (DPT) and 4-foot Macro-Core® sleeves. Water from decontamination of the drill rig before and after entering the site was containerized. The soil cuttings from the subsurface soil sampling were placed back into the boring from which they came (no contamination was encountered). As much as possible, soils last out of the hole were returned first, thereby, approximating original stratigraphy.

One IDW sample was collected during the field investigation at SWMU 78. Specifically, one composite aqueous sample was collected from drums containing decontamination fluid (from the drill rig). The water IDW sample was collected on June 5, 2008 and analyzed for Appendix IX VOCs, total Appendix IX metals, ignitability, reactive sulfide, reactive cyanide, and pH. The IDW analytical data for the composite aqueous sample are included within Appendix B.

4.4 Utility Clearance

All proposed boring locations were first checked for the presence of subsurface utilities. A facility map showing all utilities was obtained which indicated that there were no obvious utility concerns at the SWMU. The sampling locations were field-located using a mapping-grade Global Positioning System (GPS) and the absence of subsurface utilities was field verified. No interferences with the proposed drilling locations were encountered.

4.5 Surveying

Soil boring locations were surveyed using a mapping grade differential (satellite DGPS corrections from Omnistar or “real-time”) GPS unit. 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 U.S. survey feet.

4.6 QA/QC Sampling

The following QA/QC samples were collected during the investigation of this site:

- Field Duplicates
- MS/MSDs
- Trip blanks
- Equipment rinsate blanks
- Field blanks

Field duplicates and MS/MSDs are listed on Table 4-1 with their associated environmental samples. Table 4-2 provides a summary of the other QA/QC samples collected and their associated laboratory analysis.

4.6.1 Field Duplicates

Field duplicates were collected at the rate of 10 percent of primary environmental samples in accordance with the Work Plan (see Table 4-1). Two field duplicate surface soil samples (78SB01-00D and 78SB08-00D) were collected corresponding to 16 surface soil samples. Three field duplicate subsurface soil samples (78SB01-03D, 78SB03-01D, and 78SB11-03D) were collected corresponding to 29 subsurface soil samples. Field duplicates were analyzed for the same parameters as the primary samples and the results were used to evaluate the field sampling methodology.

4.6.2 Trip Blanks

One trip blank sample was included in each cooler containing soil samples from the SWMU intended for VOC and TPH GRO analysis. A total of two trip blanks (78TB01 and 78TB02) accompanied samples from this site. Also, one trip blank (QATB01) accompanied the field blank (FB01) associated with this SWMU. These trip blanks were analyzed for Appendix IX VOCs and TPH GRO to evaluate whether cross contamination occurred during shipping of samples.

4.6.3 Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicates were collected at the rate of approximately 5 percent of primary environmental soil samples. One set of MS/MSD samples (78SB01-00MS/MSD) was collected corresponding to 16 surface soil samples. Two sets of MS/MSD samples (78SB03-01MS/MSD and 78SB11-03MS/MSD) were collected corresponding to 29 subsurface soil samples. The MS/MSD samples were analyzed for the same parameters as the primary samples and the results were used to evaluate the effect of each type of matrix on the analytical method.

4.6.4 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 LLPAHs), TPH GRO and DRO, and metals, to determine whether the water used for generating the equipment rinsates was free of chemicals at levels of concern for the site.

It should be noted that field blank FB01 was collected at the beginning of a multi-site field investigation (i.e., SWMUs 56, 61, 62, 69, 71, 74, and 78). The field blank was collected using the same batch of laboratory-grade deionized water that was used to collect equipment rinsate blanks specific to SWMU 78. Since FB01 was not collected at SWMU 78 during the sampling event, it is acknowledged that the results for FB01 only address laboratory sources of contamination and not the ambient conditions encountered in the field.

4.6.5 Equipment Rinsates

Equipment rinsate samples ER22 and ER24 were collected from disposable Macro Core Liners used on May 29 and 31, 2008. Equipment rinsate sample ER22 was analyzed for Appendix IX VOCs, SVOCs, TPH GRO and DRO, and metals. Equipment rinsate sample ER24 was analyzed for Appendix IX VOCs, SVOCs, pesticides/PCBs, TPH GRO and DRO, and metals. As previously mentioned, multiple site investigations (in addition to the Phase I RFI investigation at SWMU 78) were conducted simultaneously during the April through June 2008 time period at NAPR. Those investigations include the Phase I RFI investigations for SWMUs 62 (Former Bundy Disposal Area) and 71 (Quarry Disposal Site) and the CMS Investigations for SWMUs 56 (Hangar 200 Apron), 61 (Former Bundy Area Maintenance Facilities), 69 (Aircraft Parking Area), and 74 (Fuel Pipelines and Hydrant Pits). One equipment rinsate was collected per day for one piece of disposable sampling equipment (i.e., stainless steel spoon, groundwater sampling tubing or macro core liners) and the selected analysis for the rinsate samples corresponds to the sampling and analytical programs developed for each SWMU. A summary of the QA/QC sampling and analysis can be referenced in Table 4-2.

4.7 Laboratory Analysis

Fixed-base laboratory analysis was conducted by 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 4-3. The data was certified by a Puerto Rico certified chemist. The Puerto Rican Chemist Certifications are provided in Appendix C.

4.8 Data Validation

All fixed-base laboratory data were validated by DataQual Environmental Services, LLC 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.

5.0 PHYSICAL RESULTS

The following sections provide a brief discussion of the current site conditions at SWMU 78 at the time of the Phase I RFI field investigation, conducted from May 29 to May 31, 2008. The site geology and hydrogeology, as ascertained from the soil boring program and other available information, is also described herein.

5.1 Current Conditions

As shown on Figures 2-3 and 4-1, SWMU 78 consists of two relatively small plateaus, encompassing approximately 3.1 acres on the edge of a steep slope off of Hollandia Street, near the intersection of Forrestal Drive and Valley Forge Road. The following site characteristics were noted during the SWMU 78 Phase I RFI field investigation. A raised concrete curbed pad containing approximately 25 transformers is present at SWMU 78. The concrete curb surrounding the perimeter of the pad acts as a secondary containment. A concrete ramp over the curb provides access to the pad. Standing water (approximately 1-2 inches deep), with a slight oily sheen, was observed in the curbed area. A small area (approximately 10 feet by 3 feet) of stained soil and stressed vegetation was observed at the discharge point of a valve installed in the curb to allow the drainage of accumulated rainwater. Spools of wire are located north of the concrete pad. Although the Final Work Plan for SWMU 78 (Baker, 2008a) indicated that there are a few semi-trailers located south of the concrete pad (along Hollandia Street), the field investigation team could not confirm their presence. A lay down area containing concrete poles was also present in the south central portion of the SWMU. Photographs of the current site conditions are provided in Appendix A.

5.2 Geology/Hydrology

The following sections discuss the geology and hydrogeology in the vicinity of SWMU 78.

5.2.1 Geology

A total of 16 soil borings were installed at SWMU 78 during the Phase I RFI investigation. A layer of dark brown to brown sandy loam was observed in the northeastern portion of the site in the vicinity of the concrete pad; this layer was generally absent in the southwestern portion of the site. Underlying the sandy loam in the northeastern portion of the site is a layer of green and grey sandy clay and sand ranging in thickness from about 3.5 feet to 5.5 feet. A brown to grey saprolite (weathered rock) underlies the sand and clay. In the southwestern portion of the site, in the area of the lower plateau, the surficial soil generally consists of 2.5 to 3 feet of clay and sandy clay. Underlying this is a brown to grey saprolite. Groundwater was not encountered. Soil boring locations are given on Figure 5-1 and boring logs are provided in Appendix A. A cross section is provided as Figure 5-2 illustrating the occurrence of the saprolite throughout the site and the sandy loam in the northern portion of the site.

5.2.2 Hydrogeology

SWMU 78 is located on two small plateaus on the edge of a steep slope. Ground surface contours at SWMU 78 range from approximately 200 to 210 feet above mean sea level (msl) in the areas of sample collection. The upper plateau is where the raised concrete pad/transformer storage area is located; the lower plateau is where the laydown area is located. The depth to the water table at this SWMU is estimated to be from 80 to 100 feet bgs based on previous investigations at the

adjacent Tow Way Fuel Farm (SWMU 7/8) (Baker, 2001), and is most likely controlled by bedrock fractures. However, this was not confirmed since groundwater was not encountered during the investigation for SWMU 78. No further evaluation of the site specific hydrogeology was conducted for this SWMU.

6.0 ANALYTICAL RESULTS

This section discusses the nature of SWMU 78 contamination determined from chemical analysis of environmental samples from the 2008 Phase I RFI investigation. All laboratory analytical data went through a formal data validation process. Validated data tables for the Phase I RFI field effort are included in Appendix B. Relevant portions of the data validation reports for the Phase I RFI SDGs are provided in Appendix C. In addition, a summary discussion of the necessary laboratory level data adjustments to the 2008 data is presented in Section 6.4.

The 2008 PID field screening results are presented on the Test Boring Records in Appendix A (not validated). While these readings were taken to protect the field team from excessive exposure and to assist with soil sample selection, they also provide the reader with an initial insight into historical impacts and potential geographic “hot spots”. PID readings during the SWMU 78 investigation were all below background levels, as noted on the boring logs provided in Appendix A.

6.1 Human Health and Ecological Screening Values

Analytical results for surface and subsurface soil media are discussed in the following sections. Detected compounds for each media are compared to applicable human health and ecological screening criteria, as well as to background concentrations. The upper limit of means background levels (inorganics only) (Baker, 2008b) were used to compare the soil concentrations to those present at NAPR in unimpacted soil. Both surface soil background levels and subsurface soil background levels for a clay soil type (most prevalent soil type at SWMU 78) were used in screening. The human health and ecological screening criteria, and the rationale for their use for comparison to a specific medium, are described in detail below.

6.1.1 Human Health

Applicable human health criteria for soils include USEPA Regional Industrial Screening Levels (SLs) and USEPA Regional Residential SLs (USEPA, 2008a), and the upper limit of means background levels (inorganics only) (Baker, 2008b).

The USEPA recently developed the Regional SLs to support the risk assessment screening process, while improving consistency across 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, VI, 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 1×10^{-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. The SL table update used in this report was from September 2008 (USEPA, 2008a).

Also, it should be noted that subsurface soil analytical results from below 10 feet are typically not used in human health risk assessments due to the unlikely exposure route below that depth. At SWMU 78 only one subsurface soil sample (78SB11-05) was collected from an interval including a depth slightly greater than 10 feet bgs (i.e., 9-11 bgs). Therefore, rather than excluding the analytical results from that sample, all subsurface analytical results were screened against the Regional SLs for completeness.

6.1.2 Ecological

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, 2006).

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

As previously mentioned, the upper limit of means background levels (inorganics only) (Baker, 2008b) were used to compare the soil concentrations to those present at NAPR in unimpacted soil. Both surface soil background levels and subsurface soil background levels for a clay soil type (most prevalent soil type at SWMU 78) were used in screening.

As a general rule, screening of soil analytical results for ecological purposes would include surface soil, as well as subsurface soil analytical results from the 1 to 2 foot depth range. At SWMU 78, 13 samples were collected between 1 to 3 feet bgs (see Table 4-1). Therefore, for the sake of completeness, these samples were compared against ecological screening criteria.

6.2 Surface Soil

Sixteen surface soil samples (78SB01-00 through 78SB16-00) and two duplicate samples (78SB01-00D and 78SB08-00D) were collected and analyzed during the Phase I RFI. All sixteen surface soil samples were analyzed for Appendix IX VOCs, SVOCs (including LLPAs), PCBs, TPH DRO and GRO, and Appendix IX metals. The detected results for the surface soil data set are provided in Table 6-1. Results are compared to appropriate media specific criteria as described in Section 6.1. Figures 6-1 through 6-3 present the detected organic and inorganic compounds above both applicable media specific screening criteria and background.

Six VOCs were detected in the surface soil data set including 2-hexanone, acetone, benzene, carbon disulfide, chloromethane, and iodomethane. 2-Hexanone and chloromethane were detected in 1 of 18 samples, acetone in 14 of 18 samples, benzene and carbon disulfide in 4 of 18 samples, and iodomethane in 6 of 18 samples. All detections were relatively low (i.e., near the detection limits) and were well below the listed criteria. Note that no criteria have been established for iodomethane.

As shown on Table 6-1, 21 SVOCs, including 17 polyaromatic hydrocarbons (PAHs), were detected in the surface soil samples. PAHs were found at all locations with the exception of 78SB07, 78SB09, and 78SB10. The remaining SVOCs were detected at low, estimated concentrations. Most PAH concentrations were estimated concentrations. It should be noted that some PAH analytical results in sample 78SB16 were qualified as rejected (R). While this introduces uncertainty in the sample results, only the non-detect results were rejected due to a low internal standard recovery (refer to Section 6.4.2 and Appendix C for more detail). Also, other PAH compounds were detected in this sample, indicating that PAHs were present in the surface soil at that location. Of the detected PAHs, benzo(a)pyrene exceeded its residential soil Regional SL (15 µg/kg) at the following concentrations/locations: 35J µg/kg in 78SB01, 110J µg/kg in 78SB03, 46J µg/kg in 78SB11, and 76 µg/kg in 78SB12. Dibenz(a,h)anthracene also exceeded its residential soil Regional SL of 15 µg/kg with a concentration of 26J µg/kg in 78SB03.

One PCB, Aroclor-1260, was detected at two locations (78SB01 and 78SB11) at low, estimated concentrations that were well below the listed criteria. TPH DRO and GRO were detected in most sample locations. Two DRO concentrations exceeded the total TPH screening value of 100 mg/kg: 8,000J mg/kg at 78SB01 and 821 mg/kg at 78SB03. All remaining DRO and GRO concentrations were well below the screening value.

As shown on Table 6-1, seventeen inorganic compounds were detected in the surface soil at SWMU 78, and most of these were found at all locations. Thallium was only found at two locations: 78SB09 and 78SB13.

Of the 17 metals, ten exceeded both applicable (human health or ecological) screening criteria and background. They are:

- Antimony
- Arsenic
- Barium
- Chromium
- Cobalt
- Copper
- Mercury
- Nickel
- Vanadium
- Zinc

Antimony was detected in six of 18 samples and exceeded both its residential soil Regional SL and background at 78SB03 and 78SB04. Vanadium and arsenic exceeded one or more of the Regional SLs in all 18 samples. Arsenic also exceeded the background screening level at the following five locations: 78SB03, 78SB04, 78SB08, 78SB14, and 78SB15. Vanadium exceeded its background screening level at three locations: 78SB06, 78SB12, and 78SB14. Cobalt was detected in all 18 samples and exceeded one or more of the SLs in all samples. However, cobalt only exceeded background at one location (78SB12). It should be noted that the concentration of cobalt at 78SB12 (47 mg/kg) is less than the maximum detected cobalt concentration in background surface soil (50.2J mg/kg), and therefore is likely to be representative of background at the detected concentration.

Barium, chromium, cobalt, copper, mercury, nickel, selenium, vanadium, and zinc exceeded ecological surface soil screening values. Barium, chromium, cobalt, copper, mercury, nickel, vanadium, and zinc also exceeded background values. Cobalt exceeded its ecological screening value at all locations, but only exceeded background at one location (78SB12). As previously mentioned, this concentration of cobalt is likely representative of background. Copper exceeded its ecological screening value at 14 locations and exceeded background at 4 locations (78SB06, 78SB08, 78SB14, and 78SB16). Mercury exceeded both its ecological screening value and background by a small amount in one location (78SB03). It should be noted that the concentration of mercury at 78SB03 (0.11 mg/kg) is less than the maximum detected mercury concentration in background surface soil (0.12J mg/kg), and therefore is likely to be representative of background at the detected concentration. Chromium was detected in all 18 samples but exceeded both its ecological screening value and background in only one location (78SB13). Similarly, barium and nickel were detected in all 18 samples but exceeded both their ecological screening values and background in only one location (barium in 78SB11 and nickel in 78SB16). Vanadium exceeded its ecological screening value in all 18 samples and exceeded

background at 3 locations (78SB06, 78SB12, and 78SB14). Zinc exceeded both its ecological and background screening values in five locations (78SB01, 78SB03, 78SB04, 78SB08, and 78SB11).

Tin exceeded its background concentration at one location, but no other screening criteria. Also, it should be noted lead analytical results were qualified as rejected (R) in several samples (refer to Section 6.4.2 and Appendix C for more detail). While this introduces uncertainty in the sample results, it is not expected to affect the conclusions of the investigation because all lead concentrations were well below human health and ecological screening criteria.

Based on the exceedances of regulatory screening criteria in the case of organic compounds in surface soil (primarily benzo(a)pyrene and DRO) and exceedances of background and regulatory screening concentrations of metals (primarily antimony, arsenic, barium, chromium, cobalt, copper, mercury, nickel, vanadium, and zinc) in the surface soil, it appears that contamination has occurred in the surface soil at SWMU 78 due to human activities. Information obtained to date indicates that the lateral extent of this contamination has not yet been fully defined.

6.3 Subsurface Soil

Twenty-nine primary subsurface soil samples and three duplicate samples were collected and analyzed during the Phase I RFI. All subsurface soil samples were analyzed for Appendix IX VOCs, SVOCs (including LLPAHs), PCBs, and metals, as well as TPH DRO and GRO. The detected results for the subsurface soil data set are provided in Table 6-2. Results are compared to appropriate media specific criteria as described in Section 6.1. Figures 6-4 through 6-6 present the detected organic and inorganic compounds above both applicable media specific screening criteria and background.

Two VOCs, acetone and iodomethane, were detected in the subsurface soil. Acetone was detected in 21 of 32 samples, and iodomethane was detected in 6 of 32 samples. Both were primarily detected at low, estimated concentrations. Acetone was below the listed criteria; no criteria have been established for iodomethane.

As shown on Table 6-2, seven SVOCs, including four PAHs, were detected in the subsurface soil data set. One or more of these compounds were detected at low concentrations (i.e., near detection limits) in 6 of the 32 subsurface soil samples: 78SB01-03, 78SB03-01, 78SB05-01, 78SB08-01, 78SB11-05, and 78SB13-01; no SVOCs were detected in the remaining 26 subsurface soil samples.

There were no PCBs detected in the subsurface soil. TPH DRO was detected in most sample locations, while TPH GRO was detected in only 7 of 32 samples. With the exception of the DRO concentration of 180 mg/kg in sample 78SB01-1, the detected TPH DRO and GRO concentrations were well below the total TPH screening value of 100 mg/kg.

Sixteen metals were detected in the subsurface soil at SWMU 78, and most of these were found at all locations. Only three inorganic parameters exceeded both background and one or more of the criteria (Residential SL, Industrial SL, and/or Eco-SSL), as follows:

- Arsenic
- Barium
- Cobalt

Arsenic was detected in 26 of 32 samples and exceeded one or more of the Regional SLs in all 26 samples. However, arsenic exceeded its background concentration in only three samples (78SB11-05, 78SB12-02, and 78SB14-02). Cobalt was detected in all 32 samples at concentrations exceeding one or more of the SLs. Cobalt also exceeded its ecological screening value in nine samples (78SB01-01, 78SB02-01, 78SB03-01, 78SB06-01, 78SB09-01, 78SB10-01, 78SB13-01, 78SB15-01, and 78SB16-01) and its background concentration in seven samples (78SB03-02, 78SB06-01, 78SB09-01, 78SB09-03, 78SB10-01, 78SB11-03D, and 78SB11-05). Barium was detected in all 32 samples. However, barium exceeded its ecological screening value and background concentration in only one sample (78SB10-01). Cadmium exceeded its background concentration at select locations, but not any regulatory screening criteria.

Lead analytical results were qualified as rejected (R) in several samples (refer to Section 6.4.2 and Appendix C for more detail). While this introduces uncertainty in the sample results, it is not expected to affect the conclusions of the investigation because all lead concentrations were well below human health and ecological screening criteria and background.

Based on the exceedances of background and regulatory screening criteria in the subsurface soil, metals contamination (primarily arsenic, barium, and cobalt) has occurred in the subsurface soil at SWMU 78 due to human activities. As previously mentioned, only the exceedances at locations of depths less than ten feet for human health or three feet for ecological are significant. Human health or ecological exposure pathways are considered incomplete below these depths.

6.4 Laboratory Data Validation Summary

A discussion of the compounds detected in the field QA/QC samples is presented in Section 6.4.1. A summary of the data validation findings is discussed in Sections 6.4.2. Data validation reports are included in Appendix C. In addition, the Puerto Rican Chemist Certification for each Test America SDG is presented in Appendix C.

6.4.1 Summary of Detected Compounds in Field QA/QC Samples

Field generated QA/QC samples for the Phase I RFI field effort consisted of trip blanks, field blanks, equipment rinsates, and environmental duplicates. Trip blanks were only analyzed for VOCs and GRO. Other blanks were analyzed for all fractions requested in this investigation including Appendix IX VOCs, SVOCs, PCBs, and total metals, as well as low level PAHs, TPH DRO and GRO. Table 6-3 presents the detected compounds found in the trip blanks, equipment rinsates, and field blanks.

There were no VOCs or GRO detected in the trip blanks.

Detections in field blank FB01 included one VOC (2-butanone), four SVOCs (1,4-dichlorobenzene, acetophenone, diethyl phthalate, and di-n-butyl phthalate), two metals (copper and lead).

Analysis of the two equipment rinsate samples resulted in the detection of five VOCs (2-butanone, acetone, benzene, styrene, and toluene), five SVOCs (acetophenone, bis(2-ethylhexyl)phthalate, butyl benzyl phthalate, diethyl phthalate, and di-n-butyl phthalate), two PAHs (2-methylnaphthalene and naphthalene), and three metals (arsenic, tin, and vanadium).

Positive results in these QC blanks, which are associated with specific SDGs, represent potential blank contamination within those SDGs. It should be noted that the laboratory reported to the

Method Detection Limit (MDL) for this project. Therefore, blank flagging actions were modified to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as non-detect (U) at the reported concentrations when affected by blank contamination.

6.4.2 Validation Summary

Laboratory analyses were performed by Test America Laboratories (Savannah, Georgia). Validation services were provided by DataQual Environmental Services, LLC located in St. Louis, Missouri. Validation conclusions are provided in Appendix C. The validation indicated that all sample preparation and analysis was performed within Region II and/or method holding time requirements. However, some issues were identified and qualifiers added as described here. Initial and continuing calibrations exhibited some VOC and/or SVOC compounds with low relative response factor (RRF) values, which resulted qualifying non-detect results as rejected for those compounds in the following SDGs: SWMU36419-4, SWMU37178-3, SWMU37226-1, and SWMU37226-2. In SDG SWMU37226-2, sample 78-SB16-00 exhibited extremely low internal standard area recovery for standard perylene-d12, and non-detect results for carcinogenic PAHs were qualified as rejected (R). In SDGs SWMU37226-1 and SWMU37251-5, the analyte lead exhibited relative percent differences (RPDs) that exceeded the quality control limit and was rejected in associated samples. In SDG SWMU37251-5, lead was rejected in associated samples due matrix spike pairs exhibiting non-compliant recoveries in both matrix spike (MS) and matrix spike duplicate (MSD). Details are provided in Appendix C.

Changes in the results due to the application of the data validation objectives are not expected to significantly compromise the data quality objectives for this Phase I RFI. Consequently, the data, as qualified by the validator is acceptable for its intended use.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

The objectives of the Phase I RFI are as follows:

- Determine if contaminants are present from past activities to the extent practical, from the completion of field activities (surface and subsurface soil sampling) as described in the 2008 Phase I RFI Work Plan (Baker, 2008a);
- Screen for potential human health risks posed by the site; and
- Screen for potential ecological risks posed by the site.

It is evident from the analyses of samples obtained during the Phase I RFI investigation that surface soil and subsurface soil have been impacted due to human activities that have occurred on SWMU 78.

Exceedances of PAHs and DRO in surface soil were identified in two locations near the northeast corner of the concrete curbed pad in the vicinity of the release valve (78SB01 and 78SB03). Benzo(a)pyrene also exceeded human health screening criteria at two other locations further away from the concrete curbed pad, including one near the northwest corner of the SWMU boundary (78SB11) and one at the lower southern end of the SWMU boundary near the laydown area (78SB12). Exceedances of metals (predominantly antimony, arsenic, barium, chromium, cobalt, copper, mercury, nickel, vanadium, and zinc) in surface soil were spread across the SWMU.

DRO was detected at a concentration above its screening value in subsurface soil in the sample collected below the release valve (78SB01-01). The subsurface soil did not exhibit much contamination above background for metals that exceeded the human health or ecological screening criteria, with the exception of arsenic, barium, and cobalt. Arsenic exceeded both SLs and background in only three samples (78SB11-05, 78SB12-02, and 78SB14-02). Barium exceeded its ecological screening value and background concentration in only one sample (78SB10-01). Cobalt exceeded both SLs and background in seven samples (78SB03-02, 78SB06-01, 78SB09-01, 78SB09-03, 78SB10-01, 78SB11-03D, and 78SB11-05). Cobalt also exceeded its ecological screening value and background in three samples (78SB06-01, 78SB09-01, and 78SB10-01).

7.2 Recommendations

Impact to the environment appears to have occurred at SWMU 78. A Full RFI Investigation is recommended in order to delineate the site contamination above screening levels in surface soil and subsurface soil. The Full RFI should focus around Phase I RFI sample locations 78SB11, 78SB03, 78SB04, 78SB06, 78SB08, 78SB09, and 78SB10, the area of the storage trailers, and the lower southern boundary of the SWMU. The potential for human health and ecological risk should also be further evaluated. Specifically, the Full RFI should include further investigation of PAHs, DRO, and metals in the surface soil and metals in the subsurface soil, define the likely source area(s), and determine the potential for unacceptable risks to human health and/or the environment. Based on the recommendation that SWMU 78 move forward to a Full RFI, a statistical background analysis for inorganic chemicals exceeding one or more of the screening values (human health or ecological) was not included as part of this Phase I RFI (as stated in the

work plan). The background statistical analysis will be included as part of the human health and ecological risk assessments conducted for the Full RFI.

8.0 REFERENCES

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TABLES

TABLE 4-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM - ENVIRONMENTAL SAMPLES
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample Media	Site ID	Media	Sample Depth (ft bgs)	Sample Date	Analysis Requested						Comment
					App IX VOCs	App IX SVOCs ⁽¹⁾	Appendix IX PCBs	TPH GRO	TPH DRO	Appendix IX Metals	
Surface Soil	78SB01	78SB01-00	0.0 - 1.0	05/31/00	X	X	X	X	X	X	
		78SB01-00D	0.0 - 1.0	05/31/00	X	X	X	X	X	X	Duplicate
		78SB01-00MS/MSD	0.0 - 1.0	05/31/00	X	X	X	X	X	X	Matrix Spike/Matrix Spike Duplicate
	78SB02	78SB02-00	0.0 - 1.0	05/30/08	X	X	X	X	X	X	
	78SB03	78SB03-00	0.0 - 1.0	05/31/08	X	X	X	X	X	X	
	78SB04	78SB04-00	0.0 - 1.0	05/30/08	X	X	X	X	X	X	
	78SB05	78SB05-00	0.0 - 1.0	05/30/08	X	X	X	X	X	X	
	78SB06	78SB06-00	0.0 - 1.0	05/30/08	X	X	X	X	X	X	
	78SB07	78SB07-00	0.0 - 1.0	05/30/08	X	X	X	X	X	X	
	78SB08	78SB08-00	0.0 - 1.0	05/30/08	X	X	X	X	X	X	
		78SB08-00D	0.0 - 1.0	05/30/08	X	X	X	X	X	X	Duplicate
	78SB09	78SB09-00	0.0 - 1.0	05/29/08	X	X	X	X	X	X	
	78SB10	78SB10-00	0.0 - 1.0	05/29/08	X	X	X	X	X	X	
	78SB11	78SB11-00	0.0 - 1.0	05/29/08	X	X	X	X	X	X	
	78SB12	78SB12-00	0.0 - 1.0	05/29/08	X	X	X	X	X	X	
	78SB13	78SB13-00	0.0 - 1.0	05/29/08	X	X	X	X	X	X	
78SB14	78SB14-00	0.0 - 1.0	05/29/08	X	X	X	X	X	X		
78SB15	78SB15-00	0.0 - 1.0	05/30/08	X	X	X	X	X	X		
78SB16	78SB16-00	0.0 - 1.0	05/30/08	X	X	X	X	X	X		
Subsurface Soil	78SB01	78SB01-01	1.0-3.0	05/31/08	X	X	X	X	X	X	
		78SB01-03	5.0-7.0	05/31/08	X	X	X	X	X	X	
		78SB01-03D	5.0-7.0	05/31/08	X	X	X	X	X	X	Duplicate
	78SB02	78SB02-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
		78SB02-03	5.0-7.0	05/30/08	X	X	X	X	X	X	
	78SB03	78SB03-01	1.0-3.0	05/31/08	X	X	X	X	X	X	
		78SB03-01D	1.0-3.0	05/31/08	X	X	X	X	X	X	Duplicate
78SB03-03MS/MSD		1.0-3.0	05/31/08	X	X	X	X	X	X	Matrix Spike/Matrix Spike Duplicate	
	78SB03-02	3.0-5.0	05/31/08	X	X	X	X	X	X		

TABLE 4-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM - ENVIRONMENTAL SAMPLES
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample Media	Site ID	Media	Sample Depth (ft bgs)	Sample Date	Analysis Requested						Comment
					App IX VOCs	App IX SVOCs ⁽¹⁾	Appendix IX PCBs	TPH GRO	TPH DRO	Appendix IX Metals	
Subsurface Soil (cont.)	78SB04	78SB04-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
		78SB04-02	3.0-5.0	05/30/08	X	X	X	X	X	X	
	78SB05	78SB05-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
	78SB06	78SB06-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
		78SB06-02	3.0-5.0	05/30/08	X	X	X	X	X	X	
	78SB07	78SB07-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
		78SB07-02	3.0-5.0	05/30/08	X	X	X	X	X	X	
	78SB08	78SB08-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
		78SB08-02	3.0-5.0	05/30/08	X	X	X	X	X	X	
	78SB09	78SB09-01	1.0-3.0	05/29/08	X	X	X	X	X	X	
		78SB09-03	5.0-7.0	05/29/08	X	X	X	X	X	X	
	78SB10	78SB10-01	1.0-3.0	05/29/08	X	X	X	X	X	X	
		78SB10-02	3.0-5.0	05/29/08	X	X	X	X	X	X	
	78SB11	78SB11-03	5.0-7.0	05/29/08	X	X	X	X	X	X	
		78SB11-03D	5.0-7.0	05/29/08	X	X	X	X	X	X	Duplicate
		78SB11-03MS/MSD	5.0-7.0	05/29/08	X	X	X	X	X	X	Matrix Spike/Matrix Spike Duplicate
		78SB11-05	9.0-11.0	05/29/08	X	X	X	X	X	X	
	78SB12	78SB12-02	3.0-5.0	05/30/08	X	X	X	X	X	X	
		78SB12-03	5.0-7.0	05/30/08	X	X	X	X	X	X	

TABLE 4-1

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM - ENVIRONMENTAL SAMPLES
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample Media	Site ID	Media	Sample Depth (ft bgs)	Sample Date	Analysis Requested						Comment
					App IX VOCs	App IX SVOCs ⁽¹⁾	Appendix IX PCBS	TPH GRO	TPH DRO	Appendix IX Metals	
Subsurface Soil (cont.)	78SB13	78SB13-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
	78SB14	78SB14-02	3.0-5.0	05/30/08	X	X	X	X	X	X	
	78SB15	78SB15-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
		78SB15-03	5.0-7.0	05/30/08	X	X	X	X	X	X	
	78SB16	78SB16-01	1.0-3.0	05/30/08	X	X	X	X	X	X	
		78SB16-03	5.0-7.0	05/30/08	X	X	X	X	X	X	

Notes:

ft bgs - feet below ground surface

⁽¹⁾ Includes Low Level PAHs

TABLE 4-2

**SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM - QA/QC SAMPLES
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample Media	Media	Sample Date	Analysis Requested							Comment
			App IX VOCs	Low-Level PAHs	App IX SVOCs ⁽¹⁾	TPH GRO	TPH DRO	Pesticides/PCBS	Appendix IX Metals	
Trip Blanks	QATB01	05/02/08	X			X				
	78TB01	05/29/08	X			X				
	78TB02	05/29/08	X			X				
Equipment Rinsates	ER22	05/29/08	X		X	X	X		X	Macro Core Acetate Liner
	ER24	05/31/08	X		X	X	X	X	X	Macro Core Acetate Liner
Field Blank	FB01	05/02/08	X		X	X	X		X	Lab Grade Deionized Water

Notes:

⁽¹⁾ Includes Low Level PAHs

TABLE 4-3

**METHOD PERFORMANCE LIMITS
APPENDIX IX COMPOUND LIST AND CONTRACT
REQUIRED QUANTITATION LIMITS (CRQL)**

SWMU 78 - POLE YARD

PHASE I RFI REPORT

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)
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)

TABLE 4-3

**METHOD PERFORMANCE LIMITS
APPENDIX IX COMPOUND LIST AND CONTRACT
REQUIRED QUANTITATION LIMITS (CRQL)**

**SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Appendix IX - VOCs (Cont.)	Quantitation Limits*		Method Number (Description)
	Water (µg/L)	Low Soil (µg/kg)	
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)
Appendix IX - SVOCs	Quantitation Limits*		Method Number (Description)
	Water (µg/L)	Low Soil (µg/kg)	
<i>Acenaphthene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
<i>Acenaphthylene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
Acetophenone	10	330	8270C
2-Acetylaminofluorene	10	330	8270C
4-Aminobiphenyl	20	330	8270C
Aniline	20	660	8270C
<i>Anthracene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
Aramite	10	330	8270C
<i>Benzo(a)anthracene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
<i>Benzo(b)fluoranthene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
<i>Benzo(k)fluoranthene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
<i>Benzo(g,h,i)perylene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
<i>Benzo(a)pyrene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
Benzyl alcohol	10	330	8270C
Bis(2-chloroethoxy)methane	10	330	8270C
Bis(2-chloroethyl)ether	10	330	8270C
Bis(2-ethylhexyl)phthalate	10	330	8270C
4-Bromophenyl phenyl ether	10	330	8270C
Butylbenzylphthalate	10	330	8270C
4-Chloroaniline	20	660	8270C
4-Chloro-3-methylphenol	10	330	8270C
2-Chloronaphthalene	10	330	8270C
2-Chlorophenol	10	330	8270C
4-Chlorophenyl phenyl ether	10	330	8270C
<i>Chrysene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
3&4 Methylphenol	10	330	8270C
2-Methylphenol	10	330	8270C
Diallate	10	330	8270C
Dibenzofuran	10	330	8270C
Di-n-butyl phthalate	10	330	8270C
<i>Dibenzo(a,h)anthracene</i>	<i>0.2</i>	<i>6.7</i>	<i>8270C</i>
o-Dichlorobenzene	10	330	8270C
m-Dichlorobenzene	10	330	8270C

TABLE 4-3

**METHOD PERFORMANCE LIMITS
APPENDIX IX COMPOUND LIST AND CONTRACT
REQUIRED QUANTITATION LIMITS (CRQL)**

SWMU 78 - POLE YARD

PHASE I RFI REPORT

NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Appendix IX - SVOCs (Cont.)	Quantitation Limits*		Method Number (Description)
	Water (µg/L)	Low Soil (µg/kg)	
p-Dichlorobenzene	10	330	8270C
2,4-Dichlorophenol	10	330	8270C
2,6-Dichlorophenol	10	330	8270C
Diethylphthalate	10	330	8270C
p-(Dimethylamino)azobenzene	10	330	8270C
7,12-Dimethyl benz(a)anthracene	10	330	8270C
3,3-Dimethyl benzidine	20	1,700	8270C
2,4-Dimethylphenol	10	330	8270C
alpha, alpha-Dimethylphenethylamine	2,000	67,000	8270C
Dimethyl phthalate	10	330	8270C
m-Dinitrobenzene	10	330	8270C
4,6-Dinitro-2-methylphenol	50	1,700	8270C
2,4-Dinitrophenol	50	1,700	8270C
2,4-Dinitrotoluene	10	330	8270C
2,6-Dinitrotoluene	10	330	8270C
Di-n-octylphthalate	10	330	8270C
1,4-Dioxane	10	330	8270C
Dinoseb	10	330	8270C
Ethylmethanesulfonate	10	330	8270C
Fluoranthene	0.2	6.7	8270C
Fluorene	0.2	6.7	8270C
Hexachlorobenzene	10	330	8270C
Hexachlorobutadiene	10	330	8270C
Hexachlorocyclopentadiene	10	330	8270C
Hexachloroethane	10	330	8270C
Hexachlorophene	5,000	170,000	8270C
Hexachloropropene	10	330	8270C
Indeno(1,2,3-cd)pyrene	0.2	6.7	8270C
Isophorone	10	330	8270C
Isosafrole	10	330	8270C
Methapyrilene	2,000	67,000	8270C
3-Methylcholanthrene	10	330	8270C
Methyl methanesulfonate	10	330	8270C
1-Methylnaphthalene	0.2	6.7	8270C
2-Methylnaphthalene	0.2	6.7	8270C
Naphthalene	0.2	6.7	8270C
1,4-Naphthoquinone	10	330	8270C
1-Naphthylamine	10	330	8270C
2-Naphthylamine	10	330	8270C
2-Nitroaniline	50	1,700	8270C
3-Nitroaniline	50	1,700	8270C
4-Nitroaniline	50	1,700	8270C
Nitrobenzene	10	330	8270C
2-Nitrophenol	10	330	8270C
4-Nitrophenol	50	1,700	8270C
4-Nitroquinoline-1-oxide	20	3,300	8270C

TABLE 4-3

**METHOD PERFORMANCE LIMITS
APPENDIX IX COMPOUND LIST AND CONTRACT
REQUIRED QUANTITATION LIMITS (CRQL)**

SWMU 78 - POLE YARD

PHASE I RFI REPORT

NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Appendix IX - SVOCs (Cont.)	Quantitation Limits*		Method Number (Description)
	Water (µg/L)	Low Soil (µg/kg)	
n-Nitrosodi-n-butylamine	10	330	8270C
n-Nitrosodiethylamine	10	330	8270C
n-Nitrosodimethylamine	10	330	8270C
n-Nitrosodiphenylamine	10	330	8270C
n-Nitrosodi-n-propylamine	10	330	8270C
n-Nitrosomethylethylamine	10	330	8270C
n-Nitrosomorpholine	10	330	8270C
n-Nitrosopiperidine	10	330	8270C
n-Nitrosopyrrolidine	10	330	8270C
5-Nitro-o-toluidine	10	330	8270C
bis-(2-chloroisopropyl)ether	10	330	8270C
Pentachlorobenzene	10	330	8270C
Pentachloronitrobenzene	10	330	8270C
Pentachlorophenol	50	1,700	8270C
Phenacetin	10	330	8270C
Phenanthrene	0.2	6.7	8270C
Phenol	10	330	8270C
1,4-Phenylenediamine	2,000	1,700	8270C
2-Picolin	10	330	8270C
Pronamide	10	330	8270C
Pyrene	0.2	6.7	8270C
Pyridine	50	330	8270C
Safrole	10	330	8270C
1,2,4,5-Tetrachlorobenzene	10	330	8270C
2,3,4,6-Tetrachlorophenol	10	330	8270C
o-Toluidine	20	330	8270C
1,2,4-Trichlorobenzene	10	330	8270C
2,4,5-Trichlorophenol	10	330	8270C
2,4,6-Trichlorophenol	10	330	8270C
1,3,5-Trinitrobenzene	10	330	8270C
PCBs	Quantitation Limits*		Method Number
	Water (µg/L)	Low Soil (µg/kg)	
Aroclor-1016	1.0	33	8082
Aroclor-1221	2.0	67	8082
Aroclor-1232	1.0	33	8082
Aroclor-1242	1.0	33	8082
Aroclor-1248	1.0	33	8082
Aroclor-1254	1.0	33	8082
Aroclor-1260	1.0	33	8082
Total Petroleum Hydrocarbons	Quantitation Limits*		Method Number
	Water (µg/L)	Low Soil (µg/kg)	
TPH DRO	100	3300	8015B
TPH GRO	50	250	8015B

TABLE 4-3
METHOD PERFORMANCE LIMITS
APPENDIX IX COMPOUND LIST AND CONTRACT
REQUIRED QUANTITATION LIMITS (CRQL)
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Inorganics	Method Number	Quantitation Limits*		Method Description
		Water (µg/L)	Low Soil (mg/kg)	
Antimony	6010B	20	2.0	6010B (Inductively Coupled Plasma)
Arsenic	6010B	10	1.0	6010B (Inductively Coupled Plasma)
Barium	6010B	10	1.0	6010B (Inductively Coupled Plasma)
Beryllium	6010B	4.0	0.4	6010B (Inductively Coupled Plasma)
Cadmium	6010B	5.0	0.5	6010B (Inductively Coupled Plasma)
Chromium	6010B	10	1.0	6010B (Inductively Coupled Plasma)
Cobalt	6010B	10	1.0	6010B (Inductively Coupled Plasma)
Copper	6010B	20	2.0	6010B (Inductively Coupled Plasma)
Lead	6010B	5.0	0.5	6010B (Inductively Coupled Plasma)
Mercury	7470A/7471A	0.2	0.02	7470A/7471A (Cold Vapor AA)
Nickel	6010B	40	4.0	6010B (Inductively Coupled Plasma)
Selenium	6010B	10	1.0	6010B (Inductively Coupled Plasma)
Silver	6010B	10	1.0	6010B (Inductively Coupled Plasma)
Thallium	6010B	10	1.0	6010B (Inductively Coupled Plasma)
Tin	6010B	10	5.0	6010B (Inductively Coupled Plasma)
Vanadium	6010B	10	1.0	6010B (Inductively Coupled Plasma)
Zinc	6010B	20	2.0	6010B (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 - micrograms per liter.

µg/kg - micrograms per kilogram.

mg/kg - milligrams per kilogram.

Denotes Low Level PAHs included with SVOC analysis.

TABLE 6-1

SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
 SWMU 78 - POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB01	78SB01	78SB02	78SB03	78SB04	78SB05
Sample ID	Screening	Screening	Ecological	Basewide	78SB01-00	78SB01-00D	78SB02-00	78SB03-00	78SB04-00	78SB05-00
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/31/2008	5/31/2008	5/30/2008	5/31/2008	5/30/2008	5/30/2008
Depth Range	Residential	Industrial	Screening		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
	Soil	Soil	Values							
Volatile Organic Compounds (ug/kg)										
2-Hexanone	2,800,000 ⁽²⁾	19,000,000 ⁽²⁾	NE	NE	2.2 U	1.9 U	2.6 U	2.7 U	2.3 U	2.3 U
Acetone	6,10,000 ⁽²⁾	61,000,000 ⁽²⁾	NE	NE	250 J	210 J	96 UJ	100 UJ	71 UJ	200
Benzene	1,100	5,600	101	NE	0.83 U	0.73 U	0.99 U	1 U	0.88 U	0.87 U
Carbon disulfide	670,000 ⁽²⁾	300,000 ⁽²⁾	NE	NE	0.59 U	0.47 U	0.64 U	8	2.7 U	0.56 U
Chloromethane	1,700	8,400	NE	NE	0.74 U	0.65 U	0.89 U	2 J	0.79 U	0.78 U
Iodomethane	NE	NE	NE	NE	1.8 J	1.8 J	1.3 UJ	1.6 J	1.1 UJ	1.4 J
Semivolatile Organic Compounds (ug/kg)										
1,4-Dichlorobenzene	2,600	13,000	20,000 ⁽⁶⁾	NE	140 UJ	6.6 UJ	6.8 U	150 U	6.7 U	7.3 U
2-Methylnaphthalene	31,000 ⁽²⁾	410,000 ⁽²⁾	NE	NE	38 UJ	1.8 UJ	1.9 U	41 U	1.8 U	2 U
Acenaphthene	340,000 ⁽²⁾	3,300,000 ⁽²⁾	NE	NE	13 UJ	0.61 UJ	0.62 U	14 U	0.61 U	0.67 U
Acenaphthylene	340,000 ⁽²⁾	3,300,000 ⁽²⁾	NE	NE	38 UJ	1.8 UJ	1.9 U	41 U	1.8 U	2 U
Anthracene	1,700,000 ⁽²⁾	170,000 ⁽²⁾	NE	NE	38 UJ	1.8 UJ	1.9 U	41 U	1.8 U	2 U
Benzo[a]anthracene	150	2,100	NE	NE	38 UJ	6 J	1.9 U	41 U	1.8 U	4.5 J
Benzo[a]pyrene	15	210	NE	NE	35 J	7 J	0.72 U	110 J	0.71 U	3.7 J
Benzo[b]fluoranthene	150	2,100	NE	NE	17 UJ	13 J	0.83 U	74 J	0.82 U	7.3 J
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	110 J	6 J	11 J	290 J	12 J	3.7 J
Benzo[k]fluoranthene	15	2,100	NE	NE	22 UJ	1.1 UJ	1.1 U	24 U	1.1 U	1.2 UJ
Bis(2-ethylhexyl) phthalate	35,000	120,000	6,010 ⁽¹⁰⁾	NE	340 UJ	14 UJ	18 U	470 U	17 U	16 J
Chrysene	15,000	210,000	NE	NE	14 UJ	5.6 J	2.2 J	59 J	2 J	5 J
Dibenz(a,h)anthracene	15	210	NE	NE	13 UJ	2.4 J	0.64 U	26 J	0.63 U	0.7 U
Dibenzofuran	NE	NE	NE	NE	94 UJ	4.5 UJ	4.6 U	100 U	4.5 U	5 U
Fluoranthene	230,000 ⁽²⁾	2,200,000 ⁽²⁾	NE	NE	38 UJ	9.3 J	1.9 U	51 J	1.8 U	6.2 J
Fluorene	230,000 ⁽²⁾	2,200,000 ⁽²⁾	NE	NE	17 UJ	0.82 UJ	0.84 U	19 U	0.83 U	0.91 U
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	27 UJ	3.6 J	1.3 U	29 U	1.3 U	1.6 J
Naphthalene	3,900	20,000	NE	NE	13 UJ	0.67 J	0.65 UJ	15 UJ	0.73 J	0.92 J

TABLE 6-1

SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
 SWMU 78 - POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB01	78SB01	78SB02	78SB03	78SB04	78SB05
Sample ID	Screening	Screening	Ecological	Basewide	78SB01-00	78SB01-00D	78SB02-00	78SB03-00	78SB04-00	78SB05-00
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/31/2008	5/31/2008	5/30/2008	5/31/2008	5/30/2008	5/30/2008
Depth Range	Residential	Industrial	Screening		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
	Soil	Soil	Values							
Semivolatile Organic Compounds (ug/kg) (continued)										
Phenanthrene	NE	NE	NE	NE	38 UJ	2.2 J	1.9 U	41 U	1.8 U	2 U
Phenol	1,800,000 ⁽²⁾	18,000,000 ⁽²⁾	30,000 ⁽⁶⁾	NE	110 UJ	5.1 UJ	6.5 J	120 U	5.3 J	5.7 U
Pyrene	170,000 ⁽²⁾	1,700,000 ⁽²⁾	NE	NE	38 UJ	7.9 J	1.9 U	110 J	1.9 J	5.5 J
PAHs (ug/kg)										
Low molecular weight PAHs	NE	NE	29,000 ⁽¹¹⁾	NE	233	19	11.6	263	11.2	16.7
High molecular weight PAHs	NE	NE	18,000 ⁽¹²⁾	NE	314	52.6	21.6	763	22.3	33.2
PCBs (ug/kg)										
PCB-1260	220	740	NE	NE	33 J	5.2 U	5.3 U	5.8 U	5.2 U	5.7 U
Metals (mg/kg)										
Antimony	3.1 ⁽²⁾	41 ⁽²⁾	78 ⁽⁸⁾	3.17	1.1 J	0.12 UJ	0.3 UJ	4 J	3.2 J	0.22 UJ
Arsenic	0.39	1.6	18 ⁽⁴⁾	2.65	1.6	1	0.76	4.2	4.1	1.1
Barium	1,500 ⁽²⁾	19,000 ⁽²⁾	330 ⁽⁵⁾	199	75 J	50 J	62	150	110	82
Beryllium	16 ⁽²⁾	200 ⁽²⁾	40 ⁽⁵⁾	0.59	0.22	0.17	0.22	0.3	0.24	0.28
Cadmium	7 ⁽²⁾	81 ⁽²⁾	32 ⁽⁴⁾	1.02	0.4	0.099 J	0.39	0.76	0.32	0.17
Chromium	280	1,400	57 ⁽⁷⁾	49.8	15	14	13	21	25	16 J
Cobalt	2.3 ⁽²⁾	30 ⁽²⁾	13 ⁽⁴⁾	46.2	25 J	17 J	16	21	22	15
Copper	310 ⁽²⁾	4,100 ⁽²⁾	70 ⁽⁴⁾	168	160 J	78 J	49	100	120	93
Lead	400 ⁽³⁾	800 ⁽³⁾	120 ⁽⁴⁾	22	21 R	2.8 R	3.4 R	180 R	80 R	13
Mercury	2.3 ⁽²⁾	31 ⁽²⁾	0.1 ⁽⁶⁾	0.109	0.021 J	0.004 U	0.0038 U	0.11	0.05	0.0042 U
Nickel	160 ⁽²⁾	2,000 ⁽²⁾	38 ⁽⁴⁾	20.7	13	12	9.2	13	13	9.1
Selenium	39 ⁽²⁾	510 ⁽²⁾	0.52 ⁽⁴⁾	NE	0.13 U	0.12 U	0.12 U	0.19 J	0.14 J	0.13 U
Silver	39 ⁽²⁾	510 ⁽²⁾	560 ⁽⁸⁾	NE	0.073 J	0.074 J	0.04 J	0.099 J	0.08 J	0.062 J
Thallium	0.51 ⁽²⁾	6.6 ⁽²⁾	1 ⁽⁶⁾	NE	0.13 U	0.12 U	0.12 U	0.14 U	0.12 U	0.13 U
Tin	4700 ⁽²⁾	61000 ⁽²⁾	50	3.76	4.2 U	4 U	4 U	8.8 J	4.5 J	4.2 U
Vanadium	55 ⁽²⁾	720 ⁽²⁾	10 ⁽⁹⁾	259	140	140	130	130	140	130
Zinc	2,300 ⁽²⁾	31,000 ⁽²⁾	120 ⁽⁵⁾	115	150 J	59 J	53 J	490 J	240 J	110 J

TABLE 6-1

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	<i>Regional</i>	Selected	<u>NAPR</u>	78SB01	78SB01	78SB02	78SB03	78SB04	78SB05
Sample ID	Screening	<i>Screening</i>	Ecological	<u>Basewide</u>	78SB01-00	78SB01-00D	78SB02-00	78SB03-00	78SB04-00	78SB05-00
Date	Levels	<i>Levels</i>	Soil	<u>Background</u> ⁽¹⁾	5/31/2008	5/31/2008	5/30/2008	5/31/2008	5/30/2008	5/30/2008
Depth Range	Residential	<i>Industrial</i>	Screening		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
	Soil	<i>Soil</i>	Values							
TPH DRO and GRO (mg/kg)										
Diesel Range Organics	NE	NE	NE	NE	8,000 J	12 J	1.7 J	820	4.6	5.1
Gasoline Range Organics	NE	NE	NE	NE	0.39 J	0.11 J	0.17 J	0.66 J	0.12 J	0.12 J
Total TPH	100	NE	NE	NE	8,000 J	12.11 J	1.87 J	821	4.72 J	5.22 J

TABLE 6-1

SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
 SWMU 78 - POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB06	78SB07	78SB08	78SB08	78SB09	78SB10
Sample ID	Screening	Screening	Ecological	Basewide	78SB06-00	78SB07-00	78SB08-00	78SB08-00D	78SB09-00	78SB10-00
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008
Depth Range	Residential	Industrial	Screening		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
	Soil	Soil	Values							
Volatile Organic Compounds (ug/kg)										
2-Hexanone	2,800,000 ⁽²⁾	19,000,000 ⁽²⁾	NE	NE	2.6 U	2.3 U	3.4 U	3.1 U	2.3 U	2 U
Acetone	6,10,000 ⁽²⁾	61,000,000 ⁽²⁾	NE	NE	37 J	130 J	100	79	11 J	37 J
Benzene	1,100	5,600	101	NE	0.98 U	0.87 U	1.3 U	1.2 U	0.87 U	0.75 U
Carbon disulfide	670,000 ⁽²⁾	300,000 ⁽²⁾	NE	NE	0.63 U	0.56 U	0.83 U	0.74 U	0.56 U	0.49 U
Chloromethane	1,700	8,400	NE	NE	0.88 U	0.78 U	1.1 U	1 U	0.79 U	0.68 U
Iodomethane	NE	NE	NE	NE	1.2 U	4.6 J	1.6 U	1.5 U	1.1 U	0.95 U
Semivolatile Organic Compounds (ug/kg)										
1,4-Dichlorobenzene	2,600	13,000	20,000 ⁽⁶⁾	NE	8.1 U	6.9 U	9.1 J	8.2 U	6.9 U	6.8 U
2-Methylnaphthalene	31,000 ⁽²⁾	410,000 ⁽²⁾	NE	NE	2.2 U	1.9 U	2.4 U	2.2 U	1.9 U	1.9 U
Acenaphthene	340,000 ⁽²⁾	3,300,000 ⁽²⁾	NE	NE	0.75 U	0.63 U	0.81 U	0.75 U	0.63 U	0.63 U
Acenaphthylene	340,000 ⁽²⁾	3,300,000 ⁽²⁾	NE	NE	2.2 U	1.9 U	2.4 U	2.2 U	1.9 U	1.9 U
Anthracene	1,700,000 ⁽²⁾	170,000 ⁽²⁾	NE	NE	2.2 U	1.9 U	2.4 U	2.2 U	1.9 U	1.9 U
Benzo[a]anthracene	150	2,100	NE	NE	2.2 U	1.9 U	2.4 U	2.9 J	1.9 U	1.9 U
Benzo[a]pyrene	15	210	NE	NE	1.6 J	0.73 U	1.2 J	2.1 J	0.73 U	0.73 U
Benzo[b]fluoranthene	150	2,100	NE	NE	3.6 J	0.84 U	1.1 J	2.1 J	0.84 U	0.84 U
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	2.2 U	1.9 UJ	3.8 J	2.2 U	1.9 UJ	1.9 U
Benzo[k]fluoranthene	15	2,100	NE	NE	1.3 UJ	1.1 U	1.4 J	1.4 J	1.1 U	1.1 U
Bis(2-ethylhexyl) phthalate	35,000	120,000	6,010 ⁽¹⁰⁾	NE	18 J	5.3 U	37 J	42 J	13 U	16 U
Chrysene	15,000	210,000	NE	NE	1.4 J	0.68 U	1.3 J	2 J	0.68 U	0.67 U
Dibenz(a,h)anthracene	15	210	NE	NE	0.77 U	0.66 U	0.83 U	0.78 U	0.65 U	0.65 U
Dibenzofuran	NE	NE	NE	NE	5.5 U	4.7 U	5.9 U	5.6 U	4.6 U	4.6 U
Fluoranthene	230,000 ⁽²⁾	2,200,000 ⁽²⁾	NE	NE	2.2 U	1.9 U	2.4 U	2.3 J	1.9 U	1.9 U
Fluorene	230,000 ⁽²⁾	2,200,000 ⁽²⁾	NE	NE	1 U	0.86 U	1.1 U	1 U	0.85 U	0.85 U
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	1.6 U	1.3 U	1.7 U	1.6 U	1.3 UJ	1.3 U
Naphthalene	3,900	20,000	NE	NE	0.79 U	0.67 UJ	0.85 U	0.79 U	0.66 U	0.66 U

TABLE 6-1

SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
 SWMU 78 - POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB06	78SB07	78SB08	78SB08	78SB09	78SB10
Sample ID	Screening	Screening	Ecological	Basewide	78SB06-00	78SB07-00	78SB08-00	78SB08-00D	78SB09-00	78SB10-00
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008
Depth Range	Residential	Industrial	Screening		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
	Soil	Soil	Values							
Semivolatile Organic Compounds (ug/kg) (continued)										
Phenanthrene	NE	NE	NE	NE	2.2 U	1.9 U	2.4 U	2.2 U	1.9 U	1.9 U
Phenol	1,800,000 ⁽²⁾	18,000,000 ⁽²⁾	30,000 ⁽⁶⁾	NE	6.3 U	5.3 U	6.8 U	6.3 U	5.3 U	5.3 U
Pyrene	170,000 ⁽²⁾	1,700,000 ⁽²⁾	NE	NE	2.3 J	1.9 U	2.6 J	2.3 J	1.9 U	1.9 U
PAHs (ug/kg)										
Low molecular weight PAHs	NE	NE	29,000 ⁽¹¹⁾	NE	13.5	11.7	14.8	13.6	11.6	11.6
High molecular weight PAHs	NE	NE	18,000 ⁽¹²⁾	NE	17.0	11.0	16.3	17.4	11	11.0
PCBs (ug/kg)										
PCB-1260	220	740	NE	NE	6.2 U	5.3 U	6.8 U	6.4 U	5.3 U	5.2 U
Metals (mg/kg)										
Antimony	3.1 ⁽²⁾	41 ⁽²⁾	78 ⁽⁸⁾	3.17	0.089 UJ	0.13 UJ	0.28 UJ	0.65 J	0.1 UJ	0.077 UJ
Arsenic	0.39	1.6	18 ⁽⁴⁾	2.65	1	0.69	2.8	2.2	0.58	0.66
Barium	1,500 ⁽²⁾	19,000 ⁽²⁾	330 ⁽⁵⁾	199	85	60	<u>260</u> J	180 J	100	33
Beryllium	16 ⁽²⁾	200 ⁽²⁾	40 ⁽⁵⁾	0.59	0.3	0.23	0.34	0.31	0.24	0.26
Cadmium	7 ⁽²⁾	81 ⁽²⁾	32 ⁽⁴⁾	1.02	0.094 J	0.12	0.12 J	0.17	0.038 J	0.065 J
Chromium	280	1,400	57 ⁽⁷⁾	49.8	18 J	14	11 J	19 J	20 J	18
Cobalt	2.3 ⁽²⁾	30 ⁽²⁾	13 ⁽⁴⁾	46.2	26	16	41	33	27	25
Copper	310 ⁽²⁾	4,100 ⁽²⁾	70 ⁽⁴⁾	168	<u>190</u>	28	<u>280</u>	<u>220</u>	110	12
Lead	400 ⁽³⁾	800 ⁽³⁾	120 ⁽⁴⁾	22	1.8	2.6 R	4.2 R	27 R	1.3	2.2
Mercury	2.3 ⁽²⁾	31 ⁽²⁾	0.1 ⁽⁶⁾	0.109	0.0051 U	0.0043 U	0.0063 J	0.032	0.0041 U	0.0041 U
Nickel	160 ⁽²⁾	2,000 ⁽²⁾	38 ⁽⁴⁾	20.7	<u>24</u>	8.9	20	<u>22</u>	19	17
Selenium	39 ⁽²⁾	510 ⁽²⁾	0.52 ⁽⁴⁾	NE	0.14 U	0.13 U	0.18 J	0.21 J	0.12 U	0.12 U
Silver	39 ⁽²⁾	510 ⁽²⁾	560 ⁽⁸⁾	NE	0.039 J	0.027 J	0.13 J	0.12 J	0.093 J	0.038 J
Thallium	0.51 ⁽²⁾	6.6 ⁽²⁾	1 ⁽⁶⁾	NE	0.14 U	0.13 U	0.17 U	0.14 U	0.17 J	0.12 U
Tin	4700 ⁽²⁾	61000 ⁽²⁾	50	3.76	4.8 U	4.3 U	5.5 U	4.8 U	4.1 U	4.1 U
Vanadium	55 ⁽²⁾	720 ⁽²⁾	10 ⁽⁹⁾	259	410	130	250	240	200	190
Zinc	2,300 ⁽²⁾	31,000 ⁽²⁾	120 ⁽⁵⁾	115	85 J	46 J	70 J	<u>150</u> J	57 J	65

TABLE 6-1

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	<i>Regional</i>	Selected	<u>NAPR</u>	78SB06	78SB07	78SB08	78SB08	78SB09	78SB10
Sample ID	Screening	<i>Screening</i>	Ecological	<u>Basewide</u>	78SB06-00	78SB07-00	78SB08-00	78SB08-00D	78SB09-00	78SB10-00
Date	Levels	<i>Levels</i>	Soil	<u>Background</u> ⁽¹⁾	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008
Depth Range	Residential	<i>Industrial</i>	Screening		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
	Soil	<i>Soil</i>	Values							
TPH DRO and GRO (mg/kg)										
Diesel Range Organics	NE	NE	NE	NE	1.4	3.3 J	2.6	5.2	1.1	0.89
Gasoline Range Organics	NE	NE	NE	NE	0.12 J	0.11 J	0.12 J	0.11 J	0.065 U	0.075 J
Total TPH	100	NE	NE	NE	1.52 J	3.41 J	2.72 J	5.31 J	1.1	0.965 J

TABLE 6-1

SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
 SWMU 78 - POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB11	78SB12	78SB13	78SB14	78SB15	78SB16
Sample ID	Screening	Screening	Ecological	Basewide	78SB11-00	78SB12-00	78SB13-00	78SB14-00	78SB15-00	78SB16-00
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/30/2008	5/30/2008
Depth Range	Residential	Industrial	Screening		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
	Soil	Soil	Values							
Volatile Organic Compounds (ug/kg)										
2-Hexanone	2,800,000 ⁽²⁾	19,000,000 ⁽²⁾	NE	NE	2.3 U	2.3 U	1.8 U	4.1 J	2.5 U	2.7 U
Acetone	6,10,000 ⁽²⁾	61,000,000 ⁽²⁾	NE	NE	86 J	4.8 U	36 J	34 J	58 J	85 J
Benzene	1,100	5,600	101	NE	1.4 J	0.86 U	0.76 J	1.1 J	1.1 J	1 U
Carbon disulfide	670,000 ⁽²⁾	300,000 ⁽²⁾	NE	NE	7.4	0.55 U	0.45 U	0.57 J	0.95 J	0.66 U
Chloromethane	1,700	8,400	NE	NE	0.77 U	0.77 U	0.62 U	0.73 U	0.85 U	0.92 U
Iodomethane	NE	NE	NE	NE	1.1 U	3.7 J	0.87 U	1 U	1.2 U	1.3 U
Semivolatile Organic Compounds (ug/kg)										
1,4-Dichlorobenzene	2,600	13,000	20,000 ⁽⁶⁾	NE	6.8 UJ	7.7 U	7.3 U	8.2 UJ	7.4 U	8.1 U
2-Methylnaphthalene	31,000 ⁽²⁾	410,000 ⁽²⁾	NE	NE	1.9 UJ	19	2 U	2.3 UJ	2 U	2.2 U
Acenaphthene	340,000 ⁽²⁾	3,300,000 ⁽²⁾	NE	NE	0.63 UJ	18	0.67 U	0.76 UJ	0.68 U	0.74 U
Acenaphthylene	340,000 ⁽²⁾	3,300,000 ⁽²⁾	NE	NE	1.9 UJ	26	2 U	2.3 UJ	2 U	2.2 U
Anthracene	1,700,000 ⁽²⁾	170,000 ⁽²⁾	NE	NE	2.6 J	43	2 U	2.3 UJ	2 U	2.2 U
Benzo[a]anthracene	150	2,100	NE	NE	33 J	68	4.8 J	2.3 UJ	2 U	2.2 R
Benzo[a]pyrene	15	210	NE	NE	46 J	76	4.8 J	0.99 J	1.3 J	0.86 R
Benzo[b]fluoranthene	150	2,100	NE	NE	85 J	110	7.2 J	1 UJ	1.6 J	14 J
Benzo[g,h,i]perylene	1,700	17,000	NE	NE	39 J	34	3.6 J	2.3 UJ	2 U	19 J
Benzo[k]fluoranthene	15	2,100	NE	NE	1.1 UJ	1.2 U	1.2 U	1.3 UJ	1.7 J	1.3 R
Bis(2-ethylhexyl) phthalate	35,000	120,000	6,010 ⁽¹⁰⁾	NE	35 UJ	12 U	13 U	10 UJ	18 U	26 R
Chrysene	15,000	210,000	NE	NE	48 J	66	4 J	0.81 UJ	1.5 J	34 J
Dibenz(a,h)anthracene	15	210	NE	NE	7.1 J	5.7 J	1.1 J	0.78 UJ	0.7 U	0.77 R
Dibenzofuran	NE	NE	NE	NE	4.6 UJ	33 J	4.9 U	5.6 UJ	5 U	5.5 U
Fluoranthene	230,000 ⁽²⁾	2,200,000 ⁽²⁾	NE	NE	57 J	180	10	2.3 UJ	2 U	15
Fluorene	230,000 ⁽²⁾	2,200,000 ⁽²⁾	NE	NE	0.85 UJ	53	1.3 J	1 UJ	0.92 U	1 U
Indeno[1,2,3-cd]pyrene	150	2,100	NE	NE	13 J	15 J	1.4 UJ	1.6 UJ	1.4 UJ	1.6 R
Naphthalene	3,900	20,000	NE	NE	0.66 UJ	99	1.2 J	0.8 UJ	0.71 U	1.9 J

TABLE 6-1

SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
 SWMU 78 - POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB11	78SB12	78SB13	78SB14	78SB15	78SB16
Sample ID	Screening	Screening	Ecological	Basewide	78SB11-00	78SB12-00	78SB13-00	78SB14-00	78SB15-00	78SB16-00
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/30/2008	5/30/2008
Depth Range	Residential	Industrial	Screening		0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
	Soil	Soil	Values							
Semivolatile Organic Compounds (ug/kg) (continued)										
Phenanthrene	NE	NE	NE	NE	13 J	220	7.8 J	2.3 UJ	2 U	5.5 J
Phenol	1,800,000 ⁽²⁾	18,000,000 ⁽²⁾	30,000 ⁽⁶⁾	NE	5.3 UJ	6 U	5.6 U	6.4 UJ	5.7 U	6.2 U
Pyrene	170,000 ⁽²⁾	1,700,000 ⁽²⁾	NE	NE	81 J	180	8.2	2.3 UJ	2.3 J	20
PAHs (ug/kg)										
Low molecular weight PAHs	NE	NE	29,000 ⁽¹¹⁾	NE	78.5	658	27.0	14.1	12.3	30.7
High molecular weight PAHs	NE	NE	18,000 ⁽¹²⁾	NE	353	556	36.3	13.4	14.5	93.7
PCBs (ug/kg)										
PCB-1260	220	740	NE	NE	48 J	6.1 U	5.6 U	6.3 U	5.7 U	6.2 U
Metals (mg/kg)										
Antimony	3.1 ⁽²⁾	41 ⁽²⁾	78 ⁽⁸⁾	3.17	0.33 J	0.091 UJ	0.15 UJ	0.097 UJ	0.66 J	0.14 UJ
Arsenic	0.39	1.6	18 ⁽⁴⁾	2.65	1.9	1.5	2.1	2.9	8.2	1.8
Barium	1,500 ⁽²⁾	19,000 ⁽²⁾	330 ⁽⁵⁾	199	380	130	160	120	78	80
Beryllium	16 ⁽²⁾	200 ⁽²⁾	40 ⁽⁵⁾	0.59	0.42	0.35	0.42	0.42	0.19	0.27
Cadmium	7 ⁽²⁾	81 ⁽²⁾	32 ⁽⁴⁾	1.02	0.17	0.066 J	0.14	0.062 J	0.22	0.23
Chromium	280	1,400	57 ⁽⁷⁾	49.8	19	34 J	77 J	21 J	28 J	36 J
Cobalt	2.3 ⁽²⁾	30 ⁽²⁾	13 ⁽⁴⁾	46.2	17	47	34	42	18	40
Copper	310 ⁽²⁾	4,100 ⁽²⁾	70 ⁽⁴⁾	168	91	120	130	170	110	240
Lead	400 ⁽³⁾	800 ⁽³⁾	120 ⁽⁴⁾	22	45	2.1	3.9	1.4	19	0.81
Mercury	2.3 ⁽²⁾	31 ⁽²⁾	0.1 ⁽⁶⁾	0.109	0.0082 J	0.032	0.016 J	0.015 J	0.013 J	0.0043 U
Nickel	160 ⁽²⁾	2,000 ⁽²⁾	38 ⁽⁴⁾	20.7	22	23	22	29	15	49
Selenium	39 ⁽²⁾	510 ⁽²⁾	0.52 ⁽⁴⁾	NE	0.25 J	1.4	0.54 J	0.41 J	0.32 J	0.14 U
Silver	39 ⁽²⁾	510 ⁽²⁾	560 ⁽⁸⁾	NE	0.06 J	0.03 J	0.08 J	0.039 J	0.065 J	0.11 J
Thallium	0.51 ⁽²⁾	6.6 ⁽²⁾	1 ⁽⁶⁾	NE	0.13 U	0.14 U	0.13 J	0.15 U	0.14 U	0.14 U
Tin	4700 ⁽²⁾	61000 ⁽²⁾	50	3.76	14 J	4.8 U	4.4 U	5.1 U	4.5 U	4.7 U
Vanadium	55 ⁽²⁾	720 ⁽²⁾	10 ⁽⁹⁾	259	110	270	230	260	160	210
Zinc	2,300 ⁽²⁾	31,000 ⁽²⁾	120 ⁽⁵⁾	115	260	47 J	51 J	56 J	84 J	72 J

TABLE 6-1

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	<i>Regional</i>	Selected	<u>NAPR</u>	78SB11	78SB12	78SB13	78SB14	78SB15	78SB16
Sample ID	Screening	<i>Screening</i>	Ecological	<u>Basewide</u>	78SB11-00	78SB12-00	78SB13-00	78SB14-00	78SB15-00	78SB16-00
Date	Levels	<i>Levels</i>	Soil	<u>Background</u> ⁽¹⁾	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/30/2008	5/30/2008
Depth Range	Residential Soil	<i>Industrial Soil</i>	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
TPH DRO and GRO (mg/kg)										
Diesel Range Organics	NE	NE	NE	NE	18	16	3.8	14	2.3	36
Gasoline Range Organics	NE	NE	NE	NE	0.17 J	0.12 J	0.2 J	0.37	0.2 J	0.11 U
Total TPH	100	NE	NE	NE	18.17 J	16.12 J	4 J	14.37	2.5 J	36

TABLE 6-1

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
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 - micrograms per kilogram
mg/kg - miligrams per kilogram
NA - Not Analyzed
NE - Not Established
PRG - Preliminary Remedial Goal
NAPR - Naval Activity Puerto Rico
USEPA - United States Environmental Protection Agency

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

⁽²⁾ Noncarcinogenic PRGs 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 (Efroymsen 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⁾ Value for total phthalates (MHSPE 2000)

⁽¹¹⁾ Low molecular weight PAHs are defined by the USEPA (2007b) as PAH compounds composed of fewer than four rings. The low molecular weight PAH compounds analyzed for in SWMU78 soil were 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, fluoranthene, fluorene, naphthalene, and phenanthrene. Maximum method detection limit was used if there were no detections.

⁽¹²⁾ High molecular weight PAHs are defined by the USEPA (2007b) as PAH compounds composed of four or more rings. The high molecular weight PAH compounds analyzed for in SWMU 78 soil were benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and pyrene. Maximum method detection limits were used for non-detected PAHs.

TABLE 6-1

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

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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.

TABLE 6-2

Revised: June 12, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	78SB01	78SB01	78SB01	78SB02	78SB02	78SB03	78SB03
Sample ID	Screening	Screening	Ecological	Basewide	78SB01-01	78SB01-03	78SB01-03D	78SB02-01	78SB02-03	78SB03-01	78SB03-01D
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/31/2008	5/31/2008	5/31/2008	5/30/2008	5/30/2008	5/31/2008	5/31/2008
Depth Range	Residential	Industrial	Screening Values		1.0-3.0	5.0-7.0	5.0-7.0	1.0-3.0	5.0-7.0	1.0-3.0	1.0-3.0
Volatile Organic Compounds (ug/kg)											
Acetone	6,10,000 ⁽²⁾	61,000,000 ⁽²⁾	NE	NE	180 J	36 UJ	15 UJ	170 J	20 UJ	21 UJ	15 UJ
Iodomethane	NE	NE	NE	NE	4.7 J	1.3 U	0.86 U	12 J	1.2 UJ	1.1 U	1.1 U
Semivolatile Organic Compounds (ug/kg)											
1,4-Dichlorobenzene	2,600	13,000	20,000	NE	7 U	8 U	6.6 U	7.5 U	6.8 U	7 U	7 U
Benzo[a]pyrene	15	210	NE	NE	0.74 U	1.3 J	0.7 U	0.8 U	0.72 U	0.74 U	0.75 U
Benzo[b]fluoranthene	150	2,100	NE	NE	0.85 UJ	2 J	0.81 UJ	0.92 U	0.83 U	0.85 UJ	0.86 UJ
Benzyl alcohol	3,100,000 ⁽²⁾	31,000,000 ⁽²⁾	NE	NE	9 U	10 U	8.5 U	9.6 U	8.8 U	10 J	9.1 U
Bis(2-ethylhexyl) phthalate	35,000	120,000	6,010	NE	13 U	14 U	14 U	18 U	8.8 UJ	12 U	17 U
Chrysene	15,000	210,000	NE	NE	0.69 U	1.2 J	0.65 U	0.74 U	0.67 U	0.69 U	0.69 U
Naphthalene	3,900	20,000	NE	NE	0.67 UJ	0.77 UJ	0.64 UJ	0.72 UJ	0.66 UJ	0.67 UJ	0.68 UJ
PAHs (ug/kg)											
Low molecular weight PAHs	NE	NE	29,000 ⁽¹²⁾	NE	11.7	13.5	11.1	12.3	11.6	11.7	11.7
High molecular weight PAHs	NE	NE	18,000 ⁽¹³⁾	NE	11.0	14.7	10.6	11.8	11.0	11.0	11.2
Metals (mg/kg)											
Antimony	31 ⁽²⁾	410 ⁽²⁾	78 ⁽⁵⁾	NE	0.077 UJ	0.093 UJ	0.092 UJ	0.4 UJ	0.079 UJ	0.4 UJ	0.28 UJ
Arsenic	0.39	1.6	18 ⁽⁴⁾	1.59	0.7	0.73	0.97	1.5	0.54	0.96	0.87
Barium	1,500 ⁽²⁾	19,000 ⁽²⁾	330 ⁽⁵⁾	220	38	30	32	41	32	86	63
Beryllium	16 ⁽²⁾	200 ⁽²⁾	40 ⁽⁵⁾	0.596	0.25	0.22	0.2	0.22	0.15	0.21	0.19
Cadmium	7 ⁽²⁾	81 ⁽²⁾	32 ⁽⁴⁾	0.54	0.073 J	0.045 J	0.09 J	<u>3.7</u>	0.16	<u>0.63</u>	<u>0.56</u>
Chromium	280	1,400	57 ⁽¹⁰⁾	114.5	14	12	13	18	8.1	17	17
Cobalt	2.3 ⁽²⁾	30 ⁽²⁾	13 ⁽⁴⁾	26.9	18	11	13	17	14	24	23
Copper	310 ⁽²⁾	4,100 ⁽²⁾	70 ⁽⁴⁾	246	84	190	150	61	9.4	140	100
Lead	400 ⁽³⁾	800 ⁽³⁾	120 ⁽⁴⁾	6.3	1.6 R	1.2 R	1.7 R	0.84 R	0.65 R	1.8 R	1.4 R
Mercury	2.3 ⁽²⁾	31 ⁽²⁾	0.1 ⁽⁶⁾	0.108	0.0039 U	0.0048 U	0.0042 U	0.0048 U	0.0042 U	0.004 U	0.0089 J
Nickel	160 ⁽²⁾	2,000 ⁽²⁾	38 ⁽⁴⁾	24.7	11	7	8.6	16	9.2	18	17

TABLE 6-2

Revised: June 12, 2009

SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB01	78SB01	78SB01	78SB02	78SB02	78SB03	78SB03
Sample ID	Screening	Screening	Ecological	Basewide	78SB01-01	78SB01-03	78SB01-03D	78SB02-01	78SB02-03	78SB03-01	78SB03-01D
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/31/2008	5/31/2008	5/31/2008	5/30/2008	5/30/2008	5/31/2008	5/31/2008
Depth Range	Residential	Industrial	Screening		1.0-3.0	5.0-7.0	5.0-7.0	1.0-3.0	5.0-7.0	1.0-3.0	1.0-3.0
Metals (mg/kg) (continued)											
Selenium	39 ⁽²⁾	510 ⁽²⁾	0.52 ⁽⁴⁾	5.94	0.12 U	0.15 U	0.12 U	0.13 U	0.13 U	0.13 U	0.13 U
Silver	39 ⁽²⁾	510 ⁽²⁾	560 ⁽⁸⁾	NE	0.029 J	0.043 J	0.028 J	0.16 J	0.075 J	0.14 J	0.15 J
Thallium	0.51 ⁽²⁾	6.6 ⁽²⁾	1 ⁽⁷⁾	0.92	0.12 U	0.15 U	0.12 U	0.13 U	0.13 U	0.13 U	0.13 U
Vanadium	55 ⁽²⁾	720 ⁽²⁾	10 ⁽¹¹⁾	434	140	130	130	220	100	190	190
Zinc	2,300 ⁽²⁾	31,000 ⁽²⁾	120 ⁽⁵⁾	88	70 J	39 J	35 J	66 J	37 J	61 J	60 J
TPH DRO and GRO (mg/kg)											
Diesel Range Organics	NE	NE	NE	NE	180	2.1 J	1.5 J	1.4 J	1.2 J	14	12
Gasoline Range Organics	NE	NE	NE	NE	0.079 U	0.11 J	0.053 U	0.064 U	0.071 U	0.071 U	0.063 U
Total TPH	100	NE	NE	NE	180	2.21 J	1.5 J	1.4 J	1.2 J	14	12

TABLE 6-2

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SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB03	78SB04	78SB04	78SB05	78SB06	78SB06	78SB07
Sample ID	Screening	Screening	Ecological	Basewide	78SB03-02	78SB04-01	78SB04-02	78SB05-01	78SB06-01	78SB06-02	78SB07-01
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/31/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008
Depth Range	Residential	Industrial	Screening Values		3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0	1.0-3.0	3.0-5.0	1.0-3.0

Volatile Organic Compounds (ug/kg)

Acetone	6,10,000 ⁽²⁾	61,000,000 ⁽²⁾	NE	NE	16 UJ	14 UJ	8.4 UJ	48 J	26 J	13 J	25 UJ
Iodomethane	NE	NE	NE	NE	1.1 U	0.79 UJ	0.83 UJ	1.2 U	1.9 U	0.99 U	1.4 UJ

Semivolatile Organic Compounds (ug/kg)

1,4-Dichlorobenzene	2,600	13,000	20,000	NE	6.9 U	6.6 U	6.7 UJ	7.8 J	7.4 U	7.1 UJ	6.9 U
Benzo[a]pyrene	15	210	NE	NE	0.74 U	0.7 U	0.71 U	0.78 UJ	0.79 UJ	0.76 UJ	0.73 U
Benzo[b]fluoranthene	150	2,100	NE	NE	0.85 UJ	0.81 U	0.82 UJ	0.9 U	0.91 U	0.88 UJ	0.84 UJ
Benzyl alcohol	3,100,000 ⁽²⁾	31,000,000 ⁽²⁾	NE	NE	8.9 U	8.5 U	8.6 UJ	9.4 U	9.6 U	9.2 UJ	8.9 U
Bis(2-ethylhexyl) phthalate	35,000	120,000	6,010	NE	12 U	5.1 U	27 U	11 J	5.8 U	12 UJ	18 U
Chrysene	15,000	210,000	NE	NE	0.68 U	0.65 U	0.65 U	0.72 U	0.73 U	0.7 UJ	0.68 U
Naphthalene	3,900	20,000	NE	NE	0.67 UJ	0.64 UJ	0.64 UJ	0.71 U	0.72 U	0.69 UJ	0.67 UJ

PAHs (ug/kg)

Low molecular weight PAHs	NE	NE	29,000 ⁽¹²⁾	NE	11.7	11.1	11.1	12.3	12.3	12.2	11.7
High molecular weight PAHs	NE	NE	18,000 ⁽¹³⁾	NE	11.0	10.6	10.6	11.7	11.7	11.6	11.0

Metals (mg/kg)

Antimony	31 ⁽²⁾	410 ⁽²⁾	78 ⁽⁵⁾	NE	0.28 UJ	0.16 UJ	0.11 UJ	0.082 UJ	0.083 UJ	0.077 UJ	0.079 UJ
Arsenic	0.39	1.6	18 ⁽⁴⁾	1.59	1.1	0.95	0.4 U	0.68	0.61	0.4 U	0.65
Barium	1,500 ⁽²⁾	19,000 ⁽²⁾	330 ⁽⁵⁾	220	<u>230</u> ⁽²⁾	38	22	27	76	13	34
Beryllium	16 ⁽²⁾	200 ⁽²⁾	40 ⁽⁵⁾	0.596	0.14	0.15	0.12	0.13	0.14	0.1 J	0.23
Cadmium	7 ⁽²⁾	81 ⁽²⁾	32 ⁽⁴⁾	0.54	<u>2.6</u>	0.3	0.069 J	0.035 J	0.13	0.07 J	0.034 J
Chromium	280	1,400	57 ⁽¹⁰⁾	114.5	10	5.6	9.1	5.7 J	13 J	12 J	14
Cobalt	2.3 ⁽²⁾	30 ⁽²⁾	13 ⁽⁴⁾	26.9	<u>27</u>	12	6.6	9	35	24	11
Copper	310 ⁽²⁾	4,100 ⁽²⁾	70 ⁽⁴⁾	246	120	24	16	84	130	86	21
Lead	400 ⁽³⁾	800 ⁽³⁾	120 ⁽⁴⁾	6.3	1.2 R	1.8 R	1.2 R	0.96	0.76	0.38	0.73 R
Mercury	2.3 ⁽²⁾	31 ⁽²⁾	0.1 ⁽⁶⁾	0.108	0.0042 U	0.0037 U	0.004 U	0.0046 U	0.0046 U	0.0038 U	0.0044 U
Nickel	160 ⁽²⁾	2,000 ⁽²⁾	38 ⁽⁴⁾	24.7	12	6.3	4.8	5.7	20	17	7.5

TABLE 6-2

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**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	<i>Regional</i>	Selected	<u>NAPR</u>	78SB03	78SB04	78SB04	78SB05	78SB06	78SB06	78SB07
Sample ID	Screening	<i>Screening</i>	Ecological	<u>Basewide</u>	78SB03-02	78SB04-01	78SB04-02	78SB05-01	78SB06-01	78SB06-02	78SB07-01
Date	Levels	<i>Levels</i>	Soil	<u>Background</u> ⁽¹⁾	5/31/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008
Depth Range	Residential	<i>Industrial</i>	Screening		3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0	1.0-3.0	3.0-5.0	1.0-3.0
Metals (mg/kg) (continued)											
Selenium	39 ⁽²⁾	510 ⁽²⁾	0.52 ⁽⁴⁾	5.94	0.12 U	0.11 U	0.12 U	0.13 U	0.13 U	0.12 U	0.13 U
Silver	39 ⁽²⁾	510 ⁽²⁾	560 ⁽⁸⁾	NE	0.06 J	0.034 J	0.036 J	0.025 J	0.038 J	0.037 J	0.03 J
Thallium	0.51 ⁽²⁾	6.6 ⁽²⁾	1 ⁽⁷⁾	0.92	0.12 U	0.11 U	0.12 U	0.13 U	0.13 U	0.12 U	0.13 U
Vanadium	55 ⁽²⁾	720 ⁽²⁾	10 ⁽¹¹⁾	434	180	70	55	71	230	170	120
Zinc	2,300 ⁽²⁾	31,000 ⁽²⁾	120 ⁽⁵⁾	88	40 J	29 J	24 J	22 J	46 J	41 J	33 J
TPH DRO and GRO (mg/kg)											
Diesel Range Organics	NE	NE	NE	NE	1.7 J	1.3 J	0.78 J	1.8	0.83	0.9	0.66 U
Gasoline Range Organics	NE	NE	NE	NE	0.072 U	0.056 U	0.062 U	0.2 J	0.082 U	0.072 U	0.072 U
Total TPH	100	NE	NE	NE	1.7 J	1.3 J	0.78 J	2 J	0.83	0.9	0.732 U

TABLE 6-2

Revised: June 12, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	78SB07	78SB08	78SB08	78SB09	78SB09	78SB10	78SB10
Sample ID	Screening	Screening	Ecological	Basewide	78SB07-02	78SB08-01	78SB08-02	78SB09-01	78SB09-03	78SB10-01	78SB10-02
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
Depth Range	Residential	Industrial	Screening Values		3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0	5.0-7.0	1.0-3.0	3.0-5.0
Volatile Organic Compounds (ug/kg)											
Acetone	6,10,000 ⁽²⁾	61,000,000 ⁽²⁾	NE	NE	38 UJ	34 J	17 J	19 J	5.2 U	8.1 J	9.5 J
Iodomethane	NE	NE	NE	NE	3.2 J	1.3 U	1.2 U	1.9 U	1.2 U	1.1 U	1.1 U
Semivolatile Organic Compounds (ug/kg)											
1,4-Dichlorobenzene	2,600	13,000	20,000	NE	7.2 U	7.3 U	7.3 U	6.8 U	6.6 U	7.3 U	6.5 U
Benzo[a]pyrene	15	210	NE	NE	0.77 U	0.77 UJ	0.77 UJ	0.73 U	0.7 U	0.78 U	0.7 U
Benzo[b]fluoranthene	150	2,100	NE	NE	0.89 UJ	0.89 U	0.89 U	0.84 U	0.81 U	0.9 U	0.8 U
Benzyl alcohol	3,100,000 ⁽²⁾	31,000,000 ⁽²⁾	NE	NE	9.3 U	9.4 U	9.4 U	8.8 U	8.5 UJ	9.4 UJ	8.4 U
Bis(2-ethylhexyl) phthalate	35,000	120,000	6,010	NE	21 U	10 J	5.6 U	12 U	8.2 U	9.4 U	34 U
Chrysene	15,000	210,000	NE	NE	0.71 U	0.71 U	0.71 U	0.67 U	0.65 U	0.72 U	0.64 U
Naphthalene	3,900	20,000	NE	NE	0.7 UJ	0.7 U	0.7 U	0.66 U	0.64 U	0.71 U	0.63 U
PAHs (ug/kg)											
Low molecular weight PAHs	NE	NE	29,000 ⁽¹²⁾	NE	12.3	12.3	12.3	11.6	11.1	12.3	11.0
High molecular weight PAHs	NE	NE	18,000 ⁽¹³⁾	NE	11.7	11.7	11.7	11.0	10.6	11.7	10.6
Metals (mg/kg)											
Antimony	31 ⁽²⁾	410 ⁽²⁾	78 ⁽⁵⁾	NE	0.078 UJ	0.078 UJ	0.079 UJ	0.079 UJ	0.082 UJ	0.084 UJ	0.074 UJ
Arsenic	0.39	1.6	18 ⁽⁴⁾	1.59	0.5 U	0.66	0.62	0.36 U	0.48 U	0.54 U	0.54
Barium	1,500 ⁽²⁾	19,000 ⁽²⁾	330 ⁽⁵⁾	220	25	33	42	170	100	450	35
Beryllium	16 ⁽²⁾	200 ⁽²⁾	40 ⁽⁵⁾	0.596	0.16	0.21	0.15	0.19	0.13	0.16	0.24
Cadmium	7 ⁽²⁾	81 ⁽²⁾	32 ⁽⁴⁾	0.54	0.034 J	0.059 J	0.062 J	0.034 J	0.085 J	0.049 J	0.043 J
Chromium	280	1,400	57 ⁽¹⁰⁾	114.5	11	9.9 J	12 J	15 J	12 J	18	14
Cobalt	2.3 ⁽²⁾	30 ⁽²⁾	13 ⁽⁴⁾	26.9	10	7.9	19	33	30	34	16
Copper	310 ⁽²⁾	4,100 ⁽²⁾	70 ⁽⁴⁾	246	18	200	82	170	63	29	8.2
Lead	400 ⁽³⁾	800 ⁽³⁾	120 ⁽⁴⁾	6.3	0.45 R	0.68	0.5	0.78	0.5	1.7	1
Mercury	2.3 ⁽²⁾	31 ⁽²⁾	0.1 ⁽⁶⁾	0.108	0.004 U	0.0043 U	0.0043 U	0.0041 U	0.0042 U	0.0046 U	0.0042 U
Nickel	160 ⁽²⁾	2,000 ⁽²⁾	38 ⁽⁴⁾	24.7	6.8	6.3	12	22	17	12	11

TABLE 6-2

Revised: June 12, 2009

SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB07	78SB08	78SB08	78SB09	78SB09	78SB10	78SB10
Sample ID	Screening	Screening	Ecological	Basewide	78SB07-02	78SB08-01	78SB08-02	78SB09-01	78SB09-03	78SB10-01	78SB10-02
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
Depth Range	Residential	Industrial	Screening		3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0	5.0-7.0	1.0-3.0	3.0-5.0
Metals (mg/kg) (continued)											
Selenium	39 ⁽²⁾	510 ⁽²⁾	0.52 ⁽⁴⁾	5.94	0.13 U	0.13 U	0.13 U	0.13 U	0.12 U	0.13 U	0.12 U
Silver	39 ⁽²⁾	510 ⁽²⁾	560 ⁽⁸⁾	NE	0.03 J	0.022 J	0.053 J	0.089 J	0.099 J	0.098 J	0.023 J
Thallium	0.51 ⁽²⁾	6.6 ⁽²⁾	1 ⁽⁷⁾	0.92	0.13 U	0.13 U	0.13 U	0.35 J	0.25 J	0.13 U	0.12 U
Vanadium	55 ⁽²⁾	720 ⁽²⁾	10 ⁽¹¹⁾	434	74	110	130	200	270	190	160
Zinc	2,300 ⁽²⁾	31,000 ⁽²⁾	120 ⁽⁵⁾	88	25 J	19 J	29 J	60 J	54 J	47	41
TPH DRO and GRO (mg/kg)											
Diesel Range Organics	NE	NE	NE	NE	0.7 U	1.2	1.8	2.2	1.4	2.4	1.8
Gasoline Range Organics	NE	NE	NE	NE	0.06 U	0.12 J	0.072 U	0.07 U	0.059 U	0.065 U	0.062 U
Total TPH	100	NE	NE	NE	0.76 U	1.32 J	1.8	2.2	1.4	2.4	1.8

TABLE 6-2

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**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	78SB11	78SB11	78SB11	78SB12	78SB12	78SB13	78SB14
Sample ID	Screening	Screening	Ecological	Basewide	78SB11-03	78SB11-03D	78SB11-05	78SB12-02	78SB12-03	78SB13-01	78SB14-02
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
Depth Range	Residential	Industrial	Screening Values		5.0-7.0	5.0-7.0	9-11	3.0-5.0	5.0-7.0	1.0-3.0	3.0-5.0
Volatile Organic Compounds (ug/kg)											
Acetone	6,10,000 ⁽²⁾	61,000,000 ⁽²⁾	NE	NE	33 J	11 J	5.6 J	48 J	9.8 J	15 J	31 J
Iodomethane	NE	NE	NE	NE	3.3 J	1.4 U	1 U	5.7	1.2 U	0.86 U	1.5 J
Semivolatile Organic Compounds (ug/kg)											
1,4-Dichlorobenzene	2,600	13,000	20,000	NE	8.9 U	7.3 U	7 UJ	6.5 U	6.6 U	6.7 U	6.9 UJ
Benzo[a]pyrene	15	210	NE	NE	0.95 U	0.78 U	0.74 UJ	0.69 U	0.7 U	0.71 U	0.73 UJ
Benzo[b]fluoranthene	150	2,100	NE	NE	1.1 U	0.9 U	0.86 UJ	0.8 U	0.81 U	0.82 U	0.84 UJ
Benzyl alcohol	3,100,000 ⁽²⁾	31,000,000 ⁽²⁾	NE	NE	12 UJ	9.5 UJ	9 UJ	8.4 U	8.5 U	8.6 UJ	8.8 UJ
Bis(2-ethylhexyl) phthalate	35,000	120,000	6,010	NE	14 U	13 U	7.5 UJ	22 U	17 U	17 U	6.8 UJ
Chrysene	15,000	210,000	NE	NE	0.88 U	0.72 U	0.69 UJ	0.64 U	0.65 U	0.66 U	0.67 UJ
Naphthalene	3,900	20,000	NE	NE	0.86 U	0.71 U	0.85 J	0.63 U	0.64 U	0.67 J	0.66 UJ
PAHs (ug/kg)											
Low molecular weight PAHs	NE	NE	29,000 ⁽¹²⁾	NE	14.8	12.3	11.9	11.0	11.1	11.1	11.6
High molecular weight PAHs	NE	NE	18,000 ⁽¹³⁾	NE	14.1	11.7	11.2	10.5	10.6	10.6	11.0
Metals (mg/kg)											
Antimony	31 ⁽²⁾	410 ⁽²⁾	78 ⁽⁵⁾	NE	0.096 UJ	0.089 J	0.082 UJ	0.1 UJ	0.073 UJ	0.072 UJ	0.25 UJ
Arsenic	0.39	1.6	18 ⁽⁴⁾	1.59	1.1	1.2	2.7	2	0.55	1	1.8
Barium	1,500 ⁽²⁾	19,000 ⁽²⁾	330 ⁽⁵⁾	220	25 J	59 J	25	60	21	71	<u>310</u>
Beryllium	16 ⁽²⁾	200 ⁽²⁾	40 ⁽⁵⁾	0.596	0.21	0.23	0.23	0.14	0.071 J	0.28	0.3
Cadmium	7 ⁽²⁾	81 ⁽²⁾	32 ⁽⁴⁾	0.54	0.11 J	0.24	0.14	0.031 J	0.03 U	0.064 J	0.074 J
Chromium	280	1,400	57 ⁽¹⁰⁾	114.5	15	15	17	31 J	21 J	32 J	9 J
Cobalt	2.3 ⁽²⁾	30 ⁽²⁾	13 ⁽⁴⁾	26.9	19 J	29 J	32	20	22	22	23
Copper	310 ⁽²⁾	4,100 ⁽²⁾	70 ⁽⁴⁾	246	34 J	55 J	130	210	98	74	190
Lead	400 ⁽³⁾	800 ⁽³⁾	120 ⁽⁴⁾	6.3	1.1	1.2	0.65	1	0.42	1.3	1.4
Mercury	2.3 ⁽²⁾	31 ⁽²⁾	0.1 ⁽⁶⁾	0.108	0.0053 U	0.0044 U	0.0045 U	0.0041 U	0.004 U	0.012 J	0.004 U
Nickel	160 ⁽²⁾	2,000 ⁽²⁾	38 ⁽⁴⁾	24.7	5.6	9.3	19	15	21	22	8

TABLE 6-2

Revised: June 12, 2009

SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Site ID	Regional	Regional	Selected	NAPR	78SB11	78SB11	78SB11	78SB12	78SB12	78SB13	78SB14
Sample ID	Screening	Screening	Ecological	Basewide	78SB11-03	78SB11-03D	78SB11-05	78SB12-02	78SB12-03	78SB13-01	78SB14-02
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
Depth Range	Residential	Industrial	Screening		5.0-7.0	5.0-7.0	9-11	3.0-5.0	5.0-7.0	1.0-3.0	3.0-5.0
Metals (mg/kg) (continued)											
Selenium	39 ⁽²⁾	510 ⁽²⁾	0.52 ⁽⁴⁾	5.94	0.15 U	0.14 U	0.13 U	0.3 J	0.12 U	0.35 J	0.14 J
Silver	39 ⁽²⁾	510 ⁽²⁾	560 ⁽⁸⁾	NE	0.022 J	0.037 J	0.041 J	0.025 J	0.016 U	0.033 J	0.052 J
Thallium	0.51 ⁽²⁾	6.6 ⁽²⁾	1 ⁽⁷⁾	0.92	0.15 U	0.14 U	0.13 U	0.12 U	0.12 U	0.11 U	0.13 U
Vanadium	55 ⁽²⁾	720 ⁽²⁾	10 ⁽¹¹⁾	434	120	150	330	120	140	170	210
Zinc	2,300 ⁽²⁾	31,000 ⁽²⁾	120 ⁽⁵⁾	88	54	57	70	40 J	43 J	43 J	52 J
TPH DRO and GRO (mg/kg)											
Diesel Range Organics	NE	NE	NE	NE	2.2	1.4	2.4	5.2	1.1	1.2	1.4
Gasoline Range Organics	NE	NE	NE	NE	0.095 U	0.074 U	0.068 U	0.17 J	0.074 U	0.12 J	0.071 J
Total TPH	100	NE	NE	NE	2.2	1.4	2.4	5.2 J	1.1	1.32 J	1.4 J

TABLE 6-2

Revised: June 12, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	<u>NAPR</u>	78SB15	78SB15	78SB16	78SB16
Sample ID	Screening	Screening	Ecological	<u>Basewide</u>	78SB15-01	78SB15-03	78SB16-01	78SB16-03
Date	Levels	Levels	Soil	<u>Background</u> ⁽¹⁾	5/30/2008	5/30/2008	5/30/2008	5/30/2008
Depth Range	Residential	Industrial	Screening		1.0-3.0	5.0-7.0	1.0-3.0	5.0-7.0
			Values					
Volatile Organic Compounds (ug/kg)								
Acetone	6,10,000 ⁽²⁾	61,000,000 ⁽²⁾	NE	NE	14 J	11 J	24 J	8.3 J
Iodomethane	NE	NE	NE	NE	1.2 U	1.2 U	1.3 U	0.88 U
Semivolatile Organic Compounds (ug/kg)								
1,4-Dichlorobenzene	2,600	13,000	20,000	NE	7.1 U	6.5 U	6.9 U	6.7 U
Benzo[a]pyrene	15	210	NE	NE	0.76 U	0.69 U	0.73 U	0.71 U
Benzo[b]fluoranthene	150	2,100	NE	NE	0.88 U	0.79 U	0.84 U	0.82 U
Benzyl alcohol	3,100,000 ⁽²⁾	31,000,000 ⁽²⁾	NE	NE	9.2 UJ	8.4 U	8.9 U	8.6 U
Bis(2-ethylhexyl) phthalate	35,000	120,000	6,010	NE	12 U	9 U	14 U	12 U
Chrysene	15,000	210,000	NE	NE	0.7 U	0.64 U	0.68 U	0.66 U
Naphthalene	3,900	20,000	NE	NE	0.69 U	0.63 U	0.67 U	0.65 U
PAHs (ug/kg)								
Low molecular weight PAHs	NE	NE	29,000 ⁽¹²⁾	NE	12.2	11.0	11.7	11.1
High molecular weight PAHs	NE	NE	18,000 ⁽¹³⁾	NE	11.6	10.4	11.0	10.6
Metals (mg/kg)								
Antimony	31 ⁽²⁾	410 ⁽²⁾	78 ⁽⁵⁾	NE	0.082 UJ	0.073 UJ	0.11 UJ	0.075 UJ
Arsenic	0.39	1.6	18 ⁽⁴⁾	1.59	0.52 U	0.54	1.4	0.73
Barium	1,500 ⁽²⁾	19,000 ⁽²⁾	330 ⁽⁵⁾	220	20	43	69	24
Beryllium	16 ⁽²⁾	200 ⁽²⁾	40 ⁽⁵⁾	0.596	0.047 J	0.051 J	0.25	0.078 J
Cadmium	7 ⁽²⁾	81 ⁽²⁾	32 ⁽⁴⁾	0.54	0.15	0.16	0.33	0.032 U
Chromium	280	1,400	57 ⁽¹⁰⁾	114.5	21 J	26 J	19 J	16 J
Cobalt	2.3 ⁽²⁾	30 ⁽²⁾	13 ⁽⁴⁾	26.9	18	20	25	20
Copper	310 ⁽²⁾	4,100 ⁽²⁾	70 ⁽⁴⁾	246	72	110	110	76
Lead	400 ⁽³⁾	800 ⁽³⁾	120 ⁽⁴⁾	6.3	0.29 U	0.29 U	4.7	0.5
Mercury	2.3 ⁽²⁾	31 ⁽²⁾	0.1 ⁽⁶⁾	0.108	0.0042 U	0.0042 U	0.0039 U	0.004 U
Nickel	160 ⁽²⁾	2,000 ⁽²⁾	38 ⁽⁴⁾	24.7	19	19	19	17

TABLE 6-2

Revised: June 12, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	Regional	Regional	Selected	NAPR	78SB15	78SB15	78SB16	78SB16
Sample ID	Screening	Screening	Ecological	Basewide	78SB15-01	78SB15-03	78SB16-01	78SB16-03
Date	Levels	Levels	Soil	Background ⁽¹⁾	5/30/2008	5/30/2008	5/30/2008	5/30/2008
Depth Range	Residential	Industrial	Screening		1.0-3.0	5.0-7.0	1.0-3.0	5.0-7.0
Metals (mg/kg) (continued)								
Selenium	39 ⁽²⁾	510 ⁽²⁾	0.52 ⁽⁴⁾	5.94	0.13 U	0.12 U	0.12 U	0.12 U
Silver	39 ⁽²⁾	510 ⁽²⁾	560 ⁽⁸⁾	NE	0.049 J	0.033 J	0.059 J	0.071 J
Thallium	0.51 ⁽²⁾	6.6 ⁽²⁾	1 ⁽⁷⁾	0.92	0.13 U	0.12 U	0.12 U	0.12 U
Vanadium	55 ⁽²⁾	720 ⁽²⁾	10 ⁽¹¹⁾	434	110	160	150	180
Zinc	2,300 ⁽²⁾	31,000 ⁽²⁾	120 ⁽⁵⁾	88	34 J	34 J	37 J	27 J
TPH DRO and GRO (mg/kg)								
Diesel Range Organics	NE	NE	NE	NE	1.7	1	7.7	3.8
Gasoline Range Organics	NE	NE	NE	NE	0.099 J	0.084 U	0.069 U	0.074 U
Total TPH	100	NE	NE	NE	1.7 J	1	7.7	3.8

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
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.
 R - Data is rejected and not usable
 ft bgs - feet below ground surface
 mg/kg - miligrams per kilogram
 NE - Not Established
 PRG - Preliminary Remedial Goal
 NAPR - Naval Activity Puerto Rico
 USEPA - United States Environmental Protection Agency

Note that analytical results greater than three feet bgs are not compared to Ecological Soil Screening Values due to the lack of a complete exposure pathway for ecological receptors.

- (1) NAPR basewide background 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 PRGs 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) Low molecular weight PAHs are defined by the USEPA (2007b) as PAH compounds composed of fewer than four rings. The low molecular weight PAH compounds analyzed for in SWMU78 soil were 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, fluoranthene, fluorene, naphthalene, and phenanthrene. Maximum method detection limit was used if there were no detections.
- (13) High molecular weight PAHs are defined by the USEPA (2007b) as PAH compounds composed of four or more rings. The high molecular weight PAH compounds analyzed for in SWMU 78 soil were benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and pyrene. Maximum method detection limits were used for non-detected PAHs.

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL
SWMU 78 POLE YARD
PHASE I RFI REPORT
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

USEPA. 2007a. Ecological Soil Screening Levels for Copper (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-68.

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 9285.7-72.

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.

United States Environmental Protection Agency (USEPA). 2008. Ecological Soil Screening Levels for Chromium (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-66.

TABLE 6-3

**SUMMARY OF DETECTED LABORATORY RESULTS - QUALITY ASSURANCE/QUALITY CONTROL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	Trip Blanks			Equipment Rinsate Blanks		Field Blank
	QATB01	78TB01	78TB02	ER22	ER24	FB01
Date	5/2/2008	5/29/2008	5/29/2008	5/29/2008	5/31/2008	5/2/2008
Volatile Organic Compounds (ug/L)						
2-Butanone (MEK)	0.6 U	0.6 U	0.6 U	0.6 U	1.1 J	0.69 J
Acetone	5 U	5 UJ	5 U	5 U	6.6 J	5 U
Benzene	0.32 U	0.32 U	0.32 U	0.32 U	1.2	0.32 U
Styrene	0.36 U	0.36 U	0.36 U	0.36 U	0.38 J	0.36 U
Toluene	0.31 U	0.31 U	0.31 U	0.31 U	0.5 J	0.31 U
Semivolatile Organic Compounds (ug/L)						
1,4-Dichlorobenzene	NA	NA	NA	0.12 U	0.12 UJ	0.16 J
2-Methylnaphthalene	NA	NA	NA	0.022 U	0.032 J	0.022 UJ
Acenaphthene	NA	NA	NA	0.019 U	0.019 UJ	0.019 UJ
Acetophenone	NA	NA	NA	0.31 J	0.49 J	0.38 J
Benzo[k]fluoranthene	NA	NA	NA	0.019 U	0.019 UJ	0.019 UJ
Bis(2-ethylhexyl) phthalate	NA	NA	NA	0.34 U	0.43 J	0.34 UJ
Butyl benzyl phthalate	NA	NA	NA	0.42 J	0.17 UJ	0.17 UJ
Diethyl phthalate	NA	NA	NA	0.18 U	0.2 J	0.33 J
Di-n-butyl phthalate	NA	NA	NA	0.63 J	0.62 J	1.2 J
Naphthalene	NA	NA	NA	0.049 U	0.65 J	0.049 UJ
Metals (ug/L)						
Arsenic	NA	NA	NA	0.48 J	0.52 J	0.28 UJ
Chromium	NA	NA	NA	0.6 U	0.6 U	0.6 UJ
Cobalt	NA	NA	NA	0.029 U	0.029 U	0.029 UJ
Copper	NA	NA	NA	1.2 U	1.2 U	2.1 J
Lead	NA	NA	NA	0.15 U	0.15 U	0.38 J
Nickel	NA	NA	NA	0.32 U	0.32 U	0.32 UJ
Tin	NA	NA	NA	0.9 U	1.6 J	0.9 UJ
Vanadium	NA	NA	NA	1.3 J	0.8 U	0.8 UJ
TPH DRO (mg/L)						
Diesel Range Organics [C10-C28]	NA	NA	NA	0.028 U	0.028 J	0.028 UJ

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

mg/L - micrograms per liter

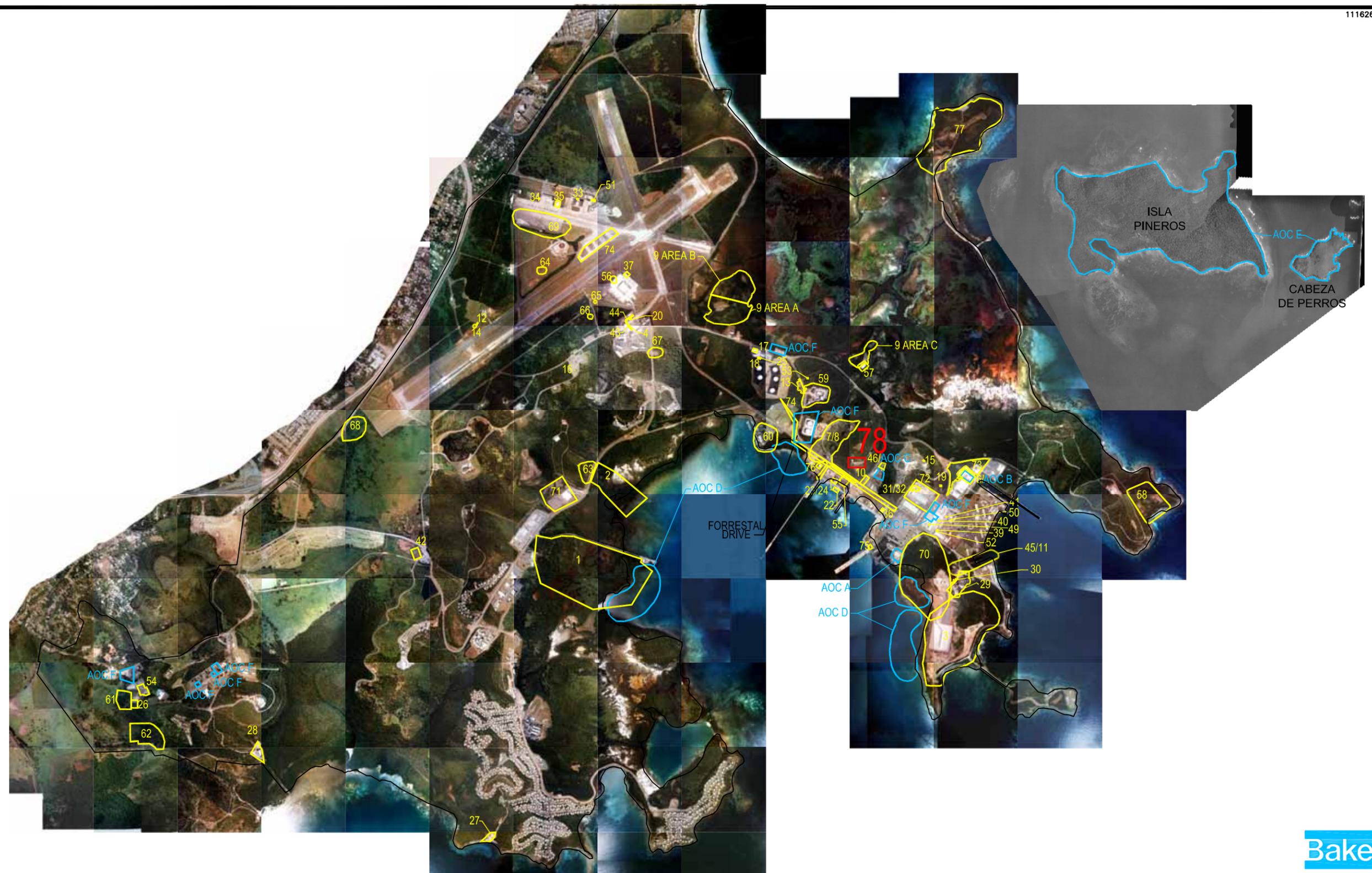
ug/L - micrograms per liter

NA - Not Analyzed

FIGURES



FIGURE 2-1
 REGIONAL LOCATION MAP
 SWMU 78-POLE YARD
 PHASE I RFI REPORT



LEGEND

-  - SWMUs
-  - AOCs
-  - APPROXIMATE AREA TO WHICH THIS INVESTIGATION PERTAINS

SOURCE: GEO-MARINE, INC., SEPTEMBER 6, 2000.

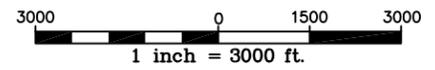
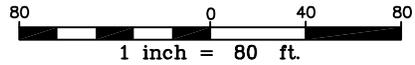


FIGURE 2-2
SWMU/AOC LOCATION MAP
SWMU 78-POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO



Baker



LEGEND

-  -APPROXIMATE SWMU BOUNDARY
-  -CONCRETE PAD

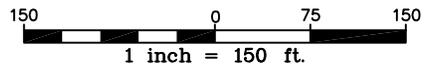
**FIGURE 2-3
SITE LAYOUT
SWMU 78-POLE YARD
PHASE I RFI REPORT**

IMAGE SOURCE: WWW.GOOGLE.COM
IMAGE 2007 DIGITALGLOBE

NAVAL ACTIVITY PUERTO RICO



Baker

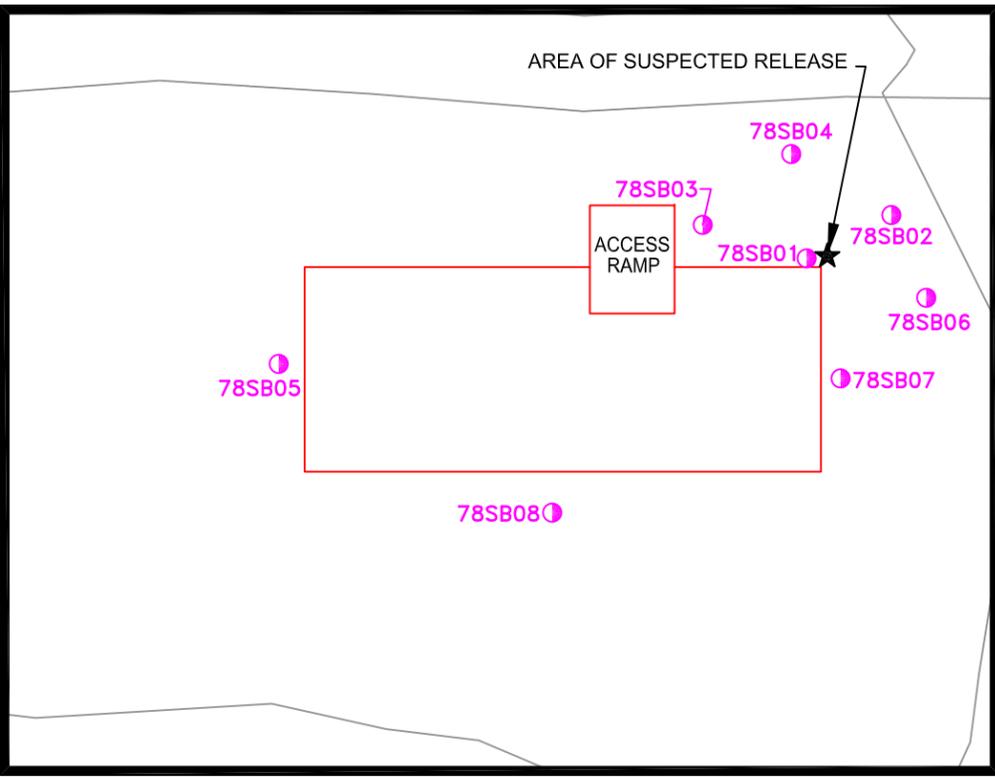
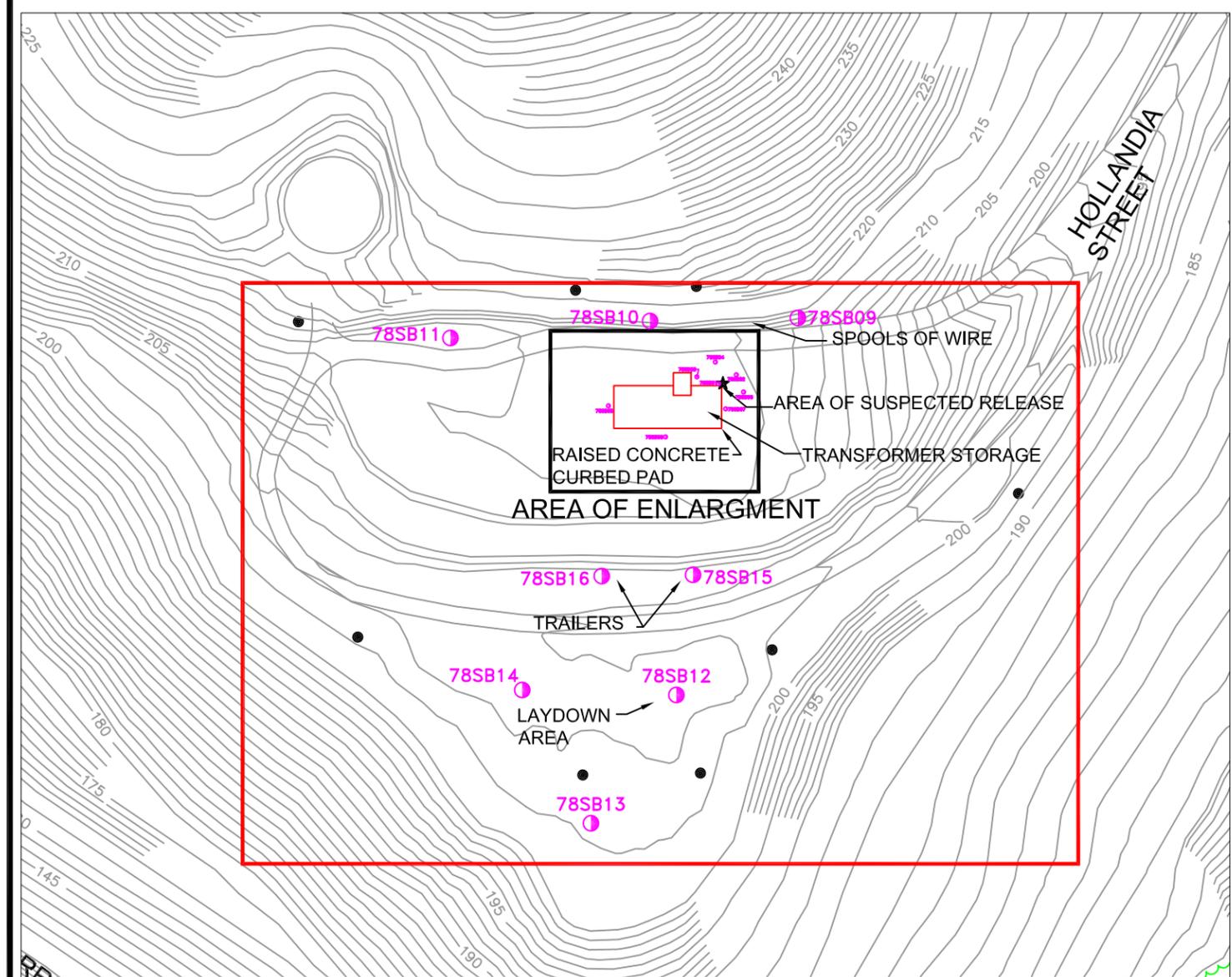


LEGEND

 -APPROXIMATE SWMU BOUNDARY

FIGURE 2-4
1995 AERIAL PHOTOGRAPH
SWMU 78-POLE YARD
PHASE I RFI REPORT

NAVAL ACTIVITY PUERTO RICO



AREA OF ENLARGMENT
 20 0 10 20
 1 inch = 20 ft.

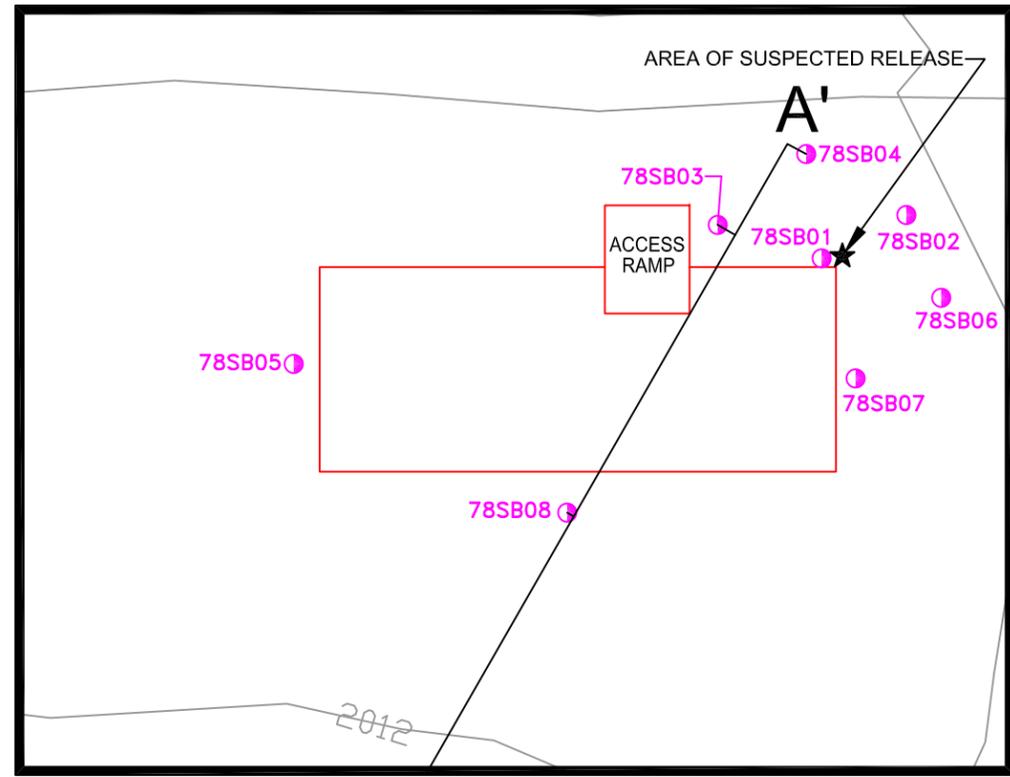
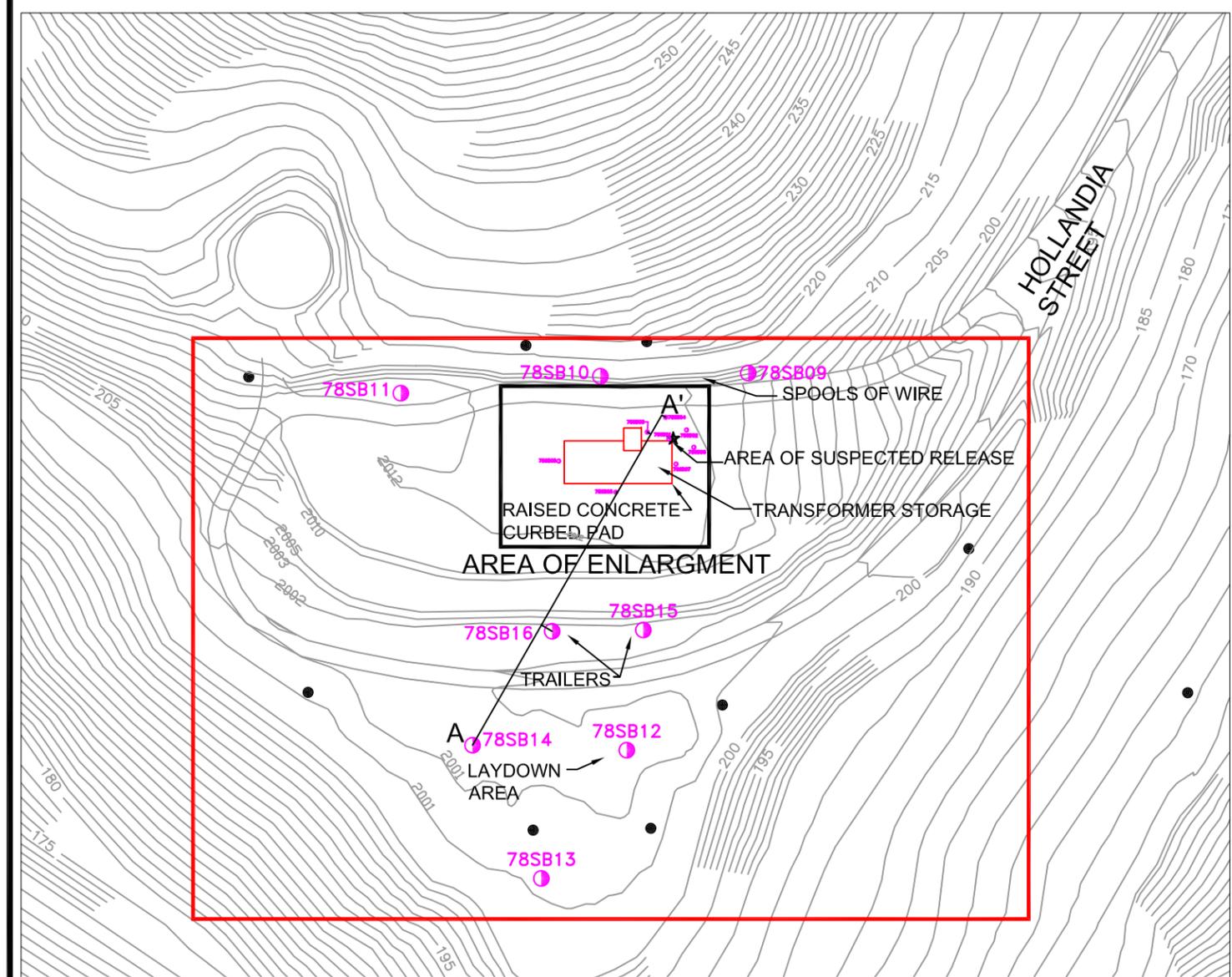
80 0 40 80
 1 inch = 80 ft.



- LEGEND**
- APPROXIMATE SWMU BOUNDARY
 - CONCRETE PAD
 - SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
 - UTILITY POLES
 - GROUND SURFACE ELEVATION CONTOUR

FIGURE 4-1
 SAMPLE LOCATION MAP
 SWMU 78-POLE YARD
 PHASE I RFI REPORT

CONTOUR SOURCE: LANTDIV, FEB. 1992/1997



20 0 10 20
1 inch = 20 ft.

80 0 40 80
1 inch = 80 ft.

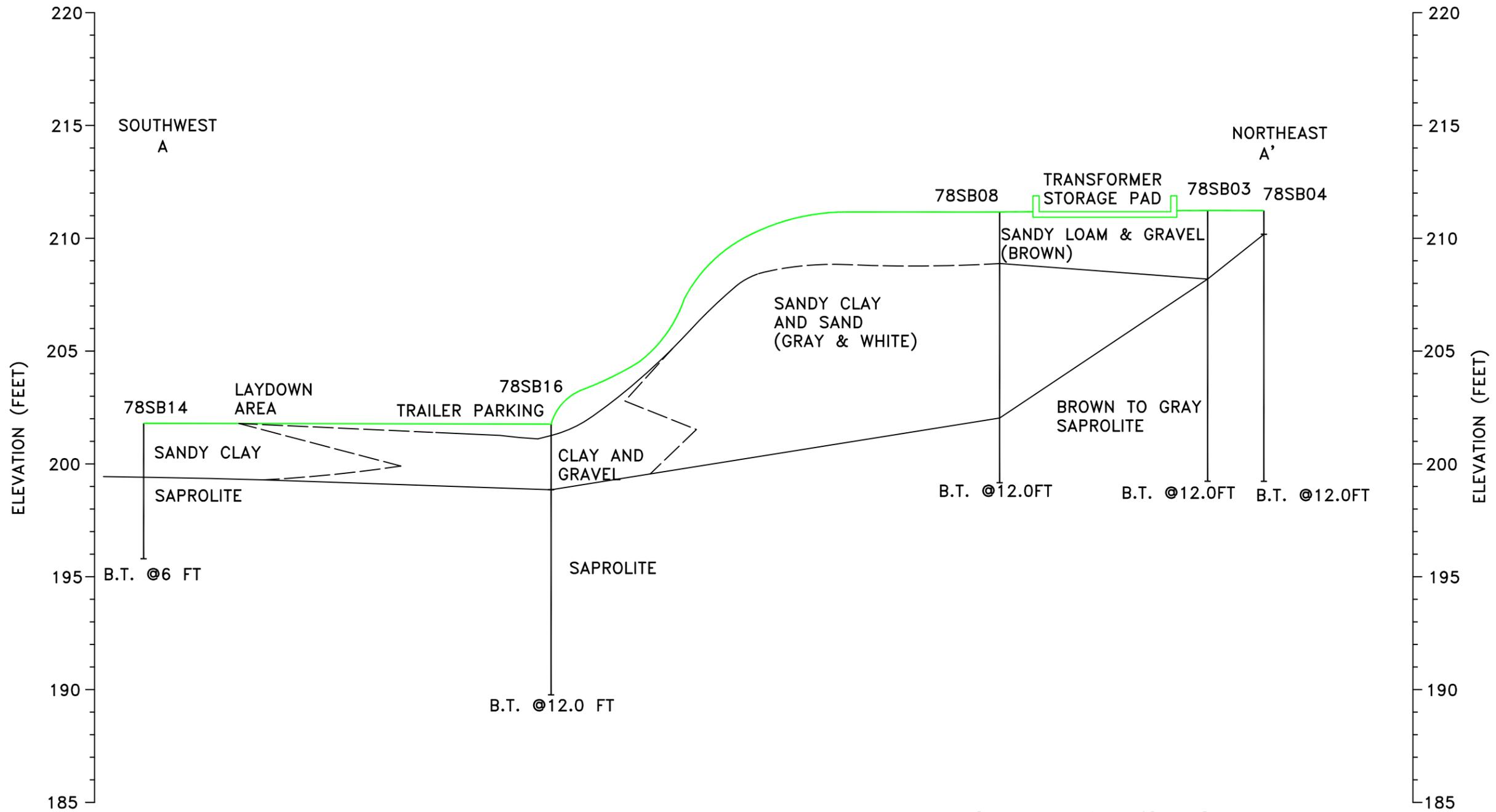


- LEGEND**
- APPROXIMATE SWMU BOUNDARY
 - CONCRETE PAD
 - SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
 - UTILITY POLES
 - GROUND SURFACE ELEVATION CONTOUR
 - CROSS SECTION

FIGURE 5-1
GEOLOGIC CROSS SECTION LOCATION
SWMU 78-POLE YARD
PHASE I RFI REPORT

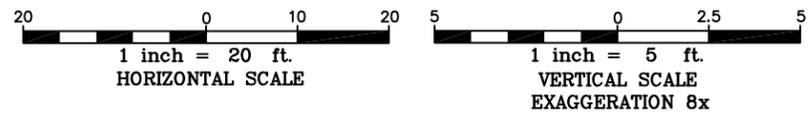
CONTOUR SOURCE: LANTDIV, FEB. 1992/1997

NAVAL ACTIVITY PUERTO RICO



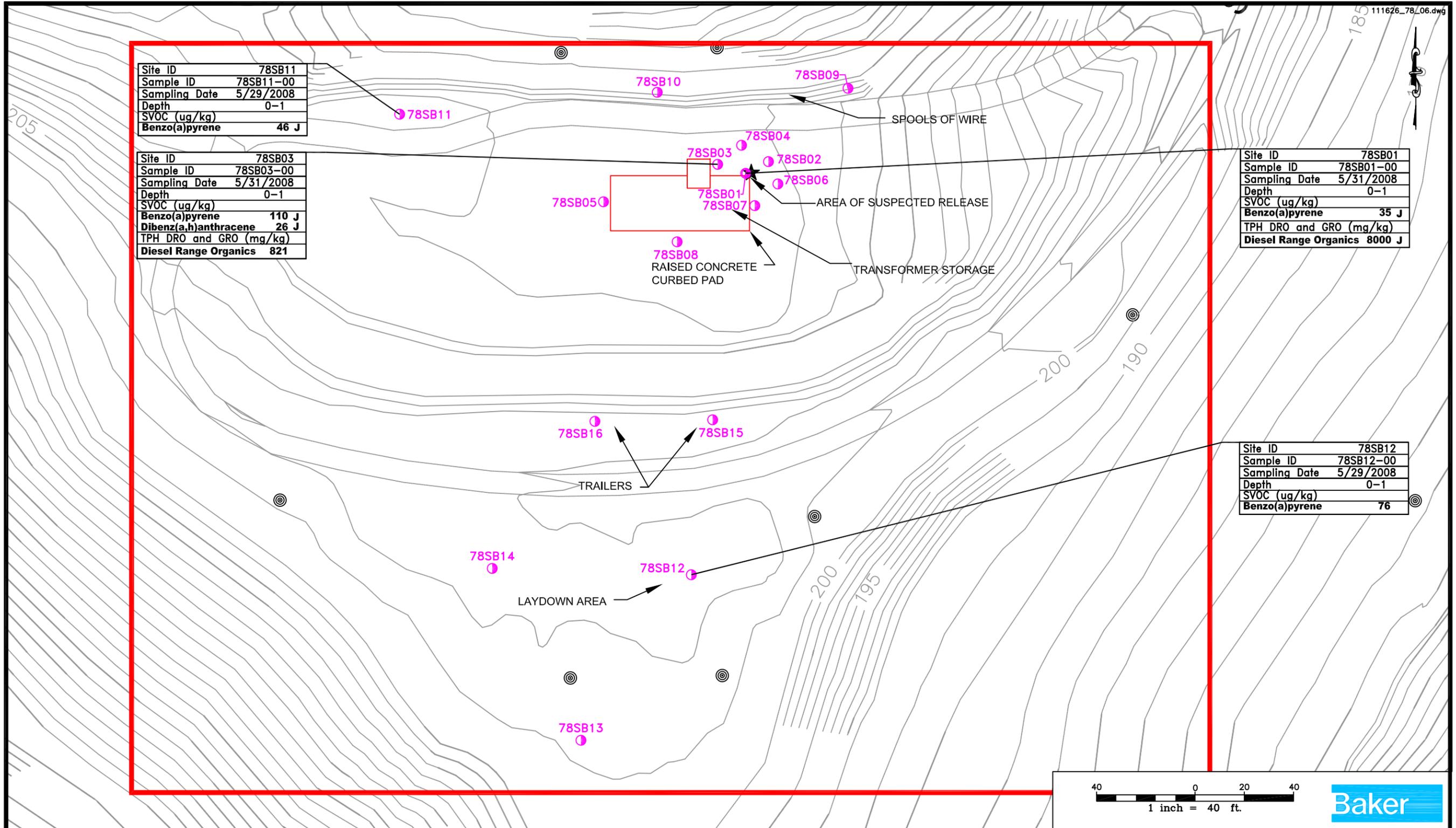
ELEVATIONS NOT SURVEYED, ELEVATIONS BASED ON CONTOURS GIVEN IN FIGURE 5-1

THE SOIL BORING INFORMATION IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. SUBSURFACE CONDITIONS INTERPOLATED BETWEEN BORINGS ARE ESTIMATED BASED ON ACCEPTED SOIL ENGINEERING PRINCIPLES AND GEOLOGIC JUDGEMENT.



LEGEND	
ft	-FEET
B.T.	-BORING TERMINATED (FEET BELOW GROUND SURFACE)
—	-ESTIMATED CONTACT
- - -	-PROJECTED CONTACT
⊥	-SOIL BORING

FIGURE 5-2
GEOLOGIC CROSS SECTION A-A'
SWMU 78-POLE YARD
PHASE I RFI REPORT

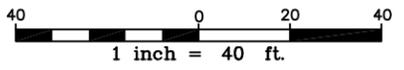


Site ID	78SB11
Sample ID	78SB11-00
Sampling Date	5/29/2008
Depth	0-1
SVOC (ug/kg)	
Benzo(a)pyrene	46 J

Site ID	78SB03
Sample ID	78SB03-00
Sampling Date	5/31/2008
Depth	0-1
SVOC (ug/kg)	
Benzo(a)pyrene	110 J
Dibenz(a,h)anthracene	26 J
TPH DRO and GRO (mg/kg)	
Diesel Range Organics	821

Site ID	78SB01
Sample ID	78SB01-00
Sampling Date	5/31/2008
Depth	0-1
SVOC (ug/kg)	
Benzo(a)pyrene	35 J
TPH DRO and GRO (mg/kg)	
Diesel Range Organics	8000 J

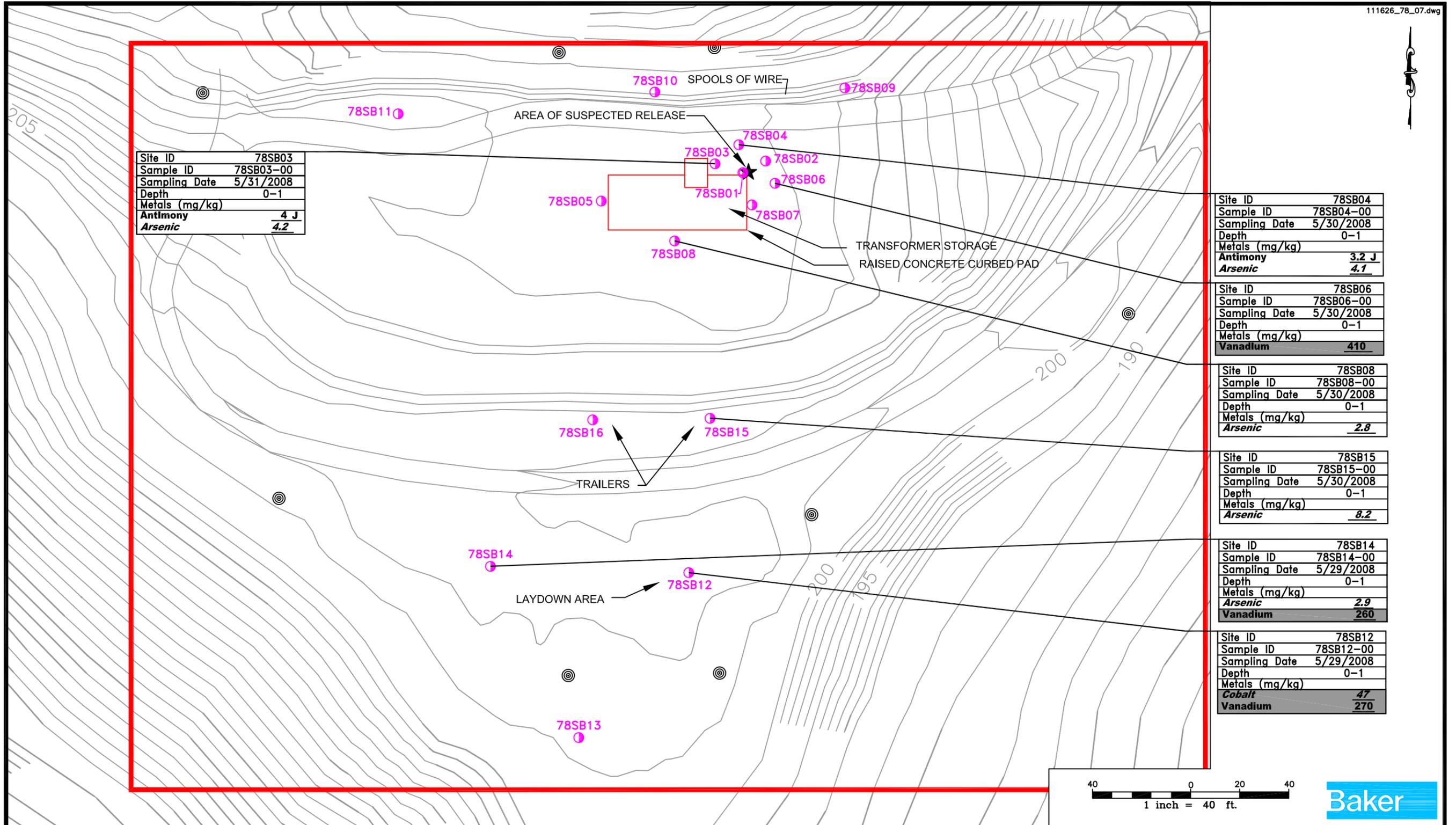
Site ID	78SB12
Sample ID	78SB12-00
Sampling Date	5/29/2008
Depth	0-1
SVOC (ug/kg)	
Benzo(a)pyrene	76



- LEGEND**
- APPROXIMATE SWMU BOUNDARY
 - CONCRETE PAD
 - SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
 - UTILITY POLES
 - GROUND SURFACE ELEVATION CONTOUR

J: Estimated: The analyte was positively identified; the quantitation is an estimation
BOLD Exceeds Regional Screening Levels, Residential soil
 Depth Range Feet Below Ground Surface
 CONTOUR SOURCE: LANTDIV, FEB. 1992/1997

FIGURE 6-1
 DETECTED ORGANICS IN EXCESS OF HUMAN HEALTH SCREENING CRITERIA IN SURFACE SOIL
 SWMU 78-POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO



Site ID	78SB03
Sample ID	78SB03-00
Sampling Date	5/31/2008
Depth	0-1
Metals (mg/kg)	
Antimony	4 J
Arsenic	4.2

Site ID	78SB04
Sample ID	78SB04-00
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Antimony	3.2 J
Arsenic	4.1

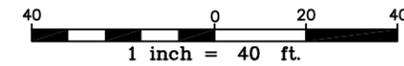
Site ID	78SB06
Sample ID	78SB06-00
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Vanadium	410

Site ID	78SB08
Sample ID	78SB08-00
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Arsenic	2.8

Site ID	78SB15
Sample ID	78SB15-00
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Arsenic	8.2

Site ID	78SB14
Sample ID	78SB14-00
Sampling Date	5/29/2008
Depth	0-1
Metals (mg/kg)	
Arsenic	2.9
Vanadium	260

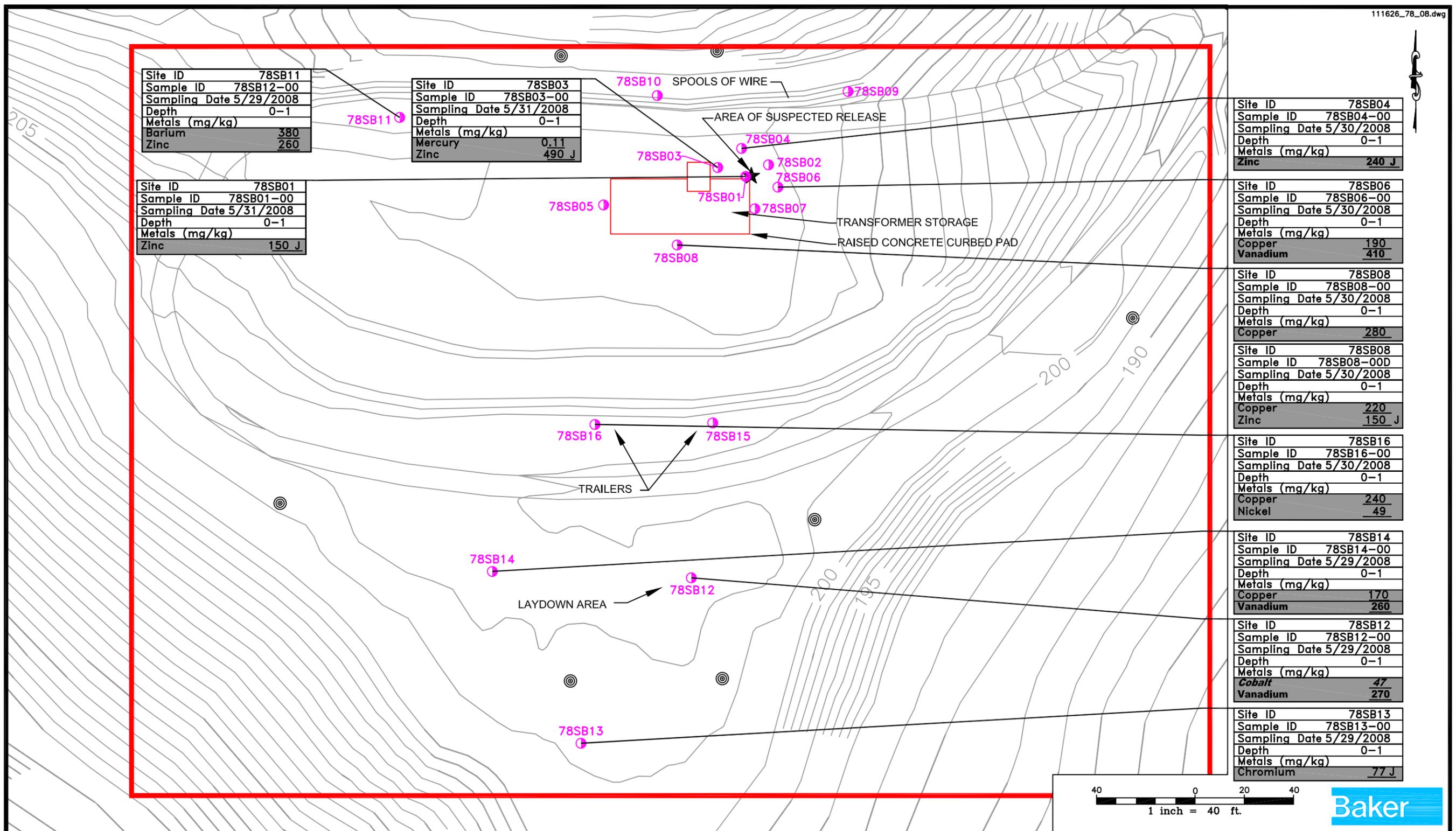
Site ID	78SB12
Sample ID	78SB12-00
Sampling Date	5/29/2008
Depth	0-1
Metals (mg/kg)	
Cobalt	47
Vanadium	270



J: Estimated: The analyte was positively identified; the quantitation is an estimation
 Exceeds Ecological Surface Soil Screening Values
BOLD Exceeds Regional Screening Levels, Residential soil
ITALIC Exceeds Regional Screening Levels, Industrial soil
UNDERLINE Exceeds Basewide Background
 Depth Range Feet Below Ground Surface
 CONTOUR SOURCE: LANTDIV, FEB. 1992/1997

- LEGEND**
- APPROXIMATE SWMU BOUNDARY
 - CONCRETE PAD
 - SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
 - UTILITY POLES
 - GROUND SURFACE ELEVATION CONTOUR

FIGURE 6-2
 DETECTED INORGANICS IN EXCESS OF HUMAN HEALTH SCREENING CRITERIA AND BACKGROUND IN SURFACE SOIL
 SWMU 78-POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO



Site ID	78SB11
Sample ID	78SB12-00
Sampling Date	5/29/2008
Depth	0-1
Metals (mg/kg)	
Barium	380
Zinc	260

Site ID	78SB03
Sample ID	78SB03-00
Sampling Date	5/31/2008
Depth	0-1
Metals (mg/kg)	
Mercury	0.11
Zinc	490 J

Site ID	78SB01
Sample ID	78SB01-00
Sampling Date	5/31/2008
Depth	0-1
Metals (mg/kg)	
Zinc	150 J

Site ID	78SB04
Sample ID	78SB04-00
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Zinc	240 J

Site ID	78SB06
Sample ID	78SB06-00
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Copper	190
Vanadium	410

Site ID	78SB08
Sample ID	78SB08-00
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Copper	280

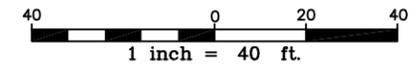
Site ID	78SB08
Sample ID	78SB08-00D
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Copper	220
Zinc	150 J

Site ID	78SB16
Sample ID	78SB16-00
Sampling Date	5/30/2008
Depth	0-1
Metals (mg/kg)	
Copper	240
Nickel	49

Site ID	78SB14
Sample ID	78SB14-00
Sampling Date	5/29/2008
Depth	0-1
Metals (mg/kg)	
Copper	170
Vanadium	260

Site ID	78SB12
Sample ID	78SB12-00
Sampling Date	5/29/2008
Depth	0-1
Metals (mg/kg)	
Cobalt	47
Vanadium	270

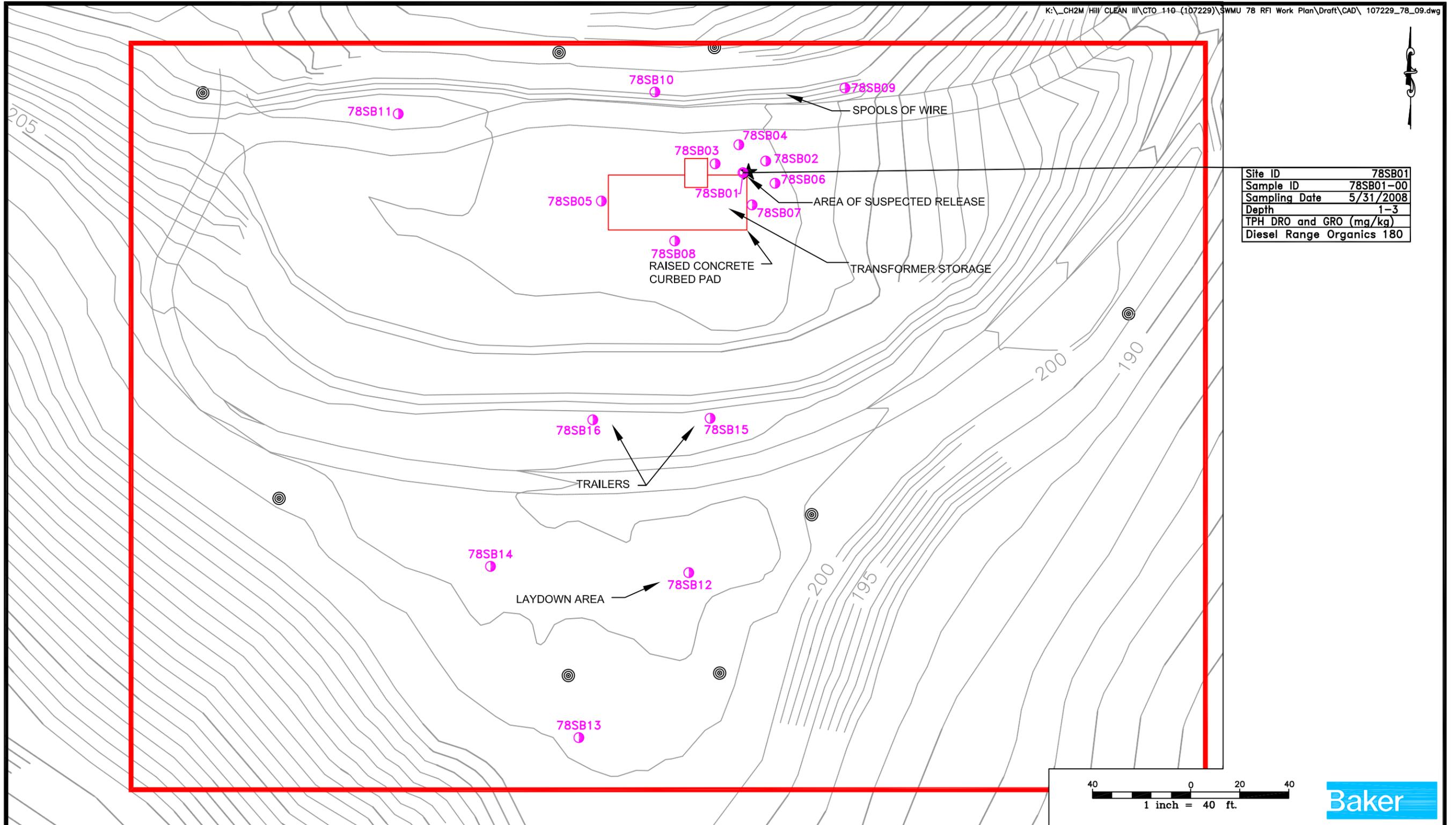
Site ID	78SB13
Sample ID	78SB13-00
Sampling Date	5/29/2008
Depth	0-1
Metals (mg/kg)	
Chromium	77 J



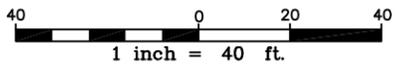
J: Estimated: The analyte was positively identified; the quantitation is an estimation
 Exceeds Ecological Surface Soil Screening Values
BOLD Exceeds Regional Screening Levels, Residential soil
ITALIC Exceeds Regional Screening Levels, Industrial soil
UNDERLINE Exceeds Basewide Background
 Depth Range Feet Below Ground Surface
 CONTOUR SOURCE: LANTDIV, FEB. 1992/1997

- LEGEND**
- APPROXIMATE SWMU BOUNDARY
 - CONCRETE PAD
 - SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
 - UTILITY POLES
 - GROUND SURFACE ELEVATION CONTOUR

FIGURE 6-3
 DETECTED INORGANICS IN EXCESS OF ECOLOGICAL SCREENING CRITERIA AND BACKGROUND IN SURFACE SOIL
 SWMU 78-POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO



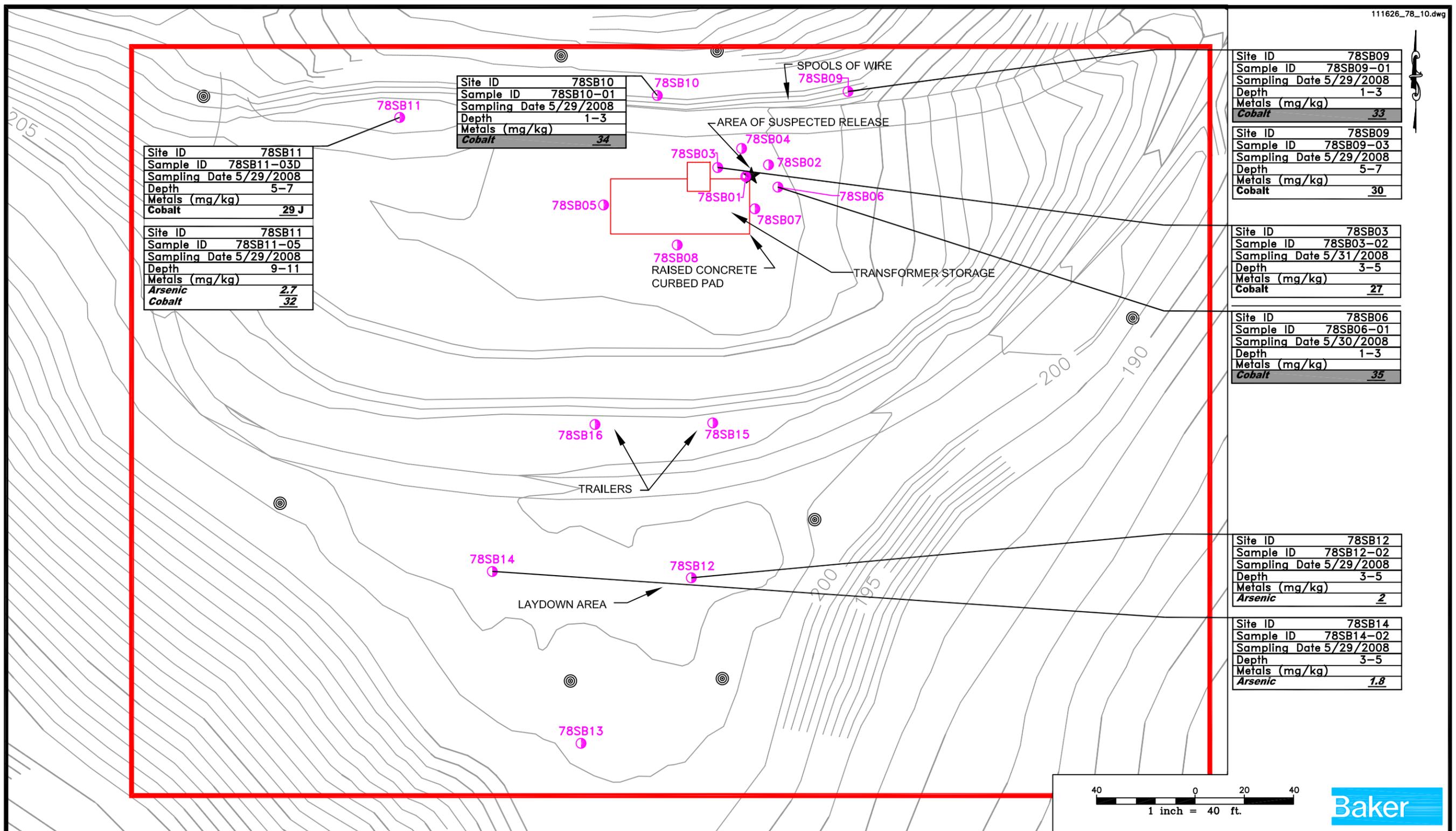
Site ID	78SB01
Sample ID	78SB01-00
Sampling Date	5/31/2008
Depth	1-3
TPH DRO and GRO (mg/kg)	
Diesel Range Organics	180



- LEGEND**
- APPROXIMATE SWMU BOUNDARY
 - CONCRETE PAD
 - SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
 - UTILITY POLES
 - 200- -GROUND SURFACE ELEVATION CONTOUR

FIGURE 6-4
 DETECTED ORGANIC IN EXCESS
 OF HUMAN HEALTH SCREENING CRITERIA
 IN SUBSURFACE SOIL
 SWMU 78-POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO

CONTOUR SOURCE: LANTDIV, FEB. 1992/1997



Site ID	78SB11
Sample ID	78SB11-03D
Sampling Date	5/29/2008
Depth	5-7
Metals (mg/kg)	
Cobalt	29 J

Site ID	78SB11
Sample ID	78SB11-05
Sampling Date	5/29/2008
Depth	9-11
Metals (mg/kg)	
Arsenic	2.7
Cobalt	32

Site ID	78SB10
Sample ID	78SB10-01
Sampling Date	5/29/2008
Depth	1-3
Metals (mg/kg)	
Cobalt	34

Site ID	78SB09
Sample ID	78SB09-01
Sampling Date	5/29/2008
Depth	1-3
Metals (mg/kg)	
Cobalt	33

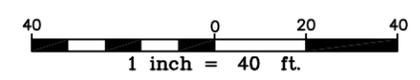
Site ID	78SB09
Sample ID	78SB09-03
Sampling Date	5/29/2008
Depth	5-7
Metals (mg/kg)	
Cobalt	30

Site ID	78SB03
Sample ID	78SB03-02
Sampling Date	5/31/2008
Depth	3-5
Metals (mg/kg)	
Cobalt	27

Site ID	78SB06
Sample ID	78SB06-01
Sampling Date	5/30/2008
Depth	1-3
Metals (mg/kg)	
Cobalt	35

Site ID	78SB12
Sample ID	78SB12-02
Sampling Date	5/29/2008
Depth	3-5
Metals (mg/kg)	
Arsenic	2

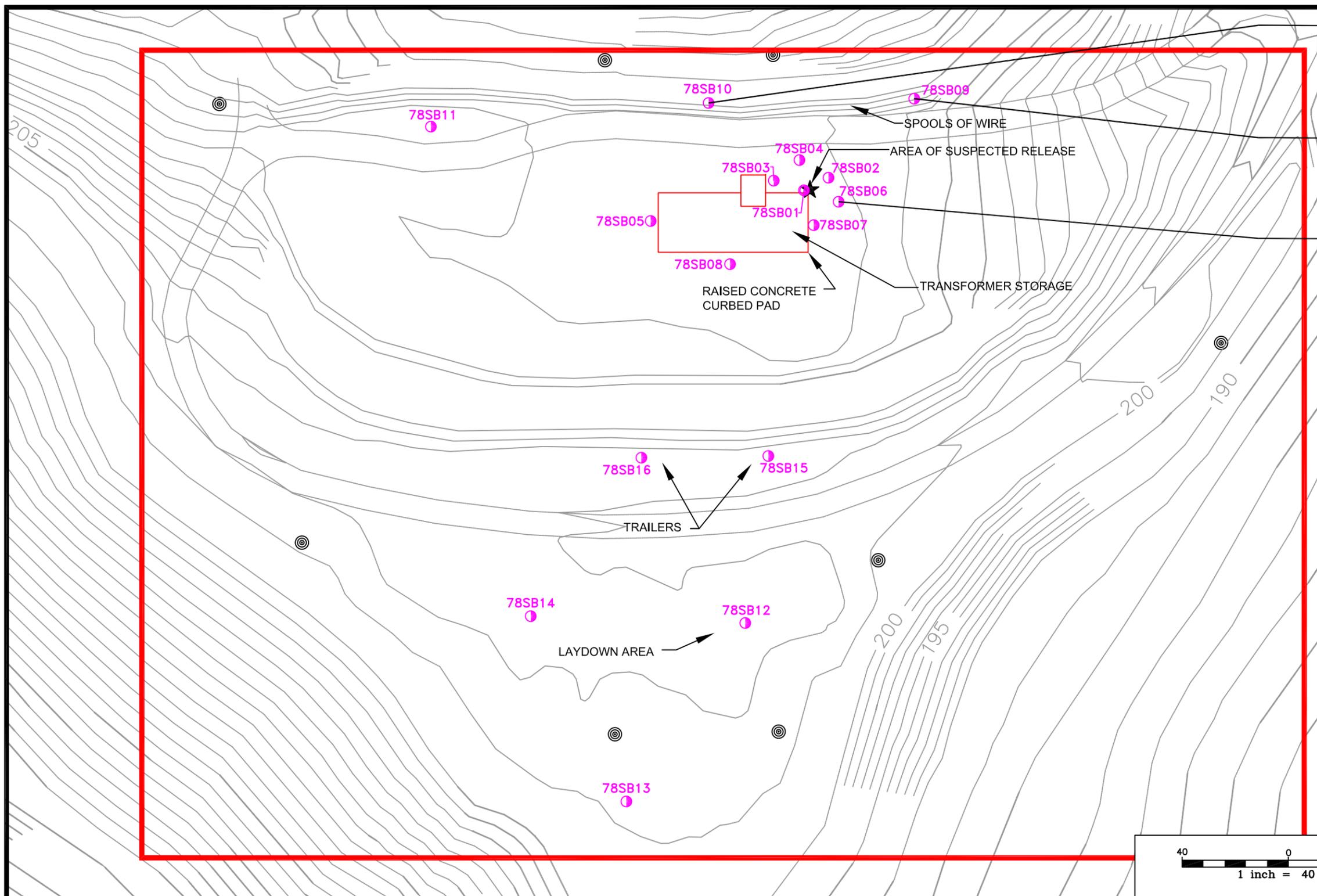
Site ID	78SB14
Sample ID	78SB14-02
Sampling Date	5/29/2008
Depth	3-5
Metals (mg/kg)	
Arsenic	1.8



J: Estimated: The analyte was positively identified; the quantitation is an estimation
 Selected Ecological Surface Soil Screening Values
BOLD Exceeds Regional Screening Levels, Residential soil
ITALIC Exceeds Regional Screening Levels, Industrial soil
UNDERLINE Exceeds Basewide Background
 Depth Range Feet Below Ground Surface
 CONTOUR SOURCE: LANTDIV, FEB. 1992/1997

- LEGEND**
- APPROXIMATE SWMU BOUNDARY
 - CONCRETE PAD
 - SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
 - UTILITY POLES
 - GROUND SURFACE ELEVATION CONTOUR

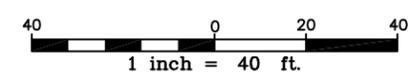
FIGURE 6-5
 DETECTED INORGANICS IN EXCESS OF HUMAN HEALTH SCREENING CRITERIA AND BACKGROUND IN SUBSURFACE SOIL
 SWMU 78-POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO



Site ID	78SB10
Sample ID	78SB10-01
Sampling Date	5/29/2008
Depth	1-3
Metals (mg/kg)	
<i>Barium</i>	<u>450</u>
<i>Cobalt</i>	<u>34</u>

Site ID	78SB09
Sample ID	78SB09-01
Sampling Date	5/29/2008
Depth	1-3
Metals (mg/kg)	
<i>Cobalt</i>	<u>33</u>

Site ID	78SB06
Sample ID	78SB06-01
Sampling Date	5/30/2008
Depth	1-3
Metals (mg/kg)	
<i>Cobalt</i>	<u>35</u>



J: Estimated: The analyte was positively identified; the quantitation is an estimation
 Exceeds Ecological Surface Soil Screening Values
BOLD Exceeds Regional Screening Levels, Residential soil
ITALIC Exceeds Regional Screening Levels, Industrial soil
UNDERLINE Exceeds Basewide Background
 Depth Range Feet Below Ground Surface
 CONTOUR SOURCE: LANTDIV, FEB. 1992/1997

- LEGEND**
- APPROXIMATE SWMU BOUNDARY
 - CONCRETE PAD
 - SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
 - UTILITY POLES
 - GROUND SURFACE ELEVATION CONTOUR

FIGURE 6-6
 DETECTED INORGANICS IN EXCESS OF ECOLOGICAL SCREENING CRITERIA AND BACKGROUND IN SUBSURFACE SOIL
 SWMU 78-POLE YARD
 PHASE I RFI REPORT
 NAVAL ACTIVITY PUERTO RICO

APPENDIX A
2008 FIELD ACTIVITIES

FIELD LOG BOOK NOTES

5/29/08

78SB11

- 0-4 Sandy loam sand gravel to
3.5' Rec. 1.5', dry, brownish gray
<1ppm weather rock @ 1.5'
red and white, friable,
calcareous, dry
- 4-8' med brown sandy clay @ 4.2'
4' Rec. some silt, mod. hard, dry
<1ppm 4.9' yellow and white
weathered rock, saprolite,
mod. soft, damp,
- 8-12'
4' Rec. turns brown @ 8.5' damp
<1ppm to day, friable, rock frags
throughout. Saprolite,
mod. hard.

Samples collected

78SB11-00 1100

78SB11-03 1110

78SB11-03D 1110

78SB11-03 MS 1110

78SB11-03 MSD 1110

78SB11-05 1130

5/29/08

78SB10

- 0-4'
4' Rec.
<1ppm
Sandy silt with gravel
dry, dusty, loose
to 1.8'
@ 1.8 weathered rock saprolite
yellow and red, mod hard,
break up into sandy clay with
rock frags @ 5.1'
light gray silt and gravel
dry, dusty, loose
saprolite again @ 7.2'
to 8.5 then light gray
silt and gravel, dry dusty
loose
saprolite again @ 11.6'

Samples Collected

78SB10-00 1210

78SB10-01 1220

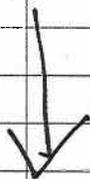
78SB10-02 1230

78SB09

0-4' Sandy loam and gravel to
3.6' Rec 1.8' loose, dry, med soft gray/brown
4ppm then greenish gray siltstone
weathered rock, friable, rock
frags, dry med, hard

4-8'
4' Rec becomes light gray @ 5' some
4ppm clayey zones, dry to damp
rock frags, loose

8-12'
4' Rec.
4ppm



5/29/08

Samples Collected

78SB09-00 1400

78SB09-01 1415

78SB09-03 1430

5/27/08

785B12

0-4'
3.2' Rec
<1ppm
Med brown, sandy clay, very
hard, compact, dry
to 1.1'
then rocky gravel, light gray
base, hard dry to 3'
then yellow green siltstone
weathered rock, sandy clay
and rock frags
light gray rocks @ 7' hard
base,
~~8-12'~~
Greasy base return @ 8'

Samples Collected

785B12-00 1305

785B12-02 1315

785B12-03 1325

785B13

785B13

3021

785B13

0-4'

Sandy clay with stones

3.1' Rec.

dark brown, hard, dry to 1.2'

<1 ppm

light brown sandy clay mixed with gravel, dry, hard, some spherulite

4-8'

light gray rock, loose dry @ 4'

2' Rec.

Geoprobe refusal @ 6'

<1 ppm

light gray rocks, loose, dry

X

5/29/08

Samples Collected

785B13-00

1600

785B13-01

~~1610~~

Did not collect a second subsurface soil sample due to rocks and refusal

5/29/08

785B14

0-4' Med brown sandy clay with
4' Rec. stones, damp to moist, med hard
slppm iron staining to 0.9'
becomes light gray siltstone
dry, brittle, rock frags to 2.3'
4-8' then med brown sandy clay
1.5' Rec with silt and stones, dry
slppm brittle, med soft to 4'
light greenish gray silt and
sand mixed with light gray
rocks,
Geoprobe refusal @ 6'

Samples Collected

785B14-00 1625
785B14-02 1635

Did not collect second subsurface
sample due to rocks and
refusal

5/30/08

5/30/08
Sunny 85°

on-site 630
Drillas on-site 700

mob to Sumner 78

Dozer on-site 7:15

mob to Sumner 61

clear drilling locations

Mob Dozer to Sumner 62 1130

clear drilling locations

Mob Dozer to Sumner 71

@ 400 pm

785B15

0-4' Sandy loam dark brown
3.5' Rec to 0.6' then med. brown
Oppm Sandy clay and gravel
becomes med gray @ 2.5'

4-8' Sandy clay, grayish brown
4' Rec. with brown streaks, dry
Oppm moderately hard, trace of
gravel from 4-6.5' and
some gravel again from 6.5 to 8'.

8-12'
1.4' Rec. Sandy clay becomes light
Oppm brown, dry, moderately
hard, ^{some} gravel from 8-8.6'

5/30/08

Samples Collected

785B15-00	0805
785B15-01	0820
785B15-03	0830

78SB16

0-4'
3.75' Rec
Oppm
Sandy ~~clay~~, dark brown to
0.5' then Sandy Clay
light brownish gray, some
gravel from 0.5 to 3.0'
then gravelly clay from 3 to
4'

4-8'
3.5' Rec
Oppm
Sandy Clay, light brown/gray
with streaks of red, clay
trace of gravel throughout

8-12'
3.0' Rec
Oppm
Sandy Clay, light brown/gray
some gravel throughout,
very dry, some mottling
from 11-12'

5/30/68

Samples Collected

78SB16-00	0850
78SB16-01	0900
78SB16-03	0910

785B05

0-4' Gravel, gray, hard 0 to 1'
2.5' Rec. Sandy Clay, orangish gray
Oppm with some gravel throughout
very dry

4-8' Sandy Clay, grayish/brown
2.75' Rec. some gravel from 4' to 5.5'
Oppm less gravel from 5.5' to 6.75'
very dry

Geoprobe refusal @ 6.75'

5/30/68

Samples Collected

785B05-00 0930

785B05-01 0945

second subsurface sample not
collected due to rocks and geoprobe
refusal

78SB08

0-4'
3.1' Rec
Oppm
Sandy loam, dark brown,
dry to 2' then Sandy
Clay, grayish brown, dry
some gravel throughout.

4-8'
3.9' Rec
Oppm
Sandy Clay, light brown
damp to dry, trace of
gravel

8-12'
4' Rec
Oppm
Sandy Clay, gray, dry
some saprolitic structure.
beginning @ 9'

5/30/68

Samples Collected

78SB08-00	1010
78SB08-00D	1010
78SB08-01	1020
78SB08-02	1030

78SB06

0-4'
4' Rec. Sandy Clay, light brown,
Some gravel throughout, dry
Oppm

4-8'
4' Rec. Sandy clay, light grayish
brown, some gravel
Oppm throughout, dry

8-12'
4' Rec. Sandy Clay, brownish gray
dry, saprolitic structure
Oppm beginning @ 8.5'

5/30/08

Samples Collected

78SB06-00	1045
78SB06-01	1055
78SB06-02	1100

5/30/08

Samples Collected

0-4
3.2' Rec
4 ppm

Gravel mixed with yellow
and gray saprolite, med soft
dry

gravel light gray rock down
1.8 to 2.3 then

4-8'
4' Rec.
4 ppm

saprolite, clay and sand
with rock frags, yellow
and brown,
becomes med brown and
gray @ 4.5'

8-12'
4' Rec.
4 ppm

some iron staining @ 5'
intervals of reddish
gray saprolite starting
@ 7' damp to moist

78SB07-00

1415

78SB07-01

1425

78SB07-02

1435

78SB02

- 0-4' Topsoil sandy loam first 3"
3.7' Rec then sandy clay mixed with
<1ppm gravel to 0.8'
 then spherulite weathered
 rock, clayey, rock frags,
 dry, yellow and light red.
- 4-8'
4' Rec. became gray green @ 5'
<1ppm some areas of red, damp
 @ 5', mod soft, spherulite
- 8-12'
4' Rec. ↓
<1ppm

5/30/08

Samples Collected

78SB02 - 00	1500
78SB02 - 01	1510
78SB02 - 03	1520

78SB04

0-4' Sandy loam mod brown, hard
 3.8' Rec dry to 0.6' then sandy
 <1ppm clay and gravel to 1.1'
 dry, mod soft

4-8' rock, clay and sand mixed
 4' Rec with rock frags, dry, mod
 <1ppm hard gray with some yellow
 @ 7' reddish saprolite

8-12' then 8' green gray saprolite
 4' Rec damp mod hard with
 <1ppm rocks.

#

5/30/08

Samples Collected

78SB04-00	1550
78SB04-01	1600
78SB04-02	1615

5/31/08
Sunny 85°F

On-site 630
Drillers on-site 700

Dozer operator on-site 715
Give him directions for clearing
SUMU 71

Mob to SUMU 78 to
finish last two borings @ 7:45-

5/31/08

78SB03

Samples Collected

78SB03 - 00

78SB03 - 01

78SB03 - 01 D

78SB03 - 01 MS

78SB03 - 01 MSD

78SB03 - 02

- 0-4' Sandy loam mixed with gravel
 2.7' Rec to 1.5' mod brown, mod
 <1ppm soft, damp to dry
 becomes saprolite @ 1.5'
- 4-8' greenish gray and white,
 3.3' Rec sandy clay and sand with
 <1ppm rock frags
 rocky layer from 6-7'
- 8-12' the gray brown saprolite, with
 3.6' Rec intermittent layers of red
 <1ppm brown, stones throughout
 mod hard, damp

5/31/08

78SB01

0-4' Sandy loam with rocks,
 3.1' Rec med brown, stained, no odor
 <1ppm to approx 1.5' soft, damp
 then rocky 1.5' to 2.0'
 light gray rock, broken, dry
 4-8' hard, then suprolite @ 2.0'
 4' Rec. greenish gray and brown
 <1ppm sandy clay and sand, with
 rock frags, med soft, damp to
 dry

8-12'
 4' Rec.
 <1ppm


78
Samples Collected

78SB01-00	940
78SB01-00D	940
78SB01-00MS	940
78SB01-00MSD	940
78SB01-03	1030
78SB01-03D	1030
78SB01-01	1015

Overdrill location with 3/4"
 HS Augers in attempt to find
 water. Start @ 1045

SOIL BORING LOGS

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO. 78SB01

COORDINATES: EAST: 939267.20

NORTH: 801439.30

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	3"				5/31/08	0.0 - 12.0	85° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks: Overdrill location with 3 1/4" HS Auger in attempt to find water

<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	3.1 78%		78SB01-00	<1	Sandy loam with rocks, medium brown, stained no odor, soft, damp	1.5'
2				78SB01-00D			
3				78SB01-00MS			
4				78SB01-00MSD (0-1')			
				78SB01-01 (1-3')			4.0'
5	D-2	4.0 100%		78SB01-03	<1	Sand, greenish, gray and brown, with rock fragments, moderate soft, damp to dry	
6				78SB01-03D			
7							
8							
8							8.0
9	D-3	4.0 100%			<1		
10							

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 78SB01 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626

BORING NO. 78SB01

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	12.0 D-3	4.0 100%			<1		
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 & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa
 BORING NO. 78SB01 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO. 78SB02

COORDINATES: EAST: 939276.40

NORTH: 801444.10

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/30/08	0.0 - 12.0	85° Sunny	
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				78SB02-00 (0-1')		Sandy loam, then sandy clay mixed with gravel	1.0
2	D-1	3.7 90%		78SB02-01 (1-3')	<1	Saprolite, weathered rock, clayey, rock fragments dry, yellow and light red	
3							
4	4.0						
5				78SB02-03 (5-7')		Becomes gray/green, some areas of red damp, moderately soft	
6	D-2	4.0 100%			<1		
7							
8	8.0						
9						Moderately soft	
10	D-3	4.0 100%			<1		

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 78SB02 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO. 78SB02

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	D-3	4.0 100%			<1		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. 78SB02

SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO. 78SB03

COORDINATES: EAST: 939255.80

NORTH: 801443.00

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig				Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"			5/31/08	0.0 - 12.0	85° Cloudy	
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				78SB03-00 (0-1')		Sandy loam mixed with gravel, medium brown, moderate soft, damp to dry	1.5
2	D-1	2.7 68%		78SB03-01 78SB03-01D 78SB03-01MS 78SB03-01MSD	<1	Saprolite, sandy clay and sand, greenish, gray and white, rock fragments	
3							
4	4.0			(1-3')			
5				78SB03-02 (3-5')			
6	D-2	3.3 83%			<1		
7							
8	8.0						
9						Saprolite, gray/brown, intermittent layers of red brown, stones throughout, moderate hard damp	
10	D-3	3.6 90%			<1		

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 78SB03 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB03

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	D-3	3.6 90%			<1		
12.0						END OF BORING 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.: 78SB03

SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO. 78SB04

COORDINATES: EAST: 939265.50

NORTH: 801450.70

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/30/08	0.0 - 12.0	85° Sunny	
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				78SB04-00 (0-1')		Sandy loam, medium brown, hard to dry, 0.5'		
2	D-1	3.8 95%		78SB04-01 (1-3')	<1	Sandy Clay and Gravel 1.1' Saprolite, moderate soft, weathered rock, clay and sand mixed with rock fragments, dry		
3								
4	4.0							
5				78SB04-02 (3-5')		Moderately hard, gray with some yellow		
6	D-2	4.0 100%			<1			
7						Becomes reddish saprolite		
8	8.0							
9						Green/gray, damp, moderate hard with rocks		
10	D-3	4.0 100%			<1			

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 78SB04 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB04

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	D-3	4.0			<1		
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

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 78SB04

SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626 BORING NO. 78SB05
 COORDINATES: EAST: 939209.40 NORTH: 801427.80
 ELEVATION: SURFACE: _____

Rig: Geoprobe 6620 DT Track Rig				Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"			#####	0.0 - 6.75	85° Sunny	
Length	4'						
Type	Acetate						
Hammer Wt.							
Fall							

Remarks: Second subsurface sample not collected due to rocks and geoprobe refusal

<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
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Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1				78SB05-00 (0-1')		Gravel, gray, hard 0 to 1'	1.0'
2	D-1	2.6 65%		78SB05-01 (1-3')	<1	Sandy Clay, orangish gray, gravel throughout very dry	
3							
4	4.0						
5	D-2	2.75 69%			<1	Grayish brown, some gravel from 4 to 5.5'	
6						Less gravel from 5.5 to 6.75', very dry	6.75'
7						Geoprobe Refusal at 6.75'	
8							
9							
10							

DRILLING CO.: JFA Geological & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa
 BORING NO. 78SB05 SHEET 1 OF 1

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626 BORING NO. 78SB06
 COORDINATES: EAST: 939280.20 NORTH: 801435.00
 ELEVATION: SURFACE: _____

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/30/08	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				78SB06-00 (0-1')		Sandy clay, light brown, some gravel throughout, dry	
2	D-1	4.0		78SB06-01 (1-3')	<1		
3		100%					
4							4.0
5				78SB06-02 (3-5')		Light grayish brown, some gravel throughout, dry	
6	D-2	4.0			<1		
7		100%					
8						Brownish gray at 8'	8.5'
9						Saprolitic, brownish gray, dry	
10	D-3	4.0			<1		

DRILLING CO.: JFA Geological & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa
 BORING NO. 78SB06 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB06

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	12.0 D-3	4.0 100%			<1		
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 & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa
 BORING NO.: 78SB06 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626
 COORDINATES: EAST: 939270.90
 ELEVATION: SURFACE: _____
 BORING NO. 78SB07
 NORTH: 801426.20

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/30/08	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
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Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1				78SB07-00 (0-1')		Gravel mixed with yellow and gray sandy clay, moderate soft, dry	
2	D-1	3.2 80%		78SB07-01 (1-3')	<1	Gravel, light gray rock	2.0'
3						Saprolite, some clayey sand, rock fragments, yellow and brown	2.3'
4	4.0						
5				78SB07-02 (3-5')		Medium brown to gray	
6	D-2	4.0 100%			<1	Iron staining	
7							
8	8.0					Saprolite, reddish gray, damp to moist	
9							
10	D-3	4.0 100%			<1		

DRILLING CO.: JFA Geological & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa
 BORING NO. 78SB07 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB07

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	12.0 D-3	4.0 100%			<1		
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 & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO.: 78SB07

SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO. 78SB08

COORDINATES: EAST: 939239.30

NORTH: 801411.60

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/30/08	0.0 - 12.0	85° Sunny	
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	3.2 80%		78SB08-00	<1	Sandy loam, dark brown, dry	2.0'	
2				78SB08-00D (0-1')				
3	D-2	3.9 98%		78SB08-01	<1	Sandy clay, grayish brown, dry, some gravel throughout	9.0'	
4				78SB08-01 (1-3')				
5	D-3	4.0 100%		78SB08-02	<1	Light brown, damp to dry, trace of gravel	9.0'	
6				78SB08-02 (3-5')				
7	D-3	4.0 100%			<1	Saprolite, gray, dry	9.0'	
8								
9								
10								

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 78SB08 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB08

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	12.0 D-3	4.0 100%			<1		
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 & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa
 BORING NO.: 78SB08 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626 BORING NO. 78SB09
 COORDINATES: EAST: 939308.70 NORTH: 801473.80
 ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/29/08	0.0 - 12.0	85° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks:

<p align="center"><u>SAMPLE TYPE</u></p> <p>S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample</p>	<p align="center"><u>DEFINITIONS</u></p> <p>SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million</p>
--	--

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1				78SB09-00 (0-1')		Sandy loam and gravel, moderately soft, gray/brown	
2	D-1	3.6 90%		78SB09-01 (1-3')	<1		1.8'
3						Saprolite, green/gray, weathered rock, friable, rock fragments, dry, moderate hard	
4	4.0						
5				78SB09-03 (5-7')		Clayey zones, light gray dry to damp, rock fragments, loose	
6	D-2	4.0 100%			<1		
7							
8	8.0						
9							
10	D-3	4.0 100%			<1		

DRILLING CO.: JFA Geological & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa
 BORING NO. 78SB09 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB09

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	D-3	4.0 100%			<1		
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.: 78SB09 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626 BORING NO. 78SB10
 COORDINATES: EAST: 939231.20 NORTH: 801472.20
 ELEVATION: SURFACE: _____

Rig: Geoprobe 6620 DT Track Rig				Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers				
Size (ID)	3"			5/29/08	0.0 - 12.0	85° Cloudy	
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
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Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1				78SB10-00 (0-1')		Sandy silt with gravel, dry, loose	1.8'
2	D-1	4.0 100%		78SB10-01 (1-3')	<1	Saprolite, weathered rock, yellow and red, moderate hard, some sandy clay	
3							
4	4.0						
5				78SB10-02 (3-5')		Sandy clay with rock fragments	
6	D-2	4.0 100%			<1		
7							
8	8.0					Light gray silt and gravel, dry, loose,	
9							
10	D-3	4.0 100%			<1		

DRILLING CO.: JFA Geological & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa
 BORING NO. 78SB10 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB10

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	D-3	4.0			<1	Some saprolitic structure at 11.6'	
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.: 78SB10

Baker**Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 78SO NO.: 111626BORING NO. 78SB11COORDINATES EAST: 939126.60NORTH: 801463.30

ELEVATION: SURFACE: _____

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	3"				5/29/08	0.0 - 12.0	85° Cloudy	
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				78SB11-00 (0-1')		Sandy loam and gravel	1.5'	
2	D-1	3.5 88%			<1	Sandy clay, weathered rock, dry, brown/gray red and white, calcareous		
3								
4	4.0							
5						Some silt moderate hard, dry, medium brown	4.9'	
6	D-2	4.0 100%		78SB11-03 78SB11-03D 78SB11-03MS 78SB11-03MSD (5-7')	<1	Weathered rock, saprolite, moderate soft, damp yellow/white		
7								
8	8.0							
9								
10	D-3	4.0 100%		78SB11-05 (9-11')	<1	Brown, damp to dry, friable, rock fragments throughout, moderate hard		

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez - RodriguezBAKER REP. Joe BurawaBORING NO. 78SB11 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB11

<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)	Visual Description	Elevation (Ft. MSL)
11	D-3	4.0			<1		
12							
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 & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa
 BORING NO.: 78SB11 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626 BORING NO. 78SB12
 COORDINATES EAST: 939245.10 NORTH: 801276.70
 ELEVATION: SURFACE: _____

Rig: Geoprobe 6620 DT Track Rig				Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers				
Size (ID)	3"			5/29/08	0.0 - 8.0	85° Cloudy	
Length	4'						
Type	Acetate						
Hammer Wt.							
Fall							

Remarks:

<p align="center"><u>SAMPLE TYPE</u></p> <p>S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample</p>	<p align="center"><u>DEFINITIONS</u></p> <p>SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million</p>
--	--

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1	D-1	3.2 80%		78SB12-00 (0-1')	<1	Sandy clay, medium brown, very hard, compact dry	1.0'
2						Gravel, light gray, loose, hard, dry	
3							3.0'
4	4.0			78SB12-02 (3-5')		Saprolite, yellow green, weathered rock, sandy clay and rock fragments	
5	D-2	4.0 100%		78SB12-03 (5-7')	<1		
6							
7							
8						8.0	
9						GEOPROBE REFUSAL AT 8.0'	
10							

DRILLING CO.: JFA Geological & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa
 BORING NO. 78SB12 SHEET 1 OF 1

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626 BORING NO. 78SB13
 COORDINATES EAST: 939200.30 NORTH: 801209.70
 ELEVATION: SURFACE: _____

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/29/08	0.0 - 6.0	85° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks: Did not collect second subsurface sample due to rocks and refusal

<p align="center"><u>SAMPLE TYPE</u></p> <p>S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Direct Push P = Piston N = No Sample</p>	<p align="center"><u>DEFINITIONS</u></p> <p>SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector Measurement MSL = Mean Sea Level BG/PS = Background/Point Source ppm = parts per million</p>
--	--

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab ID	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1				78SB13-00 (0-1')		Sandy clay with stones, dark brown, hard, dry	
2	D-1	3.1 78%		78SB13-01 (1-3')	<1	Light brown, dry, hard, some weathered rock	
3							
4	4.0						4.0'
5						Light gray rock, loose, dry at 4.0'	
6	D-2	2.0 50%			<1	Light gray rocks, loose, dry	6.0'
7						GEOPROBE REFUSAL AT 6.0	
8	8.0						
9							
10							

DRILLING CO.: JFA Geological & Environmental Scientists BAKER REP. Joe Burawa
 DRILLER: Domingo Gonzalez - Rodriguez BORING NO. 78SB13 SHEET 1 OF 1

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78
 SO NO.: 111626 BORING NO. 78SB14
 COORDINATES EAST: 939164.20 NORTH: 801279.30
 ELEVATION: SURFACE: _____

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
MC Sampler	Casing	Augers	Core Barrel					
Size (ID)	3"				5/29/08	0.0 - 6.0	85° Cloudy	
Length	4'							
Type	Acetate							
Hammer Wt.								
Fall								

Remarks: Did not collect second subsurface sample due to rocks and refusal

<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%		78SB14-00 (0-1')	<1	Sandy clay, medium brown, stones, damp to moist, medium hard, iron staining	1.0'
2						Saprolite, light gray, dry, brittle, rock fragments	
3							
4	4.0			78SB14-02 (3-5')		Clay with silt, medium brown, stones dry, brittle, medium soft	4.0'
5	D-2	1.5 38%			<1	Silt and sand, light greenish/gray, some light gray rocks	5.0'
6						6.0	
7						GEOPROBE REFUSAL AT 6.0'	
8							
9							
10							

DRILLING CO.: JFA Geological & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa
 BORING NO. 78SB14 SHEET 1 OF 1

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO. 78SB15

COORDINATES: EAST: 939253.80

NORTH: 801339.50

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/30/08	0.0 - 12.0	85° Sunny	
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				78SB15-00 (0-1')		Sandy loam, dark brown	0.5'
2	D-1	3.5		78SB15-01 (1-3')	<1	Sandy clay, medium brown, gravel, medium gray	
3		88%					
4	4.0						
5				78SB15-03 (5-7')		Grayish brown with brown streaks dry, moderately hard, trace of gravel from 4 to 6.5'	
6	D-2	4.0			<1		
7		100%				Some gravel again from 6.5 to 8'	
8	8.0						
9						Becomes light brown, dry, moderately hard, some gravel from 8 to 8.6'	
10	D-3	1.4			<1		
		35%					

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 78SB15 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB15

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	D-3	1.4 35%			<1		
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 & Environmental Scientists
 DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa
 BORING NO.: 78SB15 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO. 78SB16

COORDINATES: EAST: 939205.90

NORTH: 801338.90

ELEVATION: SURFACE:

Rig: Geoprobe 6620 DT Track Rig					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
	MC Sampler	Casing	Augers	Core Barrel				
Size (ID)	3"				5/30/08	0.0 - 12.0	85° Sunny	
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	3.8 95%		78SB16-00 (0-1')	<1	Sandy loam, dark brown	0.5'
2				78SB16-01 (1-3')		Sandy clay, light brownish gray, some gravel	
3							
4						4.0	Gravelly clay
5	D-2	3.6 90%		78SB16-03 (5-7')	<1	Sandy clay, light brown/gray with streaks of red, dry, trace of gravel throughout	
6							
7							
8	8.0						
9	D-3	3.0 75%			<1	Light brown/gray, some gravel throughout, very dry	
10							

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP. Joe Burawa

BORING NO. 78SB16 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 78

SO NO.: 111626

BORING NO.: 78SB16

<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)	Visual Description	Elevation (Ft. MSL)
11							
12	D-3	3.0 75%			<1	Some mottling from 11 - 12'	
12	12.0					END OF BORING AT 12.0'	
13							
14							
15							
16							
17							
18							
19							
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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.: 78SB16

CHAIN-OF-CUSTODY FORMS

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:
8617 8652 7568

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

78-001

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 1
TAL (LAB) PROJECT MANAGER Kathy E. Smith	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE 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	STANDARD REPORT DELIVERY
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 GRO	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 GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	EXPEDITED REPORT DELIVERY (SURCHARGE)
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 GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	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 GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS 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 GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	
5/29/08	1210	78 SB 10-00	G	X			3	✓		1		3	✓	✓				
	1220	78 SB 10-01	G	X			3	✓		1		3	✓	✓				
	1230	78 SB 10-02	G	X			3	✓		1		3	✓	✓				
	1100	78 SB 11-00	G	X			3	✓		1		3	✓	✓				
	1110	78 SB 11-03	G	X			3	✓		1		3	✓	✓				
	1110	78 SB 11-03 D	G	X			3	✓		1		3	✓	✓				
	1110	78 SB 11-03 MS	G	X			3					3						
	1110	78 SB 11-03 MSD	G	X			3					3						
	1110	78 SB 11-03 MS/MSD	G	X				✓		1			✓	✓				
	1130	78 SB 11-05	G	X														
5/29/08		78 TB 01	G	X			3					3						

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
			<i>[Signature]</i>	5/29/08	1500			
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	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
<i>[Signature]</i>	5/30/08	0929	YES <input type="radio"/> NO <input type="radio"/>		680-37179	

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

THE LEADER IN ENVIRONMENTAL TESTING

8617 8652 7557

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

78-002

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	OF 3
TAL (LAB) PROJECT MANAGER Kathy E. Smith	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE 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	STANDARD REPORT DELIVERY DATE DUE 28 Day TAT	
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 GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	EXPEDITED REPORT DELIVERY (SURCHARGE) DATE DUE	
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 GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	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 (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS 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 GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	
5/29/08	1400	78 SB 09-00	G	X			3	✓		1		3	✓		✓			
	1415	78 SB 09-01	G	X			3	✓		1		3	✓		✓			
	1415	78 SB 09-03	G	X			3	✓		1		3	✓		✓			
	1305	78 SB 12-00	G	X			3	✓		1		3	✓		✓			
	1315	78 SB 12-02	G	X			3	✓		1		3	✓		✓			
	1325	78 SB 12-03	G	X			3	✓		1		3	✓		✓			
	1600	78 SB 13-00	G	X			3	✓		1		3	✓		✓			
	1410	78 SB 13-01	G	X			3	✓		1		3	✓		✓			
	1625	78 SB 14-00	G	X			3	✓		1		3	✓		✓			
5/29/08	1635	78 SB 14-02	G	X			3	✓		1		3	✓		✓			
5/30/08	0930	78 SB 05-00	G	X			3	✓		1		3	✓		✓			
5/30/08	0945	78 SB 05-01	G	X			3	✓		1		3	✓		✓			

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
				5/30/08	1500			
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
	053108	0930			020-37276	temps: 2.4/2.3/5.2/2.8/4.2/2.8/2.0/2.4/2.0

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

FedEx Airbill No.:

8617 8652 7557

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
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Website: www.testamericainc.com
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78-002

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	OF 3
TAL (LAB) PROJECT MANAGER Kathy E. Smith	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) / INDICATE 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	STANDARD REPORT DELIVERY <input checked="" 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	CLIENT ADDRESS 100 Airside Drive., Moon Township, PA 15108	PRESERVATIVE										EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="radio"/>		
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.													DATE DUE _____		
SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										NUMBER OF COOLERS SUBMITTED PER SHIPMENT:		

DATE	TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) / INDICATE 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	REMARKS
5/30/08	1045	78 SB 06 - 00	G	X			3	✓		1		3	✓		✓		
	1055	78 SB 06 - 01	G	X			3	✓		1		3	✓		✓		
	1110	78 SB 06 - 02	G	X			3	✓		1		3	✓		✓		
	1010	78 SB 08 - 00	G	X			3	✓		1		3	✓		✓		
	1010	78 SB 08 - 00 D	G	X			3	✓		1		3	✓		✓		
	1020	78 SB 08 - 01	G	X			3	✓		1		3	✓		✓		
	1030	78 SB 08 - 02	G	X			3	✓		1		3	✓		✓		
	0805	78 SB 15 - 00	G	X			3	✓		1		3	✓		✓		
	0820	78 SB 15 - 01	G	X			3	✓		1		3	✓		✓		
	0830	78 SB 15 - 03	G	X			3	✓		1		3	✓		✓		
	0850	78 SB 16 - 00	G	X			3	✓		1		3	✓		✓		
5/30/08	0900	78 SB 16 - 00 01	G	X			3	✓		1		3	✓		✓		

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				5/30/08	1500			
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	
	053108	0930			680-37226		

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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78-002

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PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 3 OF 3		
TAL (LAB) PROJECT MANAGER Kathy E. Smith	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE 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	PRESERVATIVE	NUMBER OF CONTAINERS SUBMITTED	REMARKS	STANDARD REPORT DELIVERY		DATE DUE 28 Day TAT		EXPEDITED REPORT DELIVERY (SURCHARGE)		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 E-MAIL mkimes@mbakercorp.com															
CLIENT ADDRESS 100 Airside Drive., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.														

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	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	NUMBER OF CONTAINERS SUBMITTED	REMARKS
DATE	TIME																		
5/30/08	0910	78 SB 16-03	G	X				3	✓		1		3	✓				3	
5/29/08		78 TB 02	GX					3					3					3	
5/29/08	1630	ER 22	GX					3	2		1		3	2	2			3	✓

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
				5/30/08	1500			
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	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
	053108	0930	YES <input type="radio"/> NO <input type="radio"/>		680-37226	

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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PROJECT REFERENCE NAPR 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.	COMPOSITE (C) OR GRAB (G) INDICATE 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 (SURCHARGE) DATE DUE	
CLIENT NAME Michael Baker Jr., Inc.	CLIENT E-MAIL mkimes@mbakercorp.com	CLIENT ADDRESS 100 Airside Drive., Moon Township, PA 15108										NUMBER OF COOLERS SUBMITTED PER SHIPMENT:			
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.															

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS 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 GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	
5-30-08	0940	78 SB 01 - 00 MS	G	X			3	3	1		3	3	3	3	3	3 VOC 3 GRO - ONLY		
5-30-08	1500	78 SB 02 - 00	G	X			3	✓	1		3	✓	✓	✓	✓			
↑	1510	78 SB 02 - 01	G	X			3	✓	1		3	✓	✓	✓	✓			
	1520	78 SB 02 - 03	G	X			3	✓	1		3	✓	✓	✓	✓			
	1550	78 SB 04 - 00	G	X			3	✓	1		3	✓	✓	✓	✓			
	1600	78 SB 04 - 01	G	X			3	✓	1		3	✓	✓	✓	✓			
	1615	78 SB 04 - 02	G	X			3	✓	1		3	✓	✓	✓	✓			
	1415	78 SB 07 - 00	G	X			3	✓	1		3	✓	✓	✓	✓			
	1425	78 SB 07 - 01	G	X			3	✓	1		3	✓	✓	✓	✓			
5-30-08	1435	78 SB 07 - 02	G	X			3	✓	1		3	✓	✓	✓	✓			
5/31/08	0940	78 SB 01 - 00	G	X			3	✓	1		3	✓	✓	✓	✓			
5/31/08	0940	78 SB 01 - 00 D	G	X			3	✓	1		3	✓	✓	✓	✓			

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
			<i>[Signature]</i>	6/2/08	1500			
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. 680-37251	LABORATORY REMARKS		
<i>[Signature]</i>	06/03/08	0921						

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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PROJECT REFERENCE NAPR 7 Site Investigation		PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS								PAGE 2	OF 2		
TAL (LAB) PROJECT MANAGER Kathy E. Smith		P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE 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	PRESERVATIVE	STANDARD REPORT DELIVERY DATE DUE 28 Day TAT	EXPEDITED REPORT DELIVERY (SURCHARGE) 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 E-MAIL mkimes@mbakercorp.com														
CLIENT ADDRESS 100 Airside Drive., Moon Township, PA 15108		COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.														

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS 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 GRO	TPH DRO	App IX Pesticides		App IX PCBs
5/31/08	0940	78 SB 01 - 00 MSD	G	X			3					3					
	0940	78 SB 01 - 00 MS/MSD	G	X				✓		1			✓		✓		
	1015	78 SB 01 - 01	G	X			3	✓		1		3	✓		✓		
	1030	78 SB 01 - 03	G	X			3	✓		1		3	✓		✓		
	1030	78 SB 01 - 03 D	G	X			3	✓		1		3	✓		✓		
	0830	78 SB 03 - 00	G	X			3	✓		1		3	✓		✓		
	0840	78 SB 03 - 01	G	X			3	✓		1		3	✓		✓		
	0840	78 SB 03 - 01 D	G	X			3	✓		1		3	✓		✓		
	0840	78 SB 03 - 01 MS	G	X			3					3					
	0840	78 SB 03 - 01 MSD	G	X			3					3					
✓	0840	78 SB 03 - 01 MS/MSD	G	X				✓		1			✓		✓		
5/31/08	0900	78 SB 03 - 02	G	X			3	✓		1		3	✓		✓		

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
			<i>[Signature]</i>	6/2/08	1500			
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. 680-37251	LABORATORY REMARKS		
<i>[Signature]</i>	060308	0921						

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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QA/QC-001

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PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 1	OF 1	
TAL (LAB) PROJECT MANAGER Kathy E. Smith	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE 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 <input checked="" type="checkbox"/>	DATE DUE 28 Day TAT	
CLIENT (SITE) PM Mark Kimes	CLIENT PHONE 412.337.7465	CLIENT FAX		EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	PRESERVATIVE											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.			REMARKS												

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS 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 GRO	TPH DRO	App IX Pesticides	App IX PCBs	TOC	
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						

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RECEIVED BY: (SIGNATURE) 	DATE 4/28/08	TIME 0700	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY								
RECEIVED FOR LABORATORY BY: (SIGNATURE) 	DATE 5/5/08	TIME 0909	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO. 650-3419	LABORATORY REMARKS		

114

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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PROJECT REFERENCE NAPR 7 Site Investigation	PROJECT NO. 111626	PROJECT LOCATION (STATE) PR	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 3	OF 3
TAL (LAB) PROJECT MANAGER Kathy E. Smith	P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE 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	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												EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>		
CLIENT ADDRESS 100 Airside Drive., Moon Township, PA 15108													DATE DUE _____		
COMPANY CONTRACTING THIS WORK (if applicable) Michael Baker Jr., Inc.			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:										REMARKS		

SAMPLE		SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	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	NUMBER OF CONTAINERS SUBMITTED	REMARKS
DATE	TIME																		
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6/3/08	1540	61SB 19-02	G		X		W	1											
6/3/08	1520	61SB 19-00	G		X		W	1											
5/31/08		61TB 02	G	X			W												Voc's only
5/31/08	0850	ER 24	G	X			W	2			1		3	2	2				✓
6/1/08	1640	ER 25	G	X			W	2			1		3	2	2				✓
6/2/08	0740	ER 26	G	X			W	2			1		3	2	2				
6/3/08	0830	ER 27	G	X			W	2			1		3	2	2				
6/4/08	1000	ER 28	G	X			W	2			1								
6/3/08	1000	61SB 17-01	G		X		W	1			1								

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
			<i>[Signature]</i>	6/4/08	1500			
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	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
<i>KH</i>	6/5/08	0931	YES <input type="checkbox"/> NO <input type="checkbox"/>		680-37369	

SITE PHOTOGRAPHS



Photo A-1. Site drilling activities at 78SB01, view looking southwest.



Photo A-2. Soil sampling containers and equipment.



Photo A-3. Spools of wire along Gilbert Island Road.



Photo A-4. Raised concrete pad and transformer storage, view looking northeast



Photo A-5. Area of suspected release and Sample location 78SB01.



Photo A-6. Historical trailer storage area – note that trailers are not present.



Photo A-7. SWMU 78 laydown area. View looking southwest.



Photo A-8. Soil boring 78SB12 and poles in background.

APPENDIX B
LABORATORY ANALYTICAL RESULTS

SURFACE SOIL

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB01	78SB01	78SB02	78SB03	78SB04	78SB05
Sample ID	78SB01-00	78SB01-00D	78SB02-00	78SB03-00	78SB04-00	78SB05-00
Date	5/31/2008	5/31/2008	5/30/2008	5/31/2008	5/30/2008	5/30/2008
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	0.67 U	0.59 U	0.8 U	0.82 U	0.71 U	0.71 U
1,1,1-Trichloroethane	0.61 UJ	0.53 UJ	0.73 UJ	0.74 UJ	0.64 UJ	0.64 UJ
1,1,2,2-Tetrachloroethane	1.5 U	1.3 U	1.8 U	1.8 U	1.6 U	1.5 U
1,1,2-Trichloroethane	1.3 U	1.1 U	1.5 U	1.5 U	1.3 U	1.3 U
1,1-Dichloroethane	0.52 U	0.46 U	0.63 U	0.64 U	0.55 U	0.55 U
1,1-Dichloroethene	0.57 U	0.5 U	0.68 U	0.69 U	0.6 U	0.59 U
1,2,3-Trichloropropane	1.5 U	1.3 U	1.8 U	1.8 U	1.6 U	1.5 U
1,2-Dibromo-3-Chloropropane	2.9 U	2.6 UJ	3.5 UJ	3.6 U	3.1 UJ	3.1 U
1,2-Dichloroethane	1 U	0.92 U	1.3 U	1.3 U	1.1 U	1.1 U
1,2-Dichloropropane	1.2 U	1 U	1.4 U	1.4 U	1.2 U	1.2 U
2-Butanone (MEK)	50 UJ	34 UJ	9.2 UJ	22 UJ	11 UJ	13 UJ
2-Chloro-1,3-butadiene	0.6 U	0.52 U	0.71 UJ	0.73 U	0.63 UJ	0.63 U
2-Hexanone	2.2 U	1.9 U	2.6 U	2.7 U	2.3 U	2.3 U
3-Chloro-1-propene	1.6 UJ	1.4 U	1.9 UJ	1.9 UJ	1.7 UJ	1.7 U
4-Methyl-2-pentanone (MIBK)	3 UJ	2.7 UJ	3.6 UJ	3.7 UJ	3.2 UJ	3.2 UJ
Acetone	250 J	210 J	96 UJ	100 UJ	71 UJ	200
Acetonitrile	47 UJ	41 U	56 UJ	58 UJ	50 UJ	50 U
Acrolein	20 U	17 U	24 U	24 U	21 U	21 UJ
Acrylonitrile	24 UJ	21 UJ	29 U	29 UJ	25 U	25 UJ
Benzene	0.83 U	0.73 U	0.99 U	1 U	0.88 U	0.87 U
Bromoform	1.2 U	1 U	1.4 U	1.4 U	1.2 U	1.2 U
Bromomethane	1.7 U	1.5 U	2 U	2.1 U	1.8 U	1.8 U
Carbon disulfide	0.59 U	0.47 U	0.64 U	8	2.7 U	0.56 U
Carbon tetrachloride	1 UJ	0.92 UJ	1.3 UJ	1.3 UJ	1.1 UJ	1.1 UJ
Chlorobenzene	0.76 U	0.67 U	0.92 U	0.94 U	0.81 U	0.8 U
Chlorodibromomethane	0.52 U	0.46 U	0.63 U	0.64 U	0.55 U	0.55 U
Chloroethane	1.3 UJ	1.1 UJ	1.5 UJ	1.5 UJ	1.3 UJ	1.3 U
Chloroform	0.52 U	0.46 U	0.63 U	0.64 U	0.55 U	0.55 U
Chloromethane	0.74 U	0.65 U	0.89 U	2 J	0.79 U	0.78 U
cis-1,3-Dichloropropene	0.91 UJ	0.8 U	1.1 UJ	1.1 UJ	0.96 UJ	0.96 UJ
Dibromomethane	1.3 U	1.1 U	1.5 U	1.5 U	1.3 U	1.3 U
Dichlorobromomethane	0.87 U	0.76 U	1 U	1.1 U	0.92 U	0.91 U
Dichlorodifluoromethane	0.93 U	0.82 U	1.1 U	1.1 U	0.99 U	0.98 U
Ethyl methacrylate	2.3 U	2 U	2.8 U	2.8 U	2.4 U	2.4 U
Ethylbenzene	0.79 UJ	0.69 UJ	0.94 U	0.96 U	0.83 U	0.83 U
Ethylene Dibromide	1.6 U	1.4 U	1.9 U	1.9 U	1.7 U	1.7 U
Iodomethane	1.8 J	1.8 J	1.3 UJ	1.6 J	1.1 UJ	1.4 J
Isobutyl alcohol	72 R	64 R	87 U	88 R	76 U	76 U
Methacrylonitrile	25 UJ	22 U	30 UJ	31 UJ	27 UJ	26 U
Methyl methacrylate	3.9 UJ	3.4 U	4.6 UJ	4.7 UJ	4.1 UJ	4.1 U
Methylene Chloride	1 U	0.92 U	1.3 U	1.3 U	1.1 U	1.1 U
Pentachloroethane	2.3 R	2 R	2.8 R	2.8 R	2.4 R	2.4 R
Propionitrile	22 UJ	19 UJ	26 UJ	27 UJ	23 UJ	23 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB01	78SB01	78SB02	78SB03	78SB04	78SB05
	Sample ID	78SB01-00	78SB01-00D	78SB02-00	78SB03-00	78SB04-00	78SB05-00
	Date	5/31/2008	5/31/2008	5/30/2008	5/31/2008	5/30/2008	5/30/2008
	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)							
Styrene		0.69 U	0.61 U	0.83 U	0.85 U	0.73 U	0.73 U
Tetrachloroethene		0.76 UJ	0.67 UJ	0.92 U	0.94 U	0.81 U	0.8 U
Toluene		0.83 U	0.73 U	0.99 U	1 U	0.88 U	0.87 U
trans-1,2-Dichloroethene		1 U	0.89 U	1.2 U	1.2 U	1.1 U	1.1 U
trans-1,3-Dichloropropene		0.91 U	0.8 U	1.1 U	1.1 U	0.96 U	0.96 U
trans-1,4-Dichloro-2-butene		3.2 U	2.9 U	3.9 U	4 U	3.4 U	3.4 U
Trichloroethene		1 U	0.92 U	1.3 U	1.3 U	1.1 U	1.1 U
Trichlorofluoromethane		1.6 U	1.4 U	1.9 U	1.9 U	1.7 U	1.7 U
Vinyl acetate		1.6 UJ	1.4 U	1.9 U	1.9 UJ	1.7 U	1.7 U
Vinyl chloride		0.61 U	0.53 U	0.73 U	0.74 U	0.64 U	0.64 U
Xylenes, Total		2.4 UJ	2.1 UJ	2.9 U	2.9 U	2.5 U	2.5 U
Semivolatile Organic Compounds (ug/kg)							
1,1'-Biphenyl		170 UJ	7.9 UJ	8.1 U	180 U	8 U	8.7 U
1,2,4,5-Tetrachlorobenzene		140 UJ	6.7 UJ	6.9 U	150 U	6.8 U	7.4 U
1,2,4-Trichlorobenzene		170 UJ	7.9 UJ	8.1 U	180 U	8 U	8.7 U
1,2-Dichlorobenzene		160 UJ	7.5 UJ	7.6 U	170 U	7.5 U	8.3 U
1,3,5-Trinitrobenzene		380 UJ	18 UJ	19 U	410 U	18 U	20 U
1,3-Dichlorobenzene		130 UJ	6.4 UJ	6.5 U	150 U	6.4 U	7.1 U
1,3-Dinitrobenzene		87 UJ	4.2 UJ	4.3 U	95 U	4.2 U	4.6 U
1,4-Dichlorobenzene		140 UJ	6.6 UJ	6.8 U	150 U	6.7 U	7.3 U
1,4-Dioxane		180 UJ	8.6 UJ	8.7 U	190 U	8.6 U	9.5 U
1,4-Naphthoquinone		87 UJ	4.2 UJ	4.3 U	95 U	4.2 U	4.6 U
2,2'-oxybis[1-chloropropane]		140 UJ	6.7 UJ	6.9 U	150 U	6.8 U	7.4 U
2,3,4,6-Tetrachlorophenol		94 UJ	4.5 UJ	4.6 U	100 U	4.5 U	5 U
2,4,5-Trichlorophenol		150 UJ	7.3 UJ	7.4 U	160 UJ	7.3 U	8 U
2,4,6-Trichlorophenol		180 UJ	8.5 UJ	8.6 U	190 U	8.5 U	9.3 U
2,4-Dichlorophenol		180 UJ	8.7 UJ	8.8 U	200 U	8.7 U	9.6 U
2,4-Dimethylphenol		380 UJ	18 UJ	19 U	410 U	18 U	20 U
2,4-Dinitrophenol		1900 UJ	89 UJ	91 U	2000 UJ	89 U	98 U
2,4-Dinitrotoluene		130 UJ	6.3 UJ	6.4 U	140 U	6.3 U	7 U
2,6-Dichlorophenol		140 UJ	6.9 UJ	7 U	160 U	6.9 U	7.6 U
2,6-Dinitrotoluene		140 UJ	6.6 UJ	6.8 U	150 U	6.7 U	7.3 U
2-Acetylaminofluorene		110 UJ	5.5 UJ	5.6 U	120 U	5.5 U	6 U
2-Chloronaphthalene		140 UJ	6.6 UJ	6.8 U	150 U	6.7 U	7.3 U
2-Chlorophenol		150 UJ	7.1 UJ	7.2 U	160 U	7.1 U	7.8 U
2-Methylnaphthalene		38 UJ	1.8 UJ	1.9 U	41 U	1.8 U	2 U
2-Methylphenol		180 UJ	8.7 UJ	8.8 U	200 U	8.7 U	9.6 U
2-Naphthylamine		450 UJ	21 UJ	22 U	490 UJ	21 U	24 U
2-Nitroaniline		150 UJ	7 UJ	7.1 U	160 U	7 U	7.7 U
2-Nitrophenol		160 UJ	7.8 UJ	8 U	180 U	7.8 U	8.6 U
2-Picoline		270 UJ	13 UJ	13 U	290 U	13 U	14 U
2-Toluidine		210 UJ	10 UJ	10 U	230 U	10 U	11 U
3 & 4 Methylphenol		160 UJ	7.8 UJ	8 U	180 U	7.8 U	8.6 U
3,3'-Dichlorobenzidine		210 UJ	9.8 UJ	10 UJ	220 UJ	9.9 UJ	11 U
3,3'-Dimethylbenzidine		4000 UJ	190 UJ	200 UJ	4400 UJ	190 UJ	210 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB01	78SB01	78SB02	78SB03	78SB04	78SB05
Sample ID	78SB01-00	78SB01-00D	78SB02-00	78SB03-00	78SB04-00	78SB05-00
Date	5/31/2008	5/31/2008	5/30/2008	5/31/2008	5/30/2008	5/30/2008
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
Semivolatile Organic Compounds (ug/kg)						
3-Methylcholanthrene	140 UJ	6.5 UJ	6.7 U	150 U	6.6 U	7.2 U
3-Nitroaniline	100 UJ	4.8 UJ	4.9 U	110 U	4.8 U	5.3 U
4,6-Dinitro-2-methylphenol	130 UJ	6.2 UJ	6.3 U	140 U	6.2 U	6.9 U
4-Aminobiphenyl	290 UJ	14 UJ	14 U	320 UJ	14 U	15 U
4-Bromophenyl phenyl ether	160 UJ	7.6 UJ	7.7 U	170 U	7.6 U	8.4 U
4-Chloro-3-methylphenol	170 UJ	8 UJ	8.2 U	180 U	8.1 U	8.9 U
4-Chloroaniline	130 UJ	6.4 UJ	6.5 U	150 U	6.4 U	7.1 U
4-Chlorophenyl phenyl ether	140 UJ	6.6 UJ	6.8 U	150 U	6.7 U	7.3 U
4-Nitroaniline	170 UJ	8.2 UJ	8.4 U	190 U	8.3 U	9.1 U
4-Nitrophenol	740 UJ	35 UJ	36 U	800 U	35 U	39 U
4-Nitroquinoline-1-oxide	250 R	12 R	12 R	270 R	12 R	13 R
7,12-Dimethylbenz(a)anthracene	210 UJ	10 UJ	10 U	230 U	10 U	11 U
Acenaphthene	13 UJ	0.61 UJ	0.62 U	14 U	0.61 U	0.67 U
Acenaphthylene	38 UJ	1.8 UJ	1.9 U	41 U	1.8 U	2 U
Acetophenone	190 UJ	9.2 UJ	9.4 U	210 U	9.2 U	10 U
alpha,alpha-Dimethyl phenethylamine	1300 UJ	63 UJ	64 UJ	1400 U	63 UJ	70 U
Aniline	140 UJ	6.7 UJ	6.9 U	150 U	6.8 U	7.4 U
Anthracene	38 UJ	1.8 UJ	1.9 U	41 U	1.8 U	2 U
Aramite, Total	250 UJ	12 UJ	12 U	270 U	12 U	13 U
Benzo[a]anthracene	38 UJ	6 J	1.9 U	41 U	1.8 U	4.5 J
Benzo[a]pyrene	35 J	7 J	0.72 U	110 J	0.71 U	3.7 J
Benzo[b]fluoranthene	17 UJ	13 J	0.83 U	74 J	0.82 U	7.3 J
Benzo[g,h,i]perylene	110 J	6 J	11 J	290 J	12 J	3.7 J
Benzo[k]fluoranthene	22 UJ	1.1 UJ	1.1 U	24 U	1.1 U	1.2 UJ
Benzyl alcohol	180 UJ	8.6 UJ	8.7 U	190 U	8.6 U	9.5 U
Bis(2-chloroethoxy)methane	150 UJ	7.3 UJ	7.4 U	160 U	7.3 U	8 U
Bis(2-chloroethyl)ether	130 UJ	6.1 UJ	6.2 U	140 U	6.1 U	6.7 U
Bis(2-ethylhexyl) phthalate	340 UJ	14 UJ	18 U	470 U	17 U	16 J
Butyl benzyl phthalate	160 UJ	7.7 UJ	7.9 U	170 U	7.7 U	8.5 U
Chrysene	14 UJ	5.6 J	2.2 J	59 J	2 J	5 J
Diallate	210 UJ	10 UJ	10 U	230 U	10 U	11 U
Dibenz(a,h)anthracene	13 UJ	2.4 J	0.64 U	26 J	0.63 U	0.7 U
Dibenzofuran	94 UJ	4.5 UJ	4.6 U	100 U	4.5 U	5 U
Diethyl phthalate	250 UJ	12 UJ	12 U	270 U	12 U	13 U
Dimethyl phthalate	140 UJ	6.9 UJ	7 U	160 U	6.9 U	7.6 U
Di-n-butyl phthalate	560 UJ	27 UJ	27 U	610 U	27 U	30 U
Di-n-octyl phthalate	74 UJ	3.5 UJ	3.6 U	80 U	3.5 U	3.9 U
Dinoseb	380 UJ	18 UJ	19 U	410 U	18 U	20 U
Ethyl methanesulfonate	250 UJ	12 UJ	12 U	270 U	12 U	13 U
Fluoranthene	38 UJ	9.3 J	1.9 U	51 J	1.8 U	6.2 J
Fluorene	17 UJ	0.82 UJ	0.84 U	19 U	0.83 U	0.91 U
Hexachlorobenzene	150 UJ	7.3 UJ	7.4 U	160 U	7.3 U	8 U
Hexachlorobutadiene	200 UJ	9.7 UJ	9.9 U	220 U	9.8 U	11 U
Hexachlorocyclopentadiene	310 UJ	15 UJ	15 U	340 UJ	15 U	17 U
Hexachloroethane	170 UJ	7.9 UJ	8.1 U	180 U	8 U	8.7 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB01	78SB01	78SB02	78SB03	78SB04	78SB05
Sample ID	78SB01-00	78SB01-00D	78SB02-00	78SB03-00	78SB04-00	78SB05-00
Date	5/31/2008	5/31/2008	5/30/2008	5/31/2008	5/30/2008	5/30/2008
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
Semivolatile Organic Compounds (ug/kg)						
Hexachlorophene	19000 UJ	890 UJ	910 U	20000 U	890 U	980 UJ
Hexachloropropene	160 UJ	7.7 UJ	7.9 U	170 UJ	7.7 U	8.5 U
Indeno[1,2,3-cd]pyrene	27 UJ	3.6 J	1.3 U	29 U	1.3 U	1.6 J
Isophorone	140 UJ	6.6 UJ	6.8 U	150 U	6.7 U	7.3 U
Isosafrole	160 UJ	7.6 UJ	7.7 U	170 U	7.6 U	8.4 U
Methapyrilene	210 UJ	10 UJ	10 U	230 UJ	10 U	11 U
Methyl methanesulfonate	210 UJ	10 UJ	10 U	230 U	10 U	11 U
Naphthalene	13 UJ	0.67 J	0.65 UJ	15 UJ	0.73 J	0.92 J
Nitrobenzene	150 UJ	7.4 UJ	7.5 U	170 U	7.4 U	8.2 U
N-Nitro-o-toluidine	130 UJ	6.4 UJ	6.5 U	150 U	6.4 U	7.1 U
N-Nitrosodiethylamine	270 UJ	13 UJ	13 U	290 U	13 U	14 U
N-Nitrosodimethylamine	220 UJ	10 UJ	11 U	240 U	11 U	12 U
N-Nitrosodi-n-butylamine	200 UJ	9.7 UJ	9.9 U	220 U	9.8 U	11 U
N-Nitrosodi-n-propylamine	150 UJ	7 UJ	7.1 U	160 U	7 U	7.7 U
N-Nitrosodiphenylamine	160 UJ	7.6 UJ	7.7 U	170 U	7.6 U	8.4 U
N-Nitrosomethylethylamine	130 UJ	6.1 UJ	6.2 U	140 U	6.1 U	6.7 U
N-Nitrosomorpholine	150 UJ	7.1 UJ	7.2 U	160 U	7.1 U	7.8 U
N-Nitrosopiperidine	190 UJ	9.1 UJ	9.3 U	210 U	9.1 U	10 U
N-Nitrosopyrrolidine	200 UJ	9.5 UJ	9.7 U	220 U	9.6 U	11 U
p-Dimethylamino azobenzene	160 UJ	7.6 UJ	7.7 U	170 U	7.6 U	8.4 U
Pentachlorobenzene	140 UJ	6.6 UJ	6.8 U	150 U	6.7 U	7.3 U
Pentachloronitrobenzene	130 UJ	6.3 UJ	6.4 UJ	140 UJ	6.3 UJ	7 R
Pentachlorophenol	190 UJ	8.9 UJ	9.1 UJ	200 UJ	8.9 UJ	9.8 UJ
Phenacetin	110 UJ	5 UJ	5.1 U	110 U	5.1 U	5.6 U
Phenanthrene	38 UJ	2.2 J	1.9 U	41 U	1.8 U	2 U
Phenol	110 UJ	5.1 UJ	6.5 J	120 U	5.3 J	5.7 U
p-Phenylene diamine	3600 UJ	170 UJ	170 U	3900 U	170 U	190 U
Pronamide	200 UJ	9.6 UJ	9.8 U	220 U	9.7 U	11 U
Pyrene	38 UJ	7.9 J	1.9 U	110 J	1.9 J	5.5 J
Pyridine	250 UJ	12 UJ	12 U	270 U	12 U	13 U
Safrole, Total	190 UJ	8.9 UJ	9.1 U	200 U	8.9 U	9.8 U
PCBs (ug/kg)						
PCB-1016	4.3 U	4.1 U	4.2 U	4.6 U	4.1 U	4.5 U
PCB-1221	15 U	14 U	14 U	16 U	14 U	15 U
PCB-1232	8.5 U	8.1 U	8.2 U	9.1 U	8.1 U	8.9 U
PCB-1242	5.4 U	5.2 U	5.3 U	5.8 U	5.2 U	5.7 U
PCB-1248	5.8 U	5.5 U	5.6 U	6.2 U	5.5 U	6 U
PCB-1254	2.6 U	2.5 U	2.5 U	2.8 U	2.5 U	2.7 U
PCB-1260	33 J	5.2 U	5.3 U	5.8 U	5.2 U	5.7 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB01	78SB01	78SB02	78SB03	78SB04	78SB05
	Sample ID	78SB01-00	78SB01-00D	78SB02-00	78SB03-00	78SB04-00	78SB05-00
	Date	5/31/2008	5/31/2008	5/30/2008	5/31/2008	5/30/2008	5/30/2008
	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
Metals (mg/kg)							
Antimony		1.1 J	0.12 UJ	0.3 UJ	4 J	3.2 J	0.22 UJ
Arsenic		1.6	1	0.76	4.2	4.1	1.1
Barium		75 J	50 J	62	150	110	82
Beryllium		0.22	0.17	0.22	0.3	0.24	0.28
Cadmium		0.4	0.099 J	0.39	0.76	0.32	0.17
Chromium		15	14	13	21	25	16 J
Cobalt		25 J	17 J	16	21	22	15
Copper		160 J	78 J	49	100	120	93
Lead		21 R	2.8 R	3.4 R	180 R	80 R	13
Mercury		0.021 J	0.004 U	0.0038 U	0.11	0.05	0.0042 U
Nickel		13	12	9.2	13	13	9.1
Selenium		0.13 U	0.12 U	0.12 U	0.19 J	0.14 J	0.13 U
Silver		0.073 J	0.074 J	0.04 J	0.099 J	0.08 J	0.062 J
Thallium		0.13 U	0.12 U	0.12 U	0.14 U	0.12 U	0.13 U
Tin		4.2 U	4 U	4 U	8.8 J	4.5 J	4.2 U
Vanadium		140	140	130	130	140	130
Zinc		150 J	59 J	53 J	490 J	240 J	110 J
TPH DRO and GRO (mg/kg)							
Diesel Range Organics [C10-C28]		8000 J	12 J	1.7 J	820	4.6	5.1
Gasoline Range Organics (GRO)-C6-C10		0.39 J	0.11 J	0.17 J	0.66 J	0.12 J	0.12 J

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB06	78SB07	78SB08	78SB08	78SB09	78SB10
Sample ID	78SB06-00	78SB07-00	78SB08-00	78SB08-00D	78SB09-00	78SB10-00
Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008
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	0.7 U	1 U	0.93 U	0.71 U	0.61 U
1,1,1-Trichloroethane	0.72 UJ	0.64 UJ	0.94 UJ	0.84 UJ	0.64 UJ	0.55 UJ
1,1,2,2-Tetrachloroethane	1.7 U	1.5 U	2.3 U	2 U	1.5 U	1.3 U
1,1,2-Trichloroethane	1.5 U	1.3 U	1.9 U	1.7 U	1.3 U	1.1 U
1,1-Dichloroethane	0.62 U	0.55 U	0.81 U	0.73 U	0.55 U	0.48 U
1,1-Dichloroethene	0.67 U	0.59 U	0.87 U	0.79 U	0.6 U	0.51 U
1,2,3-Trichloropropane	1.7 U	1.5 U	2.3 U	2 U	1.5 U	1.3 U
1,2-Dibromo-3-Chloropropane	3.5 U	3.1 UJ	4.5 U	4.1 U	3.1 U	2.7 U
1,2-Dichloroethane	1.2 U	1.1 U	1.6 U	1.5 U	1.1 U	0.95 U
1,2-Dichloropropane	1.4 U	1.2 U	1.8 U	1.6 U	1.2 U	1 U
2-Butanone (MEK)	3.3 UJ	20 UJ	6.2 UJ	3.9 UJ	3 UJ	4.1 UJ
2-Chloro-1,3-butadiene	0.71 U	0.62 UJ	0.92 U	0.83 U	0.63 U	0.54 U
2-Hexanone	2.6 U	2.3 U	3.4 U	3.1 U	2.3 U	2 U
3-Chloro-1-propene	1.9 U	1.6 UJ	2.4 U	2.2 U	1.7 U	1.4 U
4-Methyl-2-pentanone (MIBK)	3.6 UJ	3.2 UJ	4.7 UJ	4.2 UJ	3.2 UJ	2.8 UJ
Acetone	37 J	130 J	100	79	11 J	37 J
Acetonitrile	56 U	49 UJ	73 U	66 U	50 U	43 UJ
Acrolein	24 UJ	21 U	31 UJ	28 UJ	21 UJ	18 U
Acrylonitrile	28 UJ	25 U	37 UJ	33 UJ	25 UJ	22 UJ
Benzene	0.98 U	0.87 U	1.3 U	1.2 U	0.87 U	0.75 U
Bromoform	1.4 U	1.2 U	1.8 U	1.6 U	1.2 U	1 U
Bromomethane	2 U	1.8 U	2.6 U	2.3 U	1.8 U	1.5 U
Carbon disulfide	0.63 U	0.56 U	0.83 U	0.74 U	0.56 U	0.49 U
Carbon tetrachloride	1.2 UJ	1.1 UJ	1.6 UJ	1.5 UJ	1.1 UJ	0.95 UJ
Chlorobenzene	0.9 U	0.8 U	1.2 U	1.1 U	0.81 U	0.69 U
Chlorodibromomethane	0.62 U	0.55 U	0.81 U	0.73 U	0.55 U	0.48 U
Chloroethane	1.5 U	1.3 UJ	1.9 U	1.7 U	1.3 U	1.1 UJ
Chloroform	0.62 U	0.55 U	0.81 U	0.73 U	0.55 U	0.48 U
Chloromethane	0.88 U	0.78 U	1.1 U	1 U	0.79 U	0.68 U
cis-1,3-Dichloropropene	1.1 UJ	0.95 UJ	1.4 UJ	1.3 UJ	0.96 UJ	0.83 UJ
Dibromomethane	1.5 U	1.3 U	1.9 U	1.7 U	1.3 U	1.1 U
Dichlorobromomethane	1 U	0.91 U	1.3 U	1.2 U	0.92 U	0.79 U
Dichlorodifluoromethane	1.1 U	0.97 U	1.4 U	1.3 U	0.98 U	0.85 U
Ethyl methacrylate	2.7 U	2.4 U	3.6 U	3.2 U	2.4 U	2.1 U
Ethylbenzene	0.93 U	0.82 U	1.2 U	1.1 U	0.83 U	0.71 U
Ethylene Dibromide	1.9 U	1.6 U	2.4 U	2.2 U	1.7 U	1.4 U
Iodomethane	1.2 U	4.6 J	1.6 U	1.5 U	1.1 U	0.95 U
Isobutyl alcohol	85 U	76 U	110 U	100 U	76 U	66 R
Methacrylonitrile	30 U	26 UJ	39 U	35 U	27 U	23 UJ
Methyl methacrylate	4.6 U	4.1 UJ	6 U	5.4 U	4.1 U	3.5 UJ
Methylene Chloride	1.2 U	1.1 U	1.6 U	1.5 U	1.1 U	0.95 U
Pentachloroethane	2.7 R	2.4 R	3.6 R	3.2 R	2.4 R	2.1 R
Propionitrile	26 U	23 UJ	34 U	31 U	23 U	20 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB06	78SB07	78SB08	78SB08	78SB09	78SB10
	Sample ID	78SB06-00	78SB07-00	78SB08-00	78SB08-00D	78SB09-00	78SB10-00
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008
	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)							
Styrene		0.82 U	0.72 U	1.1 U	0.96 U	0.73 U	0.63 U
Tetrachloroethene		0.9 U	0.8 U	1.2 U	1.1 U	0.81 U	0.69 U
Toluene		0.98 U	0.87 U	1.3 U	1.2 U	0.87 U	0.75 U
trans-1,2-Dichloroethene		1.2 U	1.1 U	1.6 U	1.4 U	1.1 U	0.92 U
trans-1,3-Dichloropropene		1.1 U	0.95 U	1.4 U	1.3 U	0.96 U	0.83 U
trans-1,4-Dichloro-2-butene		3.8 U	3.4 U	5 U	4.5 U	3.4 U	3 UJ
Trichloroethene		1.2 U	1.1 U	1.6 U	1.5 U	1.1 U	0.95 U
Trichlorofluoromethane		1.9 U	1.6 U	2.4 U	2.2 U	1.7 U	1.4 U
Vinyl acetate		1.9 U	1.6 U	2.4 U	2.2 U	1.7 U	1.4 U
Vinyl chloride		0.72 U	0.64 U	0.94 U	0.84 U	0.64 U	0.55 U
Xylenes, Total		2.8 U	2.5 U	3.7 U	3.3 U	2.5 U	2.2 U
Semivolatile Organic Compounds (ug/kg)							
1,1'-Biphenyl		9.7 U	8.2 U	10 U	9.8 U	8.2 U	8.1 U
1,2,4,5-Tetrachlorobenzene		8.3 U	7 U	8.9 U	8.3 U	7 U	6.9 U
1,2,4-Trichlorobenzene		9.7 U	8.2 U	10 U	9.8 U	8.2 U	8.1 U
1,2-Dichlorobenzene		9.2 U	7.8 U	9.9 U	9.3 U	7.7 U	7.7 U
1,3,5-Trinitrobenzene		22 U	19 U	24 U	22 U	19 U	19 U
1,3-Dichlorobenzene		7.9 U	6.7 U	8.5 U	7.9 U	6.6 U	6.6 U
1,3-Dinitrobenzene		5.1 U	4.3 U	5.5 U	5.2 U	4.3 U	4.3 U
1,4-Dichlorobenzene		8.1 U	6.9 U	9.1 J	8.2 U	6.9 U	6.8 U
1,4-Dioxane		10 U	8.9 U	11 U	11 U	8.9 U	8.8 U
1,4-Naphthoquinone		5.1 U	4.3 U	5.5 U	5.2 U	4.3 U	4.3 U
2,2'-oxybis[1-chloropropane]		8.3 U	7 U	8.9 U	8.3 U	7 U	6.9 U
2,3,4,6-Tetrachlorophenol		5.5 U	4.7 U	5.9 U	5.6 U	4.6 UJ	4.6 U
2,4,5-Trichlorophenol		8.9 U	7.6 U	9.6 U	9 U	7.5 UJ	7.5 U
2,4,6-Trichlorophenol		10 U	8.8 U	11 U	10 U	8.7 UJ	8.7 U
2,4-Dichlorophenol		11 U	9 U	11 U	11 U	9 UJ	8.9 U
2,4-Dimethylphenol		22 U	19 U	24 U	22 U	19 UJ	19 U
2,4-Dinitrophenol		110 U	92 U	120 U	110 U	92 UJ	91 UJ
2,4-Dinitrotoluene		7.7 U	6.6 U	8.3 U	7.8 U	6.5 U	6.5 U
2,6-Dichlorophenol		8.4 U	7.1 U	9.1 U	8.5 U	7.1 UJ	7 U
2,6-Dinitrotoluene		8.1 U	6.9 U	8.8 U	8.2 U	6.9 U	6.8 U
2-Acetylaminofluorene		6.7 U	5.7 U	7.2 U	6.7 U	5.6 U	5.6 U
2-Chloronaphthalene		8.1 U	6.9 U	8.8 U	8.2 U	6.9 U	6.8 U
2-Chlorophenol		8.6 U	7.3 U	9.3 U	8.7 U	7.3 UJ	7.3 U
2-Methylnaphthalene		2.2 U	1.9 U	2.4 U	2.2 U	1.9 U	1.9 U
2-Methylphenol		11 U	9 U	11 U	11 U	9 UJ	8.9 U
2-Naphthylamine		26 U	22 U	28 U	26 U	22 UJ	22 U
2-Nitroaniline		8.5 U	7.2 U	9.2 U	8.6 U	7.2 U	7.2 U
2-Nitrophenol		9.6 U	8.1 U	10 U	9.7 U	8.1 UJ	8 U
2-Picoline		16 U	13 U	17 U	16 U	13 U	13 U
2-Toluidine		12 U	10 U	13 U	12 U	10 U	10 U
3 & 4 Methylphenol		9.6 U	8.1 U	10 U	9.7 U	8.1 UJ	8 U
3,3'-Dichlorobenzidine		12 U	10 UJ	13 U	12 U	10 UJ	10 UJ
3,3'-Dimethylbenzidine		240 U	200 UJ	250 U	240 U	200 UJ	200 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB06	78SB07	78SB08	78SB08	78SB09	78SB10
	Sample ID	78SB06-00	78SB07-00	78SB08-00	78SB08-00D	78SB09-00	78SB10-00
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008
	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
Semivolatile Organic Compounds (ug/kg)							
3-Methylcholanthrene		8 U	6.8 U	8.6 U	8.1 U	6.8 UJ	6.7 U
3-Nitroaniline		5.9 U	5 U	6.4 U	5.9 U	5 U	5 U
4,6-Dinitro-2-methylphenol		7.6 U	6.4 U	8.2 U	7.7 U	6.4 UJ	6.4 U
4-Aminobiphenyl		17 U	14 U	18 U	17 U	14 U	14 U
4-Bromophenyl phenyl ether		9.3 U	7.9 U	10 U	9.4 U	7.9 U	7.8 U
4-Chloro-3-methylphenol		9.8 U	8.3 U	11 U	9.9 U	8.3 UJ	8.3 U
4-Chloroaniline		7.9 U	6.7 U	8.5 U	7.9 U	6.6 U	6.6 U
4-Chlorophenyl phenyl ether		8.1 U	6.9 U	8.8 U	8.2 U	6.9 U	6.8 U
4-Nitroaniline		10 U	8.6 U	11 U	10 U	8.5 UJ	8.5 U
4-Nitrophenol		43 U	37 U	47 U	44 U	37 UJ	36 U
4-Nitroquinoline-1-oxide		14 R	12 R	16 R	15 R	12 R	12 R
7,12-Dimethylbenz(a)anthracene		12 U	10 U	13 U	12 U	10 U	10 U
Acenaphthene		0.75 U	0.63 U	0.81 U	0.75 U	0.63 U	0.63 U
Acenaphthylene		2.2 U	1.9 U	2.4 U	2.2 U	1.9 U	1.9 U
Acetophenone		11 U	9.6 U	12 U	11 U	9.5 U	9.5 U
alpha,alpha-Dimethyl phenethylamine		77 U	66 UJ	83 U	78 U	65 U	65 UJ
Aniline		8.3 U	7 U	8.9 U	8.3 U	7 U	6.9 U
Anthracene		2.2 U	1.9 U	2.4 U	2.2 U	1.9 U	1.9 U
Aramite, Total		14 U	12 U	16 U	15 U	12 U	12 U
Benzo[a]anthracene		2.2 U	1.9 U	2.4 U	2.9 J	1.9 U	1.9 U
Benzo[a]pyrene		1.6 J	0.73 U	1.2 J	2.1 J	0.73 U	0.73 U
Benzo[b]fluoranthene		3.6 J	0.84 U	1.1 J	2.1 J	0.84 U	0.84 U
Benzo[g,h,i]perylene		2.2 U	1.9 UJ	3.8 J	2.2 U	1.9 UJ	1.9 U
Benzo[k]fluoranthene		1.3 UJ	1.1 U	1.4 J	1.4 J	1.1 U	1.1 U
Benzyl alcohol		10 U	8.9 U	11 U	11 U	8.9 UJ	8.8 U
Bis(2-chloroethoxy)methane		8.9 U	7.6 U	9.6 U	9 U	7.5 U	7.5 U
Bis(2-chloroethyl)ether		7.5 U	6.3 U	8.1 U	7.5 U	6.3 U	6.3 U
Bis(2-ethylhexyl) phthalate		18 J	5.3 U	37 J	42 J	13 U	16 U
Butyl benzyl phthalate		9.4 U	8 U	10 U	9.5 U	8 U	7.9 U
Chrysene		1.4 J	0.68 U	1.3 J	2 J	0.68 U	0.67 U
Diallate		13 U	11 U	14 U	13 U	11 U	11 U
Dibenz(a,h)anthracene		0.77 U	0.66 U	0.83 U	0.78 U	0.65 U	0.65 U
Dibenzofuran		5.5 U	4.7 U	5.9 U	5.6 U	4.6 U	4.6 U
Diethyl phthalate		14 U	12 U	16 U	15 U	12 U	12 U
Dimethyl phthalate		8.4 U	7.1 U	9.1 U	8.5 U	7.1 U	7 U
Di-n-butyl phthalate		33 U	28 U	35 U	33 U	28 U	28 U
Di-n-octyl phthalate		4.3 U	3.7 U	4.7 U	4.4 U	3.7 U	3.6 U
Dinoseb		22 U	19 U	24 U	22 U	19 U	19 U
Ethyl methanesulfonate		14 U	12 U	16 U	15 U	12 U	12 U
Fluoranthene		2.2 U	1.9 U	2.4 U	2.3 J	1.9 U	1.9 U
Fluorene		1 U	0.86 U	1.1 U	1 U	0.85 U	0.85 U
Hexachlorobenzene		8.9 U	7.6 U	9.6 U	9 U	7.5 U	7.5 U
Hexachlorobutadiene		12 U	10 U	13 U	12 U	10 U	10 U
Hexachlorocyclopentadiene		18 U	16 U	20 U	19 U	15 U	15 U
Hexachloroethane		9.7 U	8.2 U	10 U	9.8 U	8.2 U	8.1 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB06	78SB07	78SB08	78SB08	78SB09	78SB10
Sample ID	78SB06-00	78SB07-00	78SB08-00	78SB08-00D	78SB09-00	78SB10-00
Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008
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
Semivolatile Organic Compounds (ug/kg)						
Hexachlorophene	1100 UJ	920 U	1200 R	1100 UJ	920 R	910 R
Hexachloropropene	9.4 U	8 U	10 U	9.5 U	8 U	7.9 U
Indeno[1,2,3-cd]pyrene	1.6 U	1.3 U	1.7 U	1.6 U	1.3 UJ	1.3 U
Isophorone	8.1 U	6.9 U	8.8 U	8.2 U	6.9 U	6.8 U
Isosafrole	9.3 U	7.9 U	10 U	9.4 U	7.9 U	7.8 U
Methapyrilene	12 U	10 U	13 U	12 U	10 U	10 U
Methyl methanesulfonate	12 U	10 U	13 U	12 U	10 U	10 U
Naphthalene	0.79 U	0.67 UJ	0.85 U	0.79 U	0.66 U	0.66 U
Nitrobenzene	9 U	7.7 U	9.8 U	9.1 U	7.6 U	7.6 U
N-Nitro-o-toluidine	7.9 U	6.7 U	8.5 U	7.9 U	6.6 U	6.6 U
N-Nitrosodiethylamine	16 U	13 U	17 U	16 U	13 U	13 U
N-Nitrosodimethylamine	13 U	11 U	14 U	13 U	11 U	11 U
N-Nitrosodi-n-butylamine	12 U	10 U	13 U	12 U	10 U	10 U
N-Nitrosodi-n-propylamine	8.5 U	7.2 U	9.2 U	8.6 U	7.2 U	7.2 U
N-Nitrosodiphenylamine	9.3 U	7.9 U	10 U	9.4 U	7.9 U	7.8 U
N-Nitrosomethylethylamine	7.5 U	6.3 U	8.1 U	7.5 U	6.3 U	6.3 U
N-Nitrosomorpholine	8.6 U	7.3 U	9.3 U	8.7 U	7.3 U	7.3 U
N-Nitrosopiperidine	11 U	9.4 U	12 U	11 U	9.4 U	9.4 U
N-Nitrosopyrrolidine	12 U	9.9 U	13 U	12 U	9.8 U	9.8 U
p-Dimethylamino azobenzene	9.3 U	7.9 U	10 U	9.4 U	7.9 U	7.8 U
Pentachlorobenzene	8.1 U	6.9 U	8.8 U	8.2 U	6.9 U	6.8 U
Pentachloronitrobenzene	7.7 R	6.6 UJ	8.3 R	7.8 R	6.5 U	6.5 U
Pentachlorophenol	11 UJ	9.2 UJ	12 U	11 U	9.2 UJ	9.1 U
Phenacetin	6.2 U	5.2 U	6.6 U	6.2 U	5.2 U	5.2 U
Phenanthrene	2.2 U	1.9 U	2.4 U	2.2 U	1.9 U	1.9 U
Phenol	6.3 U	5.3 U	6.8 U	6.3 U	5.3 U	5.3 U
p-Phenylene diamine	210 U	180 U	230 U	210 U	180 U	180 U
Pronamide	12 U	10 U	13 U	12 U	10 U	9.9 U
Pyrene	2.3 J	1.9 U	2.6 J	2.3 J	1.9 U	1.9 U
Pyridine	14 U	12 U	16 U	15 U	12 U	12 U
Safrole, Total	11 U	9.2 U	12 U	11 U	9.2 U	9.1 U
PCBs (ug/kg)						
PCB-1016	4.9 U	4.2 U	5.4 U	5.1 U	4.2 U	4.2 U
PCB-1221	17 U	14 U	18 U	17 U	14 U	14 U
PCB-1232	9.7 U	8.3 U	11 U	10 U	8.3 U	8.2 U
PCB-1242	6.2 U	5.3 U	6.8 U	6.4 U	5.3 U	5.2 U
PCB-1248	6.6 U	5.6 U	7.2 U	6.8 U	5.6 U	5.6 U
PCB-1254	3 U	2.5 U	3.3 U	3.1 U	2.5 U	2.5 U
PCB-1260	6.2 U	5.3 U	6.8 U	6.4 U	5.3 U	5.2 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB06	78SB07	78SB08	78SB08	78SB09	78SB10
	Sample ID	78SB06-00	78SB07-00	78SB08-00	78SB08-00D	78SB09-00	78SB10-00
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008	5/29/2008
	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
Metals (mg/kg)							
Antimony		0.089 UJ	0.13 UJ	0.28 UJ	0.65 J	0.1 UJ	0.077 UJ
Arsenic		1	0.69	2.8	2.2	0.58	0.66
Barium		85	60	260 J	180 J	100	33
Beryllium		0.3	0.23	0.34	0.31	0.24	0.26
Cadmium		0.094 J	0.12	0.12 J	0.17	0.038 J	0.065 J
Chromium		18 J	14	11 J	19 J	20 J	18
Cobalt		26	16	41	33	27	25
Copper		190	28	280	220	110	12
Lead		1.8	2.6 R	4.2 R	27 R	1.3	2.2
Mercury		0.0051 U	0.0043 U	0.0063 J	0.032	0.0041 U	0.0041 U
Nickel		24	8.9	20	22	19	17
Selenium		0.14 U	0.13 U	0.18 J	0.21 J	0.12 U	0.12 U
Silver		0.039 J	0.027 J	0.13 J	0.12 J	0.093 J	0.038 J
Thallium		0.14 U	0.13 U	0.17 U	0.14 U	0.17 J	0.12 U
Tin		4.8 U	4.3 U	5.5 U	4.8 U	4.1 U	4.1 U
Vanadium		410	130	250	240	200	190
Zinc		85 J	46 J	70 J	150 J	57 J	65
TPH DRO and GRO (mg/kg)							
Diesel Range Organics [C10-C28]		1.4	3.3 J	2.6	5.2	1.1	0.89
Gasoline Range Organics (GRO)-C6-C10		0.12 J	0.11 J	0.12 J	0.11 J	0.065 U	0.075 J

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB11	78SB12	78SB13	78SB14	78SB15	78SB16
Sample ID	78SB11-00	78SB12-00	78SB13-00	78SB14-00	78SB15-00	78SB16-00
Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/30/2008	5/30/2008
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	0.69 U	0.7 U	0.56 U	0.66 U	0.76 U	0.83 U
1,1,1-Trichloroethane	0.63 UJ	0.63 UJ	0.51 UJ	0.59 UJ	0.69 UJ	0.76 UJ
1,1,2,2-Tetrachloroethane	1.5 U	1.5 U	1.2 U	1.4 U	1.7 U	1.8 U
1,1,2-Trichloroethane	1.3 U	1.3 U	1 U	1.2 U	1.4 U	1.6 U
1,1-Dichloroethane	0.54 U	0.54 U	0.44 U	0.51 U	0.6 U	0.65 U
1,1-Dichloroethene	0.59 U	0.59 U	0.47 U	0.55 U	0.64 U	0.7 U
1,2,3-Trichloropropane	1.5 U	1.5 U	1.2 U	1.4 U	1.7 U	1.8 U
1,2-Dibromo-3-Chloropropane	3 U	3 U	2.4 U	2.9 U	3.3 U	3.6 U
1,2-Dichloroethane	1.1 U	1.1 U	0.87 U	1 U	1.2 U	1.3 U
1,2-Dichloropropane	1.2 U	1.2 U	0.96 U	1.1 U	1.3 U	1.4 U
2-Butanone (MEK)	7.7 UJ	12 UJ	4.4 UJ	6.5 UJ	8 UJ	13 UJ
2-Chloro-1,3-butadiene	0.62 U	0.62 U	0.5 U	0.58 U	0.68 U	0.74 U
2-Hexanone	2.3 U	2.3 U	1.8 U	4.1 J	2.5 U	2.7 U
3-Chloro-1-propene	1.6 U	1.6 U	1.3 U	1.5 U	1.8 U	2 U
4-Methyl-2-pentanone (MIBK)	3.1 UJ	3.2 UJ	2.5 UJ	3 UJ	3.5 UJ	3.8 UJ
Acetone	86 J	4.8 U	36 J	34 J	58 J	85 J
Acetonitrile	49 UJ	49 U	39 U	46 U	54 U	59 U
Acrolein	21 U	21 UJ	17 UJ	19 UJ	23 UJ	25 U
Acrylonitrile	25 UJ	25 UJ	20 UJ	24 UJ	27 UJ	30 U
Benzene	1.4 J	0.86 U	0.76 J	1.1 J	1.1 J	1 U
Bromoform	1.2 U	1.2 U	0.96 U	1.1 U	1.3 U	1.4 U
Bromomethane	1.7 U	1.7 U	1.4 U	1.6 U	1.9 U	2.1 U
Carbon disulfide	7.4	0.55 U	0.45 U	0.57 J	0.95 J	0.66 U
Carbon tetrachloride	1.1 UJ	1.1 UJ	0.87 UJ	1 UJ	1.2 UJ	1.3 UJ
Chlorobenzene	0.79 U	0.79 U	0.64 U	0.75 U	0.87 U	0.95 U
Chlorodibromomethane	0.54 U	0.54 U	0.44 U	0.51 U	0.6 U	0.65 U
Chloroethane	1.3 UJ	1.3 U	1 U	1.2 U	1.4 U	1.6 UJ
Chloroform	0.54 U	0.54 U	0.44 U	0.51 U	0.6 U	0.65 U
Chloromethane	0.77 U	0.77 U	0.62 U	0.73 U	0.85 U	0.92 U
cis-1,3-Dichloropropene	0.94 UJ	0.95 UJ	0.76 UJ	0.89 UJ	1 UJ	1.1 UJ
Dibromomethane	1.3 U	1.3 U	1 U	1.2 U	1.4 U	1.6 U
Dichlorobromomethane	0.9 U	0.9 U	0.72 U	0.85 U	0.99 U	1.1 U
Dichlorodifluoromethane	0.97 U	0.97 U	0.78 U	0.91 U	1.1 U	1.2 U
Ethyl methacrylate	2.4 U	2.4 U	1.9 U	2.3 U	2.6 U	2.9 U
Ethylbenzene	0.81 U	0.82 U	0.65 U	0.77 U	0.9 U	0.98 U
Ethylene Dibromide	1.6 U	1.6 U	1.3 U	1.5 U	1.8 U	2 U
Iodomethane	1.1 U	3.7 J	0.87 U	1 U	1.2 U	1.3 U
Isobutyl alcohol	75 R	75 U	60 U	71 U	82 U	90 U
Methacrylonitrile	26 UJ	26 U	21 U	25 U	29 U	31 U
Methyl methacrylate	4 UJ	4 U	3.2 U	3.8 U	4.4 U	4.8 U
Methylene Chloride	1.1 U	1.1 U	0.87 U	1 U	1.2 U	1.3 U
Pentachloroethane	2.4 R	2.4 R	1.9 R	2.3 R	2.6 R	2.9 R
Propionitrile	23 UJ	23 U	18 U	22 U	25 U	27 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB11	78SB12	78SB13	78SB14	78SB15	78SB16
	Sample ID	78SB11-00	78SB12-00	78SB13-00	78SB14-00	78SB15-00	78SB16-00
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/30/2008	5/30/2008
	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)							
Styrene		0.72 U	0.72 U	0.58 U	0.68 U	0.79 U	0.86 U
Tetrachloroethene		0.79 U	0.79 U	0.64 U	0.75 U	0.87 U	0.95 U
Toluene		0.87 U	0.86 U	0.69 U	0.81 U	0.94 U	1 U
trans-1,2-Dichloroethene		1.1 U	1.1 U	0.85 U	0.99 U	1.2 U	1.3 U
trans-1,3-Dichloropropene		0.94 U	0.95 U	0.76 U	0.89 U	1 U	1.1 U
trans-1,4-Dichloro-2-butene		3.4 UJ	3.4 U	2.7 U	3.2 U	3.7 U	4 U
Trichloroethene		1.1 U	1.1 U	0.87 U	1 U	1.2 U	1.3 U
Trichlorofluoromethane		1.6 U	1.6 U	1.3 U	1.5 U	1.8 U	2 U
Vinyl acetate		1.6 U	1.6 U	1.3 U	1.5 U	1.8 U	2 U
Vinyl chloride		0.63 U	0.63 U	0.51 U	0.59 U	0.69 U	0.76 U
Xylenes, Total		2.5 U	2.5 U	2 U	2.4 U	2.7 U	3 U
Semivolatile Organic Compounds (ug/kg)							
1,1'-Biphenyl		8.2 UJ	9.2 U	8.7 U	9.8 UJ	8.8 U	9.6 U
1,2,4,5-Tetrachlorobenzene		6.9 UJ	7.8 U	7.4 U	8.4 UJ	7.5 U	8.2 U
1,2,4-Trichlorobenzene		8.2 UJ	9.2 U	8.7 U	9.8 UJ	8.8 U	9.6 U
1,2-Dichlorobenzene		7.7 UJ	8.7 U	8.2 U	9.3 UJ	8.3 U	9.1 U
1,3,5-Trinitrobenzene		19 UJ	21 U	20 U	23 UJ	20 U	22 U
1,3-Dichlorobenzene		6.6 UJ	7.4 U	7 U	8 UJ	7.1 U	7.8 U
1,3-Dinitrobenzene		4.3 UJ	4.8 U	4.6 U	5.2 UJ	4.6 U	5.1 U
1,4-Dichlorobenzene		6.8 UJ	7.7 U	7.3 U	8.2 UJ	7.4 U	8.1 U
1,4-Dioxane		8.8 UJ	9.9 U	9.4 U	11 UJ	9.5 U	10 U
1,4-Naphthoquinone		4.3 UJ	4.8 UJ	4.6 U	5.2 UJ	4.6 UJ	5.1 U
2,2'-oxybis[1-chloropropane]		6.9 UJ	7.8 U	7.4 U	8.4 UJ	7.5 U	8.2 U
2,3,4,6-Tetrachlorophenol		4.6 UJ	5.2 U	4.9 U	5.6 UJ	5 UJ	5.5 UJ
2,4,5-Trichlorophenol		7.5 UJ	8.4 U	8 U	9 UJ	8.1 UJ	8.8 UJ
2,4,6-Trichlorophenol		8.7 UJ	9.8 U	9.3 U	10 UJ	9.4 UJ	10 UJ
2,4-Dichlorophenol		8.9 UJ	10 U	9.5 U	11 UJ	9.6 UJ	11 UJ
2,4-Dimethylphenol		19 UJ	21 U	20 U	23 UJ	20 UJ	22 UJ
2,4-Dinitrophenol		92 UJ	100 UJ	97 UJ	110 UJ	99 UJ	110 UJ
2,4-Dinitrotoluene		6.5 UJ	7.3 U	6.9 U	7.8 UJ	7 U	7.7 U
2,6-Dichlorophenol		7.1 UJ	7.9 U	7.5 U	8.5 UJ	7.6 UJ	8.3 UJ
2,6-Dinitrotoluene		6.8 UJ	7.7 U	7.3 U	8.2 UJ	7.4 U	8.1 U
2-Acetylaminofluorene		5.6 UJ	6.3 U	6 U	6.8 UJ	6.1 U	6.6 U
2-Chloronaphthalene		6.8 UJ	7.7 U	7.3 U	8.2 UJ	7.4 U	8.1 U
2-Chlorophenol		7.3 UJ	8.2 U	7.7 U	8.8 UJ	7.9 UJ	8.6 UJ
2-Methylnaphthalene		1.9 UJ	19	2 U	2.3 UJ	2 U	2.2 U
2-Methylphenol		8.9 UJ	10 U	9.5 U	11 UJ	9.6 UJ	11 UJ
2-Naphthylamine		22 UJ	25 UJ	23 UJ	27 UJ	24 UJ	26 UJ
2-Nitroaniline		7.2 UJ	8.1 U	7.6 U	8.6 UJ	7.7 U	8.5 U
2-Nitrophenol		8 UJ	9.1 U	8.6 U	9.7 UJ	8.7 UJ	9.5 UJ
2-Picoline		13 UJ	15 U	14 U	16 UJ	14 U	16 U
2-Toluidine		10 UJ	12 U	11 U	12 UJ	11 U	12 U
3 & 4 Methylphenol		8 UJ	9.1 U	8.6 U	9.7 UJ	8.7 UJ	9.5 UJ
3,3'-Dichlorobenzidine		10 UJ	11 UJ	11 UJ	12 UJ	11 UJ	12 UJ
3,3'-Dimethylbenzidine		200 UJ	220 U	210 UJ	240 UJ	210 U	230 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB11	78SB12	78SB13	78SB14	78SB15	78SB16
	Sample ID	78SB11-00	78SB12-00	78SB13-00	78SB14-00	78SB15-00	78SB16-00
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/30/2008	5/30/2008
	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
Semivolatile Organic Compounds (ug/kg)							
3-Methylcholanthrene		6.7 UJ	7.6 U	7.1 UJ	8.1 UJ	7.3 U	7.9 R
3-Nitroaniline		5 UJ	5.6 U	5.3 U	6 UJ	5.4 U	5.9 U
4,6-Dinitro-2-methylphenol		6.4 UJ	7.2 U	6.8 U	7.7 UJ	6.9 UJ	7.5 UJ
4-Aminobiphenyl		14 UJ	16 U	15 U	17 UJ	15 U	17 U
4-Bromophenyl phenyl ether		7.8 UJ	8.8 U	8.3 U	9.4 UJ	8.4 U	9.2 U
4-Chloro-3-methylphenol		8.3 UJ	9.3 U	8.8 U	10 UJ	8.9 UJ	9.8 UJ
4-Chloroaniline		6.6 UJ	7.4 U	7 U	8 UJ	7.1 U	7.8 U
4-Chlorophenyl phenyl ether		6.8 UJ	7.7 U	7.3 U	8.2 UJ	7.4 U	8.1 U
4-Nitroaniline		8.5 UJ	9.6 U	9 UJ	10 UJ	9.2 U	10 UJ
4-Nitrophenol		36 UJ	41 U	39 U	44 UJ	39 UJ	43 UJ
4-Nitroquinoline-1-oxide		12 R	14 R	13 R	15 R	13 R	14 UJ
7,12-Dimethylbenz(a)anthracene		10 UJ	12 U	11 U	12 UJ	11 U	12 UJ
Acenaphthene		0.63 UJ	18	0.67 U	0.76 UJ	0.68 U	0.74 U
Acenaphthylene		1.9 UJ	26	2 U	2.3 UJ	2 U	2.2 U
Acetophenone		9.5 UJ	11 U	10 U	11 UJ	10 U	11 U
alpha,alpha-Dimethyl phenethylamine		65 UJ	73 U	69 U	78 UJ	70 U	77 U
Aniline		6.9 UJ	7.8 U	7.4 U	8.4 UJ	7.5 U	8.2 U
Anthracene		2.6 J	43	2 U	2.3 UJ	2 U	2.2 U
Aramite, Total		12 UJ	14 U	13 U	15 UJ	13 U	14 U
Benzo[a]anthracene		33 J	68	4.8 J	2.3 UJ	2 U	2.2 R
Benzo[a]pyrene		46 J	76	4.8 J	0.99 J	1.3 J	0.86 R
Benzo[b]fluoranthene		85 J	110	7.2 J	1 UJ	1.6 J	14 J
Benzo[g,h,i]perylene		39 J	34	3.6 J	2.3 UJ	2 U	19 J
Benzo[k]fluoranthene		1.1 UJ	1.2 U	1.2 U	1.3 UJ	1.7 J	1.3 R
Benzyl alcohol		8.8 UJ	9.9 U	9.4 U	11 UJ	9.5 UJ	10 UJ
Bis(2-chloroethoxy)methane		7.5 UJ	8.4 U	8 U	9 UJ	8.1 U	8.8 U
Bis(2-chloroethyl)ether		6.3 UJ	7.1 U	6.7 U	7.6 UJ	6.8 U	7.4 U
Bis(2-ethylhexyl) phthalate		35 UJ	12 U	13 U	10 UJ	18 U	26 R
Butyl benzyl phthalate		7.9 UJ	8.9 U	8.4 U	9.6 UJ	8.6 U	9.4 U
Chrysene		48 J	66	4 J	0.81 UJ	1.5 J	34 J
Diallate		11 UJ	12 U	11 U	13 UJ	11 U	12 U
Dibenz(a,h)anthracene		7.1 J	5.7 J	1.1 J	0.78 UJ	0.7 U	0.77 R
Dibenzofuran		4.6 UJ	33 J	4.9 U	5.6 UJ	5 U	5.5 U
Diethyl phthalate		12 UJ	14 U	13 U	15 UJ	13 U	14 U
Dimethyl phthalate		7.1 UJ	7.9 U	7.5 U	8.5 UJ	7.6 U	8.3 U
Di-n-butyl phthalate		56 UJ	31 U	29 U	33 UJ	30 U	33 U
Di-n-octyl phthalate		3.6 UJ	4.1 U	3.9 U	4.4 UJ	3.9 U	4.3 R
Dinoseb		19 UJ	21 U	20 U	23 UJ	20 U	22 U
Ethyl methanesulfonate		12 UJ	14 U	13 U	15 UJ	13 U	14 U
Fluoranthene		57 J	180	10	2.3 UJ	2 U	15
Fluorene		0.85 UJ	53	1.3 J	1 UJ	0.92 U	1 U
Hexachlorobenzene		7.5 UJ	8.4 U	8 U	9 UJ	8.1 U	8.8 U
Hexachlorobutadiene		10 UJ	11 U	11 U	12 UJ	11 U	12 U
Hexachlorocyclopentadiene		15 UJ	17 U	16 U	19 UJ	17 U	18 U
Hexachloroethane		8.2 UJ	9.2 U	8.7 U	9.8 UJ	8.8 U	9.6 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB11	78SB12	78SB13	78SB14	78SB15	78SB16
	Sample ID	78SB11-00	78SB12-00	78SB13-00	78SB14-00	78SB15-00	78SB16-00
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/30/2008	5/30/2008
	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
Semivolatile Organic Compounds (ug/kg)							
Hexachlorophene		920 R	1000 R	970 R	1100 R	990 R	1100 UJ
Hexachloropropene		7.9 UJ	8.9 U	8.4 U	9.6 UJ	8.6 U	9.4 U
Indeno[1,2,3-cd]pyrene		13 J	15 J	1.4 UJ	1.6 UJ	1.4 UJ	1.6 R
Isophorone		6.8 UJ	7.7 U	7.3 U	8.2 UJ	7.4 U	8.1 UJ
Isosafrole		7.8 UJ	8.8 U	8.3 U	9.4 UJ	8.4 U	9.2 U
Methapyrilene		10 UJ	12 U	11 U	12 UJ	11 U	12 U
Methyl methanesulfonate		10 UJ	12 U	11 U	12 UJ	11 U	12 U
Naphthalene		0.66 UJ	99	1.2 J	0.8 UJ	0.71 U	1.9 J
Nitrobenzene		7.6 UJ	8.6 U	8.1 U	9.2 UJ	8.2 U	9 U
N-Nitro-o-toluidine		6.6 UJ	7.4 U	7 U	8 UJ	7.1 U	7.8 U
N-Nitrosodiethylamine		13 UJ	15 U	14 U	16 UJ	14 U	16 U
N-Nitrosodimethylamine		11 UJ	12 U	11 U	13 UJ	12 U	13 U
N-Nitrosodi-n-butylamine		10 UJ	11 U	11 U	12 UJ	11 U	12 U
N-Nitrosodi-n-propylamine		7.2 UJ	8.1 U	7.6 U	8.6 UJ	7.7 U	8.5 U
N-Nitrosodiphenylamine		7.8 UJ	8.8 U	8.3 U	9.4 UJ	8.4 U	9.2 U
N-Nitrosomethylethylamine		6.3 UJ	7.1 U	6.7 U	7.6 UJ	6.8 U	7.4 U
N-Nitrosomorpholine		7.3 UJ	8.2 U	7.7 U	8.8 UJ	7.9 U	8.6 U
N-Nitrosopiperidine		9.4 UJ	11 U	10 U	11 UJ	10 U	11 U
N-Nitrosopyrrolidine		9.8 UJ	11 U	10 U	12 UJ	11 U	12 U
p-Dimethylamino azobenzene		7.8 UJ	8.8 U	8.3 U	9.4 UJ	8.4 U	9.2 U
Pentachlorobenzene		6.8 UJ	7.7 U	7.3 U	8.2 UJ	7.4 U	8.1 U
Pentachloronitrobenzene		6.5 UJ	7.3 U	6.9 U	7.8 UJ	7 U	7.7 U
Pentachlorophenol		9.2 UJ	10 U	9.7 U	11 UJ	9.9 UJ	11 UJ
Phenacetin		5.2 UJ	5.8 U	5.5 U	6.2 UJ	5.6 U	6.1 U
Phenanthrene		13 J	220	7.8 J	2.3 UJ	2 U	5.5 J
Phenol		5.3 UJ	6 U	5.6 U	6.4 UJ	5.7 U	6.2 U
p-Phenylene diamine		180 UJ	200 U	190 U	210 UJ	190 U	210 U
Pronamide		9.9 UJ	11 U	11 U	12 UJ	11 U	12 U
Pyrene		81 J	180	8.2	2.3 UJ	2.3 J	20
Pyridine		12 UJ	14 U	13 U	15 UJ	13 U	14 U
Safrole, Total		9.2 UJ	10 U	9.7 U	11 UJ	9.9 U	11 U
PCBs (ug/kg)							
PCB-1016		4.2 U	4.8 U	4.5 U	5 U	4.5 U	4.9 U
PCB-1221		14 U	16 U	15 U	17 U	15 U	17 U
PCB-1232		8.3 U	9.5 U	8.8 U	9.9 U	8.9 U	9.7 U
PCB-1242		5.3 U	6.1 U	5.6 U	6.3 U	5.7 U	6.2 U
PCB-1248		5.6 U	6.4 U	6 U	6.7 U	6 U	6.6 U
PCB-1254		2.5 U	2.9 U	2.7 U	3 U	2.7 U	3 U
PCB-1260		48 J	6.1 U	5.6 U	6.3 U	5.7 U	6.2 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB11	78SB12	78SB13	78SB14	78SB15	78SB16
	Sample ID	78SB11-00	78SB12-00	78SB13-00	78SB14-00	78SB15-00	78SB16-00
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/30/2008	5/30/2008
	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
Metals (mg/kg)							
Antimony		0.33 J	0.091 UJ	0.15 UJ	0.097 UJ	0.66 J	0.14 UJ
Arsenic		1.9	1.5	2.1	2.9	8.2	1.8
Barium		380	130	160	120	78	80
Beryllium		0.42	0.35	0.42	0.42	0.19	0.27
Cadmium		0.17	0.066 J	0.14	0.062 J	0.22	0.23
Chromium		19	34 J	77 J	21 J	28 J	36 J
Cobalt		17	47	34	42	18	40
Copper		91	120	130	170	110	240
Lead		45	2.1	3.9	1.4	19	0.81
Mercury		0.0082 J	0.032	0.016 J	0.015 J	0.013 J	0.0043 U
Nickel		22	23	22	29	15	49
Selenium		0.25 J	1.4	0.54 J	0.41 J	0.32 J	0.14 U
Silver		0.06 J	0.03 J	0.08 J	0.039 J	0.065 J	0.11 J
Thallium		0.13 U	0.14 U	0.13 J	0.15 U	0.14 U	0.14 U
Tin		14 J	4.8 U	4.4 U	5.1 U	4.5 U	4.7 U
Vanadium		110	270	230	260	160	210
Zinc		260	47 J	51 J	56 J	84 J	72 J
TPH DRO and GRO (mg/kg)							
Diesel Range Organics [C10-C28]		18	16	3.8	14	2.3	36
Gasoline Range Organics (GRO)-C6-C10		0.17 J	0.12 J	0.2 J	0.37	0.2 J	0.11 U

SUBSURFACE SOIL

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB01	78SB01	78SB01	78SB02
Sample ID	78SB01-01	78SB01-03	78SB01-03D	78SB02-01
Date	5/31/2008	5/31/2008	5/31/2008	5/30/2008
Depth Range	1.0-3.0	5.0-7.0	5.0-7.0	1.0-3.0

Volatile Organic Compounds (ug/kg)

1,1,1,2-Tetrachloroethane	0.65 U	0.81 U	0.55 U	0.71 U
1,1,1-Trichloroethane	0.59 UJ	0.73 UJ	0.5 UJ	0.64 UJ
1,1,2,2-Tetrachloroethane	1.4 U	1.8 U	1.2 U	1.5 U
1,1,2-Trichloroethane	1.2 U	1.5 U	1 U	1.3 U
1,1-Dichloroethane	0.51 U	0.63 U	0.43 U	0.55 U
1,1-Dichloroethene	0.55 U	0.68 U	0.46 U	0.59 U
1,2,3-Trichloropropane	1.4 U	1.8 U	1.2 U	1.5 U
1,2-Dibromo-3-Chloropropane	2.9 UJ	3.5 UJ	2.4 UJ	3.1 UJ
1,2-Dichloroethane	1 U	1.3 U	0.86 U	1.1 U
1,2-Dichloropropane	1.1 U	1.4 U	0.94 U	1.2 U
2-Butanone (MEK)	37 UJ	6.4 UJ	3.5 UJ	27 UJ
2-Chloro-1,3-butadiene	0.58 U	0.72 U	0.49 U	0.63 UJ
2-Hexanone	2.1 U	2.6 U	1.8 U	2.3 U
3-Chloro-1-propene	1.5 U	1.9 U	1.3 U	1.7 UJ
4-Methyl-2-pentanone (MIBK)	3 UJ	3.7 UJ	2.5 UJ	3.2 UJ
Acetone	180 J	36 UJ	15 UJ	170 J
Acetonitrile	46 U	57 U	39 U	50 UJ
Acrolein	19 U	24 U	16 U	21 U
Acrylonitrile	23 UJ	29 UJ	20 UJ	25 U
Benzene	0.81 U	0.99 U	0.68 U	0.87 U
Bromoform	1.1 U	1.4 U	0.94 U	1.2 U
Bromomethane	1.6 U	2 U	1.4 U	1.8 U
Carbon disulfide	0.52 U	0.64 U	0.44 U	0.56 U
Carbon tetrachloride	1 UJ	1.3 UJ	0.86 UJ	1.1 UJ
Chlorobenzene	0.74 U	0.92 U	0.63 U	0.8 U
Chlorodibromomethane	0.51 U	0.63 U	0.43 U	0.55 U
Chloroethane	1.2 UJ	1.5 UJ	1 UJ	1.3 UJ
Chloroform	0.51 U	0.63 U	0.43 U	0.55 U
Chloromethane	0.72 U	0.89 U	0.61 U	0.78 U
cis-1,3-Dichloropropene	0.89 U	1.1 U	0.75 U	0.96 UJ
Dibromomethane	1.2 U	1.5 U	1 U	1.3 U
Dichlorobromomethane	0.85 U	1 U	0.71 U	0.91 U
Dichlorodifluoromethane	0.91 U	1.1 U	0.76 U	0.98 U
Ethyl methacrylate	2.2 U	2.8 U	1.9 U	2.4 U
Ethylbenzene	0.76 U	0.94 U	0.64 U	0.83 U
Ethylene Dibromide	1.5 U	1.9 U	1.3 U	1.7 U
Iodomethane	4.7 J	1.3 U	0.86 U	12 J
Isobutyl alcohol	70 R	87 R	59 R	76 U
Methacrylonitrile	24 U	30 U	21 U	26 UJ
Methyl methacrylate	3.8 U	4.7 U	3.2 U	4.1 UJ
Methylene Chloride	1 U	1.3 U	0.86 U	1.1 U
Pentachloroethane	2.2 R	2.8 R	1.9 R	2.4 R
Propionitrile	21 UJ	26 UJ	18 UJ	23 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB01	78SB01	78SB01	78SB02
	Sample ID	78SB01-01	78SB01-03	78SB01-03D	78SB02-01
	Date	5/31/2008	5/31/2008	5/31/2008	5/30/2008
	Depth Range	1.0-3.0	5.0-7.0	5.0-7.0	1.0-3.0
Volatile Organic Compounds (ug/kg)					
Styrene		0.67 U	0.83 U	0.57 U	0.73 U
Tetrachloroethene		0.74 U	0.92 U	0.63 U	0.8 U
Toluene		0.81 U	0.99 U	0.68 U	0.87 U
trans-1,2-Dichloroethene		0.99 U	1.2 U	0.83 U	1.1 U
trans-1,3-Dichloropropene		0.89 U	1.1 U	0.75 U	0.96 U
trans-1,4-Dichloro-2-butene		3.2 U	3.9 U	2.7 U	3.4 U
Trichloroethene		1 U	1.3 U	0.86 U	1.1 U
Trichlorofluoromethane		1.5 U	1.9 U	1.3 U	1.7 U
Vinyl acetate		1.5 U	1.9 U	1.3 U	1.7 U
Vinyl chloride		0.59 U	0.73 U	0.5 U	0.64 U
Xylenes, Total		2.3 U	2.9 U	2 U	2.5 U
Semivolatile Organic Compounds (ug/kg)					
1,1'-Biphenyl		8.3 U	9.5 U	7.9 U	8.9 U
1,2,4,5-Tetrachlorobenzene		7.1 U	8.1 U	6.7 U	7.6 U
1,2,4-Trichlorobenzene		8.3 U	9.5 U	7.9 U	8.9 U
1,2-Dichlorobenzene		7.9 U	9 U	7.5 U	8.4 U
1,3,5-Trinitrobenzene		19 U	22 U	18 U	20 U
1,3-Dichlorobenzene		6.7 U	7.7 U	6.4 U	7.2 U
1,3-Dinitrobenzene		4.4 U	5 U	4.2 U	4.7 U
1,4-Dichlorobenzene		7 U	8 U	6.6 U	7.5 U
1,4-Dioxane		9 U	10 U	8.5 U	9.6 U
1,4-Naphthoquinone		4.4 U	5 U	4.2 U	4.7 U
2,2'-oxybis[1-chloropropane]		7.1 U	8.1 U	6.7 U	7.6 U
2,3,4,6-Tetrachlorophenol		4.7 U	5.4 U	4.5 U	5.1 U
2,4,5-Trichlorophenol		7.6 U	8.8 U	7.2 U	8.2 U
2,4,6-Trichlorophenol		8.9 U	10 U	8.4 U	9.5 U
2,4-Dichlorophenol		9.1 U	10 U	8.6 U	9.8 U
2,4-Dimethylphenol		19 U	22 U	18 U	20 U
2,4-Dinitrophenol		93 UJ	110 UJ	88 UJ	100 U
2,4-Dinitrotoluene		6.6 U	7.6 U	6.3 U	7.1 U
2,6-Dichlorophenol		7.2 U	8.3 U	6.8 U	7.7 U
2,6-Dinitrotoluene		7 U	8 U	6.6 U	7.5 U
2-Acetylaminofluorene		5.7 U	6.6 U	5.4 U	6.1 U
2-Chloronaphthalene		7 U	8 U	6.6 U	7.5 U
2-Chlorophenol		7.4 U	8.5 U	7 U	8 U
2-Methylnaphthalene		1.9 U	2.2 U	1.8 U	2 U
2-Methylphenol		9.1 U	10 U	8.6 U	9.8 U
2-Naphthylamine		22 U	26 U	21 U	24 U
2-Nitroaniline		7.3 U	8.4 U	6.9 U	7.8 U
2-Nitrophenol		8.2 U	9.4 U	7.8 U	8.8 U
2-Picoline		13 U	15 U	13 U	14 U
2-Toluidine		10 U	12 U	9.9 U	11 U
3 & 4 Methylphenol		8.2 U	9.4 U	7.8 U	8.8 U
3,3'-Dichlorobenzidine		10 U	12 U	9.8 U	11 UJ
3,3'-Dimethylbenzidine		200 U	230 U	190 U	220 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB01	78SB01	78SB01	78SB02
	Sample ID	78SB01-01	78SB01-03	78SB01-03D	78SB02-01
	Date	5/31/2008	5/31/2008	5/31/2008	5/30/2008
	Depth Range	1.0-3.0	5.0-7.0	5.0-7.0	1.0-3.0
Semivolatile Organic Compounds (ug/kg)					
3-Methylcholanthrene		6.9 U	7.9 U	6.5 U	7.4 U
3-Nitroaniline		5.1 U	5.8 U	4.8 U	5.4 U
4,6-Dinitro-2-methylphenol		6.5 UJ	7.5 UJ	6.2 UJ	7 U
4-Aminobiphenyl		15 U	17 U	14 U	16 U
4-Bromophenyl phenyl ether		8 U	9.2 U	7.6 U	8.6 U
4-Chloro-3-methylphenol		8.4 U	9.7 U	8 U	9 U
4-Chloroaniline		6.7 U	7.7 U	6.4 U	7.2 U
4-Chlorophenyl phenyl ether		7 U	8 U	6.6 U	7.5 U
4-Nitroaniline		8.7 U	9.9 U	8.2 U	9.3 U
4-Nitrophenol		37 UJ	43 UJ	35 UJ	40 U
4-Nitroquinoline-1-oxide		12 R	14 R	12 R	13 R
7,12-Dimethylbenz(a)anthracene		10 U	12 U	9.9 U	11 U
Acenaphthene		0.64 U	0.74 U	0.61 U	0.69 U
Acenaphthylene		1.9 U	2.2 U	1.8 U	2 U
Acetophenone		9.7 U	11 U	9.2 U	10 U
alpha,alpha-Dimethyl phenethylamine		66 UJ	76 UJ	63 UJ	71 UJ
Aniline		7.1 U	8.1 U	6.7 U	7.6 U
Anthracene		1.9 U	2.2 U	1.8 U	2 U
Aramite, Total		12 U	14 U	12 U	13 U
Benzo[a]anthracene		1.9 U	2.2 U	1.8 U	2 U
Benzo[a]pyrene		0.74 U	1.3 J	0.7 U	0.8 U
Benzo[b]fluoranthene		0.85 UJ	2 J	0.81 UJ	0.92 U
Benzo[g,h,i]perylene		1.9 UJ	2.2 UJ	1.8 UJ	2 UJ
Benzo[k]fluoranthene		1.1 U	1.3 U	1.1 U	1.2 U
Benzyl alcohol		9 U	10 U	8.5 U	9.6 U
Bis(2-chloroethoxy)methane		7.6 U	8.8 U	7.2 U	8.2 U
Bis(2-chloroethyl)ether		6.4 U	7.4 U	6.1 U	6.9 U
Bis(2-ethylhexyl) phthalate		13 U	14 U	14 U	18 U
Butyl benzyl phthalate		8.1 U	9.3 U	7.7 U	8.7 U
Chrysene		0.69 U	1.2 J	0.65 U	0.74 U
Diallate		11 U	12 U	10 U	12 U
Dibenz(a,h)anthracene		0.66 U	0.76 U	0.63 U	0.71 U
Dibenzofuran		4.7 U	5.4 U	4.5 U	5.1 U
Diethyl phthalate		12 U	14 U	12 U	13 U
Dimethyl phthalate		7.2 U	8.3 U	6.8 U	7.7 U
Di-n-butyl phthalate		28 U	32 U	27 U	30 U
Di-n-octyl phthalate		3.7 U	4.3 U	3.5 U	4 U
Dinoseb		19 UJ	22 UJ	18 UJ	20 U
Ethyl methanesulfonate		12 U	14 U	12 U	13 U
Fluoranthene		1.9 U	2.2 U	1.8 U	2 U
Fluorene		0.87 U	0.99 U	0.82 U	0.93 U
Hexachlorobenzene		7.6 U	8.8 U	7.2 U	8.2 U
Hexachlorobutadiene		10 U	12 U	9.7 U	11 U
Hexachlorocyclopentadiene		16 UJ	18 UJ	15 UJ	17 U
Hexachloroethane		8.3 U	9.5 U	7.9 U	8.9 U

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**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB01	78SB01	78SB01	78SB02
	Sample ID	78SB01-01	78SB01-03	78SB01-03D	78SB02-01
	Date	5/31/2008	5/31/2008	5/31/2008	5/30/2008
	Depth Range	1.0-3.0	5.0-7.0	5.0-7.0	1.0-3.0
Semivolatile Organic Compounds (ug/kg)					
Hexachlorophene		930 UJ	1100 UJ	880 UJ	1000 U
Hexachloropropene		8.1 UJ	9.3 UJ	7.7 UJ	8.7 U
Indeno[1,2,3-cd]pyrene		1.3 U	1.5 U	1.3 U	1.4 U
Isophorone		7 U	8 U	6.6 U	7.5 U
Isosafrole		8 U	9.2 U	7.6 U	8.6 U
Methapyrilene		10 U	12 U	9.9 U	11 U
Methyl methanesulfonate		10 U	12 U	9.9 U	11 U
Naphthalene		0.67 UJ	0.77 UJ	0.64 UJ	0.72 UJ
Nitrobenzene		7.8 U	8.9 U	7.3 U	8.3 U
N-Nitro-o-toluidine		6.7 U	7.7 U	6.4 U	7.2 U
N-Nitrosodiethylamine		13 U	15 U	13 U	14 U
N-Nitrosodimethylamine		11 U	13 U	10 U	12 U
N-Nitrosodi-n-butylamine		10 U	12 U	9.7 U	11 U
N-Nitrosodi-n-propylamine		7.3 U	8.4 U	6.9 U	7.8 U
N-Nitrosodiphenylamine		8 U	9.2 U	7.6 U	8.6 U
N-Nitrosomethylethylamine		6.4 U	7.4 U	6.1 U	6.9 U
N-Nitrosomorpholine		7.4 U	8.5 U	7 U	8 U
N-Nitrosopiperidine		9.6 U	11 U	9.1 U	10 U
N-Nitrosopyrrolidine		10 U	11 U	9.5 U	11 U
p-Dimethylamino azobenzene		8 U	9.2 U	7.6 U	8.6 U
Pentachlorobenzene		7 U	8 U	6.6 U	7.5 U
Pentachloronitrobenzene		6.6 UJ	7.6 UJ	6.3 UJ	7.1 UJ
Pentachlorophenol		9.3 UJ	11 UJ	8.8 UJ	10 UJ
Phenacetin		5.3 U	6.1 U	5 U	5.7 U
Phenanthrene		1.9 U	2.2 U	1.8 U	2 U
Phenol		5.4 U	6.2 U	5.1 U	5.8 U
p-Phenylene diamine		180 U	210 U	170 U	190 U
Pronamide		10 U	12 U	9.6 U	11 U
Pyrene		1.9 U	2.2 U	1.8 U	2 U
Pyridine		12 U	14 U	12 U	13 U
Safrole, Total		9.3 U	11 U	8.8 U	10 U
PCBs (ug/kg)					
PCB-1016		4.3 U	5 U	4.1 U	4.6 U
PCB-1221		15 U	17 U	14 U	16 U
PCB-1232		8.5 U	9.8 U	8.1 U	9.1 U
PCB-1242		5.5 U	6.3 U	5.2 U	5.8 U
PCB-1248		5.8 U	6.7 U	5.5 U	6.2 U
PCB-1254		2.6 U	3 U	2.5 U	2.8 U
PCB-1260		5.5 U	6.3 U	5.2 U	5.8 U

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**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB01	78SB01	78SB01	78SB02
	Sample ID	78SB01-01	78SB01-03	78SB01-03D	78SB02-01
	Date	5/31/2008	5/31/2008	5/31/2008	5/30/2008
	Depth Range	1.0-3.0	5.0-7.0	5.0-7.0	1.0-3.0
Metals (mg/kg)					
Antimony		0.077 UJ	0.093 UJ	0.092 UJ	0.4 UJ
Arsenic		0.7	0.73	0.97	1.5
Barium		38	30	32	41
Beryllium		0.25	0.22	0.2	0.22
Cadmium		0.073 J	0.045 J	0.09 J	3.7
Chromium		14	12	13	18
Cobalt		18	11	13	17
Copper		84	190	150	61
Lead		1.6 R	1.2 R	1.7 R	0.84 R
Mercury		0.0039 U	0.0048 U	0.0042 U	0.0048 U
Nickel		11	7	8.6	16
Selenium		0.12 U	0.15 U	0.12 U	0.13 U
Silver		0.029 J	0.043 J	0.028 J	0.16 J
Thallium		0.12 U	0.15 U	0.12 U	0.13 U
Tin		4.1 U	4.9 U	4 U	4.5 U
Vanadium		140	130	130	220
Zinc		70 J	39 J	35 J	66 J
TPH DRO and GRO (mg/kg)					
Diesel Range Organics [C10-C28]		180	2.1 J	1.5 J	1.4 J
Gasoline Range Organics (GRO)-C6-C10		0.079 U	0.11 J	0.053 U	0.064 U

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**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB02	78SB03	78SB03	78SB03
Sample ID	78SB02-03	78SB03-01	78SB03-01D	78SB03-02
Date	5/30/2008	5/31/2008	5/31/2008	5/31/2008
Depth Range	5.0-7.0	1.0-3.0	1.0-3.0	3.0-5.0

Volatile Organic Compounds (ug/kg)

1,1,1,2-Tetrachloroethane	0.76 U	0.69 U	0.68 U	0.71 U
1,1,1-Trichloroethane	0.69 UJ	0.62 UJ	0.62 UJ	0.65 UJ
1,1,2,2-Tetrachloroethane	1.7 U	1.5 U	1.5 U	1.6 U
1,1,2-Trichloroethane	1.4 U	1.3 U	1.3 U	1.3 U
1,1-Dichloroethane	0.6 U	0.54 U	0.53 U	0.56 U
1,1-Dichloroethene	0.65 U	0.58 U	0.57 U	0.6 U
1,2,3-Trichloropropane	1.7 U	1.5 U	1.5 U	1.6 U
1,2-Dibromo-3-Chloropropane	3.3 UJ	3 UJ	3 UJ	3.1 UJ
1,2-Dichloroethane	1.2 U	1.1 U	1.1 U	1.1 U
1,2-Dichloropropane	1.3 U	1.2 U	1.2 U	1.2 U
2-Butanone (MEK)	3.9 UJ	3.8 UJ	2.9 UJ	3 UJ
2-Chloro-1,3-butadiene	0.68 UJ	0.61 U	0.61 U	0.63 U
2-Hexanone	2.5 U	2.3 U	2.2 U	2.3 U
3-Chloro-1-propene	1.8 UJ	1.6 U	1.6 U	1.7 U
4-Methyl-2-pentanone (MIBK)	3.5 UJ	3.1 UJ	3.1 UJ	3.2 UJ
Acetone	20 UJ	21 UJ	15 UJ	16 UJ
Acetonitrile	54 UJ	48 U	48 U	50 U
Acrolein	23 U	20 U	20 U	21 U
Acrylonitrile	27 U	25 UJ	24 UJ	26 UJ
Benzene	0.94 U	0.85 U	0.84 U	0.88 U
Bromoform	1.3 U	1.2 U	1.2 U	1.2 U
Bromomethane	1.9 U	1.7 U	1.7 U	1.8 U
Carbon disulfide	0.61 U	0.55 U	0.54 U	0.57 U
Carbon tetrachloride	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ
Chlorobenzene	0.87 U	0.78 U	0.78 U	0.81 U
Chlorodibromomethane	0.6 U	0.54 U	0.53 U	0.56 U
Chloroethane	1.4 UJ	1.3 UJ	1.3 UJ	1.3 UJ
Chloroform	0.6 U	0.54 U	0.53 U	0.56 U
Chloromethane	0.85 U	0.76 U	0.76 U	0.79 U
cis-1,3-Dichloropropene	1 UJ	0.93 U	0.93 U	0.97 U
Dibromomethane	1.4 U	1.3 U	1.3 U	1.3 U
Dichlorobromomethane	0.99 U	0.89 U	0.88 U	0.92 U
Dichlorodifluoromethane	1.1 U	0.95 U	0.95 U	0.99 U
Ethyl methacrylate	2.6 U	2.4 U	2.3 U	2.4 U
Ethylbenzene	0.9 U	0.8 U	0.8 U	0.83 U
Ethylene Dibromide	1.8 U	1.6 U	1.6 U	1.7 U
Iodomethane	1.2 UJ	1.1 U	1.1 U	1.1 U
Isobutyl alcohol	82 U	74 R	73 R	77 R
Methacrylonitrile	29 UJ	26 U	26 U	27 U
Methyl methacrylate	4.4 UJ	4 U	3.9 U	4.1 U
Methylene Chloride	1.2 U	1.1 U	1.1 U	1.1 U
Pentachloroethane	2.6 R	2.4 R	2.3 R	2.4 R
Propionitrile	25 UJ	23 UJ	22 UJ	23 UJ

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**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB02	78SB03	78SB03	78SB03
	Sample ID	78SB02-03	78SB03-01	78SB03-01D	78SB03-02
	Date	5/30/2008	5/31/2008	5/31/2008	5/31/2008
	Depth Range	5.0-7.0	1.0-3.0	1.0-3.0	3.0-5.0
Volatile Organic Compounds (ug/kg)					
Styrene		0.79 U	0.71 U	0.7 U	0.73 U
Tetrachloroethene		0.87 U	0.78 U	0.78 U	0.81 U
Toluene		0.94 U	0.85 U	0.84 U	0.88 U
trans-1,2-Dichloroethene		1.2 U	1 U	1 U	1.1 U
trans-1,3-Dichloropropene		1 U	0.93 U	0.93 U	0.97 U
trans-1,4-Dichloro-2-butene		3.7 U	3.3 U	3.3 U	3.4 U
Trichloroethene		1.2 U	1.1 U	1.1 U	1.1 U
Trichlorofluoromethane		1.8 U	1.6 U	1.6 U	1.7 U
Vinyl acetate		1.8 U	1.6 U	1.6 U	1.7 U
Vinyl chloride		0.69 U	0.62 U	0.62 U	0.65 U
Xylenes, Total		2.7 U	2.5 U	2.4 U	2.6 U
Semivolatle Organic Compounds (ug/kg)					
1,1'-Biphenyl		8.1 U	8.3 U	8.4 U	8.3 U
1,2,4,5-Tetrachlorobenzene		6.9 U	7.1 U	7.1 U	7 U
1,2,4-Trichlorobenzene		8.1 U	8.3 U	8.4 U	8.3 U
1,2-Dichlorobenzene		7.7 U	7.9 U	7.9 U	7.8 U
1,3,5-Trinitrobenzene		19 U	19 U	19 U	19 U
1,3-Dichlorobenzene		6.6 U	6.7 U	6.8 U	6.7 U
1,3-Dinitrobenzene		4.3 U	4.4 U	4.4 U	4.4 U
1,4-Dichlorobenzene		6.8 U	7 U	7 U	6.9 U
1,4-Dioxane		8.8 U	9 U	9.1 U	8.9 U
1,4-Naphthoquinone		4.3 U	4.4 U	4.4 U	4.4 U
2,2'-oxybis[1-chloropropane]		6.9 U	7.1 U	7.1 U	7 U
2,3,4,6-Tetrachlorophenol		4.6 U	4.7 U	4.8 U	4.7 U
2,4,5-Trichlorophenol		7.4 U	7.6 U	7.7 U	7.6 U
2,4,6-Trichlorophenol		8.6 U	8.9 U	8.9 U	8.8 U
2,4-Dichlorophenol		8.9 U	9.1 U	9.2 U	9.1 U
2,4-Dimethylphenol		19 U	19 U	19 U	19 U
2,4-Dinitrophenol		91 U	93 UJ	94 UJ	93 UJ
2,4-Dinitrotoluene		6.5 U	6.6 U	6.7 U	6.6 U
2,6-Dichlorophenol		7 U	7.2 U	7.2 U	7.2 U
2,6-Dinitrotoluene		6.8 U	7 U	7 U	6.9 U
2-Acetylaminofluorene		5.6 U	5.7 U	5.8 U	5.7 U
2-Chloronaphthalene		6.8 U	7 U	7 U	6.9 U
2-Chlorophenol		7.2 U	7.4 U	7.5 U	7.4 U
2-Methylnaphthalene		1.9 U	1.9 U	1.9 U	1.9 U
2-Methylphenol		8.9 U	9.1 U	9.2 U	9.1 U
2-Naphthylamine		22 U	22 U	23 U	22 U
2-Nitroaniline		7.1 U	7.3 U	7.4 U	7.3 U
2-Nitrophenol		8 U	8.2 U	8.3 U	8.2 U
2-Picoline		13 U	13 U	14 U	13 U
2-Toluidine		10 U	10 U	11 U	10 U
3 & 4 Methylphenol		8 U	8.2 U	8.3 U	8.2 U
3,3'-Dichlorobenzidine		10 UJ	10 U	10 U	10 U
3,3'-Dimethylbenzidine		200 UJ	200 U	200 U	200 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB02	78SB03	78SB03	78SB03
	Sample ID	78SB02-03	78SB03-01	78SB03-01D	78SB03-02
	Date	5/30/2008	5/31/2008	5/31/2008	5/31/2008
	Depth Range	5.0-7.0	1.0-3.0	1.0-3.0	3.0-5.0
Semivolatile Organic Compounds (ug/kg)					
3-Methylcholanthrene		6.7 U	6.9 U	6.9 U	6.8 U
3-Nitroaniline		4.9 U	5.1 U	5.1 U	5 U
4,6-Dinitro-2-methylphenol		6.4 U	6.5 UJ	6.6 UJ	6.5 UJ
4-Aminobiphenyl		14 U	15 U	15 U	15 U
4-Bromophenyl phenyl ether		7.8 U	8 U	8 U	7.9 U
4-Chloro-3-methylphenol		8.2 U	8.4 U	8.5 U	8.4 U
4-Chloroaniline		6.6 U	6.7 U	6.8 U	6.7 U
4-Chlorophenyl phenyl ether		6.8 U	7 U	7 U	6.9 U
4-Nitroaniline		8.4 U	8.6 U	8.7 U	8.6 U
4-Nitrophenol		36 U	37 UJ	37 UJ	37 UJ
4-Nitroquinoline-1-oxide		12 R	12 R	12 R	12 R
7,12-Dimethylbenz(a)anthracene		10 U	10 U	11 U	10 U
Acenaphthene		0.62 U	0.64 U	0.65 U	0.64 U
Acenaphthylene		1.9 U	1.9 U	1.9 U	1.9 U
Acetophenone		9.4 U	9.7 U	9.7 U	9.6 U
alpha,alpha-Dimethyl phenethylamine		65 UJ	66 UJ	67 UJ	66 UJ
Aniline		6.9 U	7.1 U	7.1 U	7 U
Anthracene		1.9 U	1.9 U	1.9 U	1.9 U
Aramite, Total		12 U	12 U	12 U	12 U
Benzo[a]anthracene		1.9 U	1.9 U	1.9 U	1.9 U
Benzo[a]pyrene		0.72 U	0.74 U	0.75 U	0.74 U
Benzo[b]fluoranthene		0.83 U	0.85 UJ	0.86 UJ	0.85 UJ
Benzo[g,h,i]perylene		1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ
Benzo[k]fluoranthene		1.1 U	1.1 U	1.1 U	1.1 U
Benzyl alcohol		8.8 U	10 J	9.1 U	8.9 U
Bis(2-chloroethoxy)methane		7.4 U	7.6 U	7.7 U	7.6 U
Bis(2-chloroethyl)ether		6.2 U	6.4 U	6.5 U	6.4 U
Bis(2-ethylhexyl) phthalate		8.8 UJ	12 U	17 U	12 U
Butyl benzyl phthalate		7.9 U	8.1 U	8.1 U	8 U
Chrysene		0.67 U	0.69 U	0.69 U	0.68 U
Diallate		11 U	11 U	11 U	11 U
Dibenz(a,h)anthracene		0.65 U	0.66 U	0.67 U	0.66 U
Dibenzofuran		4.6 U	4.7 U	4.8 U	4.7 U
Diethyl phthalate		12 U	12 U	12 U	12 U
Dimethyl phthalate		7 U	7.2 U	7.2 U	7.2 U
Di-n-butyl phthalate		27 U	28 U	28 U	28 U
Di-n-octyl phthalate		3.6 U	3.7 U	3.7 U	3.7 U
Dinoseb		19 U	19 UJ	19 UJ	19 UJ
Ethyl methanesulfonate		12 U	12 U	12 U	12 U
Fluoranthene		1.9 U	1.9 U	1.9 U	1.9 U
Fluorene		0.84 U	0.86 U	0.87 U	0.86 U
Hexachlorobenzene		7.4 U	7.6 U	7.7 U	7.6 U
Hexachlorobutadiene		10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		15 U	16 UJ	16 UJ	16 UJ
Hexachloroethane		8.1 U	8.3 U	8.4 U	8.3 U

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**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB02	78SB03	78SB03	78SB03
	Sample ID	78SB02-03	78SB03-01	78SB03-01D	78SB03-02
	Date	5/30/2008	5/31/2008	5/31/2008	5/31/2008
	Depth Range	5.0-7.0	1.0-3.0	1.0-3.0	3.0-5.0
Semivolatile Organic Compounds (ug/kg)					
Hexachlorophene		910 U	930 UJ	940 UJ	930 UJ
Hexachloropropene		7.9 U	8.1 UJ	8.1 UJ	8 UJ
Indeno[1,2,3-cd]pyrene		1.3 U	1.3 U	1.4 U	1.3 U
Isophorone		6.8 U	7 U	7 U	6.9 U
Isosafrole		7.8 U	8 U	8 U	7.9 U
Methapyrilene		10 U	10 U	11 U	10 U
Methyl methanesulfonate		10 U	10 U	11 U	10 U
Naphthalene		0.66 UJ	0.67 UJ	0.68 UJ	0.67 UJ
Nitrobenzene		7.6 U	7.8 U	7.8 U	7.7 U
N-Nitro-o-toluidine		6.6 U	6.7 U	6.8 U	6.7 U
N-Nitrosodiethylamine		13 U	13 U	14 U	13 U
N-Nitrosodimethylamine		11 U	11 U	11 U	11 U
N-Nitrosodi-n-butylamine		10 U	10 U	10 U	10 U
N-Nitrosodi-n-propylamine		7.1 U	7.3 U	7.4 U	7.3 U
N-Nitrosodiphenylamine		7.8 U	8 U	8 U	7.9 U
N-Nitrosomethylethylamine		6.2 U	6.4 U	6.5 U	6.4 U
N-Nitrosomorpholine		7.2 U	7.4 U	7.5 U	7.4 U
N-Nitrosopiperidine		9.3 U	9.5 U	9.6 U	9.5 U
N-Nitrosopyrrolidine		9.7 U	10 U	10 U	9.9 U
p-Dimethylamino azobenzene		7.8 U	8 U	8 U	7.9 U
Pentachlorobenzene		6.8 U	7 U	7 U	6.9 U
Pentachloronitrobenzene		6.5 UJ	6.6 UJ	6.7 UJ	6.6 UJ
Pentachlorophenol		9.1 UJ	9.3 UJ	9.4 UJ	9.3 UJ
Phenacetin		5.1 U	5.3 U	5.3 U	5.3 U
Phenanthrene		1.9 U	1.9 U	1.9 U	1.9 U
Phenol		5.3 U	5.4 U	5.4 U	5.4 U
p-Phenylene diamine		180 U	180 U	180 U	180 U
Pronamide		9.9 U	10 U	10 U	10 U
Pyrene		1.9 U	1.9 U	1.9 U	1.9 U
Pyridine		12 U	12 U	12 U	12 U
Safrole, Total		9.1 U	9.3 U	9.4 U	9.3 U
PCBs (ug/kg)					
PCB-1016		4.1 U	4.3 U	4.3 U	4.3 U
PCB-1221		14 U	15 U	15 U	15 U
PCB-1232		8.1 U	8.5 U	8.5 U	8.4 U
PCB-1242		5.2 U	5.4 U	5.4 U	5.4 U
PCB-1248		5.5 U	5.8 U	5.8 U	5.7 U
PCB-1254		2.5 U	2.6 U	2.6 U	2.6 U
PCB-1260		5.2 U	5.4 U	5.4 U	5.4 U

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**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB02	78SB03	78SB03	78SB03
	Sample ID	78SB02-03	78SB03-01	78SB03-01D	78SB03-02
	Date	5/30/2008	5/31/2008	5/31/2008	5/31/2008
	Depth Range	5.0-7.0	1.0-3.0	1.0-3.0	3.0-5.0
Metals (mg/kg)					
Antimony		0.079 UJ	0.4 UJ	0.28 UJ	0.28 UJ
Arsenic		0.54	0.96	0.87	1.1
Barium		32	86	63	230
Beryllium		0.15	0.21	0.19	0.14
Cadmium		0.16	0.63	0.56	2.6
Chromium		8.1	17	17	10
Cobalt		14	24	23	27
Copper		9.4	140	100	120
Lead		0.65 R	1.8 R	1.4 R	1.2 R
Mercury		0.0042 U	0.0043 U	0.0089 J	0.0042 U
Nickel		9.2	18	17	12
Selenium		0.13 U	0.13 U	0.13 U	0.12 U
Silver		0.075 J	0.14 J	0.15 J	0.06 J
Thallium		0.13 U	0.13 U	0.13 U	0.12 U
Tin		4.2 U	4.3 U	4.2 U	4.1 U
Vanadium		100	190	190	180
Zinc		37 J	61 J	60 J	40 J
TPH DRO and GRO (mg/kg)					
Diesel Range Organics [C10-C28]		1.2 J	14	12	1.7 J
Gasoline Range Organics (GRO)-C6-C10		0.071 U	0.071 U	0.063 U	0.072 U

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**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB04	78SB04	78SB05	78SB06	78SB06
Sample ID	78SB04-01	78SB04-02	78SB05-01	78SB06-01	78SB06-02
Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008
Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	1.0-3.0	3.0-5.0

Volatile Organic Compounds (ug/kg)

1,1,1,2-Tetrachloroethane	0.5 U	0.53 U	0.79 U	1.2 U	0.63 U
1,1,1-Trichloroethane	0.46 UJ	0.48 UJ	0.72 UJ	1.1 UJ	0.57 UJ
1,1,2,2-Tetrachloroethane	1.1 U	1.2 U	1.7 U	2.6 U	1.4 U
1,1,2-Trichloroethane	0.94 U	0.99 U	1.5 U	2.3 U	1.2 U
1,1-Dichloroethane	0.39 U	0.41 U	0.62 U	0.94 U	0.5 U
1,1-Dichloroethene	0.42 U	0.45 U	0.67 U	1 U	0.53 U
1,2,3-Trichloropropane	1.1 U	1.2 U	1.7 U	2.6 U	1.4 U
1,2-Dibromo-3-Chloropropane	2.2 UJ	2.3 UJ	3.5 U	5.3 U	2.8 U
1,2-Dichloroethane	0.79 U	0.83 U	1.2 U	1.9 U	0.99 U
1,2-Dichloropropane	0.86 U	0.91 U	1.4 U	2.1 U	1.1 U
2-Butanone (MEK)	2.5 UJ	2.2 UJ	4.4 UJ	5.1 UJ	2.7 UJ
2-Chloro-1,3-butadiene	0.45 UJ	0.47 UJ	0.7 U	1.1 U	0.56 U
2-Hexanone	1.6 U	1.7 U	2.6 U	4 U	2.1 U
3-Chloro-1-propene	1.2 UJ	1.2 UJ	1.9 U	2.8 U	1.5 U
4-Methyl-2-pentanone (MIBK)	2.3 UJ	2.4 UJ	3.6 UJ	5.5 UJ	2.9 UJ
Acetone	14 UJ	8.4 UJ	48 J	26 J	13 J
Acetonitrile	35 UJ	37 UJ	56 U	85 U	45 U
Acrolein	15 U	16 U	23 UJ	36 UJ	19 UJ
Acrylonitrile	18 U	19 U	28 UJ	43 UJ	23 UJ
Benzene	0.62 U	0.65 U	0.97 U	1.5 U	0.78 U
Bromoform	0.86 U	0.91 U	1.4 U	2.1 U	1.1 U
Bromomethane	1.3 U	1.3 U	2 U	3 U	1.6 U
Carbon disulfide	0.4 U	0.42 U	0.63 U	0.96 U	0.51 U
Carbon tetrachloride	0.79 UJ	0.83 UJ	1.2 UJ	1.9 UJ	0.99 UJ
Chlorobenzene	0.57 U	0.6 U	0.9 U	1.4 U	0.72 U
Chlorodibromomethane	0.39 U	0.41 U	0.62 U	0.94 U	0.5 U
Chloroethane	0.94 UJ	0.99 UJ	1.5 U	2.3 U	1.2 U
Chloroform	0.39 U	0.41 U	0.62 U	0.94 U	0.5 U
Chloromethane	0.56 U	0.59 U	0.88 U	1.3 U	0.7 U
cis-1,3-Dichloropropene	0.68 UJ	0.72 UJ	1.1 UJ	1.6 UJ	0.86 UJ
Dibromomethane	0.94 U	0.99 U	1.5 U	2.3 U	1.2 U
Dichlorobromomethane	0.65 U	0.69 U	1 U	1.6 U	0.82 U
Dichlorodifluoromethane	0.7 U	0.74 U	1.1 U	1.7 U	0.88 U
Ethyl methacrylate	1.7 U	1.8 U	2.7 U	4.1 U	2.2 U
Ethylbenzene	0.59 U	0.62 U	0.93 U	1.4 U	0.74 U
Ethylene Dibromide	1.2 U	1.2 U	1.9 U	2.8 U	1.5 U
Iodomethane	0.79 UJ	0.83 UJ	1.2 U	1.9 U	0.99 U
Isobutyl alcohol	54 U	57 U	85 U	130 U	68 U
Methacrylonitrile	19 UJ	20 UJ	30 U	45 U	24 U
Methyl methacrylate	2.9 UJ	3.1 UJ	4.6 U	7 U	3.7 U
Methylene Chloride	0.79 U	0.83 U	1.2 U	1.9 U	0.99 U
Pentachloroethane	1.7 R	1.8 R	2.7 R	4.1 R	2.2 R
Propionitrile	16 UJ	17 UJ	26 U	40 U	21 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB04	78SB04	78SB05	78SB06	78SB06
	Sample ID	78SB04-01	78SB04-02	78SB05-01	78SB06-01	78SB06-02
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008
	Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	1.0-3.0	3.0-5.0
Volatile Organic Compounds (ug/kg)						
Styrene		0.52 U	0.55 U	0.81 U	1.2 U	0.65 U
Tetrachloroethene		0.57 U	0.6 U	0.9 U	1.4 U	0.72 U
Toluene		0.62 U	0.65 U	0.97 U	1.5 U	0.78 U
trans-1,2-Dichloroethene		0.76 U	0.8 U	1.2 U	1.8 U	0.96 U
trans-1,3-Dichloropropene		0.68 U	0.72 U	1.1 U	1.6 U	0.86 U
trans-1,4-Dichloro-2-butene		2.4 U	2.6 U	3.8 U	5.8 U	3.1 U
Trichloroethene		0.79 U	0.83 U	1.2 U	1.9 U	0.99 U
Trichlorofluoromethane		1.2 U	1.2 U	1.9 U	2.8 U	1.5 U
Vinyl acetate		1.2 U	1.2 U	1.9 U	2.8 U	1.5 U
Vinyl chloride		0.46 U	0.48 U	0.72 U	1.1 U	0.57 U
Xylenes, Total		1.8 U	1.9 U	2.8 U	4.3 U	2.3 U
Semivolatile Organic Compounds (ug/kg)						
1,1'-Biphenyl		7.9 U	7.9 U	8.7 U	8.9 U	8.5 UJ
1,2,4,5-Tetrachlorobenzene		6.7 U	6.8 U	7.4 U	7.6 U	7.3 UJ
1,2,4-Trichlorobenzene		7.9 U	7.9 U	8.7 U	8.9 U	8.5 UJ
1,2-Dichlorobenzene		7.5 U	7.5 UJ	8.2 U	8.4 U	8.1 UJ
1,3,5-Trinitrobenzene		18 U	18 UJ	20 U	20 U	20 UJ
1,3-Dichlorobenzene		6.4 U	6.4 UJ	7.1 U	7.2 U	6.9 UJ
1,3-Dinitrobenzene		4.2 U	4.2 U	4.6 U	4.7 U	4.5 UJ
1,4-Dichlorobenzene		6.6 U	6.7 UJ	7.8 J	7.4 U	7.1 UJ
1,4-Dioxane		8.5 U	8.6 UJ	9.4 U	9.6 U	9.2 UJ
1,4-Naphthoquinone		4.2 U	4.2 U	4.6 U	4.7 U	4.5 UJ
2,2'-oxybis[1-chloropropane]		6.7 U	6.8 U	7.4 U	7.6 U	7.3 UJ
2,3,4,6-Tetrachlorophenol		4.5 U	4.5 U	4.9 U	5 U	4.8 UJ
2,4,5-Trichlorophenol		7.3 U	7.3 UJ	8 U	8.2 U	7.8 UJ
2,4,6-Trichlorophenol		8.4 U	8.5 UJ	9.3 U	9.5 U	9.1 UJ
2,4-Dichlorophenol		8.6 U	8.7 U	9.5 U	9.7 U	9.3 UJ
2,4-Dimethylphenol		18 U	18 U	20 U	20 U	20 UJ
2,4-Dinitrophenol		89 U	89 UJ	98 UJ	100 U	96 UJ
2,4-Dinitrotoluene		6.3 U	6.3 UJ	7 U	7.1 U	6.8 UJ
2,6-Dichlorophenol		6.8 U	6.9 U	7.5 U	7.7 U	7.4 UJ
2,6-Dinitrotoluene		6.6 U	6.7 UJ	7.3 U	7.4 U	7.1 UJ
2-Acetylaminofluorene		5.4 U	5.5 UJ	6 U	6.1 U	5.9 UJ
2-Chloronaphthalene		6.6 U	6.7 UJ	7.3 U	7.4 U	7.1 UJ
2-Chlorophenol		7 U	7.1 UJ	7.8 U	7.9 U	7.6 UJ
2-Methylnaphthalene		1.8 U	1.8 U	2 U	2 U	2 UJ
2-Methylphenol		8.6 U	8.7 UJ	9.5 U	9.7 U	9.3 UJ
2-Naphthylamine		21 U	21 UJ	24 U	24 U	23 UJ
2-Nitroaniline		6.9 U	7 UJ	7.7 U	7.8 U	7.5 UJ
2-Nitrophenol		7.8 U	7.8 U	8.6 U	8.8 U	8.4 UJ
2-Picoline		13 U	13 UJ	14 U	14 U	14 UJ
2-Toluidine		9.9 U	10 U	11 U	11 U	11 UJ
3 & 4 Methylphenol		7.8 U	7.8 UJ	8.6 U	8.8 U	8.4 UJ
3,3'-Dichlorobenzidine		9.8 UJ	9.9 U	11 UJ	11 UJ	11 UJ
3,3'-Dimethylbenzidine		190 UJ	190 UJ	210 U	220 UJ	210 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB04	78SB04	78SB05	78SB06	78SB06
	Sample ID	78SB04-01	78SB04-02	78SB05-01	78SB06-01	78SB06-02
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008
	Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	1.0-3.0	3.0-5.0
Semivolatile Organic Compounds (ug/kg)						
3-Methylcholanthrene		6.5 U	6.5 U	7.2 U	7.3 U	7 UJ
3-Nitroaniline		4.8 U	4.8 UJ	5.3 U	5.4 U	5.2 UJ
4,6-Dinitro-2-methylphenol		6.2 U	6.2 U	6.8 UJ	7 U	6.7 UJ
4-Aminobiphenyl		14 U	14 U	15 U	16 U	15 UJ
4-Bromophenyl phenyl ether		7.6 U	7.6 U	8.4 U	8.5 U	8.2 UJ
4-Chloro-3-methylphenol		8 U	8.1 U	8.8 U	9 U	8.6 UJ
4-Chloroaniline		6.4 U	6.4 U	7.1 U	7.2 U	6.9 UJ
4-Chlorophenyl phenyl ether		6.6 U	6.7 UJ	7.3 U	7.4 U	7.1 UJ
4-Nitroaniline		8.2 U	8.3 UJ	9.1 U	9.2 U	8.9 UJ
4-Nitrophenol		35 U	35 UJ	39 U	40 U	38 UJ
4-Nitroquinoline-1-oxide		12 R	12 R	13 R	13 R	13 R
7,12-Dimethylbenz(a)anthracene		9.9 U	10 U	11 U	11 U	11 UJ
Acenaphthene		0.61 U	0.61 UJ	0.67 U	0.68 U	0.66 UJ
Acenaphthylene		1.8 U	1.8 UJ	2 U	2 U	2 UJ
Acetophenone		9.2 U	9.2 U	10 U	10 U	9.9 UJ
alpha,alpha-Dimethyl phenethylamine		63 UJ	63 U	70 U	71 U	68 UJ
Aniline		6.7 U	6.8 UJ	7.4 U	7.6 U	7.3 UJ
Anthracene		1.8 U	1.8 U	2 U	2 U	2 UJ
Aramite, Total		12 U	12 U	13 U	13 U	13 UJ
Benzo[a]anthracene		1.8 U	1.8 U	2 U	2 U	2 UJ
Benzo[a]pyrene		0.7 U	0.71 U	0.78 UJ	0.79 UJ	0.76 UJ
Benzo[b]fluoranthene		0.81 U	0.82 UJ	0.9 U	0.91 U	0.88 UJ
Benzo[g,h,i]perylene		1.8 UJ	1.8 UJ	2 U	2 U	2 UJ
Benzo[k]fluoranthene		1.1 U	1.1 U	1.2 UJ	1.2 UJ	1.2 UJ
Benzyl alcohol		8.5 U	8.6 UJ	9.4 U	9.6 U	9.2 UJ
Bis(2-chloroethoxy)methane		7.3 U	7.3 U	8 U	8.2 U	7.8 UJ
Bis(2-chloroethyl)ether		6.1 U	6.1 UJ	6.7 U	6.8 U	6.6 UJ
Bis(2-ethylhexyl) phthalate		5.1 U	27 U	11 J	5.8 U	12 UJ
Butyl benzyl phthalate		7.7 U	7.7 U	8.5 U	8.6 U	8.3 UJ
Chrysene		0.65 U	0.65 U	0.72 U	0.73 U	0.7 UJ
Diallate		10 U	10 U	11 U	12 U	11 UJ
Dibenz(a,h)anthracene		0.63 U	0.63 U	0.7 U	0.71 U	0.68 UJ
Dibenzofuran		4.5 U	4.5 UJ	4.9 U	5 U	4.8 UJ
Diethyl phthalate		12 U	12 UJ	13 U	13 U	13 UJ
Dimethyl phthalate		6.8 U	6.9 UJ	7.5 U	7.7 U	7.4 UJ
Di-n-butyl phthalate		27 U	27 U	29 U	30 U	29 UJ
Di-n-octyl phthalate		3.5 U	3.5 U	3.9 U	4 U	3.8 UJ
Dinoseb		18 U	18 U	20 U	20 U	20 UJ
Ethyl methanesulfonate		12 U	12 UJ	13 U	13 U	13 UJ
Fluoranthene		1.8 U	1.8 U	2 U	2 U	2 UJ
Fluorene		0.82 U	0.83 UJ	0.91 U	0.92 U	0.89 UJ
Hexachlorobenzene		7.3 U	7.3 U	8 U	8.2 U	7.8 UJ
Hexachlorobutadiene		9.7 U	9.8 U	11 U	11 U	10 UJ
Hexachlorocyclopentadiene		15 U	15 UJ	16 U	17 U	16 UJ
Hexachloroethane		7.9 U	7.9 UJ	8.7 U	8.9 U	8.5 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB04	78SB04	78SB05	78SB06	78SB06
	Sample ID	78SB04-01	78SB04-02	78SB05-01	78SB06-01	78SB06-02
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008
	Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	1.0-3.0	3.0-5.0
Semivolatile Organic Compounds (ug/kg)						
Hexachlorophene		890 U	890 U	980 UJ	1000 U	960 R
Hexachloropropene		7.7 U	7.7 U	8.5 U	8.6 U	8.3 UJ
Indeno[1,2,3-cd]pyrene		1.3 U	1.3 U	1.4 UJ	1.4 U	1.4 UJ
Isophorone		6.6 U	6.7 U	7.3 U	7.4 U	7.1 UJ
Isosafrole		7.6 U	7.6 U	8.4 U	8.5 U	8.2 UJ
Methapyrilene		9.9 U	10 U	11 U	11 U	11 UJ
Methyl methanesulfonate		9.9 U	10 UJ	11 U	11 U	11 UJ
Naphthalene		0.64 UJ	0.64 UJ	0.71 U	0.72 U	0.69 UJ
Nitrobenzene		7.4 U	7.4 U	8.1 U	8.3 U	8 UJ
N-Nitro-o-toluidine		6.4 U	6.4 U	7.1 U	7.2 U	6.9 UJ
N-Nitrosodiethylamine		13 U	13 UJ	14 U	14 U	14 UJ
N-Nitrosodimethylamine		10 U	11 UJ	12 U	12 U	11 UJ
N-Nitrosodi-n-butylamine		9.7 U	9.8 U	11 U	11 U	10 UJ
N-Nitrosodi-n-propylamine		6.9 U	7 U	7.7 U	7.8 U	7.5 UJ
N-Nitrosodiphenylamine		7.6 U	7.6 U	8.4 U	8.5 U	8.2 UJ
N-Nitrosomethylethylamine		6.1 U	6.1 UJ	6.7 U	6.8 U	6.6 UJ
N-Nitrosomorpholine		7 U	7.1 UJ	7.8 U	7.9 U	7.6 UJ
N-Nitrosopiperidine		9.1 U	9.1 U	10 U	10 U	9.8 UJ
N-Nitrosopyrrolidine		9.5 U	9.6 UJ	10 U	11 U	10 UJ
p-Dimethylamino azobenzene		7.6 U	7.6 U	8.4 U	8.5 U	8.2 UJ
Pentachlorobenzene		6.6 U	6.7 UJ	7.3 U	7.4 U	7.1 UJ
Pentachloronitrobenzene		6.3 UJ	6.3 UJ	7 U	7.1 U	6.8 UJ
Pentachlorophenol		8.9 UJ	8.9 UJ	9.8 UJ	10 UJ	9.6 UJ
Phenacetin		5 U	5 UJ	5.5 U	5.6 U	5.4 UJ
Phenanthrene		1.8 U	1.8 U	2 U	2 U	2 UJ
Phenol		5.1 U	5.2 UJ	5.7 U	5.8 U	5.5 UJ
p-Phenylene diamine		170 U	170 U	190 U	190 U	180 UJ
Pronamide		9.6 U	9.7 U	11 U	11 U	10 UJ
Pyrene		1.8 U	1.8 UJ	2 U	2 U	2 UJ
Pyridine		12 U	12 UJ	13 U	13 U	13 UJ
Safrole, Total		8.9 U	8.9 U	9.8 U	10 U	9.6 UJ
PCBs (ug/kg)						
PCB-1016		4 U	4.1 U	4.4 U	4.6 U	4.3 U
PCB-1221		14 U	14 U	15 U	16 U	15 U
PCB-1232		7.9 U	8 U	8.8 U	9.1 U	8.6 U
PCB-1242		5.1 U	5.1 U	5.6 U	5.8 U	5.5 U
PCB-1248		5.4 U	5.4 U	6 U	6.2 U	5.8 U
PCB-1254		2.4 U	2.5 U	2.7 U	2.8 U	2.6 U
PCB-1260		5.1 U	5.1 U	5.6 U	5.8 U	5.5 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB04	78SB04	78SB05	78SB06	78SB06
	Sample ID	78SB04-01	78SB04-02	78SB05-01	78SB06-01	78SB06-02
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/30/2008
	Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	1.0-3.0	3.0-5.0
Metals (mg/kg)						
Antimony		0.16 UJ	0.11 UJ	0.082 UJ	0.083 UJ	0.077 UJ
Arsenic		0.95	0.4 U	0.68	0.61	0.4 U
Barium		38	22	27	76	13
Beryllium		0.15	0.12	0.13	0.14	0.1 J
Cadmium		0.3	0.069 J	0.035 J	0.13	0.07 J
Chromium		5.6	9.1	5.7 J	13 J	12 J
Cobalt		12	6.6	9	35	24
Copper		24	16	84	130	86
Lead		1.8 R	1.2 R	0.96	0.76	0.38
Mercury		0.0037 U	0.004 U	0.0046 U	0.0046 U	0.0038 U
Nickel		6.3	4.8	5.7	20	17
Selenium		0.11 U	0.12 U	0.13 U	0.13 U	0.12 U
Silver		0.034 J	0.036 J	0.025 J	0.038 J	0.037 J
Thallium		0.11 U	0.12 U	0.13 U	0.13 U	0.12 U
Tin		3.8 U	4 U	4.4 U	4.4 U	4.1 U
Vanadium		70	55	71	230	170
Zinc		29 J	24 J	22 J	46 J	41 J
TPH DRO and GRO (mg/kg)						
Diesel Range Organics [C10-C28]		1.3 J	0.78 J	1.8	0.83	0.9
Gasoline Range Organics (GRO)-C6-C10		0.056 U	0.062 U	0.2 J	0.082 U	0.072 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB07	78SB07	78SB08	78SB08	78SB09
Sample ID	78SB07-01	78SB07-02	78SB08-01	78SB08-02	78SB09-01
Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008
Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0

Volatile Organic Compounds (ug/kg)

1,1,1,2-Tetrachloroethane	0.87 U	0.68 U	0.81 U	0.74 U	1.2 U
1,1,1-Trichloroethane	0.79 UJ	0.62 UJ	0.73 UJ	0.67 UJ	1.1 UJ
1,1,2,2-Tetrachloroethane	1.9 U	1.5 U	1.8 U	1.6 U	2.7 U
1,1,2-Trichloroethane	1.6 U	1.3 U	1.5 U	1.4 U	2.3 U
1,1-Dichloroethane	0.68 U	0.53 U	0.63 U	0.58 U	0.96 U
1,1-Dichloroethene	0.73 U	0.58 U	0.68 U	0.62 U	1 U
1,2,3-Trichloropropane	1.9 U	1.5 U	1.8 U	1.6 U	2.7 U
1,2-Dibromo-3-Chloropropane	3.8 UJ	3 UJ	3.5 U	3.2 U	5.4 U
1,2-Dichloroethane	1.4 U	1.1 U	1.3 U	1.2 U	1.9 U
1,2-Dichloropropane	1.5 U	1.2 U	1.4 U	1.3 U	2.1 U
2-Butanone (MEK)	3.7 UJ	6.3 UJ	3.4 UJ	3.1 UJ	5.2 UJ
2-Chloro-1,3-butadiene	0.77 UJ	0.61 UJ	0.72 U	0.66 U	1.1 U
2-Hexanone	2.8 U	2.2 U	2.6 U	2.4 U	4 U
3-Chloro-1-propene	2 UJ	1.6 UJ	1.9 U	1.7 U	2.9 U
4-Methyl-2-pentanone (MIBK)	3.9 UJ	3.1 UJ	3.6 UJ	3.3 UJ	5.5 UJ
Acetone	25 UJ	38 UJ	34 J	17 J	19 J
Acetonitrile	61 UJ	48 UJ	57 U	52 U	86 U
Acrolein	26 U	20 U	24 UJ	22 UJ	36 UJ
Acrylonitrile	31 U	25 U	29 UJ	26 UJ	44 UJ
Benzene	1.1 U	0.84 U	0.99 U	0.91 U	1.5 U
Bromoform	1.5 U	1.2 U	1.4 U	1.3 U	2.1 U
Bromomethane	2.2 U	1.7 U	2 U	1.8 U	3.1 U
Carbon disulfide	0.69 U	0.54 U	0.64 U	0.59 U	0.97 U
Carbon tetrachloride	1.4 UJ	1.1 UJ	1.3 UJ	1.2 UJ	1.9 UJ
Chlorobenzene	0.99 U	0.78 U	0.92 U	0.84 U	1.4 U
Chlorodibromomethane	0.68 U	0.53 U	0.63 U	0.58 U	0.96 U
Chloroethane	1.6 UJ	1.3 UJ	1.5 U	1.4 U	2.3 U
Chloroform	0.68 U	0.53 U	0.63 U	0.58 U	0.96 U
Chloromethane	0.96 U	0.76 U	0.89 U	0.82 U	1.4 U
cis-1,3-Dichloropropene	1.2 UJ	0.93 UJ	1.1 UJ	1 UJ	1.7 UJ
Dibromomethane	1.6 U	1.3 U	1.5 U	1.4 U	2.3 U
Dichlorobromomethane	1.1 U	0.88 U	1 U	0.96 U	1.6 U
Dichlorodifluoromethane	1.2 U	0.95 U	1.1 U	1 U	1.7 U
Ethyl methacrylate	3 U	2.3 U	2.8 U	2.5 U	4.2 U
Ethylbenzene	1 U	0.8 U	0.94 U	0.86 U	1.4 U
Ethylene Dibromide	2 U	1.6 U	1.9 U	1.7 U	2.9 U
Iodomethane	1.4 UJ	3.2 J	1.3 U	1.2 U	1.9 U
Isobutyl alcohol	94 U	74 U	87 U	79 U	130 U
Methacrylonitrile	33 UJ	26 UJ	30 U	28 U	46 U
Methyl methacrylate	5 UJ	3.9 UJ	4.7 U	4.3 U	7.1 U
Methylene Chloride	1.4 U	1.1 U	1.3 U	1.2 U	1.9 U
Pentachloroethane	3 R	2.3 R	2.8 R	2.5 R	4.2 R
Propionitrile	28 UJ	22 UJ	26 U	24 U	40 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB07	78SB07	78SB08	78SB08	78SB09
	Sample ID	78SB07-01	78SB07-02	78SB08-01	78SB08-02	78SB09-01
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008
	Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0
Volatile Organic Compounds (ug/kg)						
Styrene		0.9 U	0.7 U	0.83 U	0.76 U	1.3 U
Tetrachloroethene		0.99 U	0.78 U	0.92 U	0.84 U	1.4 U
Toluene		1.1 U	0.84 U	0.99 U	0.91 U	1.5 U
trans-1,2-Dichloroethene		1.3 U	1 U	1.2 U	1.1 U	1.9 U
trans-1,3-Dichloropropene		1.2 U	0.93 U	1.1 U	1 U	1.7 U
trans-1,4-Dichloro-2-butene		4.2 U	3.3 U	3.9 U	3.6 U	5.9 U
Trichloroethene		1.4 U	1.1 U	1.3 U	1.2 U	1.9 U
Trichlorofluoromethane		2 U	1.6 U	1.9 U	1.7 U	2.9 U
Vinyl acetate		2 U	1.6 U	1.9 U	1.7 U	2.9 U
Vinyl chloride		0.79 U	0.62 U	0.73 U	0.67 U	1.1 U
Xylenes, Total		3.1 U	2.5 U	2.9 U	2.6 U	4.4 U
Semivolatile Organic Compounds (ug/kg)						
1,1'-Biphenyl		8.2 U	8.6 U	8.7 U	8.7 U	8.2 U
1,2,4,5-Tetrachlorobenzene		7 U	7.3 U	7.4 U	7.4 U	7 U
1,2,4-Trichlorobenzene		8.2 U	8.6 U	8.7 U	8.7 U	8.2 U
1,2-Dichlorobenzene		7.8 U	8.2 U	8.2 U	8.2 U	7.7 U
1,3,5-Trinitrobenzene		19 U	20 U	20 U	20 U	19 U
1,3-Dichlorobenzene		6.7 U	7 U	7 U	7 U	6.6 U
1,3-Dinitrobenzene		4.3 U	4.5 U	4.6 U	4.6 U	4.3 U
1,4-Dichlorobenzene		6.9 U	7.2 U	7.3 U	7.3 U	6.8 U
1,4-Dioxane		8.9 U	9.3 U	9.4 U	9.4 U	8.8 U
1,4-Naphthoquinone		4.3 U	4.5 U	4.6 U	4.6 U	4.3 U
2,2'-oxybis[1-chloropropane]		7 U	7.3 U	7.4 U	7.4 U	7 U
2,3,4,6-Tetrachlorophenol		4.7 U	4.9 U	4.9 U	4.9 U	4.6 U
2,4,5-Trichlorophenol		7.5 U	7.9 U	8 U	8 U	7.5 U
2,4,6-Trichlorophenol		8.8 U	9.2 U	9.3 U	9.2 U	8.7 U
2,4-Dichlorophenol		9 U	9.4 U	9.5 U	9.5 U	8.9 U
2,4-Dimethylphenol		19 U	20 U	20 U	20 U	19 U
2,4-Dinitrophenol		92 U	97 U	97 U	97 U	92 UJ
2,4-Dinitrotoluene		6.5 U	6.9 U	6.9 U	6.9 U	6.5 U
2,6-Dichlorophenol		7.1 U	7.5 U	7.5 U	7.5 U	7.1 U
2,6-Dinitrotoluene		6.9 U	7.2 U	7.3 U	7.3 U	6.8 U
2-Acetylaminofluorene		5.7 U	5.9 U	6 U	6 U	5.6 U
2-Chloronaphthalene		6.9 U	7.2 U	7.3 U	7.3 U	6.8 U
2-Chlorophenol		7.3 U	7.7 U	7.7 U	7.7 U	7.3 U
2-Methylnaphthalene		1.9 U	2 U	2 U	2 U	1.9 U
2-Methylphenol		9 U	9.4 U	9.5 U	9.5 U	8.9 U
2-Naphthylamine		22 UJ	23 UJ	23 U	23 U	22 UJ
2-Nitroaniline		7.2 U	7.6 U	7.6 U	7.6 U	7.2 U
2-Nitrophenol		8.1 U	8.5 U	8.6 U	8.5 U	8.1 U
2-Picoline		13 U	14 U	14 U	14 U	13 U
2-Toluidine		10 U	11 U	11 U	11 U	10 U
3 & 4 Methylphenol		8.1 U	8.5 U	8.6 U	8.5 U	8.1 U
3,3'-Dichlorobenzidine		10 U	11 U	11 U	11 U	10 UJ
3,3'-Dimethylbenzidine		200 UJ	210 UJ	210 U	210 U	200 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB07	78SB07	78SB08	78SB08	78SB09
	Sample ID	78SB07-01	78SB07-02	78SB08-01	78SB08-02	78SB09-01
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008
	Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0
Semivolatile Organic Compounds (ug/kg)						
3-Methylcholanthrene		6.8 U	7.1 U	7.1 U	7.1 U	6.7 UJ
3-Nitroaniline		5 U	5.2 U	5.3 U	5.3 U	5 U
4,6-Dinitro-2-methylphenol		6.4 U	6.8 U	6.8 U	6.8 U	6.4 U
4-Aminobiphenyl		14 U	15 U	15 U	15 U	14 U
4-Bromophenyl phenyl ether		7.9 U	8.3 U	8.3 U	8.3 U	7.8 U
4-Chloro-3-methylphenol		8.3 U	8.7 U	8.8 U	8.8 U	8.3 U
4-Chloroaniline		6.7 U	7 U	7 U	7 U	6.6 U
4-Chlorophenyl phenyl ether		6.9 U	7.2 U	7.3 U	7.3 U	6.8 U
4-Nitroaniline		8.5 U	9 U	9 U	9 U	8.5 UJ
4-Nitrophenol		37 U	38 U	39 U	39 U	36 U
4-Nitroquinoline-1-oxide		12 R	13 R	13 R	13 R	12 R
7,12-Dimethylbenz(a)anthracene		10 U	11 U	11 U	11 U	10 U
Acenaphthene		0.63 U	0.66 U	0.67 U	0.67 U	0.63 U
Acenaphthylene		1.9 U	2 U	2 U	2 U	1.9 U
Acetophenone		9.5 U	10 U	10 U	10 U	9.5 U
alpha,alpha-Dimethyl phenethylamine		65 U	69 U	69 U	69 U	65 U
Aniline		7 U	7.3 U	7.4 U	7.4 U	7 U
Anthracene		1.9 U	2 U	2 U	2 U	1.9 U
Aramite, Total		12 U	13 U	13 U	13 U	12 U
Benzo[a]anthracene		1.9 U	2 U	2 U	2 U	1.9 U
Benzo[a]pyrene		0.73 U	0.77 U	0.77 UJ	0.77 UJ	0.73 U
Benzo[b]fluoranthene		0.84 UJ	0.89 UJ	0.89 U	0.89 U	0.84 U
Benzo[g,h,i]perylene		1.9 UJ	2 UJ	2 U	2 U	1.9 UJ
Benzo[k]fluoranthene		1.1 U	1.2 U	1.2 UJ	1.2 UJ	1.1 U
Benzyl alcohol		8.9 U	9.3 U	9.4 U	9.4 U	8.8 U
Bis(2-chloroethoxy)methane		7.5 U	7.9 U	8 U	8 U	7.5 U
Bis(2-chloroethyl)ether		6.3 U	6.6 U	6.7 U	6.7 U	6.3 U
Bis(2-ethylhexyl) phthalate		18 U	21 U	10 J	5.6 U	12 U
Butyl benzyl phthalate		8 U	8.4 U	8.4 U	8.4 U	8 U
Chrysene		0.68 U	0.71 U	0.71 U	0.71 U	0.67 U
Diallate		11 U				
Dibenz(a,h)anthracene		0.65 U	0.69 U	0.69 U	0.69 U	0.65 U
Dibenzofuran		4.7 U	4.9 U	4.9 U	4.9 U	4.6 U
Diethyl phthalate		12 U	13 U	13 U	13 U	12 U
Dimethyl phthalate		7.1 U	7.5 U	7.5 U	7.5 U	7.1 U
Di-n-butyl phthalate		28 U	29 U	29 U	29 U	28 U
Di-n-octyl phthalate		3.7 U	3.8 U	3.9 U	3.9 U	3.6 U
Dinoseb		19 U	20 U	20 U	20 U	19 U
Ethyl methanesulfonate		12 U	13 U	13 U	13 U	12 U
Fluoranthene		1.9 U	2 U	2 U	2 U	1.9 U
Fluorene		0.85 U	0.9 U	0.9 U	0.9 U	0.85 U
Hexachlorobenzene		7.5 U	7.9 U	8 U	8 U	7.5 U
Hexachlorobutadiene		10 U	11 U	11 U	11 U	10 U
Hexachlorocyclopentadiene		16 U	16 U	16 U	16 U	15 U
Hexachloroethane		8.2 U	8.6 U	8.7 U	8.7 U	8.2 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB07	78SB07	78SB08	78SB08	78SB09
	Sample ID	78SB07-01	78SB07-02	78SB08-01	78SB08-02	78SB09-01
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008
	Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0
Semivolatile Organic Compounds (ug/kg)						
Hexachlorophene		920 U	970 U	970 UJ	970 UJ	920 R
Hexachloropropene		8 U	8.4 U	8.4 U	8.4 U	8 U
Indeno[1,2,3-cd]pyrene		1.3 U	1.4 U	1.4 U	1.4 U	1.3 UJ
Isophorone		6.9 U	7.2 U	7.3 U	7.3 U	6.8 U
Isosafrole		7.9 U	8.3 U	8.3 U	8.3 U	7.8 U
Methapyrilene		10 U	11 U	11 U	11 U	10 U
Methyl methanesulfonate		10 U	11 U	11 U	11 U	10 U
Naphthalene		0.67 UJ	0.7 UJ	0.7 U	0.7 U	0.66 U
Nitrobenzene		7.6 U	8 U	8.1 U	8.1 U	7.6 U
N-Nitro-o-toluidine		6.7 U	7 U	7 U	7 U	6.6 U
N-Nitrosodiethylamine		13 U	14 U	14 U	14 U	13 U
N-Nitrosodimethylamine		11 U				
N-Nitrosodi-n-butylamine		10 U	11 U	11 U	11 U	10 U
N-Nitrosodi-n-propylamine		7.2 U	7.6 U	7.6 U	7.6 U	7.2 U
N-Nitrosodiphenylamine		7.9 U	8.3 U	8.3 U	8.3 U	7.8 U
N-Nitrosomethylethylamine		6.3 U	6.6 U	6.7 U	6.7 U	6.3 U
N-Nitrosomorpholine		7.3 U	7.7 U	7.7 U	7.7 U	7.3 U
N-Nitrosopiperidine		9.4 U	9.9 U	10 U	9.9 U	9.4 U
N-Nitrosopyrrolidine		9.9 U	10 U	10 U	10 U	9.8 U
p-Dimethylamino azobenzene		7.9 U	8.3 U	8.3 U	8.3 U	7.8 U
Pentachlorobenzene		6.9 U	7.2 U	7.3 U	7.3 U	6.8 U
Pentachloronitrobenzene		6.5 UJ	6.9 UJ	6.9 R	6.9 R	6.5 U
Pentachlorophenol		9.2 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.2 U
Phenacetin		5.2 U	5.5 U	5.5 U	5.5 U	5.2 U
Phenanthrene		1.9 U	2 U	2 U	2 U	1.9 U
Phenol		5.3 U	5.6 U	5.6 U	5.6 U	5.3 U
p-Phenylene diamine		180 U	190 U	190 U	190 U	180 U
Pronamide		10 U	10 U	11 U	11 U	9.9 U
Pyrene		1.9 U	2 U	2 U	2 U	1.9 U
Pyridine		12 U	13 U	13 U	13 U	12 U
Safrole, Total		9.2 U	9.7 U	9.7 U	9.7 U	9.2 U
PCBs (ug/kg)						
PCB-1016		4.2 U	4.4 U	4.5 U	4.5 U	4.2 U
PCB-1221		14 U	15 U	15 U	15 U	14 U
PCB-1232		8.2 U	8.7 U	8.8 U	8.8 U	8.2 U
PCB-1242		5.3 U	5.6 U	5.6 U	5.6 U	5.3 U
PCB-1248		5.6 U	5.9 U	6 U	6 U	5.6 U
PCB-1254		2.5 U	2.7 U	2.7 U	2.7 U	2.5 U
PCB-1260		5.3 U	5.6 U	5.6 U	5.6 U	5.3 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB07	78SB07	78SB08	78SB08	78SB09
	Sample ID	78SB07-01	78SB07-02	78SB08-01	78SB08-02	78SB09-01
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008	5/29/2008
	Depth Range	1.0-3.0	3.0-5.0	1.0-3.0	3.0-5.0	1.0-3.0
Metals (mg/kg)						
Antimony		0.079 UJ	0.078 UJ	0.078 UJ	0.079 UJ	0.079 UJ
Arsenic		0.65	0.5 U	0.66	0.62	0.36 U
Barium		34	25	33	42	170
Beryllium		0.23	0.16	0.21	0.15	0.19
Cadmium		0.034 J	0.034 J	0.059 J	0.062 J	0.034 J
Chromium		14	11	9.9 J	12 J	15 J
Cobalt		11	10	7.9	19	33
Copper		21	18	200	82	170
Lead		0.73 R	0.45 R	0.68	0.5	0.78
Mercury		0.0044 U	0.0044 U	0.0043 U	0.0043 U	0.0041 U
Nickel		7.5	6.8	6.3	12	22
Selenium		0.13 U				
Silver		0.03 J	0.03 J	0.022 J	0.053 J	0.089 J
Thallium		0.13 U	0.13 U	0.13 U	0.13 U	0.35 J
Tin		4.2 U				
Vanadium		120	74	110	130	200
Zinc		33 J	25 J	19 J	29 J	60 J
TPH DRO and GRO (mg/kg)						
Diesel Range Organics [C10-C28]		0.66 U	0.7 U	1.2	1.8	2.2
Gasoline Range Organics (GRO)-C6-C10		0.072 U	0.06 U	0.12 J	0.072 U	0.07 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB09	78SB10	78SB10	78SB11	78SB11
Sample ID	78SB09-03	78SB10-01	78SB10-02	78SB11-03	78SB11-03D
Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
Depth Range	5.0-7.0	1.0-3.0	3.0-5.0	5.0-7.0	5.0-7.0

Volatile Organic Compounds (ug/kg)

1,1,1,2-Tetrachloroethane	0.75 U	0.68 U	0.68 U	0.84 U	0.91 U
1,1,1-Trichloroethane	0.68 UJ	0.62 UJ	0.62 UJ	0.76 UJ	0.82 UJ
1,1,2,2-Tetrachloroethane	1.6 U	1.5 U	1.5 U	1.8 U	2 U
1,1,2-Trichloroethane	1.4 U	1.3 U	1.3 U	1.6 U	1.7 U
1,1-Dichloroethane	0.59 U	0.53 U	0.53 U	0.65 U	0.71 U
1,1-Dichloroethene	0.63 U	0.57 U	0.58 U	0.71 U	0.76 U
1,2,3-Trichloropropane	1.6 U	1.5 U	1.5 U	1.8 U	2 U
1,2-Dibromo-3-Chloropropane	3.3 U	3 U	3 U	3.7 U	4 U
1,2-Dichloroethane	1.2 U	1.1 U	1.1 U	1.3 U	1.4 U
1,2-Dichloropropane	1.3 U	1.2 U	1.2 U	1.4 U	1.6 U
2-Butanone (MEK)	3.2 UJ	2.9 UJ	2.9 UJ	3.9 UJ	3.8 UJ
2-Chloro-1,3-butadiene	0.67 U	0.61 U	0.61 U	0.75 U	0.81 U
2-Hexanone	2.5 U	2.2 U	2.2 U	2.7 U	3 U
3-Chloro-1-propene	1.8 U	1.6 U	1.6 U	2 U	2.1 U
4-Methyl-2-pentanone (MIBK)	3.4 UJ	3.1 UJ	3.1 UJ	3.8 UJ	4.1 UJ
Acetone	5.2 U	8.1 J	9.5 J	33 J	11 J
Acetonitrile	53 U	48 UJ	48 UJ	59 UJ	64 UJ
Acrolein	22 UJ	20 U	20 U	25 U	27 U
Acrylonitrile	27 UJ	24 UJ	25 UJ	30 UJ	33 UJ
Benzene	0.93 U	0.84 U	0.84 U	1 U	1.1 U
Bromoform	1.3 U	1.2 U	1.2 U	1.4 U	1.6 U
Bromomethane	1.9 U	1.7 U	1.7 U	2.1 U	2.3 U
Carbon disulfide	0.6 U	0.54 U	0.55 U	0.67 U	0.72 U
Carbon tetrachloride	1.2 UJ	1.1 UJ	1.1 UJ	1.3 UJ	1.4 UJ
Chlorobenzene	0.86 U	0.78 U	0.78 U	0.96 U	1 U
Chlorodibromomethane	0.59 U	0.53 U	0.53 U	0.65 U	0.71 U
Chloroethane	1.4 U	1.3 UJ	1.3 UJ	1.6 UJ	1.7 UJ
Chloroform	0.59 U	0.53 U	0.53 U	0.65 U	0.71 U
Chloromethane	0.83 U	0.76 U	0.76 U	0.93 U	1 U
cis-1,3-Dichloropropene	1 UJ	0.93 UJ	0.93 UJ	1.1 UJ	1.2 UJ
Dibromomethane	1.4 U	1.3 U	1.3 U	1.6 U	1.7 U
Dichlorobromomethane	0.97 U	0.88 U	0.89 U	1.1 U	1.2 U
Dichlorodifluoromethane	1 U	0.95 U	0.95 U	1.2 U	1.3 U
Ethyl methacrylate	2.6 U	2.3 U	2.4 U	2.9 U	3.1 U
Ethylbenzene	0.88 U	0.8 U	0.8 U	0.98 U	1.1 U
Ethylene Dibromide	1.8 U	1.6 U	1.6 U	2 U	2.1 U
Iodomethane	1.2 U	1.1 U	1.1 U	3.3 J	1.4 U
Isobutyl alcohol	81 U	73 R	74 R	90 R	98 R
Methacrylonitrile	28 U	26 UJ	26 UJ	31 UJ	34 UJ
Methyl methacrylate	4.3 U	3.9 UJ	4 UJ	4.8 UJ	5.2 UJ
Methylene Chloride	1.2 U	1.1 U	1.1 U	1.3 U	1.4 U
Pentachloroethane	2.6 R	2.3 R	2.4 R	2.9 R	3.1 R
Propionitrile	25 U	22 UJ	22 UJ	27 UJ	30 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB09	78SB10	78SB10	78SB11	78SB11
Sample ID	78SB09-03	78SB10-01	78SB10-02	78SB11-03	78SB11-03D
Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
Depth Range	5.0-7.0	1.0-3.0	3.0-5.0	5.0-7.0	5.0-7.0
Volatile Organic Compounds (ug/kg)					
Styrene	0.77 U	0.7 U	0.71 U	0.86 U	0.93 U
Tetrachloroethene	0.86 U	0.78 U	0.78 U	0.96 U	1 U
Toluene	0.93 U	0.84 U	0.84 U	1 U	1.1 U
trans-1,2-Dichloroethene	1.1 U	1 U	1 U	1.3 U	1.4 U
trans-1,3-Dichloropropene	1 U	0.93 U	0.93 U	1.1 U	1.2 U
trans-1,4-Dichloro-2-butene	3.6 U	3.3 UJ	3.3 UJ	4.1 UJ	4.4 UJ
Trichloroethene	1.2 U	1.1 U	1.1 U	1.3 U	1.4 U
Trichlorofluoromethane	1.8 U	1.6 U	1.6 U	2 U	2.1 U
Vinyl acetate	1.8 U	1.6 U	1.6 U	2 U	2.1 U
Vinyl chloride	0.68 U	0.62 U	0.62 U	0.76 U	0.82 U
Xylenes, Total	2.7 U	2.4 U	2.5 U	3 U	3.3 U
Semivolatile Organic Compounds (ug/kg)					
1,1'-Biphenyl	7.9 U	8.7 U	7.8 U	11 U	8.8 U
1,2,4,5-Tetrachlorobenzene	6.7 U	7.4 U	6.6 U	9.1 U	7.5 U
1,2,4-Trichlorobenzene	7.9 U	8.7 U	7.8 U	11 U	8.8 U
1,2-Dichlorobenzene	7.5 U	8.3 U	7.4 U	10 U	8.3 U
1,3,5-Trinitrobenzene	18 U	20 U	18 U	24 U	20 U
1,3-Dichlorobenzene	6.4 U	7.1 U	6.3 U	8.6 U	7.1 U
1,3-Dinitrobenzene	4.2 U	4.6 U	4.1 U	5.6 U	4.6 U
1,4-Dichlorobenzene	6.6 U	7.3 U	6.5 U	8.9 U	7.3 U
1,4-Dioxane	8.5 U	9.4 U	8.4 U	12 U	9.5 U
1,4-Naphthoquinone	4.2 U	4.6 U	4.1 U	5.6 U	4.6 U
2,2'-oxybis[1-chloropropane]	6.7 U	7.4 U	6.6 U	9.1 U	7.5 U
2,3,4,6-Tetrachlorophenol	4.5 UJ	5 UJ	4.4 U	6 UJ	5 UJ
2,4,5-Trichlorophenol	7.3 UJ	8 UJ	7.2 U	9.8 UJ	8.1 UJ
2,4,6-Trichlorophenol	8.4 UJ	9.3 UJ	8.3 U	11 UJ	9.4 UJ
2,4-Dichlorophenol	8.6 UJ	9.6 UJ	8.5 U	12 UJ	9.6 UJ
2,4-Dimethylphenol	18 UJ	20 UJ	18 U	24 UJ	20 UJ
2,4-Dinitrophenol	89 UJ	98 UJ	87 UJ	120 UJ	98 UJ
2,4-Dinitrotoluene	6.3 U	7 U	6.2 U	8.5 U	7 U
2,6-Dichlorophenol	6.8 UJ	7.6 UJ	6.7 U	9.2 UJ	7.6 UJ
2,6-Dinitrotoluene	6.6 U	7.3 U	6.5 U	8.9 U	7.3 U
2-Acetylaminofluorene	5.4 U	6 U	5.4 U	7.3 U	6 U
2-Chloronaphthalene	6.6 U	7.3 U	6.5 U	8.9 U	7.3 U
2-Chlorophenol	7 UJ	7.8 UJ	7 U	9.5 UJ	7.8 UJ
2-Methylnaphthalene	1.8 U	2 U	1.8 U	2.4 U	2 U
2-Methylphenol	8.6 UJ	9.6 UJ	8.5 U	12 UJ	9.6 UJ
2-Naphthylamine	21 UJ	24 U	21 U	29 U	24 U
2-Nitroaniline	6.9 U	7.7 U	6.8 U	9.4 U	7.7 U
2-Nitrophenol	7.8 UJ	8.6 UJ	7.7 U	11 UJ	8.6 UJ
2-Picoline	13 U	14 U	13 U	17 U	14 U
2-Toluidine	9.9 U	11 U	9.8 U	13 U	11 U
3 & 4 Methylphenol	7.8 UJ	8.6 UJ	7.7 U	11 UJ	8.6 UJ
3,3'-Dichlorobenzidine	9.8 UJ	11 UJ	9.7 UJ	13 UJ	11 UJ
3,3'-Dimethylbenzidine	190 UJ	210 UJ	190 U	260 UJ	210 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB09	78SB10	78SB10	78SB11	78SB11
	Sample ID	78SB09-03	78SB10-01	78SB10-02	78SB11-03	78SB11-03D
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
	Depth Range	5.0-7.0	1.0-3.0	3.0-5.0	5.0-7.0	5.0-7.0
Semivolatile Organic Compounds (ug/kg)						
3-Methylcholanthrene		6.5 UJ	7.2 U	6.4 U	8.8 U	7.2 U
3-Nitroaniline		4.8 U	5.3 U	4.7 U	6.5 U	5.3 U
4,6-Dinitro-2-methylphenol		6.2 UJ	6.8 UJ	6.1 U	8.4 UJ	6.9 UJ
4-Aminobiphenyl		14 U	15 U	14 U	19 U	15 U
4-Bromophenyl phenyl ether		7.6 U	8.4 U	7.5 U	10 U	8.4 U
4-Chloro-3-methylphenol		8 UJ	8.8 UJ	7.9 U	11 UJ	8.9 UJ
4-Chloroaniline		6.4 U	7.1 U	6.3 U	8.6 U	7.1 U
4-Chlorophenyl phenyl ether		6.6 U	7.3 U	6.5 U	8.9 U	7.3 U
4-Nitroaniline		8.2 UJ	9.1 U	8.1 U	11 U	9.1 U
4-Nitrophenol		35 UJ	39 UJ	35 U	48 UJ	39 UJ
4-Nitroquinoline-1-oxide		12 R	13 R	12 R	16 R	13 R
7,12-Dimethylbenz(a)anthracene		9.9 U	11 U	9.8 U	13 U	11 U
Acenaphthene		0.61 U	0.67 U	0.6 U	0.82 U	0.68 U
Acenaphthylene		1.8 U	2 U	1.8 U	2.4 U	2 U
Acetophenone		9.2 U	10 U	9.1 U	12 U	10 U
alpha,alpha-Dimethyl phenethylamine		63 U	70 U	62 UJ	85 U	70 U
Aniline		6.7 U	7.4 U	6.6 U	9.1 U	7.5 U
Anthracene		1.8 U	2 U	1.8 U	2.4 U	2 U
Aramite, Total		12 U	13 U	12 U	16 U	13 U
Benzo[a]anthracene		1.8 U	2 U	1.8 U	2.4 U	2 U
Benzo[a]pyrene		0.7 U	0.78 U	0.7 U	0.95 U	0.78 U
Benzo[b]fluoranthene		0.81 U	0.9 U	0.8 U	1.1 U	0.9 U
Benzo[g,h,i]perylene		1.8 UJ	2 U	1.8 U	2.4 U	2 U
Benzo[k]fluoranthene		1.1 U	1.2 U	1.1 U	1.4 U	1.2 U
Benzyl alcohol		8.5 UJ	9.4 UJ	8.4 U	12 UJ	9.5 UJ
Bis(2-chloroethoxy)methane		7.3 U	8 U	7.2 U	9.8 U	8.1 U
Bis(2-chloroethyl)ether		6.1 U	6.7 U	6 U	8.2 U	6.8 U
Bis(2-ethylhexyl) phthalate		8.2 U	9.4 U	34 U	14 U	13 U
Butyl benzyl phthalate		7.7 U	8.5 U	7.6 U	10 U	8.5 U
Chrysene		0.65 U	0.72 U	0.64 U	0.88 U	0.72 U
Diallate		10 U	11 U	10 U	14 U	11 U
Dibenz(a,h)anthracene		0.63 U	0.7 UJ	0.62 U	0.85 UJ	0.7 UJ
Dibenzofuran		4.5 U	5 U	4.4 U	6 U	5 U
Diethyl phthalate		12 U	13 U	12 U	16 U	13 U
Dimethyl phthalate		6.8 U	7.6 U	6.7 U	9.2 U	7.6 U
Di-n-butyl phthalate		27 U	29 U	26 U	100 U	30 U
Di-n-octyl phthalate		3.5 U	3.9 U	3.5 U	4.8 U	3.9 U
Dinoseb		18 U	20 U	18 U	24 U	20 U
Ethyl methanesulfonate		12 U	13 U	12 U	16 U	13 U
Fluoranthene		1.8 U	2 U	1.8 U	2.4 U	2 U
Fluorene		0.82 U	0.91 U	0.81 U	1.1 U	0.91 U
Hexachlorobenzene		7.3 U	8 U	7.2 U	9.8 U	8.1 U
Hexachlorobutadiene		9.7 U	11 U	9.6 U	13 U	11 U
Hexachlorocyclopentadiene		15 U	17 U	15 U	20 U	17 U
Hexachloroethane		7.9 U	8.7 U	7.8 U	11 U	8.8 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB09	78SB10	78SB10	78SB11	78SB11
Sample ID	78SB09-03	78SB10-01	78SB10-02	78SB11-03	78SB11-03D
Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
Depth Range	5.0-7.0	1.0-3.0	3.0-5.0	5.0-7.0	5.0-7.0
Semivolatile Organic Compounds (ug/kg)					
Hexachlorophene	890 R	980 R	870 R	1200 R	980 R
Hexachloropropene	7.7 U	8.5 U	7.6 U	10 U	8.5 U
Indeno[1,2,3-cd]pyrene	1.3 UJ	1.4 UJ	1.3 U	1.7 UJ	1.4 UJ
Isophorone	6.6 U	7.3 UJ	6.5 U	8.9 UJ	7.3 UJ
Isosafrole	7.6 U	8.4 U	7.5 U	10 U	8.4 U
Methapyrilene	9.9 U	11 U	9.8 U	13 U	11 U
Methyl methanesulfonate	9.9 U	11 U	9.8 U	13 U	11 U
Naphthalene	0.64 U	0.71 U	0.63 U	0.86 U	0.71 U
Nitrobenzene	7.4 U	8.1 U	7.3 U	9.9 U	8.2 U
N-Nitro-o-toluidine	6.4 U	7.1 U	6.3 U	8.6 U	7.1 U
N-Nitrosodiethylamine	13 U	14 U	13 U	17 U	14 U
N-Nitrosodimethylamine	10 U	12 U	10 U	14 U	12 U
N-Nitrosodi-n-butylamine	9.7 U	11 U	9.6 U	13 U	11 U
N-Nitrosodi-n-propylamine	6.9 U	7.7 U	6.8 U	9.4 U	7.7 U
N-Nitrosodiphenylamine	7.6 U	8.4 U	7.5 U	10 U	8.4 U
N-Nitrosomethylethylamine	6.1 U	6.7 U	6 U	8.2 U	6.8 U
N-Nitrosomorpholine	7 U	7.8 U	7 U	9.5 U	7.8 U
N-Nitrosopiperidine	9.1 U	10 U	9 U	12 U	10 U
N-Nitrosopyrrolidine	9.5 U	11 U	9.4 U	13 U	11 U
p-Dimethylamino azobenzene	7.6 U	8.4 U	7.5 U	10 U	8.4 U
Pentachlorobenzene	6.6 U	7.3 U	6.5 U	8.9 U	7.3 U
Pentachloronitrobenzene	6.3 U	7 U	6.2 U	8.5 U	7 U
Pentachlorophenol	8.9 UJ	9.8 UJ	8.7 U	12 UJ	9.8 UJ
Phenacetin	5 U	5.5 U	5 U	6.8 U	5.6 U
Phenanthrene	1.8 U	2 U	1.8 U	2.4 U	2 U
Phenol	5.1 U	5.7 UJ	5.1 U	6.9 UJ	5.7 UJ
p-Phenylene diamine	170 U	190 U	170 U	230 U	190 U
Pronamide	9.6 U	11 U	9.5 U	13 U	11 U
Pyrene	1.8 U	2 U	1.8 U	2.4 U	2 U
Pyridine	12 U	13 U	12 U	16 U	13 U
Safrole, Total	8.9 U	9.8 U	8.7 U	12 U	9.8 U
PCBs (ug/kg)					
PCB-1016	4.1 U	4.5 U	4.1 U	5.4 UJ	4.5 UJ
PCB-1221	14 U	15 U	14 U	18 UJ	15 UJ
PCB-1232	8.1 U	8.8 U	8 U	11 UJ	8.9 UJ
PCB-1242	5.2 U	5.6 U	5.1 U	6.8 UJ	5.7 UJ
PCB-1248	5.5 U	6 U	5.5 U	7.2 UJ	6 UJ
PCB-1254	2.5 U	2.7 U	2.5 U	3.3 UJ	2.7 UJ
PCB-1260	5.2 U	5.6 U	5.1 U	6.8 UJ	5.7 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB09	78SB10	78SB10	78SB11	78SB11
	Sample ID	78SB09-03	78SB10-01	78SB10-02	78SB11-03	78SB11-03D
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
	Depth Range	5.0-7.0	1.0-3.0	3.0-5.0	5.0-7.0	5.0-7.0
Metals (mg/kg)						
Antimony		0.082 UJ	0.084 UJ	0.074 UJ	0.096 UJ	0.089 J
Arsenic		0.48 U	0.54 U	0.54	1.1	1.2
Barium		100	450	35	25 J	59 J
Beryllium		0.13	0.16	0.24	0.21	0.23
Cadmium		0.085 J	0.049 J	0.043 J	0.11 J	0.24
Chromium		12 J	18	14	15	15
Cobalt		30	34	16	19 J	29 J
Copper		63	29	8.2	34 J	55 J
Lead		0.5	1.7	1	1.1	1.2
Mercury		0.0042 U	0.0046 U	0.0042 U	0.0053 U	0.0044 U
Nickel		17	12	11	5.6	9.3
Selenium		0.12 U	0.13 U	0.12 U	0.15 U	0.14 U
Silver		0.099 J	0.098 J	0.023 J	0.022 J	0.037 J
Thallium		0.25 J	0.13 U	0.12 U	0.15 U	0.14 U
Tin		3.9 U	4.5 U	3.9 U	5.1 U	4.6 U
Vanadium		270	190	160	120	150
Zinc		54 J	47	41	54	57
TPH DRO and GRO (mg/kg)						
Diesel Range Organics [C10-C28]		1.4	2.4	3.5	2.9	2.1
Gasoline Range Organics (GRO)-C6-C10		0.059 U	0.065 U	0.062 U	0.095 U	0.074 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB11	78SB12	78SB12	78SB13	78SB14
Sample ID	78SB11-05	78SB12-02	78SB12-03	78SB13-01	78SB14-02
Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
Depth Range	9.0-11.0	3.0-5.0	5.0-7.0	1.0-3.0	3.0-5.0

Volatile Organic Compounds (ug/kg)

1,1,1,2-Tetrachloroethane	0.66 U	0.69 U	0.76 U	0.55 U	0.65 U
1,1,1-Trichloroethane	0.6 UJ	0.62 UJ	0.69 UJ	0.5 UJ	0.58 UJ
1,1,2,2-Tetrachloroethane	1.4 U	1.5 U	1.7 U	1.2 U	1.4 U
1,1,2-Trichloroethane	1.2 U	1.3 U	1.4 U	1 U	1.2 U
1,1-Dichloroethane	0.51 U	0.54 U	0.59 U	0.43 U	0.5 U
1,1-Dichloroethene	0.55 U	0.58 U	0.64 U	0.47 U	0.54 U
1,2,3-Trichloropropane	1.4 U	1.5 U	1.7 U	1.2 U	1.4 U
1,2-Dibromo-3-Chloropropane	2.9 U	3 U	3.3 U	2.4 U	2.8 U
1,2-Dichloroethane	1 U	1.1 U	1.2 U	0.86 U	1 U
1,2-Dichloropropane	1.1 U	1.2 U	1.3 U	0.95 U	1.1 U
2-Butanone (MEK)	2.8 UJ	7.4 UJ	3.2 UJ	2.3 UJ	3.9 UJ
2-Chloro-1,3-butadiene	0.58 U	0.61 U	0.68 U	0.49 U	0.57 U
2-Hexanone	2.2 U	2.2 U	2.5 U	1.8 U	2.1 U
3-Chloro-1-propene	1.5 U	1.6 U	1.8 U	1.3 U	1.5 U
4-Methyl-2-pentanone (MIBK)	3 UJ	3.1 UJ	3.4 UJ	2.5 UJ	2.9 UJ
Acetone	5.6 J	48 J	9.8 J	15 J	31 J
Acetonitrile	46 UJ	48 U	53 U	39 U	45 U
Acrolein	19 U	20 UJ	23 UJ	16 UJ	19 UJ
Acrylonitrile	24 UJ	25 UJ	27 UJ	20 UJ	23 UJ
Benzene	0.81 U	0.85 U	0.94 U	0.68 U	0.8 U
Bromoform	1.1 U	1.2 U	1.3 U	0.95 U	1.1 U
Bromomethane	1.6 U	1.7 U	1.9 U	1.4 U	1.6 U
Carbon disulfide	0.52 U	0.55 U	0.61 U	0.44 U	0.51 U
Carbon tetrachloride	1 UJ	1.1 UJ	1.2 UJ	0.86 UJ	1 UJ
Chlorobenzene	0.75 U	0.78 U	0.87 U	0.63 U	0.74 U
Chlorodibromomethane	0.51 U	0.54 U	0.59 U	0.43 U	0.5 U
Chloroethane	1.2 UJ	1.3 U	1.4 U	1 U	1.2 U
Chloroform	0.51 U	0.54 U	0.59 U	0.43 U	0.5 U
Chloromethane	0.73 U	0.76 U	0.84 U	0.61 U	0.72 U
cis-1,3-Dichloropropene	0.89 UJ	0.93 UJ	1 UJ	0.75 UJ	0.88 UJ
Dibromomethane	1.2 U	1.3 U	1.4 U	1 U	1.2 U
Dichlorobromomethane	0.85 U	0.89 U	0.99 U	0.72 U	0.84 U
Dichlorodifluoromethane	0.91 U	0.95 U	1.1 U	0.77 U	0.9 U
Ethyl methacrylate	2.3 U	2.4 U	2.6 U	1.9 U	2.2 U
Ethylbenzene	0.77 U	0.8 U	0.89 U	0.65 U	0.76 U
Ethylene Dibromide	1.5 U	1.6 U	1.8 U	1.3 U	1.5 U
Iodomethane	1 U	5.7	1.2 U	0.86 U	1.5 J
Isobutyl alcohol	71 R	74 U	82 U	60 U	70 U
Methacrylonitrile	25 UJ	26 U	28 U	21 U	24 U
Methyl methacrylate	3.8 UJ	4 U	4.4 U	3.2 U	3.7 U
Methylene Chloride	1 U	1.1 U	1.2 U	0.86 U	1 U
Pentachloroethane	2.3 R	2.4 R	2.6 R	1.9 R	2.2 R
Propionitrile	22 UJ	22 U	25 U	18 U	21 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB11	78SB12	78SB12	78SB13	78SB14
	Sample ID	78SB11-05	78SB12-02	78SB12-03	78SB13-01	78SB14-02
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
	Depth Range	9.0-11.0	3.0-5.0	5.0-7.0	1.0-3.0	3.0-5.0
Volatile Organic Compounds (ug/kg)						
Styrene		0.68 U	0.71 U	0.78 U	0.57 U	0.67 U
Tetrachloroethene		0.75 U	0.78 U	0.87 U	0.63 U	0.74 U
Toluene		0.81 U	0.85 U	0.94 U	0.68 U	0.8 U
trans-1,2-Dichloroethene		1 U	1 U	1.2 U	0.84 U	0.98 U
trans-1,3-Dichloropropene		0.89 U	0.93 U	1 U	0.75 U	0.88 U
trans-1,4-Dichloro-2-butene		3.2 UJ	3.3 U	3.7 U	2.7 U	3.1 U
Trichloroethene		1 U	1.1 U	1.2 U	0.86 U	1 U
Trichlorofluoromethane		1.5 U	1.6 U	1.8 U	1.3 U	1.5 U
Vinyl acetate		1.5 U	1.6 U	1.8 U	1.3 U	1.5 U
Vinyl chloride		0.6 U	0.62 U	0.69 U	0.5 U	0.58 U
Xylenes, Total		2.4 U	2.5 U	2.7 U	2 U	2.3 U
Semivolatile Organic Compounds (ug/kg)						
1,1'-Biphenyl		8.3 UJ	7.7 U	7.9 U	8 U	8.2 UJ
1,2,4,5-Tetrachlorobenzene		7.1 UJ	6.6 U	6.7 U	6.8 U	7 UJ
1,2,4-Trichlorobenzene		8.3 UJ	7.7 U	7.9 U	8 U	8.2 UJ
1,2-Dichlorobenzene		7.9 UJ	7.3 U	7.5 U	7.5 U	7.7 UJ
1,3,5-Trinitrobenzene		19 UJ	18 U	18 U	18 U	19 UJ
1,3-Dichlorobenzene		6.8 UJ	6.3 U	6.4 U	6.5 U	6.6 UJ
1,3-Dinitrobenzene		4.4 UJ	4.1 U	4.2 U	4.2 U	4.3 UJ
1,4-Dichlorobenzene		7 UJ	6.5 U	6.6 U	6.7 U	6.9 UJ
1,4-Dioxane		9 UJ	8.4 U	8.5 U	8.6 U	8.8 UJ
1,4-Naphthoquinone		4.4 UJ	4.1 UJ	4.2 U	4.2 U	4.3 UJ
2,2'-oxybis[1-chloropropane]		7.1 UJ	6.6 U	6.7 U	6.8 U	7 UJ
2,3,4,6-Tetrachlorophenol		4.7 UJ	4.4 U	4.5 U	4.5 UJ	4.6 UJ
2,4,5-Trichlorophenol		7.7 UJ	7.1 U	7.2 U	7.3 UJ	7.5 UJ
2,4,6-Trichlorophenol		8.9 UJ	8.3 U	8.4 U	8.5 UJ	8.7 UJ
2,4-Dichlorophenol		9.1 UJ	8.5 U	8.6 U	8.7 UJ	9 UJ
2,4-Dimethylphenol		19 UJ	18 U	18 U	18 UJ	19 UJ
2,4-Dinitrophenol		94 UJ	87 UJ	88 UJ	89 UJ	92 UJ
2,4-Dinitrotoluene		6.6 UJ	6.2 U	6.3 U	6.3 U	6.5 UJ
2,6-Dichlorophenol		7.2 UJ	6.7 U	6.8 U	6.9 UJ	7.1 UJ
2,6-Dinitrotoluene		7 UJ	6.5 U	6.6 U	6.7 U	6.9 UJ
2-Acetylaminofluorene		5.7 UJ	5.3 U	5.4 U	5.5 U	5.6 UJ
2-Chloronaphthalene		7 UJ	6.5 U	6.6 U	6.7 U	6.9 UJ
2-Chlorophenol		7.4 UJ	6.9 U	7 U	7.1 UJ	7.3 UJ
2-Methylnaphthalene		1.9 UJ	1.8 U	1.8 U	1.8 U	1.9 UJ
2-Methylphenol		9.1 UJ	8.5 U	8.6 U	8.7 UJ	9 UJ
2-Naphthylamine		23 UJ	21 UJ	21 UJ	22 UJ	22 UJ
2-Nitroaniline		7.3 UJ	6.8 U	6.9 U	7 U	7.2 UJ
2-Nitrophenol		8.2 UJ	7.6 U	7.8 U	7.9 UJ	8.1 UJ
2-Picoline		14 UJ	13 U	13 U	13 U	13 UJ
2-Toluidine		10 UJ	9.7 U	9.9 U	10 U	10 UJ
3 & 4 Methylphenol		8.2 UJ	7.6 U	7.8 U	7.9 UJ	8.1 UJ
3,3'-Dichlorobenzidine		10 UJ	9.6 UJ	9.8 UJ	9.9 UJ	10 UJ
3,3'-Dimethylbenzidine		200 UJ	190 U	190 U	190 UJ	200 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB11	78SB12	78SB12	78SB13	78SB14
	Sample ID	78SB11-05	78SB12-02	78SB12-03	78SB13-01	78SB14-02
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
	Depth Range	9.0-11.0	3.0-5.0	5.0-7.0	1.0-3.0	3.0-5.0
Semivolatile Organic Compounds (ug/kg)						
3-Methylcholanthrene		6.9 UJ	6.4 U	6.5 U	6.6 UJ	6.7 UJ
3-Nitroaniline		5.1 UJ	4.7 U	4.8 U	4.8 U	5 UJ
4,6-Dinitro-2-methylphenol		6.5 UJ	6.1 U	6.2 U	6.2 UJ	6.4 UJ
4-Aminobiphenyl		15 UJ	14 U	14 U	14 U	14 UJ
4-Bromophenyl phenyl ether		8 UJ	7.4 U	7.6 U	7.6 U	7.8 UJ
4-Chloro-3-methylphenol		8.5 UJ	7.8 U	8 U	8.1 UJ	8.3 UJ
4-Chloroaniline		6.8 UJ	6.3 U	6.4 U	6.5 U	6.6 UJ
4-Chlorophenyl phenyl ether		7 UJ	6.5 U	6.6 U	6.7 U	6.9 UJ
4-Nitroaniline		8.7 UJ	8.1 U	8.2 U	8.3 UJ	8.5 UJ
4-Nitrophenol		37 UJ	35 U	35 U	35 UJ	36 UJ
4-Nitroquinoline-1-oxide		12 R				
7,12-Dimethylbenz(a)anthracene		10 UJ	9.7 U	9.9 U	10 U	10 UJ
Acenaphthene		0.64 UJ	0.6 U	0.61 U	0.61 U	0.63 UJ
Acenaphthylene		1.9 UJ	1.8 U	1.8 U	1.8 U	1.9 UJ
Acetophenone		9.7 UJ	9 U	9.2 U	9.3 U	9.5 UJ
alpha,alpha-Dimethyl phenethylamine		66 UJ	62 U	63 UJ	63 U	65 UJ
Aniline		7.1 UJ	6.6 U	6.7 U	6.8 U	7 UJ
Anthracene		1.9 UJ	1.8 U	1.8 U	1.8 U	1.9 UJ
Aramite, Total		12 UJ	12 U	12 U	12 U	12 UJ
Benzo[a]anthracene		1.9 UJ	1.8 U	1.8 U	1.8 U	1.9 UJ
Benzo[a]pyrene		0.74 UJ	0.69 U	0.7 U	0.71 U	0.73 UJ
Benzo[b]fluoranthene		0.86 UJ	0.8 U	0.81 U	0.82 U	0.84 UJ
Benzo[g,h,i]perylene		1.9 UJ	1.8 U	1.8 U	1.8 UJ	1.9 UJ
Benzo[k]fluoranthene		1.1 UJ	1 U	1.1 U	1.1 U	1.1 UJ
Benzyl alcohol		9 UJ	8.4 U	8.5 U	8.6 UJ	8.8 UJ
Bis(2-chloroethoxy)methane		7.7 UJ	7.1 U	7.2 U	7.3 U	7.5 UJ
Bis(2-chloroethyl)ether		6.4 UJ	6 U	6.1 U	6.1 U	6.3 UJ
Bis(2-ethylhexyl) phthalate		7.5 UJ	22 U	17 U	17 U	6.8 UJ
Butyl benzyl phthalate		8.1 UJ	7.5 U	7.7 U	7.7 U	8 UJ
Chrysene		0.69 UJ	0.64 U	0.65 U	0.66 U	0.67 UJ
Diallate		11 UJ	10 U	10 U	10 U	11 UJ
Dibenz(a,h)anthracene		0.66 UJ	0.62 U	0.63 U	0.63 U	0.65 UJ
Dibenzofuran		4.7 UJ	4.4 U	4.5 U	4.5 U	4.6 UJ
Diethyl phthalate		12 UJ	12 U	12 U	12 U	12 UJ
Dimethyl phthalate		7.2 UJ	6.7 U	6.8 U	6.9 U	7.1 UJ
Di-n-butyl phthalate		28 UJ	26 U	27 U	27 U	28 UJ
Di-n-octyl phthalate		3.7 UJ	3.5 U	3.5 U	3.5 U	3.6 UJ
Dinoseb		19 UJ	18 U	18 U	18 U	19 UJ
Ethyl methanesulfonate		12 UJ	12 U	12 U	12 U	12 UJ
Fluoranthene		1.9 UJ	1.8 U	1.8 U	1.8 U	1.9 UJ
Fluorene		0.87 UJ	0.81 U	0.82 U	0.83 U	0.85 UJ
Hexachlorobenzene		7.7 UJ	7.1 U	7.2 U	7.3 U	7.5 UJ
Hexachlorobutadiene		10 UJ	9.5 U	9.7 U	9.8 U	10 UJ
Hexachlorocyclopentadiene		16 UJ	15 U	15 U	15 U	15 UJ
Hexachloroethane		8.3 UJ	7.7 U	7.9 U	8 U	8.2 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB11	78SB12	78SB12	78SB13	78SB14
	Sample ID	78SB11-05	78SB12-02	78SB12-03	78SB13-01	78SB14-02
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
	Depth Range	9.0-11.0	3.0-5.0	5.0-7.0	1.0-3.0	3.0-5.0
Semivolatile Organic Compounds (ug/kg)						
Hexachlorophene		940 R	870 R	880 R	890 R	920 R
Hexachloropropene		8.1 UJ	7.5 U	7.7 U	7.7 U	8 UJ
Indeno[1,2,3-cd]pyrene		1.4 UJ	1.3 UJ	1.3 U	1.3 UJ	1.3 UJ
Isophorone		7 UJ	6.5 U	6.6 U	6.7 U	6.9 UJ
Isosafrole		8 UJ	7.4 U	7.6 U	7.6 U	7.8 UJ
Methapyrilene		10 UJ	9.7 U	9.9 U	10 U	10 UJ
Methyl methanesulfonate		10 UJ	9.7 U	9.9 U	10 U	10 UJ
Naphthalene		0.85 J	0.63 U	0.64 U	0.67 J	0.66 UJ
Nitrobenzene		7.8 UJ	7.2 U	7.3 U	7.4 U	7.6 UJ
N-Nitro-o-toluidine		6.8 UJ	6.3 U	6.4 U	6.5 U	6.6 UJ
N-Nitrosodiethylamine		14 UJ	13 U	13 U	13 U	13 UJ
N-Nitrosodimethylamine		11 UJ	10 U	10 U	11 U	11 UJ
N-Nitrosodi-n-butylamine		10 UJ	9.5 U	9.7 U	9.8 U	10 UJ
N-Nitrosodi-n-propylamine		7.3 UJ	6.8 U	6.9 U	7 U	7.2 UJ
N-Nitrosodiphenylamine		8 UJ	7.4 U	7.6 U	7.6 U	7.8 UJ
N-Nitrosomethylethylamine		6.4 UJ	6 U	6.1 U	6.1 U	6.3 UJ
N-Nitrosomorpholine		7.4 UJ	6.9 U	7 U	7.1 U	7.3 UJ
N-Nitrosopiperidine		9.6 UJ	8.9 U	9.1 U	9.1 U	9.4 UJ
N-Nitrosopyrrolidine		10 UJ	9.3 U	9.5 U	9.6 U	9.8 UJ
p-Dimethylamino azobenzene		8 UJ	7.4 U	7.6 U	7.6 U	7.8 UJ
Pentachlorobenzene		7 UJ	6.5 U	6.6 U	6.7 U	6.9 UJ
Pentachloronitrobenzene		6.6 UJ	6.2 U	6.3 U	6.3 U	6.5 UJ
Pentachlorophenol		9.4 UJ	8.7 U	8.8 U	8.9 UJ	9.2 UJ
Phenacetin		5.3 UJ	4.9 U	5 U	5.1 U	5.2 UJ
Phenanthrene		1.9 UJ	1.8 U	1.8 U	1.8 U	1.9 UJ
Phenol		5.4 UJ	5 U	5.1 U	5.2 U	5.3 UJ
p-Phenylene diamine		180 UJ	170 U	170 U	170 U	180 UJ
Pronamide		10 UJ	9.4 U	9.6 U	9.7 U	9.9 UJ
Pyrene		1.9 UJ	1.8 U	1.8 U	1.8 U	1.9 UJ
Pyridine		12 UJ	12 U	12 U	12 U	12 UJ
Safrole, Total		9.4 UJ	8.7 U	8.8 U	8.9 U	9.2 UJ
PCBs (ug/kg)						
PCB-1016		4.3 R	4 U	4 U	4 U	4.2 U
PCB-1221		15 R	14 U	14 U	14 U	14 U
PCB-1232		8.4 R	7.8 U	7.9 U	7.9 U	8.3 U
PCB-1242		5.4 UJ	5 U	5.1 U	5.1 U	5.3 U
PCB-1248		5.7 UJ	5.3 U	5.4 U	5.4 U	5.6 U
PCB-1254		2.6 UJ	2.4 U	2.4 U	2.4 U	2.5 U
PCB-1260		5.4 UJ	5 U	5.1 U	5.1 U	5.3 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB11	78SB12	78SB12	78SB13	78SB14
	Sample ID	78SB11-05	78SB12-02	78SB12-03	78SB13-01	78SB14-02
	Date	5/29/2008	5/29/2008	5/29/2008	5/29/2008	5/29/2008
	Depth Range	9.0-11.0	3.0-5.0	5.0-7.0	1.0-3.0	3.0-5.0
Metals (mg/kg)						
Antimony		0.082 UJ	0.1 UJ	0.073 UJ	0.072 UJ	0.25 UJ
Arsenic		2.7	2	0.55	1	1.8
Barium		25	60	21	71	310
Beryllium		0.23	0.14	0.071 J	0.28	0.3
Cadmium		0.14	0.031 J	0.03 U	0.064 J	0.074 J
Chromium		17	31 J	21 J	32 J	9 J
Cobalt		32	20	22	22	23
Copper		130	210	98	74	190
Lead		0.65	1	0.42	1.3	1.4
Mercury		0.0045 U	0.0041 U	0.004 U	0.012 J	0.004 U
Nickel		19	15	21	22	8
Selenium		0.13 U	0.3 J	0.12 U	0.35 J	0.14 J
Silver		0.041 J	0.025 J	0.016 U	0.033 J	0.052 J
Thallium		0.13 U	0.12 U	0.12 U	0.11 U	0.13 U
Tin		4.4 U	3.9 U	3.9 U	3.8 U	4.2 U
Vanadium		330	120	140	170	210
Zinc		70	40 J	43 J	43 J	52 J
TPH DRO and GRO (mg/kg)						
Diesel Range Organics [C10-C28]		2	5.2	1.1	1.2	1.4
Gasoline Range Organics (GRO)-C6-C10		0.068 U	0.17 J	0.074 U	0.12 J	0.071 J

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Site ID	78SB15	78SB15	78SB16	78SB16
Sample ID	78SB15-01	78SB15-03	78SB16-01	78SB16-03
Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008
Depth Range	1.0-3.0	5.0-7.0	1.0-3.0	5.0-7.0

Volatile Organic Compounds (ug/kg)

1,1,1,2-Tetrachloroethane	0.77 U	0.76 U	0.83 U	0.56 U
1,1,1-Trichloroethane	0.7 UJ	0.69 UJ	0.75 UJ	0.51 UJ
1,1,2,2-Tetrachloroethane	1.7 U	1.7 U	1.8 U	1.2 U
1,1,2-Trichloroethane	1.4 U	1.4 U	1.6 U	1.1 U
1,1-Dichloroethane	0.6 U	0.6 U	0.65 U	0.44 U
1,1-Dichloroethene	0.65 U	0.65 U	0.7 U	0.47 U
1,2,3-Trichloropropane	1.7 U	1.7 U	1.8 U	1.2 U
1,2-Dibromo-3-Chloropropane	3.4 U	3.3 U	3.6 U	2.5 U
1,2-Dichloroethane	1.2 U	1.2 U	1.3 U	0.88 U
1,2-Dichloropropane	1.3 U	1.3 U	1.4 U	0.97 U
2-Butanone (MEK)	3.3 UJ	3.2 UJ	3.7 UJ	2.4 UJ
2-Chloro-1,3-butadiene	0.69 U	0.68 U	0.74 U	0.5 U
2-Hexanone	2.5 U	2.5 U	2.7 U	1.8 U
3-Chloro-1-propene	1.8 U	1.8 U	1.9 U	1.3 U
4-Methyl-2-pentanone (MIBK)	3.5 UJ	3.5 UJ	3.8 UJ	2.5 UJ
Acetone	14 J	11 J	24 J	8.3 J
Acetonitrile	54 U	54 U	58 U	39 U
Acrolein	23 U	23 U	25 U	17 U
Acrylonitrile	28 U	27 U	30 U	20 U
Benzene	0.95 U	0.94 U	1 U	0.69 U
Bromoform	1.3 U	1.3 U	1.4 U	0.97 U
Bromomethane	1.9 U	1.9 U	2.1 U	1.4 U
Carbon disulfide	0.62 U	0.61 U	0.66 U	0.45 U
Carbon tetrachloride	1.2 UJ	1.2 UJ	1.3 UJ	0.88 UJ
Chlorobenzene	0.88 U	0.87 U	0.95 U	0.64 U
Chlorodibromomethane	0.6 U	0.6 U	0.65 U	0.44 U
Chloroethane	1.4 UJ	1.4 UJ	1.6 UJ	1.1 UJ
Chloroform	0.6 U	0.6 U	0.65 U	0.44 U
Chloromethane	0.86 U	0.85 U	0.92 U	0.62 U
cis-1,3-Dichloropropene	1 UJ	1 UJ	1.1 UJ	0.76 UJ
Dibromomethane	1.4 U	1.4 U	1.6 U	1.1 U
Dichlorobromomethane	1 U	0.99 U	1.1 U	0.73 U
Dichlorodifluoromethane	1.1 U	1.1 U	1.2 U	0.78 U
Ethyl methacrylate	2.7 U	2.6 U	2.8 U	1.9 U
Ethylbenzene	0.91 U	0.9 U	0.97 U	0.66 U
Ethylene Dibromide	1.8 U	1.8 U	1.9 U	1.3 U
Iodomethane	1.2 U	1.2 U	1.3 U	0.88 U
Isobutyl alcohol	83 U	82 U	89 U	61 U
Methacrylonitrile	29 U	29 U	31 U	21 U
Methyl methacrylate	4.5 U	4.4 U	4.8 U	3.2 U
Methylene Chloride	1.2 U	1.2 U	1.3 U	0.88 U
Pentachloroethane	2.7 R	2.6 R	2.8 R	1.9 R
Propionitrile	25 U	25 U	27 U	18 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB15	78SB15	78SB16	78SB16
	Sample ID	78SB15-01	78SB15-03	78SB16-01	78SB16-03
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008
	Depth Range	1.0-3.0	5.0-7.0	1.0-3.0	5.0-7.0
Volatile Organic Compounds (ug/kg)					
Styrene		0.8 U	0.79 U	0.85 U	0.58 U
Tetrachloroethene		0.88 U	0.87 U	0.95 U	0.64 U
Toluene		0.95 U	0.94 U	1 U	0.69 U
trans-1,2-Dichloroethene		1.2 U	1.2 U	1.3 U	0.85 U
trans-1,3-Dichloropropene		1 U	1 U	1.1 U	0.76 U
trans-1,4-Dichloro-2-butene		3.7 U	3.7 U	4 U	2.7 U
Trichloroethene		1.2 U	1.2 U	1.3 U	0.88 U
Trichlorofluoromethane		1.8 U	1.8 U	1.9 U	1.3 U
Vinyl acetate		1.8 U	1.8 U	1.9 U	1.3 U
Vinyl chloride		0.7 U	0.69 U	0.75 U	0.51 U
Xylenes, Total		2.8 U	2.7 U	3 U	2 U
Semivolatile Organic Compounds (ug/kg)					
1,1'-Biphenyl		8.5 U	7.7 U	8.2 U	8 U
1,2,4,5-Tetrachlorobenzene		7.3 U	6.6 U	7 U	6.8 U
1,2,4-Trichlorobenzene		8.5 U	7.7 U	8.2 U	8 U
1,2-Dichlorobenzene		8.1 U	7.3 U	7.8 U	7.5 U
1,3,5-Trinitrobenzene		20 U	18 U	19 U	18 U
1,3-Dichlorobenzene		6.9 U	6.3 U	6.7 U	6.5 U
1,3-Dinitrobenzene		4.5 U	4.1 U	4.3 U	4.2 U
1,4-Dichlorobenzene		7.1 U	6.5 U	6.9 U	6.7 U
1,4-Dioxane		9.2 U	8.4 U	8.9 U	8.6 U
1,4-Naphthoquinone		4.5 U	4.1 U	4.3 U	4.2 U
2,2'-oxybis[1-chloropropane]		7.3 U	6.6 U	7 U	6.8 U
2,3,4,6-Tetrachlorophenol		4.8 UJ	4.4 U	4.7 U	4.5 U
2,4,5-Trichlorophenol		7.8 UJ	7.1 U	7.5 U	7.3 U
2,4,6-Trichlorophenol		9.1 UJ	8.3 U	8.8 U	8.5 U
2,4-Dichlorophenol		9.3 UJ	8.5 U	9 U	8.7 U
2,4-Dimethylphenol		20 UJ	18 U	19 U	18 U
2,4-Dinitrophenol		96 UJ	87 UJ	92 UJ	89 UJ
2,4-Dinitrotoluene		6.8 U	6.2 U	6.5 U	6.3 U
2,6-Dichlorophenol		7.4 UJ	6.7 U	7.1 U	6.9 U
2,6-Dinitrotoluene		7.1 U	6.5 U	6.9 U	6.7 U
2-Acetylaminofluorene		5.9 U	5.3 U	5.7 U	5.5 U
2-Chloronaphthalene		7.1 U	6.5 U	6.9 U	6.7 U
2-Chlorophenol		7.6 UJ	6.9 U	7.3 U	7.1 U
2-Methylnaphthalene		2 U	1.8 U	1.9 U	1.8 U
2-Methylphenol		9.3 UJ	8.5 U	9 U	8.7 U
2-Naphthylamine		23 UJ	21 UJ	22 UJ	22 UJ
2-Nitroaniline		7.5 U	6.8 U	7.2 U	7 U
2-Nitrophenol		8.4 UJ	7.6 U	8.1 U	7.9 U
2-Picoline		14 U	13 U	13 U	13 U
2-Toluidine		11 U	9.7 U	10 U	10 U
3 & 4 Methylphenol		8.4 UJ	7.6 U	8.1 U	7.9 U
3,3'-Dichlorobenzidine		11 UJ	9.6 UJ	10 UJ	9.9 UJ
3,3'-Dimethylbenzidine		210 UJ	190 UJ	200 U	190 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB15	78SB15	78SB16	78SB16
	Sample ID	78SB15-01	78SB15-03	78SB16-01	78SB16-03
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008
	Depth Range	1.0-3.0	5.0-7.0	1.0-3.0	5.0-7.0
Semivolatile Organic Compounds (ug/kg)					
3-Methylcholanthrene		7 UJ	6.4 UJ	6.8 U	6.6 U
3-Nitroaniline		5.2 U	4.7 U	5 U	4.8 U
4,6-Dinitro-2-methylphenol		6.7 UJ	6.1 U	6.4 U	6.2 U
4-Aminobiphenyl		15 UJ	14 UJ	14 U	14 U
4-Bromophenyl phenyl ether		8.2 U	7.4 U	7.9 U	7.6 U
4-Chloro-3-methylphenol		8.6 UJ	7.8 U	8.3 U	8.1 U
4-Chloroaniline		6.9 U	6.3 U	6.7 U	6.5 U
4-Chlorophenyl phenyl ether		7.1 U	6.5 U	6.9 U	6.7 U
4-Nitroaniline		8.9 U	8 U	8.5 U	8.3 U
4-Nitrophenol		38 UJ	34 U	37 U	36 U
4-Nitroquinoline-1-oxide		13 R	11 R	12 R	12 R
7,12-Dimethylbenz(a)anthracene		11 U	9.7 U	10 U	10 U
Acenaphthene		0.66 U	0.6 U	0.63 U	0.61 U
Acenaphthylene		2 U	1.8 U	1.9 U	1.8 U
Acetophenone		9.9 U	9 U	9.5 U	9.3 U
alpha,alpha-Dimethyl phenethylamine		68 U	62 U	65 UJ	63 UJ
Aniline		7.3 U	6.6 U	7 U	6.8 U
Anthracene		2 U	1.8 U	1.9 U	1.8 U
Aramite, Total		13 U	11 U	12 U	12 U
Benzo[a]anthracene		2 U	1.8 U	1.9 U	1.8 U
Benzo[a]pyrene		0.76 U	0.69 U	0.73 U	0.71 U
Benzo[b]fluoranthene		0.88 U	0.79 U	0.84 U	0.82 U
Benzo[g,h,i]perylene		2 U	1.8 U	1.9 U	1.8 U
Benzo[k]fluoranthene		1.2 U	1 U	1.1 U	1.1 U
Benzyl alcohol		9.2 UJ	8.4 U	8.9 U	8.6 U
Bis(2-chloroethoxy)methane		7.8 U	7.1 U	7.5 U	7.3 U
Bis(2-chloroethyl)ether		6.6 U	6 U	6.3 U	6.1 U
Bis(2-ethylhexyl) phthalate		12 U	9 U	14 U	12 U
Butyl benzyl phthalate		8.3 U	7.5 U	8 U	7.7 U
Chrysene		0.7 U	0.64 U	0.68 U	0.66 U
Diallate		11 U	10 U	11 U	10 U
Dibenz(a,h)anthracene		0.68 U	0.62 U	0.65 U	0.63 U
Dibenzofuran		4.8 U	4.4 U	4.7 U	4.5 U
Diethyl phthalate		13 U	11 U	12 U	12 U
Dimethyl phthalate		7.4 U	6.7 U	7.1 U	6.9 U
Di-n-butyl phthalate		56 U	76 U	28 U	27 U
Di-n-octyl phthalate		3.8 U	3.4 U	3.7 U	3.6 U
Dinoseb		20 UJ	18 UJ	19 U	18 U
Ethyl methanesulfonate		13 U	11 U	12 U	12 U
Fluoranthene		2 U	1.8 U	1.9 U	1.8 U
Fluorene		0.89 U	0.8 U	0.85 U	0.83 U
Hexachlorobenzene		7.8 U	7.1 U	7.5 U	7.3 U
Hexachlorobutadiene		10 U	9.5 U	10 U	9.8 U
Hexachlorocyclopentadiene		16 U	15 U	16 U	15 U
Hexachloroethane		8.5 U	7.7 U	8.2 U	8 U

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB15	78SB15	78SB16	78SB16
	Sample ID	78SB15-01	78SB15-03	78SB16-01	78SB16-03
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008
	Depth Range	1.0-3.0	5.0-7.0	1.0-3.0	5.0-7.0
Semivolatile Organic Compounds (ug/kg)					
Hexachlorophene		960 R	870 R	920 R	890 R
Hexachloropropene		8.3 U	7.5 U	8 U	7.7 U
Indeno[1,2,3-cd]pyrene		1.4 UJ	1.3 UJ	1.3 U	1.3 U
Isophorone		7.1 UJ	6.5 UJ	6.9 U	6.7 U
Isosafrole		8.2 U	7.4 U	7.9 U	7.6 U
Methapyrilene		11 U	9.7 U	10 U	10 U
Methyl methanesulfonate		11 U	9.7 U	10 U	10 U
Naphthalene		0.69 U	0.63 U	0.67 U	0.65 U
Nitrobenzene		8 U	7.2 U	7.7 U	7.4 U
N-Nitro-o-toluidine		6.9 U	6.3 U	6.7 U	6.5 U
N-Nitrosodiethylamine		14 U	13 U	13 U	13 U
N-Nitrosodimethylamine		11 U	10 U	11 U	11 U
N-Nitrosodi-n-butylamine		10 U	9.5 U	10 U	9.8 U
N-Nitrosodi-n-propylamine		7.5 U	6.8 U	7.2 U	7 U
N-Nitrosodiphenylamine		8.2 U	7.4 U	7.9 U	7.6 U
N-Nitrosomethylethylamine		6.6 U	6 U	6.3 U	6.1 U
N-Nitrosomorpholine		7.6 U	6.9 U	7.3 U	7.1 U
N-Nitrosopiperidine		9.8 U	8.9 U	9.4 U	9.1 U
N-Nitrosopyrrolidine		10 U	9.3 U	9.9 U	9.6 U
p-Dimethylamino azobenzene		8.2 U	7.4 U	7.9 U	7.6 U
Pentachlorobenzene		7.1 U	6.5 U	6.9 U	6.7 U
Pentachloronitrobenzene		6.8 U	6.2 U	6.5 U	6.3 U
Pentachlorophenol		9.6 UJ	8.7 UJ	9.2 U	8.9 U
Phenacetin		5.4 U	4.9 U	5.2 U	5.1 U
Phenanthrene		2 U	1.8 U	1.9 U	1.8 U
Phenol		5.5 U	5 U	5.3 U	5.2 U
p-Phenylene diamine		180 U	170 U	180 U	170 U
Pronamide		10 U	9.4 U	10 U	9.7 U
Pyrene		2 U	1.8 U	1.9 U	1.8 U
Pyridine		13 U	11 U	12 U	12 U
Safrole, Total		9.6 U	8.7 U	9.2 U	8.9 U
PCBs (ug/kg)					
PCB-1016		4.4 U	4 U	4.2 U	4.1 U
PCB-1221		15 U	14 U	14 U	14 U
PCB-1232		8.7 U	7.9 U	8.3 U	8.1 U
PCB-1242		5.6 U	5 U	5.3 U	5.2 U
PCB-1248		5.9 U	5.4 U	5.7 U	5.5 U
PCB-1254		2.7 U	2.4 U	2.6 U	2.5 U
PCB-1260		5.6 U	5 U	5.3 U	5.2 U

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**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

	Site ID	78SB15	78SB15	78SB16	78SB16
	Sample ID	78SB15-01	78SB15-03	78SB16-01	78SB16-03
	Date	5/30/2008	5/30/2008	5/30/2008	5/30/2008
	Depth Range	1.0-3.0	5.0-7.0	1.0-3.0	5.0-7.0
Metals (mg/kg)					
Antimony		0.082 UJ	0.073 UJ	0.11 UJ	0.075 UJ
Arsenic		0.52 U	0.54	1.4	0.73
Barium		20	43	69	24
Beryllium		0.047 J	0.051 J	0.25	0.078 J
Cadmium		0.15	0.16	0.33	0.032 U
Chromium		21 J	26 J	19 J	16 J
Cobalt		18	20	25	20
Copper		72	110	110	76
Lead		0.29 U	0.29 U	4.7	0.5
Mercury		0.0042 U	0.0042 U	0.0039 U	0.0039 U
Nickel		19	19	19	17
Selenium		0.13 U	0.12 U	0.12 U	0.12 U
Silver		0.049 J	0.033 J	0.059 J	0.071 J
Thallium		0.13 U	0.12 U	0.12 U	0.12 U
Tin		4.4 U	3.9 U	4 U	4 U
Vanadium		110	160	150	180
Zinc		34 J	34 J	37 J	27 J
TPH DRO and GRO (mg/kg)					
Diesel Range Organics [C10-C28]		1.7	1	7.7	3.8
Gasoline Range Organics (GRO)-C6-C10		0.099 J	0.084 U	0.069 U	0.074 U

QUALITY ASSURANCE/QUALITY CONTROL

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	QATB01	78TB01	78TB02	ER22	ER24	FB01
Date	5/2/2008	5/29/2008	5/29/2008	5/29/2008	5/31/2008	5/2/2008
Volatile Organic Compounds (ug/kg)						
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 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
1,2-Dichloroethane	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
2-Butanone (MEK)	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
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 UJ	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
Acetone	5 U	5 UJ	5 U	5 U	6.6 J	5 U
Acetonitrile	15 U	15 U	15 U	15 U	15 U	15 U
Acrolein	18 U	18 UJ	18 UJ	18 UJ	18 UJ	18 U
Acrylonitrile	3.8 U	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	1.2	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 U	0.5 U	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
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 UJ	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 UJ	0.28 UJ	0.28 UJ	0.28 U	0.28 UJ
cis-1,3-Dichloropropene	0.37 U	0.37 U	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	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 UJ	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	0.3 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
Iodomethane	1 U	1 U	1 U	1 U	1 U	1 U
Isobutyl alcohol	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
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 UJ	1.3 R	1.3 R	1.3 R	1.3 R	1.3 UJ
Propionitrile	9.2 U	9.2 UJ	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	0.38 J	0.36 U
Tetrachloroethene	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 SAMPLES
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	QATB01	78TB01	78TB02	ER22	ER24	FB01
Date	5/2/2008	5/29/2008	5/29/2008	5/29/2008	5/31/2008	5/2/2008
Volatile Organic Compounds (ug/kg)						
Toluene	0.31 U	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
trans-1,3-Dichloropropene	0.27 U	0.27 U	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	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 UJ	0.29 UJ	0.29 U	0.29 U
Vinyl acetate	0.62 UJ	0.62 U	0.62 U	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
Xylenes, Total	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
Semivolatile Organic Compounds (ug/kg)						
1,1'-Biphenyl	NA	NA	NA	0.17 U	0.17 UJ	0.17 UJ
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	0.23 U	0.23 UJ	0.23 UJ
1,2,4-Trichlorobenzene	NA	NA	NA	0.13 U	0.13 UJ	0.13 UJ
1,2-Dichlorobenzene	NA	NA	NA	0.13 U	0.13 UJ	0.13 UJ
1,3,5-Trinitrobenzene	NA	NA	NA	0.2 U	0.2 UJ	0.2 UJ
1,3-Dichlorobenzene	NA	NA	NA	0.12 U	0.12 UJ	0.12 UJ
1,3-Dinitrobenzene	NA	NA	NA	0.22 U	0.22 UJ	0.22 UJ
1,4-Dichlorobenzene	NA	NA	NA	0.12 U	0.12 UJ	0.16 J
1,4-Dioxane	NA	NA	NA	0.49 U	0.49 UJ	0.49 UJ
1,4-Naphthoquinone	NA	NA	NA	0.16 U	0.16 UJ	0.16 UJ
2,2'-oxybis[1-chloropropane]	NA	NA	NA	0.097 U	0.097 UJ	0.097 UJ
2,3,4,6-Tetrachlorophenol	NA	NA	NA	0.29 U	0.29 UJ	0.29 UJ
2,4,5-Trichlorophenol	NA	NA	NA	0.16 U	0.16 UJ	0.16 UJ
2,4,6-Trichlorophenol	NA	NA	NA	0.16 U	0.16 UJ	0.16 UJ
2,4-Dichlorophenol	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ
2,4-Dimethylphenol	NA	NA	NA	0.4 U	0.4 UJ	0.4 UJ
2,4-Dinitrophenol	NA	NA	NA	2.4 UJ	2.4 UJ	2.4 UJ
2,4-Dinitrotoluene	NA	NA	NA	0.17 U	0.17 UJ	0.17 UJ
2,6-Dichlorophenol	NA	NA	NA	0.21 U	0.21 UJ	0.21 UJ
2,6-Dinitrotoluene	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ
2-Acetylaminofluorene	NA	NA	NA	0.19 U	0.19 UJ	0.19 UJ
2-Chloronaphthalene	NA	NA	NA	0.12 U	0.12 UJ	0.12 UJ
2-Chlorophenol	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ
2-Methylnaphthalene	NA	NA	NA	0.022 U	0.032 J	0.022 UJ
2-Methylphenol	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ
2-Naphthylamine	NA	NA	NA	1.1 UJ	1.1 UJ	1.1 UJ
2-Nitroaniline	NA	NA	NA	0.14 U	0.14 UJ	0.14 UJ
2-Nitrophenol	NA	NA	NA	0.17 U	0.17 UJ	0.17 UJ
2-Picoline	NA	NA	NA	0.57 U	0.57 UJ	0.57 UJ
2-Toluidine	NA	NA	NA	0.32 U	0.32 UJ	0.32 UJ
3 & 4 Methylphenol	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ
3,3'-Dichlorobenzidine	NA	NA	NA	3.7 UJ	3.7 UJ	3.7 UJ
3,3'-Dimethylbenzidine	NA	NA	NA	3.7 U	3.7 UJ	3.7 UJ
3-Methylcholanthrene	NA	NA	NA	0.2 U	0.2 UJ	0.2 UJ
3-Nitroaniline	NA	NA	NA	0.28 UJ	0.28 UJ	0.28 UJ
4,6-Dinitro-2-methylphenol	NA	NA	NA	0.49 U	0.49 UJ	0.49 UJ

APPENDIX B

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SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	QATB01	78TB01	78TB02	ER22	ER24	FB01
Date	5/2/2008	5/29/2008	5/29/2008	5/29/2008	5/31/2008	5/2/2008
Semivolatile Organic Compounds (ug/kg)						
4-Aminobiphenyl	NA	NA	NA	0.68 U	0.68 UJ	0.68 UJ
4-Bromophenyl phenyl ether	NA	NA	NA	0.16 U	0.16 UJ	0.16 UJ
4-Chloro-3-methylphenol	NA	NA	NA	0.16 U	0.16 UJ	0.16 UJ
4-Chloroaniline	NA	NA	NA	0.4 U	0.4 UJ	0.4 UJ
4-Chlorophenyl phenyl ether	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ
4-Nitroaniline	NA	NA	NA	0.26 UJ	0.26 UJ	0.26 UJ
4-Nitrophenol	NA	NA	NA	0.18 U	0.18 UJ	0.18 UJ
4-Nitroquinoline-1-oxide	NA	NA	NA	0.26 R	0.26 R	0.26 R
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	0.2 U	0.2 UJ	0.2 UJ
Acenaphthene	NA	NA	NA	0.019 U	0.019 UJ	0.019 UJ
Acenaphthylene	NA	NA	NA	0.049 U	0.049 UJ	0.049 UJ
Acetophenone	NA	NA	NA	0.31 J	0.49 J	0.38 J
alpha,alpha-Dimethyl phenethylamine	NA	NA	NA	1.3 U	1.3 UJ	1.3 UJ
Aniline	NA	NA	NA	0.4 UJ	0.4 UJ	0.4 UJ
Anthracene	NA	NA	NA	0.021 U	0.021 UJ	0.021 UJ
Aramite, Total	NA	NA	NA	0.49 U	0.49 UJ	0.49 UJ
Benzo[a]anthracene	NA	NA	NA	0.025 U	0.025 UJ	0.025 UJ
Benzo[a]pyrene	NA	NA	NA	0.024 U	0.024 UJ	0.024 UJ
Benzo[b]fluoranthene	NA	NA	NA	0.036 U	0.036 UJ	0.036 UJ
Benzo[g,h,i]perylene	NA	NA	NA	0.023 UJ	0.023 UJ	0.023 UJ
Benzo[k]fluoranthene	NA	NA	NA	0.019 U	0.019 UJ	0.019 UJ
Benzyl alcohol	NA	NA	NA	0.16 U	0.16 UJ	0.16 UJ
Bis(2-chloroethoxy)methane	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ
Bis(2-chloroethyl)ether	NA	NA	NA	0.14 U	0.14 UJ	0.14 UJ
Bis(2-ethylhexyl) phthalate	NA	NA	NA	0.34 U	0.43 J	0.34 UJ
Butyl benzyl phthalate	NA	NA	NA	0.42 J	0.17 UJ	0.17 UJ
Chrysene	NA	NA	NA	0.027 U	0.027 UJ	0.027 UJ
Diallate	NA	NA	NA	0.19 U	0.19 UJ	0.19 UJ
Dibenz(a,h)anthracene	NA	NA	NA	0.023 U	0.023 UJ	0.023 UJ
Dibenzofuran	NA	NA	NA	0.097 U	0.097 UJ	0.097 UJ
Diethyl phthalate	NA	NA	NA	0.18 U	0.2 J	0.33 J
Dimethyl phthalate	NA	NA	NA	0.17 U	0.17 UJ	0.17 UJ
Di-n-butyl phthalate	NA	NA	NA	0.63 J	0.62 J	1.2 J
Di-n-octyl phthalate	NA	NA	NA	0.097 U	0.097 UJ	0.097 UJ
Dinoseb	NA	NA	NA	0.49 U	0.49 UJ	0.49 UJ
Ethyl methanesulfonate	NA	NA	NA	0.23 U	0.23 UJ	0.23 UJ
Fluoranthene	NA	NA	NA	0.049 U	0.049 UJ	0.049 UJ
Fluorene	NA	NA	NA	0.018 U	0.018 UJ	0.018 UJ
Hexachlorobenzene	NA	NA	NA	0.16 U	0.16 UJ	0.16 UJ
Hexachlorobutadiene	NA	NA	NA	0.13 U	0.13 UJ	0.13 UJ
Hexachlorocyclopentadiene	NA	NA	NA	0.49 U	0.49 UJ	0.49 UJ
Hexachloroethane	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ
Hexachlorophene	NA	NA	NA	49 R	49 UJ	49 R
Hexachloropropene	NA	NA	NA	0.12 U	0.12 UJ	0.12 UJ
Indeno[1,2,3-cd]pyrene	NA	NA	NA	0.022 U	0.022 UJ	0.022 UJ
Isophorone	NA	NA	NA	0.15 U	0.15 UJ	0.15 UJ

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	QATB01	78TB01	78TB02	ER22	ER24	FB01
Date	5/2/2008	5/29/2008	5/29/2008	5/29/2008	5/31/2008	5/2/2008
Semivolatile Organic Compounds (ug/kg)						
Isosafrole	NA	NA	NA	0.3 U	0.3 UJ	0.3 UJ
Methapyrilene	NA	NA	NA	0.26 U	0.26 UJ	0.26 UJ
Methyl methanesulfonate	NA	NA	NA	0.46 U	0.46 UJ	0.46 UJ
Naphthalene	NA	NA	NA	0.049 U	0.65 J	0.049 UJ
Nitrobenzene	NA	NA	NA	0.14 U	0.14 UJ	0.14 UJ
N-Nitro-o-toluidine	NA	NA	NA	0.24 U	0.24 UJ	0.24 UJ
N-Nitrosodiethylamine	NA	NA	NA	0.32 U	0.32 UJ	0.32 UJ
N-Nitrosodimethylamine	NA	NA	NA	0.19 U	0.19 UJ	0.19 UJ
N-Nitrosodi-n-butylamine	NA	NA	NA	0.18 U	0.18 UJ	0.18 UJ
N-Nitrosodi-n-propylamine	NA	NA	NA	0.13 U	0.13 UJ	0.13 UJ
N-Nitrosodiphenylamine	NA	NA	NA	0.17 U	0.17 UJ	0.17 UJ
N-Nitrosomethylethylamine	NA	NA	NA	0.28 U	0.28 UJ	0.28 UJ
N-Nitrosomorpholine	NA	NA	NA	0.19 U	0.19 UJ	0.19 UJ
N-Nitrosopiperidine	NA	NA	NA	0.22 U	0.22 UJ	0.22 UJ
N-Nitrosopyrrolidine	NA	NA	NA	0.25 U	0.25 UJ	0.25 UJ
p-Dimethylamino azobenzene	NA	NA	NA	0.6 U	0.6 UJ	0.6 UJ
Pentachlorobenzene	NA	NA	NA	0.27 U	0.27 UJ	0.27 UJ
Pentachloronitrobenzene	NA	NA	NA	0.3 U	0.3 R	0.3 UJ
Pentachlorophenol	NA	NA	NA	0.18 U	0.18 UJ	0.18 UJ
Phenacetin	NA	NA	NA	0.2 U	0.2 UJ	0.2 UJ
Phenanthrene	NA	NA	NA	0.017 U	0.017 UJ	0.017 UJ
Phenol	NA	NA	NA	0.14 U	0.14 UJ	0.14 UJ
p-Phenylene diamine	NA	NA	NA	2.4 U	2.4 UJ	2.4 UJ
Pronamide	NA	NA	NA	0.25 U	0.25 UJ	0.25 UJ
Pyrene	NA	NA	NA	0.026 U	0.026 UJ	0.026 UJ
Pyridine	NA	NA	NA	0.22 UJ	0.22 UJ	0.22 UJ
Safrole, Total	NA	NA	NA	0.23 U	0.23 UJ	0.23 UJ
Pesticides/PCBs (ug/kg)						
4,4'-DDD	NA	NA	NA	0.006 U	0.0057 UJ	NA
4,4'-DDE	NA	NA	NA	0.01 U	0.0095 UJ	NA
4,4'-DDT	NA	NA	NA	0.015 U	0.015 UJ	NA
Aldrin	NA	NA	NA	0.006 U	0.0058 UJ	NA
alpha-BHC	NA	NA	NA	0.008 U	0.0079 UJ	NA
beta-BHC	NA	NA	NA	0.008 U	0.008 UJ	NA
Chlordane (technical)	NA	NA	NA	0.049 U	0.048 UJ	NA
Chlorobenzilate	NA	NA	NA	0.14 U	0.14 UJ	NA
delta-BHC	NA	NA	NA	0.007 U	0.0067 UJ	NA
Dieldrin	NA	NA	NA	0.008 U	0.0076 UJ	NA
Endosulfan I	NA	NA	NA	0.006 U	0.0053 UJ	NA
Endosulfan II	NA	NA	NA	0.005 U	0.0049 UJ	NA
Endosulfan sulfate	NA	NA	NA	0.007 U	0.0068 UJ	NA
Endrin	NA	NA	NA	0.008 U	0.0076 UJ	NA
Endrin aldehyde	NA	NA	NA	0.009 U	0.0087 UJ	NA
Endrin ketone	NA	NA	NA	0.009 U	0.0088 UJ	NA
gamma-BHC (Lindane)	NA	NA	NA	0.006 U	0.0057 UJ	NA
Heptachlor	NA	NA	NA	0.005 U	0.0044 UJ	NA

APPENDIX B

**SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES
SWMU 78 - POLE YARD
PHASE I RFI REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID	QATB01	78TB01	78TB02	ER22	ER24	FB01
Date	5/2/2008	5/29/2008	5/29/2008	5/29/2008	5/31/2008	5/2/2008
Pesticides/PCBs (ug/kg)						
Heptachlor epoxide	NA	NA	NA	0.007 U	0.0068 UJ	NA
Isodrin	NA	NA	NA	0.01 U	0.0096 UJ	NA
Kepone	NA	NA	NA	0.05 U	0.049 UJ	NA
Methoxychlor	NA	NA	NA	0.023 U	0.022 UJ	NA
Toxaphene	NA	NA	NA	1.3 U	1.3 UJ	NA
PCB-1016	NA	NA	NA	0.097 U	0.094 UJ	NA
PCB-1221	NA	NA	NA	0.4 U	0.39 UJ	NA
PCB-1232	NA	NA	NA	0.083 U	0.081 UJ	NA
PCB-1242	NA	NA	NA	0.096 U	0.093 UJ	NA
PCB-1248	NA	NA	NA	0.083 U	0.081 UJ	NA
PCB-1254	NA	NA	NA	0.091 U	0.088 UJ	NA
PCB-1260	NA	NA	NA	0.1 U	0.097 UJ	NA
Metals (mg/kg)						
Antimony	NA	NA	NA	0.36 U	0.36 U	0.36 UJ
Arsenic	NA	NA	NA	0.48 J	0.52 J	0.28 UJ
Barium	NA	NA	NA	2 U	2 U	2 UJ
Beryllium	NA	NA	NA	0.065 U	0.065 U	0.065 UJ
Cadmium	NA	NA	NA	0.12 U	0.12 U	0.12 UJ
Chromium	NA	NA	NA	0.6 U	0.6 U	0.6 UJ
Cobalt	NA	NA	NA	0.029 U	0.029 U	0.029 UJ
Copper	NA	NA	NA	1.2 U	1.2 U	2.1 J
Lead	NA	NA	NA	0.15 U	0.15 U	0.38 J
Mercury	NA	NA	NA	0.08 U	0.08 U	0.08 UJ
Nickel	NA	NA	NA	0.32 U	0.32 U	0.32 UJ
Selenium	NA	NA	NA	0.6 U	0.6 U	0.6 UJ
Silver	NA	NA	NA	0.09 U	0.09 UJ	0.09 UJ
Thallium	NA	NA	NA	0.55 U	0.55 U	0.55 UJ
Tin	NA	NA	NA	0.9 U	1.6 J	0.9 UJ
Vanadium	NA	NA	NA	1.3 J	0.8 U	0.8 UJ
Zinc	NA	NA	NA	6.5 U	6.5 U	6.5 UJ
TPH DRO and GRO (mg/kg)						
Diesel Range Organics [C10-C28]	NA	NA	NA	0.028 U	0.028 J	0.028 UJ
Gasoline Range Organics (GRO)-C6-C1	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U

IDW ANALYTICAL RESULTS

**SUMMARY OF ANALYTICAL RESULTS - IDW (WATER)
SWMU 78 - POLE YARD
PHASE I RCRA FACILITY INVESTIGATION 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

**SUMMARY OF ANALYTICAL RESULTS - IDW (WATER)
SWMU 78 - POLE YARD
PHASE I RCRA FACILITY INVESTIGATION REPORT
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

Sample ID 74IDW02
Sampling Date 6/5/2008

GC/MS VOA - 8260B (ug/L)

trans-1,3-Dichloropropene	0.27 U
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 JB
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 JB
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

Notes:

- U - Undetected at the Limit of Detection
- J - Estimated: The analyte was positively identified; the quantitation is an estimation
- JB - The analyte was positively detected as estimated, the analyte was also detected in an associated blank
- H - Sample was prepped or analyzed beyond the specific holding time
- B - Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank

APPENDIX C
PHASE I RFI DATA VALIDATION SUMMARIES

TEST AMERICA SDG SWMU36419-4

DataQual

Environmental Services, LLC

Michael Baker, Jr., Inc.
Airside Business Park
100 Airside Drive
Moon Township, PA 15108

July 29, 2008
SDG# SWMU36419-4, 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 # 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 #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	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
FB01	680-36419-42	water	X	X	X		X
FB02	680-36419-43	water	X	X	X		X
QATB01	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/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. 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 (J/UJ).

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.

Michael Baker, Jr., Inc.
NAPR Puerto Rico
SDG# SWMU36419-4

Page 2

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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/UJ.

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/UJ.

The associated ICSA/ICSAB 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/UJ).

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/UJ).

DRO/GRO

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/UJ.

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/UJ.

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 05/08/08	pentachloroethane vinyl acetate	67.2% 30.1%	ER01, ER02, ER03, ER04, ER05	J/UJ
CC 05/09/08	pentachloroethane vinyl acetate	67.6% 28.9%	FB02, QATB01	J/UJ
CC 05/11/08	pentachloroethane chloromethane bromomethane vinyl acetate	80.9% 24.1% 24.3% 25.0%	FB01	J/UJ

SVOA

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 05/01/08	hexachlorophene	0.0466	ER01, ER02, ER03, ER05, FB01, FB02	J/R
CC 05/13/08	4-nitroquinoline-1-oxide	0.03507	ER01	J/R
	hexachlorophene	0.03126		J/UJ
	n-nitrosomorpholine	23.2%		
	hexachloropropene	32.6%		
	n-nitroso-di-n-butylamine	28.6%		
	methapyrilene	32.7%		
	3,3-dimethylbenzidine	45.6%		
	aramite, total	38.7%		
CC 05/14/08	4-nitroquinoline-1-oxide	0.03234	ER02, ER03, ER05, FB01, FB02	J/R
	hexachlorophene	0.04782		J/UJ
	4-nitrophenol	23.4%		
	2,4-dinitrotoluene	21.9%		
	4,6-dinitro-2-methylphenol	42.7%		
	dibenz(a,h)anthracene	23.8%		
	benzo(g,h,i)perylene	23.3%		
	n-nitrosomorpholine	24.0%		
	hexachloropropene	32.5%		
	n-nitroso-di-n-butylamine	29.0%		
	methapyrilene	29.1%		
aramite, total	33.3%			
IC 05/28/08	4-nitroquinoline-1-oxide	0.0276	ER04RE	J/R
CC 05/29/08	4-nitroquinoline-1-oxide	0.02872	ER04RE	J/R
	hexachlorophene	0.04644		J/UJ
	3-nitroaniline	20.1%		
	4-nitrophenol	20.5%		
	4-nitroaniline, 3,3-dimethylbenzidine	29.0% 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/UJ 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/UJ).

Sample ER04RE exhibited an extremely low recovery for internal standard perylene-d12; therefore all associated compounds positive results were qualified as estimated (J) 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 (J/UJ) 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 (J/UJ) 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

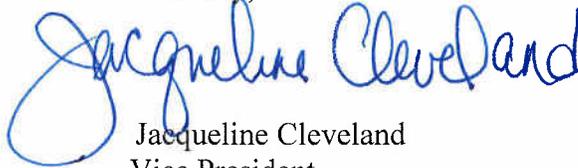
All samples were re-extracted out of holding time due to non-compliant LCS recoveries. The re-extracted samples were not used, except for sample ER04RE, due to exceeded holding times.

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 ER04RERA 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	pentachloroethane vinyl acetate	+/-	J/UJ
FB02, QATB01	pentachloroethane vinyl acetate	+/-	J/UJ
FB01	pentachloroethane chloromethane bromomethane vinyl acetate	+/-	J/UJ
FB02RA	all results	+/-	R

SVOA

Sample ID	Compound	Results	Q flag
ER04RE	all results	+/-	J/UJ
all samples	all results	+/-	J/UJ
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/UJ
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/UJ
ER04RE	4-nitroquinoline-1-oxide	+/-	J/R
ER04RE	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
ER04RE	3-nitroaniline 4-nitrophenol 4-nitroaniline, 3,3-dimethylbenzidine	+/-	J/UJ

Michael Baker, Jr., Inc.
NAPR Puerto Rico
SDG# SWMU36419-4

Summary of Data Qualifications, continued

SVOA

ER05	all compounds associated with: perylene-d12	+/-	J/UJ
ER04RE	all compounds associated with: perylene-d12	+/-	J/R
ER01, ER02, ER03, ER05, FB01, FB02	hexachlorocyclopentadiene	+/-	J/UJ
ER01RE, ER02RE, ER03RE, ER05RE, FB01RE, FB02RE	all results	+/-	R
ER04, ER04RERA	all results	+/-	R

DRO/GRO

Sample ID	Compound	Results	Q flag
FB01, FB02	DRO	+/-	J/UJ

Metals

Sample ID	Analyte	Results	Q flag
all samples	all analytes	+/-	J/UJ
all samples	cadmium silver	+/-	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 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 SDG SWMU37178-3

DataQual

Environmental Services, LLC

Michael Baker, Jr., Inc.
 Airside Business Park
 100 Airside Drive
 Moon Township, PA 15108

September 22, 2008
 SDG# SWMU37178-3, Test America-Savannah
 NAPR SWMU 78, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37178-3. 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, 8270D-Rev 3, October 2006-SOP #HW-22, and 8082A, October 2006-SOP # HW-45, Rev 1), 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	SVOA App IX	PCBs	DRO/GRO	GRO	Metals
78SB10-00	680-37178-19	water	X	X	X	X		X
78SB10-01	680-37178-20	water	X	X	X	X		X
78SB10-02	680-37178-21	water	X	X	X	X		X
78SB11-00	680-37178-22	water	X	X	X	X		X
78SB11-03	680-37178-23	water	X	X	X	X		X
78SB11-03D	680-37178-24	water	X	X	X	X		X
78SB11-05	680-37178-25	water	X	X	X	X		X
78TB-01	680-37178-26	water	X				X	
78SB11-03 MS	680-37178-23MS	water	X	X	X	X		X
78SB11-03 MSD	680-37178-23MSD	water	X	X	X	X		X

The following quality control sample was provided with this SDG: sample 78SB11-03D-field duplicate of sample 78SB11-03; and sample 78TB01-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 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.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

SVOA

The initial and 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.

Several samples exhibited non-compliant surrogate recoveries that resulted in qualifications.

The associated laboratory control sample exhibited low recoveries for four compound that required qualifications to the data.

The associated matrix spike and matrix spike duplicate exhibited below 10% recovery for one compound; results for this compound were qualified in the associated sample.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

PCBs

Three samples were qualified as estimated J/UJ due to low TCX surrogate recovery.

Several samples were re-extracted within holding time to verify surrogate recoveries. These RE samples were rejected R in favor of the original extraction analysis.

One sample result was qualified as estimated J due to a column quantitation %D greater than 25% but less than 70%.

DRO/GRO

No qualifications to the data were required.

Metals

The ICSAB 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 matrix spike pair submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD requiring qualification in the samples for the analyte antimony. All results for antimony in the metals samples were qualified as estimated J/UJ.

The field duplicate pair exhibited non-compliant RPDs for four analytes. These analytes were 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 & PCB 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 05/29/08 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
IC 05/07/08	isobutyl alcohol	0.0489	78TB01	J/R
CC 06/09/08	isobutyl alcohol	0.04323	78SB10-00, 78SB10-01, 78SB10-02, 78SB11-00, 78SB11-03, 78SB11-03D, 78SB11-05	J/R
	pentachloroethane	177.6%		J/UJ
	acetonitrile	25.0%		
	acrylonitrile	28.0%		
	propionitrile	27.9%		
	methacrylonitrile	21.0%		
	methyl methacrylate	23.4%		
	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-pentanone	46.0%			
CC 06/12/08	pentachloroethane	104.9%	78TB01	J/R
	dichlorodifluoromethane	21.5%		J/UJ
	chloromethane	31.9%		
	acetone	20.5%		
	acrolein	41.2%		
	3-chloro-1-propene	37.0%		
	propionitrile	25.5%		
	isobutyl alcohol	27.8%		

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 05/23/08	2,4-dinitrophenol	25.82%	all samples	J/UJ
IC 05/28/08	4-nitroquinoline-1-oxide	0.0276	all samples	J/R
CC 06/10/08	hexachlorophene	0.04142	78SB10-01,	J/R
	3,3-dimethylbenzidine	59.4%	78SB11-03,	J/UJ
	2,4-dinitrophenol	34.5%	78SB11-03D,	
	3,3'-dichlorobenzidine	32.0%	78SB11-05,	
	indeno(1,2,3-cd)pyrene	24.2%	78SB11-00	
CC 06/16/08	hexachlorophene	0.03887	78SB10-00RE,	J/R
	a,a-dimethylphenethylamine	22.4%	78SB10-02RE	J/UJ
	3,3'-dichlorobenzidine	44.1%		

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 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	toluene	0.96J ug/L	5 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
78SB11-00	toluene	U at reported value
78SB10-00, 78SB11-00, 78SB11-03	2-butanone	U at reported value

Michael Baker, Jr., Inc.
NAPR SWMU78, Puerto Rico
SDG# SWMU37178-3

SVOA

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	bis(2-ethylhexyl)phthalate	34 ug/Kg	33 ug/Kg	2X RL
Method Blank	di-n-butyl phthalate	56J ug/Kg	170 ug/Kg	2X RL
Method Blank	bis(2-ethylhexyl)phthalate	9.2J ug/Kg	33 ug/Kg	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
78SB10-01, 78SB11-03, 78SB11-03D, 78SB11-05, 78SB11-00, 78SB10-00RE, 78SB10-02RE	bis(2-ethylhexyl)phthalate	U at reported value
78SB11-03, 78SB11-00	di-n-butyl phthalate	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
ER22	arsenic	0.48J 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	arsenic	U

Surrogate Recoveries

SVOA

The following samples exhibited non-compliant surrogate recoveries and were qualified as indicated.

Sample ID	Non-compliant surrogate	% Rec	QC limits	Qualification
78SB10-01	2-fluorophenol	38%	41-110%	J/UJ acid fraction
	phenol-d5	39%	43-110%	
78SB11-00	2-fluorophenol	34%	41-110%	J/UJ all
	phenol-d5	35%	43-110%	
	nitrobenzene-d5	34%	36-110%	
	2-fluorobiphenyl	39%	44-110%	
78SB11-03	2-fluorophenol	38%	41-110%	J/UJ acid fraction
	phenol-d5	38%	43-110%	
78SB11-03D	2-fluorophenol	39%	41-110%	J/UJ acid fraction
	phenol-d5	39%	43-110%	
78SB11-05	2-fluorophenol	33%	41-110%	J/UJ all
	phenol-d5	33%	43-110%	
	nitrobenzene-d5	33%	36-110%	
	2-fluorobiphenyl	37%	44-110%	

PCBs

The following samples exhibited non-compliant surrogate recoveries and were qualified as indicated.

Sample ID	Non-compliant surrogate	% Rec	QC limits	Qualification
78SB11-03	tetrachloro-m-xylene	16%	26-140%	J/UJ
78SB11-03D	tetrachloro-m-xylene	14%	26-140%	J/UJ
78SB11-05	tetrachloro-m-xylene	22%	26-140%	J/UJ

Laboratory Control Samples

SVOA

The laboratory control sample, associated with the initial analysis of all samples, exhibited low recoveries for dibenz(a,h)anthracene at 35% (QC limit 36-115%), indeno(1,2,3-cd)pyrene at 24% (QC limit 35-126%), isophorone at 42% (QC limit 44-110%) and pentachlorophenol at 24% (QC limit 28-117%); therefore qualify all results for these compounds as estimated (J/UJ).

Matrix Spikes

SVOA

A matrix spike and matrix spike duplicate was submitted for sample 78SB11-03. The MS exhibited 6% recovery and the MSD exhibited 3% for 2,4-dinitrophenol; therefore this compound was qualified as estimated (J/UJ) in sample 78SB11-03.

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
78SB11-03	antimony	all samples	48/46	J/UJ

Field Duplicates

Metals

The field duplicate pair of samples 78SB11-03 and 78SB11-03D exhibited metals results that did not compare. The analytes barium (81%), cobalt (42%), copper (47%) and nickel (50%) exhibited a RPD that was $\geq 35\%$ but less than 120% and were qualified as estimated J in both samples.

Identification/Quantitation

SVOA

The following samples were not used in favor of the corresponding initial or re-extracted analysis due to non-compliant surrogate recoveries: 78SB10-00, 78SB10-01RE, 78SB10-02, 78SB11-00RE, 78SB11-03RE, 78SB1103DRE and 78SB11-05RE.

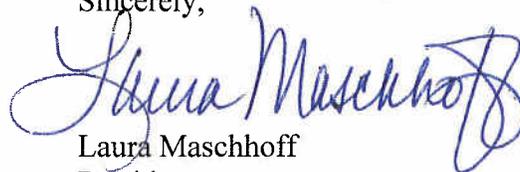
PCBs

The reported result for AR1260 in sample 78SB11-00 was qualified as estimated due to a column quantitation %D greater than 25% but less than 70%.

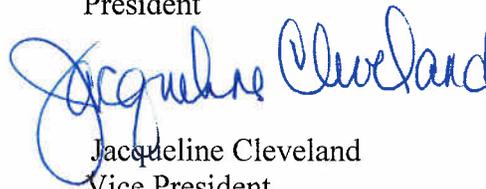
The following samples were not used in favor of the corresponding initial analysis: 78SB11-03RE, 78SB11-03DRE, and 78SB11-05RE.

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 SWMU78, Puerto Rico
SDG# SWMU37178-3

Summary of Data Qualifications

VOA

Sample ID	Compound	Results	Q flag
78TB01	isobutyl alcohol	+/-	J/R
78SB10-00, 78SB10-01, 78SB10-02, 78SB11-00, 78SB11-03, 78SB11-03D, 78SB11-05	isobutyl alcohol pentachloroethane	+/-	J/R
78SB10-00, 78SB10-01, 78SB10-02, 78SB11-00, 78SB11-03, 78SB11-03D, 78SB11-05	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/UJ
78TB01	pentachloroethane	+/-	J/R
78TB01	dichlorodifluoromethane chloromethane acetone acrolein 3-chloro-1-propene propionitrile isobutyl alcohol	+/-	J/UJ
78SB11-00	toluene	+	U at reported value
78SB10-00, 78SB11-00, 78SB11-03	2-butanone	+	U at reported value

SVOA

Sample ID	Compound	Results	Q flag
all samples	2,4-dinitrophenol	+/-	J/UJ
all samples	4-nitroquinoline-1-oxide	+/-	J/R
78SB10-01, 78SB11-03, 78SB11-03D, 78SB11-05, 78SB11-00	hexachlorophene	+/-	J/R
78SB10-01, 78SB11-03, 78SB11-03D, 78SB11-05, 78SB11-00	3,3-dimethylbenzidine 2,4-dinitrophenol 3,3'-dichlorobenzidine indeno(1,2,3-cd)pyrene	+/-	J/UJ
78SB10-00RE, 78SB10-02RE	hexachlorophene	+/-	J/R
78SB10-00RE, 78SB10-02RE	a,a-dimethylphenethylamine 3,3'-dichlorobenzidine	+/-	J/UJ

Michael Baker, Jr., Inc.
NAPR SWMU78, Puerto Rico
SDG# SWMU37178-3

Summary of Data Qualifications, continued

SVOA

Sample ID	Compound	Results	Q flag
78SB10-01, 78SB11-03, 78SB11-03D, 78SB11-05, 78SB11-00, 78SB10-00RE, 78SB10-02RE	bis(2-ethylhexyl)phthalate	+	U at reported value
78SB11-03, 78SB11-00	di-n-butyl phthalate	+	U at reported value
78SB10-01, 78SB11-03, 78SB11-03D	all results for acid fraction	+/-	J/UJ acid fraction
78SB11-00, 78SB11-05	all results	+/-	J/UJ all
initial analysis of all samples	dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, isophorone, pentachlorophenol	+/-	J/UJ
78SB11-03	2,4-dinitrophenol	+/-	J/UJ
78SB10-00, 78SB10-01RE, 78SB10-02, 78SB11-00RE, 78SB11-03RE, 78SB1103DRE, 78SB11-05RE	all results	+/-	R

PCBs

Sample ID	Compound	Results	Q flag
78SB11-03, 78SB11-03D, 78SB11-05	all compounds	+/-	J/UJ
78SB11-03RE, 78SB11-03DRE, 78SB11-05RE	all compounds	+/-	R
78SB11-00	AR1260	+	J

DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	+/-	J/UJ
all samples >MDL up to RL	arsenic	>MDL up to RL	U
all samples	antimony	+/-	J/UJ
78SB11-03, 78SB11-03D	barium cobalt copper nickel	+	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 SDG SWMU37226-1

DataQual

Environmental Services, LLC

Michael Baker, Jr., Inc.
 Airside Business Park
 100 Airside Drive
 Moon Township, PA 15108

September 22, 2008
 SDG# SWMU37226-1, Test America-Savannah
 NAPR SWMU 78, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37226-1. 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, 8270D-Rev 3, October 2006-SOP #HW-22, and 8082A, October 2006-SOP # HW-45, Rev 1) 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	SVOA App IX	PCBs	DRO/GRO	Metals
78-SB09-00	680-37226-1	soil	X	X	X	X	X
78-SB09-01	680-37226-2	soil	X	X	X	X	X
78-SB09-03	680-37226-3	soil	X	X	X	X	X
78-SB12-00	680-37226-4	soil	X	X	X	X	X
78-SB12-02	680-37226-5	soil	X	X	X	X	X
78-SB12-03	680-37226-6	soil	X	X	X	X	X
78-SB13-00	680-37226-7	soil	X	X	X	X	X
78-SB13-01	680-37226-8	soil	X	X	X	X	X
78-SB14-00	680-37226-9	soil	X	X	X	X	X
78-SB14-02	680-37226-10	soil	X	X	X	X	X
78-SB05-00	680-37226-11	soil	X	X	X	X	X
78-SB05-01	680-37226-12	soil	X	X	X	X	X
78-SB06-00	680-37226-13	soil	X	X	X	X	X
78-SB06-01	680-37226-14	soil	X	X	X	X	X
78-SB06-02	680-37226-15	soil	X	X	X	X	X
78-SB08-00	680-37226-16	soil	X	X	X	X	X
78-SB08-00D	680-37226-17	soil	X	X	X	X	X
78-SB08-01	680-37226-18	soil	X	X	X	X	X
78-SB08-02	680-37226-19	soil	X	X	X	X	X
78-SB15-00	680-37226-20	soil	X	X	X	X	X
78-SB15-00 MS	680-37226-20MS	soil		X	X		X
78-SB15-00 MSD	680-37226-20MSD	soil		X	X		X

The following quality control sample was provided with this SDG: Sample 78-SB08-00D-field duplicate of sample 78-SB08-00.

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

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.

SVOA

The initial and 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.

Several samples exhibited non-compliant surrogate recoveries that resulted in qualifications.

The associated laboratory control sample exhibited low recovery for one compound that required qualifications to the data.

The associated matrix spike and matrix spike duplicate exhibited low recovery for one compound; results for this compound were qualified in the associated sample.

Blank contamination was noted in the method and QC blanks associated with samples in this batch. Qualifications were added to the data.

PCBs

No qualifications to the data were required.

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 submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD requiring qualification in the samples for the analyte antimony. All results for antimony in the metals samples were qualified as estimated J/UJ.

The field duplicate pairs exhibited non-compliant RPDs 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 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 & PCB 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 05/29-30/08 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 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	pentachloroethane	182.4%	all samples	J/R
	acrolein	35.6%		J/UJ
	acrylonitrile	28.0%		
	2-butanone	23.5%		
	1,1,1-trichloroethane	33.1%		
	carbon tetrachloride	28.7%		
	cis-1,3-dichloropropene	25.6%		
	4-methyl-2-pentanone	39.0%		

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
IC 05/23/08	2,4-dinitrophenol	25.82%	78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02, 78-SB06-02, 78-SB15-00, 78-SB12-00, 78-SB12-02, 78-SB14-00, 78-SB12-03	J/UJ
IC 05/28/08	4-nitroquinoline-1-oxide	0.276%	78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02, 78-SB06-02, 78-SB15-00, 78SB12-00, 78-SB12-02, 78-SB14-00 78-SB-12-03	J/R
	2-naphthylamine	28.636%		J/UJ
CC 06/11/08	4-nitroquinoline-1-oxide	0.02956	78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02	J/R
	hexachlorophene	0.03381		J/UJ
	2-naphthylamine	30.3%		
	3,3-dimethylbenzidine	38.3%		
	3-methylcholanthrene	21.9%		
	4-nitroaniline	27.8%		
	3,3'-dichlorobenzidine	33.5%		
	indeno(1,2,3-cd)pyrene	21.8%		
benzo(g,h,i)perylene	22.3%			
famphur	31.5%			
CC 06/12/08	4-nitroquinoline-1-oxide	0.03007	78-SB06-02, 78-SB15-00, 78-SB12-00, 78-SB12-02, 78-SB14-00	J/R
	hexachlorophene	0.02656		J/UJ
	1,4-naphthoquinone	21.0%		
	2-naphthylamine	23.7%		
	famphur	27.7%		
	3,3'-dichlorobenzidine	24.2%		
indeno(1,2,3-cd)pyrene	22.8%			
CC 06/16/08	4-nitroquinoline-1-oxide	0.02985	78-SB12-03	J/R
	hexachlorophene	0.03887		
	3,3'-dichlorobenzidine	44.1%		J/UJ
	a,a-dimethylphenethylamine	22.4%		

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
IC 06/21/08	benzo(k)fluoranthene benzo(a)pyrene	16.5% 15.9%	78-SB05-01RE, 78-SB06-01RE, 78-SB14-02RE, 78-SB05-00RE, 78-SB06-00RE, 78-SB08-00RE, 78-SB08-00DRE, 78-SB08-01RE, 78-SB08-02RE	J/UJ
CC 06/23/08	pentachloronitrobenzene 4-nitroquinoline-1-oxide	0.04897 0.03388	78-SB14-02RE, 78-SB05-00RE,	J/R
	hexachlorophene	22.3%	78-SB06-00RE, 78-SB08-00RE, 78-SB08-00DRE, 78-SB08-01RE, 78-SB08-02RE	J/UJ
CC 06/24/08	4-nitroquinoline-1-oxide	0.02719	78-SB06-01RE	J/R
	3,3'-dichlorobenzidine	43.6%		J/UJ
	3,3-dimethylbenzidine	21.0%		
CC 06/25/08	4-nitroquinoline-1-oxide	0.02492	78-SB05-01RE	J/R
	2,4-dinitrophenol	20.7%		J/UJ
	4,6-dinitro-2-methylphenol	21.5%		
	3,3'-dichlorobenzidine	47.9%		
	indeno(1,2,3-cd)pyrene hexachlorophene	29.1% 21.0%		

ICSA/ICSAB Standards

Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries greater than the upper QC limit for the analytes chromium (126%/124%/122%/121%) and zinc (122%). Based on Region II guidelines, reported positive results for chromium and 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	0.69J ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
78-SB12-00, 78-SB12-02, 78-SB13-00, 78-SB14-00, 78-SB14-02, 78-SB05-00, 78-SB05-01, 78-SB08-00, 78-SB15-00	2-butanone	U at reported value

SVOA

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	bis(2-ethylhexyl)phthalate	8.3J ug/Kg	33 ug/Kg	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02, 78-SB06-02, 78-SB15-00, 78-SB12-00, 78-SB12-02, 78-SB14-00, 78-SB12-03	bis(2-ethylhexyl)phthalate	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	0.08360J ug/L	>MDL up to RL	U
ER22	arsenic	0.48J 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

Surrogate Recoveries

SVOA

The following samples exhibited non-compliant surrogate recoveries and were qualified as indicated.

Sample ID	Non-compliant surrogate	% Rec	QC limits	Qualification
78-SB09-00	2-fluorophenol	38%	41-110%	J/UJ acid fraction
	phenol-d5	40%	43-110%	
78-SB09-03	2-fluorophenol	39%	41-110%	J/UJ acid fraction
	phenol-d5	39%	43-110%	
78-SB13-01	2-fluorophenol	40%	41-110%	J/UJ acid fraction
	phenol-d5	41%	43-110%	
78-SB14-00	2-fluorophenol	33%	41-110%	J/UJ all
	phenol-d5	32%	43-110%	
	nitrobenzene-d5	27%	36-110%	
	2-fluorobiphenyl	35%	44-110%	
	2,4,6-tribromophenol	34%	36-128%	
78-SB14-02	2-fluorophenol	29%	41-110%	J/UJ all
	phenol-d5	29%	43-110%	
	nitrobenzene-d5	27%	36-110%	
	2-fluorobiphenyl	32%	44-110%	
78-SB06-02	2-fluorophenol	32%	41-110%	J/UJ all
	phenol-d5	34%	43-110%	
	nitrobenzene-d5	33%	36-110%	
	2-fluorobiphenyl	37%	44-110%	
78-SB15-00	2-fluorophenol	39%	41-110%	J/UJ acid fraction
	phenol-d5	41%	43-110%	

Laboratory Control Samples

SVOA

The laboratory control sample, associated with the re-analysis of all samples, exhibited low recoveries for pentachlorophenol at 18% (QC limit 28-117%); therefore results for this compound was qualified estimated (J/UJ).

Matrix Spikes

SVOA

A matrix spike and matrix spike duplicate was submitted for sample 78-SB15-00. The MS exhibited 14% recovery and the MSD exhibited 13% for pentachlorophenol; therefore this compound was qualified as estimated (J/UJ) in sample 78-SB15-00.

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
78SB09-01	antimony	all samples	65/66	J/UJ

Field Duplicates

Metals

The field duplicate pair of samples 78SB08-00 and 78SB08-00D exhibited metals results that did not compare. The analytes barium (36%), chromium (53%), and zinc (73%) exhibited RPDs that were $\geq 35\%$ but less than 120% and were qualified as estimated J in both samples. The analyte lead exhibited an RPD that was $>120\%$ and was rejected R in both samples.

Identification/Quantitation

SVOA

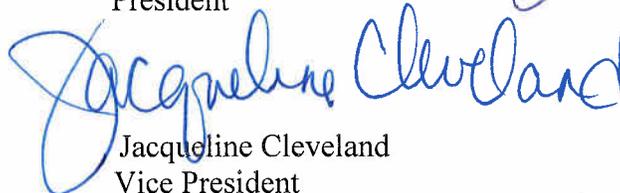
The following samples were not used in favor of the corresponding initial or re-extracted analysis due to non-compliant surrogate recoveries: 78SB09-00RE, 78-SB09-01RE, 78-SB09-03RE, 78-SB12-00RE, 78-SB12-02RE, 78-SB12-03RE, 78-SB13-00RE, 78-SB13-01RE, 78-SB14-00RE, 78-SB14-02RE, 78-SB05-00, 78-SB05-01, 78-SB06-00, 78-SB06-01, 78-SB06-02RE, 78-SB08-00, 78-SB08-00D, 78-SB08-01, 78-SB08-02, 78-SB15-00RE and 78-SB15-00RERA.

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 SWMU78, Puerto Rico
SDG# SWMU37226-1

Summary of Data Qualifications

VOA

Sample ID	Compound	Results	Q flag
all samples	pentachloroethane	+/-	J/R
all samples	acrolein acrylonitrile 2-butanone 1,1,1-trichloroethane carbon tetrachloride cis-1,3-dichloropropene 4-methyl-2-pentanone	+/-	J/UJ
78-SB12-00, 78SB12-02, 78SB13-00, 78SB14-00, 78SB14-02, 78SB05-00, 78SB05-01, 78SB08-00, 78SB15-00	2-butanone	+	U at reported value

SVOA

Sample ID	Compound	Results	Q flag
78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02, 78-SB06-02, 78-SB15-00, 78-SB12-00, 78-SB12-02, 78-SB14-00, 78-SB-12-03	2,4-dinitrophenol	+/-	J/UJ
78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02, 78-SB06-02, 78-SB15-00, 78SB12-00, 78-SB12-02, 78-SB14-00, 78-SB-12-03	4-nitroquinoline-1-oxide	+/-	J/R
78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02, 78-SB06-02, 78-SB15-00, 78SB12-00, 78-SB12-02, 78-SB14-00, 78-SB-12-03	2-naphthylamine	+/-	J/UJ
78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02	2-naphthylamine 3,3-dimethylbenzidine 3-methylcholanthrene 4-nitroaniline 3,3'-dichlorobenzidine indeno(1,2,3-cd)pyrene benzo(g,h,i)perylene famphur	+/-	J/UJ
78-SB06-02, 78-SB15-00, 78-SB12-00, 78-SB12-02, 78-SB14-00	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
78-SB06-02, 78-SB15-00, 78-SB12-00, 78-SB12-02, 78-SB14-00	1,4-naphthoquinone 2-naphthylamine famphur 3,3'-dichlorobenzidine indeno(1,2,3-cd)pyrene	+/-	J/UJ
78-SB12-03	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R

Summary of Data Qualifications, continued

SVOA

Sample ID	Compound	Results	Q flag
78-SB12-03	3,3'-dichlorobenzidine a,a-dimethylphenethylamine	+/-	J/UJ
78-SB05-01RE, 78-SB06-01RE, 78-SB14-02RE, 78-SB05-00RE, 78-SB06-00RE, 78-SB08-00RE, 78-SB08-00DRE, 78-SB08-01RE, 78-SB08-02RE	benzo(k)fluoranthene benzo(a)pyrene	+/-	J/UJ
78-SB14-02RE, 78-SB05-00RE, 78-SB06-00RE, 78-SB08-00RE, 78-SB08-00DRE, 78-SB08-01RE, 78-SB08-02RE	pentachloronitrobenzene 4-nitroquinoline-1-oxide	+/-	J/R
78-SB14-02RE, 78-SB05-00RE, 78-SB06-00RE, 78-SB08-00RE, 78-SB08-00DRE, 78-SB08-01RE, 78-SB08-02RE	hexachlorophene	+/-	J/UJ
78-SB06-01RE	4-nitroquinoline-1-oxide	+/-	J/R
78-SB06-01RE	3,3'-dichlorobenzidine 3,3-dimethylbenzidine	+/-	J/UJ
78-SB05-01RE	4-nitroquinoline-1-oxide	+/-	J/R
78-SB05-01RE	2,4-dinitrophenol 4,6-dinitro-2-methylphenol 3,3'-dichlorobenzidine indeno(1,2,3-cd)pyrene hexachlorophene	+/-	J/UJ
78-SB09-00, 78-SB09-01, 78-SB09-03, 78-SB13-00, 78-SB13-01, 78-SB14-02, 78-SB06-02, 78-SB15-00, 78-SB12-00, 78-SB12-02, 78-SB14-00, 78-SB12-03	bis(2-ethylhexyl)phthalate	+	U at reported value
78-SB09-00, 78-SB09-03, 78-SB13-01, 78-SB15-00	all acid fraction results	+/-	J/UJ
78-SB14-00, 78-SB14-02, 78-SB06-02	all results	+/-	J/UJ
all re-analyzed compound	pentachlorophenol	+/-	J/UJ
78-SB15-00	pentachlorophenol	+/-	J/UJ
78SB09-00RE, 78-SB09-01RE, 78-SB09-03RE, 78-SB12-00RE, 78-SB12-02RE, 78-SB12-03RE, 78-SB13-00RE, 78-SB13-01RE, 78-SB14-00RE, 78-SB14-02RE, 78-SB05-00, 78-SB05-01, 78-SB06-00, 78-SB06-01, 78-SB06-02RE, 78-SB08-00, 78-SB08-00D, 78-SB08-01, 78-SB08-02, 78-SB15-00RE, 78-SB15-00RERA	all results	+/-	R

Summary of Data Qualifications, continued

PCBs

Sample ID	Compound	Results	Q flag
No qualifications were required			

DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

Metals

Sample ID	Analyte	Results	Q flag
all samples	chromium zinc	+	J
all samples >MDL up to RL	antimony	>MDL up to RL	U
all samples >MDL up to RL	arsenic	>MDL up to RL	U
all samples	antimony	+/-	J/UJ
78SB08-00, 78SB08-00D	barium	+	J
	chromium		
	zinc		
	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 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 SDG SWMU37226-2

DataQual

Environmental Services, LLC

Michael Baker, Jr., Inc.
 Airside Business Park
 100 Airside Drive
 Moon Township, PA 15108

September 22, 2008
 SDG# SWMU37226-2, Test America-Savannah
 NAPR SWMU 78, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37226-2. 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, 8270D-Rev 3, October 2006-SOP #HW-22, and 8082A, October 2006-SOP # HW-45, Rev 1), 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	SVOA App IX	PCBs	DRO/GRO	DRO	Metals
78-SB15-01	680-37226-21	soil	X	X	X	X		X
78-SB15-03	680-37226-22	soil	X	X	X	X		X
78-SB16-00	680-37226-23	soil	X	X	X	X		X
78-SB16-01	680-37226-24	soil	X	X	X	X		X
78-SB16-03	680-37226-25	soil	X	X	X	X		X
78-SB16-00MS	680-37226-23MS	soil						X
78-SB16-00MSD	680-37226-23MSD	soil						X
78-SB16-03MS	680-37226-25MS	soil					X	
78-SB16-03MSD	680-37226-25MSD	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

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.

SVOA

The initial and 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.

One sample exhibited low internal standard area recoveries that resulted in qualifications to the data.

Several samples exhibited non-compliant surrogate recoveries that resulted in qualifications.

Qualifications were required to the data because the associated laboratory control sample exhibited low recovery for several compounds.

Blank contamination was noted in the method blanks associated with samples in this batch. Qualifications were added to the data.

PCBs

No qualifications to the data were required.

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 submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD requiring qualification in the samples for the analytes antimony and chromium. All results for antimony and chromium in the metals samples were qualified as estimated J/UJ.

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 & PCB 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 05/30/08 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

Michael Baker, Jr., Inc.
NAPR SWMU78, Puerto Rico
SDG# SWMU37226-2

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 06/10/08	pentachloroethane	150.8%	all samples	J/R
	chloroethane	43.8%		J/UJ
	acetone	23.0%		
	2-butanone	25.6%		
	1,1,1-trichloroethane	29.9%		
	carbon tetrachloride	27.4%		
	cis-1,3-dichloropropene	25.1%		
	4-methyl-2-pentanone	40.9%		

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 05/23/08	2,4-dinitrophenol	25.82%	all samples	J/UJ
IC 05/28/08	4-nitroquinoline-1-oxide	0.276%	all samples	J/R
	2-naphthylamine	28.636%		J/UJ
CC 06/10/08	4-nitroquinoline-1-oxide	0.02976	78-SB15-01, 78-SB15-03	J/R
	hexachlorophene	0.04142		J/UJ
	2,4-dinitrophenol	34.5%		
	3,3'-dichlorobenzidine	32.0%		
	indeno(1,2,3-cd)pyrene	24.2%		
	dinoseb	22.1%		
	2-naphthylamine	20.1%		
	4-aminobiphenyl	20.5%		
	3,3-dimethylbenzidine	59.4%		
3-methylcholanthrene	24.6%			
CC 06/11/08	4-nitroquinoline-1-oxide	0.02956	78-SB16-00	J/R
	hexachlorophene	0.03381		J/UJ
	2-naphthylamine	30.3%		
	3,3-dimethylbenzidine	38.3%		
	3-methylcholanthrene	21.9%		
	4-nitroaniline	27.8%		
	3,3'-dichlorobenzidine	33.5%		
	indeno(1,2,3-cd)pyrene	21.8%		
	benzo(g,h,i)perylene	22.3%		
famphur	31.5%			

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/16/08	4-nitroquinoline-1-oxide	0.02985	78-SB16-03RE, 78-SB16-01RE	J/R
	hexachlorophene	0.03887		J/UJ
	3,3'-dichlorobenzidine a,a-dimethylphenethylamine	44.1% 22.4%		

ICSA/ICSAB Standards

Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries greater than the upper QC limit for the analytes chromium (126%/124%/122%/121%) and zinc (122%). Based on Region II guidelines, reported positive results for chromium and 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	0.69J ug/L	10 ug/L	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
78-SB16-00, 78-SB16-01	2-butanone	U at reported value

SVOA

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	bis(2-ethylhexyl)phthalate	9.2J ug/Kg	33 ug/Kg	2X RL
Method Blank	bis(2-ethylhexyl)phthalate	34 ug/Kg	33 ug/Kg	2X RL
	di-n-butyl phthalate	56J ug/Kg	170 ug/Kg	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
78-SB15-01, 78-SB15-03, 78-SB16-00, 78-SB16-03RE, 78-SB16-01RE	bis(2-ethylhexyl)phthalate	U at reported value
78-SB15-01, 78-SB15-03	di-n-butyl phthalate	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	0.10660J ug/L	>MDL up to RL	U
PBS	cadmium	0.0415J ug/L	>MDL up to RL	U
ER22	arsenic	0.48J ug/L	>MDL up to RL	U
FB01	lead	0.38J 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	cadmium	U
all samples >MDL up to RL	arsenic	U
all samples >MDL up to RL	lead	U

Internal Standards

SVOA

Sample 78-SB16-00 exhibited extremely low internal standard area recovery of <25% for standard perylene-d12; therefore all positive compound results associated with this standard were qualified as estimated (J) and non-detected results were qualified as rejected (R). The recovery for internal standard chrysene-d12 was also low; therefore all compounds associated with this standard were qualified as estimated (J/UJ).

Surrogate Recoveries

SVOA

The following samples exhibited non-compliant surrogate recoveries and were qualified as indicated.

Sample ID	Non-compliant surrogate	% Rec	QC limits	Qualification
78-SB15-01	2-fluorophenol	37%	41-110%	J/UJ acid fraction
	phenol-d5	40%	43-110%	
78-SB16-00	2-fluorophenol	40%	41-110%	J/UJ acid fraction
	phenol-d5	40%	43-110%	

Laboratory Control Samples

SVOA

The laboratory control sample, associated with the initial of all samples, exhibited low recoveries for indeno(1,2,3-cd)pyrene at 24% (QC limit 35-126%), isophorone at 42% (QC limit 44-110%) and pentachlorophenol at 24% (QC limit 28-117%); therefore results for these compounds were qualified estimated (J/UJ).

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
78SB16-00	antimony	all samples	65/66	J/UJ

Identification/Quantitation

SVOA

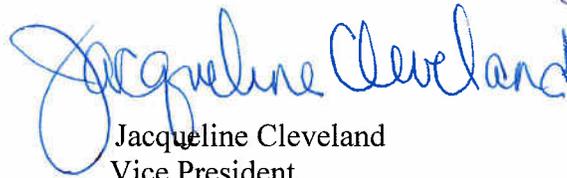
The following samples were not used in favor of the corresponding initial or re-extracted analysis due to non-compliant surrogate recoveries: 78-SB15-01RE, 78-SB16-00RA, 78-SB16-00RE, 78-SB16-00RERA, 78-SB16-01 and 78-SB16-03.

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 blue ink that reads "Laura Maschhoff". The signature is fluid and cursive, with a large initial "L".

Laura Maschhoff
President

A handwritten signature in blue ink that reads "Jacqueline Cleveland". The signature is fluid and cursive, with a large initial "J".

Jacqueline Cleveland
Vice President

Summary of Data Qualifications

VOA

Sample ID	Compound	Results	Q flag
all samples	pentachloroethane	+/-	J/R
all samples	chloroethane acetone 2-butanone 1,1,1-trichloroethane carbon tetrachloride cis-1,3-dichloropropene 4-methyl-2-pentanone	+/-	J/UJ
78-SB16-00, 78-SB16-01	2-butanone	+	U at reported value

SVOA

Sample ID	Compound	Results	Q flag
all samples	2,4-dinitrophenol	+/-	J/UJ
all samples	4-nitroquinoline-1-oxide	+/-	J/R
all samples	2-naphthylamine	+/-	J/UJ
78-SB15-01, 78-SB15-03	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
78-SB15-01, 78-SB15-03	2,4-dinitrophenol 3,3'-dichlorobenzidine indeno(1,2,3-cd)pyrene dinoseb 2-naphthylamine 4-aminobiphenyl 3,3-dimethylbenzidine 3-methylcholanthrene	+/-	J/UJ
78-SB16-00	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
78-SB16-00	2-naphthylamine 3,3-dimethylbenzidine 3-methylcholanthrene 4-nitroaniline 3,3'-dichlorobenzidine indeno(1,2,3-cd)pyrene benzo(g,h,i)perylene famphur	+/-	J/UJ
78-SB16-03RE, 78-SB16-01RE	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
78-SB16-03RE, 78-SB16-01RE	3,3'-dichlorobenzidine a,a-dimethylphenethylamine	+/-	J/UJ
78-SB15-01, 78-SB15-03, 78-SB16-00, 78-SB16-03RE, 78-SB16-01RE	bis(2-ethylhexyl)phthalate	+	U at reported value

Summary of Data Qualifications

SVOA

Sample ID	Compound	Results	Q flag
78-SB15-01, 78-SB15-03	di-n-butyl phthalate	+	U at reported value
78-SB16-00	all compounds associated with: perylene-d12	+/-	J/R
78-SB16-00	all compounds associated with: chrysene-d12	+/-	J/UJ
78-SB15-01, 78-SB16-00	all acid fraction compounds	+/-	J/UJ
initial analysis samples	indeno(1,2,3-cd)pyrene, isophorone, pentachlorophenol	+/-	J/UJ
78-SB15-01RE, 78-SB16-00RA, 78-SB16-00RE, 78-SB16-00RERA, 78-SB16-01, 78-SB16-03	all results	+/-	R

PCBs

Sample ID	Compound	Results	Q flag
No qualifications were required			

DRO/GRO

Sample ID	Compound	Results	Q flag
No qualifications were required			

Metals

Sample ID	Analyte	Results	Q flag
all samples	chromium zinc	+	J
all samples >MDL up to RL	antimony	>MDL up to RL	U
all samples >MDL up to RL	arsenic	>MDL up to RL	U
all samples >MDL up to RL	cadmium	>MDL up to RL	U
all samples >MDL up to RL	lead	>MDL up to RL	U
all samples	antimony chromium	+/-	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 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 SDG SWMU37226-3

DataQual

Environmental Services, LLC

Michael Baker, Jr., Inc.
 Airside Business Park
 100 Airside Drive
 Moon Township, PA 15108

September 29, 2008
 SDG# SWMU37226-3, Test America-Savannah
 NAPR SWMU 78, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37226-3. 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, 8270D-Rev 3, October 2006-SOP #HW-22, 8081B, October 2006-SOP # HW-44, Rev 1, and 8082A, October 2006-SOP # HW-45, Rev 1), 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	SVOA App IX	P/PCB	DRO/GRO	GRO	Metals
78-TB02	680-37226-26	water	X				X	
ER22	680-37226-27	water	X	X	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
- 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.

VOA

The initial 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

The initial and 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.

Qualifications were required to the data due to the associated laboratory control sample exhibiting low recovery for several compounds.

Pesticides/PCBs

No qualification of the data was required.

DRO/GRO

No qualification of the data was required.

Metals

No qualification of the data was required.

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 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 05/29/08 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 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	J/R
CC 06/08/08	pentachloroethane	103.2%	all samples	J/R
	acrolein	50.5%		J/UJ
	chloromethane	31.1%		
	bromomethane	50.2%		
	chloroethane	26.3%		
	trichlorofluoromethane	21.3%		
	cis-1,3-dichloropropene	21.8%		
	trans-1,3-dichloropropene	21.1%		
	1,3-dibromo-3-chloropropane	30.3%		

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 05/23/08	2,4-dinitrophenol	25.82%	ER22	J/UJ
IC 05/28/08	4-nitroquinoline-1-oxide	0.0276	ER22	J/R
	2-naphthylamine	28.636%		J/UJ
CC 06/05/08	4-nitroquinoline-1-oxide	0.02879	ER22	J/R
	hexachlorophene	0.03294		J/UJ
	3-nitroaniline	24.1%		
	4-nitroaniline	36.9%		
	3,3'-dichlorobenzidine	47.3%		
	benzo(g,h,i)perylene	24.7%		
	3,3-dimethylbenzidine	54.1%		
famphur	24.3%			

Laboratory Control Samples

SVOA

The laboratory control sample, associated with sample ER22, exhibited low recoveries for pyridine at 0% (QC limit 10-110%), 3,3'-dichlorobenzidine at 1% (QC limit 10-113%) and aniline at 2% (QC limit 10-114%); therefore results for these compounds were qualified estimated (J/UJ).

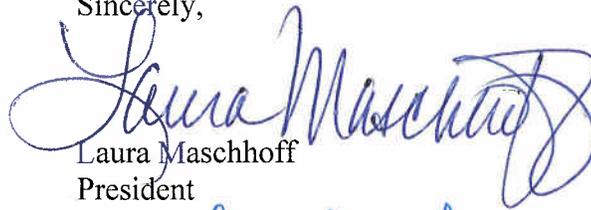
Identification/Quantitation

SVOA

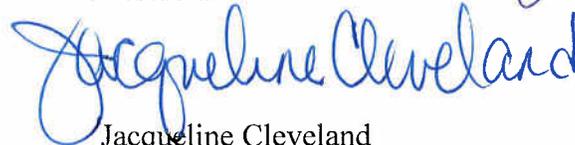
Sample ER22 was re-extracted due to one non-compliant surrogate recovery in the method blank, since all surrogate recoveries were within QC limits for the field sample the initial analysis was used.

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,

A handwritten signature in blue ink that reads "Laura Maschhoff". The signature is fluid and cursive, with the first name being more prominent.

Laura Maschhoff
President

A handwritten signature in blue ink that reads "Jacqueline Cleveland". The signature is fluid and cursive, with the first name being more prominent.

Jacqueline Cleveland
Vice President

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 chloroethane trichlorofluoromethane cis-1,3-dichloropropene trans-1,3-dichloropropene 1,3-dibromo-3-chloropropane	+/-	J/UJ

SVOA

Sample ID	Compound	Results	Q flag
ER22	2,4-dinitrophenol	+/-	J/UJ
ER22	4-nitroquinoline-1-oxide	+/-	J/R
ER22	2-naphthylamine	+/-	J/UJ
ER22	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
ER22	3-nitroaniline 4-nitroaniline 3,3'-dichlorobenzidine benzo(g,h,i)perylene 3,3-dimethylbenzidine famphur	+/-	J/UJ
ER22	pyridine, 3,3'-dichlorobenzidine, aniline	+/-	J/UJ
ER22RE	all results	+/-	R

Pest/PCB

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. ** 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 SDG SWMU37251-3

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 # SWMU37251-3. 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 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	Metals
62TB01	680-37251-20	water	X				
ER23	680-37251-21	water	X	X	X		X
62TB03	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
- 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.

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

Michael Baker, Jr., Inc.
 NAPR SWMU62, Puerto Rico
 SDG# SWMU37251-3

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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 05/31-06/01/08 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

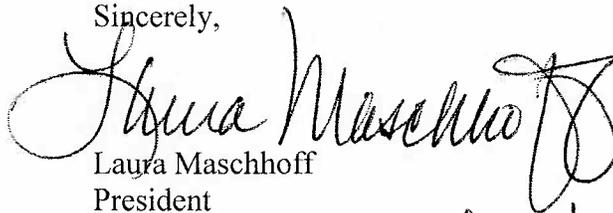
VOA

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.

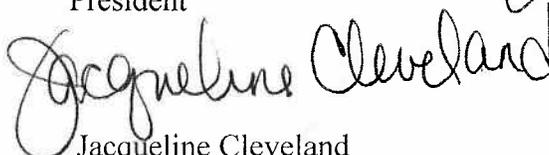
Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 06/08/08	pentachloroethane	103.2%	all samples	J/R
	acrolein	50.5%		J/UJ
	chloromethane	31.1%		
	bromomethane	50.2%		
	chloroethane	26.3%		
	trichlorofluoromethane	21.3%		
	cis-1,3-dichloropropene	21.8%		
	trans-1,3-dichloropropene	21.1%		
1,2-dibromo-3-chloropropane	30.3%			

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
SDG# 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 chloromethane bromomethane chloroethane trichlorofluoromethane cis-1,3-dichloropropene trans-1,3-dichloropropene 1,2-dibromo-3-chloropropane	+/-	J/UJ

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. ** 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 SDG SWMU37251-5

DataQual

Environmental Services, LLC

Michael Baker, Jr., Inc.
 Airside Business Park
 100 Airside Drive
 Moon Township, PA 15108

September 29, 2008
 SDG# SWMU37251-5, Test America-Savannah
 NAPR SWMU 78, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37251-5. 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, 8270D-Rev 3, October 2006-SOP #HW-22, and 8082A, October 2006-SOP # HW-45, Rev 1), 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	SVOA App IX	PCB	DRO/GRO	Metals
78SB02-00	680-37251-52	soil	X	X	X	X	X
78SB02-01	680-37251-53	soil	X	X	X	X	X
78SB02-03	680-37251-54	soil	X	X	X	X	X
78SB04-00	680-37251-55	soil	X	X	X	X	X
78SB04-01	680-37251-56	soil	X	X	X	X	X
78SB04-02	680-37251-57	soil	X	X	X	X	X
78SB07-00	680-37251-58	soil	X	X	X	X	X
78SB07-01	680-37251-59	soil	X	X	X	X	X
78SB07-02	680-37251-60	soil	X	X	X	X	X
78SB01-00	680-37251-61	soil	X	X	X	X	X
78SB01-00D	680-37251-62	soil	X	X	X	X	X
78SB01-01	680-37251-63	soil	X	X	X	X	X
78SB01-03	680-37251-64	soil	X	X	X	X	X
78SB01-03D	680-37251-65	soil	X	X	X	X	X
78SB03-00	680-37251-66	soil	X	X	X	X	X
78SB03-01	680-37251-67	soil	X	X	X	X	X
78SB03-01D	680-37251-68	soil	X	X	X	X	X
78SB03-02	680-37251-69	soil	X	X	X	X	X
78SB01-00 MS	680-37251-61MS	soil	X	X	X	X	X
78SB01-00 MSD	680-37251-61MSD	soil	X	X	X	X	X
78SB03-01 MS	680-37251-67MS	soil	X	X	X	X	X
78SB03-01 MSD	680-37251-67MSD	soil	X	X	X	X	X

The following quality control sample was provided with this SDG: sample 78SB01-00D - field duplicate of sample 78SB01-00; sample 78SB01-03D-field duplicate of sample 78SB01-03; and sample 78SB03-01D-field duplicate of sample 78SB03-01.

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 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.

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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 of the associated matrix spike and matrix spike duplicate exhibited low recoveries for several compounds; results for these compounds were qualified as estimated in the associated sample.

SVOA

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 % RSD and %D values, in the initial and continuing calibrations, some compounds were qualified as estimated.

Internal standard area recoveries were low in one of the field samples that resulted in qualifications to the data.

The associated laboratory control samples exhibited low recovery for one compound that required qualifications to the data.

The associated matrix spike and matrix spike duplicate exhibited non-compliant recoveries for several compounds; results were qualified in the associated sample.

Blank contamination was noted in the method blanks associated with samples in this batch. Qualifications were added to the data.

One of the field duplicate pairs did not exhibit comparable results for three compounds therefore the results for these compounds were qualified as estimated in the two samples.

PCBs

One sample result was qualified as estimated J due to a column quantitation %D greater than 25% but less than 70%.

DRO/GRO

Two samples analyzed for GRO required qualification due to high surrogate recoveries.

Two samples analyzed for GRO required qualification due to low internal standard recoveries.

The field duplicate pair of samples 78SB01-00 and 78SB01-00D 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/UJ.

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 were qualified as estimated J.

Blank contamination was noted and qualification was required in the samples in this SDG.

The matrix spike pairs submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD requiring qualification in the samples for the analytes antimony, tin and lead. All results for antimony were qualified as estimated J/UJ. All positive results for tin were qualified as estimated J. All results for lead were rejected R.

One of the matrix duplicates submitted in this SDG exhibited non-compliant RPDs requiring qualification in the samples for the analytes antimony and lead. All results for antimony and lead were qualified as estimated J/UJ.

The serial dilution submitted in this SDG exhibited a non-compliant %D requiring qualification in the samples for the analyte zinc. All results for zinc were qualified as estimated J/UJ.

The field duplicate pair exhibited non-compliant RPDs for five analytes. These analytes were qualified as estimated or rejected in the field duplicate pair.

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 GRO/DRO & PCB 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 05/30-31/08 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

Michael Baker, Jr., Inc.
NAPR SWMU78, Puerto Rico
SDG# SWMU37251-5
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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 06/10/08	pentachloroethane	168.9%	78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-01, 78SB04-02, 78SB07-00, 78SB07-01, 78SB07-02	J/R
	iodomethane	31.3%		J/UJ
	acetonitrile	29.9%		
	3-chloro-1-propene	26.7%		
	2-chloro-1,3-butadiene	23.3%		
	propionitrile	23.8%		
	methacrylonitrile	21.5%		
	methyl methacrylate	20.1%		
	chloroethane	38.8%		
	acetone	27.5%		
	2-butanone	29.8%		
	1,1,1-trichloroethane	29.7%		
	carbon tetrachloride	27.6%		
	cis-1,3-dichloropropene	26.0%		
	4-methyl-2-pentanone	43.8%		
1,2-dibromo-3-chloropropane	21.3%			
CC 06/11/08	pentachloroethane	167.4%	78SB01-00D, 78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-01, 78SB03-01D, 78SB03-02	J/R
	isobutyl alcohol	0.04662		J/UJ
	acrylonitrile	26.5%		
	propionitrile	21.7%		
	chloroethane	32.8%		
	acetone	29.3%		
	2-butanone	30.4%		
	1,1,1-trichloroethane	32.9%		
	carbon tetrachloride	32.8%		
	4-methyl-2-pentanone	42.7%		
1,2-dibromo-3-chloropropane	20.9%			
CC 06/11/08	pentachloroethane	192.0%	78SB01-00, 78SB03-00	J/R
	isobutyl alcohol	0.04821		J/UJ
	iodomethane	32.1%		
	acetonitrile	37.0%		
	3-chloro-1-propene	27.5%		
	acrylonitrile	24.2%		
	propionitrile	30.3%		
	methacrylonitrile	26.7%		
	methyl methacrylate	25.0%		
	chloroethane	36.5%		
	acetone	26.7%		
	vinyl acetate	20.5%		
	2-butanone	26.5%		
	1,1,1-trichloroethane	28.9%		
	carbon tetrachloride	29.5%		
cis-1,3-dichloropropene	26.8%			
4-methyl-2-pentanone	43.6%			

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 06/23/08	naphthalene	15.221%	all samples	J/UJ
CC 06/25/08	4-nitroquinoline-1-oxide	0.02650	78SB02-00,	J/R
	3,3'-dichlorobenzidine	29.9%	78SB02-01,	J/UJ
	benzo(g,h,i)perylene	26.9%	78SB02-03,	
	a,a-dimethylphenethylamine	23.3%	78SB04-00,	
	pentachloronitrobenzene	25.4%	78SB04-01,	
	3,3-dimethylbenzidine	56.5%	78SB07-00	
CC 06/26/08	4-nitroquinoline-1-oxide	0.02707	78SB01-01,	J/R
	hexachlorocyclopentadiene	21.0%	78SB01-03,	J/UJ
	2,4-dinitrophenol	25.1%	78SB01-03D,	
	4-nitrophenol	22.1%	78SB03-01,	
	4,6-dinitro-2-methylphenol	27.6%	78SB03-01D,	
	benzo(b)fluoranthene	24.8%	78SB03-02	
	benzo(g,h,i)perylene	35.4%		
	dinoseb	25.7%		
	hexachloropropene	22.7%		
	a,a-dimethylphenethylamine	31.6%		
	pentachloronitrobenzene	28.3%		
hexachlorophene	23.5%			
CC 06/27/08	4-nitroquinoline-1-oxide	0.02587	78SB04-02,	J/R
	benzo(b)fluoranthene	27.7%	78SB07-01,	J/UJ
	benzo(g,h,i)perylene	24.9%	78SB07-02	
	2-naphthylamine	46.6%		
	pentachloronitrobenzene	20.1%		
	3,3-dimethylbenzidine	49.6%		
CC 07/01/08	4-nitroquinoline-1-oxide	0.02743	78SB01-00D,	J/R
	2,4-dinitrophenol	21.7%	78SB01-00	J/UJ
	benzo(g,h,i)perylene	21.4%		
	2-naphthylamine	33.0%		
	1,3,5-trinitrobenzene	27.1%		
	pentachloronitrobenzene	26.5%		
	methapyrilene	26.0%		
	aramite, total	35.5%		
	famphur	30.5%		

Standard ID	Compound(s)	RRF, %RSD, %D	Samples	Q Flag
CC 07/02/08	4-nitroquinoline-1-oxide	0.02683	78SB03-00	J/R
	hexachlorocyclopentadiene	21.9%		J/UJ
	2,4,5-trichlorophenol	21.1%		
	2,4-dinitrophenol	27.5%		
	3,3'-dichlorobenzidine	23.7%		
	benzo(b)fluoranthene	30.4%		
	benzo(g,h,i)perylene	20.6%		
	hexachloropropene	28.2%		
	2-naphthylamine	42.6%		
	4-aminobiphenyl	23.0%		
	pentachloronitrobenzene	27.2%		
	methapyrilene	23.7%		
3,3-dimethylbenzidine	58.0%			
famphur	25.8%			

ICSA/ICSAB Standards

Metals

The ICSAB standards associated with the metals analysis exhibited non-compliant recoveries above than the upper QC limit for the analyte zinc (133/132). 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	acetone	4.8J ug/Kg	50 ug/Kg	2X RL
71TB-01	acetone	5.2J ug/L	25 ug/L	2X RL
	2-butanone	0.67J	10	2X RL
	carbon disulfide	1.1J	2	RL
FB01	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 SWMU78, Puerto Rico
SDG# SWMU37251-5
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Sample ID	Compound	Q Flag
78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-01, 78SB07-00, 78SB07-01, 78SB07-02, 78SB01-00, 78SB01-00D, 78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-00, 78SB03-01	2-butanone	U at reported value
78SB04-00, 78SB01-00	carbon disulfide	U at reported value
78SB02-00, 78SB02-03, 78SB04-00, 78SB04-01, 78SB04-02, 78SB07-01, 78SB07-02, 78SB01-03D, 78SB03-00, 78SB03-01, 78SB03-01D, 78SB03-02, 78SB01-03	acetone	U at reported value

SVOA

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	bis(2-ethylhexyl)phthalate	26 ug/Kg	33 ug/Kg	2X RL
Method Blank	bis(2-ethylhexyl)phthalate	11 ug/Kg	33 ug/Kg	2X RL

Associated samples and required qualifications are noted in the following table.

Sample ID	Compound	Q Flag
78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-02, 78SB07-01, 78SB07-02, 78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-01, 78SB03-01D, 78SB03-02, 78SB01-00D, 78SB01-00, 78SB03-00	bis(2-ethylhexyl)phthalate	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	0.08861J ug/L	>MDL up to RL	U
ER22	arsenic	0.48J 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

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Internal Standards

SVOA

Sample 78SB04-02 exhibited low internal standard area recoveries for acenaphthene-d10, 1,4-dichlorobenzene-d4 and chrysene-d12; therefore all compounds associated with these standards were qualified as estimated (J/UJ).

DRO/GRO

Samples 78SB01-00 and 78SB03-00 exhibited low GRO internal standard area recoveries. Therefore the reported results for GRO in the samples were qualified as estimated J/UJ.

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 78SB01-00 (134%) and 78SB03-00 (144%) were qualified as estimated J.

Laboratory Control Samples

SVOA

Both laboratory control samples exhibited low recoveries for pentachlorophenol at 27% and 14% (QC limit 28-117%); therefore results for this compound were qualified estimated (J/UJ) in all samples.

Matrix Spikes

VOA

A matrix spike and matrix spike duplicate was submitted for sample 78SB01-00 and duplicate 78SB01-00D. The MS and MSD exhibited low recoveries for the following compounds: carbon tetrachloride at 50% and 48% (QC limit 60-136%), ethylbenzene at 75% and 70% (QC limit 77-121%), tetrachloroethene at 71% and 63% (QC limit 76-120%) and xylene, total at 74% and 68% (QC limit 76-122%). Therefore these compounds were qualified as estimated (J/UJ) in sample 78-SB01-00 and 78SB01-00D.

SVOA

A matrix spike and matrix spike duplicate was submitted for sample 78SB01-00 and duplicate 78SB01-00D. The MS and the MSD exhibited non-compliant recoveries for half of the spiked compounds ranging from zero to 608% recovery. According to the

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NAPR SWMU78, Puerto Rico
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laboratory case narrative, samples were ran at a 1:20 dilution due to matrix interference. It is the professional opinion of the data validator that there was a matrix effect exhibited in these samples and therefore all results were qualified as estimated J/UJ.

Metals

The matrix spike pairs submitted in this SDG exhibited non-compliant %R's for antimony, tin, 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
78SB03-01	antimony	all samples	62/67	J/UJ
	tin		131/126	J
78SB01-00	lead	all samples	815/435	R
	tin		134/130	J

Matrix Duplicates

Metals

One of the matrix duplicate submitted in this SDG exhibited non-compliant RPD's for antimony and lead, 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
78SB01-00	antimony	all samples	73	J/UJ
	lead		37	

Serial Dilution

Metals

The serial dilution 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.

SD	Analytes	Samples	%D	Q Flag
78SB01-00	zinc	all samples	11.1	J/UJ

Field Duplicates

SVOA

Sample 78SB01-00 and duplicate sample 78SB01-00D did not exhibit comparable results for benzo(b)fluoranthene with 200% RPD, fluoranthene with 200% RPD and pyrene 200% RPD; therefore results for these compounds were qualified as estimated for both samples.

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DRO/GRO

The field duplicate pair of samples 78SB01-00 and 78SB01-00D 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/UJ.

Metals

The field duplicate pair of samples 78SB01-00 and 78SB01-00D exhibited metals results that did not compare. The analytes barium, cobalt, copper, and zinc exhibited RPDs that was $\geq 35\%$ but less than 120% and were qualified as estimated J in both samples. The analyte lead exhibited a RPD greater than 120% and was rejected R in both samples.

Identification/Quantitation

SVOA

Sample 78SB04-02RA was not used in favor of the initial analysis due to non-compliant internal standard area recoveries.

PCBs

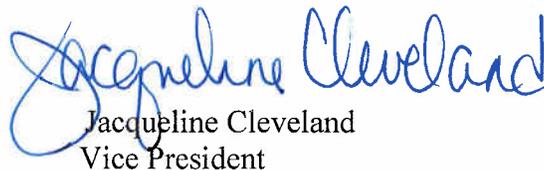
The reported result for AR1260 in sample 78SB01-00 was qualified as estimated due to a column quantitation %D greater than 25% but less than 70%.

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
78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-01, 78SB04-02, 78SB07-00, 78SB07-01, 78SB07-02	pentachloroethane	+/-	J/R
78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-01, 78SB04-02, 78SB07-00, 78SB07-01, 78SB07-02	iodomethane acetonitrile 3-chloro-1-propene 2-chloro-1,3-butadiene propionitrile methacrylonitrile methyl methacrylate chloroethane acetone 2-butanone 1,1,1-trichloroethane carbon tetrachloride cis-1,3-dichloropropene 4-methyl-2-pentanone 1,2-dibromo-3-chloropropane	+/-	J/UJ
78SB01-00D, 78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-01, 78SB03-01D, 78SB03-02	pentachloroethane isobutyl alcohol	+/-	J/R
78SB01-00D, 78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-01, 78SB03-01D, 78SB03-02	acrylonitrile propionitrile chloroethane acetone 2-butanone 1,1,1-trichloroethane carbon tetrachloride 4-methyl-2-pentanone 1,2-dibromo-3-chloropropane	+/-	J/UJ
78SB01-00, 78SB03-00	pentachloroethane isobutyl alcohol	+/-	J/R
78SB01-00, 78SB03-00	iodomethane acetonitrile 3-chloro-1-propene acrylonitrile propionitrile methacrylonitrile methyl methacrylate chloroethane acetone vinyl acetate 2-butanone 1,1,1-trichloroethane carbon tetrachloride cis-1,3-dichloropropene 4-methyl-2-pentanone	+/-	J/UJ

Summary of Data Qualifications, continued

VOA

Sample ID	Compound	Results	Q flag
78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-01, 78SB07-00, 78SB07-01, 78SB07-02, 78SB01-00, 78SB01-00D, 78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-00, 78SB03-01	2-butanone	+	U at reported value
78SB04-00, 78SB01-00	carbon disulfide	+	U at reported value
78SB02-00, 78SB02-03, 78SB04-00, 78SB04-01, 78SB04-02, 78SB07-01, 78SB07-02, 78SB01-03D, 78SB03-00, 78SB03-01, 78SB03-01D, 78SB03-02, 78SB01-03	acetone	+	U at reported value
78SB01-00, 78SB01-00D	carbon tetrachloride, ethylbenzene, tetrachloroethene, xylene, total	+/-	J/UJ

SVOA

Sample ID	Compound	Results	Q flag
all samples	naphthalene	+/-	J/UJ
78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-01, 78SB07-00	4-nitroquinoline-1-oxide	+/-	J/R
78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-01, 78SB07-00	3,3'-dichlorobenzidine benzo(g,h,i)perylene a,a-dimethylphenethylamine pentachloronitrobenzene 3,3-dimethylbenzidine	+/-	J/UJ
78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-01, 78SB03-01D, 78SB03-02	4-nitroquinoline-1-oxide	+/-	J/R
78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-01, 78SB03-01D, 78SB03-02	hexachlorocyclopentadiene 2,4-dinitrophenol 4-nitrophenol 4,6-dinitro-2-methylphenol benzo(b)fluoranthene benzo(g,h,i)perylene dinoseb hexachloropropene a,a-dimethylphenethylamine pentachloronitrobenzene hexachlorophene	+/-	J/UJ
78SB04-02, 78SB07-01, 78SB07-02	4-nitroquinoline-1-oxide	+/-	J/R

Summary of Data Qualifications, continued

SVOA

Sample ID	Compound	Results	Q flag
78SB04-02, 78SB07-01, 78SB07-02	benzo(b)fluoranthene benzo(g,h,i)perylene 2-naphthylamine pentachloronitrobenzene 3,3-dimethylbenzidine	+/-	J/UJ
78SB01-00D, 78SB01-00	4-nitroquinoline-1-oxide	+/-	J/R
78SB01-00D, 78SB01-00	2,4-dinitrophenol benzo(g,h,i)perylene 2-naphthylamine 1,3,5-trinitrobenzene pentachloronitrobenzene methapyrilene aramite, total famphur	+/-	J/UJ
78SB03-00	4-nitroquinoline-1-oxide	+/-	J/R
78SB03-00	hexachlorocyclopentadiene 2,4,5-trichlorophenol 2,4-dinitrophenol 3,3'-dichlorobenzidine benzo(b)fluoranthene benzo(g,h,i)perylene hexachloropropene 2-naphthylamine 4-aminobiphenyl pentachloronitrobenzene methapyrilene 3,3-dimethylbenzidine famphur	+/-	J/UJ
78SB02-00, 78SB02-01, 78SB02-03, 78SB04-00, 78SB04-02, 78SB07-01, 78SB07-02, 78SB01-01, 78SB01-03, 78SB01-03D, 78SB03-01, 78SB03-01D, 78SB03-02, 78SB01-00D, 78SB01-00, 78SB03-00	bis(2-ethylhexyl)phthalate	+	U at reported value
78SB04-02	all compounds associated with: acenaphthene-d10, 1,4-dichlorobenzene-d4 chrysene-d12	+/-	J/UJ
all samples	pentachlorophenol	+/-	J/UJ
78SB01-00, 78SB01-00D	all results	+/-	J/UJ
78SB01-00, 78SB01-00D	benzo(b)fluoranthene, fluoranthene, pyrene	+/-	J/UJ
78SB04-02RA	all results	+/-	R

Summary of Data Qualifications, continued

PCBs

Sample ID	Compound	Results	Q flag
78SB01-00	AR1260	+	J

DRO/GRO

Sample ID	Compound	Results	Q flag
78SB01-00, 78SB03-00	GRO	+	J
78SB01-00, 78SB03-00	GRO	+/-	J/UJ
78SB01-00, 78SB01-00D	DRO GRO	+	J

Metals

Sample ID	Analyte	Results	Q flag
all samples	zinc	+	J
all samples >MDL up to RL	antimony	>MDL up to RL	U
all samples >MDL up to RL	arsenic	>MDL up to RL	U
all samples	antimony	+/-	J/UJ
all samples	tin	+	J
all samples	lead	+/-	R
all samples	antimony lead	+/-	J/UJ
all samples	zinc	+/-	J/UJ
78SB01-00, 78SB01-00D	barium copper cobalt zinc	+	J
78SB01-00, 78SB01-00D	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 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 SDG SWMU37369-4

DataQual

Environmental Services, LLC

Michael Baker, Jr., Inc.
Airsides Business Park
100 Airside Drive
Moon Township, PA 15108

October 13, 2008
SDG# SWMU37369-4, 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 # SWMU37369-4. 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	SVOA App IX	Pesticides	PCBs	DRO	GRO	Metals
ER24	680-37369-29	water	X	X	X	X	X	X	X
ER25	680-37369-30	water	X	X	X	X	X	X	X
ER26	680-37369-31	water	X	X	X			X	X
ER27	680-37369-32	water	X	X	X		X	X	X
ER28	680-37369-33	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/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.

VOA

Due to high %D values, in the continuing calibrations, some compounds were qualified as estimated.

SVOA

Two samples exceeded extraction holding time which required qualifications to the data.

The initial and continuing calibrations 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.

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 J/UJ.

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/UJ for DRO.

Metals

The ICSAB 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/UJ.

Specific Evaluation of Data

Data Completeness

Resubmissions were required. The SVOA fraction was missing a Form VI for the initial calibration. The laboratory was contacted and the requested form was submitted. 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 10s 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

Samples ER24 and ER25 exceeded extraction holding time; therefore all results were qualified as estimated (J/UJ).

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	pentachloroethane	107.5%	all samples	J/R
	acrolein	63.1%		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
IC 06/03/08	4-nitroquinoline-1-oxide	0.0190	all samples	J/R
	hexachloropropene	33.418%		J/UJ
	a,a-dimethylphenethylamine	42.123%		
CC 06/16/08	4-nitroquinoline-1-oxide	0.01758	all samples	J/R
	hexachlorophene	0.03999		
	a,a-dimethylphenethylamine	20.2%		J/UJ
	methyl parathion	22.7%		
famphur	22.1%			

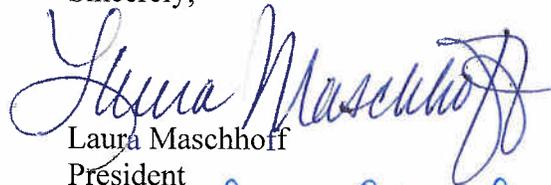
ICSA/ICSAB Standards

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 Maschhoff
President



Jacqueline Cleveland
Vice President

Summary of Data Qualifications

VOA

Sample ID	Compound	Results	Q flag
all samples	pentachloroethane	+/-	J/R
all samples	acrolein propionitrile isobutyl alcohol	+/-	J/UJ

SVOA

Sample ID	Compound	Results	Q flag
ER24, ER25	all results	+/-	J/UJ
all samples	4-nitroquinoline-1-oxide	+/-	J/R
all samples	hexachloropropene a,a-dimethylphenethylamine	+/-	J/UJ
all samples	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
all samples	a,a-dimethylphenethylamine methyl parathion famphur	+/-	J/UJ

Pesticides/PCBs

Sample ID	Compound	Results	Q flag
ER24, ER25	all compounds	+/-	J/UJ

DRO/GRO

Sample ID	Compound	Results	Q flag
ER24, ER25	DRO	+/-	J/UJ

Metals

Sample ID	Analyte	Results	Q flag
all samples	silver	+/-	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 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

PUERTO RICAN CHEMIST CERTIFICATIONS

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 **680-37178-3**, 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 **680-37226-1**, 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 **680-37226-2**, 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 **680-37226-3**, 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 680-37251-5, 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 680-37369-4, and to the best of my knowledge, the results are correct and reliable.

Abraham Ortiz

