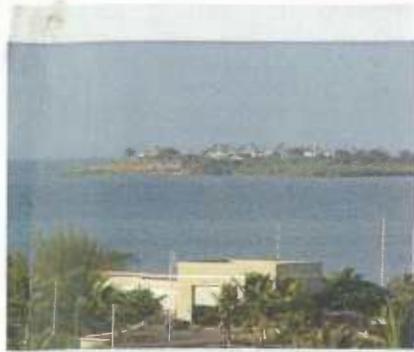


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FINAL PHASE I RESOURCE CONSERVATION AND RECOVERY ACT FACILITY  
INVESTIGATION REPORT SOLID WASTE MANAGEMENT UNIT 62 FORMER BUNDY  
DISPOSAL AREA NAVACT PUERTO RICO  
10/29/2009  
MICHAEL BAKER JR., INC.



**FINAL  
PHASE I RCRA FACILITY INVESTIGATION  
REPORT  
SWMU 62 – FORMER BUNDY DISPOSAL  
AREA**



***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

October 29, 2009

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

**FINAL**

**PHASE I RCRA FACILITY INVESTIGATION REPORT  
SWMU 62 – FORMER BUNDY DISPOSAL AREA**

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

**OCTOBER 29, 2009**

*Prepared for:*

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

*Under:*

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

*Prepared by:*

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

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

Signature: 

Name: Mark E. Davidson

Title: BRAC Env. Coordinator

Date: October 29, 2009

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## LIST OF ACRONYMS AND ABBREVIATIONS

|         |   |
|---------|---|
| AFWTF   | Atlantic Fleet Weapons Training   |
| Baker   | Michael Baker Jr., Inc.   |
| bgs     | below ground surface  |
| BRAC    | Base Realignment and Closure  |
| CADD    | Computer Aided Design and Drafting                                      |
| CCME    | Canadian Council of Ministers of the Environment                        |
| CERCLA  | Comprehensive Environmental Recovery, Compensation, and Liabilities Act |
| CERFA   | Community Environmental Response Facilitation Act                       |
| CRDL    | Contract Required Detection Limit                                       |
| CRQL    | Contract Required Quantitation Limit                                    |
| CSF     | Cancer Slope Factors  |
| DGPS    | Differential Global Positioning System                                  |
| DI      | Deionized Water   |
| DO      | Delivery Order  |
| DPT     | Direct Push Technology  |
| DRO     | Diesel Range Organics   |
| ECP     | Environmental Condition of Property                                     |
| ECO-SSL | Ecological Soil Screening Level   |
| EPA     | Environmental Protection Agency   |
| EPC     | Exposure Point Concentration  |
| F       | Fahrenheit  |
| GIS     | Geographic Information System   |
| GPS     | Global Positioning System   |
| GRO     | Gasoline Range Organics   |
| GUMS    | Grid User Management System   |
| HQ      | Hazard Quotient   |
| IAS     | Initial Assessment Study  |
| ICSAB   | Interference Check Sample Solution AB                                   |
| IDW     | Investigation-Derived Waste   |
| ILCR    | Incremental Lifetime Cancer Risk  |
| IUR     | Inhalation Unit Risk  |
| LANTDIV | Naval Facilities Engineering Command, Atlantic Division                 |
| LCS     | Laboratory Control Sample   |
| LLPAH   | Low-Level Polynuclear Aromatic Hydrocarbon                              |
| LOAEC   | Lowest Observed Adverse Effect Concentration                            |

**LIST OF ACRONYMS AND ABBREVIATIONS**  
(continued)

|        |   |
|--------|---|
| MATC   | Maximum Acceptable Toxicant Concentration             |
| MDL    | Method Detection Limit                                |
| MGD    | Million Gallons per Day                               |
| MHSPE  | Ministry of Housing, Spatial Planning and Environment |
| MS/MSD | Matrix Spike/Matrix Spike Duplicate                   |
|        |   |
| 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 biphenyls                             |
| PMO    | Program Management Office                             |
|        |   |
| QA/QC  | Quality Assurance/Quality Control                     |
|        |   |
| RAGS   | Risk Assessment Guidance for Superfund                |
| RBC    | Risk-Based Concentration                              |
| RCRA   | Resource Conservation and Recovery Act                |
| RfC    | Reference Concentration                               |
| RfD    | Reference Dose  |
| RFF    | Relative Response Factor                              |
| RFI    | RCRA Facility Investigation                           |
|        |   |
| 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                             |
|        |   |
| %D     | Percent Difference                                    |

## 1.0 INTRODUCTION

This document presents the results of the Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 62 (Former Bundy Disposal Area) 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).

In anticipation of operational closure of Naval Station Roosevelt Roads (NSRR), currently designated as Naval Activity Puerto Rico (NAPR), the Naval Facilities Engineering Command, Atlantic Division (LANTDIV) prepared Phase I/Phase II Environmental Condition of Property (ECP) Reports to document the environmental condition of NSRR (LANTDIV, 2004). Section 8132 of the 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 requires that 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).

The United States Environmental Protection Agency (USEPA) issued a Resource Conservation and Recovery Act (RCRA) 7003 Administrative Order on Consent (Environmental Protection Agency [EPA] Docket No. RCRA-02-2007-7301), identifying SWMU 62 (formerly referred to as ECP Site 8) as having documented releases of solid and/or hazardous waste and hazardous constituents. The Revised Final Phase I RCRA Facility Investigation (RFI) Work Plan (Baker, 2008a) was approved by USEPA on May 13, 2008. This Phase I RFI Report presents the results of the Phase I RFI field investigation conducted in May/June 2008.

### 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/June 2008 Phase I RFI field investigation for SWMU 62 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 contaminants are present from past disposal activities at SWMU 62, from the completion of field activities (surface and subsurface soil sampling) as described in the approved 2008 RFI Work Plan (Baker, 2008a);
- Assess and document potential human health risks posed by the site; and
- Assess and document potential ecological risks posed by the site.

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

- Surface and subsurface soil sampling at four locations in the southeastern portion of the SWMU in the vicinity of the 2004 Phase II ECP surface and subsurface sample location 8E-03.
- Surface and subsurface soil sampling at four locations in the approximate center of the SWMU in the vicinity of the 2004 Phase II ECP surface and subsurface sample location 8E-01.

### **1.3 Organization of the Phase I RFI Report**

This report is organized into eight sections. Section 1.0 of this document discusses the purpose and objectives of this RFI. Section 2.0 presents a brief summary of the background of NAPR and the history and previous investigations at SWMU 62. 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 characteristics of the study area observed during this Phase I RFI investigation including the site geology and hydrogeology. 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 RFI, while Section 8.0 lists report references.

## **2.0 SITE BACKGROUND**

This section provides the history and description of current conditions at NAPR and SWMU 62. This section also includes a summary of the results of previous investigations conducted at SWMU 62.

### **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 re-designated as 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 (NAPR). The mission of NAPR is to protect the physical assets remaining, comply with environmental regulations, and sustain the value of the property until final disposal of the property. NAPR will continue until the real estate disposal/transfer is completed.

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

The final ECP report recommended completion of RCRA facility investigation of SWMU 62, which was the basis for the Phase I RFI and this report.

## **2.2 SWMU 62 Description and History**

SWMU 62, referred to as the "Former Bundy Disposal Area" is located in the southwestern portion of the base as shown on Figure 2-2. The records review and interviews conducted during the Phase I ECP did not confirm that the area was used as a disposal area. However, numerous piles of mounded gravel and charcoal, metal and building debris, and two empty 55-gallon drums were observed during the Phase I ECP physical site inspection. During the Phase II ECP investigation, the field crew observed the same type of site features as described above. There were no signs of stressed vegetation observed during the Phase II ECP investigation.

## **2.3 Previous Investigations**

During the Phase II ECP investigation, three soil borings (8E-01, 8E-02, and 8E-03), as shown on Figure 2-3, were advanced in the Former Bundy Disposal Area. These borings were placed in areas of disturbance as determined through the aerial photo interpretation. Figure 2-3 identifies the polygons from the historical aerial photo review along with the 1958 photo. Three surface soil samples were collected at this site (sample locations 8E-01 through 8E-03) from a depth of 0 to 1 foot below ground surface (bgs). Subsurface soil samples were then collected from 8E-01 and 8E-03 using a hand auger. (A track-mounted Geoprobe<sup>®</sup> rig was unable to traverse the topography at this site.) A subsurface soil sample was not obtained from soil boring location 8E-02 due to auger refusal at 1 foot bgs. The depth of subsurface soil collection at other locations was limited by the shallow depth to suspected bedrock. Geology at the site was characterized as a thin residual sand and silt overlaying weathered bedrock (Gabbro). Groundwater was not encountered.

The surface and subsurface soil samples were analyzed for Appendix IX volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/PCBs, organophosphorus (OP)-pesticides, chlorinated herbicides, and metals. In the surface soil, a few VOCs and pesticides were detected. No organic compounds exceeded USEPA Region III Residential or Industrial Risk-Based Concentrations (RBCs) at this SWMU. Organic compounds were not detected in the subsurface soil matrix.

Inorganic detections were representative of background concentrations of beryllium and tin found at NAPR with the exception of barium in the subsurface soil matrix. Three metals exceeded the USEPA Region III Residential RBCs, including arsenic and vanadium in the surface soil and barium and vanadium in the subsurface soil. At 8E-03 the barium concentration in the subsurface soil also exceeded twice the average detected background concentration, indicating possible contamination. It should be noted that barium also exceeded the background screening value in two of the three surface soil samples, although it did not exceed its RBC. The concentrations of arsenic and vanadium in the soil did not exceed the background concentrations established at NAPR. The ECP data is included in the discussion of analytical results in Section 6 of this Phase I RFI report.

Based on the occurrence of barium exceeding background and the USEPA Region III Residential RBC at sample location 8E03-01, it was concluded that site contamination has occurred from previous activities. Barium is associated with ignition equipment and acid batteries, and is a component of gray and ductile irons. These items could have been disposed of at the site as indicated by the past use of the site and as shown by a feature in the 1958 aerial photograph

(LANTDIV, 2004), at the site of sample 8E-03. As noted in Section 2.1, based on the findings of the ECP, the final ECP report recommended the completion of a RCRA facility investigation at SWMU 62.

### 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 present the description of the geologic, hydrologic, and hydrogeologic conditions across NAPR. These are generally applicable, but may or may not be specifically-applicable, to the SWMU 62 area. Site specific geologic, hydrologic, and hydrogeologic information can be referenced in sections 5.2.1 and 5.2.2.

#### **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 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 the 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 water 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**

In 2004, Baker conducted a Phase II ECP investigation involving 20 sites throughout NAPR (NAVFAC, 2004). 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 the 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 62 is located in an upland area within the Bundy Area of the base. Weathered bedrock was encountered at a shallow depth with no signs of groundwater in the overlying soil/fill material.

#### 4.0 PHASE I RCRA FACILITY INVESTIGATION ACTIVITIES

This section summarizes the Phase I RFI field work, analytical, and data validation activities that were conducted for the May/June 2008 field event. The work was conducted in accordance with the Revised Final Phase I RCRA Facility Investigation Work Plan for SWMU 62 (Baker, April 2008a).

Soil boring 62SB03 was advanced within the 1958 polygon surrounding sample 8E-03 from the Phase I/II ECP (NAVFAC Atlantic, 2005). Three additional borings (62SB01, 62SB02, and 62SB04) were advanced immediately adjacent to the 1958 polygon. Four soil borings were also advanced around sample 8E-01, which included 62SB05, 62SB06, 62SB07, and 62SB08, in the area where the 1958 aerial photograph indicates a soil disturbance. One additional soil boring (62SB09), also located within the 1958 polygon and approximately 25 feet northeast of 8E-01, was collected near the only drum identified during the investigation. Although the approved work plan proposed a total of ten soil borings, only one of the two previously identified drums were found on site. Therefore, a total of nine borings were advanced during this investigation. Surface soil and subsurface soil samples were collected at all locations. Section 4.1 discusses the surface and subsurface soil sampling activities. 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 samples and the analyses conducted on these samples are also shown in Table 4-1. Other Quality Assurance (QA)/Quality Control (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.

Other field activities were also conducted in support of the investigation of this site. These activities consisted of utility clearance, site clearing, surveying, management of investigation derived wastes, and QA/QC sampling.

Field notes containing descriptions of the site activities, site photographs, soil boring logs, and chain-of-custody records are presented in Appendix A. Laboratory analytical results for surface and subsurface soil, and QA/QC are presented in Appendix B. Data Validation report summaries are provided in Appendix C. Human Health Risk Calculations are provided in Appendix D. Appendix E includes a summary of analytical results from the Phase II ECP investigation.

#### 4.1 Surface and Subsurface Soil Sampling

Surface and subsurface soil samples were collected from the soil boring locations shown on Figure 4-1. Borings 62SB01 through 62SB04 were advanced at locations in the vicinity of the 1958 polygon surrounding the ECP sample 8E-03 where barium concentrations were detected at elevated levels. Borings 62SB05 through 62SB08 were advanced surrounding ECP sample 8E-01 where an area of disturbed soil noted in the 1958 aerial photograph was targeted for investigation. During the investigation, the field team evaluated the layout of the proposed borings and determined that the sample locations were in the vicinity of piles of mounded gravel and charcoal, metal, and building debris. The samples proposed for implementation as outlined in the approved work plan were advanced in order to further characterize and delineate the site based on the results of the Phase I/II ECP investigations. An additional soil boring 62SB09 was advanced in the immediate vicinity of a partially buried drum (see Figure 4-1). Soil boring

62SB10 was not advanced because only one drum was found on the site during the site reconnaissance.

Soil borings were advanced using a track-mounted rig (Geoprobe 66DT rig operated by GeoEnviroTech, Inc., of San Juan, Puerto Rico) with Direct Push Technology (DPT) and samples were collected using 4-foot Macro-Cores®. 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 9 boreholes or during the general PID air monitoring.

Surface soil samples were collected from a depth of 0 to 1 foot below ground surface (bgs) from soil borings 62SB01 through 62SB09 and included one field duplicate from 62SB08. As per the Work Plan, five surface soil samples (62SB01-00, 62SB02-00, 62SB04-00, 62SB05-00, and 62SB07-00) were analyzed for Appendix IX VOCs, pesticides, and metals. However, in an effort to provide a larger data set since there were only three surface soil samples analyzed in the Phase II ECP, samples 62SB03-00, 62SB06-00, 62SB08-00, and 62SB08-00D were analyzed for Appendix IX SVOCs, and PCB's in addition to the Appendix IX VOCs, pesticides, and metals analysis specified in the work plan. Sample 62SB09-00 was advanced near the partially buried drum identified on-site and was analyzed for Appendix IX VOCs, SVOCs, pesticides, PCBs, and metals. The samples were transferred directly into pre-labeled sample jars and placed on ice. As stated previously, after extensive site reconnaissance, only one drum was found on site. Therefore, proposed soil boring 62SB10 was not advanced. Table 4-1 provides a summary of the surface soil samples collected at SWMU 62.

Two subsurface soil samples were collected from each boring for a total of 18 environmental samples. In addition, two field duplicates (62SB04-03D and 62SB08-02D) and one MS/MSD (62SB08-02MS/MSD) were also collected. A total of 8 subsurface samples collected from 62SB03-01, 62SB03-05, 62SB06-01, 62SB06-03, 62SB08-01, 62SB08-02, and 62SB09-01 and 62SB09-02 were analyzed for Appendix IX VOCs, SVOCs, pesticides, PCBs, and metals. The remaining 10 samples (62SB01-03, 62SB01-05, 62SB02-01, 62SB02-03, 62SB04-03, 62SB04-05, 62SB05-01, 62SB05-02, 62SB07-01, and 62SB07-02) were analyzed for Appendix IX metals only. Samples were collected from a shallow interval and a deeper interval spanning 10 feet bgs or at a depth before refusal, whichever was encountered first. The samples were transferred directly into pre-labeled sample jars and placed on ice. Table 4-1 provides a summary of the subsurface soil samples collected at SWMU 62.

#### **4.2 Utility Clearance**

As per the approved work plan, all proposed boring locations were first checked for the presence of subsurface utilities. Base utility mapping did not indicate the presence of utilities within the SWMU boundary. The sampling locations were field-located using a Global Positioning System (GPS), and the absence of subsurface utilities was field verified. Interference from underground utilities was not encountered during drilling activities.

#### **4.3 Site Clearing**

Once utility clearance was achieved and the proposed sample locations were located using a GPS unit, site clearing activities were initiated to assist the drill rig and provide access routes to the proposed sample locations. The proposed sample locations were located and marked with flags. Flagging remained intact during site clearing activities.

#### **4.4 Decontamination and 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. Following sample collection, the soil cuttings from the soil borings were placed back into the boring from which they came.

Wastewater from decontamination of the drill rig before and after entering the site were containerized, stored in a 55-gallon drum, and disposed of properly.

Two IDW samples were collected. One composite aqueous sample was collected from drums containing decontamination fluid (from sampling equipment and drill rig), and one composite soil sample was collected from drums containing drill cuttings (not applicable to SWMU 62). The soil IDW samples were analyzed for toxicity characteristic leaching procedure (TCLP) VOCs and metals, ignitability, reactive sulfide, reactive cyanide, and pH. The water IDW samples were analyzed for Appendix IX VOCs, total Appendix IX metals, ignitability, reactive sulfide, reactive cyanide, and pH. The drums were moved and stored at a secure location on base following the field work completion. The soil and water IDW has been removed and disposed of from the site by an approved vendor. A copy of the IDW disposal manifest is presented in Appendix A, while the IDW analytical data is presented in Appendix B.

#### **4.5 Surveying**

Sampling 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 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 identified using the numbering system as described in the soil sampling and analysis section of the work plan. Additionally, after the buried drum (soil boring 62SB09) was found, its location was flagged and surveyed using GPS. The coordinate system used 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
- Trip Blanks
- Matrix Spike/Matrix Spike Duplicates (MS/MSDs)
- Field Blank
- Equipment Rinsate Blanks

#### **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. One field duplicate surface soil sample (62SB08-00D) was collected corresponding to nine surface soil samples. Two subsurface soil duplicate samples (62SB04-03D and 62SB08-02D) were collected corresponding to 18 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 the samples from the site intended for VOC and GRO analysis. A total of five trip blanks (QATB01, 62TB01, 62TB03, 61TB02, and 71TB02) accompanied samples from this site. Trip blanks QATB01, 62TB01, 62TB03, and 61TB02 were analyzed for Appendix IX VOCs, while 71TB02 was analyzed for TPH GRO to evaluate whether cross contamination occurred during shipping of samples.

#### **4.6.3 Matrix Spike/Matrix Spike Duplicates**

Matrix spike and matrix spike duplicates (MS/MSD) were collected at the rate of approximately 5 percent of primary environmental samples from the surface and subsurface soil. One set of MS/MSD (62SB08-00MS/MSD) was collected corresponding to the nine surface soil samples. One set of MS/MSD (62SB08-02MS/MSD) was collected corresponding to 18 subsurface soil samples. The MS/MSD samples were analyzed for the same parameters as the primary environmental samples and the results were used to evaluate the effect of each type of matrix on the analytical method.

#### **4.6.4 Field Blanks**

One field blank sample (FB01) was collected from laboratory-grade deionized (DI) water used as the source water for the equipment rinsate samples. Store bought distilled water was not used during this investigation, so an additional field blank for store bought distilled water was not necessary. The field blank sample was analyzed for Appendix IX VOCs, SVOCs (including low-level polyaromatic hydrocarbons [PAH]), and metals, to determine whether the water used for generating the equipment rinsates was free of chemicals at levels of concern for the site.

#### **4.6.5 Equipment Rinsates**

Equipment rinsate samples ER24 and ER25 were collected from disposable Macro Core Liners used on May 31 and June 1, 2008 and analyzed for Appendix IX VOCs, SVOCs, Pesticides, PCB's, TPH GRO and DRO, and metals. Other site investigations (in addition to the Phase I RFI investigation at SWMU 62) were conducted simultaneously during the April through June 2008 time period at NAPR. Those investigations include the Phase I RFI investigations for SWMUs 71 (Quarry Disposal Site) and 78 (Pole Yard) 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.

**4.7 Laboratory Analysis**

Fixed-base laboratory analysis was conducted by Test America, Savannah, Georgia. The list of parameters under the analytical program and the Contract Required Quantitation Limits (CRQLs) are provided in Table 4-3. Data Validation Summaries and Puerto Rican Chemist Certifications are provided with this RFI as Appendix C.

**4.8 Data Validation**

All fixed-base laboratory data was validated by Data Qual 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 62 at the time of the Phase I RFI field investigation, conducted from May 31 to June 1, 2008. The site geology and hydrogeology, as ascertained from the soil boring program and other available information, is described herein.

### 5.1 Current Conditions

As shown on Figure 2-4, the entire SWMU 62 boundary consists of approximately 13 acres of dense, secondary growth vegetation. The site was located on USGS mapping (Naguabo, PR 7.5 minute quadrangle, photorevised 1982) and evaluated for topographic relief and drainage patterns. The Former Bundy Disposal Area slopes predominantly to the south and does not contain drainage systems such as streams or rivers. Site reconnaissance observations made during the Phase I RFI investigation were similar to those made during the Phase I and II ECP investigations: numerous piles of mounded gravel and charcoal, and metal and building debris were visible within the central portion of the SWMU near sample 8E-01. Only one partially buried drum was found (see photo A-7 and A-8 in Appendix A). The location of the drum was surveyed using GPS, and as stated in the approved work plan, a surface and subsurface soil sample (62SB09) was collected in the immediate vicinity of the drum and analyzed for Appendix IX VOCs, SVOCs, pesticides/PCBs, and metals.

### 5.2 Geology/Hydrology

The following sections discuss the geology and hydrogeology in the vicinity of SWMU 62.

#### 5.2.1 Geology

In 2004, the Navy performed a Phase II ECP investigation at SWMU 62 (ECP Site 8). The Phase II ECP investigation indicated that there are 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. SWMU 62 is located in the upland area of the Former Bundy Disposal Area. Surface and subsurface soil samples were collected from three locations (8E-01, 8E-02, and 8E-03). A thin residual layer of sand and silt was observed overlaying weathered bedrock (Gabbro) and that groundwater was not encountered in any of the borings advanced at the site during the Phase II ECP.

A total of nine soil borings were installed at SWMU 62 during the Phase I RFI investigation. Boring logs are provided in Appendix A. A thin layer of dark brown sandy loam ranging from a few inches to more than a foot thick was observed at each boring location (except at 62SB06 where fill material was encountered at the surface). Underlying this surficial layer was either a sandy-clay or a silt and sand material. The sandy clay was typically described as medium to light brown to orange, moderately hard with fine to medium grained sand or gravel. The silt and sand is typically described as a medium brown to tan, loose silt and sand with rock fragments or pebbles. In some cases moderately hard, blue-grey sandy clay was encountered with rock fragments. Geoprobe refusal, indicating a transition to more competent bedrock was encountered at relatively shallow depths, especially in the central portion of the SWMU at borings 62SB05 (6.5 feet bgs), 62SB07 (5.4 feet bgs), 62SB08 (7.2 feet bgs) and 62SB09 (7.4 feet bgs). Soil boring locations are given on Figure 5-1 and boring logs are provided in Appendix A.

A geologic cross section was prepared to depict the shallow subsurface conditions at SWMU 62. The cross section locations are provided on Figure 5-1 and cross sections A-A' and B-B' are given as Figure 5-2.

### **5.2.2 Hydrogeology**

The approved work plan did not specify installation of groundwater monitoring wells during the 2008 Phase I RFI Investigation. Additionally, groundwater was not encountered during the installation of the shallow borings for the Phase I investigation.

## **6.0 ANALYTICAL RESULTS**

This section discusses the analytical results of environmental samples collected from SWMU 62 during the 2008 Phase I RFI investigation. The 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 Sample Delivery Groups (SDGs) are provided in Appendix C.

### **6.1 Human Health and Ecological Screening Values**

Detected compounds for each media are compared to applicable regulatory and background criteria. The rationale for using criteria for 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, 2008), and the upper limit of means background levels (inorganics only) (Baker, 2008b).

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

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

Also, it should be noted that even though subsurface soil analytical results from below 10 feet would not be used in human health risk assessments due to the unlikely exposure route below that depth, all subsurface soil analytical results were screened against the Regional SLs for completeness.

### 6.1.2 Ecological

USEPA ecological soil screening levels (Eco-SSLs) (documentation is available at <http://www.epa.gov/ecotox/ecossl/>) for terrestrial plants and invertebrates were preferentially used as soil screening values. 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, 2008a 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. 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)

Identical to the Eco-SSLs, when more than one screening value was available for a given chemical from Efroymson et al. (1997a and 1997b), the lowest value was selected as the soil screening value. For those chemicals lacking an Eco-SSL, toxicological data eligible for Eco-SSL derivation, and 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 (1999a).
- Soil standards developed by the Ministry of Housing, Spatial Planning and Environment (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, 2007).

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

In addition, the upper limit of means background levels (inorganics only) (Baker, 2006) were used to compare the soil concentrations to those present at NAPR in un-impacted soil. Both surface soil background levels and subsurface soil background levels for a fine sand/silt soil type (most prevalent soil type at SWMU 62) were used in screening.

As a general rule, screening of soil results for ecological purposes would include surface soil, as well as subsurface soil results from the 1 – 2 foot depth range. At SWMU 62, seven samples were collected between 1 – 3 feet (see Table 4-1). Therefore, for the sake of completeness, these samples were compared against ecological screening criteria.

## 6.2 Surface Soil

Nine surface soil samples and one duplicate sample (62SB08-00D) were collected and analyzed during the Phase I RFI. Five surface soil samples (62SB01-00, 62SB02-00, 62SB04-00, 62SB05-00, and 62SB07-00) were analyzed for Appendix IX VOCs, pesticides, and metals only, while the four remaining surface soil samples (62SB03-00, 62SB06-00, 62SB08-00, and 62SB09-00) were analyzed for Appendix IX VOCs, SVOCs, pesticides, PCBs, and metals. A detected results table for the combined surface soil data set is presented in Table 6-1. Results are compared to appropriate media specific criteria as described in Section 6.1.

Three VOCs were detected in the surface soil at low, estimated concentrations, and the majority (excluding iodomethane which has no established screening criteria) were well below the listed criteria. Three pesticides were found at 62SB01-00, 62SB05-00, 62SB08-00 and 62SB08-00D, also well below the listed criteria. No PCBs were detected in the surface soil. Ten SVOCs were found at 62SB08-00 and 62SB08-00D and eleven SVOCs were found at 62SB09-00; all were estimated concentrations. No organic parameters exceeded the screening criteria.

Fourteen inorganic compounds were detected in the surface soil at SWMU 62. Seven inorganic parameters exceeded one or more of the screening criteria:

- Arsenic
- Barium
- Beryllium
- Cobalt
- Copper
- Tin
- Vanadium

Arsenic exceeded the regional screening level for residential soil at all nine surface soil sample locations; arsenic also exceeded the regional screening level for industrial soil at five of the nine locations. However, arsenic only exceeded the background screening level at three locations, 62SB06, 62SB08 and 62SB09. Barium exceeded the NAPR basewide background concentration at three locations; barium also exceeded the selected ecological surface soil screening values at two of these locations, 62SB04 and 62SB07. Beryllium was detected at a concentration in excess of background at one location (62SB08); beryllium did not exceed any of the other screening criteria. Cobalt was detected in excess of the regional screening level for residential soil at eight of the nine surface soil sample locations and exceeded the selected ecological surface soil screening values at two locations. Cobalt was not detected in any of the surface soil samples at concentrations in excess of its background screening value. Copper was detected in one sample at a concentration in excess of the selected ecological surface soil screening value; however, this detection did not exceed the background screening value for copper. Tin was detected in one sample (62SB09-00) at a concentration in excess of its background screening value. Tin was not detected above the other human health or ecological screening criteria. Vanadium exceeded the selected ecological surface soil screening value at all nine sample locations. Vanadium also exceeded the regional screening level for residential soil at four of the nine sample locations. None of the vanadium detections exceeded the background screening value. Cadmium,

chromium, lead, mercury, nickel, selenium and silver did not exceed any of the screening criteria or background. Figure 6-1 presents the locations of inorganic parameters that exceeded ecological or human health screening criteria and NAPR basewide background value for the 2008 Phase I RFI data.

Based on the exceedances of background and regulatory screening criteria in the surface soil, it appears that metals contamination (primarily arsenic and barium) may have occurred in the surface soil due to past activities at SWMU 62. Information obtained to date indicates that the lateral extent of contamination has not been fully defined.

Potential human exposure to arsenic concentrations in surface soil at SWMU 62 was evaluated due to exceedances of both the Regional SL and background. Preliminary risk calculations were performed under a future residential exposure scenario in order to more fully evaluate potential human health risks from arsenic in soil. Furthermore, evaluation of a future residential exposure scenario provides an upper bound for potential human health risk to site-specific media. The calculations were performed using standard carcinogenic and noncarcinogenic risk equations found in USEPA's Risk Assessment Guidance for Superfund (RAGS) (USEPA, 1989) and USEPA-promulgated exposure parameters and toxicity criteria. The specific equations, exposure parameters, and toxicity criteria are presented in Appendix D. To present a complete exposure scenario, arsenic concentrations in surface soil were evaluated by combining surface soil analytical data from the Phase II ECP Report (NAVFAC Atlantic, 2005) and the Phase I RFI. USEPA ProUCL Version 4.00.02 software (USEPA, 2007a and 2007b) was used to determine the distribution of the data set and calculate the exposure point concentration (EPC).

The results of the preliminary risk calculations are presented in Appendix D. The distribution and EPC (95 percent Upper Confidence Limit of the mean) for arsenic are presented in Table D-1, while exposure parameters and toxicity criteria used in the preliminary risk calculations are presented in Tables D-2 and D-3, respectively. The results of the preliminary risk calculations are presented in Tables D-4 (future adult resident) and D-5 (future child resident). As shown on Table D-4, the carcinogenic risk for the future adult resident is  $1.8 \times 10^{-06}$ , and the hazard index is 0.01. As shown on Table D-5, the carcinogenic risk for the future child resident is  $4.1 \times 10^{-06}$ , and the hazard index is 0.11. As evidenced by Tables D-4 and D-5, there are no unacceptable carcinogenic or noncarcinogenic risks calculated from potential exposure to arsenic in soil at SWMU 62. Furthermore, the low carcinogenic and noncarcinogenic risk levels calculated demonstrate that arsenic in soil would not be a risk driver if a baseline human health risk assessment was conducted.

### **6.3 Subsurface Soil**

Eighteen primary subsurface soil samples were collected and analyzed during the Phase I RFI. A total of 9 subsurface samples collected from 62SB03-01, 62SB03-05, 62SB06-01, 62SB06-03, 62SB08-01, 62SB08-02, 62SB08-02D, and 62SB09-01 and 62SB09-02 were analyzed for Appendix IX VOCs, SVOCs, Pesticides and PCBs in addition to metals. The remaining 11 samples (62SB01-03, 62SB01-05, 62SB02-01, 62SB02-03, 62SB04-03, 62SB04-03D, 62SB04-05, 62SB05-01, 62SB05-02, 62SB07-01, and 62SB07-02) were analyzed for metals only. Detected results for the subsurface soil data set are presented in Table 6-2.

Three VOCs were detected in the subsurface soil at low, estimated concentrations below the listed criteria. One SVOC (Naphthalene) was detected in one subsurface soil sample (62SB08-02D). No PCBs or pesticides were detected in the subsurface soil. No organic parameters exceeded any screening criteria.

Thirteen inorganic compounds were detected in the subsurface soil at SWMU 62. Only six inorganic parameters exceeded one or more of the criteria. They are:

- Arsenic
- Barium
- Beryllium
- Cobalt
- Copper
- Vanadium

Analytical results from the Phase II ECP (see Appendix E) indicate that the barium concentration at 8E-03 in the subsurface soil exceeded twice the average detected background concentration, indicating possible contamination. One of the objectives of the Phase I RFI was to further delineate the barium detected in the subsurface soil at 8E-03. As a result, barium concentrations detected in subsurface soils at 62SB01 and 62SB02 did not exceed human health or ecological screening criteria, or background concentrations. A summary of subsurface soil exceedances for other metals encountered during the Phase I RFI investigation are discussed below.

Arsenic exceeded the regional screening level for residential soil at all nine subsurface soil sample locations; arsenic also exceeded the regional screening level for industrial soil at four of the nine locations. However, arsenic did not exceed the background screening level at any of the locations. Barium exceeded the NAPR basewide background concentration at four locations; barium also exceeded the selected ecological surface soil screening value at one location, 62SB06, at a depth of 1 to 3 feet bgs (note that the ecological soil screening values are not applicable to samples collected from depths greater than 3 feet bgs). Beryllium was detected at a concentration in excess of background at two locations (62SB03 and 62SB09); beryllium did not exceed any of the other screening criteria. Cobalt was detected in excess of the regional screening level for residential soil at all nine subsurface soil sample locations and exceeded the selected ecological surface soil screening values at one location (62SB06). Cobalt was not detected in any of the subsurface soil samples at concentrations in excess of its background screening value. Copper was detected in one sample at a concentration in excess of the selected ecological subsurface soil screening value; however, this detection did not exceed the background screening value for copper. Vanadium exceeded the selected ecological surface soil screening value at all nine sample locations. Vanadium also exceeded the regional screening level for residential soil at three of the nine sample locations. None of the vanadium detections exceeded the background screening value. Cadmium, chromium, lead, mercury, nickel, selenium and silver did not exceed any of the screening criteria or background. Figure 6-2 presents the locations of inorganic parameters that exceeded ecological screening criteria and the NAPR basewide background value for the 2008 Phase I RFI data.

Based on the exceedances of background and regulatory screening concentrations in the subsurface soil, it appears that barium (sample 62SB06-01) contamination may have occurred in the subsurface soil due to past activities at SWMU 62.

#### **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 provided in Section 6.4.2. Data validation reports are included in Appendix C. In addition, the Puerto Rican Chemist Certification for each STL 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/or GRO. Other blanks were analyzed for all fractions requested in this investigation including Appendix IX VOCs, SVOCs, PCBs, pesticides, and total metals. Table 6-3 presents the detected compounds found in the trip blanks, equipment rinsates, and field blanks.

There were three VOCs (2-Butanone, acetone and carbon disulfide) detected in one of the five trip blanks (61TB02), GRO was not 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 seven VOCs (2-butanone, acetone, benzene, styrene, tetrachloroethane, toluene, and xylenes), seven SVOCs (2-methylnaphthalene, acenaphthene, acetophenone, bis(2-ethylhexyl)phthalate, diethyl phthalate, di-n-butyl phthalate, and Naphthalene), diesel range organics, and eight metals (arsenic, chromium, cobalt, copper, lead, nickel, tin, and vanadium).

#### **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 indicted that all sample preparation and analysis was performed within Region II and/or method holding time requirements. 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 SDG. 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 any contaminants are present from past disposal 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, 2008);
- Screen for potential human health risks posed by the site; and
- Screen for potential ecological risks posed by the site.

The analysis of samples obtained during the Phase I RFI investigation indicates that surface and subsurface soil has been impacted from past activities at SWMU 62. Arsenic was detected in surface soil samples (62SB06-00, 62SB08-00 and 62SB09-00) at concentrations in excess of human health screening values (regional screening levels for residential or industrial soil) and background. A preliminary risk evaluation was conducted for arsenic. The low carcinogenic and noncarcinogenic risk levels calculated demonstrate that arsenic in soil would not indicate a health risk if a baseline human health risk assessment was conducted. Barium was also detected in surface and shallow subsurface soil samples (62SB04-00, 62SB06-01 and 62SB07-00) at concentrations exceeding the selected ecological soil screening values and background.

It should be noted that a number of organic compounds were detected for the specific media. However, all of the organic concentrations were below screening criteria for human health and ecological receptors.

### **7.2 Recommendations**

Impact to the environment appears to have occurred at SWMU 62. While the contamination appears to be limited, a Full RFI Investigation is recommended to characterize the nature and extent of site contamination in the surface and subsurface soil. The Full RFI Investigation should focus around Phase I RFI sample locations 62SB04, 62SB06, 62SB07, 62SB08 and 62SB09.

Therefore, the Full RFI should include further investigation of metals in the surface and subsurface soils, define the likely source area(s), and determine the potential for unacceptable risks to human health and/or the environment. In addition, the Full RFI should include a general inventory of the types of debris (i.e., concrete, steel, etc.) within the vicinities of the proposed sample locations. The location(s) of the debris will be verified with a Global Positioning System. Figure 7-1 shows the recommended/follow-up sample locations necessary for further investigation, while Table 7-1 provides recommendations for the sampling and analytical program to be conducted during the Full RFI investigation. Once the Full RFI investigation is initiated, the proposed sample locations shown on Figure 7-1 may need adjusted due to field conditions.

## 8.0 REFERENCES

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**TABLES**

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TABLE 4-1

**SUMMARY OF 2008 RFI SURFACE AND SUBSURFACE SOIL SAMPLING AND ANALYSIS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Media           | Site ID         | Sample ID  | Sample Depth (ft bgs) | Sample Date | Analysis Requested |                              |                    |      |                                     | Comments  |
|-----------------|-----------------|------------|-----------------------|-------------|--------------------|------------------------------|--------------------|------|-------------------------------------|-----------|
|                 |                 |            |                       |             | App. IX VOCs       | App. IX SVOCs <sup>(1)</sup> | App. IX Pesticides | PCBs | App. IX Metals                      |           |
| Surface Soil    | 62SB01          | 62SB01-00  | 0.0 - 1.0             | 05/31/08    | X                  |                              | X                  |      | X                                   |           |
|                 | 62SB02          | 62SB02-00  | 0.0 - 1.0             | 06/01/08    | X                  |                              | X                  |      | X                                   |           |
|                 | 62SB03          | 62SB03-00  | 0.0 - 1.0             | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
|                 | 62SB04          | 62SB04-00  | 0.0 - 1.0             | 05/31/08    | X                  |                              | X                  |      | X                                   |           |
|                 | 62SB05          | 62SB05-00  | 0.0 - 1.0             | 06/01/08    | X                  |                              | X                  |      | X                                   |           |
|                 | 62SB06          | 62SB06-00  | 0.0 - 1.0             | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
|                 | 62SB07          | 62SB07-00  | 0.0 - 1.0             | 06/01/08    | X                  |                              | X                  |      | X                                   |           |
|                 | 62SB08          | 62SB08-00  | 0.0 - 1.0             | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
|                 |                 | 62SB08-00D | 0.0 - 1.0             | 06/01/08    | X                  | X                            | X                  | X    | X                                   | Duplicate |
| 62SB09          | 62SB09-00       | 0.0 - 1.0  | 06/01/08              | X           | X                  | X                            | X                  | X    | Matrix Spike/Matrix Spike Duplicate |           |
| Subsurface Soil | 62SB01          | 62SB01-03  | 5.0-7.0               | 05/31/08    |                    |                              |                    |      | X                                   |           |
|                 |                 | 62SB01-05  | 9.0-11.0              | 05/31/08    |                    |                              |                    |      | X                                   |           |
|                 | 62SB02          | 62SB02-01  | 1.0-3.0               | 06/01/08    |                    |                              |                    |      | X                                   |           |
|                 |                 | 62SB02-03  | 5.0-7.0               | 06/01/08    |                    |                              |                    |      | X                                   |           |
|                 | 62SB03          | 62SB03-01  | 1.0-3.0               | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
|                 |                 | 62SB03-05  | 9.0-11.0              | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
|                 | 62SB04          | 62SB04-03  | 5.0-7.0               | 05/31/08    |                    |                              |                    |      | X                                   |           |
|                 |                 | 62SB04-03D | 5.0-7.0               | 05/31/08    |                    |                              |                    |      | X                                   | Duplicate |
|                 | 62SB05          | 62SB04-05  | 9.0-11.0              | 05/31/08    |                    |                              |                    |      | X                                   |           |
|                 |                 | 62SB05-01  | 1.0-3.0               | 06/01/08    |                    |                              |                    |      | X                                   |           |
|                 | 62SB06          | 62SB05-02  | 3.0-5.0               | 06/01/08    |                    |                              |                    |      | X                                   |           |
|                 |                 | 62SB06-01  | 1.0-3.0               | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
|                 | 62SB07          | 62SB06-03  | 5.0-7.0               | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
|                 |                 | 62SB07-01  | 1.0-3.0               | 06/01/08    |                    |                              |                    |      | X                                   |           |
|                 | 62SB08          | 62SB07-02  | 3.0-5.0               | 06/01/08    |                    |                              |                    |      | X                                   |           |
|                 |                 | 62SB08-01  | 1.0-3.0               | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
|                 |                 | 62SB08-02  | 3.0-5.0               | 06/01/08    | X                  | X                            | X                  | X    | X                                   |           |
| 62SB08-02D      |                 | 3.0-5.0    | 06/01/08              | X           | X                  | X                            | X                  | X    | Duplicate                           |           |
| 62SB09          | 62SB08-02MS/MSD | 3.0-5.0    | 06/01/08              | X           | X                  | X                            | X                  | X    | Matrix Spike/Matrix Spike Duplicate |           |
|                 | 62SB09-01       | 1.0-3.0    | 06/01/08              | X           | X                  | X                            | X                  | X    |                                     |           |
|                 | 62SB09-02       | 3.0-5.0    | 06/01/08              | X           | X                  | X                            | X                  | X    |                                     |           |

**Notes:**

<sup>(1)</sup> Low Level PAH's included with SVOC analysis  
ft bgs - feet below ground surface

TABLE 4-2

**SUMMARY OF 2008 RFI QUALITY ASSURANCE/QUALITY CONTROL SAMPLING AND ANALYSIS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| QA/QC Sample       | Sample ID | Sample Date | Analysis Requested |                              |                    |      |                |                        |                        | Comments                  |
|--------------------|-----------|-------------|--------------------|------------------------------|--------------------|------|----------------|------------------------|------------------------|---------------------------|
|                    |           |             | App. IX VOCs       | App. IX SVOCs <sup>(1)</sup> | App. IX Pesticides | PCBs | App. IX Metals | TPH DRO <sup>(2)</sup> | TPH GRO <sup>(2)</sup> |                           |
| Trip Blanks        | QATB01    | 5/2/2008    | X                  |                              |                    |      |                |                        |                        |                           |
|                    | 62TB01    | 5/31/2008   | X                  |                              |                    |      |                |                        |                        |                           |
|                    | 62TB03    | 6/1/2008    | X                  |                              |                    |      |                |                        |                        |                           |
|                    | 61TB02    | 6/3/2008    | X                  |                              |                    |      |                |                        |                        |                           |
|                    | 71TB02    | 6/3/2008    |                    |                              |                    |      |                |                        | X                      |                           |
| Equipment Rinsates | ER24      | 5/31/2008   | X                  | X                            | X                  | X    | X              | X                      | X                      | Macro Core Liner          |
|                    | ER25      | 6/1/2008    | X                  | X                            | X                  | X    | X              | X                      | X                      | Macro Core Liner          |
| Field Blank        | FB01      | 5/2/2008    | X                  | X                            |                    |      | X              | X                      | X                      | Lab Grade Deionized Water |

**Notes:**

<sup>(1)</sup> Low Level PAH's included with SVOC analysis

<sup>(2)</sup> Not applicable to this investigation. The differences in parameters selected for analysis between QA/QC samples corresponds to the multiple site investigations (in addition to the Phase I RFI investigation at SWMU 62) conducted simultaneously at SWMUs 56, 61, 69, 71, 74, and 78 during the April through June 2008 time period at NAPR.

TABLE 4-3

PARAMETER LISTS AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

| Appendix IX - VOCs          | Quantitation Limits* |                     | Method Number<br>(Description) |
|-----------------------------|----------------------|---------------------|--------------------------------|
|                             | Water<br>(µg/L)      | Low Soil<br>(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)       |
| Toluene                     | 1.0                  | 5.0                 | 8260B (5030) (low level)       |

TABLE 4-3

PARAMETER LISTS AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

| Appendix IX - VOCs (cont.)    | Quantitation Limits* |                     | Method Number<br>(Description) |
|-------------------------------|----------------------|---------------------|--------------------------------|
|                               | Water<br>(µg/L)      | Low Soil<br>(µg/kg) |                                |
| 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<br>(Description) |
|                               | Water<br>(µg/L)      | Low Soil<br>(µg/kg) |                                |
| <i>Acenaphthene</i>           | 0.2                  | 6.7                 | 8270C                          |
| <i>Acenaphthylene</i>         | 0.2                  | 6.7                 | 8270C                          |
| Acetophenone                  | 10                   | 330                 | 8270C                          |
| 2-Acetylaminofluorene         | 10                   | 330                 | 8270C                          |
| 4-Aminobiphenyl               | 20                   | 330                 | 8270C                          |
| Aniline                       | 20                   | 660                 | 8270C                          |
| <i>Anthracene</i>             | 0.2                  | 6.7                 | 8270C                          |
| Aramite                       | 10                   | 330                 | 8270C                          |
| <i>Benzo(a)anthracene</i>     | 0.2                  | 6.7                 | 8270C                          |
| <i>Benzo(b)fluoranthene</i>   | 0.2                  | 6.7                 | 8270C                          |
| <i>Benzo(k)fluoranthene</i>   | 0.2                  | 6.7                 | 8270C                          |
| <i>Benzo(g,h,i)perylene</i>   | 0.2                  | 6.7                 | 8270C                          |
| <i>Benzo(a)pyrene</i>         | 0.2                  | 6.7                 | 8270C                          |
| Benzyl alcohol                | 10                   | 330                 | 8270C                          |
| Bis(2-chloroethoxyl)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>               | 0.2                  | 6.7                 | 8270C                          |
| 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> | 0.2                  | 6.7                 | 8270C                          |
| o-Dichlorobenzene             | 10                   | 330                 | 8270C                          |
| m-Dichlorobenzene             | 10                   | 330                 | 8270C                          |
| p-Dichlorobenzene             | 10                   | 330                 | 8270C                          |
| 3,3'-Dichlorobenzidine        | 20                   | 660                 | 8270C                          |

TABLE 4-3

PARAMETER LISTS AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

| Appendix IX - SVOCs (Cont.)         | Quantitation Limits* |                     | Method Number<br>(Description) |
|-------------------------------------|----------------------|---------------------|--------------------------------|
|                                     | Water<br>(µg/L)      | Low Soil<br>(µg/kg) |                                |
| 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                          |
| <b>Fluoranthene</b>                 | <b>0.2</b>           | <b>6.7</b>          | <b>8270C</b>                   |
| <b>Fluorene</b>                     | <b>0.2</b>           | <b>6.7</b>          | <b>8270C</b>                   |
| 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                          |
| <b>Indeno(1,2,3-cd)pyrene</b>       | <b>0.2</b>           | <b>6.7</b>          | <b>8270C</b>                   |
| Isophorone                          | 10                   | 330                 | 8270C                          |
| Isosafrole                          | 10                   | 330                 | 8270C                          |
| Methapyrilene                       | 2,000                | 67,000              | 8270C                          |
| 3-Methylcholanthrene                | 10                   | 330                 | 8270C                          |
| Methyl methanesulfonate             | 10                   | 330                 | 8270C                          |
| <b>1-Methylnaphthalene</b>          | <b>0.2</b>           | <b>6.7</b>          | <b>8270C</b>                   |
| <b>2-Methylnaphthalene</b>          | <b>0.2</b>           | <b>6.7</b>          | <b>8270C</b>                   |
| <b>Naphthalene</b>                  | <b>0.2</b>           | <b>6.7</b>          | <b>8270C</b>                   |
| 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                          |
| n-Nitrosodi-n-butylamine            | 10                   | 330                 | 8270C                          |

TABLE 4-3

PARAMETER LISTS AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

| Appendix IX - SVOCs (Cont.)  | Quantitation Limits* |                     | Method Number<br>(Description) |
|------------------------------|----------------------|---------------------|--------------------------------|
|                              | Water<br>(µg/L)      | Low Soil<br>(µg/kg) |                                |
| n-Nitrosodiethylamine        | 10                   | 330                 | 8270C                          |
| n-Nitrosodimethylamine       | 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                          |
| <i>Phenanthrene</i>          | <i>0.2</i>           | <i>6.7</i>          | <i>8270C</i>                   |
| Phenol                       | 10                   | 330                 | 8270C                          |
| 1,4-Phenylenediamine         | 2,000                | 1,700               | 8270C                          |
| 2-Picolin                    | 10                   | 330                 | 8270C                          |
| Pronamide                    | 10                   | 330                 | 8270C                          |
| <i>Pyrene</i>                | <i>0.2</i>           | <i>6.7</i>          | <i>8270C</i>                   |
| 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                          |
| Pesticides                   | Quantitation Limits* |                     | Method Number                  |
|                              | Water<br>(µg/L)      | Low Soil<br>(µg/kg) |                                |
| Aldrin                       | 1/0/1900             | 1/1/1900            | 8081A                          |
| Alpha-BHC                    | 1/0/1900             | 1/1/1900            | 8081A                          |
| beta-BHC                     | 1/0/1900             | 1/1/1900            | 8081A                          |
| delta-BHC                    | 1/0/1900             | 1/1/1900            | 8081A                          |
| gamma-BHC                    | 1/0/1900             | 1/1/1900            | 8081A                          |
| Chlordane                    | 1/0/1900             | 1/17/1900           | 8081A                          |
| Chlorobenzilate              | 1/0/1900             | 1/17/1900           | 8081A                          |
| 4,4'-DDT                     | 1/0/1900             | 1/3/1900            | 8081A                          |
| 4,4'-DDE                     | 1/0/1900             | 1/3/1900            | 8081A                          |
| 4,4'-DDD                     | 1/0/1900             | 1/3/1900            | 8081A                          |
| Dieldrin                     | 1/0/1900             | 1/3/1900            | 8081A                          |
| Endosulfan I                 | 1/0/1900             | 1/1/1900            | 8081A                          |
| Endosulfan II                | 1/0/1900             | 1/3/1900            | 8081A                          |
| Endosulfan sulfate           | 1/0/1900             | 1/3/1900            | 8081A                          |
| Endrin                       | 1/0/1900             | 1/3/1900            | 8081A                          |
| Isodrin                      | 1/0/1900             | 1/3/1900            | 8081A                          |

TABLE 4-3

PARAMETER LISTS AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)  
 SWMU 62 - FORMER BUNNY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

| Pesticides (cont.)           | Quantitation Limits* |                  | Method Number                     |
|------------------------------|----------------------|------------------|-----------------------------------|
|                              | Water (µg/L)         | Low Soil (µg/kg) |                                   |
| Kepone                       | 1.0                  | 170              | 8081A                             |
| Toxaphene                    | 5.0                  | 170              | 8081A                             |
| Endrin Aldehyde              | 0.1                  | 3.3              | 8081A                             |
| Heptachlor                   | 0.05                 | 1.7              | 8081A                             |
| Heptachlor epoxide           | 0.05                 | 1.7              | 8081A                             |
| Methoxychlor                 | 0.5                  | 17               | 8081A                             |
| Appendix IX - PCBs           | Water (µg/L)         | Low Soil (µg/kg) | Method Number (Description)       |
| 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                              |
| Appendix IX - Metals (Total) | Water (µg/L)         | Low Soil (mg/kg) | Method Number (Description)       |
| Antimony                     | 20                   | 2.0              | 6010 (Inductively Coupled Plasma) |
| Arsenic                      | 10                   | 1.0              | 6010 (Inductively Coupled Plasma) |
| Barium                       | 10                   | 1.0              | 6010 (Inductively Coupled Plasma) |
| Beryllium                    | 4.0                  | 0.4              | 6010 (Inductively Coupled Plasma) |
| Cadmium                      | 5.0                  | 0.5              | 6010 (Inductively Coupled Plasma) |
| Chromium                     | 10                   | 1.0              | 6010 (Inductively Coupled Plasma) |
| Cobalt                       | 10                   | 1.0              | 6010 (Inductively Coupled Plasma) |
| Copper                       | 20                   | 2.0              | 6010 (Inductively Coupled Plasma) |
| Lead                         | 5.0                  | 0.5              | 6010 (Inductively Coupled Plasma) |
| Mercury                      | 0.2                  | 0.02             | 7470/7471 (Cold Vapor AA)         |
| Nickel                       | 40                   | 4.0              | 6010 (Inductively Coupled Plasma) |
| Selenium                     | 10                   | 2.5              | 6010 (Inductively Coupled Plasma) |
| Silver                       | 10                   | 1.0              | 6010 (Inductively Coupled Plasma) |
| Thallium                     | 25                   | 2.5              | 6010 (Inductively Coupled Plasma) |
| Tin                          | 50                   | 10.0             | 6010 (Inductively Coupled Plasma) |
| Vanadium                     | 10                   | 1.0              | 6010 (Inductively Coupled Plasma) |
| Zinc                         | 20                   | 2.0              | 6010 (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 LLPAH's included with SVOC analysis*

TABLE 6-1

Revised: October 29, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID<br>Sample ID<br>Date<br>Depth Range   | Regional<br>Screening<br>Levels<br>Residential<br>Soil | Regional<br>Screening<br>Levels<br>Industrial<br>Soil | Selected<br>Ecological<br>Surface Soil<br>Screening<br>Values | NAPR<br>Basewide<br>Background <sup>(1)</sup> | 62SB01<br>62SB01-00<br>5/31/2008<br>0.0-1.0 | 62SB02<br>62SB02-00<br>6/1/2008<br>0.0-1.0 | 62SB03<br>62SB03-00<br>6/1/2008<br>0.0-1.0 | 62SB04<br>62SB04-00<br>5/31/2008<br>0.0-1.0 | 62SB05<br>62SB05-00<br>6/1/2008<br>0.0-1.0 |
|---|--|---|---|---|---|--|--|---|--|
| <b>Volatile Organic Compounds (ug/kg)</b>     |  |   |   |   |   |  |  |   |  |
| Acetone                                       | 6,100,000 <sup>(2)</sup>                               | 61,000,000 <sup>(2)</sup>                             | NE  | NE  | 140 J                                       | 120 J                                      | 67 J                                       | 42 UJ                                       | 19 J                                       |
| Benzene                                       | 1,100  | 5,600   | 101   | NE  | 0.94 U                                      | 0.84 U                                     | 0.85 U                                     | 0.97 U                                      | 0.8 U                                      |
| Iodomethane                                   | NE   | NE  | NE  | NE  | 1.2 UJ                                      | 1.3 J                                      | 1.1 UJ                                     | 1.2 UJ                                      | 1 UJ                                       |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |  |   |   |   |   |  |  |   |  |
| 1,4-Dioxane                                   | 44,000   | 160,000   | NE  | NE  | NA  | NA   | 9.2 U                                      | NA  | NA   |
| 2-Methylnaphthalene                           | 310,000 <sup>(2)</sup>                                 | 4,100,000 <sup>(2)</sup>                              | NE  | NE  | NA  | NA   | 2 U  | NA  | NA   |
| Benzo[a]anthracene                            | 150  | 2,100   | NE  | NE  | NA  | NA   | 2 U  | NA  | NA   |
| Benzo[a]pyrene                                | 15   | 210   | NE  | NE  | NA  | NA   | 0.76 U                                     | NA  | NA   |
| Benzo[b]fluoranthene                          | 1,500  | 21,000  | NE  | NE  | NA  | NA   | 0.88 U                                     | NA  | NA   |
| Benzo[g,h,i]perylene                          | 1,700  | 17,000  | NE  | NE  | NA  | NA   | 2 U  | NA  | NA   |
| Benzo[k]fluoranthene                          | 1,500  | 21,000  | NE  | NE  | NA  | NA   | 1.2 U                                      | NA  | NA   |
| Chrysene                                      | 15,000   | 210,000   | NE  | NE  | NA  | NA   | 0.7 U                                      | NA  | NA   |
| Dibenzofuran                                  | NE   | NE  | NE  | NE  | NA  | NA   | 4.8 U                                      | NA  | NA   |
| Fluoranthene                                  | 230,000 <sup>(2)</sup>                                 | 2,200,000 <sup>(2)</sup>                              | NE  | NE  | NA  | NA   | 2 U  | NA  | NA   |
| Indeno[1,2,3-cd]pyrene                        | 150  | 2,100   | NE  | NE  | NA  | NA   | 1.4 U                                      | NA  | NA   |
| Naphthalene                                   | 3,900  | 20,000  | NE  | NE  | NA  | NA   | 0.69 U                                     | NA  | NA   |
| Phenanthrene                                  | NE   | NE  | NE  | NE  | NA  | NA   | 2 U  | NA  | NA   |
| Pyrene  | 170,000 <sup>(2)</sup>                                 | 1,700,000 <sup>(2)</sup>                              | NE  | NE  | NA  | NA   | 2 U  | NA  | NA   |
| <b>Pesticides (ug/kg)</b>                     |  |   |   |   |   |  |  |   |  |
| 4,4'-DDD                                      | 2,000  | 7,200   | 401   | NE  | 28  | 0.42 U                                     | 0.41 U                                     | 0.4 U                                       | 0.37 U                                     |
| 4,4'-DDE                                      | 1,400  | 5,100   | 401   | NE  | 73  | 0.37 U                                     | 0.37 U                                     | 0.36 U                                      | 5.5  |
| 4,4'-DDT                                      | 1,700  | 7,000   | 401   | NE  | 51  | 0.6 U                                      | 0.6 U                                      | 0.58 U                                      | 2.3 J                                      |

TABLE 6-1

Revised: October 29, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID<br>Sample ID<br>Date<br>Depth Range | Regional<br>Screening<br>Levels<br>Residential<br>Soil | Regional<br>Screening<br>Levels<br>Industrial<br>Soil | Selected<br>Ecological<br>Surface Soil<br>Screening<br>Values | NAPR<br>Basewide<br>Background <sup>(1)</sup> | 62SB01<br>62SB01-00<br>5/31/2008<br>0.0-1.0 | 62SB02<br>62SB02-00<br>6/1/2008<br>0.0-1.0 | 62SB03<br>62SB03-00<br>6/1/2008<br>0.0-1.0 | 62SB04<br>62SB04-00<br>5/31/2008<br>0.0-1.0 | 62SB05<br>62SB05-00<br>6/1/2008<br>0.0-1.0 |
|---|--|---|---|---|---|--|--|---|--|
| <b>Metals (mg/kg)</b>                       |  |   |   |   |   |  |  |   |  |
| Arsenic                                     | 0.39   | 1.6   | 18 <sup>(4)</sup>   | 2.65  | 1.7   | 0.93                                       | 0.92                                       | 1.2   | 1.2  |
| Barium                                      | 1,500 <sup>(2)</sup>                                   | 19,000 <sup>(2)</sup>                                 | 330 <sup>(5)</sup>  | 199   | 130   | 80   | 150  | 520   | 80   |
| Beryllium                                   | 16 <sup>(2)</sup>                                      | 200 <sup>(2)</sup>                                    | 40 <sup>(5)</sup>   | 0.59  | 0.32  | 0.32                                       | 0.34                                       | 0.49  | 0.37                                       |
| Cadmium                                     | 7 <sup>(2)</sup>                                       | 81 <sup>(2)</sup>                                     | 32 <sup>(4)</sup>   | 1.02  | 0.092 J                                     | 0.033 U                                    | 0.032 U                                    | 0.032 U                                     | 0.03 U                                     |
| Chromium                                    | 280  | 1,400   | 57 <sup>(7)</sup>   | 49.8  | 32  | 12   | 9.5  | 16  | 2.6  |
| Cobalt                                      | 2.3 <sup>(2)</sup>                                     | 30 <sup>(2)</sup>                                     | 13 <sup>(4)</sup>   | 46.2  | 19  | 3  | 2.2  | 5.6   | 6.8  |
| Copper                                      | 310 <sup>(2)</sup>                                     | 4,100 <sup>(2)</sup>                                  | 70 <sup>(4)</sup>   | 168   | 41  | 7.5  | 11   | 19  | 9.6  |
| Lead  | 400 <sup>(3)</sup>                                     | 800 <sup>(3)</sup>                                    | 120 <sup>(4)</sup>  | 22  | 3.5   | 1.4  | 1.1  | 1.6   | 0.6  |
| Mercury                                     | 2.3 <sup>(2)</sup>                                     | 31 <sup>(2)</sup>                                     | 0.1 <sup>(6)</sup>  | 0.109   | 0.032                                       | 0.034                                      | 0.035                                      | 0.027                                       | 0.0038 U                                   |
| Nickel                                      | 160 <sup>(2)</sup>                                     | 2,000 <sup>(2)</sup>                                  | 38 <sup>(4)</sup>   | 20.7  | 8.6   | 3.1  | 2.7  | 4.9   | 1.2  |
| Selenium                                    | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 0.52 <sup>(4)</sup>   | 1.48  | 0.38 J                                      | 0.36 J                                     | 0.25 J                                     | 0.16 J                                      | 0.14 J                                     |
| Silver                                      | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 560 <sup>(8)</sup>  | NE  | 0.025 J                                     | 0.017 UJ                                   | 0.017 UJ                                   | 0.016 UJ                                    | 0.016 UJ                                   |
| Tin   | 4,700 <sup>(2)</sup>                                   | 61,000 <sup>(2)</sup>                                 | 50 <sup>(4)</sup>   | 3.76  | 4.4 U                                       | 4.2 U                                      | 4.1 U                                      | 4.1 U                                       | 3.9 U                                      |
| Vanadium                                    | 55 <sup>(2)</sup>                                      | 720 <sup>(2)</sup>                                    | 10 <sup>(9)</sup>   | 259   | 82 J  | 27 J                                       | 25 J                                       | 41 J  | 33 J                                       |

TABLE 6-1

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**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID<br>Sample ID<br>Date<br>Depth Range   | Regional<br>Screening<br>Levels<br>Residential<br>Soil | Regional<br>Screening<br>Levels<br>Industrial<br>Soil | Selected<br>Ecological<br>Surface Soil<br>Screening<br>Values | <u>NAPR</u><br><u>Basewide</u><br><u>Background</u> <sup>(1)</sup> | 62SB06<br>62SB06-00<br>6/1/2008<br>0.0-1.0 | 62SB07<br>62SB07-00<br>6/1/2008<br>0.0-1.0 | 62SB08<br>62SB08-00<br>6/1/2008<br>0.0-1.0 | 62SB08<br>62SB08-00D<br>6/1/2008<br>0.0-1.0 | 62SB09<br>62SB09-00<br>6/1/2008<br>0.0-1.0 |
|---|--|---|---|--|--|--|--|---|--|
| <b>Volatile Organic Compounds (ug/kg)</b>     |  |   |   |  |  |  |  |   |  |
| Acetone                                       | 6,100,000 <sup>(2)</sup>                               | 61,000,000 <sup>(2)</sup>                             | NE  | NE   | 200 J                                      | 150 J                                      | 83 J                                       | 63 J  | 72 UJ                                      |
| Benzene                                       | 1,100  | 5,600   | 101   | NE   | 1.4 J                                      | 0.94 U                                     | 1.1 U                                      | 0.77 U                                      | 0.74 U                                     |
| Iodomethane                                   | NE   | NE  | NE  | NE   | 1.1 UJ                                     | 1.2 UJ                                     | 1.4 UJ                                     | 0.98 UJ                                     | 0.94 U                                     |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |  |   |   |  |  |  |  |   |  |
| 1,4-Dioxane                                   | 44,000   | 160,000   | NE  | NE   | 8.4 U                                      | NA   | 15 J                                       | 8.5 UJ                                      | 8.6 U                                      |
| 2-Methylnaphthalene                           | 310,000 <sup>(2)</sup>                                 | 4,100,000 <sup>(2)</sup>                              | NE  | NE   | 1.8 U                                      | NA   | 23 J                                       | 56 J  | 1.8 U                                      |
| Benzo[a]anthracene                            | 150  | 2,100   | NE  | NE   | 1.8 U                                      | NA   | 4.8 J                                      | 5.2 J                                       | 2.6 J                                      |
| Benzo[a]pyrene                                | 15   | 210   | NE  | NE   | 0.69 U                                     | NA   | 0.71 UJ                                    | 0.7 UJ                                      | 2.6 J                                      |
| Benzo[b]fluoranthene                          | 1,500  | 21,000  | NE  | NE   | 0.8 U                                      | NA   | 0.82 UJ                                    | 0.8 UJ                                      | 3.2 J                                      |
| Benzo[g,h,i]perylene                          | 1,700  | 17,000  | NE  | NE   | 1.8 U                                      | NA   | 1.8 UJ                                     | 1.8 UJ                                      | 5.8 J                                      |
| Benzo[k]fluoranthene                          | 1,500  | 21,000  | NE  | NE   | 1 U  | NA   | 1.1 UJ                                     | 4 J   | 2.2 J                                      |
| Chrysene                                      | 15,000   | 210,000   | NE  | NE   | 0.64 U                                     | NA   | 4.8 J                                      | 6.8 J                                       | 3.3 J                                      |
| Dibenzofuran                                  | NE   | NE  | NE  | NE   | 4.4 U                                      | NA   | 8.9 J                                      | 20 J  | 4.5 U                                      |
| Fluoranthene                                  | 230,000 <sup>(2)</sup>                                 | 2,200,000 <sup>(2)</sup>                              | NE  | NE   | 1.8 U                                      | NA   | 6.7 J                                      | 8.5 J                                       | 5.4 J                                      |
| Indeno[1,2,3-cd]pyrene                        | 150  | 2,100   | NE  | NE   | 1.3 U                                      | NA   | 1.3 UJ                                     | 1.3 UJ                                      | 1.5 J                                      |
| Naphthalene                                   | 3,900  | 20,000  | NE  | NE   | 0.63 U                                     | NA   | 13 J                                       | 33 J  | 1.2 J                                      |
| Phenanthrene                                  | NE   | NE  | NE  | NE   | 1.8 U                                      | NA   | 29 J                                       | 50 J  | 4.5 J                                      |
| Pyrene  | 170,000 <sup>(2)</sup>                                 | 1,700,000 <sup>(2)</sup>                              | NE  | NE   | 1.8 U                                      | NA   | 9.1 J                                      | 11 J  | 4.8 J                                      |
| <b>Pesticides (ug/kg)</b>                     |  |   |   |  |  |  |  |   |  |
| 4,4'-DDD                                      | 2,000  | 7,200   | 401   | NE   | 0.38 U                                     | 0.4 U                                      | 0.89 J                                     | 0.39 U                                      | 0.39 U                                     |
| 4,4'-DDE                                      | 1,400  | 5,100   | 401   | NE   | 0.34 U                                     | 0.35 U                                     | 7.6 J                                      | 1.5 J                                       | 0.35 U                                     |
| 4,4'-DDT                                      | 1,700  | 7,000   | 401   | NE   | 0.55 U                                     | 0.57 U                                     | 7.7 J                                      | 1.9 J                                       | 0.56 U                                     |

TABLE 6-1

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**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID<br>Sample ID<br>Date<br>Depth Range | Regional<br>Screening<br>Levels<br>Residential<br>Soil | Regional<br>Screening<br>Levels<br>Industrial<br>Soil | Selected<br>Ecological<br>Surface Soil<br>Screening<br>Values | NAPR<br>Basewide<br>Background <sup>(1)</sup> | 62SB06<br>62SB06-00<br>6/1/2008<br>0.0-1.0 | 62SB07<br>62SB07-00<br>6/1/2008<br>0.0-1.0 | 62SB08<br>62SB08-00<br>6/1/2008<br>0.0-1.0 | 62SB08<br>62SB08-00D<br>6/1/2008<br>0.0-1.0 | 62SB09<br>62SB09-00<br>6/1/2008<br>0.0-1.0 |
|---|--|---|---|---|--|--|--|---|--|
| <b>Metals (mg/kg)</b>                       |  |   |   |   |  |  |  |   |  |
| Arsenic                                     | 0.39   | 1.6   | 18 <sup>(4)</sup>   | 2.65  | <u>3.3</u>                                 | <u>2.3</u>                                 | <u>2.4</u>                                 | <u>3</u>                                    | <u>3.7</u>                                 |
| Barium                                      | 1,500 <sup>(2)</sup>                                   | 19,000 <sup>(2)</sup>                                 | 330 <sup>(5)</sup>  | 199   | 53   | <b>350</b>                                 | <u>260</u> J                               | 170 J                                       | 140  |
| Beryllium                                   | 16 <sup>(2)</sup>                                      | 200 <sup>(2)</sup>                                    | 40 <sup>(5)</sup>   | 0.59  | 0.13                                       | 0.42                                       | <u>0.68</u> J                              | 0.44 J                                      | 0.27                                       |
| Cadmium                                     | 7 <sup>(2)</sup>                                       | 81 <sup>(2)</sup>                                     | 32 <sup>(4)</sup>   | 1.02  | 0.072 J                                    | 0.042 J                                    | 0.038 J                                    | 0.043 J                                     | 0.064 J                                    |
| Chromium                                    | 280  | 1,400   | 57 <sup>(7)</sup>   | 49.8  | 12   | 19   | 7.9 J                                      | 15 J  | 9.6  |
| Cobalt                                      | 2.3 <sup>(2)</sup>                                     | 30 <sup>(2)</sup>                                     | 13 <sup>(4)</sup>   | 46.2  | 7.6  | <b>18</b>                                  | <u>8.7</u>                                 | <u>7.4</u>                                  | <u>11</u>                                  |
| Copper                                      | 310 <sup>(2)</sup>                                     | 4,100 <sup>(2)</sup>                                  | 70 <sup>(4)</sup>   | 168   | 45   | <b>140</b>                                 | 30   | 37  | 60   |
| Lead  | 400 <sup>(3)</sup>                                     | 800 <sup>(3)</sup>                                    | 120 <sup>(4)</sup>  | 22  | 2  | 1.8  | 1.6  | 2   | 12   |
| Mercury                                     | 2.3 <sup>(2)</sup>                                     | 31 <sup>(2)</sup>                                     | 0.1 <sup>(6)</sup>  | 0.109   | 0.0038 U                                   | 0.0049 J                                   | 0.0093 J                                   | 0.007 J                                     | 0.004 U                                    |
| Nickel                                      | 160 <sup>(2)</sup>                                     | 2,000 <sup>(2)</sup>                                  | 38 <sup>(4)</sup>   | 20.7  | 6  | 9.7  | 3.9  | 3.7   | 4.4  |
| Selenium                                    | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 0.52 <sup>(4)</sup>   | 1.48  | 0.14 J                                     | 0.24 J                                     | 0.28 J                                     | 0.24 J                                      | 0.18 J                                     |
| Silver                                      | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 560 <sup>(8)</sup>  | NE  | 0.019 J                                    | 0.031 J                                    | 0.016 UJ                                   | 0.021 J                                     | 0.018 J                                    |
| Tin   | 4,700 <sup>(2)</sup>                                   | 61,000 <sup>(2)</sup>                                 | 50 <sup>(4)</sup>   | 3.76  | 3.9 U                                      | 4.1 U                                      | 4.1 U                                      | 4.1 U                                       | <u>4.5</u> J                               |
| Vanadium                                    | 55 <sup>(2)</sup>                                      | 720 <sup>(2)</sup>                                    | 10 <sup>(9)</sup>   | 259   | <b>61</b> J                                | <b>160</b> J                               | <b>42</b>                                  | <b>48</b>                                   | <b>61</b>                                  |

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL  
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**Notes/Qualifiers:**

J - Estimated: The analyte was positively identified; the quantitation is an estimation  
 U - Undetected at the Limit of Detection.  
 UJ - Reported quantitation limit is qualified as estimated  
 ft bgs - feet below ground surface  
 ug/kg - micrograms per kilogram  
 mg/kg - miligrams per kilogram  
 NA - Not Analyzed  
 NE - Not Established  
 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]) for Subsurface Soil Background Fine Sand/Silt Table 3-5 (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

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

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

TABLE 6-2

Revised: October 29, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID<br>Sample ID<br>Date<br>Depth Range   | Regional<br>Screening<br>Levels<br>Residential<br>Soil | Regional<br>Screening<br>Levels<br>Industrial<br>Soil | Selected<br>Ecological<br>Surface Soil<br>Screening<br>Values | NAPR<br>Basewide<br>Background <sup>(1)</sup> | 62SB01<br>62SB01-03<br>5/31/2008<br>5.0-7.0 | 62SB01<br>62SB01-05<br>5/31/2008<br>9.0-11.0 | 62SB02<br>62SB02-01<br>6/1/2008<br>1.0-3.0 | 62SB02<br>62SB02-03<br>6/1/2008<br>5.0-7.0 | 62SB03<br>62SB03-01<br>6/1/2008<br>1.0-3.0 |
|---|--|---|---|---|---|--|--|--|--|
| <b>Volatile Organic Compounds (ug/kg)</b>     |  |   |   |   |   |  |  |  |  |
| Acetone                                       | 6,100,000 <sup>(2)</sup>                               | 61,000,000 <sup>(2)</sup>                             | NE  | NE  | NA  | NA   | NA   | NA   | 24 J                                       |
| Carbon disulfide                              | 670,000 <sup>(2)</sup>                                 | 3,000,000 <sup>(2)</sup>                              | NE  | NE  | NA  | NA   | NA   | NA   | 0.5 U                                      |
| Iodomethane                                   | NE   | NE  | NE  | NE  | NA  | NA   | NA   | NA   | 0.99 UJ                                    |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |  |   |   |   |   |  |  |  |  |
| Naphthalene                                   | 3,900  | 20,000  | NE  | NE  | NA  | NA   | NA   | NA   | 0.66 U                                     |
| <b>Metals (mg/kg)</b>                         |  |   |   |   |   |  |  |  |  |
| Arsenic                                       | 0.39   | 1.6   | 18 <sup>(4)</sup>   | 6.66  | 1.1   | 1.1  | 1  | 1.1  | 1.2  |
| Barium  | 1,500 <sup>(2)</sup>                                   | 19,000 <sup>(2)</sup>                                 | 330 <sup>(5)</sup>  | 207   | 66  | 87   | 79   | 18   | 41   |
| Beryllium                                     | 16 <sup>(2)</sup>                                      | 200 <sup>(2)</sup>                                    | 40 <sup>(5)</sup>   | 0.933   | 0.38  | 0.46   | 0.49                                       | 0.26                                       | 0.51                                       |
| Cadmium                                       | 7 <sup>(2)</sup>                                       | 81 <sup>(2)</sup>                                     | 32 <sup>(4)</sup>   | 0.57  | 0.032 U                                     | 0.034 U                                      | 0.033 U                                    | 0.032 U                                    | 0.033 U                                    |
| Chromium                                      | 280  | 1,400   | 57 <sup>(7)</sup>   | 47.9  | 38  | 31   | 17   | 18   | 7.6  |
| Cobalt  | 2.3 <sup>(2)</sup>                                     | 30 <sup>(2)</sup>                                     | 13 <sup>(4)</sup>   | 63.1  | 11  | 14   | 3.8  | 1.9  | 6.8  |
| Copper  | 310 <sup>(2)</sup>                                     | 4,100 <sup>(2)</sup>                                  | 70 <sup>(4)</sup>   | 120   | 19  | 17   | 13   | 4.2  | 16   |
| Lead  | 400 <sup>(3)</sup>                                     | 800 <sup>(3)</sup>                                    | 120 <sup>(4)</sup>  | 6.2   | 2.4   | 1.7  | 1.2  | 0.83                                       | 1.3  |
| Mercury                                       | 2.3 <sup>(2)</sup>                                     | 31 <sup>(2)</sup>                                     | 0.1 <sup>(6)</sup>  | 0.067   | 0.018 J                                     | 0.053  | 0.0048 J                                   | 0.0038 U                                   | 0.0044 U                                   |
| Nickel  | 160 <sup>(2)</sup>                                     | 2,000 <sup>(2)</sup>                                  | 38 <sup>(4)</sup>   | 26.5  | 5.3   | 6.1  | 3.7  | 3.2  | 2.2  |
| Selenium                                      | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 0.52 <sup>(4)</sup>   | 1.19  | 0.13 U                                      | 0.16 J                                       | 0.14 J                                     | 0.17 J                                     | 0.16 J                                     |
| Silver  | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 560 <sup>(8)</sup>  | NE  | 0.017 UJ                                    | 0.018 UJ                                     | 0.017 UJ                                   | 0.017 UJ                                   | 0.017 UJ                                   |
| Vanadium                                      | 55 <sup>(2)</sup>                                      | 720 <sup>(2)</sup>                                    | 10 <sup>(9)</sup>   | 256   | 86 J  | 130 J  | 41 J                                       | 35 J                                       | 34 J                                       |

TABLE 6-2

Revised: October 29, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID<br>Sample ID<br>Date<br>Depth Range   | Regional<br>Screening<br>Levels<br>Residential<br>Soil | Regional<br>Screening<br>Levels<br>Industrial<br>Soil | Selected<br>Ecological<br>Surface Soil<br>Screening<br>Values | NAPR<br>Basewide<br>Background <sup>(1)</sup> | 62SB03<br>62SB03-05<br>6/1/2008<br>9.0-11.0 | 62SB04<br>62SB04-03<br>5/31/2008<br>5.0-7.0 | 62SB04<br>62SB04-03D<br>5/31/2008<br>5.0-7.0 | 62SB04<br>62SB04-05<br>5/31/2008<br>9.0-11.0 | 62SB05<br>62SB05-01<br>6/1/2008<br>1.0-3.0 |
|---|--|---|---|---|---|---|--|--|--|
| <b>Volatile Organic Compounds (ug/kg)</b>     |  |   |   |   |   |   |  |  |  |
| Acetone                                       | 6,100,000 <sup>(2)</sup>                               | 61,000,000 <sup>(2)</sup>                             | NE  | NE  | 10 J  | NA  | NA   | NA   | NA   |
| Carbon disulfide                              | 670,000 <sup>(2)</sup>                                 | 3,000,000 <sup>(2)</sup>                              | NE  | NE  | 0.61 U                                      | NA  | NA   | NA   | NA   |
| Iodomethane                                   | NE   | NE  | NE  | NE  | 1.2 UJ                                      | NA  | NA   | NA   | NA   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |  |   |   |   |   |   |  |  |  |
| Naphthalene                                   | 3,900  | 20,000  | NE  | NE  | 0.62 R                                      | NA  | NA   | NA   | NA   |
| <b>Metals (mg/kg)</b>                         |  |   |   |   |   |   |  |  |  |
| Arsenic                                       | 0.39   | 1.6   | 18 <sup>(4)</sup>   | 6.66  | 1.9   | 1.3   | 1.4  | 1.3  | 1.2  |
| Barium  | 1,500 <sup>(2)</sup>                                   | 19,000 <sup>(2)</sup>                                 | 330 <sup>(5)</sup>  | 207   | 410   | 67  | 83   | 240  | 83   |
| Beryllium                                     | 16 <sup>(2)</sup>                                      | 200 <sup>(2)</sup>                                    | 40 <sup>(5)</sup>   | 0.933   | 1   | 0.35  | 0.37   | 0.53   | 0.42                                       |
| Cadmium                                       | 7 <sup>(2)</sup>                                       | 81 <sup>(2)</sup>                                     | 32 <sup>(4)</sup>   | 0.57  | 0.03 U                                      | 0.033 J                                     | 0.031 U                                      | 0.033 U                                      | 0.029 U                                    |
| Chromium                                      | 280  | 1,400   | 57 <sup>(7)</sup>   | 47.9  | 2.6   | 5.3 J                                       | 21 J   | 39   | 1.4  |
| Cobalt  | 2.3 <sup>(2)</sup>                                     | 30 <sup>(2)</sup>                                     | 13 <sup>(4)</sup>   | 63.1  | 13  | 6.1   | 6.1  | 29   | 7.6  |
| Copper  | 310 <sup>(2)</sup>                                     | 4,100 <sup>(2)</sup>                                  | 70 <sup>(4)</sup>   | 120   | 37  | 11  | 11   | 15   | 5.4  |
| Lead  | 400 <sup>(3)</sup>                                     | 800 <sup>(3)</sup>                                    | 120 <sup>(4)</sup>  | 6.2   | 0.6   | 1.5   | 1.2  | 2.8  | 0.43                                       |
| Mercury                                       | 2.3 <sup>(2)</sup>                                     | 31 <sup>(2)</sup>                                     | 0.1 <sup>(6)</sup>  | 0.067   | 0.0039 U                                    | 0.0042 U                                    | 0.0041 U                                     | 0.0044 U                                     | 0.0038 U                                   |
| Nickel  | 160 <sup>(2)</sup>                                     | 2,000 <sup>(2)</sup>                                  | 38 <sup>(4)</sup>   | 26.5  | 3   | 3 J   | 4.8 J  | 5.3  | 1.4  |
| Selenium                                      | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 0.52 <sup>(4)</sup>   | 1.19  | 0.2 J                                       | 0.15 J                                      | 0.17 J                                       | 0.13 J                                       | 0.12 J                                     |
| Silver  | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 560 <sup>(8)</sup>  | NE  | 0.015 UJ                                    | 0.016 UJ                                    | 0.016 UJ                                     | 0.017 UJ                                     | 0.015 UJ                                   |
| Vanadium                                      | 55 <sup>(2)</sup>                                      | 720 <sup>(2)</sup>                                    | 10 <sup>(9)</sup>   | 256   | 32 J  | 37 J  | 44 J   | 120 J  | 30 J                                       |

TABLE 6-2

Revised: October 29, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID<br>Sample ID<br>Date<br>Depth Range   | Regional<br>Screening<br>Levels<br>Residential<br>Soil | Regional<br>Screening<br>Levels<br>Industrial<br>Soil | Selected<br>Ecological<br>Surface Soil<br>Screening<br>Values | NAPR<br>Basewide<br>Background <sup>(1)</sup> | 62SB05<br>62SB05-02<br>6/1/2008<br>3.0-5.0 | 62SB06<br>62SB06-01<br>6/1/2008<br>1.0-3.0 | 62SB06<br>62SB06-03<br>6/1/2008<br>5.0-7.0 | 62SB07<br>62SB07-01<br>6/1/2008<br>1.0-3.0 | 62SB07<br>62SB07-02<br>6/1/2008<br>3.0-5.0 |
|---|--|---|---|---|--|--|--|--|--|
| <b>Volatile Organic Compounds (ug/kg)</b>     |  |   |   |   |  |  |  |  |  |
| Acetone                                       | 6,100,000 <sup>(2)</sup>                               | 61,000,000 <sup>(2)</sup>                             | NE  | NE  | NA   | 40 J                                       | 14 J                                       | NA   | NA   |
| Carbon disulfide                              | 670,000 <sup>(2)</sup>                                 | 3,000,000 <sup>(2)</sup>                              | NE  | NE  | NA   | 0.68 J                                     | 0.6 U                                      | NA   | NA   |
| Iodomethane                                   | NE   | NE  | NE  | NE  | NA   | 1.2 UJ                                     | 1.2 UJ                                     | NA   | NA   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |  |   |   |   |  |  |  |  |  |
| Naphthalene                                   | 3,900  | 20,000  | NE  | NE  | NA   | 0.65 U                                     | 0.69 U                                     | NA   | NA   |
| <b>Metals (mg/kg)</b>                         |  |   |   |   |  |  |  |  |  |
| Arsenic                                       | 0.39   | 1.6   | 18 <sup>(4)</sup>   | 6.66  | 0.99                                       | 1  | 5.2  | 1.1  | 0.84                                       |
| Barium  | 1,500 <sup>(2)</sup>                                   | 19,000 <sup>(2)</sup>                                 | 330 <sup>(5)</sup>  | 207   | 58   | 350  | 430  | 110  | 240  |
| Beryllium                                     | 16 <sup>(2)</sup>                                      | 200 <sup>(2)</sup>                                    | 40 <sup>(5)</sup>   | 0.933   | 0.26                                       | 0.21                                       | 0.85                                       | 0.3  | 0.23                                       |
| Cadmium                                       | 7 <sup>(2)</sup>                                       | 81 <sup>(2)</sup>                                     | 32 <sup>(4)</sup>   | 0.57  | 0.028 U                                    | 0.032 U                                    | 0.032 U                                    | 0.035 U                                    | 0.029 U                                    |
| Chromium                                      | 280  | 1,400   | 57 <sup>(7)</sup>   | 47.9  | 20   | 29   | 1.8  | 1.9  | 2.2  |
| Cobalt  | 2.3 <sup>(2)</sup>                                     | 30 <sup>(2)</sup>                                     | 13 <sup>(4)</sup>   | 63.1  | 4.1  | 17   | 2.3  | 4.7  | 5.6  |
| Copper  | 310 <sup>(2)</sup>                                     | 4,100 <sup>(2)</sup>                                  | 70 <sup>(4)</sup>   | 120   | 6.1  | 140  | 2.6  | 50   | 55   |
| Lead  | 400 <sup>(3)</sup>                                     | 800 <sup>(3)</sup>                                    | 120 <sup>(4)</sup>  | 6.2   | 0.36                                       | 0.65                                       | 2  | 0.32 U                                     | 0.28 U                                     |
| Mercury                                       | 2.3 <sup>(2)</sup>                                     | 31 <sup>(2)</sup>                                     | 0.1 <sup>(6)</sup>  | 0.067   | 0.011 J                                    | 0.027                                      | 0.0043 J                                   | 0.0042 U                                   | 0.0035 U                                   |
| Nickel  | 160 <sup>(2)</sup>                                     | 2,000 <sup>(2)</sup>                                  | 38 <sup>(4)</sup>   | 26.5  | 1.5  | 19   | 0.74                                       | 1.5  | 1.6  |
| Selenium                                      | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 0.52 <sup>(4)</sup>   | 1.19  | 0.11 J                                     | 0.14 J                                     | 0.46 J                                     | 0.13 U                                     | 0.11 U                                     |
| Silver  | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 560 <sup>(8)</sup>  | NE  | 0.015 UJ                                   | 0.036 J                                    | 0.017 UJ                                   | 0.018 UJ                                   | 0.015 UJ                                   |
| Vanadium                                      | 55 <sup>(2)</sup>                                      | 720 <sup>(2)</sup>                                    | 10 <sup>(9)</sup>   | 256   | 25 J                                       | 110 J                                      | 31 J                                       | 35   | 34   |

TABLE 6-2

Revised: October 29, 2009

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL  
SWMU 62 - FORMER BUNNY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID<br>Sample ID<br>Date<br>Depth Range   | Regional<br>Screening<br>Levels<br>Residential<br>Soil | Regional<br>Screening<br>Levels<br>Industrial<br>Soil | Selected<br>Ecological<br>Surface Soil<br>Screening<br>Values | NAPR<br>Basewide<br>Background <sup>(1)</sup> | 62SB08<br>62SB08-01<br>6/1/2008<br>1.0-3.0 | 62SB08<br>62SB08-02<br>6/1/2008<br>3.0-5.0 | 62SB08<br>62SB08-02D<br>6/1/2008<br>3.0-5.0 | 62SB09<br>62SB09-01<br>6/1/2008<br>1.0-3.0 | 62SB09<br>62SB09-02<br>6/1/2008<br>3.0-5.0 |
|---|--|---|---|---|--|--|---|--|--|
| <b>Volatile Organic Compounds (ug/kg)</b>     |  |   |   |   |  |  |   |  |  |
| Acetone                                       | 6,100,000 <sup>(2)</sup>                               | 61,000,000 <sup>(2)</sup>                             | NE  | NE  | 39 J                                       | 40 UJ                                      | 30 UJ                                       | 28 UJ                                      | 5.3 UJ                                     |
| Carbon disulfide                              | 670,000 <sup>(2)</sup>                                 | 3,000,000 <sup>(2)</sup>                              | NE  | NE  | 0.62 J                                     | 0.57 U                                     | 0.49 U                                      | 0.6 U                                      | 0.62 U                                     |
| Iodomethane                                   | NE   | NE  | NE  | NE  | 1.2 UJ                                     | 1.1 U                                      | 0.95 U                                      | 1.2 U                                      | 2.4 J                                      |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |  |   |   |   |  |  |   |  |  |
| Naphthalene                                   | 3,900  | 20,000  | NE  | NE  | 0.64 UJ                                    | 0.67 UJ                                    | 0.82 J                                      | 0.65 UJ                                    | 0.62 UJ                                    |
| <b>Metals (mg/kg)</b>                         |  |   |   |   |  |  |   |  |  |
| Arsenic                                       | 0.39   | 1.6   | 18 <sup>(4)</sup>   | 6.66  | 1.8  | 1.4  | 1.9   | 2  | 1.4  |
| Barium  | 1,500 <sup>(2)</sup>                                   | 19,000 <sup>(2)</sup>                                 | 330 <sup>(5)</sup>  | 207   | 130  | 160  | 140   | 160  | 180  |
| Beryllium                                     | 16 <sup>(2)</sup>                                      | 200 <sup>(2)</sup>                                    | 40 <sup>(5)</sup>   | 0.933   | 0.84                                       | 0.45                                       | 0.36  | 1  | 1.2  |
| Cadmium                                       | 7 <sup>(2)</sup>                                       | 81 <sup>(2)</sup>                                     | 32 <sup>(4)</sup>   | 0.57  | 0.031 U                                    | 0.033 U                                    | 0.037 J                                     | 0.032 U                                    | 0.029 U                                    |
| Chromium                                      | 280  | 1,400   | 57 <sup>(7)</sup>   | 47.9  | 1.9  | 4.8  | 8.2   | 2.4  | 1.7  |
| Cobalt  | 2.3 <sup>(2)</sup>                                     | 30 <sup>(2)</sup>                                     | 13 <sup>(4)</sup>   | 63.1  | 7.4  | 4.5  | 6.9   | 4.7  | 7.5  |
| Copper  | 310 <sup>(2)</sup>                                     | 4,100 <sup>(2)</sup>                                  | 70 <sup>(4)</sup>   | 120   | 22   | 22   | 19  | 9.1  | 4.2  |
| Lead  | 400 <sup>(3)</sup>                                     | 800 <sup>(3)</sup>                                    | 120 <sup>(4)</sup>  | 6.2   | 0.54                                       | 1.1  | 2   | 0.5  | 0.34                                       |
| Mercury                                       | 2.3 <sup>(2)</sup>                                     | 31 <sup>(2)</sup>                                     | 0.1 <sup>(6)</sup>  | 0.067   | 0.0043 U                                   | 0.026                                      | 0.033                                       | 0.0042 U                                   | 0.0039 U                                   |
| Nickel  | 160 <sup>(2)</sup>                                     | 2,000 <sup>(2)</sup>                                  | 38 <sup>(4)</sup>   | 26.5  | 1.4  | 2.3  | 3.2   | 1.1  | 1  |
| Selenium                                      | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 0.52 <sup>(4)</sup>   | 1.19  | 0.2 J                                      | 0.35 J                                     | 0.36 J                                      | 0.2 J                                      | 0.15 J                                     |
| Silver  | 39 <sup>(2)</sup>                                      | 510 <sup>(2)</sup>                                    | 560 <sup>(8)</sup>  | NE  | 0.016 UJ                                   | 0.03 J                                     | 0.022 J                                     | 0.016 UJ                                   | 0.015 UJ                                   |
| Vanadium                                      | 55 <sup>(2)</sup>                                      | 720 <sup>(2)</sup>                                    | 10 <sup>(9)</sup>   | 256   | 33   | 38   | 42  | 32   | 25   |

**SUMMARY OF DETECTED LABORATORY RESULTS - SURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
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.
- 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
- 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]) for Subsurface Soil Background Fine Sand/Silt Table 3-5 (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 (Efroymson et al., 1997a)
- (7) Reproduction-based MATC for *Eisenia andrei* (earthworm)
- (8) Ecological soil screening level (<http://www.epa.gov/ecotox/ecoss/>)
- (9) Growth-based LOAEC for *Brassica oleracea* (broccoli) with a safety factor of 10

**SUMMARY OF DETECTED LABORATORY RESULTS - SUBSURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Table References:**

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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. 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.

TABLE 6-3

**SUMMARY OF DETECTED LABORATORY RESULTS - QUALITY ASSURANCE/QUALITY CONTROL**  
**SWMU 62 - FORMER BUNDY DISPOSAL AREA**  
**PHASE I RFI REPORT**  
**NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Sample ID<br>Date                            | Trip Blanks        |                     |                    |                     |                     | Equipment Rinsate Blanks |                  | Field Blank      |
|--|--------------------|---------------------|--------------------|---------------------|---------------------|--------------------------|------------------|------------------|
|  | QATB01<br>5/2/2008 | 62TB01<br>5/31/2008 | 62TB03<br>6/1/2008 | 71TB02<br>5/31/2008 | 61TB02<br>5/31/2008 | ER24<br>5/31/2008        | ER25<br>6/1/2008 | FB01<br>5/2/2008 |
| <b>Volatile Organic Compounds (ug/L)</b>     |                    |                     |                    |                     |                     |                          |                  |                  |
| 2-Butanone (MEK)                             | 0.6 U              | 0.6 U               | 0.6 U              | NA                  | 0.79 J              | 1.1 J                    | 0.74 J           | 0.69 J           |
| Acetone                                      | 5 U                | 5 U                 | 5 U                | NA                  | 6.1 J               | 6.6 J                    | 5 U              | 5 U              |
| Benzene                                      | 0.32 U             | 0.32 U              | 0.32 U             | NA                  | 0.32 U              | 1.2                      | 1.3              | 0.32 U           |
| Carbon disulfide                             | 0.17 U             | 0.17 U              | 0.17 U             | NA                  | 0.19 J              | 0.17 U                   | 0.17 U           | 0.17 U           |
| Styrene                                      | 0.36 U             | 0.36 U              | 0.36 U             | NA                  | 0.36 U              | 0.38 J                   | 0.36 U           | 0.36 U           |
| Tetrachloroethene                            | 0.28 U             | 0.28 U              | 0.28 U             | NA                  | 0.28 U              | 0.28 U                   | 1.5              | 0.28 U           |
| Toluene                                      | 0.31 U             | 0.31 U              | 0.31 U             | NA                  | 0.31 U              | 0.5 J                    | 0.52 J           | 0.31 U           |
| Xylenes, Total                               | 0.87 U             | 0.87 U              | 0.87 U             | NA                  | 0.87 U              | 0.87 U                   | 1.3 J            | 0.87 U           |
| <b>Semivolatile Organic Compounds (ug/L)</b> |                    |                     |                    |                     |                     |                          |                  |                  |
| 1,4-Dichlorobenzene                          | NA                 | NA                  | NA                 | NA                  | NA                  | 0.12 UJ                  | 0.12 UJ          | 0.16 J           |
| 2-Methylnaphthalene                          | NA                 | NA                  | NA                 | NA                  | NA                  | 0.032 J                  | 0.038 J          | 0.022 UJ         |
| Acenaphthene                                 | NA                 | NA                  | NA                 | NA                  | NA                  | 0.019 UJ                 | 0.024 J          | 0.019 UJ         |
| Acetophenone                                 | NA                 | NA                  | NA                 | NA                  | NA                  | 0.49 J                   | 0.75 J           | 0.38 J           |
| Bis(2-ethylhexyl) phthalate                  | NA                 | NA                  | NA                 | NA                  | NA                  | 0.43 J                   | 0.34 UJ          | 0.34 UJ          |
| Diethyl phthalate                            | NA                 | NA                  | NA                 | NA                  | NA                  | 0.2 J                    | 0.18 UJ          | 0.33 J           |
| Di-n-butyl phthalate                         | NA                 | NA                  | NA                 | NA                  | NA                  | 0.62 J                   | 0.48 J           | 1.2 J            |
| Naphthalene                                  | NA                 | NA                  | NA                 | NA                  | NA                  | 0.65 J                   | 0.64 J           | 0.049 UJ         |
| <b>Metals (mg/L)</b>                         |                    |                     |                    |                     |                     |                          |                  |                  |
| Arsenic                                      | NA                 | NA                  | NA                 | NA                  | NA                  | 0.52 J                   | 0.45 J           | 0.28 UJ          |
| Chromium                                     | NA                 | NA                  | NA                 | NA                  | NA                  | 0.6 U                    | 0.86 J           | 0.6 UJ           |
| Cobalt                                       | NA                 | NA                  | NA                 | NA                  | NA                  | 0.029 U                  | 0.085 J          | 0.029 UJ         |
| Copper                                       | NA                 | NA                  | NA                 | NA                  | NA                  | 1.2 U                    | 4 J              | 2.1 J            |
| Lead   | NA                 | NA                  | NA                 | NA                  | NA                  | 0.15 U                   | 0.17 J           | 0.38 J           |
| Nickel                                       | NA                 | NA                  | NA                 | NA                  | NA                  | 0.32 U                   | 1.1              | 0.32 UJ          |
| Tin  | NA                 | NA                  | NA                 | NA                  | NA                  | 1.6 J                    | 1.3 J            | 0.9 UJ           |
| Vanadium                                     | NA                 | NA                  | NA                 | NA                  | NA                  | 0.8 U                    | 1.7 J            | 0.8 UJ           |
| <b>TPH DRO (mg/L)</b>                        |                    |                     |                    |                     |                     |                          |                  |                  |
| Diesel Range Organics [C10-C28]              | NA                 | NA                  | NA                 | 0.012 U             | NA                  | 0.028 J                  | 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

TABLE 7-1

**SUMMARY OF PROPOSED FULL RFI SAMPLING AND ANALYTICAL PROGRAM  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Media  | Fixed Based Analytical Lab Analysis |               | Comment                             |
|--|-------------------------------------|---------------|-------------------------------------|
|  | Sample Depth (ft bgs)               | App IX Metals |                                     |
| <b>Surface Soil Samples</b>                  |                                     |               |                                     |
| 62SS01                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS02                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS03                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS04                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS05                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS06                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS07                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS08                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS09                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS10                                       | 0.0 - 1.0                           | X             |                                     |
| 62SS10-D                                     | 0.0 - 1.0                           | X             | Duplicate                           |
| 62SS10-MS/MSD                                | 0.0 - 1.0                           | X             | Matrix Spike/Matrix Spike Duplicate |
| <b>Subsurface Soil Samples<sup>(2)</sup></b> |                                     |               |                                     |
| 62SB10-XX <sup>(1)</sup>                     | TBD                                 | X             |                                     |
| 62SB10-XX <sup>(1)</sup>                     | TBD                                 | X             |                                     |
| 62SB11-XX <sup>(1)</sup>                     | TBD                                 | X             |                                     |
| 62SB11-XX <sup>(1)</sup>                     | TBD                                 | X             |                                     |
| 62SB12-XX <sup>(1)</sup>                     | TBD                                 | X             |                                     |
| 62SB12-XX <sup>(1)</sup>                     | TBD                                 | X             |                                     |
| 62SB13-XX <sup>(1)</sup>                     | TBD                                 | X             |                                     |
| 62SB13-XX <sup>(1)</sup>                     | TBD                                 | X             |                                     |
| 62SB13-XXD <sup>(1)</sup>                    | TBD                                 | X             | Duplicate                           |
| 62SB13-XXMS/MSD <sup>(1)</sup>               | TBD                                 | X             | Matrix Spike/Matrix Spike Duplicate |

**Notes:**

<sup>(1)</sup> XX - The designator for the depth interval from which the sample will be collected (i.e., 01 = 1-3ft bgs, 02 = 3-5 ft bgs, etc.). This will be established in the field.

<sup>(2)</sup> - Although two subsurface soil samples are proposed per boring, additional subsurface soil will be collected if areas of staining or other indicators of contamination are encountered at multiple depths.

ft bgs - feet below ground surface.

TBD - To be determined in the field

**FIGURES**

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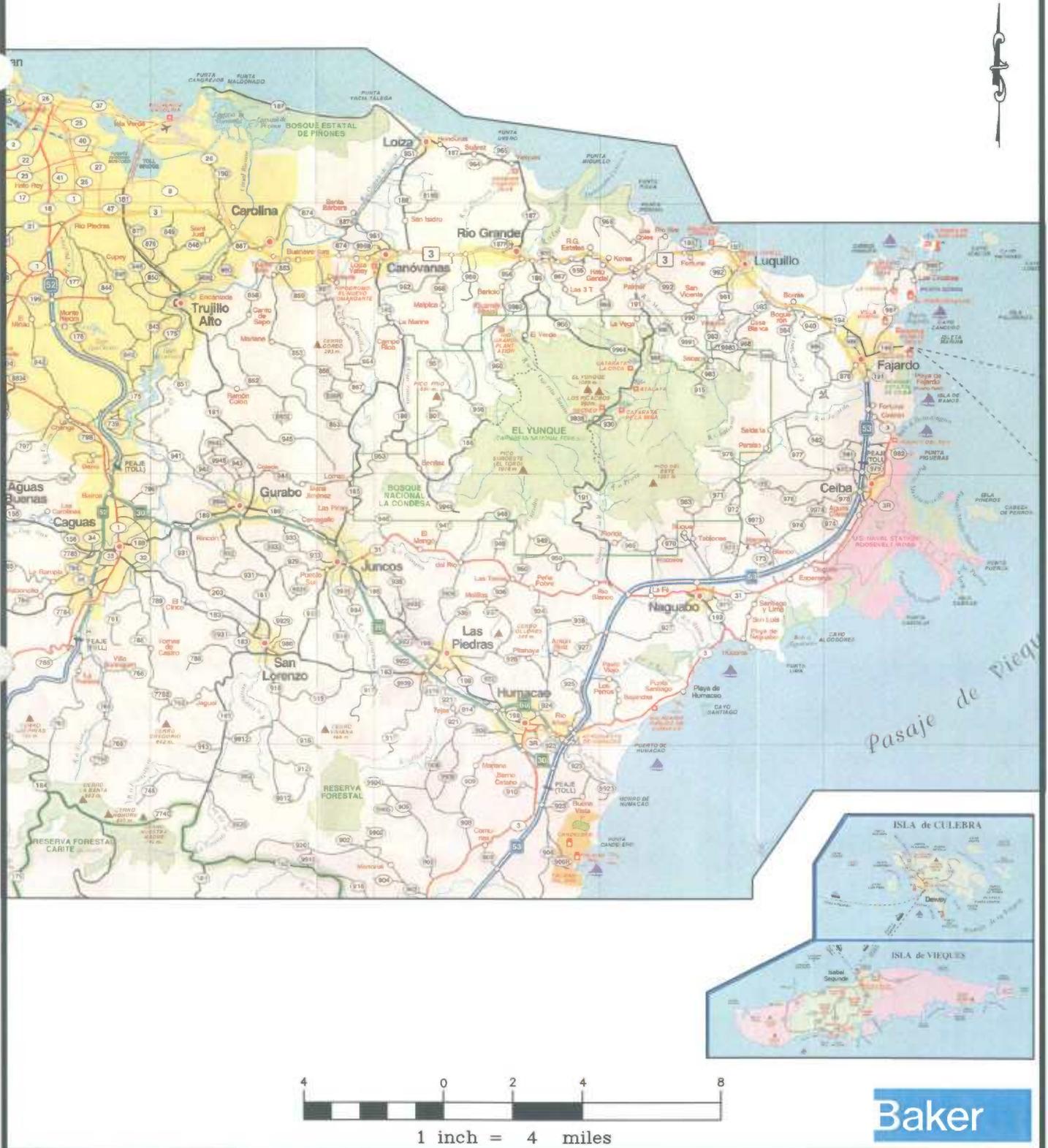
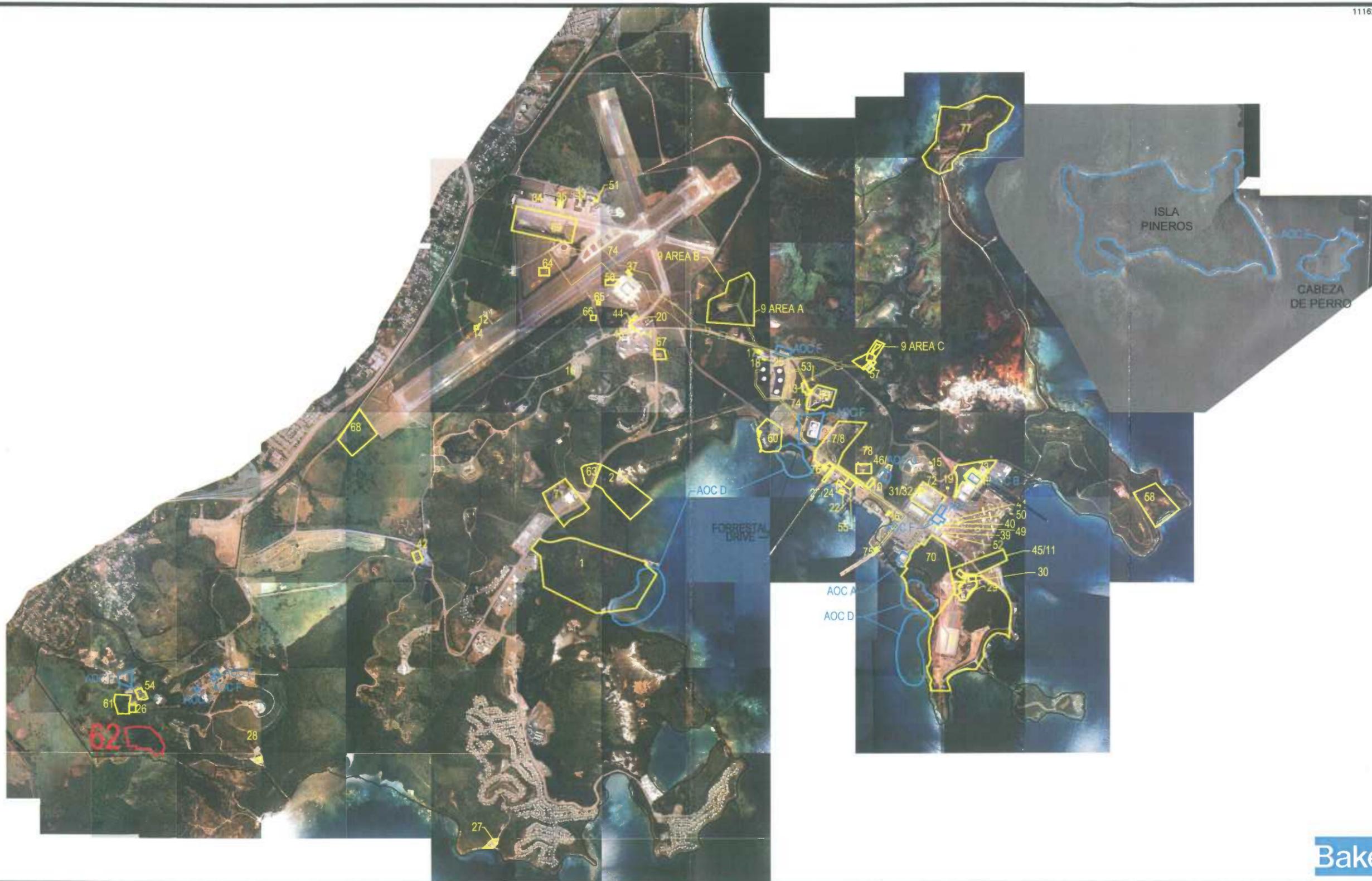


FIGURE 2-1  
 REGIONAL LOCATION MAP  
 SWMU 62-FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT



Baker

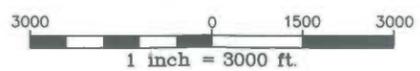
**LEGEND**

 - SWMUs

 - APPROXIMATE AREA TO WHICH THIS INVESTIGATION PERTAINS

 - AOCs

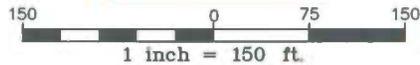
SOURCE: GEO-MARINE, INC., SEPTEMBER 6, 2000.



**FIGURE 2-2**  
**SWMU/AOC LOCATION MAP**  
**SWMU 62-FORMER BUNDY DISPOSAL AREA**  
**PHASE I RFI REPORT**  
 NAVAL ACTIVITY PUERTO RICO



**Baker**



**LEGEND**

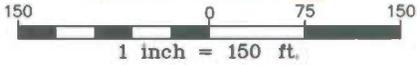
-  -1958 POLYGON FEATURE
-  -1961 POLYGON FEATURE
-  -EXISTING SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)
-  -EXISTING SURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)
-  -SWMU BOUNDARY

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

**FIGURE 2-3**  
**SITE LAYOUT AND ECP SAMPLE**  
**LOCATION MAP-1958 AERIAL PHOTOGRAPH**  
**SWMU 62-FORMER**  
**BUNDY DISPOSAL AREA**  
**PHASE I RFI REPORT**  
**NAVAL ACTIVITY PUERTO RICO**



**Baker**



**LEGEND**

-  -1958 POLYGON FEATURE
-  -1961 POLYGON FEATURE
-  -EXISTING SUBSURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)
-  -EXISTING SURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)
-  -SWMU BOUNDARY

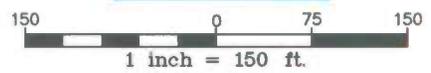
**FIGURE 2-4**  
**SITE LAYOUT AND ECP SAMPLE**  
**LOCATION MAP-2000 AERIAL PHOTOGRAPH**  
**SWMU 62-FORMER BUNDY DISPOSAL AREA**  
**PHASE I RFI REPORT**

NAVAL ACTIVITY PUERTO RICO

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



**Baker**



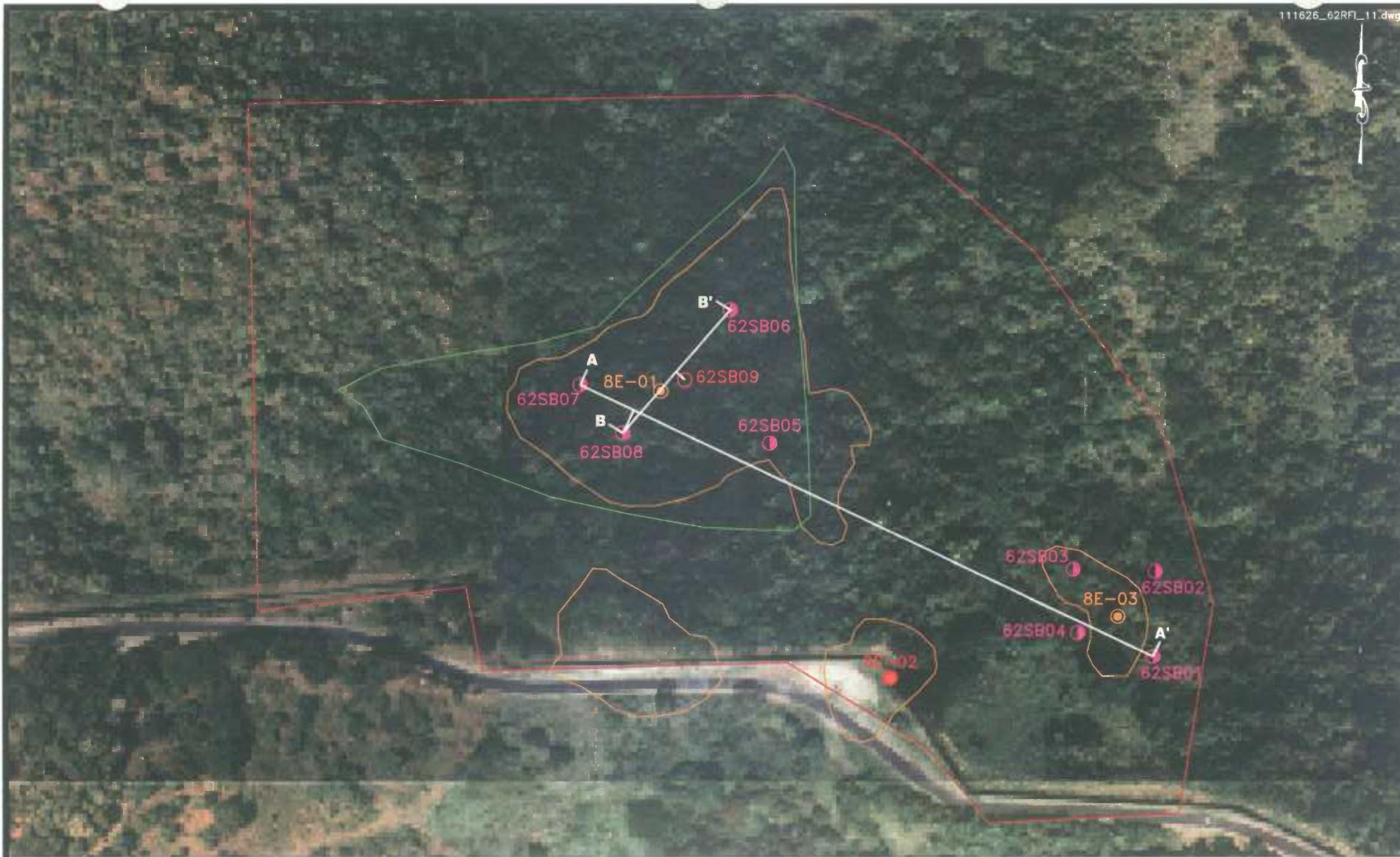
SOURCE: GEO-MARINE, INC.,  
SEPTEMBER 6, 2000.

**LEGEND**

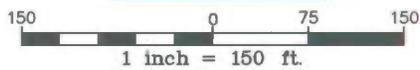
- 1958 POLYGON FEATURE
- 1961 POLYGON FEATURE
- EXISTING SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)
- EXISTING SURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)
- SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE I RFI 2008)
- SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION FOR PARTIALLY BURIED DRUM(PHASE I RFI 2008)
- SWMU BOUNDARY

**FIGURE 4-1**  
**SAMPLE LOCATION MAP**  
**SWMU 62-FORMER**  
**BUNDY DISPOSAL AREA**  
**PHASE I RFI REPORT**

NAVAL ACTIVITY PUERTO RICO



**Baker**

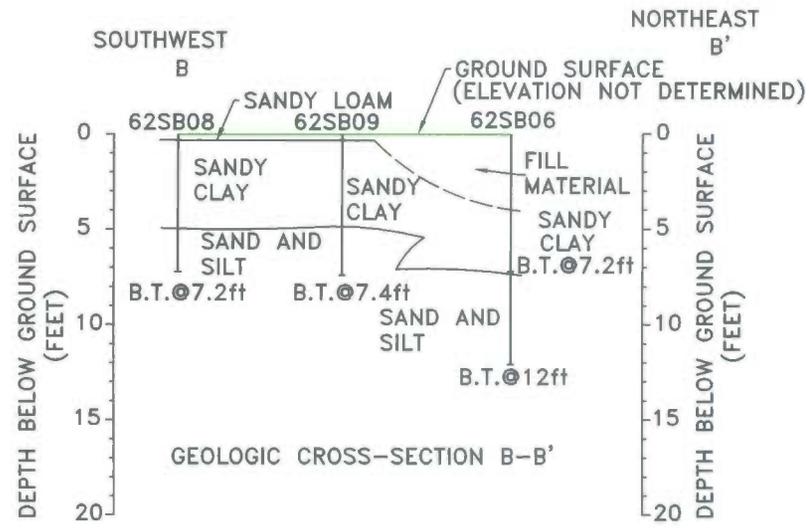
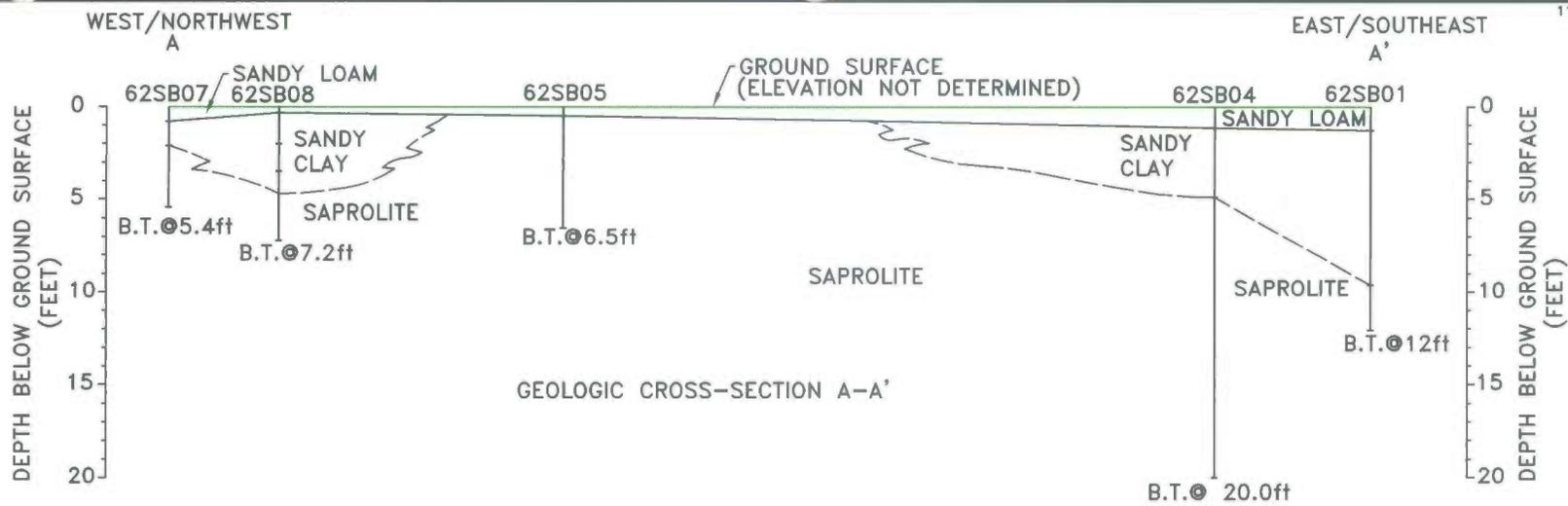


SOURCE: GEO-MARINE, INC.,  
SEPTEMBER 6, 2000.

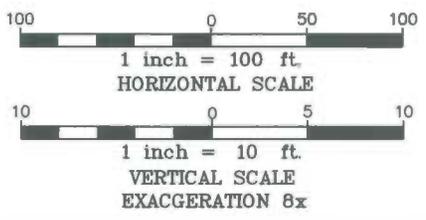
- |  |   |  |   |
|--|---|--|---|
|  | -1958 POLYGON FEATURE   |  | -SWMU BOUNDARY  |
|  | -1961 POLYGON FEATURE   |  | -EXISTING SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004) |
|  | -EXISTING SURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)                                |  | -SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE I RFI 2008)           |
|  | -SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION FOR PARTIALLY BURIED DRUM (PHASE I RFI 2008) |  | -CROSS SECTION LOCATION   |

FIGURE 5-1  
GEOLOGIC CROSS SECTION LOCATION  
SWMU 62-FORMER  
BUNDY DISPOSAL AREA  
PHASE I RFI REPORT

NAVAL ACTIVITY PUERTO RICO



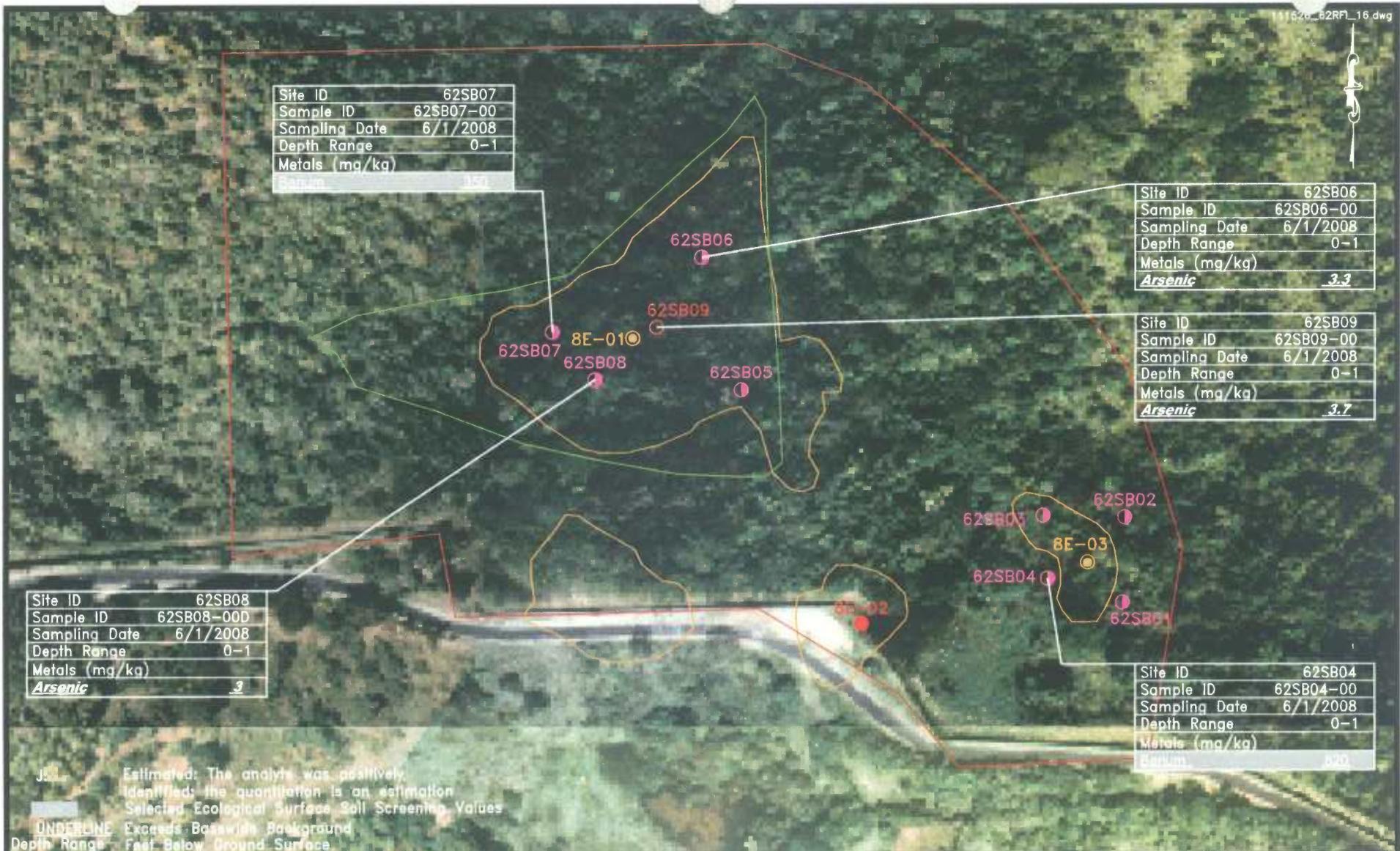
THE SOIL BORING INFORMATION IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. SUBSURFACE CONDITIONS INTERPOLATED BETWEEN BORINGS ARE ESTIMATED BASED ON ACCEPTED SOIL ENGINEERING PRINCIPLES AND GEOLOGIC JUDGEMENT.



**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' AND**  
**GEOLOGIC CROSS SECTION B-B'**  
**SWMU 62-FORMER**  
**BUNDY DISPOSAL AREA**  
**PHASE I RFI REPORT**  
**NAVAL ACTIVITY PUERTO RICO**



|                |            |
|----------------|------------|
| Site ID        | 62SB07     |
| Sample ID      | 62SB07-00  |
| Sampling Date  | 6/1/2008   |
| Depth Range    | 0-1        |
| Metals (mg/kg) |            |
| <i>Arsenic</i> | <u>3.5</u> |

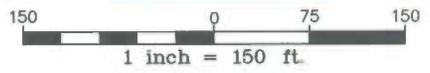
|                |            |
|----------------|------------|
| Site ID        | 62SB06     |
| Sample ID      | 62SB06-00  |
| Sampling Date  | 6/1/2008   |
| Depth Range    | 0-1        |
| Metals (mg/kg) |            |
| <i>Arsenic</i> | <u>3.3</u> |

|                |            |
|----------------|------------|
| Site ID        | 62SB09     |
| Sample ID      | 62SB09-00  |
| Sampling Date  | 6/1/2008   |
| Depth Range    | 0-1        |
| Metals (mg/kg) |            |
| <i>Arsenic</i> | <u>3.7</u> |

|                |            |
|----------------|------------|
| Site ID        | 62SB08     |
| Sample ID      | 62SB08-00D |
| Sampling Date  | 6/1/2008   |
| Depth Range    | 0-1        |
| Metals (mg/kg) |            |
| <i>Arsenic</i> | <u>3</u>   |

|                |            |
|----------------|------------|
| Site ID        | 62SB04     |
| Sample ID      | 62SB04-00  |
| Sampling Date  | 6/1/2008   |
| Depth Range    | 0-1        |
| Metals (mg/kg) |            |
| <i>Arsenic</i> | <u>3.2</u> |

Estimated: The analysis was positively identified; the quantitation is an estimation.  
 Selected Ecological Surface Soil Screening Values  
UNDERLINE Exceeds Baseline Background  
 Depth Range Feet Below Ground Surface

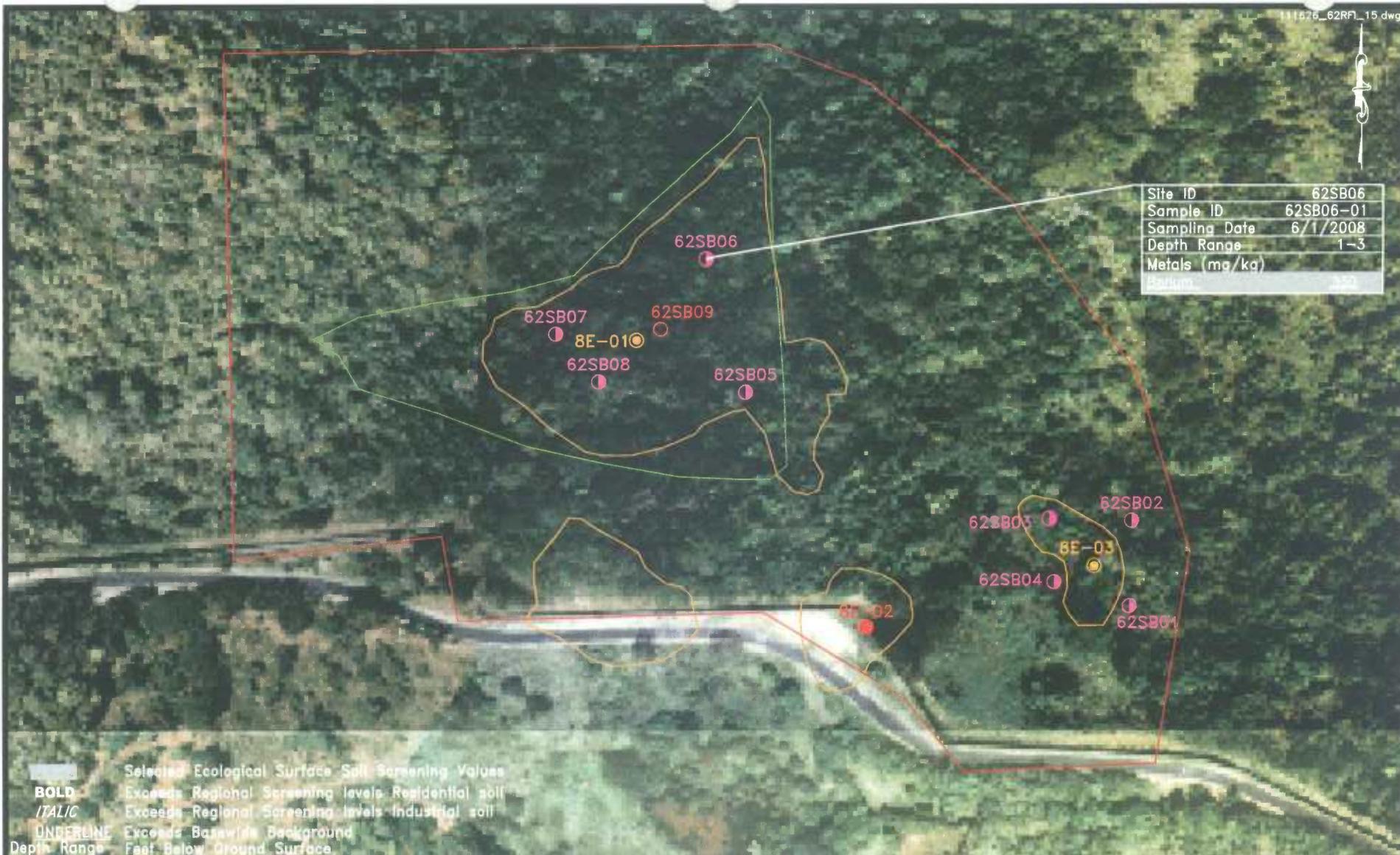


**LEGEND**

- 1958 POLYGON FEATURE
- 1961 POLYGON FEATURE
- EXISTING SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)
- EXISTING SURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)
- SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE I RFI 2008)
- SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION FOR PARTIALLY BURIED DRUM (PHASE I RFI 2008)
- SWMU BOUNDARY

**FIGURE 6-1**  
 SURFACE SOIL EXCEEDANCES OF ECOLOGICAL OR HUMAN HEALTH AND BACKGROUND SCREENING CRITERIA  
 SWMU 62-FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO

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



|                |           |
|----------------|-----------|
| Site ID        | 62SB06    |
| Sample ID      | 62SB06-01 |
| Sampling Date  | 6/1/2008  |
| Depth Range    | 1-3       |
| Metals (mg/kg) |           |
| Barium         | 350       |

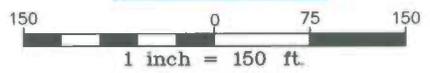
Selected Ecological Surface Soil Screening Values

**BOLD** Exceeds Regional Screening Levels Residential soil

*ITALIC* Exceeds Regional Screening Levels Industrial soil

UNDERLINE Exceeds Baseline Background

Depth Range Feet Below Ground Surface



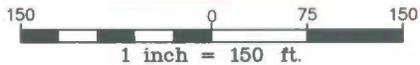
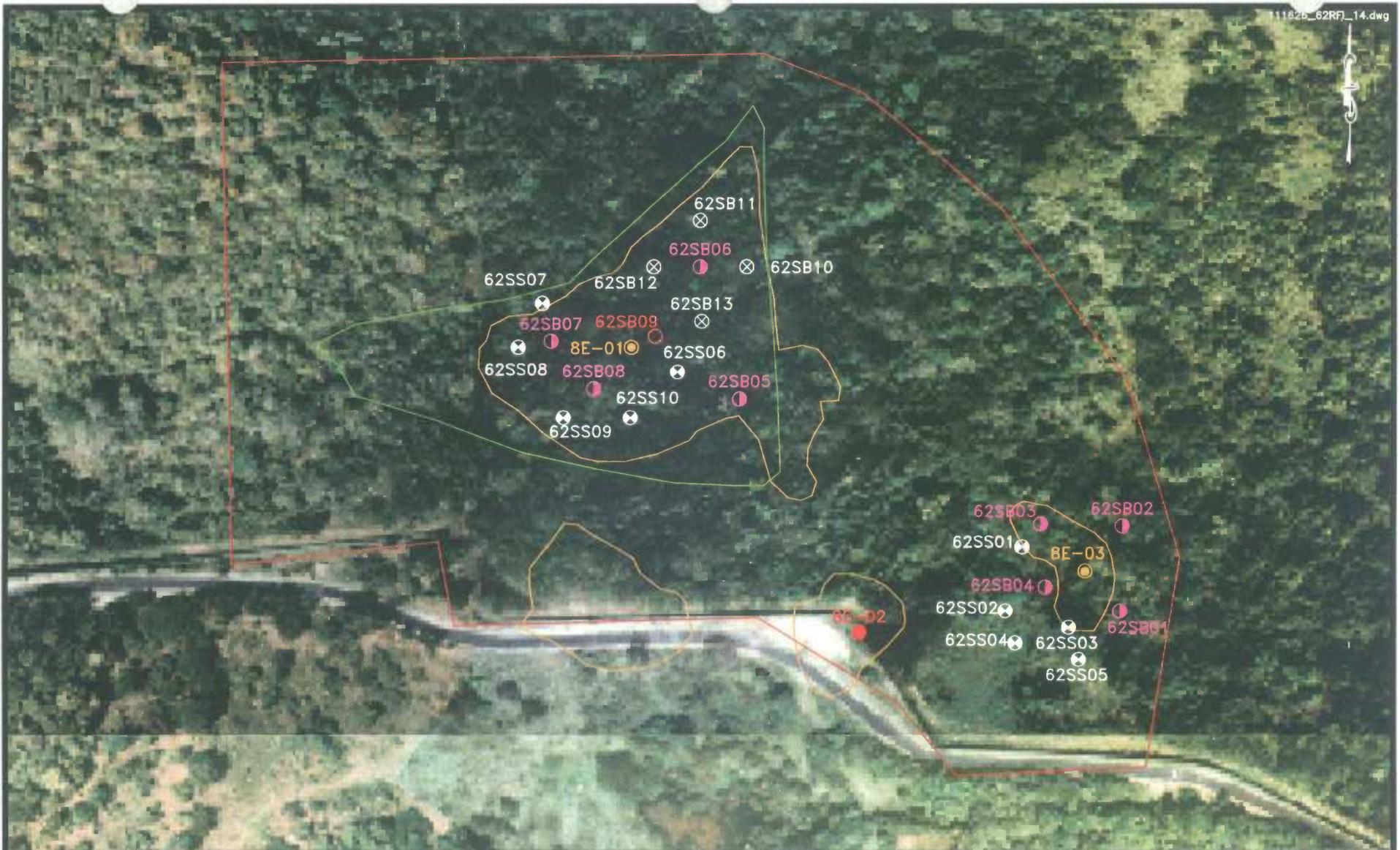
SOURCE: GEO-MARINE, INC.,  
SEPTEMBER 6, 2000.

**LEGEND**

|  |   |
|--|---|
|  | -1958 POLYGON FEATURE   |
|  | -1961 POLYGON FEATURE   |
|  | -EXISTING SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)                 |
|  | -EXISTING SURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)                                |
|  | -SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE I RFI 2008)                           |
|  | -SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION FOR PARTIALLY BURIED DRUM (PHASE I RFI 2008) |
|  | -SWMU BOUNDARY  |

**FIGURE 6-2**  
SUBSURFACE SOIL EXCEEDANCES OF  
ECOLOGICAL SCREENING CRITERIA  
AND BACKGROUND  
SWMU 62-FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT

NAVAL ACTIVITY PUERTO RICO



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

- | -1958 POLYGON FEATURE |   | -1961 POLYGON FEATURE |   |
|-----------------------|---|-----------------------|---|
|                       | -EXISTING SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004) |                       | -EXISTING SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE I RFI 2008)                  |
|                       | -EXISTING SURFACE SOIL SAMPLING LOCATION (PHASE II ECP 2004)                |                       | -SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE I RFI 2008)                           |
|                       | -SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION (PHASE I RFI 2008)           |                       | -SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION FOR PARTIALLY BURIED DRUM (PHASE I RFI 2008) |
|                       | -PROPOSED FULL RFI SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION            |                       | -PROPOSED FULL RFI SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION                            |
|                       | -PROPOSED FULL RFI SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION            |                       | -PROPOSED FULL RFI SURFACE AND SUBSURFACE SOIL SAMPLING LOCATION                            |
|                       | -SWMU BOUNDARY  |                       | -SWMU BOUNDARY  |

FIGURE 7-1  
PROPOSED FULL RFI  
SAMPLE LOCATION MAP  
SWMU 62-FORMER  
BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO

**APPENDIX A**  
**2008 FIELD ACTIVITIES**

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**SITE PHOTOGRAPHS**

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**PHOTOS ASSOCIATED WITH THE SOUTHWESTERN PORTION OF SWMU 62  
(SOIL BORINGS 62SB01 – 62SB04)**



**Photo A-1.** Post site clearing during 2008 Phase I investigation.  
View looking south.



**Photo A-2.** Preparation for soil boring advancement at 62SB01.

**PHOTOS ASSOCIATED WITH THE CENTRAL PORTION OF SWMU 62  
(SOIL BORINGS 62SB05 – 62SB09)**



**Photo A-4.** Post site clearing during 2008 Phase I investigation.  
View looking south.



**Photo A-5.** Remnants of discarded building materials adjacent to 62SB06.



**Photo A-8.** Close-up view of partially buried drum.



**Photo A-9.** Miscellaneous building debris found near 62SB09.

**FIELD LOG BOOK NOTES**

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**Environmental Geologist – Joe Burawa**

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62SB04

0-4' Sandy loam, soft, damp  
4' Rec. to 0.8', dark brown  
<1 ppm then sandy clay, orange  
brown, med hard, fractured  
4-8' saprolitic structure @ 4.5'  
4' Rec. medium grained sand  
<1 ppm  
8-12' chert cobble @ 8.5'  
4' Rec. clayey sand @ 8.6' loose,  
<1 ppm damp to dry, med-grained  
tan and orange brown  
12-16' at 11.7' blue gray  
4' Rec. sandy clay, med hard  
<1 ppm damp  
@ 12' medium grained sand  
and pebbles, dry, loose  
16-20' light gray and brown  
4' Rec. blue gray sandy clay  
<1 ppm  
14.4' to 15.2' then orange brown  
clayey sand moist to wet? soft  
than tan sand loose, damp today  
like a beach sand.

5/31/08  
Clay 85°F

Samples collected

|            |      |
|------------|------|
| 62SB04-00  | 1500 |
| 62SB04-03  | 1510 |
| 62SB04-03D | 1510 |
| 62SB04-05  | 1520 |

80112

778

625B01

0-4' Dark Brown Sandy loam  
 2.7' Rec damp, soft to 1.9'  
 <1ppm - then clayey sand dark  
 brown, damp, soft  
 rocks throughout

4-8' @ 6.4 Sandy Clay light brown  
 and orange, med hard, damp  
 4.0' Rec med grained sand, black  
 <1ppm staining (arsenic)  
 clayey sand again @ 8.7'  
 orange brown, soft, some  
 8712' rocks damp  
 4' Rec blue gray clay mixed in  
 <1ppm starting @ 11.5, rocks  
 damp

5/31/08

Cloudy

Samples Collected

|           |      |
|-----------|------|
| 625B01-00 | 1550 |
| 625B01-03 | 1555 |
| 625B01-05 | 1600 |

625B02

0-4' Dark brown sandy clay loam  
2.7' Rec damp to moist, soft to 1.2'  
<1ppm than Sandy clay, medium  
brown, med hard, damp, fine  
to med. grained sand.

4-8' Sandy clay continued  
4' Rec med brown, med hard, stiff  
<1ppm medium grained sand, iron staining

becomes light brown) tan @ 8.5'  
8-12' very stiff, med hard, damp  
4' Rec occasional pebble  
<1ppm

6/1/08  
Cloudy 85°F

Samples Collected

625B02-00 0810

625B02-01 0820

625B02-03 0825

6/1/08

62SB03

0-4  
2.8' Rec  
<1ppm

Sandy loam, dark brown,  
soft, moist to 0.9'  
becomes sandy clay  
med brown / tan, med hard  
damp, med. grained sand

4-8'  
4' Rec.  
<1ppm

@ 4.8' becomes silty  
sand, loose, dry, tan  
some rock throughout

8-12'  
4' Rec.  
<1ppm



Samples Collected

62SB03-00

62SB03-01

62SB03-05

6/1/08  
Rainy

625B06

0-4'  
2.7' Rec  
<1 ppm  
Gray silty sand with rocks  
shells, fill material,  
possibly burnt, loose, soft  
dry

4-8'  
3.8' Rec  
<1 ppm  
becomes sandy clay @ 5.7'  
med brown and tan, mod soft  
to mod hard, damp  
med grained sand zones

8-12'  
4' Rec  
<1 ppm  
@ 7.8' Loose silty sand  
tan, mod soft, rocks throughout  
iron staining, trace of clay

silty clay @ 11.7' med brown  
orange, soft  
↓

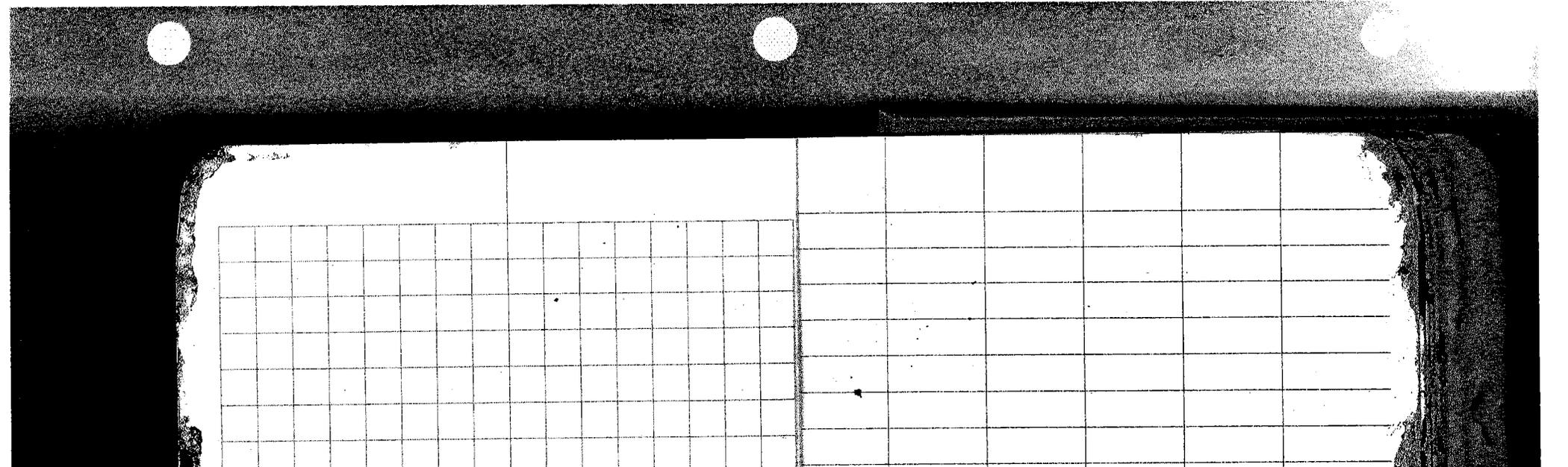
Samples Collected

625B06-00 0925

625B06-01 0940

625B06-03 0950

Drilled through mound,  
near water pipe



6/1/08

62SB07

0-4' Sandy loam, dark brown,  
 3.3' Rec. soft, gravelly from 0.5  
 <1ppm to 0.7'  
 then sandy clay mixed with  
 4-8' gravel, gray/brown mod hard  
 1.4' Rec. damp  
 <1ppm 0.2-2' tan and orange brown  
 sand, loose, clay, pebbles  
 8/12' throughout.

Geoprobe Refused 5.4

Samples Collected

62SB07-00 1020

62SB07-01 1030

62SB07-02 1040

6/1/08

62SB08

0-4' Sandy loam top 2"  
 3.3' Rec. dark brown, soft, damp  
 <1ppm then sandy clay med to  
 dark brown, med hard,  
 damp to dry, gravel  
 throughout, iron staining  
 4-8' @ 2.1' Sand, some clay  
 3.2' Rec. stones throughout, dry  
 <1ppm 3.5'  
 Sandy clay med. brown, med  
 hard, damp, stones  
~~8-12'~~ stones @ 5.8' to 5.2'  
 then tan/orange brown sand and  
 silt, some pebbles, loose  
 dry  
 Geoprobe refusal @ 7.2'

Samples Collected

62SB08-00 1050

62SB08-00D

62SB08-00MS

62SB08-00MSD



62SB08-01 1110

62SB08-02 1120

62SB08-02D

62SB08-02MS

62SB08-02MSD



6/1/08

62SB09

0-4' Sandy loam, soft, damp to  
2.9' Rec moist dark brown top 2"  
clippn then olive green to 0.6'  
gravel to 0.6-0.9' then  
to orange brown sand to 1.8'  
4-8' tan orange brown sandy clay  
3.4' Rec soft, damp to moist, iron stains  
clippn @ 4.5' tan sand and pebbles  
medium grained, loose, dry

Geoprobe Refusal @ 7.4'

Samples Collected

62SB09-00 1150

62SB09-01 1200

62SB09-02 1210

Sample collected near rusted  
55-gal Drum

**SOIL BORING LOGS**

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# TEST BORING RECORD

**Baker Environmental**

PROJECT: Naval Activity Puerto Rico - SWMU 62

SO NO.: 111626

BORING NO. 62SB01

COORDINAT EAST: 918564.028

NORTH: 793134.289

ELEVATION: SURFACE: \_\_\_\_\_

| Rig: Geoprobe 6620 DT Track Rig |         |        |             |  | Date    | Progress (Ft.) | Weather    | Depth to Water (Ft.) |
|---------------------------------|---------|--------|-------------|--|---------|----------------|------------|----------------------|
| MC Sampler                      | Casing  | Augers | Core Barrel |  |         |                |            |                      |
| Size (ID)                       | 2"      |        |             |  | 5/31/08 | 0.0 - 12.0     | 85° Cloudy |                      |
| Length                          | 4'      |        |             |  |         |                |            |                      |
| Type                            | Acetate |        |             |  |         |                |            |                      |
| Hammer Wt.                      |         |        |             |  |         |                |            |                      |
| Fall                            |         |        |             |  |         |                |            |                      |

Remarks:

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

| Depth (Ft.) | Sample Type & No. | Sample Rec. (Ft.,%) | SPT | Lab ID            | PID (ppm) | Visual Description   | Elevation (Ft. MSL) |
|-------------|-------------------|---------------------|-----|-------------------|-----------|--|---------------------|
| 1           |                   |                     |     | 62SB01-00 (0-1')  |           | Dark brown, sandy loam, damp, soft   |                     |
| 2           | D-1               | 2.7<br>68%          |     |                   | <1        |  | 1.9                 |
| 3           |                   |                     |     |                   |           | Clayey sand, dark brown, damp soft rocks throughout  |                     |
| 4           | 4.0               |                     |     |                   |           |  |                     |
| 5           |                   |                     |     | 62SB01-03 (5-7')  |           |  |                     |
| 6           | D-2               | 4.0<br>100%         |     |                   | <1        |  | 6.4                 |
| 7           |                   |                     |     |                   |           | Sandy clay, light brown and orange medium hard, damp, medium grained sand black staining (organic) |                     |
| 8           | 8.0               |                     |     |                   |           |  | 8.7                 |
| 9           |                   |                     |     |                   |           |  |                     |
| 10          | D-3               | 4.0<br>100%         |     | 62SB01-05 (9-11') | <1        | Clayey sand, orange brown soft, some rocks, damp   |                     |

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

BAKER REP.: Joe Burawa  
 BORING NO. 62SB01 SHEET 1 OF 2



# TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 62

SO NO.: 111626

BORING NO.: 62SB01

| <b>SAMPLE TYPE</b><br>S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston N = No Sample |                   |                     |     |        |           | <b>DEFINITIONS</b><br>SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>ps/bg = point source/background |                     |
|--|-------------------|---------------------|-----|--------|-----------|--|---------------------|
| Depth (Ft.)  | Sample Type & No. | Sample Rec. (Ft.,%) | SPT | Lab ID | PID (ppm) | Visual Description   | Elevation (Ft. MSL) |
| 11   |                   |                     |     |        |           | continued from above   |                     |
| 12   | D-3               | 4.0                 |     |        | <1        | Blue gray clay, rocks, damp  | 11.5                |
| 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.: 62SB01



# TEST BORING RECORD

**Baker Environmental**

PROJECT: Naval Activity Puerto Rico - SWMU 62

SO NO.: 111626

BORING NO.: 62SB02

COORDINAT EAST: 918566.251

NORTH: 793225.415

ELEVATION: SURFACE: \_\_\_\_\_

| Rig: <u>Geoprobe 6620 DT Track Rig</u> |         |        |             |  | Date   | Progress (Ft.) | Weather    | Depth to Water (Ft.) |
|--|---------|--------|-------------|--|--------|----------------|------------|----------------------|
| MC Sampler                             | Casing  | Augers | Core Barrel |  |        |                |            |                      |
| Size (ID)                              | 2"      |        |             |  | 6/1/08 | 0.0 - 12.0     | 85° Cloudy |                      |
| Length                                 | 4'      |        |             |  |        |                |            |                      |
| Type                                   | Acetate |        |             |  |        |                |            |                      |
| Hammer Wt. Fall                        |         |        |             |  |        |                |            |                      |

Remarks:

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

| Depth (Ft.) | Sample Type & No. | Sample Rec. (Ft.,%) | SPT | Lab ID           | PID (ppm) | Visual Description  | Elevation (Ft. MSL) |
|-------------|-------------------|---------------------|-----|------------------|-----------|---|---------------------|
| 1           |                   |                     |     | 62SB02-00 (0-1') |           | Dark brown sandy clay, loam, damp to moist  |                     |
| 2           | D-1               | 2.7                 |     |                  | <1        |   | 1.9'                |
| 3           |                   | 68%                 |     | 62SB02-01 (1-3') |           | Soft, sandy clay, medium brown moderate hard, damp, fine to medium grained sand   |                     |
| 4           |                   |                     |     |                  |           |   | 4.0                 |
| 5           |                   |                     |     |                  |           |   |                     |
| 6           | D-2               | 4.0                 |     | 62SB02-03 (5-7') | <1        |   | 6.4'                |
| 7           |                   | 100%                |     |                  |           |   |                     |
| 8           |                   |                     |     |                  |           | Sand, clay, medium brown, moderate hard, stiff, medium grained sand iron staining |                     |
| 9           |                   |                     |     |                  |           |   | 8.0                 |
| 10          | D-3               | 4.0                 |     |                  | <1        | Light brown/tan, very stiff moderate hard, damp, occasional pebble                | 8.7'                |
|             |                   | 100%                |     |                  |           |   |                     |

DRILLING CO.: JFA Geological & Environmental Scientists

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 62SB02 SHEET 1 OF 2



# TEST BORING RECORD

Baker Environmental

PROJECT: Naval Activity Puerto Rico - SWMU 62

SO NO.: 111626

BORING NO.: 62SB02

| <u>SAMPLE TYPE</u><br>S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston N = No Sample |                   |                     |     |        |           | <u>DEFINITIONS</u><br>SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>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

BAKER REP.: Joe Burawa

DRILLER: Domingo Gonzalez - Rodriguez

BORING NO.: 62SB02

SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 62SO NO.: 111626BORING NO.: 62SB03COORDINAT EAST: 918478.407NORTH: 793227.637

ELEVATION: SURFACE: \_\_\_\_\_

| Rig: Geoprobe 6620 DT Track Rig |         |        |             |  | Date   | Progress (Ft.) | Weather    | Depth to Water (Ft.) |
|---------------------------------|---------|--------|-------------|--|--------|----------------|------------|----------------------|
| MC Sampler                      | Casing  | Augers | Core Barrel |  |        |                |            |                      |
| Size (ID)                       | 2"      |        |             |  | 6/1/08 | 0.0 - 12.0     | 85° Cloudy |                      |
| Length                          | 4'      |        |             |  |        |                |            |                      |
| Type                            | Acetate |        |             |  |        |                |            |                      |
| Hammer Wt.                      |         |        |             |  |        |                |            |                      |
| Fall                            |         |        |             |  |        |                |            |                      |

Remarks: \_\_\_\_\_

| SAMPLE TYPE   |                   |                     |     |                   | DEFINITIONS   |   |                     |
|---|-------------------|---------------------|-----|-------------------|---|---|---------------------|
| S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston<br>N = No Sample |                   |                     |     |                   | SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>BG/PS = Background/Point Source<br>ppm = parts per million |   |                     |
| Depth (Ft.)   | Sample Type & No. | Sample Rec. (Ft.,%) | SPT | Lab ID            | PID (ppm)   | Visual Description  | Elevation (Ft. MSL) |
| 1   |                   |                     |     | 62SB03-00 (0-1')  |   | Sandy loam, dark brown, soft  | 0.9'                |
| 2   | D-1               | 2.8<br>70%          |     | 62SB03-01 (1-3')  | <1  | Sandy clay, medium brown/tan, moderate hard, dry, medium grained sand |                     |
| 3   |                   |                     |     |                   |   |   |                     |
| 4   | 4.0               |                     |     |                   |   |   |                     |
| 5   |                   |                     |     |                   |   |   | 4.8'                |
| 6   | D-2               | 4.0<br>100%         |     |                   | <1  | Silty sand, loose, dry, tan some rock throughout                      |                     |
| 7   |                   |                     |     |                   |   |   |                     |
| 8   | 8.0               |                     |     |                   |   |   |                     |
| 9   |                   |                     |     |                   |   |   |                     |
| 10  | D-3               | 4.0<br>100%         |     | 62SB03-05 (9-11') | <1  | Silty sand, loose, dry, tan some rock throughout                      |                     |

DRILLING CO.: JFA Geological & Environmental ScientistsBAKER REP.: Joe BurawaDRILLER: Domingo Gonzalez - RodriguezBORING NO.: 62SB03

SHEET 1 OF 2



# TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 62  
 SO NO.: 111626

BORING NO.: 62SB03

| <b>SAMPLE TYPE</b><br>S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston N = No Sample |                        |                     |     |        |           | <b>DEFINITIONS</b><br>SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>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<br>100%         |     |        | <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.: 62SB03 SHEET 2 OF 2



# TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 62

SO NO.: 111626

BORING NO. 62SB04

COORDINAT EAST: 918483.465

NORTH: 793159.849

ELEVATION: SURFACE: \_\_\_\_\_

|  |               |               |                    |  |             |                       |                |                             |
|--|---------------|---------------|--------------------|--|-------------|-----------------------|----------------|-----------------------------|
| <b>Rig:</b> Geoprobe 6620 DT Track Rig |               |               |                    |  | <b>Date</b> | <b>Progress (Ft.)</b> | <b>Weather</b> | <b>Depth to Water (Ft.)</b> |
| <b>MC Sampler</b>                      | <b>Casing</b> | <b>Augers</b> | <b>Core Barrel</b> |  |             |                       |                |                             |
| <b>Size (ID)</b>                       | 2"            |               |                    |  | 5/31/08     | 0.0 - 20.0            | 85° Cloudy     |                             |
| <b>Length</b>                          | 4'            |               |                    |  |             |                       |                |                             |
| <b>Type</b>                            | Acetate       |               |                    |  |             |                       |                |                             |
| <b>Hammer Wt. Fall</b>                 |               |               |                    |  |             |                       |                |                             |

Remarks:

|  |   |
|--|---|
| <b>SAMPLE TYPE</b><br>S = Split Spoon    A = Auger<br>T = Shelby Tube    W = Wash<br>R = Air Rotary      C = Core<br>D = Direct Push     P = Piston<br>N = No Sample | <b>DEFINITIONS</b><br>SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>BG/PS = Background/Point Source<br>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<br>100%         |     | 62SB04-00<br>(0-1')               | <1        | Sandy loam, soft, damp, dark brown                       | 0.8'                |
| 2           |                   |                     |     |                                   |           | Sandy clay, orange brown, moderate hard, fractured       |                     |
| 3           |                   |                     |     |                                   |           |  |                     |
| 4           |                   |                     |     |                                   |           | 4.0  |                     |
| 5           | D-2               | 4.0<br>100%         |     | 62SB04-03<br>62SB04-03D<br>(5-7') | <1        | Saprolite structure, medium grained sand                 |                     |
| 6           |                   |                     |     |                                   |           |  |                     |
| 7           |                   |                     |     |                                   |           |  |                     |
| 8           |                   |                     |     |                                   |           | 8.0  |                     |
| 9           | D-3               | 4.0<br>100%         |     | 62SB04-05<br>(9-11')              | <1        | Chert cobble, clayey sand                                | 8.6'                |
| 10          |                   |                     |     |                                   |           | loose, damp to dry, medium grained, tan and orange brown |                     |

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

BAKER REP.: Joe Burawa  
 BORING NO. 62SB04 SHEET 1 OF 2

# TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 62

SO NO.: 111626

BORING NO.: 62SB04

| <u>SAMPLE TYPE</u>   |                   |                     |     |        |           | <u>DEFINITIONS</u>   |                     |
|--|-------------------|---------------------|-----|--------|-----------|--|---------------------|
| S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston N = No Sample |                   |                     |     |        |           | SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>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<br>100%         |     |        | <1        | Sandy clay, blue/gray, moderate hard, damp   | 11.7'               |
| 12   |                   |                     |     |        |           |  |                     |
| 13   | D-4               | 4.0<br>100%         |     |        | <1        | Medium grained sand and pebbles, dry, loose, light gray and brown  | 14.4'               |
| 14   |                   |                     |     |        |           |  |                     |
| 15   |                   |                     |     |        |           |  |                     |
| 16   |                   |                     |     |        |           |  |                     |
| 17   | D-5               | 4.0<br>100%         |     |        | <1        | Sandy clay, blue/gray, orange brown clayey sand, moist to wet, soft tan sand, loose, damp to dry, like beach sand                                      |                     |
| 18   |                   |                     |     |        |           |  |                     |
| 19   |                   |                     |     |        |           |  |                     |
| 20   |                   |                     |     |        |           |  |                     |
| 21   |                   |                     |     |        |           | END OF BORING AT 20.0'   |                     |
| 22   |                   |                     |     |        |           |  |                     |
| 23   |                   |                     |     |        |           |  |                     |
| 24   |                   |                     |     |        |           |  |                     |
| 25   |                   |                     |     |        |           |  |                     |
| 26   |                   |                     |     |        |           |  |                     |
| 27   |                   |                     |     |        |           |  |                     |
| 28   |                   |                     |     |        |           |  |                     |
| 29   |                   |                     |     |        |           |  |                     |
| 30   |                   |                     |     |        |           |  |                     |

**Baker****Baker Environmental****TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 62SO NO.: 111626BORING NO.: 62SB05COORDINATE EAST: 918153.1NORTH: 793362.4

ELEVATION: SURFACE: \_\_\_\_\_

| Rig: <u>Geoprobe 6620 DT Track Rig</u>  |                   |                     |             |                  | Date  | Progress (Ft.)                                   | Weather             | Depth to Water (Ft.) |
|---|-------------------|---------------------|-------------|------------------|---|--|---------------------|----------------------|
| MC Sampler  | Casing            | Augers              | Core Barrel |                  |   |  |                     |                      |
| Size (ID)   | 2"                |                     |             |                  | 6/1/08  | 0.0 - 6.5  | 85° Cloudy          |                      |
| Length  | 4'                |                     |             |                  |   |  |                     |                      |
| Type  | Acetate           |                     |             |                  |   |  |                     |                      |
| Hammer Wt. Fall   |                   |                     |             |                  |   |  |                     |                      |
| Remarks:  |                   |                     |             |                  |   |  |                     |                      |
| <b>SAMPLE TYPE</b><br>S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston<br>N = No Sample |                   |                     |             |                  | <b>DEFINITIONS</b><br>SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>BG/PS = Background/Point Source<br>ppm = parts per million |  |                     |                      |
| Depth (Ft.)   | Sample Type & No. | Sample Rec. (Ft.,%) | SPT         | Lab ID           | PID (ppm)   | Visual Description                               | Elevation (Ft. MSL) |                      |
| 1   |                   |                     |             | 62SB05-00 (0-1') |   | Sandy loam to 0.4', damp, dark brown, soft       | 1.0'                |                      |
| 2   | D-1               | 3.1<br>78%          |             | 62SB05-01 (1-3') | <1  | Silty sand, brownish gray and tan pebbles, loose |                     |                      |
| 3   |                   |                     |             |                  |   |  |                     |                      |
| 4   | 4.0               |                     |             |                  |   |  | 4.0'                |                      |
| 5   |                   |                     |             | 62SB05-02 (3-5') |   | Dry medium grained sand, some clay               |                     |                      |
| 6   | D-2               | 2.5<br>63%          |             |                  | <1  |  |                     |                      |
| 7   |                   |                     |             |                  |   | GEOPROBE REFUSAL AT 6.5'                         |                     |                      |
| 8   | 8.0               |                     |             |                  |   |  |                     |                      |
| 9   |                   |                     |             |                  |   |  |                     |                      |
| 10  |                   |                     |             |                  |   |  |                     |                      |

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez - RodriguezBAKER REP.: Joe BurawaBORING NO.: 62SB05 SHEET 1 OF 1





# TEST BORING RECORD

Baker Environmental

PROJECT: Naval Activity Puerto Rico - SWMU 62

SO NO.: 111626

BORING NO.: 62SB06

COORDINAT EAST: 918110.889

NORTH: 793504.694

ELEVATION: SURFACE:

| Rig: Geoprobe 6620 DT Track Rig   |                   |                     |        |                  | Date  | Progress (Ft.)  | Weather             | Depth to Water (Ft.) |
|---|-------------------|---------------------|--------|------------------|---|---|---------------------|----------------------|
| Size (ID)   | MC Sampler        | Casing              | Augers | Core Barrel      |   |   |                     |                      |
| Length  | 2"                |                     |        |                  | 6/1/08  | 0.0 - 12.0  | 85° Rainy           |                      |
| Type  | 4'                |                     |        |                  |   |   |                     |                      |
| Hammer Wt.  | Acetate           |                     |        |                  |   |   |                     |                      |
| Fall  |                   |                     |        |                  |   |   |                     |                      |
| Remarks: Drilled through mound near water pipe.   |                   |                     |        |                  |   |   |                     |                      |
| <b>SAMPLE TYPE</b><br>S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston<br>N = No Sample |                   |                     |        |                  | <b>DEFINITIONS</b><br>SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>BG/PS = Background/Point Source<br>ppm = parts per million |   |                     |                      |
| Depth (Ft.)   | Sample Type & No. | Sample Rec. (Ft.,%) | SPT    | Lab ID           | PID (ppm)   | Visual Description  | Elevation (Ft. MSL) |                      |
| 1   |                   |                     |        | 62SB06-00 (0-1') |   | Gray silty sand with rocks and shells, fill material, possibly burnt, loose, soft, dry        |                     |                      |
| 2   | D-1               | 2.7                 |        | 62SB06-01 (1-3') | <1  |   |                     |                      |
| 3   |                   | 68%                 |        |                  |   |   |                     |                      |
| 4   |                   |                     |        |                  |   |   |                     |                      |
| 4.0   |                   |                     |        |                  |   |   |                     | 5.7'                 |
| 5   |                   |                     |        |                  |   | Sandy clay, medium brown and tan, medium soft to moderate hard, dry medium grained sand zones |                     |                      |
| 6   | D-2               | 3.8                 |        | 62SB06-03 (5-7') | <1  |   |                     |                      |
| 7   |                   | 95%                 |        |                  |   |   |                     |                      |
| 8   |                   |                     |        |                  |   |   |                     | 7.8'                 |
| 8.0   |                   |                     |        |                  |   | Loose silty sand, tan, moderate soft, rocks throughout iron staining, trace of clay           |                     |                      |
| 9   | D-3               | 4.0                 |        |                  | <1  |   |                     |                      |
| 10  |                   | 100%                |        |                  |   |   |                     |                      |

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

BAKER REP.: Joe Burawa  
 BORING NO.: 62SB06 SHEET 1 OF 2



# TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 62  
 SO NO.: 111626

BORING NO. 62SB06

| SAMPLE TYPE  |                   |                     |     |        |           | DEFINITIONS  |                     |
|--|-------------------|---------------------|-----|--------|-----------|--|---------------------|
| S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston N = No Sample |                   |                     |     |        |           | SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>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        |  | 11.7'               |
| 12   |                   | 100%                |     |        |           | Silty clay, medium brown/orange, soft  |                     |
|  |                   |                     |     |        |           | 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. 62SB06 SHEET 2 OF 2

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 62SO NO.: 111626BORING NO.: 62SB07COORDINATE EAST: 917950.767NORTH: 793424.681

ELEVATION: SURFACE: \_\_\_\_\_

| Rig: Geoprobe 6620 DT Track Rig |         |        |             |  | Date   | Progress (Ft.) | Weather    | Depth to Water (Ft.) |
|---------------------------------|---------|--------|-------------|--|--------|----------------|------------|----------------------|
| MC Sampler                      | Casing  | Augers | Core Barrel |  |        |                |            |                      |
| Size (ID)                       | 2"      |        |             |  | 6/1/08 | 0.0 - 5.4      | 85° Cloudy |                      |
| Length                          | 4'      |        |             |  |        |                |            |                      |
| Type                            | Acetate |        |             |  |        |                |            |                      |
| Hammer Wt.                      |         |        |             |  |        |                |            |                      |
| Fall                            |         |        |             |  |        |                |            |                      |

Remarks:

| SAMPLE TYPE   |                   |                     |     |                  | DEFINITIONS   |  |                     |
|---|-------------------|---------------------|-----|------------------|---|--|---------------------|
| S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston<br>N = No Sample |                   |                     |     |                  | SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>BG/PS = Background/Point Source<br>ppm = parts per million |  |                     |
| Depth (Ft.)   | Sample Type & No. | Sample Rec. (Ft.,%) | SPT | Lab ID           | PID (ppm)   | Visual Description   | Elevation (Ft. MSL) |
| 1   |                   |                     |     | 62SB07-00 (0-1') |   | Sandy loam, dark brown, soft, gravel                           | 0.7'                |
| 2   | D-1               | 3.3<br>83%          |     | 62SB07-01 (1-3') | <1  | Sand clay mixed with gravel<br>gray/brown, moderate hard, damp | 2.2'                |
| 3   |                   |                     |     |                  |   | Sand, tan/orange/brown, loose<br>dry, pebbles throughout       |                     |
| 4   | 4.0               |                     |     |                  |   |  |                     |
| 5   | D-2               | 1.4<br>35%          |     | 62SB07-02 (3-5') | <1  |  |                     |
| 6   |                   |                     |     |                  |   | GEOPROBE REFUSAL AT 5.4'                                       |                     |
| 7   |                   |                     |     |                  |   |  |                     |
| 8   |                   |                     |     |                  |   |  |                     |
| 9   |                   |                     |     |                  |   |  |                     |
| 10  |                   |                     |     |                  |   |  |                     |

DRILLING CO.: JFA Geological & Environmental ScientistsBAKER REP.: Joe BurawaDRILLER: Domingo Gonzalez - RodriguezBORING NO.: 62SB07

SHEET 1 OF 1

**Baker**

Baker Environmental

**TEST BORING RECORD**PROJECT: Naval Activity Puerto Rico - SWMU 62SO NO.: 111626BORING NO. 62SB08COORDINATE EAST: 917996.4NORTH: 793373.6

ELEVATION: SURFACE: \_\_\_\_\_

| Rig: <u>Geoprobe 6620 DT Track Rig</u>  |                   |                     |        |                                       | Date  | Progress (Ft.)   | Weather             | Depth to Water (Ft.) |
|---|-------------------|---------------------|--------|---------------------------------------|---|--|---------------------|----------------------|
|   | MC Sampler        | Casing              | Augers | Core Barrel                           |   |  |                     |                      |
| Size (ID)   | 2"                |                     |        |                                       | 6/1/08  | 0.0 - 7.2  | 85° Cloudy          |                      |
| Length  | 4'                |                     |        |                                       |   |  |                     |                      |
| Type  | Acetate           |                     |        |                                       |   |  |                     |                      |
| Hammer Wt. Fall   |                   |                     |        |                                       |   |  |                     |                      |
| <b>Remarks:</b>   |                   |                     |        |                                       |   |  |                     |                      |
| <b>SAMPLE TYPE</b><br>S = Split Spoon A = Auger<br>T = Shelby Tube W = Wash<br>R = Air Rotary C = Core<br>D = Direct Push P = Piston<br>N = No Sample |                   |                     |        |                                       | <b>DEFINITIONS</b><br>SPT = Standard Penetration Test (ASTM D1586)<br>PID = Photo Ionization Detector Measurement<br>MSL = Mean Sea Level<br>BG/PS = Background/Point Source<br>ppm = parts per million |  |                     |                      |
| Depth (Ft.)   | Sample Type & No. | Sample Rec. (Ft.,%) | SPT    | Lab ID                                | PID (ppm)   | Visual Description   | Elevation (Ft. MSL) |                      |
| 1   |                   |                     |        | 62SB08-00<br>62SB08-00D               |   | Sandy loam top 2", dark brown, soft, damp  | 0.17'               |                      |
| 2   | D-1               | 3.3<br>83%          |        | 62SB08-00MS<br>62SB08-00MSD<br>(0-1') | <1  | Sandy clay, medium to dark brown, moderate hard, damp to dry, gravel throughout, iron staining | 2.1'                |                      |
| 3   |                   |                     |        | 62SB08-01<br>(1-3')                   |   | Sand, some clay, stones throughout dry   | 3.5'                |                      |
| 4   | 4.0               |                     |        |                                       |   | Sandy clay, medium brown, moderately hard, damp, stones  | 4.8'                |                      |
| 5   |                   |                     |        | 62SB08-02<br>62SB08-02D               |   | Stones   | 5.2'                |                      |
| 6   | D-2               | 3.2<br>80%          |        | 62SB08-02MS<br>62SB08-02MSD<br>(3-5') | <1  | Tan/orange brown sand and silt, some pebbles, loose, dry                                       | 7.2'                |                      |
| 7   |                   |                     |        |                                       |   | GEOPROBE REFUSAL AT 7.2'   |                     |                      |
| 8   | 8.0               |                     |        |                                       |   |  |                     |                      |
| 9   |                   |                     |        |                                       |   |  |                     |                      |
| 10  |                   |                     |        |                                       |   |  |                     |                      |

DRILLING CO.: JFA Geological & Environmental ScientistsDRILLER: Domingo Gonzalez - RodriguezBAKER REP.: Joe BurawaBORING NO. 62SB08

SHEET 1 OF 1



Baker Environmental

# TEST BORING RECORD

PROJECT: Naval Activity Puerto Rico - SWMU 62

SO NO.: 111626

BORING NO. 62SB09

COORDINAT EAST: 918062.516

NORTH: 793429.839

ELEVATION: SURFACE:

| Rig: Geoprobe 6620 DT Track Rig |         |        |             |  | Date   | Progress (Ft.) | Weather    | Depth to Water (Ft.) |
|---------------------------------|---------|--------|-------------|--|--------|----------------|------------|----------------------|
| MC Sampler                      | Casing  | Augers | Core Barrel |  |        |                |            |                      |
| Size (ID)                       | 2"      |        |             |  | 6/1/08 | 0.0 - 7.4      | 85° Cloudy |                      |
| Length                          | 4'      |        |             |  |        |                |            |                      |
| Type                            | Acetate |        |             |  |        |                |            |                      |
| Hammer Wt.                      |         |        |             |  |        |                |            |                      |
| Fall                            |         |        |             |  |        |                |            |                      |

Remarks: Sampled collected near rusted 55-Gallon Drum

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

| Depth (Ft.) | Sample Type & No. | Sample Rec. (Ft.,%) | SPT | Lab ID           | PID (ppm) | Visual Description  | Elevation (Ft. MSL) |
|-------------|-------------------|---------------------|-----|------------------|-----------|---|---------------------|
| 1           |                   |                     |     | 62SB09-00 (0-1') |           | Sandy loam, soft, damp to moist, dark brown top 2"; olive green to 0.6', gravel from 0.6' to 0.9' | 0.9'                |
| 2           | D-1               | 2.9<br>73%          |     | 62SB09-01 (1-3') | <1        | Tan/orange brown sand   | 1.8'                |
| 3           |                   |                     |     |                  |           |   |                     |
| 4           | 4.0               |                     |     |                  |           | Orange brown sandy clay, soft, damp to moist, iron stains   | 4.5'                |
| 5           |                   |                     |     | 62SB09-02 (3-5') |           | Tan sand and pebbles, medium grained, loose, dry  |                     |
| 6           | D-2               | 3.4<br>85%          |     |                  | <1        |   | 7.4'                |
| 7           |                   |                     |     |                  |           |   |                     |
| 8           | 8.0               |                     |     |                  |           | GEOPROBE REFUSAL AT 7.4'  |                     |
| 9           |                   |                     |     |                  |           |   |                     |
| 10          |                   |                     |     |                  |           |   |                     |

DRILLING CO.: JFA Geological & Environmental Scientists

DRILLER: Domingo Gonzalez - Rodriguez

BAKER REP.: Joe Burawa

BORING NO. 62SB09 SHEET 1 OF 1

**CHAIN-OF-CUSTODY FORMS**

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Serial Number 005111

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

FedEx Airbill No.:  
8617 8652 8005

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

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

QA/QC-001

Alternate Laboratory Name/Location

Phone:  
Fax:

THE LEADER IN ENVIRONMENTAL TESTING

|  |  |                                |   |                   |              |         |                          |                              |         |         |                   |             |     |  |         |
|--|--|--------------------------------|---|-------------------|--------------|---------|--------------------------|------------------------------|---------|---------|-------------------|-------------|-----|--|---------|
| PROJECT REFERENCE<br>NAPR 7 Site Investigation                           | PROJECT NO.<br>111626                  | PROJECT LOCATION<br>(STATE) PR | MATRIX<br>TYPE  | REQUIRED ANALYSIS |              |         |                          |                              |         |         |                   |             |     | PAGE<br>1  | OF<br>1 |
| TAL (LAB) PROJECT MANAGER<br>Kathy E. Smith                              | P.O. NUMBER                            | CONTRACT NO.                   | COMPOSITE (C) OR GRAB (G) INDICATE<br>AQUEOUS (WATER)<br>SOLID OR SEMISOLID<br>AIR<br>NONAQUEOUS LIQUID (OIL, SOLVENT, ...) | App IX VOCs       | App IX SVOCs | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | STANDARD REPORT<br>DELIVERY <input checked="" type="checkbox"/><br>DATE DUE 28 Day TAT |         |
| CLIENT (SITE) PM<br>Mark Kimes   | CLIENT PHONE<br>412.337.7465           | CLIENT FAX                     |   | App IX VOCs       | App IX SVOCs | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | EXPEDITED REPORT<br>DELIVERY (SURCHARGE) <input type="checkbox"/><br>DATE DUE _____    |         |
| CLIENT NAME<br>Michael Baker Jr., Inc.                                   | CLIENT E-MAIL<br>mkimes@mbakercorp.com |                                |   | App IX VOCs       | App IX SVOCs | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | NUMBER OF COOLERS SUBMITTED<br>PER SHIPMENT:   |         |
| CLIENT ADDRESS<br>100 Airside Dr., Moon Township, PA 15108               |  |                                |   | App IX VOCs       | App IX SVOCs | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | REMARKS  |         |
| COMPANY CONTRACTING THIS WORK (if applicable)<br>Michael Baker Jr., Inc. |  |                                | <b>PRESERVATIVE</b>   |                   |              |         |                          |                              |         |         |                   |             |     |  |         |

| SAMPLE  |      | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) INDICATE<br>AQUEOUS (WATER)<br>SOLID OR SEMISOLID<br>AIR | NONAQUEOUS LIQUID (OIL, SOLVENT, ...) | NUMBER OF CONTAINERS SUBMITTED |              |         |                          |                              |         |         |                   |             |     | REMARKS |
|---------|------|-----------------------|--|---------------------------------------|--------------------------------|--------------|---------|--------------------------|------------------------------|---------|---------|-------------------|-------------|-----|---------|
| DATE    | TIME |                       |  |                                       | App IX VOCs                    | App IX SVOCs | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(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                        |                              |         |         |                   |             |     |         |

|                                  |                 |              |                                  |                 |              |                              |      |      |                              |      |      |
|----------------------------------|-----------------|--------------|----------------------------------|-----------------|--------------|------------------------------|------|------|------------------------------|------|------|
| RELINQUISHED BY: (SIGNATURE)<br> | DATE<br>5/2/08  | TIME<br>1500 | RELINQUISHED BY: (SIGNATURE)<br> | DATE<br>4/28/08 | TIME<br>0700 | RELINQUISHED BY: (SIGNATURE) | DATE | TIME | RELINQUISHED BY: (SIGNATURE) | DATE | TIME |
| RECEIVED BY: (SIGNATURE)<br>     | DATE<br>4/28/08 | TIME<br>0700 | RECEIVED BY: (SIGNATURE)<br>     | DATE            | TIME         | RECEIVED BY: (SIGNATURE)     | DATE | TIME | RECEIVED BY: (SIGNATURE)     | DATE | TIME |

LABORATORY USE ONLY

|  |                |              |   |                     |                                 |                    |
|--|----------------|--------------|---|---------------------|---------------------------------|--------------------|
| RECEIVED FOR LABORATORY BY:<br>(SIGNATURE)<br> | DATE<br>5/5/09 | TIME<br>0909 | CUSTODY INTACT<br>YES <input type="radio"/><br>NO <input type="radio"/> | CUSTODY<br>SEAL NO. | SAVANNAH<br>LOG NO.<br>680-3419 | LABORATORY REMARKS |
|--|----------------|--------------|---|---------------------|---------------------------------|--------------------|

11

**ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD**

**TestAmerica**

FedEx Airbill No.:

**8617 8652 7546**

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

**62-001**

○ Alternate Laboratory Name/Location

Phone:  
Fax:

**4**

|   |   |                                       |   |                     |              |         |                       |                           |         |         |                   |             |     |   |             |
|---|---|---------------------------------------|---|---------------------|--------------|---------|-----------------------|---------------------------|---------|---------|-------------------|-------------|-----|---|-------------|
| PROJECT REFERENCE<br><b>NAPR 7 Site Investigation</b>                           | PROJECT NO.<br><b>111626</b>                  | PROJECT LOCATION (STATE)<br><b>PR</b> | MATRIX TYPE   | REQUIRED ANALYSIS   |              |         |                       |                           |         |         |                   |             |     | PAGE <b>1</b>                             | OF <b>4</b> |
| TAL (LAB) PROJECT MANAGER<br><b>Kathy E. Smith</b>                              | P.O. NUMBER                                   | CONTRACT NO.                          | COMPOSITE (C) OR GRAB (G) INDICATE<br>AQUEOUS (WATER)<br>SOLID OR SEMISOLID<br>AIR<br>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<br><b>Mark Kimes</b>   | CLIENT PHONE<br><b>412.337.7465</b>           | 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 <b>28 Day TAT</b>                |             |
| CLIENT NAME<br><b>Michael Baker Jr., Inc.</b>                                   | CLIENT E-MAIL<br><b>mkimes@mbakercorp.com</b> |                                       |   | 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<br><b>100 Airside Drive., Moon Township, PA 15108</b>            |   |                                       |   | 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)<br><b>Michael Baker Jr., Inc.</b> |   |                                       |   | <b>PRESERVATIVE</b> |              |         |                       |                           |         |         |                   |             |     | 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 |         |
| <b>5-31-08</b> | <b>1550</b> | <b>62 SB 01 - 00</b>   | <b>G</b>                           | <b>X</b>        |                    |     | <b>3</b>                              |                                |              |         |                       |                           |         |          |                   |             |     |         |
|                | <b>1555</b> | <b>62 SB 01 - 03</b>   | <b>G</b>                           | <b>X</b>        |                    |     |                                       |                                |              |         |                       |                           |         |          |                   |             |     |         |
|                | <b>1600</b> | <b>62 SB 01 - 05</b>   | <b>G</b>                           | <b>X</b>        |                    |     |                                       |                                |              |         |                       |                           |         |          |                   |             |     |         |
|                | <b>1500</b> | <b>62 SB 04 - 00</b>   | <b>G</b>                           | <b>X</b>        |                    |     | <b>3</b>                              |                                |              |         |                       |                           |         |          |                   |             |     |         |
|                | <b>1510</b> | <b>62 SB 04 - 03</b>   | <b>G</b>                           | <b>X</b>        |                    |     |                                       |                                |              |         |                       |                           |         |          |                   |             |     |         |
|                | <b>1510</b> | <b>62 SB 04 - 03 D</b> | <b>G</b>                           | <b>X</b>        |                    |     |                                       |                                |              |         |                       |                           |         |          |                   |             |     |         |
| <b>5-31-08</b> | <b>1520</b> | <b>62 SB 04 - 05</b>   | <b>G</b>                           | <b>X</b>        |                    |     |                                       |                                |              |         |                       |                           |         |          |                   |             |     |         |
| <b>6-1-08</b>  | <b>0810</b> | <b>62 SB 02 - 00</b>   | <b>G</b>                           | <b>X</b>        |                    |     | <b>3</b>                              |                                |              |         |                       |                           |         |          |                   |             |     |         |
| <b>6-1-08</b>  | <b>0820</b> | <b>62 SB 02 - 01</b>   | <b>G</b>                           | <b>X</b>        |                    |     |                                       |                                |              |         |                       |                           |         |          |                   |             |     |         |
| <b>6-1-08</b>  | <b>0825</b> | <b>62 SB 02 - 03</b>   | <b>G</b>                           | <b>X</b>        |                    |     |                                       |                                |              |         |                       |                           |         |          |                   |             |     |         |
| <b>6-1-08</b>  | <b>0840</b> | <b>62 SB 03 - 00</b>   | <b>G</b>                           | <b>X</b>        |                    |     | <b>3</b>                              | <b>✓</b>                       | <b>✓</b>     |         |                       |                           |         | <b>1</b> |                   | <b>✓</b>    |     |         |
| <b>6-1-08</b>  | <b>0850</b> | <b>62 SB 03 - 01</b>   | <b>G</b>                           | <b>X</b>        |                    |     | <b>3</b>                              | <b>✓</b>                       | <b>✓</b>     |         |                       |                           |         | <b>1</b> |                   | <b>✓</b>    |     |         |

|                              |      |      |                              |               |             |                              |      |      |
|------------------------------|------|------|------------------------------|---------------|-------------|------------------------------|------|------|
| RELINQUISHED BY: (SIGNATURE) | DATE | TIME | RELINQUISHED BY: (SIGNATURE) | DATE          | TIME        | RELINQUISHED BY: (SIGNATURE) | DATE | TIME |
|                              |      |      | <i>[Signature]</i>           | <b>6/2/08</b> | <b>1500</b> |                              |      |      |
| 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>                     | <b>060308</b> | <b>0912</b> | YES <input type="radio"/><br>NO <input type="radio"/> |                  | <b>650-37251</b> |                    |

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

FedEx Airbill No.:

8617 8652 7546

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

62-001

○ Alternate Laboratory Name/Location

Phone:  
Fax:

|  |  |                                |  |                   |         |                          |                              |         |         |                   |             |     |  |           |         |
|--|--|--------------------------------|--|-------------------|---------|--------------------------|------------------------------|---------|---------|-------------------|-------------|-----|--|-----------|---------|
| PROJECT REFERENCE<br>NAPR 7 Site Investigation                           | PROJECT NO.<br>111626                  | PROJECT LOCATION<br>(STATE) PR | MATRIX<br>TYPE   | REQUIRED ANALYSIS |         |                          |                              |         |         |                   |             |     |  | PAGE<br>2 | OF<br>4 |
| TAL (LAB) PROJECT MANAGER<br>Kathy E. Smith                              | P.O. NUMBER                            | CONTRACT NO.                   | COMPOSITE (C) OR GRAB (G) INDICATE<br>AQUEOUS (WATER)<br>SOLID OR SEMISOLID<br>AIR<br>NONAQUEOUS LIQUID (OIL, SOLVENT, ...)<br>App IX VOCs | App IX SVOCs      | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | STANDARD REPORT<br>DELIVERY                  |           |         |
| CLIENT (SITE) PM<br>Mark Kimes   | CLIENT PHONE<br>412.337.7465           | CLIENT FAX                     |  | App IX SVOCs      | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | DATE DUE 28 Day TAT                          |           |         |
| CLIENT NAME<br>Michael Baker Jr., Inc.                                   | CLIENT E-MAIL<br>mkimes@mbakercorp.com |                                |  | App IX SVOCs      | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | EXPEDITED REPORT<br>DELIVERY<br>(SURCHARGE)  |           |         |
| CLIENT ADDRESS<br>100 Airside Drive., Moon Township, PA 15108            |  |                                |  | App IX SVOCs      | LL PAHs | App IX Metals<br>(Total) | App IX Metals<br>(Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | DATE DUE _____                               |           |         |
| COMPANY CONTRACTING THIS WORK (if applicable)<br>Michael Baker Jr., Inc. |  |                                | <b>PRESERVATIVE</b>  |                   |         |                          |                              |         |         |                   |             |     | NUMBER OF COOLERS SUBMITTED<br>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 |         |
| 6-1-08  | 0900 | 62 SB 03-05           | G                                  |                 |                    |     | 3                                     | ✓                              | ✓            | 1       |                       |                           |         | 1       | ✓                 |                        |     |         |
|         | 1000 | 62 SB 05-00           | G                                  |                 |                    |     | 3                                     |                                |              | 1       |                       |                           |         | 1       |                   |                        |     |         |
|         | 1005 | 62 SB 05-01           | G                                  |                 |                    |     |                                       |                                |              | 1       |                       |                           |         |         |                   |                        |     |         |
|         | 1010 | 62 SB 05-02           | G                                  |                 |                    |     |                                       |                                |              | 1       |                       |                           |         |         |                   |                        |     |         |
|         | 0925 | 62 SB 05-00           | G                                  |                 |                    |     | 3                                     | ✓                              | ✓            | 1       |                       |                           |         | 1       | ✓                 |                        |     |         |
|         | 0940 | 62 SB 06-01           | G                                  |                 |                    |     | 3                                     | ✓                              | ✓            | 1       |                       |                           |         | 1       | ✓                 |                        |     |         |
| 6-1-08  | 0950 | 62 SB 06-03           | G                                  |                 |                    |     | 3                                     | ✓                              | ✓            | 1       |                       |                           |         | 1       | ✓                 |                        |     |         |
| 5-31-08 |      | 62 TB 01              | G                                  | X               |                    |     | 3                                     |                                |              |         |                       |                           |         |         |                   | Voc only               |     |         |
| 5-30-08 | 1610 | ER 23                 | G                                  | X               |                    |     | 3                                     |                                | 2            | 1       |                       | 3                         | 2       |         |                   | Ground water<br>tubing |     |         |
| 6-1-08  | 1020 | 62 SB 07-00           | G                                  | X               |                    |     | 3                                     |                                |              | 1       |                       |                           |         | 1       |                   |                        |     |         |
| 6-1-08  | 1030 | 62 SB 07-01           | G                                  | X               |                    |     |                                       |                                |              | 1       |                       |                           |         |         |                   |                        |     |         |
| 6-1-08  | 1040 | 62 SB 07-02           | G                                  | X               |                    |     |                                       |                                |              | 1       |                       |                           |         |         |                   |                        |     |         |

|                              |      |      |                              |        |      |                              |      |      |
|------------------------------|------|------|------------------------------|--------|------|------------------------------|------|------|
| 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 |
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| LABORATORY USE ONLY                        |        |      |                                 |                  |                  |                    |  |
|--|--------|------|---------------------------------|------------------|------------------|--------------------|--|
| RECEIVED FOR LABORATORY BY:<br>(SIGNATURE) | DATE   | TIME | CUSTODY INTACT<br>YES ○<br>NO ○ | CUSTODY SEAL NO. | SAVANNAH LOG NO. | LABORATORY REMARKS |  |
| <i>[Signature]</i>                         | 060308 | 0921 |                                 |                  | 680-37251        |                    |  |

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

FedEx Airbill No.:

8617 8652 7546

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

62-001

Alternate Laboratory Name/Location

Phone:  
Fax:

|  |   |                                       |  |                     |         |                       |                           |         |         |                   |             |     |                                       |   |             |
|--|---|---------------------------------------|--|---------------------|---------|-----------------------|---------------------------|---------|---------|-------------------|-------------|-----|---------------------------------------|---|-------------|
| PROJECT REFERENCE<br><b>NAPR 7 Site Investigation</b>                | PROJECT NO.<br><b>111626</b>  | PROJECT LOCATION (STATE)<br><b>PR</b> | MATRIX TYPE  | REQUIRED ANALYSIS   |         |                       |                           |         |         |                   |             |     |                                       | PAGE <b>3</b>                             | OF <b>4</b> |
| TAL (LAB) PROJECT MANAGER<br><b>Kathy E. Smith</b>                   | P.O. NUMBER   | CONTRACT NO.                          | COMPOSITE (C) OR GRAB (G) INDICATE<br>AQUEOUS (WATER)<br>SOLID OR SEMISOLID<br>AIR<br>NONAQUEOUS LIQUID (OIL, SOLVENT, ...)<br>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 <b>28 Day TAT</b>                |             |
| CLIENT (SITE) PM<br><b>Mark Kimes</b>                                | CLIENT PHONE<br><b>412.337.7465</b>   | CLIENT FAX                            |  | App IX SVOCs        | LL PAHs | App IX Metals (Total) | App IX Metals (Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | EXPEDITED REPORT DELIVERY (SURCHARGE) | DATE DUE _____                            |             |
| CLIENT NAME<br><b>Michael Baker Jr., Inc.</b>                        | CLIENT E-MAIL<br><b>mkimes@mbakercorp.com</b>                                   |                                       |  | <b>PRESERVATIVE</b> |         |                       |                           |         |         |                   |             |     |                                       | NUMBER OF COOLERS SUBMITTED PER SHIPMENT: |             |
| CLIENT ADDRESS<br><b>100 Airside Drive., Moon Township, PA 15108</b> | COMPANY CONTRACTING THIS WORK (if applicable)<br><b>Michael Baker Jr., Inc.</b> |                                       |  |                     |         |                       |                           |         |         |                   |             |     |                                       |   |             |

| 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 |                                    |                                    |                 |                    |     |                                       |             |              |         |                       |                           |         |         |                   |             |     |                                |         |  |
| 6-1-08 | 1050 | 62 SB 08-00                        | G                                  | X               |                    |     |                                       | 3           |              |         |                       |                           |         |         |                   |             |     |                                |         |  |
|        | 1050 | 62 SB 08-00 D                      | G                                  | X               |                    |     |                                       | 3           | ✓            | ✓       | 1                     |                           |         |         | 1                 |             |     |                                |         |  |
|        | 1050 | 62 SB 08-00 MS                     | G                                  | X               |                    |     |                                       | 3           |              |         |                       |                           |         |         |                   |             |     |                                |         |  |
|        | 1050 | 62 SB 08-00 MSD                    | G                                  | X               |                    |     |                                       | 3           |              |         |                       |                           |         |         |                   |             |     |                                |         |  |
|        | 1050 | 62 SB 08-00 MS/MSD                 | G                                  | X               |                    |     |                                       | 3           | ✓            | ✓       | 1                     |                           |         |         | 1                 |             |     |                                |         |  |
|        | 1110 | 62 SB 08-01                        | G                                  | X               |                    |     |                                       | 3           | ✓            | ✓       | 1                     |                           |         |         | 1                 |             |     |                                |         |  |
|        | 1120 | 62 SB 08-02                        | G                                  | X               |                    |     |                                       | 3           | ✓            | ✓       | 1                     |                           |         |         | 1                 |             |     |                                |         |  |
|        | 1120 | 62 SB 08-02 D                      | G                                  | X               |                    |     |                                       | 3           | ✓            | ✓       | 1                     |                           |         |         | 1                 |             |     |                                |         |  |
|        | 1120 | 62 SB 08-02 MS                     | G                                  | X               |                    |     |                                       | 3           |              |         |                       |                           |         |         |                   |             |     |                                |         |  |
|        | 1120 | 62 SB 08-02 MSD                    | G                                  | X               |                    |     |                                       | 3           |              |         |                       |                           |         |         |                   |             |     |                                |         |  |
|        | 1120 | 62 SB 08-02 MS/MSD                 | G                                  | X               |                    |     |                                       | 3           | ✓            | ✓       | 1                     |                           |         |         | 1                 |             |     |                                |         |  |
| 6-1-08 | 1150 | <del>62 SB 08-02</del> 62 SB 09-00 | G                                  | X               |                    |     |                                       | 3           | ✓            | ✓       | 1                     |                           |         |         | 1                 |             |     |                                |         |  |

|                              |      |      |                              |        |      |                              |      |      |
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| RELINQUISHED BY: (SIGNATURE) | DATE | TIME | RELINQUISHED BY: (SIGNATURE) | DATE   | TIME | RELINQUISHED BY: (SIGNATURE) | DATE | TIME |
|                              |      |      |                              | 6/2/08 | 1500 |                              |      |      |
| RECEIVED BY: (SIGNATURE)     | DATE | TIME | RECEIVED BY: (SIGNATURE)     | DATE   | TIME | RECEIVED BY: (SIGNATURE)     | DATE | TIME |
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|   |        |      |   |                  |                  |                    |
|---|--------|------|---|------------------|------------------|--------------------|
| LABORATORY USE ONLY                     |        |      |   |                  |                  |                    |
| RECEIVED FOR LABORATORY BY: (SIGNATURE) | DATE   | TIME | CUSTODY INTACT  | CUSTODY SEAL NO. | SAVANNAH LOG NO. | LABORATORY REMARKS |
|   | 060308 | 0921 | YES <input type="radio"/><br>NO <input type="radio"/> |                  | 580-37251        |                    |

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

FedEx Airbill No.:

8617 8652 7546

THE LEADER IN ENVIRONMENTAL TESTING

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62-001

Alternate Laboratory Name/Location

Phone:  
Fax:

|  |   |                                       |   |                   |              |                       |                           |                           |         |                   |                   |             |                          |                                       |
|--|---|---------------------------------------|---|-------------------|--------------|-----------------------|---------------------------|---------------------------|---------|-------------------|-------------------|-------------|--------------------------|---------------------------------------|
| PROJECT REFERENCE<br><b>NAPR 7 Site Investigation</b>                | PROJECT NO.<br><b>111626</b>  | PROJECT LOCATION (STATE)<br><b>PR</b> | MATRIX TYPE   | REQUIRED ANALYSIS |              |                       |                           |                           |         |                   |                   |             |                          | PAGE <b>4</b> OF <b>4</b>             |
| TAL (LAB) PROJECT MANAGER<br><b>Kathy E. Smith</b>                   | P.O. NUMBER   | CONTRACT NO.                          | COMPOSITE (C) OR GRAB (G) INDICATE<br>AQUEOUS (WATER)<br>SOLID OR SEMISOLID<br>AIR<br>NONAQUEOUS LIQUID (OIL SOLVENT...)<br>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<br><b>Mark Kimes</b>                                | CLIENT PHONE<br><b>412.337.7465</b>   | 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 <b>28 Day TAT</b>            |
| CLIENT NAME<br><b>Michael Baker Jr., Inc.</b>                        | CLIENT E-MAIL<br><b>mkimes@mbakercorp.com</b>                                   |                                       |   | 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<br><b>100 Airside Drive., Moon Township, PA 15108</b> | COMPANY CONTRACTING THIS WORK (if applicable)<br><b>Michael Baker Jr., Inc.</b> |                                       |   | 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                              |

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 |         |
| 6-1-08 | 1200 | 62SB09-01             | G                                  | X               |                    |     |                                    | 3                              | ✓            | ✓       | 1                     |                           |         |         | 1                 | ✓           |     |         |
| 6-1-08 | 1210 | 62SB09-02             | G                                  | X               |                    |     |                                    | 3                              | ✓            | ✓       | 1                     |                           |         |         | 1                 | ✓           |     |         |

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| 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 |
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|---|--------|------|---|------------------|-------------------------------|--------------------|
| LABORATORY USE ONLY                     |        |      |   |                  |                               |                    |
| RECEIVED FOR LABORATORY BY: (SIGNATURE) | DATE   | TIME | CUSTODY INTACT<br>YES <input type="radio"/><br>NO <input type="radio"/> | CUSTODY SEAL NO. | SAVANNAH LOG NO.<br>680-37251 | LABORATORY REMARKS |
| <i>[Signature]</i>                      | 060308 | 0921 |   |                  |                               |                    |

**ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD**

**TestAmerica**

FedEx Airbill No.:

**8617 8652 7708**

THE LEADER IN ENVIRONMENTAL TESTING

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Savannah, GA 31404

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Fax: (912) 352-0165

**61-002**

Alternate Laboratory Name/Location

Phone:  
Fax:

|   |   |                                       |  |  |              |      |                       |                           |        |         |                           |             |     |  |
|---|---|---------------------------------------|--|--|--------------|------|-----------------------|---------------------------|--------|---------|---------------------------|-------------|-----|--|
| PROJECT REFERENCE<br><b>NAPR 7 Site Investigation</b>                           | PROJECT NO.<br><b>111626</b>                  | PROJECT LOCATION (STATE)<br><b>PR</b> | MATRIX TYPE  | REQUIRED ANALYSIS                                    |              |      |                       |                           |        |         | PAGE <b>3</b> OF <b>3</b> |             |     |  |
| TAL (LAB) PROJECT MANAGER<br><b>Kathy E. Smith</b>                              | P.O. NUMBER                                   | CONTRACT NO.                          | COMPOSITE (C) OR GRAB (G) INDICATE<br>AQUEOUS (WATER)<br>SOLID OR SEMISOLID<br>AIR | NONAQUEOUS LIQUID (OIL, SOLVENT, ...)<br>App IX VOCs | App IX SVOCS | PAHs | App IX Metals (Total) | App IX Metals (Dissolved) | PH GRO | TPH DRO | App IX Pesticides         | App IX PCBs | TOC | STANDARD REPORT DELIVERY<br><input checked="" type="radio"/>   |
| CLIENT (SITE) PM<br><b>Mark Kimes</b>   | CLIENT PHONE<br><b>412.337.7465</b>           | CLIENT FAX                            |  |  |              |      |                       |                           |        |         |                           |             |     | DATE DUE <b>28 Day TAT</b>                                     |
| CLIENT NAME<br><b>Michael Baker Jr., Inc.</b>                                   | CLIENT E-MAIL<br><b>mkimes@mbakercorp.com</b> |                                       |  |  |              |      |                       |                           |        |         |                           |             |     | EXPEDITED REPORT DELIVERY (SURCHARGE)<br><input type="radio"/> |
| CLIENT ADDRESS<br><b>100 Airside Drive., Moon Township, PA 15108</b>            |   |                                       |  |  |              |      |                       |                           |        |         |                           |             |     | DATE DUE _____   |
| COMPANY CONTRACTING THIS WORK (if applicable)<br><b>Michael Baker Jr., Inc.</b> |   |                                       |  |  |              |      |                       |                           |        |         |                           |             |     | 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 | PAHs | App IX Metals (Total) | App IX Metals (Dissolved) | PH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC |            |         |
| 6/3/08  | 1530 | 61SB 19-01            | G                                  | X               |                    |     | W                                     | 1                              |              |      |                       |                           |        |         |                   |             |     |            |         |
| 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                              |              |      | 3                     | 2                         | 2      |         |                   |             |     | ✓          |         |
| 6/1/08  | 1640 | ER 25                 | G                                  | X               |                    |     | W                                     | 2                              |              |      | 3                     | 2                         | 2      |         |                   |             |     | ✓          |         |
| 6/2/08  | 0740 | ER 26                 | G                                  | X               |                    |     | W                                     | 2                              |              |      | 3                     | 2                         | 2      |         |                   |             |     |            |         |
| 6/3/08  | 0830 | ER 27                 | G                                  | X               |                    |     | W                                     | 2                              |              |      | 3                     | 2                         | 2      |         |                   |             |     |            |         |
| 6/4/08  | 1000 | ER 28                 | G                                  | X               |                    |     | W                                     | 2                              |              |      | 3                     | 2                         | 2      |         |                   |             |     |            |         |
| 6/3/08  | 1000 | 61SB 17-01            | G                                  |                 | X                  |     | 3                                     | 1                              |              |      | 1                     |                           |        |         |                   |             |     |            |         |

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|                              |      |      | <i>[Signature]</i>           | 6/4/08 | 1500 |                              |      |      |
| RECEIVED BY: (SIGNATURE)     | DATE | TIME | RECEIVED BY: (SIGNATURE)     | DATE   | TIME | RECEIVED BY: (SIGNATURE)     | DATE | TIME |
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|---|--------|------|---|------------------|------------------|--------------------|--|--|
| 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="radio"/><br>NO <input type="radio"/> |                  | 650-37369        |                    |  |  |

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

FedEx Airbill No.:

8617 8652 7708

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

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Phone: (912) 354-7858  
Fax: (912) 352-0165

71-003

Alternate Laboratory Name/Location

Phone:  
Fax:

|  |  |                                |  |                   |         |                       |                           |         |         |                   |             |     |                                       |        |    |
|--|--|--------------------------------|--|-------------------|---------|-----------------------|---------------------------|---------|---------|-------------------|-------------|-----|---------------------------------------|--------|----|
| PROJECT REFERENCE<br>NAPR 7 Site Investigation                           | PROJECT NO.<br>111626                  | PROJECT LOCATION<br>(STATE) PR | MATRIX TYPE  | REQUIRED ANALYSIS |         |                       |                           |         |         |                   |             |     |                                       | PAGE / | OF |
| TAL (LAB) PROJECT MANAGER<br>Kathy E. Smith                              | P.O. NUMBER                            | CONTRACT NO.                   | COMPOSITE (C) OR GRAB (G) INDICATE<br>AQUEOUS (WATER)<br>SOLID OR SEMISOLID<br>AIR<br>NONAQUEOUS LIQUID (OIL, SOLVENT, ...)<br>App IX VOCs | App IX SVOCs      | LI PAHs | App IX Metals (Total) | App IX Metals (Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | STANDARD REPORT DELIVERY              |        |    |
| CLIENT (SITE) PM<br>Mark Kimes   | CLIENT PHONE<br>412.337.7465           | CLIENT FAX                     |  |                   |         |                       |                           |         |         |                   |             |     | DATE DUE 28 Day TAT                   |        |    |
| CLIENT NAME<br>Michael Baker Jr., Inc.                                   | CLIENT E-MAIL<br>mkimes@mbakercorp.com |                                |  |                   |         |                       |                           |         |         |                   |             |     | EXPEDITED REPORT DELIVERY (SURCHARGE) |        |    |
| CLIENT ADDRESS<br>100 Airside Drive., Moon Township, PA 15108            |  |                                |  |                   |         |                       |                           |         |         |                   |             |     | DATE DUE                              |        |    |
| COMPANY CONTRACTING THIS WORK (if applicable)<br>Michael Baker Jr., Inc. |  |                                | 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, ...) | App IX VOCs | App IX SVOCs | LI PAHs | App IX Metals (Total) | App IX Metals (Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | TOC | REMARKS               |
|---------|------|-----------------------|------------------------------------|-----------------|--------------------|-----|---------------------------------------|-------------|--------------|---------|-----------------------|---------------------------|---------|---------|-------------------|-------------|-----|-----------------------|
| DATE    | TIME |                       |                                    |                 |                    |     |                                       |             |              |         |                       |                           |         |         |                   |             |     |                       |
| 6/3/08  | 1420 | 71 GW 06              | G                                  | X               |                    |     |                                       |             | 3            | 2       | 1                     | 1                         | 3       | 2       | ✓                 |             |     |                       |
| 5/31/08 |      | 71 TB 02              | G                                  | X               |                    |     |                                       |             |              |         |                       |                           | 3       |         |                   |             |     | GRO <sup>S</sup> only |

|                              |      |      |                              |        |      |                              |      |      |
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| RELINQUISHED BY: (SIGNATURE) | DATE | TIME | RELINQUISHED BY: (SIGNATURE) | DATE   | TIME | RELINQUISHED BY: (SIGNATURE) | DATE | TIME |
|                              |      |      |                              | 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 |
| Kh                                      | 6/5/08 | 0931 | YES <input type="radio"/><br>NO <input type="radio"/> |                  | 620-37369        |                    |

Serial Number 006518

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

FedEx Airbill No.:

8617 8652 7693

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah  
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Fax: (912) 352-0165

IDW-001

Alternate Laboratory Name/Location

Phone  
Fax

|   |  |                                |             |   |  |  |  |  |  |  |  |  |  |                                       |    |
|---|--|--------------------------------|-------------|---|--|--|--|--|--|--|--|--|--|---------------------------------------|----|
| PROJECT REFERENCE<br>NAPR 7 Site Investigation                | PROJECT NO.<br>111626  | PROJECT LOCATION (STATE)<br>PR | MATRIX TYPE | REQUIRED ANALYSIS   |  |  |  |  |  |  |  |  |  | PAGE                                  | OF |
| TAL (LAB) PROJECT MANAGER<br>Kathy E. Smith                   | P.O. NUMBER  | CONTRACT NO.                   |             | <input type="checkbox"/> TCLP VOCs<br><input type="checkbox"/> TCLP METALS<br><input type="checkbox"/> App IX Metals (Total)<br><input type="checkbox"/> App IX Metals (Dissolved)<br><input type="checkbox"/> TPH GRO<br><input type="checkbox"/> TPH DRO<br><input type="checkbox"/> App IX Pesticides<br><input type="checkbox"/> App IX PCBs<br><input type="checkbox"/> Hazardous Characteristic Solids<br><input type="checkbox"/> PH |  |  |  |  |  |  |  |  |  | STANDARD REPORT DELIVERY              | 1  |
| CLIENT (SITE) PM<br>Mark Kimes                                | CLIENT PHONE<br>412.337.7465   | CLIENT FAX                     |             |   |  |  |  |  |  |  |  |  |  | DATE DUE 28 Day TAT                   |    |
| CLIENT NAME<br>Michael Baker Jr., Inc.                        | CLIENT E-MAIL<br>mkimes@mbakercorp.com                                   |                                |             |   |  |  |  |  |  |  |  |  |  | EXPEDITED REPORT DELIVERY (SURCHARGE) |    |
| CLIENT ADDRESS<br>100 Airside Drive., Moon Township, PA 15108 | COMPANY CONTRACTING THIS WORK (if applicable)<br>Michael Baker Jr., Inc. |                                |             | PRESERVATIVE  |  |  |  |  |  |  |  |  |  | DATE DUE                              |    |

| SAMPLE |      | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) INDICATE | AQUEOUS (WATER) | SOLID OR SEMISOLID | AIR | NONAQUEOUS LIQUID (ACID, SOLVENT, ...) | App IX VOCs | TCLP VOCs | TCLP METALS | App IX Metals (Total) | App IX Metals (Dissolved) | TPH GRO | TPH DRO | App IX Pesticides | App IX PCBs | Hazardous Characteristic Solids | PH | NUMBER OF CONTAINERS SUBMITTED |   | REMARKS |
|--------|------|-----------------------|------------------------------------|-----------------|--------------------|-----|--|-------------|-----------|-------------|-----------------------|---------------------------|---------|---------|-------------------|-------------|---------------------------------|----|--------------------------------|---|---------|
| DATE   | TIME |                       |                                    |                 |                    |     |  |             |           |             |                       |                           |         |         |                   |             |                                 |    |                                |   |         |
| 6/5/08 |      | 74IDW01               | C                                  | X               |                    |     |  |             |           |             |                       |                           |         |         |                   |             |                                 |    | 1                              | 1 | ✓       |
| 6/5/08 |      | 74IDW02               | C                                  | X               |                    |     | 3                                      |             |           | 1           |                       |                           |         |         |                   |             |                                 |    | 1                              |   | ✓       |
| 6/5/08 |      | MNAIDW01              | C                                  | X               |                    |     |  |             |           | 1           | 1                     | 1                         |         |         |                   |             |                                 |    |                                |   | ✓       |

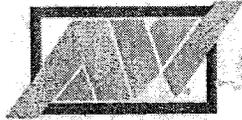
|                              |      |      |                              |        |      |                              |      |      |
|------------------------------|------|------|------------------------------|--------|------|------------------------------|------|------|
| RELINQUISHED BY: (SIGNATURE) | DATE | TIME | RELINQUISHED BY: (SIGNATURE) | DATE   | TIME | RELINQUISHED BY: (SIGNATURE) | DATE | TIME |
|                              |      |      |                              | 6/5/08 | 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 |  |  |
| Kh                                      | 6/6/08 | 0920 | YES <input type="radio"/><br>NO <input type="radio"/> |                  | 680-57406        |                    |  |  |

**IDW WASTE DISPOSAL MANIFEST**

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# ALLIED WASTE INDUSTRIES INC

|  |  |  |  |                           |                       |
|--|--|--|--|---------------------------|-----------------------|
| <b>NON-HAZARDOUS WASTE MANIFEST</b>  |  | 1. Generator's US EPA ID No.<br>N/A          | Manifest Document No.<br>10800                                 | 2. Page 1 of 1            | Pass Code:            |
| 3. Generator's Name and Mailing Address<br>Naval Activity P.O., P.O. Box 1478, Caguas, PR 00725  |  |  | Generating Location:<br>Sec. Dept. 1st Floor, Caguas, P. 00725 |                           |                       |
| 4. Generator's Phone ( ) (787) 834-9924  |  | 6. EQB Permit #                              |  | A. Transporter's Phone    |                       |
| 5. Transporter 1 Company Name<br>Agua Clean Shipments, Inc.  |  | 7. EQB Permit #                              |  | B. Transporter's Phone    |                       |
| 7. Transporter 2 Company Name  |  | 8. EQB Permit #                              |  | C. Facility's Phone       |                       |
| 9. Designated Facility Name and Site Address<br>PONCE SANITARY LANDFILL<br>PO BOX 7104 / RD 500 BARAMAYA FINAL AVENUE<br>PONCE, PR 00731                               |  | 10. EQB Permit #<br>IDF-58-008               |  | 787-841-7775              |                       |
| 11. Waste Shipping Name and Description  |  | Handling Code                                |  | 12. Containers<br>No Type | 13. Total<br>Quantity |
| a. ID# Soil<br>DOT Non Regulated, CODE   |  | 091231<br>P301231231231231<br>(787) 834-9924 |  | 3                         | 385                   |
| b. Dyeing Water<br>DOT Non Regulated, CODE   |  | 091031<br>P301031231231231<br>(787) 834-9924 |  | 5                         | 275                   |
| c.   |  |  |  |                           |                       |
| d.   |  |  |  |                           |                       |
| D. Additional Descriptions for Materials Listed Above<br>REF. PMS<br>7/15/07<br>5/15/07  |  |  |  |                           |                       |
| 15. Special Handling Instructions and Additional Information<br>Emergency in transit contact (787) 733-0081  |  |  |  |                           |                       |
| 16. GENERATOR'S CERTIFICATION: I certify the materials above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste. |  |  |  |                           |                       |
| Printed / Typed Name<br>Pedro Ruiz   |  | Signature<br><i>[Signature]</i>              |  | Month<br>07               | Day<br>16             |
| 17. Transporter 1 Acknowledgement of Receipt of Materials  |  | Signature<br><i>[Signature]</i>              |  | Month<br>07               | Day<br>16             |
| Printed / Typed Name<br>Luis...  |  | Signature<br><i>[Signature]</i>              |  | Month<br>07               | Day<br>16             |
| 18. Transporter 2 Acknowledgement of Receipt of Materials  |  | Signature<br><i>[Signature]</i>              |  | Month<br>07               | Day<br>16             |
| Printed / Typed Name<br>Luis...  |  | Signature<br><i>[Signature]</i>              |  | Month<br>07               | Day<br>16             |
| 19. Discrepancy Indication Space   |  |  |  |                           |                       |
| 20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in item 19.                                       |  |  |  |                           |                       |
| Printed / Typed Name<br><i>[Signature]</i>   |  | Signature<br><i>[Signature]</i>              |  | Month<br>07               | Day<br>16             |

**APPENDIX B**  
**LABORATORY ANALYTICAL RESULTS**

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**SURFACE SOIL**

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**APPENDIX B**

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB01    | 62SB02    | 62SB03    | 62SB04    | 62SB05    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB01-00 | 62SB02-00 | 62SB03-00 | 62SB04-00 | 62SB05-00 |
| Sample Date | 5/31/2008 | 6/1/2008  | 6/1/2008  | 5/31/2008 | 6/1/2008  |
| Depth Range | 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   | 0.76 U  | 0.68 U  | 0.69 U  | 0.79 U  | 0.65 U  |
| 1,1,1-Trichloroethane       | 0.69 UJ | 0.62 UJ | 0.62 UJ | 0.71 UJ | 0.59 UJ |
| 1,1,2,2-Tetrachloroethane   | 1.7 U   | 1.5 U   | 1.5 U   | 1.7 U   | 1.4 U   |
| 1,1,2-Trichloroethane       | 1.4 U   | 1.3 U   | 1.3 U   | 1.5 U   | 1.2 U   |
| 1,1-Dichloroethane          | 0.59 U  | 0.53 U  | 0.54 U  | 0.61 U  | 0.51 U  |
| 1,1-Dichloroethene          | 0.64 U  | 0.57 U  | 0.58 U  | 0.66 U  | 0.55 U  |
| 1,2,3-Trichloropropane      | 1.7 U   | 1.5 U   | 1.5 U   | 1.7 U   | 1.4 U   |
| 1,2-Dibromo-3-Chloropropane | 3.3 UJ  | 3 U     | 3 U     | 3.4 UJ  | 2.8 U   |
| 1,2-Dichloroethane          | 1.2 U   | 1.1 U   | 1.1 U   | 1.2 U   | 1 U     |
| 1,2-Dichloropropane         | 1.3 U   | 1.2 U   | 1.2 U   | 1.4 U   | 1.1 U   |
| 2-Butanone (MEK)            | 10 UJ   | 9.9 UJ  | 3.4 UJ  | 3.9 UJ  | 2.7 UJ  |
| 2-Chloro-1,3-butadiene      | 0.68 UJ | 0.61 U  | 0.61 U  | 0.7 UJ  | 0.58 U  |
| 2-Hexanone                  | 2.5 U   | 2.2 U   | 2.3 U   | 2.6 U   | 2.1 U   |
| 3-Chloro-1-propene          | 1.8 UJ  | 1.6 UJ  | 1.6 UJ  | 1.8 UJ  | 1.5 UJ  |
| 4-Methyl-2-pentanone (MIBK) | 3.5 UJ  | 3.1 UJ  | 3.1 UJ  | 3.6 UJ  | 3 UJ    |
| Acetone                     | 140 J   | 120 J   | 67 J    | 42 UJ   | 19 J    |
| Acetonitrile                | 54 UJ   | 48 UJ   | 48 UJ   | 55 UJ   | 46 UJ   |
| Acrolein                    | 23 U    | 20 U    | 20 U    | 23 U    | 19 U    |
| Acrylonitrile               | 27 U    | 24 UJ   | 25 UJ   | 28 U    | 23 UJ   |
| Benzene                     | 0.94 U  | 0.84 U  | 0.85 U  | 0.97 U  | 0.8 U   |
| Bromoform                   | 1.3 U   | 1.2 U   | 1.2 U   | 1.4 U   | 1.1 U   |
| Bromomethane                | 1.9 U   | 1.7 U   | 1.7 U   | 2 U     | 1.6 U   |
| Carbon disulfide            | 0.61 U  | 0.54 U  | 0.55 U  | 0.63 U  | 0.52 U  |
| Carbon tetrachloride        | 1.2 UJ  | 1.1 UJ  | 1.1 UJ  | 1.2 UJ  | 1 UJ    |
| Chlorobenzene               | 0.87 U  | 0.78 U  | 0.78 U  | 0.9 U   | 0.74 U  |
| Chlorodibromomethane        | 0.59 U  | 0.53 U  | 0.54 U  | 0.61 U  | 0.51 U  |
| Chloroethane                | 1.4 UJ  | 1.3 UJ  | 1.3 UJ  | 1.5 UJ  | 1.2 UJ  |
| Chloroform                  | 0.59 U  | 0.53 U  | 0.54 U  | 0.61 U  | 0.51 U  |
| Chloromethane               | 0.84 U  | 0.75 U  | 0.76 U  | 0.87 U  | 0.72 U  |
| cis-1,3-Dichloropropene     | 1 UJ    | 0.92 UJ | 0.93 UJ | 1.1 UJ  | 0.89 UJ |
| Dibromomethane              | 1.4 U   | 1.3 U   | 1.3 U   | 1.5 U   | 1.2 U   |
| Dichlorobromomethane        | 0.99 U  | 0.88 U  | 0.89 U  | 1 U     | 0.84 U  |
| Dichlorodifluoromethane     | 1.1 U   | 0.95 U  | 0.95 U  | 1.1 U   | 0.91 U  |
| Ethyl methacrylate          | 2.6 U   | 2.3 U   | 2.4 U   | 2.7 U   | 2.2 U   |
| Ethylbenzene                | 0.89 U  | 0.8 U   | 0.8 U   | 0.92 U  | 0.76 U  |
| Ethylene Dibromide          | 1.8 U   | 1.6 U   | 1.6 U   | 1.8 U   | 1.5 U   |
| Iodomethane                 | 1.2 UJ  | 1.3 J   | 1.1 UJ  | 1.2 UJ  | 1 UJ    |
| Isobutyl alcohol            | 82 U    | 73 R    | 74 R    | 85 U    | 70 R    |
| Methacrylonitrile           | 29 UJ   | 25 UJ   | 26 UJ   | 29 UJ   | 24 UJ   |
| Methyl methacrylate         | 4.4 UJ  | 3.9 UJ  | 4 UJ    | 4.5 UJ  | 3.8 UJ  |

**APPENDIX B**

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB01    | 62SB02    | 62SB03    | 62SB04    | 62SB05    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB01-00 | 62SB02-00 | 62SB03-00 | 62SB04-00 | 62SB05-00 |
| Sample Date | 5/31/2008 | 6/1/2008  | 6/1/2008  | 5/31/2008 | 6/1/2008  |
| Depth Range | 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)**

|                             |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|
| Methylene Chloride          | 1.2 U  | 1.1 U  | 1.1 U  | 1.2 U  | 1 U    |
| Pentachloroethane           | 2.6 R  | 2.3 R  | 2.4 R  | 2.7 R  | 2.2 R  |
| Propionitrile               | 25 UJ  | 22 UJ  | 23 UJ  | 26 UJ  | 21 UJ  |
| Styrene                     | 0.79 U | 0.7 U  | 0.71 U | 0.81 U | 0.67 U |
| Tetrachloroethene           | 0.87 U | 0.78 U | 0.78 U | 0.9 U  | 0.74 U |
| Toluene                     | 0.94 U | 0.84 U | 0.85 U | 0.97 U | 0.8 U  |
| trans-1,2-Dichloroethene    | 1.2 U  | 1 U    | 1 U    | 1.2 U  | 0.99 U |
| trans-1,3-Dichloropropene   | 1 U    | 0.92 U | 0.93 U | 1.1 U  | 0.89 U |
| trans-1,4-Dichloro-2-butene | 3.7 U  | 3.3 U  | 3.3 U  | 3.8 U  | 3.2 U  |
| Trichloroethene             | 1.2 U  | 1.1 U  | 1.1 U  | 1.2 U  | 1 U    |
| Trichlorofluoromethane      | 1.8 U  | 1.6 U  | 1.6 U  | 1.8 U  | 1.5 U  |
| Vinyl acetate               | 1.8 U  | 1.6 UJ | 1.6 UJ | 1.8 U  | 1.5 UJ |
| Vinyl chloride              | 0.69 U | 0.62 U | 0.62 U | 0.71 U | 0.59 U |
| Xylenes, Total              | 2.7 U  | 2.4 U  | 2.5 U  | 2.8 U  | 2.3 U  |

**Semivolatile Organic Compounds (ug/kg)**

|                              |    |    |       |    |    |
|------------------------------|----|----|-------|----|----|
| 1,1'-Biphenyl                | NA | NA | 8.5 U | NA | NA |
| 1,2,4,5-Tetrachlorobenzene   | NA | NA | 7.3 U | NA | NA |
| 1,2,4-Trichlorobenzene       | NA | NA | 8.5 U | NA | NA |
| 1,2-Dichlorobenzene          | NA | NA | 8.1 U | NA | NA |
| 1,3,5-Trinitrobenzene        | NA | NA | 20 U  | NA | NA |
| 1,3-Dichlorobenzene          | NA | NA | 6.9 U | NA | NA |
| 1,3-Dinitrobenzene           | NA | NA | 4.5 U | NA | NA |
| 1,4-Dichlorobenzene          | NA | NA | 7.2 U | NA | NA |
| 1,4-Dioxane                  | NA | NA | 9.2 U | NA | NA |
| 1,4-Naphthoquinone           | NA | NA | 4.5 U | NA | NA |
| 2,2'-oxybis[1-chloropropane] | NA | NA | 7.3 U | NA | NA |
| 2,3,4,6-Tetrachlorophenol    | NA | NA | 4.8 U | NA | NA |
| 2,4,5-Trichlorophenol        | NA | NA | 7.8 U | NA | NA |
| 2,4,6-Trichlorophenol        | NA | NA | 9.1 U | NA | NA |
| 2,4-Dichlorophenol           | NA | NA | 9.3 U | NA | NA |
| 2,4-Dimethylphenol           | NA | NA | 20 U  | NA | NA |
| 2,4-Dinitrophenol            | NA | NA | 96 UJ | NA | NA |
| 2,4-Dinitrotoluene           | NA | NA | 6.8 U | NA | NA |
| 2,6-Dichlorophenol           | NA | NA | 7.4 U | NA | NA |
| 2,6-Dinitrotoluene           | NA | NA | 7.2 U | NA | NA |
| 2-Acetylaminofluorene        | NA | NA | 5.9 U | NA | NA |
| 2-Chloronaphthalene          | NA | NA | 7.2 U | NA | NA |
| 2-Chlorophenol               | NA | NA | 7.6 U | NA | NA |
| 2-Methylnaphthalene          | NA | NA | 2 U   | NA | NA |
| 2-Methylphenol               | NA | NA | 9.3 U | NA | NA |

APPENDIX B

SURFACE SOIL ANALYTICAL RESULTS  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

|   | Site ID     | 62SB01    | 62SB02    | 62SB03    | 62SB04    | 62SB05    |
|---|-------------|-----------|-----------|-----------|-----------|-----------|
|   | Sample ID   | 62SB01-00 | 62SB02-00 | 62SB03-00 | 62SB04-00 | 62SB05-00 |
|   | Sample Date | 5/31/2008 | 6/1/2008  | 6/1/2008  | 5/31/2008 | 6/1/2008  |
|   | Depth Range | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |             |           |           |           |           |           |
| 2-Naphthylamine                               |             | NA        | NA        | 23 UJ     | NA        | NA        |
| 2-Nitroaniline                                |             | NA        | NA        | 7.5 U     | NA        | NA        |
| 2-Nitrophenol                                 |             | NA        | NA        | 8.4 U     | NA        | NA        |
| 2-Picoline                                    |             | NA        | NA        | 14 U      | NA        | NA        |
| 2-Toluidine                                   |             | NA        | NA        | 11 U      | NA        | NA        |
| 3 & 4 Methylphenol                            |             | NA        | NA        | 8.4 U     | NA        | NA        |
| 3,3'-Dichlorobenzidine                        |             | NA        | NA        | 11 UJ     | NA        | NA        |
| 3,3'-Dimethylbenzidine                        |             | NA        | NA        | 210 U     | NA        | NA        |
| 3-Methylcholanthrene                          |             | NA        | NA        | 7 U       | NA        | NA        |
| 3-Nitroaniline                                |             | NA        | NA        | 5.2 U     | NA        | NA        |
| 4,6-Dinitro-2-methylphenol                    |             | NA        | NA        | 6.7 U     | NA        | NA        |
| 4-Aminobiphenyl                               |             | NA        | NA        | 15 U      | NA        | NA        |
| 4-Bromophenyl phenyl ether                    |             | NA        | NA        | 8.2 U     | NA        | NA        |
| 4-Chloro-3-methylphenol                       |             | NA        | NA        | 8.7 U     | NA        | NA        |
| 4-Chloroaniline                               |             | NA        | NA        | 6.9 U     | NA        | NA        |
| 4-Chlorophenyl phenyl ether                   |             | NA        | NA        | 7.2 U     | NA        | NA        |
| 4-Nitroaniline                                |             | NA        | NA        | 8.9 U     | NA        | NA        |
| 4-Nitrophenol                                 |             | NA        | NA        | 38 U      | NA        | NA        |
| 4-Nitroquinoline-1-oxide                      |             | NA        | NA        | 13 R      | NA        | NA        |
| 7,12-Dimethylbenz(a)anthracene                |             | NA        | NA        | 11 U      | NA        | NA        |
| Acenaphthene                                  |             | NA        | NA        | 0.66 U    | NA        | NA        |
| Acenaphthylene                                |             | NA        | NA        | 2 U       | NA        | NA        |
| Acetophenone                                  |             | NA        | NA        | 9.9 U     | NA        | NA        |
| alpha,alpha-Dimethyl phenethylamine           |             | NA        | NA        | 68 UJ     | NA        | NA        |
| Aniline                                       |             | NA        | NA        | 7.3 U     | NA        | NA        |
| Anthracene                                    |             | NA        | NA        | 2 U       | NA        | NA        |
| Aramite, Total                                |             | NA        | NA        | 13 U      | NA        | NA        |
| Benzo[a]anthracene                            |             | NA        | NA        | 2 U       | NA        | NA        |
| Benzo[a]pyrene                                |             | NA        | NA        | 0.76 U    | NA        | NA        |
| Benzo[b]fluoranthene                          |             | NA        | NA        | 0.88 U    | NA        | NA        |
| Benzo[g,h,i]perylene                          |             | NA        | NA        | 2 U       | NA        | NA        |
| Benzo[k]fluoranthene                          |             | NA        | NA        | 1.2 U     | NA        | NA        |
| Benzyl alcohol                                |             | NA        | NA        | 9.2 U     | NA        | NA        |
| Bis(2-chloroethoxy)methane                    |             | NA        | NA        | 7.8 U     | NA        | NA        |
| Bis(2-chloroethyl)ether                       |             | NA        | NA        | 6.6 U     | NA        | NA        |
| Bis(2-ethylhexyl) phthalate                   |             | NA        | NA        | 13 U      | NA        | NA        |
| Butyl benzyl phthalate                        |             | NA        | NA        | 8.3 U     | NA        | NA        |
| Chrysene                                      |             | NA        | NA        | 0.7 U     | NA        | NA        |
| Diallate                                      |             | NA        | NA        | 11 U      | NA        | NA        |
| Dibenz(a,h)anthracene                         |             | NA        | NA        | 0.68 U    | NA        | NA        |

APPENDIX B

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|   | Site ID     | 62SB01    | 62SB02    | 62SB03    | 62SB04    | 62SB05    |
|---|-------------|-----------|-----------|-----------|-----------|-----------|
|   | Sample ID   | 62SB01-00 | 62SB02-00 | 62SB03-00 | 62SB04-00 | 62SB05-00 |
|   | Sample Date | 5/31/2008 | 6/1/2008  | 6/1/2008  | 5/31/2008 | 6/1/2008  |
|   | Depth Range | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |             |           |           |           |           |           |
| Dibenzofuran                                  |             | NA        | NA        | 4.8 U     | NA        | NA        |
| Diethyl phthalate                             |             | NA        | NA        | 13 U      | NA        | NA        |
| Dimethyl phthalate                            |             | NA        | NA        | 7.4 U     | NA        | NA        |
| Di-n-butyl phthalate                          |             | NA        | NA        | 29 U      | NA        | NA        |
| Di-n-octyl phthalate                          |             | NA        | NA        | 3.8 U     | NA        | NA        |
| Dinoseb                                       |             | NA        | NA        | 20 UJ     | NA        | NA        |
| Ethyl methanesulfonate                        |             | NA        | NA        | 13 U      | NA        | NA        |
| Fluoranthene                                  |             | NA        | NA        | 2 U       | NA        | NA        |
| Fluorene                                      |             | NA        | NA        | 0.89 U    | NA        | NA        |
| Hexachlorobenzene                             |             | NA        | NA        | 7.8 U     | NA        | NA        |
| Hexachlorobutadiene                           |             | NA        | NA        | 10 U      | NA        | NA        |
| Hexachlorocyclopentadiene                     |             | NA        | NA        | 16 U      | NA        | NA        |
| Hexachloroethane                              |             | NA        | NA        | 8.5 U     | NA        | NA        |
| Hexachlorophene                               |             | NA        | NA        | 960 R     | NA        | NA        |
| Hexachloropropene                             |             | NA        | NA        | 8.3 U     | NA        | N         |
| Indeno[1,2,3-cd]pyrene                        |             | NA        | NA        | 1.4 U     | NA        | NA        |
| Isophorone                                    |             | NA        | NA        | 7.2 U     | NA        | NA        |
| Isosafrole                                    |             | NA        | NA        | 8.2 U     | NA        | NA        |
| Methapyrilene                                 |             | NA        | NA        | 11 U      | NA        | NA        |
| Methyl methanesulfonate                       |             | NA        | NA        | 11 U      | NA        | NA        |
| Naphthalene                                   |             | NA        | NA        | 0.69 U    | NA        | NA        |
| Nitrobenzene                                  |             | NA        | NA        | 8 U       | NA        | NA        |
| N-Nitro-o-toluidine                           |             | NA        | NA        | 6.9 U     | NA        | NA        |
| N-Nitrosodiethylamine                         |             | NA        | NA        | 14 U      | NA        | NA        |
| N-Nitrosodimethylamine                        |             | NA        | NA        | 11 U      | NA        | NA        |
| N-Nitrosodi-n-butylamine                      |             | NA        | NA        | 10 U      | NA        | NA        |
| N-Nitrosodi-n-propylamine                     |             | NA        | NA        | 7.5 U     | NA        | NA        |
| N-Nitrosodiphenylamine                        |             | NA        | NA        | 8.2 U     | NA        | NA        |
| N-Nitrosomethylethylamine                     |             | NA        | NA        | 6.6 U     | NA        | NA        |
| N-Nitrosomorpholine                           |             | NA        | NA        | 7.6 U     | NA        | NA        |
| N-Nitrosopiperidine                           |             | NA        | NA        | 9.8 U     | NA        | NA        |
| N-Nitrosopyrrolidine                          |             | NA        | NA        | 10 U      | NA        | NA        |
| p-Dimethylamino azobenzene                    |             | NA        | NA        | 8.2 U     | NA        | NA        |
| Pentachlorobenzene                            |             | NA        | NA        | 7.2 U     | NA        | NA        |
| Pentachloronitrobenzene                       |             | NA        | NA        | 6.8 U     | NA        | NA        |
| Pentachlorophenol                             |             | NA        | NA        | 9.6 U     | NA        | NA        |
| Phenacetin                                    |             | NA        | NA        | 5.4 U     | NA        | NA        |
| Phenanthrene                                  |             | NA        | NA        | 2 U       | NA        | NA        |
| Phenol  |             | NA        | NA        | 5.5 U     | NA        | NA        |
| p-Phenylene diamine                           |             | NA        | NA        | 180 U     | NA        | N         |

**APPENDIX B**

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|   | Site ID     | 62SB01    | 62SB02    | 62SB03    | 62SB04    | 62SB05    |
|---|-------------|-----------|-----------|-----------|-----------|-----------|
|   | Sample ID   | 62SB01-00 | 62SB02-00 | 62SB03-00 | 62SB04-00 | 62SB05-00 |
|   | Sample Date | 5/31/2008 | 6/1/2008  | 6/1/2008  | 5/31/2008 | 6/1/2008  |
|   | Depth Range | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |             |           |           |           |           |           |
| Pronamide                                     |             | NA        | NA        | 10 U      | NA        | NA        |
| Pyrene  |             | NA        | NA        | 2 U       | NA        | NA        |
| Pyridine                                      |             | NA        | NA        | 13 U      | NA        | NA        |
| Safrole, Total                                |             | NA        | NA        | 9.6 U     | NA        | NA        |
| <b>Pesticides (ug/kg)</b>                     |             |           |           |           |           |           |
| 4,4'-DDD                                      |             | 28        | 0.42 U    | 0.41 U    | 0.4 U     | 0.37 U    |
| 4,4'-DDE                                      |             | 73        | 0.37 U    | 0.37 U    | 0.36 U    | 5.5       |
| 4,4'-DDT                                      |             | 51        | 0.6 U     | 0.6 U     | 0.58 U    | 2.3 J     |
| Aldrin  |             | 0.26 U    | 0.13 U    | 0.13 U    | 0.12 U    | 0.11 U    |
| alpha-BHC                                     |             | 0.2 U     | 0.096 U   | 0.096 U   | 0.093 U   | 0.086 U   |
| beta-BHC                                      |             | 0.52 U    | 0.25 U    | 0.25 U    | 0.25 U    | 0.23 U    |
| Chlordane (technical)                         |             | 3.3 U     | 1.6 U     | 1.6 U     | 1.6 U     | 1.4 U     |
| Chlorobenzilate                               |             | 11 U      | 5.4 U     | 5.4 U     | 5.3 U     | 4.8 U     |
| delta-BHC                                     |             | 0.28 U    | 0.14 U    | 0.14 U    | 0.13 U    | 0.12 U    |
| Dieldrin                                      |             | 0.73 U    | 0.36 U    | 0.36 U    | 0.35 U    | 0.32 U    |
| Endosulfan I                                  |             | 0.66 U    | 0.32 U    | 0.32 U    | 0.31 U    | 0.29 U    |
| Endosulfan II                                 |             | 1.6 U     | 0.79 U    | 0.78 U    | 0.76 U    | 0.7 U     |
| Endosulfan sulfate                            |             | 0.64 U    | 0.31 U    | 0.31 U    | 0.3 U     | 0.28 U    |
| Endrin  |             | 0.81 U    | 0.39 U    | 0.39 U    | 0.38 U    | 0.35 U    |
| Endrin aldehyde                               |             | 1.5 U     | 0.74 U    | 0.74 U    | 0.72 U    | 0.66 U    |
| Endrin ketone                                 |             | 0.81 U    | 0.39 U    | 0.39 U    | 0.38 U    | 0.35 U    |
| gamma-BHC (Lindane)                           |             | 0.24 U    | 0.12 U    | 0.12 U    | 0.11 U    | 0.1 U     |
| Heptachlor                                    |             | 0.55 U    | 0.27 U    | 0.27 U    | 0.26 U    | 0.24 U    |
| Heptachlor epoxide                            |             | 0.24 U    | 0.12 U    | 0.12 U    | 0.11 U    | 0.1 U     |
| Isodrin                                       |             | 0.52 U    | 0.25 U    | 0.25 U    | 0.25 U    | 0.23 U    |
| Kepone  |             | 3.3 U     | 1.6 U     | 1.6 U     | 1.6 U     | 1.4 U     |
| Methoxychlor                                  |             | 1.9 U     | 0.93 U    | 0.92 U    | 0.9 U     | 0.82 U    |
| Toxaphene                                     |             | 100 U     | 49 U      | 48 U      | 47 U      | 43 U      |
| <b>PCB's (ug/kg)</b>                          |             |           |           |           |           |           |
| PCB-1016                                      |             | NA        | NA        | 4.4 U     | NA        | NA        |
| PCB-1221                                      |             | NA        | NA        | 15 U      | NA        | NA        |
| PCB-1232                                      |             | NA        | NA        | 8.6 U     | NA        | NA        |
| PCB-1242                                      |             | NA        | NA        | 5.5 U     | NA        | NA        |
| PCB-1248                                      |             | NA        | NA        | 5.9 U     | NA        | NA        |
| PCB-1254                                      |             | NA        | NA        | 2.7 U     | NA        | NA        |
| PCB-1260                                      |             | NA        | NA        | 5.5 U     | NA        | NA        |

**APPENDIX B**

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB01    | 62SB02    | 62SB03    | 62SB04    | 62SB05    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB01-00 | 62SB02-00 | 62SB03-00 | 62SB04-00 | 62SB05-00 |
| Sample Date | 5/31/2008 | 6/1/2008  | 6/1/2008  | 5/31/2008 | 6/1/2008  |
| Depth Range | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   |

**Metals (mg/kg)**

|           |         |          |          |          |          |
|-----------|---------|----------|----------|----------|----------|
| Antimony  | 0.1 UJ  | 0.079 UJ | 0.078 UJ | 0.076 UJ | 0.073 UJ |
| Arsenic   | 1.7     | 0.93     | 0.92     | 1.2      | 1.2      |
| Barium    | 130     | 80       | 150      | 520      | 80       |
| Beryllium | 0.32    | 0.32     | 0.34     | 0.49     | 0.37     |
| Cadmium   | 0.092 J | 0.033 U  | 0.032 U  | 0.032 U  | 0.03 U   |
| Chromium  | 32      | 12       | 9.5      | 16       | 2.6      |
| Cobalt    | 19      | 3        | 2.2      | 5.6      | 6.8      |
| Copper    | 41      | 7.5      | 11       | 19       | 9.6      |
| Lead      | 3.5     | 1.4      | 1.1      | 1.6      | 0.6      |
| Mercury   | 0.032   | 0.034    | 0.035    | 0.027    | 0.0038 U |
| Nickel    | 8.6     | 3.1      | 2.7      | 4.9      | 1.2      |
| Selenium  | 0.38 J  | 0.36 J   | 0.25 J   | 0.16 J   | 0.14 J   |
| Silver    | 0.025 J | 0.017 UJ | 0.017 UJ | 0.016 UJ | 0.016 UJ |
| Thallium  | 0.13 U  | 0.13 U   | 0.12 U   | 0.12 U   | 0.12 U   |
| Tin       | 4.4 U   | 4.2 U    | 4.1 U    | 4.1 U    | 3        |
| Vanadium  | 82 J    | 27 J     | 25 J     | 41 J     | 35 J     |
| Zinc      | 46      | 5.8      | 7        | 11       | 7.8      |

**APPENDIX B**

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB06    | 62SB07    | 62SB08    | 62SB08     | 62SB09    |
|-------------|-----------|-----------|-----------|------------|-----------|
| Sample ID   | 62SB06-00 | 62SB07-00 | 62SB08-00 | 62SB08-00D | 62SB09-00 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  |
| Depth Range | 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   | 0.68 U  | 0.76 U  | 0.88 U | 0.63 U  | 0.6 U   |
| 1,1,1-Trichloroethane       | 0.61 UJ | 0.69 UJ | 0.8 UJ | 0.57 UJ | 0.54 UJ |
| 1,1,2,2-Tetrachloroethane   | 1.5 U   | 1.7 U   | 1.9 U  | 1.4 U   | 1.3 U   |
| 1,1,2-Trichloroethane       | 1.3 U   | 1.4 U   | 1.7 U  | 1.2 U   | 1.1 U   |
| 1,1-Dichloroethane          | 0.53 U  | 0.59 U  | 0.69 U | 0.49 U  | 0.47 U  |
| 1,1-Dichloroethene          | 0.57 U  | 0.64 U  | 0.75 U | 0.53 U  | 0.51 U  |
| 1,2,3-Trichloropropane      | 1.5 U   | 1.7 U   | 1.9 U  | 1.4 U   | 1.3 U   |
| 1,2-Dibromo-3-Chloropropane | 3 U     | 3.3 U   | 3.9 U  | 2.7 U   | 2.6 U   |
| 1,2-Dichloroethane          | 1.1 U   | 1.2 U   | 1.4 U  | 0.98 U  | 0.94 U  |
| 1,2-Dichloropropane         | 1.2 U   | 1.3 U   | 1.5 U  | 1.1 U   | 1 U     |
| 2-Butanone (MEK)            | 17 UJ   | 12 UJ   | 6.8 UJ | 4.3 UJ  | 5.2 UJ  |
| 2-Chloro-1,3-butadiene      | 0.6 U   | 0.68 U  | 0.79 U | 0.56 U  | 0.53 U  |
| 2-Hexanone                  | 2.2 U   | 2.5 U   | 2.9 U  | 2.1 U   | 2 U     |
| 3-Chloro-1-propene          | 1.6 UJ  | 1.8 UJ  | 2.1 UJ | 1.5 UJ  | 1.4 U   |
| 4-Methyl-2-pentanone (MIBK) | 3.1 UJ  | 3.4 UJ  | 4 UJ   | 2.8 UJ  | 2.7 UJ  |
| Acetone                     | 200 J   | 150 J   | 83 J   | 63 J    | 72 UJ   |
| Acetonitrile                | 48 UJ   | 53 UJ   | 62 UJ  | 44 UJ   | 42 U    |
| Acrolein                    | 20 U    | 23 U    | 26 U   | 19 U    | 18 U    |
| Acrylonitrile               | 24 UJ   | 27 UJ   | 32 UJ  | 22 UJ   | 22 UJ   |
| Benzene                     | 1.4 J   | 0.94 U  | 1.1 U  | 0.77 U  | 0.74 U  |
| Bromoform                   | 1.2 U   | 1.3 U   | 1.5 U  | 1.1 U   | 1 U     |
| Bromomethane                | 1.7 U   | 1.9 U   | 2.2 U  | 1.6 U   | 1.5 U   |
| Carbon disulfide            | 0.54 U  | 0.6 U   | 0.71 U | 0.5 U   | 0.48 U  |
| Carbon tetrachloride        | 1.1 UJ  | 1.2 UJ  | 1.4 UJ | 0.98 UJ | 0.94 UJ |
| Chlorobenzene               | 0.77 U  | 0.87 U  | 1 U    | 0.71 U  | 0.68 U  |
| Chlorodibromomethane        | 0.53 U  | 0.59 U  | 0.69 U | 0.49 U  | 0.47 U  |
| Chloroethane                | 1.3 UJ  | 1.4 UJ  | 1.7 UJ | 1.2 UJ  | 1.1 UJ  |
| Chloroform                  | 0.53 U  | 0.59 U  | 0.69 U | 0.49 U  | 0.47 U  |
| Chloromethane               | 0.75 U  | 0.84 U  | 0.98 U | 0.69 U  | 0.67 U  |
| cis-1,3-Dichloropropene     | 0.92 UJ | 1 UJ    | 1.2 UJ | 0.85 UJ | 0.82 UJ |
| Dibromomethane              | 1.3 U   | 1.4 U   | 1.7 U  | 1.2 U   | 1.1 U   |
| Dichlorobromomethane        | 0.88 U  | 0.98 U  | 1.1 U  | 0.81 U  | 0.78 U  |
| Dichlorodifluoromethane     | 0.94 U  | 1.1 U   | 1.2 U  | 0.87 U  | 0.83 U  |
| Ethyl methacrylate          | 2.3 U   | 2.6 U   | 3 U    | 2.1 U   | 2.1 U   |
| Ethylbenzene                | 0.79 U  | 0.89 U  | 1 U    | 0.73 U  | 0.7 U   |
| Ethylene Dibromide          | 1.6 U   | 1.8 U   | 2.1 U  | 1.5 U   | 1.4 U   |
| Iodomethane                 | 1.1 UJ  | 1.2 UJ  | 1.4 UJ | 0.98 UJ | 0.94 U  |
| Isobutyl alcohol            | 73 R    | 82 R    | 95 R   | 67 R    | 65 U    |
| Methacrylonitrile           | 25 UJ   | 28 UJ   | 33 UJ  | 23 UJ   | 22 U    |
| Methyl methacrylate         | 3.9 UJ  | 4.4 UJ  | 5.1 UJ | 3.6 UJ  | 3.5 U   |

**APPENDIX B**

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB06    | 62SB07    | 62SB08    | 62SB08     | 62SB09    |
|-------------|-----------|-----------|-----------|------------|-----------|
| Sample ID   | 62SB06-00 | 62SB07-00 | 62SB08-00 | 62SB08-00D | 62SB09-00 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  |
| Depth Range | 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)**

|                             |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|
| Methylene Chloride          | 1.1 U  | 1.2 U  | 1.4 U  | 0.98 U | 0.94 U |
| Pentachloroethane           | 2.3 R  | 2.6 R  | 3 R    | 2.1 R  | 2.1 R  |
| Propionitrile               | 22 UJ  | 25 UJ  | 29 UJ  | 21 UJ  | 20 U   |
| Styrene                     | 0.7 U  | 0.78 U | 0.91 U | 0.64 U | 0.62 U |
| Tetrachloroethene           | 0.77 U | 0.87 U | 1 U    | 0.71 U | 0.68 U |
| Toluene                     | 1.5 U  | 0.94 U | 1.1 U  | 0.77 U | 0.74 U |
| trans-1,2-Dichloroethene    | 1 U    | 1.2 U  | 1.3 U  | 0.95 U | 0.91 U |
| trans-1,3-Dichloropropene   | 0.92 U | 1 U    | 1.2 U  | 0.85 U | 0.82 U |
| trans-1,4-Dichloro-2-butene | 3.3 U  | 3.7 U  | 4.3 U  | 3 U    | 2.9 U  |
| Trichloroethene             | 1.1 U  | 1.2 U  | 1.4 U  | 0.98 U | 0.94 U |
| Trichlorofluoromethane      | 1.6 U  | 1.8 U  | 2.1 UJ | 1.5 U  | 1.4 U  |
| Vinyl acetate               | 1.6 UJ | 1.8 UJ | 2.1 U  | 1.5 UJ | 1.4 U  |
| Vinyl chloride              | 0.61 U | 0.69 U | 0.8 U  | 0.57 U | 0.54 U |
| Xylenes, Total              | 2.4 U  | 2.7 U  | 3.2 U  | 2.2 U  | 2.2 U  |

**Semivolatile Organic Compounds (ug/kg)**

|                              |       |    |        |        |        |
|------------------------------|-------|----|--------|--------|--------|
| 1,1'-Biphenyl                | 7.8 U | NA | 8 UJ   | 7.8 UJ | 7.9 U  |
| 1,2,4,5-Tetrachlorobenzene   | 6.6 U | NA | 6.8 UJ | 6.7 UJ | 6.8 U  |
| 1,2,4-Trichlorobenzene       | 7.8 U | NA | 8 UJ   | 7.8 UJ | 7.9 U  |
| 1,2-Dichlorobenzene          | 7.3 U | NA | 7.5 UJ | 7.4 UJ | 7.5 U  |
| 1,3,5-Trinitrobenzene        | 18 U  | NA | 18 UJ  | 18 UJ  | 18 U   |
| 1,3-Dichlorobenzene          | 6.3 U | NA | 6.5 UJ | 6.4 UJ | 6.4 U  |
| 1,3-Dinitrobenzene           | 4.1 U | NA | 4.2 UJ | 4.1 UJ | 4.2 U  |
| 1,4-Dichlorobenzene          | 6.5 U | NA | 11 UJ  | 15 UJ  | 6.7 U  |
| 1,4-Dioxane                  | 8.4 U | NA | 15 J   | 8.5 UJ | 8.6 U  |
| 1,4-Naphthoquinone           | 4.1 U | NA | 4.2 UJ | 4.1 UJ | 4.2 U  |
| 2,2'-oxybis[1-chloropropane] | 6.6 U | NA | 6.8 UJ | 6.7 UJ | 6.8 U  |
| 2,3,4,6-Tetrachlorophenol    | 4.4 U | NA | 4.5 UJ | 4.4 UJ | 4.5 U  |
| 2,4,5-Trichlorophenol        | 7.1 U | NA | 7.3 UJ | 7.2 UJ | 7.3 UJ |
| 2,4,6-Trichlorophenol        | 8.3 U | NA | 8.5 UJ | 8.4 UJ | 8.5 U  |
| 2,4-Dichlorophenol           | 8.5 U | NA | 8.7 UJ | 8.6 UJ | 8.7 U  |
| 2,4-Dimethylphenol           | 18 U  | NA | 18 UJ  | 18 UJ  | 18 U   |
| 2,4-Dinitrophenol            | 87 UJ | NA | 89 UJ  | 88 UJ  | 89 UJ  |
| 2,4-Dinitrotoluene           | 6.2 U | NA | 6.4 UJ | 6.2 UJ | 6.3 U  |
| 2,6-Dichlorophenol           | 6.7 U | NA | 6.9 UJ | 6.8 UJ | 6.9 U  |
| 2,6-Dinitrotoluene           | 6.5 U | NA | 6.7 UJ | 6.6 UJ | 6.7 U  |
| 2-Acetylaminofluorene        | 5.3 U | NA | 5.5 UJ | 5.4 UJ | 5.5 U  |
| 2-Chloronaphthalene          | 6.5 U | NA | 6.7 UJ | 6.6 UJ | 6.7 U  |
| 2-Chlorophenol               | 6.9 U | NA | 7.1 UJ | 7 UJ   | 7.1 U  |
| 2-Methylnaphthalene          | 1.8 U | NA | 23 J   | 56 J   | 1.8 U  |
| 2-Methylphenol               | 8.5 U | NA | 8.7 UJ | 8.6 UJ | 8.7    |

APPENDIX B

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB06    | 62SB07    | 62SB08    | 62SB08     | 62SB09    |
|-------------|-----------|-----------|-----------|------------|-----------|
| Sample ID   | 62SB06-00 | 62SB07-00 | 62SB08-00 | 62SB08-00D | 62SB09-00 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  |
| Depth Range | 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)**

|                                     |        |    |         |         |        |
|-------------------------------------|--------|----|---------|---------|--------|
| 2-Naphthylamine                     | 21 UJ  | NA | 22 UJ   | 21 UJ   | 21 UJ  |
| 2-Nitroaniline                      | 6.8 U  | NA | 7 UJ    | 6.9 UJ  | 7 U    |
| 2-Nitrophenol                       | 7.7 U  | NA | 7.9 UJ  | 7.7 UJ  | 7.8 U  |
| 2-Picoline                          | 13 U   | NA | 13 UJ   | 13 UJ   | 13 U   |
| 2-Toluidine                         | 9.8 U  | NA | 10 UJ   | 9.8 UJ  | 10 U   |
| 3 & 4 Methylphenol                  | 7.7 U  | NA | 7.9 UJ  | 7.7 UJ  | 7.8 U  |
| 3,3'-Dichlorobenzidine              | 9.6 UJ | NA | 9.9 UJ  | 9.7 UJ  | 9.9 U  |
| 3,3'-Dimethylbenzidine              | 190 U  | NA | 190 UJ  | 190 UJ  | 190 UJ |
| 3-Methylcholanthrene                | 6.4 U  | NA | 6.6 UJ  | 6.5 UJ  | 6.6 U  |
| 3-Nitroaniline                      | 4.7 U  | NA | 4.8 UJ  | 4.8 UJ  | 4.8 UJ |
| 4,6-Dinitro-2-methylphenol          | 6.1 U  | NA | 6.3 UJ  | 6.1 UJ  | 6.2 U  |
| 4-Aminobiphenyl                     | 14 U   | NA | 14 UJ   | 14 UJ   | 14 U   |
| 4-Bromophenyl phenyl ether          | 7.4 U  | NA | 7.7 UJ  | 7.5 UJ  | 7.6 U  |
| 4-Chloro-3-methylphenol             | 7.9 U  | NA | 8.1 UJ  | 7.9 UJ  | 8.1 U  |
| 4-Chloroaniline                     | 6.3 U  | NA | 6.5 UJ  | 6.4 UJ  | 6.4 U  |
| 4-Chlorophenyl phenyl ether         | 6.5 U  | NA | 6.7 UJ  | 6.6 UJ  | 6.7 U  |
| 4-Nitroaniline                      | 8.1 U  | NA | 8.3 UJ  | 8.2 UJ  | 8.3 U  |
| 4-Nitrophenol                       | 35 U   | NA | 36 UJ   | 35 UJ   | 35 U   |
| 4-Nitroquinoline-1-oxide            | 12 R   | NA | 12 R    | 12 R    | 12 R   |
| 7,12-Dimethylbenz(a)anthracene      | 9.8 U  | NA | 10 UJ   | 9.8 UJ  | 10 U   |
| Acenaphthene                        | 0.6 U  | NA | 0.61 UJ | 0.6 UJ  | 0.61 U |
| Acenaphthylene                      | 1.8 U  | NA | 1.8 UJ  | 1.8 UJ  | 1.8 U  |
| Acetophenone                        | 9 U    | NA | 9.3 UJ  | 9.1 UJ  | 9.2 U  |
| alpha,alpha-Dimethyl phenethylamine | 62 UJ  | NA | 64 UJ   | 62 UJ   | 63 U   |
| Aniline                             | 6.6 U  | NA | 6.8 UJ  | 6.7 UJ  | 6.8 U  |
| Anthracene                          | 1.8 U  | NA | 1.8 UJ  | 1.8 UJ  | 1.8 U  |
| Aramite, Total                      | 12 U   | NA | 12 UJ   | 12 UJ   | 12 U   |
| Benzo[a]anthracene                  | 1.8 U  | NA | 4.8 J   | 5.2 J   | 2.6 J  |
| Benzo[a]pyrene                      | 0.69 U | NA | 0.71 UJ | 0.7 UJ  | 2.6 J  |
| Benzo[b]fluoranthene                | 0.8 U  | NA | 0.82 UJ | 0.8 UJ  | 3.2 J  |
| Benzo[g,h,i]perylene                | 1.8 U  | NA | 1.8 UJ  | 1.8 UJ  | 5.8 J  |
| Benzo[k]fluoranthene                | 1 U    | NA | 1.1 UJ  | 4 J     | 2.2 J  |
| Benzyl alcohol                      | 8.4 U  | NA | 8.6 UJ  | 8.5 UJ  | 8.6 U  |
| Bis(2-chloroethoxy)methane          | 7.1 U  | NA | 7.3 UJ  | 7.2 UJ  | 7.3 U  |
| Bis(2-chloroethyl)ether             | 6 U    | NA | 6.1 UJ  | 6 UJ    | 6.1 U  |
| Bis(2-ethylhexyl) phthalate         | 5 U    | NA | 16 UJ   | 13 UJ   | 15 U   |
| Butyl benzyl phthalate              | 7.5 U  | NA | 7.8 UJ  | 7.6 UJ  | 7.7 U  |
| Chrysene                            | 0.64 U | NA | 4.8 J   | 6.8 J   | 3.3 J  |
| Diallate                            | 10 U   | NA | 10 UJ   | 10 UJ   | 10 U   |
| Dibenz(a,h)anthracene               | 0.62 U | NA | 0.64 UJ | 0.62 UJ | 0.63 U |

**APPENDIX B**

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB06    | 62SB07    | 62SB08    | 62SB08     | 62SB09    |
|-------------|-----------|-----------|-----------|------------|-----------|
| Sample ID   | 62SB06-00 | 62SB07-00 | 62SB08-00 | 62SB08-00D | 62SB09-00 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  |
| Depth Range | 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)**

|                            |        |    |         |         |        |
|----------------------------|--------|----|---------|---------|--------|
| Dibenzofuran               | 4.4 U  | NA | 8.9 J   | 20 J    | 4.5 U  |
| Diethyl phthalate          | 12 U   | NA | 12 UJ   | 12 UJ   | 12 U   |
| Dimethyl phthalate         | 6.7 U  | NA | 6.9 UJ  | 6.8 UJ  | 6.9 U  |
| Di-n-butyl phthalate       | 26 U   | NA | 27 UJ   | 26 UJ   | 27 U   |
| Di-n-octyl phthalate       | 3.5 U  | NA | 3.6 UJ  | 3.5 UJ  | 3.5 U  |
| Dinoseb                    | 18 UJ  | NA | 18 UJ   | 18 UJ   | 18 U   |
| Ethyl methanesulfonate     | 12 U   | NA | 12 UJ   | 12 UJ   | 12 U   |
| Fluoranthene               | 1.8 U  | NA | 6.7 J   | 8.5 J   | 5.4 J  |
| Fluorene                   | 0.81 U | NA | 0.83 UJ | 0.82 UJ | 0.83 U |
| Hexachlorobenzene          | 7.1 U  | NA | 7.3 UJ  | 7.2 UJ  | 7.3 U  |
| Hexachlorobutadiene        | 9.5 U  | NA | 9.8 UJ  | 9.6 UJ  | 9.8 U  |
| Hexachlorocyclopentadiene  | 15 U   | NA | 15 UJ   | 15 UJ   | 15 U   |
| Hexachloroethane           | 7.8 U  | NA | 8 UJ    | 7.8 UJ  | 7.9 U  |
| Hexachlorophene            | 870 R  | NA | 890 UJ  | 880 UJ  | 890 U  |
| Hexachloropropene          | 7.5 U  | NA | 7.8 UJ  | 7.6 UJ  | 7.7 U  |
| Indeno[1,2,3-cd]pyrene     | 1.3 U  | NA | 1.3 UJ  | 1.3 UJ  | 1.5 U  |
| Isophorone                 | 6.5 U  | NA | 6.7 UJ  | 6.6 UJ  | 6.7 U  |
| Isosafrole                 | 7.4 U  | NA | 7.7 UJ  | 7.5 UJ  | 7.6 U  |
| Methapyrilene              | 9.8 U  | NA | 10 UJ   | 9.8 UJ  | 10 UJ  |
| Methyl methanesulfonate    | 9.8 U  | NA | 10 UJ   | 9.8 UJ  | 10 U   |
| Naphthalene                | 0.63 U | NA | 13 J    | 33 J    | 1.2 J  |
| Nitrobenzene               | 7.2 U  | NA | 7.4 UJ  | 7.3 UJ  | 7.4 U  |
| N-Nitro-o-toluidine        | 6.3 U  | NA | 6.5 UJ  | 6.4 UJ  | 6.4 U  |
| N-Nitrosodiethylamine      | 13 U   | NA | 13 UJ   | 13 UJ   | 13 U   |
| N-Nitrosodimethylamine     | 10 U   | NA | 11 UJ   | 10 UJ   | 11 U   |
| N-Nitrosodi-n-butylamine   | 9.5 U  | NA | 9.8 UJ  | 9.6 UJ  | 9.8 U  |
| N-Nitrosodi-n-propylamine  | 6.8 U  | NA | 7 UJ    | 6.9 UJ  | 7 U    |
| N-Nitrosodiphenylamine     | 7.4 U  | NA | 7.7 UJ  | 7.5 UJ  | 7.6 U  |
| N-Nitrosomethylethylamine  | 6 U    | NA | 6.1 UJ  | 6 UJ    | 6.1 U  |
| N-Nitrosomorpholine        | 6.9 U  | NA | 7.1 UJ  | 7 UJ    | 7.1 U  |
| N-Nitrosopiperidine        | 8.9 U  | NA | 9.2 UJ  | 9 UJ    | 9.1 U  |
| N-Nitrosopyrrolidine       | 9.3 U  | NA | 9.6 UJ  | 9.4 UJ  | 9.6 U  |
| p-Dimethylamino azobenzene | 7.4 U  | NA | 7.7 UJ  | 7.5 UJ  | 7.6 U  |
| Pentachlorobenzene         | 6.5 U  | NA | 6.7 UJ  | 6.6 UJ  | 6.7 U  |
| Pentachloronitrobenzene    | 6.2 U  | NA | 6.4 UJ  | 6.2 UJ  | 6.3 U  |
| Pentachlorophenol          | 8.7 U  | NA | 8.9 UJ  | 8.8 UJ  | 8.9 U  |
| Phenacetin                 | 4.9 U  | NA | 5.1 UJ  | 5 UJ    | 5 U    |
| Phenanthrene               | 1.8 U  | NA | 29 J    | 50 J    | 4.5 J  |
| Phenol                     | 5 U    | NA | 5.2 UJ  | 5.1 UJ  | 5.2 U  |
| p-Phenylene diamine        | 170 U  | NA | 170 UJ  | 170 UJ  | 170 U  |

APPENDIX B

**SURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB06    | 62SB07    | 62SB08    | 62SB08     | 62SB09    |
|-------------|-----------|-----------|-----------|------------|-----------|
| Sample ID   | 62SB06-00 | 62SB07-00 | 62SB08-00 | 62SB08-00D | 62SB09-00 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  |
| Depth Range | 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)**

|                |       |    |        |        |       |
|----------------|-------|----|--------|--------|-------|
| Pronamide      | 9.4 U | NA | 9.7 UJ | 9.5 UJ | 9.7 U |
| Pyrene         | 1.8 U | NA | 9.1 J  | 11 J   | 4.8 J |
| Pyridine       | 12 U  | NA | 12 UJ  | 12 UJ  | 12 U  |
| Safrole, Total | 8.7 U | NA | 8.9 UJ | 8.8 UJ | 8.9 U |

**Pesticides (ug/kg)**

|                       |         |         |         |         |        |
|-----------------------|---------|---------|---------|---------|--------|
| 4,4'-DDD              | 0.38 U  | 0.4 U   | 0.89 J  | 0.39 U  | 0.39 U |
| 4,4'-DDE              | 0.34 U  | 0.35 U  | 7.6 J   | 1.5 J   | 0.35 U |
| 4,4'-DDT              | 0.55 U  | 0.57 U  | 7.7 J   | 1.9 J   | 0.56 U |
| Aldrin                | 0.12 U  | 0.12 U  | 0.12 U  | 0.12 U  | 0.12 U |
| alpha-BHC             | 0.087 U | 0.092 U | 0.089 U | 0.089 U | 0.09 U |
| beta-BHC              | 0.23 U  | 0.24 U  | 0.24 U  | 0.24 U  | 0.24 U |
| Chlordane (technical) | 1.5 U   | 1.5 U   | 1.5 U   | 1.5 U   | 1.5 U  |
| Chlorobenzilate       | 4.9 U   | 5.2 U   | 5 U     | 5 U     | 5.1 U  |
| delta-BHC             | 0.13 U  | 0.13 U  | 0.13 U  | 0.13 U  | 0.13 U |
| Dieldrin              | 0.32 U  | 0.34 U  | 0.33 UJ | 0.33 UJ | 0.33 U |
| Endosulfan I          | 0.29 U  | 0.31 U  | 0.3 U   | 0.3 U   | 0.3 U  |
| Endosulfan II         | 0.71 U  | 0.75 U  | 0.73 U  | 0.73 U  | 0.73 U |
| Endosulfan sulfate    | 0.28 U  | 0.3 U   | 0.29 U  | 0.29 U  | 0.29 U |
| Endrin                | 0.36 U  | 0.38 U  | 0.36 UJ | 0.36 UJ | 0.37 U |
| Endrin aldehyde       | 0.67 U  | 0.71 U  | 0.69 U  | 0.68 U  | 0.69 U |
| Endrin ketone         | 0.36 U  | 0.38 U  | 0.36 U  | 0.36 U  | 0.37 U |
| gamma-BHC (Lindane)   | 0.1 U   | 0.11 U  | 0.11 U  | 0.11 U  | 0.11 U |
| Heptachlor            | 0.24 U  | 0.25 U  | 0.25 U  | 0.25 U  | 0.25 U |
| Heptachlor epoxide    | 0.1 U   | 0.11 U  | 0.11 U  | 0.11 U  | 0.11 U |
| Isodrin               | 0.23 U  | 0.24 U  | 0.24 U  | 0.24 U  | 0.24 U |
| Kepone                | 1.5 U   | 1.5 U   | 1.5 U   | 1.5 U   | 1.5 U  |
| Methoxychlor          | 0.84 U  | 0.88 U  | 0.86 U  | 0.86 U  | 0.86 U |
| Toxaphene             | 44 U    | 46 U    | 45 U    | 45 U    | 45 U   |

**PCB's (ug/kg)**

|          |       |    |       |       |       |
|----------|-------|----|-------|-------|-------|
| PCB-1016 | 4 U   | NA | 4.1 U | 4.1 U | 4.1 U |
| PCB-1221 | 14 U  | NA | 14 U  | 14 U  | 14 U  |
| PCB-1232 | 7.9 U | NA | 8 U   | 8 U   | 8.1 U |
| PCB-1242 | 5 U   | NA | 5.1 U | 5.1 U | 5.2 U |
| PCB-1248 | 5.3 U | NA | 5.5 U | 5.5 U | 5.5 U |
| PCB-1254 | 2.4 U | NA | 2.5 U | 2.5 U | 2.5 U |
| PCB-1260 | 5 U   | NA | 5.1 U | 5.1 U | 5.2 U |

APPENDIX B

SURFACE SOIL ANALYTICAL RESULTS  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

| Site ID     | 62SB06    | 62SB07    | 62SB08    | 62SB08     | 62SB09    |
|-------------|-----------|-----------|-----------|------------|-----------|
| Sample ID   | 62SB06-00 | 62SB07-00 | 62SB08-00 | 62SB08-00D | 62SB09-00 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  |
| Depth Range | 0.0-1.0   | 0.0-1.0   | 0.0-1.0   | 0.0-1.0    | 0.0-1.0   |

**Metals (mg/kg)**

|           |          |          |          |         |         |
|-----------|----------|----------|----------|---------|---------|
| Antimony  | 0.087 UJ | 0.076 UJ | 0.078 UJ | 0.12 UJ | 0.16 UJ |
| Arsenic   | 3.3      | 2.3      | 2.4      | 3       | 3.7     |
| Barium    | 53       | 350      | 260 J    | 170 J   | 140     |
| Beryllium | 0.13     | 0.42     | 0.68 J   | 0.44 J  | 0.27    |
| Cadmium   | 0.072 J  | 0.042 J  | 0.038 J  | 0.043 J | 0.064 J |
| Chromium  | 12       | 19       | 7.9 J    | 15 J    | 9.6     |
| Cobalt    | 7.6      | 18       | 8.7      | 7.4     | 11      |
| Copper    | 45       | 140      | 30       | 37      | 60      |
| Lead      | 2        | 1.8      | 1.6      | 2       | 12      |
| Mercury   | 0.0038 U | 0.0049 J | 0.0093 J | 0.007 J | 0.004 U |
| Nickel    | 6        | 9.7      | 3.9      | 3.7     | 4.4     |
| Selenium  | 0.14 J   | 0.24 J   | 0.28 J   | 0.24 J  | 0.18 J  |
| Silver    | 0.019 J  | 0.031 J  | 0.016 UJ | 0.021 J | 0.018 J |
| Thallium  | 0.12 U   | 0.12 U   | 0.12 U   | 0.12 U  | 0.13 U  |
| Tin       | 3.9 U    | 4.1 U    | 4.1 U    | 4.1 U   | 4.5     |
| Vanadium  | 61 J     | 160 J    | 42       | 48      | 61      |
| Zinc      | 29       | 41       | 19       | 22      | 45      |

**SUBSURFACE SOIL**

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**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB01    | 62SB01    | 62SB02    | 62SB02    | 62SB03    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB01-03 | 62SB01-05 | 62SB02-01 | 62SB02-03 | 62SB03-01 |
| Sample Date | 5/31/2008 | 5/31/2008 | 6/1/2008  | 6/1/2008  | 6/1/2008  |
| Depth Range | 5.0-7.0   | 9.0-11.0  | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   |

**Volatile Organic Compounds (ug/kg)**

|                             |    |    |    |    |         |
|-----------------------------|----|----|----|----|---------|
| 1,1,1,2-Tetrachloroethane   | NA | NA | NA | NA | 0.63 U  |
| 1,1,1-Trichloroethane       | NA | NA | NA | NA | 0.57 UJ |
| 1,1,2,2-Tetrachloroethane   | NA | NA | NA | NA | 1.4 U   |
| 1,1,2-Trichloroethane       | NA | NA | NA | NA | 1.2 U   |
| 1,1-Dichloroethane          | NA | NA | NA | NA | 0.49 U  |
| 1,1-Dichloroethene          | NA | NA | NA | NA | 0.53 U  |
| 1,2,3-Trichloropropane      | NA | NA | NA | NA | 1.4 U   |
| 1,2-Dibromo-3-Chloropropane | NA | NA | NA | NA | 2.8 U   |
| 1,2-Dichloroethane          | NA | NA | NA | NA | 0.99 U  |
| 1,2-Dichloropropane         | NA | NA | NA | NA | 1.1 U   |
| 2-Butanone (MEK)            | NA | NA | NA | NA | 2.7 UJ  |
| 2-Chloro-1,3-butadiene      | NA | NA | NA | NA | 0.56 U  |
| 2-Hexanone                  | NA | NA | NA | NA | 2.1 U   |
| 3-Chloro-1-propene          | NA | NA | NA | NA | 1.5 UJ  |
| 4-Methyl-2-pentanone (MIBK) | NA | NA | NA | NA | 2.9 UJ  |
| Acetone                     | NA | NA | NA | NA | 24 J    |
| Acetonitrile                | NA | NA | NA | NA | 44 UJ   |
| Acrolein                    | NA | NA | NA | NA | 19 U    |
| Acrylonitrile               | NA | NA | NA | NA | 23 UJ   |
| Benzene                     | NA | NA | NA | NA | 0.78 U  |
| Bromoform                   | NA | NA | NA | NA | 1.1 U   |
| Bromomethane                | NA | NA | NA | NA | 1.6 U   |
| Carbon disulfide            | NA | NA | NA | NA | 0.5 U   |
| Carbon tetrachloride        | NA | NA | NA | NA | 0.99 UJ |
| Chlorobenzene               | NA | NA | NA | NA | 0.72 U  |
| Chlorodibromomethane        | NA | NA | NA | NA | 0.49 U  |
| Chloroethane                | NA | NA | NA | NA | 1.2 UJ  |
| Chloroform                  | NA | NA | NA | NA | 0.49 U  |
| Chloromethane               | NA | NA | NA | NA | 0.7 U   |
| cis-1,3-Dichloropropene     | NA | NA | NA | NA | 0.86 UJ |
| Dibromomethane              | NA | NA | NA | NA | 1.2 U   |
| Dichlorobromomethane        | NA | NA | NA | NA | 0.82 U  |
| Dichlorodifluoromethane     | NA | NA | NA | NA | 0.88 U  |
| Ethyl methacrylate          | NA | NA | NA | NA | 2.2 U   |
| Ethylbenzene                | NA | NA | NA | NA | 0.74 U  |
| Ethylene Dibromide          | NA | NA | NA | NA | 1.5 U   |
| Iodomethane                 | NA | NA | NA | NA | 0.99 UJ |
| Isobutyl alcohol            | NA | NA | NA | NA | 68 R    |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB01    | 62SB01    | 62SB02    | 62SB02    | 62SB03    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB01-03 | 62SB01-05 | 62SB02-01 | 62SB02-03 | 62SB03-01 |
| Sample Date | 5/31/2008 | 5/31/2008 | 6/1/2008  | 6/1/2008  | 6/1/2008  |
| Depth Range | 5.0-7.0   | 9.0-11.0  | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   |

**Volatile Organic Compounds (ug/kg)**

|                             |    |    |    |    |        |
|-----------------------------|----|----|----|----|--------|
| Methacrylonitrile           | NA | NA | NA | NA | 24 UJ  |
| Methyl methacrylate         | NA | NA | NA | NA | 3.7 UJ |
| Methylene Chloride          | NA | NA | NA | NA | 0.99 U |
| Pentachloroethane           | NA | NA | NA | NA | 2.2 R  |
| Propionitrile               | NA | NA | NA | NA | 21 UJ  |
| Styrene                     | NA | NA | NA | NA | 0.65 U |
| Tetrachloroethene           | NA | NA | NA | NA | 0.72 U |
| Toluene                     | NA | NA | NA | NA | 0.78 U |
| trans-1,2-Dichloroethene    | NA | NA | NA | NA | 0.96 U |
| trans-1,3-Dichloropropene   | NA | NA | NA | NA | 0.86 U |
| trans-1,4-Dichloro-2-butene | NA | NA | NA | NA | 3.1 U  |
| Trichloroethene             | NA | NA | NA | NA | 0.99 U |
| Trichlorofluoromethane      | NA | NA | NA | NA | 1.5 U  |
| Vinyl acetate               | NA | NA | NA | NA | 1.5 UJ |
| Vinyl chloride              | NA | NA | NA | NA | 0.57 U |
| Xylenes, Total              | NA | NA | NA | NA | 2.3 U  |

**Semivolatile Organic Compounds (ug/kg)**

|                              |    |    |    |    |       |
|------------------------------|----|----|----|----|-------|
| 1,1'-Biphenyl                | NA | NA | NA | NA | 8.1 U |
| 1,2,4,5-Tetrachlorobenzene   | NA | NA | NA | NA | 6.9 U |
| 1,2,4-Trichlorobenzene       | NA | NA | NA | NA | 8.1 U |
| 1,2-Dichlorobenzene          | NA | NA | NA | NA | 7.7 U |
| 1,3,5-Trinitrobenzene        | NA | NA | NA | NA | 19 U  |
| 1,3-Dichlorobenzene          | NA | NA | NA | NA | 6.6 U |
| 1,3-Dinitrobenzene           | NA | NA | NA | NA | 4.3 U |
| 1,4-Dichlorobenzene          | NA | NA | NA | NA | 6.8 U |
| 1,4-Dioxane                  | NA | NA | NA | NA | 8.8 U |
| 1,4-Naphthoquinone           | NA | NA | NA | NA | 4.3 U |
| 2,2'-oxybis[1-chloropropane] | NA | NA | NA | NA | 6.9 U |
| 2,3,4,6-Tetrachlorophenol    | NA | NA | NA | NA | 4.6 U |
| 2,4,5-Trichlorophenol        | NA | NA | NA | NA | 7.5 U |
| 2,4,6-Trichlorophenol        | NA | NA | NA | NA | 8.7 U |
| 2,4-Dichlorophenol           | NA | NA | NA | NA | 8.9 U |
| 2,4-Dimethylphenol           | NA | NA | NA | NA | 19 U  |
| 2,4-Dinitrophenol            | NA | NA | NA | NA | 91 UJ |
| 2,4-Dinitrotoluene           | NA | NA | NA | NA | 6.5 U |
| 2,6-Dichlorophenol           | NA | NA | NA | NA | 7 U   |
| 2,6-Dinitrotoluene           | NA | NA | NA | NA | 6.8 U |
| 2-Acetylaminofluorene        | NA | NA | NA | NA | 5.6 U |
| 2-Chloronaphthalene          | NA | NA | NA | NA | 6.8 U |
| 2-Chlorophenol               | NA | NA | NA | NA | 7.3 U |
| 2-Methylnaphthalene          | NA | NA | NA | NA | 1.9 U |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB01    | 62SB01    | 62SB02    | 62SB02    | 62SB03    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB01-03 | 62SB01-05 | 62SB02-01 | 62SB02-03 | 62SB03-01 |
| Sample Date | 5/31/2008 | 5/31/2008 | 6/1/2008  | 6/1/2008  | 6/1/2008  |
| Depth Range | 5.0-7.0   | 9.0-11.0  | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   |

**Semivolatile Organic Compounds (ug/kg)**

|                                     |    |    |    |    |         |
|-------------------------------------|----|----|----|----|---------|
| 2-Methylphenol                      | NA | NA | NA | NA | 8.9 U   |
| 2-Naphthylamine                     | NA | NA | NA | NA | 22 UJ   |
| 2-Nitroaniline                      | NA | NA | NA | NA | 7.1 U   |
| 2-Nitrophenol                       | NA | NA | NA | NA | 8 U     |
| 2-Picoline                          | NA | NA | NA | NA | 13 U    |
| 2-Toluidine                         | NA | NA | NA | NA | 10 U    |
| 3 & 4 Methylphenol                  | NA | NA | NA | NA | 8 U     |
| 3,3'-Dichlorobenzidine              | NA | NA | NA | NA | 10 UJ   |
| 3,3'-Dimethylbenzidine              | NA | NA | NA | NA | 200 U   |
| 3-Methylcholanthrene                | NA | NA | NA | NA | 6.7 UJ  |
| 3-Nitroaniline                      | NA | NA | NA | NA | 4.9 U   |
| 4,6-Dinitro-2-methylphenol          | NA | NA | NA | NA | 6.4 U   |
| 4-Aminobiphenyl                     | NA | NA | NA | NA | 14 U    |
| 4-Bromophenyl phenyl ether          | NA | NA | NA | NA | 7.8 U   |
| 4-Chloro-3-methylphenol             | NA | NA | NA | NA | 8.2 U   |
| 4-Chloroaniline                     | NA | NA | NA | NA | 6.6 U   |
| 4-Chlorophenyl phenyl ether         | NA | NA | NA | NA | 6.8 U   |
| 4-Nitroaniline                      | NA | NA | NA | NA | 8.5 U   |
| 4-Nitrophenol                       | NA | NA | NA | NA | 36 U    |
| 4-Nitroquinoline-1-oxide            | NA | NA | NA | NA | 12 R    |
| 7,12-Dimethylbenz(a)anthracene      | NA | NA | NA | NA | 10 UJ   |
| Acenaphthene                        | NA | NA | NA | NA | 0.63 U  |
| Acenaphthylene                      | NA | NA | NA | NA | 1.9 U   |
| Acetophenone                        | NA | NA | NA | NA | 9.5 U   |
| alpha,alpha-Dimethyl phenethylamine | NA | NA | NA | NA | 65 UJ   |
| Aniline                             | NA | NA | NA | NA | 6.9 U   |
| Anthracene                          | NA | NA | NA | NA | 1.9 U   |
| Aramite, Total                      | NA | NA | NA | NA | 12 U    |
| Benzo[a]anthracene                  | NA | NA | NA | NA | 1.9 U   |
| Benzo[a]pyrene                      | NA | NA | NA | NA | 0.73 UJ |
| Benzo[b]fluoranthene                | NA | NA | NA | NA | 0.84 UJ |
| Benzo[g,h,i]perylene                | NA | NA | NA | NA | 1.9 UJ  |
| Benzo[k]fluoranthene                | NA | NA | NA | NA | 1.1 UJ  |
| Benzyl alcohol                      | NA | NA | NA | NA | 8.8 U   |
| Bis(2-chloroethoxy)methane          | NA | NA | NA | NA | 7.5 U   |
| Bis(2-chloroethyl)ether             | NA | NA | NA | NA | 6.3 U   |
| Bis(2-ethylhexyl) phthalate         | NA | NA | NA | NA | 5.3 U   |
| Butyl benzyl phthalate              | NA | NA | NA | NA | 7.9 U   |
| Chrysene                            | NA | NA | NA | NA | 0.67 U  |
| Diallate                            | NA | NA | NA | NA | 11 U    |
| Dibenz(a,h)anthracene               | NA | NA | NA | NA | 0.65 UJ |
| Dibenzofuran                        | NA | NA | NA | NA | 4.6 U   |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|   | Site ID     | 62SB01    | 62SB01    | 62SB02    | 62SB02    | 62SB03    |
|---|-------------|-----------|-----------|-----------|-----------|-----------|
|   | Sample ID   | 62SB01-03 | 62SB01-05 | 62SB02-01 | 62SB02-03 | 62SB03-01 |
|   | Sample Date | 5/31/2008 | 5/31/2008 | 6/1/2008  | 6/1/2008  | 6/1/2008  |
|   | Depth Range | 5.0-7.0   | 9.0-11.0  | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |             |           |           |           |           |           |
| Diethyl phthalate                             |             | NA        | NA        | NA        | NA        | 12 U      |
| Dimethyl phthalate                            |             | NA        | NA        | NA        | NA        | 7 U       |
| Di-n-butyl phthalate                          |             | NA        | NA        | NA        | NA        | 27 U      |
| Di-n-octyl phthalate                          |             | NA        | NA        | NA        | NA        | 3.6 UJ    |
| Dinoseb                                       |             | NA        | NA        | NA        | NA        | 19 UJ     |
| Ethyl methanesulfonate                        |             | NA        | NA        | NA        | NA        | 12 U      |
| Fluoranthene                                  |             | NA        | NA        | NA        | NA        | 1.9 U     |
| Fluorene                                      |             | NA        | NA        | NA        | NA        | 0.85 U    |
| Hexachlorobenzene                             |             | NA        | NA        | NA        | NA        | 7.5 U     |
| Hexachlorobutadiene                           |             | NA        | NA        | NA        | NA        | 10 U      |
| Hexachlorocyclopentadiene                     |             | NA        | NA        | NA        | NA        | 15 U      |
| Hexachloroethane                              |             | NA        | NA        | NA        | NA        | 8.1 U     |
| Hexachlorophene                               |             | NA        | NA        | NA        | NA        | 910 R     |
| Hexachloropropene                             |             | NA        | NA        | NA        | NA        | 7.9 U     |
| Indeno[1,2,3-cd]pyrene                        |             | NA        | NA        | NA        | NA        | 1.3 UJ    |
| Isophorone                                    |             | NA        | NA        | NA        | NA        | 6.8 U     |
| Isosafrole                                    |             | NA        | NA        | NA        | NA        | 7.8 U     |
| Methapyrilene                                 |             | NA        | NA        | NA        | NA        | 10 U      |
| Methyl methanesulfonate                       |             | NA        | NA        | NA        | NA        | 10 U      |
| Naphthalene                                   |             | NA        | NA        | NA        | NA        | 0.66 U    |
| Nitrobenzene                                  |             | NA        | NA        | NA        | NA        | 7.6 U     |
| N-Nitro-o-toluidine                           |             | NA        | NA        | NA        | NA        | 6.6 U     |
| N-Nitrosodiethylamine                         |             | NA        | NA        | NA        | NA        | 13 U      |
| N-Nitrosodimethylamine                        |             | NA        | NA        | NA        | NA        | 11 U      |
| N-Nitrosodi-n-butylamine                      |             | NA        | NA        | NA        | NA        | 10 U      |
| N-Nitrosodi-n-propylamine                     |             | NA        | NA        | NA        | NA        | 7.1 U     |
| N-Nitrosodiphenylamine                        |             | NA        | NA        | NA        | NA        | 7.8 U     |
| N-Nitrosomethylethylamine                     |             | NA        | NA        | NA        | NA        | 6.3 U     |
| N-Nitrosomorpholine                           |             | NA        | NA        | NA        | NA        | 7.3 U     |
| N-Nitrosopiperidine                           |             | NA        | NA        | NA        | NA        | 9.3 U     |
| N-Nitrosopyrrolidine                          |             | NA        | NA        | NA        | NA        | 9.8 U     |
| p-Dimethylamino azobenzene                    |             | NA        | NA        | NA        | NA        | 7.8 U     |
| Pentachlorobenzene                            |             | NA        | NA        | NA        | NA        | 6.8 U     |
| Pentachloronitrobenzene                       |             | NA        | NA        | NA        | NA        | 6.5 U     |
| Pentachlorophenol                             |             | NA        | NA        | NA        | NA        | 9.1 U     |
| Phenacetin                                    |             | NA        | NA        | NA        | NA        | 5.2 U     |
| Phenanthrene                                  |             | NA        | NA        | NA        | NA        | 1.9 U     |
| Phenol  |             | NA        | NA        | NA        | NA        | 5.3 U     |
| p-Phenylene diamine                           |             | NA        | NA        | NA        | NA        | 180 U     |
| Pronamide                                     |             | NA        | NA        | NA        | NA        | 9.9 U     |
| Pyrene  |             | NA        | NA        | NA        | NA        | 1.9 U     |
| Pyridine                                      |             | NA        | NA        | NA        | NA        | 12 U      |
| Safrole, Total                                |             | NA        | NA        | NA        | NA        | 9.1 U     |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB01    | 62SB01    | 62SB02    | 62SB02    | 62SB03    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB01-03 | 62SB01-05 | 62SB02-01 | 62SB02-03 | 62SB03-01 |
| Sample Date | 5/31/2008 | 5/31/2008 | 6/1/2008  | 6/1/2008  | 6/1/2008  |
| Depth Range | 5.0-7.0   | 9.0-11.0  | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   |

**Pesticides (ug/kg)**

|                       |    |    |    |    |         |
|-----------------------|----|----|----|----|---------|
| 4,4'-DDD              | NA | NA | NA | NA | 0.4 U   |
| 4,4'-DDE              | NA | NA | NA | NA | 0.35 U  |
| 4,4'-DDT              | NA | NA | NA | NA | 0.57 U  |
| Aldrin                | NA | NA | NA | NA | 0.12 U  |
| alpha-BHC             | NA | NA | NA | NA | 0.091 U |
| beta-BHC              | NA | NA | NA | NA | 0.24 U  |
| Chlordane (technical) | NA | NA | NA | NA | 1.5 U   |
| Chlorobenzilate       | NA | NA | NA | NA | 5.2 U   |
| delta-BHC             | NA | NA | NA | NA | 0.13 U  |
| Dieldrin              | NA | NA | NA | NA | 0.34 U  |
| Endosulfan I          | NA | NA | NA | NA | 0.31 U  |
| Endosulfan II         | NA | NA | NA | NA | 0.75 U  |
| Endosulfan sulfate    | NA | NA | NA | NA | 0.3 U   |
| Endrin                | NA | NA | NA | NA | 0.37 U  |
| Endrin aldehyde       | NA | NA | NA | NA | 0.7 U   |
| Endrin ketone         | NA | NA | NA | NA | 0.37 U  |
| gamma-BHC (Lindane)   | NA | NA | NA | NA | 0.11 U  |
| Heptachlor            | NA | NA | NA | NA | 0.25 U  |
| Heptachlor epoxide    | NA | NA | NA | NA | 0.11 U  |
| Isodrin               | NA | NA | NA | NA | 0.24 U  |
| Kepone                | NA | NA | NA | NA | 1.5 U   |
| Methoxychlor          | NA | NA | NA | NA | 0.88 U  |
| Toxaphene             | NA | NA | NA | NA | 46 U    |
| <b>PCB's (ug/kg)</b>  |    |    |    |    |         |
| PCB-1016              | NA | NA | NA | NA | 4.2 U   |
| PCB-1221              | NA | NA | NA | NA | 14 U    |
| PCB-1232              | NA | NA | NA | NA | 8.3 U   |
| PCB-1242              | NA | NA | NA | NA | 5.3 U   |
| PCB-1248              | NA | NA | NA | NA | 5.6 U   |
| PCB-1254              | NA | NA | NA | NA | 2.5 U   |
| PCB-1260              | NA | NA | NA | NA | 5.3 U   |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|                       | Site ID     | 62SB01    | 62SB01    | 62SB02    | 62SB02    | 62SB03    |
|-----------------------|-------------|-----------|-----------|-----------|-----------|-----------|
|                       | Sample ID   | 62SB01-03 | 62SB01-05 | 62SB02-01 | 62SB02-03 | 62SB03-01 |
|                       | Sample Date | 5/31/2008 | 5/31/2008 | 6/1/2008  | 6/1/2008  | 6/1/2008  |
|                       | Depth Range | 5.0-7.0   | 9.0-11.0  | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   |
| <b>Metals (mg/kg)</b> |             |           |           |           |           |           |
| Antimony              |             | 0.078 UJ  | 0.083 UJ  | 0.079 UJ  | 0.078 UJ  | 0.079 UJ  |
| Arsenic               |             | 1.1       | 1.1       | 1         | 1.1       | 1.2       |
| Barium                |             | 66        | 87        | 79        | 18        | 41        |
| Beryllium             |             | 0.38      | 0.46      | 0.49      | 0.26      | 0.51      |
| Cadmium               |             | 0.032 U   | 0.034 U   | 0.033 U   | 0.032 U   | 0.033 U   |
| Chromium              |             | 38        | 31        | 17        | 18        | 7.6       |
| Cobalt                |             | 11        | 14        | 3.8       | 1.9       | 6.8       |
| Copper                |             | 19        | 17        | 13        | 4.2       | 16        |
| Lead                  |             | 2.4       | 1.7       | 1.2       | 0.83      | 1.3       |
| Mercury               |             | 0.018 J   | 0.053     | 0.0048 J  | 0.0038 U  | 0.0044 U  |
| Nickel                |             | 5.3       | 6.1       | 3.7       | 3.2       | 2.2       |
| Selenium              |             | 0.13 U    | 0.16 J    | 0.14 J    | 0.17 J    | 0.16 J    |
| Silver                |             | 0.017 UJ  | 0.018 UJ  | 0.017 UJ  | 0.017 UJ  | 0.017 UJ  |
| Thallium              |             | 0.13 U    | 0.13 U    | 0.13 U    | 0.12 U    | 0.13 U    |
| Tin                   |             | 4.2 U     | 4.4 U     | 4.2 U     | 4.1 U     | 4.2 U     |
| Vanadium              |             | 86 J      | 130 J     | 41 J      | 35 J      | 34 J      |
| Zinc                  |             | 13        | 16        | 9.9       | 5.3       | 7.4       |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB03    | 62SB04    | 62SB04     | 62SB04    | 62SB05    |
|-------------|-----------|-----------|------------|-----------|-----------|
| Sample ID   | 62SB03-05 | 62SB04-03 | 62SB04-03D | 62SB04-05 | 62SB05-01 |
| Sample Date | 6/1/2008  | 5/31/2008 | 5/31/2008  | 5/31/2008 | 6/1/2008  |
| Depth Range | 9.0-11.0  | 5.0-7.0   | 5.0-7.0    | 9.0-11.0  | 1.0-3.0   |

**Volatile Organic Compounds (ug/kg)**

|                             |         |    |    |    |    |
|-----------------------------|---------|----|----|----|----|
| 1,1,1,2-Tetrachloroethane   | 0.77 U  | NA | NA | NA | NA |
| 1,1,1-Trichloroethane       | 0.69 UJ | NA | NA | NA | NA |
| 1,1,2,2-Tetrachloroethane   | 1.7 U   | NA | NA | NA | NA |
| 1,1,2-Trichloroethane       | 1.4 U   | NA | NA | NA | NA |
| 1,1-Dichloroethane          | 0.6 U   | NA | NA | NA | NA |
| 1,1-Dichloroethene          | 0.65 U  | NA | NA | NA | NA |
| 1,2,3-Trichloropropane      | 1.7 U   | NA | NA | NA | NA |
| 1,2-Dibromo-3-Chloropropane | 3.4 U   | NA | NA | NA | NA |
| 1,2-Dichloroethane          | 1.2 U   | NA | NA | NA | NA |
| 1,2-Dichloropropane         | 1.3 U   | NA | NA | NA | NA |
| 2-Butanone (MEK)            | 3.2 UJ  | NA | NA | NA | NA |
| 2-Chloro-1,3-butadiene      | 0.68 U  | NA | NA | NA | NA |
| 2-Hexanone                  | 2.5 U   | NA | NA | NA | NA |
| 3-Chloro-1-propene          | 1.8 UJ  | NA | NA | NA | NA |
| 4-Methyl-2-pentanone (MIBK) | 3.5 UJ  | NA | NA | NA | NA |
| Acetone                     | 10 J    | NA | NA | NA | NA |
| Acetonitrile                | 54 UJ   | NA | NA | NA | NA |
| Acrolein                    | 23 U    | NA | NA | NA | NA |
| Acrylonitrile               | 28 UJ   | NA | NA | NA | NA |
| Benzene                     | 0.95 U  | NA | NA | NA | NA |
| Bromoform                   | 1.3 U   | NA | NA | NA | NA |
| Bromomethane                | 1.9 U   | NA | NA | NA | NA |
| Carbon disulfide            | 0.61 U  | NA | NA | NA | NA |
| Carbon tetrachloride        | 1.2 UJ  | NA | NA | NA | NA |
| Chlorobenzene               | 0.87 U  | NA | NA | NA | NA |
| Chlorodibromomethane        | 0.6 U   | NA | NA | NA | NA |
| Chloroethane                | 1.4 UJ  | NA | NA | NA | NA |
| Chloroform                  | 0.6 U   | NA | NA | NA | NA |
| Chloromethane               | 0.85 U  | NA | NA | NA | NA |
| cis-1,3-Dichloropropene     | 1 UJ    | NA | NA | NA | NA |
| Dibromomethane              | 1.4 U   | NA | NA | NA | NA |
| Dichlorobromomethane        | 0.99 U  | NA | NA | NA | NA |
| Dichlorodifluoromethane     | 1.1 U   | NA | NA | NA | NA |
| Ethyl methacrylate          | 2.6 U   | NA | NA | NA | NA |
| Ethylbenzene                | 0.9 U   | NA | NA | NA | NA |
| Ethylene Dibromide          | 1.8 U   | NA | NA | NA | NA |
| Iodomethane                 | 1.2 UJ  | NA | NA | NA | NA |
| Isobutyl alcohol            | 83 R    | NA | NA | NA | NA |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB03    | 62SB04    | 62SB04     | 62SB04    | 62SB05    |
|-------------|-----------|-----------|------------|-----------|-----------|
| Sample ID   | 62SB03-05 | 62SB04-03 | 62SB04-03D | 62SB04-05 | 62SB05-01 |
| Sample Date | 6/1/2008  | 5/31/2008 | 5/31/2008  | 5/31/2008 | 6/1/2008  |
| Depth Range | 9.0-11.0  | 5.0-7.0   | 5.0-7.0    | 9.0-11.0  | 1.0-3.0   |

**Volatile Organic Compounds (ug/kg)**

|                             |        |    |    |    |    |
|-----------------------------|--------|----|----|----|----|
| Methacrylonitrile           | 29 UJ  | NA | NA | NA | NA |
| Methyl methacrylate         | 4.4 UJ | NA | NA | NA | NA |
| Methylene Chloride          | 1.2 U  | NA | NA | NA | NA |
| Pentachloroethane           | 2.6 R  | NA | NA | NA | NA |
| Propionitrile               | 25 UJ  | NA | NA | NA | NA |
| Styrene                     | 0.79 U | NA | NA | NA | NA |
| Tetrachloroethene           | 0.87 U | NA | NA | NA | NA |
| Toluene                     | 0.95 U | NA | NA | NA | NA |
| trans-1,2-Dichloroethene    | 1.2 U  | NA | NA | NA | NA |
| trans-1,3-Dichloropropene   | 1 U    | NA | NA | NA | NA |
| trans-1,4-Dichloro-2-butene | 3.7 U  | NA | NA | NA | NA |
| Trichloroethene             | 1.2 U  | NA | NA | NA | NA |
| Trichlorofluoromethane      | 1.8 U  | NA | NA | NA | NA |
| Vinyl acetate               | 1.8 UJ | NA | NA | NA | NA |
| Vinyl chloride              | 0.69 U | NA | NA | NA | NA |
| Xylenes, Total              | 2.8 U  | NA | NA | NA | NA |

**Semivolatile Organic Compounds (ug/kg)**

|                              |       |    |    |    |    |
|------------------------------|-------|----|----|----|----|
| 1,1'-Biphenyl                | 7.7 R | NA | NA | NA | NA |
| 1,2,4,5-Tetrachlorobenzene   | 6.5 R | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene       | 7.7 R | NA | NA | NA | NA |
| 1,2-Dichlorobenzene          | 7.3 R | NA | NA | NA | NA |
| 1,3,5-Trinitrobenzene        | 18 R  | NA | NA | NA | NA |
| 1,3-Dichlorobenzene          | 6.2 R | NA | NA | NA | NA |
| 1,3-Dinitrobenzene           | 4 R   | NA | NA | NA | NA |
| 1,4-Dichlorobenzene          | 6.4 R | NA | NA | NA | NA |
| 1,4-Dioxane                  | 8.3 R | NA | NA | NA | NA |
| 1,4-Naphthoquinone           | 4 R   | NA | NA | NA | NA |
| 2,2'-oxybis[1-chloropropane] | 6.5 R | NA | NA | NA | NA |
| 2,3,4,6-Tetrachlorophenol    | 4.4 R | NA | NA | NA | NA |
| 2,4,5-Trichlorophenol        | 7.1 R | NA | NA | NA | NA |
| 2,4,6-Trichlorophenol        | 8.2 R | NA | NA | NA | NA |
| 2,4-Dichlorophenol           | 8.4 R | NA | NA | NA | NA |
| 2,4-Dimethylphenol           | 18 R  | NA | NA | NA | NA |
| 2,4-Dinitrophenol            | 86 R  | NA | NA | NA | NA |
| 2,4-Dinitrotoluene           | 6.1 R | NA | NA | NA | NA |
| 2,6-Dichlorophenol           | 6.6 R | NA | NA | NA | NA |
| 2,6-Dinitrotoluene           | 6.4 R | NA | NA | NA | NA |
| 2-Acetylaminofluorene        | 5.3 R | NA | NA | NA | NA |
| 2-Chloronaphthalene          | 6.4 R | NA | NA | NA | NA |
| 2-Chlorophenol               | 6.8 R | NA | NA | NA | NA |
| 2-Methylnaphthalene          | 1.8 R | NA | NA | NA | NA |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB03    | 62SB04    | 62SB04     | 62SB04    | 62SB05    |
|-------------|-----------|-----------|------------|-----------|-----------|
| Sample ID   | 62SB03-05 | 62SB04-03 | 62SB04-03D | 62SB04-05 | 62SB05-01 |
| Sample Date | 6/1/2008  | 5/31/2008 | 5/31/2008  | 5/31/2008 | 6/1/2008  |
| Depth Range | 9.0-11.0  | 5.0-7.0   | 5.0-7.0    | 9.0-11.0  | 1.0-3.0   |

**Semivolatile Organic Compounds (ug/kg)**

|                                     |        |    |    |    |    |
|-------------------------------------|--------|----|----|----|----|
| 2-Methylphenol                      | 8.4 R  | NA | NA | NA | NA |
| 2-Naphthylamine                     | 21 R   | NA | NA | NA | NA |
| 2-Nitroaniline                      | 6.7 R  | NA | NA | NA | NA |
| 2-Nitrophenol                       | 7.6 R  | NA | NA | NA | NA |
| 2-Picoline                          | 12 R   | NA | NA | NA | NA |
| 2-Toluidine                         | 9.6 R  | NA | NA | NA | NA |
| 3 & 4 Methylphenol                  | 7.6 R  | NA | NA | NA | NA |
| 3,3'-Dichlorobenzidine              | 9.5 R  | NA | NA | NA | NA |
| 3,3'-Dimethylbenzidine              | 190 R  | NA | NA | NA | NA |
| 3-Methylcholanthrene                | 6.3 R  | NA | NA | NA | NA |
| 3-Nitroaniline                      | 4.7 R  | NA | NA | NA | NA |
| 4,6-Dinitro-2-methylphenol          | 6 R    | NA | NA | NA | NA |
| 4-Aminobiphenyl                     | 13 R   | NA | NA | NA | NA |
| 4-Bromophenyl phenyl ether          | 7.4 R  | NA | NA | NA | NA |
| 4-Chloro-3-methylphenol             | 7.8 R  | NA | NA | NA | NA |
| 4-Chloroaniline                     | 6.2 R  | NA | NA | NA | NA |
| 4-Chlorophenyl phenyl ether         | 6.4 R  | NA | NA | NA | NA |
| 4-Nitroaniline                      | 8 R    | NA | NA | NA | NA |
| 4-Nitrophenol                       | 34 R   | NA | NA | NA | NA |
| 4-Nitroquinoline-1-oxide            | 11 R   | NA | NA | NA | NA |
| 7,12-Dimethylbenz(a)anthracene      | 9.6 R  | NA | NA | NA | NA |
| Acenaphthene                        | 0.59 R | NA | NA | NA | NA |
| Acenaphthylene                      | 1.8 R  | NA | NA | NA | NA |
| Acetophenone                        | 8.9 R  | NA | NA | NA | NA |
| alpha,alpha-Dimethyl phenethylamine | 61 R   | NA | NA | NA | NA |
| Aniline                             | 6.5 R  | NA | NA | NA | NA |
| Anthracene                          | 1.8 R  | NA | NA | NA | NA |
| Aramite, Total                      | 11 R   | NA | NA | NA | NA |
| Benzo[a]anthracene                  | 1.8 R  | NA | NA | NA | NA |
| Benzo[a]pyrene                      | 0.68 R | NA | NA | NA | NA |
| Benzo[b]fluoranthene                | 0.79 R | NA | NA | NA | NA |
| Benzo[g,h,i]perylene                | 1.8 R  | NA | NA | NA | NA |
| Benzo[k]fluoranthene                | 1 R    | NA | NA | NA | NA |
| Benzyl alcohol                      | 8.3 R  | NA | NA | NA | NA |
| Bis(2-chloroethoxy)methane          | 7.1 R  | NA | NA | NA | NA |
| Bis(2-chloroethyl)ether             | 5.9 R  | NA | NA | NA | NA |
| Bis(2-ethylhexyl) phthalate         | 19 R   | NA | NA | NA | NA |
| Butyl benzyl phthalate              | 7.5 R  | NA | NA | NA | NA |
| Chrysene                            | 0.63 R | NA | NA | NA | NA |
| Diallate                            | 10 R   | NA | NA | NA | NA |
| Dibenz(a,h)anthracene               | 0.61 R | NA | NA | NA | NA |
| Dibenzofuran                        | 4.4 R  | NA | NA | NA | NA |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|   | Site ID     | 62SB03    | 62SB04    | 62SB04     | 62SB04    | 62SB05    |
|---|-------------|-----------|-----------|------------|-----------|-----------|
|   | Sample ID   | 62SB03-05 | 62SB04-03 | 62SB04-03D | 62SB04-05 | 62SB05-01 |
|   | Sample Date | 6/1/2008  | 5/31/2008 | 5/31/2008  | 5/31/2008 | 6/1/2008  |
|   | Depth Range | 9.0-11.0  | 5.0-7.0   | 5.0-7.0    | 9.0-11.0  | 1.0-3.0   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |             |           |           |            |           |           |
| Diethyl phthalate                             |             | 11 R      | NA        | NA         | NA        | NA        |
| Dimethyl phthalate                            |             | 6.6 R     | NA        | NA         | NA        | NA        |
| Di-n-butyl phthalate                          |             | 26 R      | NA        | NA         | NA        | NA        |
| Di-n-octyl phthalate                          |             | 3.4 R     | NA        | NA         | NA        | NA        |
| Dinoseb                                       |             | 18 R      | NA        | NA         | NA        | NA        |
| Ethyl methanesulfonate                        |             | 11 R      | NA        | NA         | NA        | NA        |
| Fluoranthene                                  |             | 1.8 R     | NA        | NA         | NA        | NA        |
| Fluorene                                      |             | 0.8 R     | NA        | NA         | NA        | NA        |
| Hexachlorobenzene                             |             | 7.1 R     | NA        | NA         | NA        | NA        |
| Hexachlorobutadiene                           |             | 9.4 R     | NA        | NA         | NA        | NA        |
| Hexachlorocyclopentadiene                     |             | 15 R      | NA        | NA         | NA        | NA        |
| Hexachloroethane                              |             | 7.7 R     | NA        | NA         | NA        | NA        |
| Hexachlorophene                               |             | 860 R     | NA        | NA         | NA        | NA        |
| Hexachloropropene                             |             | 7.5 R     | NA        | NA         | NA        | NA        |
| Indeno[1,2,3-cd]pyrene                        |             | 1.2 R     | NA        | NA         | NA        | NA        |
| Isophorone                                    |             | 6.4 R     | NA        | NA         | NA        | NA        |
| Isosafrole                                    |             | 7.4 R     | NA        | NA         | NA        | NA        |
| Methapyrilene                                 |             | 9.6 R     | NA        | NA         | NA        | NA        |
| Methyl methanesulfonate                       |             | 9.6 R     | NA        | NA         | NA        | NA        |
| Naphthalene                                   |             | 0.62 R    | NA        | NA         | NA        | NA        |
| Nitrobenzene                                  |             | 7.2 R     | NA        | NA         | NA        | NA        |
| N-Nitro-o-toluidine                           |             | 6.2 R     | NA        | NA         | NA        | NA        |
| N-Nitrosodiethylamine                         |             | 12 R      | NA        | NA         | NA        | NA        |
| N-Nitrosodimethylamine                        |             | 10 R      | NA        | NA         | NA        | NA        |
| N-Nitrosodi-n-butylamine                      |             | 9.4 R     | NA        | NA         | NA        | NA        |
| N-Nitrosodi-n-propylamine                     |             | 6.7 R     | NA        | NA         | NA        | NA        |
| N-Nitrosodiphenylamine                        |             | 7.4 R     | NA        | NA         | NA        | NA        |
| N-Nitrosomethylethylamine                     |             | 5.9 R     | NA        | NA         | NA        | NA        |
| N-Nitrosomorpholine                           |             | 6.8 R     | NA        | NA         | NA        | NA        |
| N-Nitrosopiperidine                           |             | 8.8 R     | NA        | NA         | NA        | NA        |
| N-Nitrosopyrrolidine                          |             | 9.2 R     | NA        | NA         | NA        | NA        |
| p-Dimethylamino azobenzene                    |             | 7.4 R     | NA        | NA         | NA        | NA        |
| Pentachlorobenzene                            |             | 6.4 R     | NA        | NA         | NA        | NA        |
| Pentachloronitrobenzene                       |             | 6.1 R     | NA        | NA         | NA        | NA        |
| Pentachlorophenol                             |             | 8.6 R     | NA        | NA         | NA        | NA        |
| Phenacetin                                    |             | 4.9 R     | NA        | NA         | NA        | NA        |
| Phenanthrene                                  |             | 1.8 R     | NA        | NA         | NA        | NA        |
| Phenol  |             | 5 R       | NA        | NA         | NA        | NA        |
| p-Phenylene diamine                           |             | 170 R     | NA        | NA         | NA        | NA        |
| Pronamide                                     |             | 9.3 R     | NA        | NA         | NA        | NA        |
| Pyrene  |             | 1.8 R     | NA        | NA         | NA        | NA        |
| Pyridine                                      |             | 11 R      | NA        | NA         | NA        | NA        |
| Safrole, Total                                |             | 8.6 R     | NA        | NA         | NA        | NA        |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB03    | 62SB04    | 62SB04     | 62SB04    | 62SB05    |
|-------------|-----------|-----------|------------|-----------|-----------|
| Sample ID   | 62SB03-05 | 62SB04-03 | 62SB04-03D | 62SB04-05 | 62SB05-01 |
| Sample Date | 6/1/2008  | 5/31/2008 | 5/31/2008  | 5/31/2008 | 6/1/2008  |
| Depth Range | 9.0-11.0  | 5.0-7.0   | 5.0-7.0    | 9.0-11.0  | 1.0-3.0   |

**Pesticides (ug/kg)**

|                       |         |    |    |    |    |
|-----------------------|---------|----|----|----|----|
| 4,4'-DDD              | 0.38 U  | NA | NA | NA | NA |
| 4,4'-DDE              | 0.33 U  | NA | NA | NA | NA |
| 4,4'-DDT              | 0.54 U  | NA | NA | NA | NA |
| Aldrin                | 0.11 U  | NA | NA | NA | NA |
| alpha-BHC             | 0.087 U | NA | NA | NA | NA |
| beta-BHC              | 0.23 U  | NA | NA | NA | NA |
| Chlordane (technical) | 1.5 U   | NA | NA | NA | NA |
| Chlorobenzilate       | 4.9 U   | NA | NA | NA | NA |
| delta-BHC             | 0.13 U  | NA | NA | NA | NA |
| Dieldrin              | 0.32 U  | NA | NA | NA | NA |
| Endosulfan I          | 0.29 U  | NA | NA | NA | NA |
| Endosulfan II         | 0.71 U  | NA | NA | NA | NA |
| Endosulfan sulfate    | 0.28 U  | NA | NA | NA | NA |
| Endrin                | 0.36 U  | NA | NA | NA | NA |
| Endrin aldehyde       | 0.67 U  | NA | NA | NA | NA |
| Endrin ketone         | 0.36 U  | NA | NA | NA | NA |
| gamma-BHC (Lindane)   | 0.1 U   | NA | NA | NA | NA |
| Heptachlor            | 0.24 U  | NA | NA | NA | NA |
| Heptachlor epoxide    | 0.1 U   | NA | NA | NA | NA |
| Isodrin               | 0.23 U  | NA | NA | NA | NA |
| Kepone                | 1.5 U   | NA | NA | NA | NA |
| Methoxychlor          | 0.84 U  | NA | NA | NA | NA |
| Toxaphene             | 44 U    | NA | NA | NA | NA |
| <b>PCB's (ug/kg)</b>  |         |    |    |    |    |
| PCB-1016              | 4 U     | NA | NA | NA | NA |
| PCB-1221              | 14 U    | NA | NA | NA | NA |
| PCB-1232              | 7.8 U   | NA | NA | NA | NA |
| PCB-1242              | 5 U     | NA | NA | NA | NA |
| PCB-1248              | 5.3 U   | NA | NA | NA | NA |
| PCB-1254              | 2.4 U   | NA | NA | NA | NA |
| PCB-1260              | 5 U     | NA | NA | NA | NA |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB03    | 62SB04    | 62SB04     | 62SB04    | 62SB05    |
|-------------|-----------|-----------|------------|-----------|-----------|
| Sample ID   | 62SB03-05 | 62SB04-03 | 62SB04-03D | 62SB04-05 | 62SB05-01 |
| Sample Date | 6/1/2008  | 5/31/2008 | 5/31/2008  | 5/31/2008 | 6/1/2008  |
| Depth Range | 9.0-11.0  | 5.0-7.0   | 5.0-7.0    | 9.0-11.0  | 1.0-3.0   |

**Metals (mg/kg)**

|           |          |          |          |          |          |
|-----------|----------|----------|----------|----------|----------|
| Antimony  | 0.073 UJ | 0.087 UJ | 0.076 UJ | 0.11 UJ  | 0.07 UJ  |
| Arsenic   | 1.9      | 1.3      | 1.4      | 1.3      | 1.2      |
| Barium    | 410      | 67       | 83       | 240      | 83       |
| Beryllium | 1        | 0.35     | 0.37     | 0.53     | 0.42     |
| Cadmium   | 0.03 U   | 0.033 J  | 0.031 U  | 0.033 U  | 0.029 U  |
| Chromium  | 2.6      | 5.3 J    | 21 J     | 39       | 1.4      |
| Cobalt    | 13       | 6.1      | 6.1      | 29       | 7.6      |
| Copper    | 37       | 11       | 11       | 15       | 5.4      |
| Lead      | 0.6      | 1.5      | 1.2      | 2.8      | 0.43     |
| Mercury   | 0.0039 U | 0.0042 U | 0.0041 U | 0.0044 U | 0.0038 U |
| Nickel    | 3        | 3 J      | 4.8 J    | 5.3      | 1.4      |
| Selenium  | 0.2 J    | 0.15 J   | 0.17 J   | 0.13 J   | 0.12 J   |
| Silver    | 0.015 UJ | 0.016 UJ | 0.016 UJ | 0.017 UJ | 0.015 UJ |
| Thallium  | 0.12 U   | 0.12 U   | 0.12 U   | 0.13 U   | 0.11 U   |
| Tin       | 3.9 U    | 4 U      | 4 U      | 4.3 U    | 3.7 U    |
| Vanadium  | 32 J     | 37 J     | 44 J     | 120 J    | 30 J     |
| Zinc      | 18       | 10       | 11       | 15       | 8.8      |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB05    | 62SB06    | 62SB06    | 62SB07    | 62SB07    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB05-02 | 62SB06-01 | 62SB06-03 | 62SB07-01 | 62SB07-02 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  |
| Depth Range | 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)**

|                             |    |        |         |    |    |
|-----------------------------|----|--------|---------|----|----|
| 1,1,1,2-Tetrachloroethane   | NA | 0.77 U | 0.76 U  | NA | NA |
| 1,1,1-Trichloroethane       | NA | 0.7 UJ | 0.68 UJ | NA | NA |
| 1,1,2,2-Tetrachloroethane   | NA | 1.7 U  | 1.7 U   | NA | NA |
| 1,1,2-Trichloroethane       | NA | 1.5 U  | 1.4 U   | NA | NA |
| 1,1-Dichloroethane          | NA | 0.6 U  | 0.59 U  | NA | NA |
| 1,1-Dichloroethene          | NA | 0.65 U | 0.64 U  | NA | NA |
| 1,2,3-Trichloropropane      | NA | 1.7 U  | 1.7 U   | NA | NA |
| 1,2-Dibromo-3-Chloropropane | NA | 3.4 U  | 3.3 U   | NA | NA |
| 1,2-Dichloroethane          | NA | 1.2 U  | 1.2 U   | NA | NA |
| 1,2-Dichloropropane         | NA | 1.3 U  | 1.3 U   | NA | NA |
| 2-Butanone (MEK)            | NA | 4.1 UJ | 3.2 UJ  | NA | NA |
| 2-Chloro-1,3-butadiene      | NA | 0.69 U | 0.67 U  | NA | NA |
| 2-Hexanone                  | NA | 2.5 U  | 2.5 U   | NA | NA |
| 3-Chloro-1-propene          | NA | 1.8 UJ | 1.8 UJ  | NA | NA |
| 4-Methyl-2-pentanone (MIBK) | NA | 3.5 UJ | 3.4 UJ  | NA | NA |
| Acetone                     | NA | 40 J   | 14 J    | NA | NA |
| Acetonitrile                | NA | 54 UJ  | 53 UJ   | NA | NA |
| Acrolein                    | NA | 23 U   | 22 U    | NA | NA |
| Acrylonitrile               | NA | 28 UJ  | 27 UJ   | NA | NA |
| Benzene                     | NA | 0.95 U | 0.93 U  | NA | NA |
| Bromoform                   | NA | 1.3 U  | 1.3 U   | NA | NA |
| Bromomethane                | NA | 1.9 U  | 1.9 U   | NA | NA |
| Carbon disulfide            | NA | 0.68 J | 0.6 U   | NA | NA |
| Carbon tetrachloride        | NA | 1.2 UJ | 1.2 UJ  | NA | NA |
| Chlorobenzene               | NA | 0.88 U | 0.86 U  | NA | NA |
| Chlorodibromomethane        | NA | 0.6 U  | 0.59 U  | NA | NA |
| Chloroethane                | NA | 1.5 UJ | 1.4 UJ  | NA | NA |
| Chloroform                  | NA | 0.6 U  | 0.59 U  | NA | NA |
| Chloromethane               | NA | 0.86 U | 0.84 U  | NA | NA |
| cis-1,3-Dichloropropene     | NA | 1.1 UJ | 1 UJ    | NA | NA |
| Dibromomethane              | NA | 1.5 U  | 1.4 U   | NA | NA |
| Dichlorobromomethane        | NA | 1 U    | 0.98 U  | NA | NA |
| Dichlorodifluoromethane     | NA | 1.1 U  | 1.1 U   | NA | NA |
| Ethyl methacrylate          | NA | 2.7 U  | 2.6 U   | NA | NA |
| Ethylbenzene                | NA | 0.91 U | 0.89 U  | NA | NA |
| Ethylene Dibromide          | NA | 1.8 U  | 1.8 U   | NA | NA |
| Iodomethane                 | NA | 1.2 UJ | 1.2 UJ  | NA | NA |
| Isobutyl alcohol            | NA | 83 R   | 81 R    | NA | NA |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB05    | 62SB06    | 62SB06    | 62SB07    | 62SB07    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB05-02 | 62SB06-01 | 62SB06-03 | 62SB07-01 | 62SB07-02 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  |
| Depth Range | 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)**

|                             |    |        |        |    |    |
|-----------------------------|----|--------|--------|----|----|
| Methacrylonitrile           | NA | 29 UJ  | 28 UJ  | NA | NA |
| Methyl methacrylate         | NA | 4.5 UJ | 4.4 UJ | NA | NA |
| Methylene Chloride          | NA | 1.2 U  | 1.2 U  | NA | NA |
| Pentachloroethane           | NA | 2.7 R  | 2.6 R  | NA | NA |
| Propionitrile               | NA | 25 UJ  | 25 UJ  | NA | NA |
| Styrene                     | NA | 0.8 U  | 0.78 U | NA | NA |
| Tetrachloroethene           | NA | 0.88 U | 0.86 U | NA | NA |
| Toluene                     | NA | 0.95 U | 0.93 U | NA | NA |
| trans-1,2-Dichloroethene    | NA | 1.2 U  | 1.1 U  | NA | NA |
| trans-1,3-Dichloropropene   | NA | 1.1 U  | 1 U    | NA | NA |
| trans-1,4-Dichloro-2-butene | NA | 3.7 U  | 3.7 U  | NA | NA |
| Trichloroethene             | NA | 1.2 U  | 1.2 U  | NA | NA |
| Trichlorofluoromethane      | NA | 1.8 U  | 1.8 U  | NA | NA |
| Vinyl acetate               | NA | 1.8 UJ | 1.8 UJ | NA | NA |
| Vinyl chloride              | NA | 0.7 U  | 0.68 U | NA | NA |
| Xylenes, Total              | NA | 2.8 U  | 2.7 U  | NA | NA |

**Semivolatile Organic Compounds (ug/kg)**

|                              |    |       |       |    |    |
|------------------------------|----|-------|-------|----|----|
| 1,1'-Biphenyl                | NA | 8 U   | 8.6 U | NA | NA |
| 1,2,4,5-Tetrachlorobenzene   | NA | 6.8 U | 7.3 U | NA | NA |
| 1,2,4-Trichlorobenzene       | NA | 8 U   | 8.6 U | NA | NA |
| 1,2-Dichlorobenzene          | NA | 7.6 U | 8.1 U | NA | NA |
| 1,3,5-Trinitrobenzene        | NA | 18 U  | 20 U  | NA | NA |
| 1,3-Dichlorobenzene          | NA | 6.5 U | 6.9 U | NA | NA |
| 1,3-Dinitrobenzene           | NA | 4.2 U | 4.5 U | NA | NA |
| 1,4-Dichlorobenzene          | NA | 6.7 U | 7.2 U | NA | NA |
| 1,4-Dioxane                  | NA | 8.7 U | 9.3 U | NA | NA |
| 1,4-Naphthoquinone           | NA | 4.2 U | 4.5 U | NA | NA |
| 2,2'-oxybis[1-chloropropane] | NA | 6.8 U | 7.3 U | NA | NA |
| 2,3,4,6-Tetrachlorophenol    | NA | 4.5 U | 4.9 U | NA | NA |
| 2,4,5-Trichlorophenol        | NA | 7.4 U | 7.9 U | NA | NA |
| 2,4,6-Trichlorophenol        | NA | 8.5 U | 9.1 U | NA | NA |
| 2,4-Dichlorophenol           | NA | 8.8 U | 9.4 U | NA | NA |
| 2,4-Dimethylphenol           | NA | 18 U  | 20 U  | NA | NA |
| 2,4-Dinitrophenol            | NA | 90 UJ | 96 UJ | NA | NA |
| 2,4-Dinitrotoluene           | NA | 6.4 U | 6.8 U | NA | NA |
| 2,6-Dichlorophenol           | NA | 6.9 U | 7.4 U | NA | NA |
| 2,6-Dinitrotoluene           | NA | 6.7 U | 7.2 U | NA | NA |
| 2-Acetylaminofluorene        | NA | 5.5 U | 5.9 U | NA | NA |
| 2-Chloronaphthalene          | NA | 6.7 U | 7.2 U | NA | NA |
| 2-Chlorophenol               | NA | 7.1 U | 7.6 U | NA | NA |
| 2-Methylnaphthalene          | NA | 1.8 U | 2 U   | NA | NA |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB05    | 62SB06    | 62SB06    | 62SB07    | 62SB07    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB05-02 | 62SB06-01 | 62SB06-03 | 62SB07-01 | 62SB07-02 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  |
| Depth Range | 3.0-5.0   | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   | 3.0-5.0   |

**Semivolatile Organic Compounds (ug/kg)**

|                                     |    |        |        |    |    |
|-------------------------------------|----|--------|--------|----|----|
| 2-Methylphenol                      | NA | 8.8 U  | 9.4 U  | NA | NA |
| 2-Naphthylamine                     | NA | 22 UJ  | 23 UJ  | NA | NA |
| 2-Nitroaniline                      | NA | 7 U    | 7.5 U  | NA | NA |
| 2-Nitrophenol                       | NA | 7.9 U  | 8.4 U  | NA | NA |
| 2-Picoline                          | NA | 13 U   | 14 U   | NA | NA |
| 2-Toluidine                         | NA | 10 U   | 11 U   | NA | NA |
| 3 & 4 Methylphenol                  | NA | 7.9 U  | 8.4 U  | NA | NA |
| 3,3'-Dichlorobenzidine              | NA | 10 UJ  | 11 UJ  | NA | NA |
| 3,3'-Dimethylbenzidine              | NA | 190 U  | 210 U  | NA | NA |
| 3-Methylcholanthrene                | NA | 6.6 U  | 7.1 U  | NA | NA |
| 3-Nitroaniline                      | NA | 4.9 U  | 5.2 U  | NA | NA |
| 4,6-Dinitro-2-methylphenol          | NA | 6.3 U  | 6.7 U  | NA | NA |
| 4-Aminobiphenyl                     | NA | 14 U   | 15 U   | NA | NA |
| 4-Bromophenyl phenyl ether          | NA | 7.7 U  | 8.2 U  | NA | NA |
| 4-Chloro-3-methylphenol             | NA | 8.1 U  | 8.7 U  | NA | NA |
| 4-Chloroaniline                     | NA | 6.5 U  | 6.9 U  | NA | NA |
| 4-Chlorophenyl phenyl ether         | NA | 6.7 U  | 7.2 U  | NA | NA |
| 4-Nitroaniline                      | NA | 8.3 U  | 8.9 U  | NA | NA |
| 4-Nitrophenol                       | NA | 36 U   | 38 U   | NA | NA |
| 4-Nitroquinoline-1-oxide            | NA | 12 R   | 13 R   | NA | NA |
| 7,12-Dimethylbenz(a)anthracene      | NA | 10 U   | 11 U   | NA | NA |
| Acenaphthene                        | NA | 0.62 U | 0.66 U | NA | NA |
| Acenaphthylene                      | NA | 1.8 U  | 2 U    | NA | NA |
| Acetophenone                        | NA | 9.3 U  | 9.9 U  | NA | NA |
| alpha,alpha-Dimethyl phenethylamine | NA | 64 UJ  | 68 UJ  | NA | NA |
| Aniline                             | NA | 6.8 U  | 7.3 U  | NA | NA |
| Anthracene                          | NA | 1.8 U  | 2 U    | NA | NA |
| Aramite, Total                      | NA | 12 U   | 13 U   | NA | NA |
| Benzo[a]anthracene                  | NA | 1.8 U  | 2 U    | NA | NA |
| Benzo[a]pyrene                      | NA | 0.71 U | 0.76 U | NA | NA |
| Benzo[b]fluoranthene                | NA | 0.82 U | 0.88 U | NA | NA |
| Benzo[g,h,i]perylene                | NA | 1.8 U  | 2 U    | NA | NA |
| Benzo[k]fluoranthene                | NA | 1.1 U  | 1.2 U  | NA | NA |
| Benzyl alcohol                      | NA | 8.7 U  | 9.3 U  | NA | NA |
| Bis(2-chloroethoxy)methane          | NA | 7.4 U  | 7.9 U  | NA | NA |
| Bis(2-chloroethyl)ether             | NA | 6.2 U  | 6.6 U  | NA | NA |
| Bis(2-ethylhexyl) phthalate         | NA | 8 U    | 26 U   | NA | NA |
| Butyl benzyl phthalate              | NA | 7.8 U  | 8.3 U  | NA | NA |
| Chrysene                            | NA | 0.66 U | 0.71 U | NA | NA |
| Diallate                            | NA | 10 U   | 11 U   | NA | NA |
| Dibenz(a,h)anthracene               | NA | 0.64 U | 0.68 U | NA | NA |
| Dibenzofuran                        | NA | 4.5 U  | 4.9 U  | NA | NA |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|   | Site ID     | 62SB05    | 62SB06    | 62SB06    | 62SB07    | 62SB07    |
|---|-------------|-----------|-----------|-----------|-----------|-----------|
|   | Sample ID   | 62SB05-02 | 62SB06-01 | 62SB06-03 | 62SB07-01 | 62SB07-02 |
|   | Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  |
|   | Depth Range | 3.0-5.0   | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   | 3.0-5.0   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |             |           |           |           |           |           |
| Diethyl phthalate                             |             | NA        | 12 U      | 13 U      | NA        | NA        |
| Dimethyl phthalate                            |             | NA        | 6.9 U     | 7.4 U     | NA        | NA        |
| Di-n-butyl phthalate                          |             | NA        | 27 U      | 29 U      | NA        | NA        |
| Di-n-octyl phthalate                          |             | NA        | 3.6 U     | 3.8 U     | NA        | NA        |
| Dinoseb                                       |             | NA        | 18 UJ     | 20 UJ     | NA        | NA        |
| Ethyl methanesulfonate                        |             | NA        | 12 U      | 13 U      | NA        | NA        |
| Fluoranthene                                  |             | NA        | 1.8 U     | 2 U       | NA        | NA        |
| Fluorene                                      |             | NA        | 0.83 U    | 0.89 U    | NA        | NA        |
| Hexachlorobenzene                             |             | NA        | 7.4 U     | 7.9 U     | NA        | NA        |
| Hexachlorobutadiene                           |             | NA        | 9.8 U     | 11 U      | NA        | NA        |
| Hexachlorocyclopentadiene                     |             | NA        | 15 U      | 16 U      | NA        | NA        |
| Hexachloroethane                              |             | NA        | 8 U       | 8.6 U     | NA        | NA        |
| Hexachlorophene                               |             | NA        | 900 R     | 960 R     | NA        | NA        |
| Hexachloropropene                             |             | NA        | 7.8 U     | 8.3 U     | NA        | NA        |
| Indeno[1,2,3-cd]pyrene                        |             | NA        | 1.3 U     | 1.4 U     | NA        | NA        |
| Isophorone                                    |             | NA        | 6.7 U     | 7.2 U     | NA        | NA        |
| Isosafrole                                    |             | NA        | 7.7 U     | 8.2 U     | NA        | NA        |
| Methapyrilene                                 |             | NA        | 10 U      | 11 U      | NA        | NA        |
| Methyl methanesulfonate                       |             | NA        | 10 U      | 11 U      | NA        | NA        |
| Naphthalene                                   |             | NA        | 0.65 U    | 0.69 U    | NA        | NA        |
| Nitrobenzene                                  |             | NA        | 7.5 U     | 8 U       | NA        | NA        |
| N-Nitro-o-toluidine                           |             | NA        | 6.5 U     | 6.9 U     | NA        | NA        |
| N-Nitrosodiethylamine                         |             | NA        | 13 U      | 14 U      | NA        | NA        |
| N-Nitrosodimethylamine                        |             | NA        | 11 U      | 11 U      | NA        | NA        |
| N-Nitrosodi-n-butylamine                      |             | NA        | 9.8 U     | 11 U      | NA        | NA        |
| N-Nitrosodi-n-propylamine                     |             | NA        | 7 U       | 7.5 U     | NA        | NA        |
| N-Nitrosodiphenylamine                        |             | NA        | 7.7 U     | 8.2 U     | NA        | NA        |
| N-Nitrosomethylethylamine                     |             | NA        | 6.2 U     | 6.6 U     | NA        | NA        |
| N-Nitrosomorpholine                           |             | NA        | 7.1 U     | 7.6 U     | NA        | NA        |
| N-Nitrosopiperidine                           |             | NA        | 9.2 U     | 9.8 U     | NA        | NA        |
| N-Nitrosopyrrolidine                          |             | NA        | 9.6 U     | 10 U      | NA        | NA        |
| p-Dimethylamino azobenzene                    |             | NA        | 7.7 U     | 8.2 U     | NA        | NA        |
| Pentachlorobenzene                            |             | NA        | 6.7 U     | 7.2 U     | NA        | NA        |
| Pentachloronitrobenzene                       |             | NA        | 6.4 U     | 6.8 U     | NA        | NA        |
| Pentachlorophenol                             |             | NA        | 9 U       | 9.6 U     | NA        | NA        |
| Phenacetin                                    |             | NA        | 5.1 U     | 5.4 U     | NA        | NA        |
| Phenanthrene                                  |             | NA        | 1.8 U     | 2 U       | NA        | NA        |
| Phenol  |             | NA        | 5.2 U     | 5.6 U     | NA        | NA        |
| p-Phenylene diamine                           |             | NA        | 170 U     | 190 U     | NA        | NA        |
| Pronamide                                     |             | NA        | 9.7 U     | 10 U      | NA        | NA        |
| Pyrene  |             | NA        | 1.8 U     | 2 U       | NA        | NA        |
| Pyridine                                      |             | NA        | 12 U      | 13 U      | NA        | NA        |
| Safrole, Total                                |             | NA        | 9 U       | 9.6 U     | NA        | NA        |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|                           | Site ID     | 62SB05    | 62SB06    | 62SB06    | 62SB07    | 62SB07    |
|---------------------------|-------------|-----------|-----------|-----------|-----------|-----------|
|                           | Sample ID   | 62SB05-02 | 62SB06-01 | 62SB06-03 | 62SB07-01 | 62SB07-02 |
|                           | Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  |
|                           | Depth Range | 3.0-5.0   | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   | 3.0-5.0   |
| <b>Pesticides (ug/kg)</b> |             |           |           |           |           |           |
| 4,4'-DDD                  |             | NA        | 0.39 U    | 0.41 U    | NA        | NA        |
| 4,4'-DDE                  |             | NA        | 0.35 U    | 0.37 U    | NA        | NA        |
| 4,4'-DDT                  |             | NA        | 0.56 U    | 0.6 U     | NA        | NA        |
| Aldrin                    |             | NA        | 0.12 U    | 0.13 U    | NA        | NA        |
| alpha-BHC                 |             | NA        | 0.089 U   | 0.095 U   | NA        | NA        |
| beta-BHC                  |             | NA        | 0.24 U    | 0.25 U    | NA        | NA        |
| Chlordane (technical)     |             | NA        | 1.5 U     | 1.6 U     | NA        | NA        |
| Chlorobenzilate           |             | NA        | 5.1 U     | 5.4 U     | NA        | NA        |
| delta-BHC                 |             | NA        | 0.13 U    | 0.14 U    | NA        | NA        |
| Dieldrin                  |             | NA        | 0.33 U    | 0.36 U    | NA        | NA        |
| Endosulfan I              |             | NA        | 0.3 U     | 0.32 U    | NA        | NA        |
| Endosulfan II             |             | NA        | 0.73 U    | 0.78 U    | NA        | NA        |
| Endosulfan sulfate        |             | NA        | 0.29 U    | 0.31 U    | NA        | NA        |
| Endrin                    |             | NA        | 0.37 U    | 0.39 U    | NA        | NA        |
| Endrin aldehyde           |             | NA        | 0.69 U    | 0.73 U    | NA        | NA        |
| Endrin ketone             |             | NA        | 0.37 U    | 0.39 U    | NA        | NA        |
| gamma-BHC (Lindane)       |             | NA        | 0.11 U    | 0.11 U    | NA        | NA        |
| Heptachlor                |             | NA        | 0.25 U    | 0.26 U    | NA        | NA        |
| Heptachlor epoxide        |             | NA        | 0.11 U    | 0.11 U    | NA        | NA        |
| Isodrin                   |             | NA        | 0.24 U    | 0.25 U    | NA        | NA        |
| Kepone                    |             | NA        | 1.5 U     | 1.6 U     | NA        | NA        |
| Methoxychlor              |             | NA        | 0.86 U    | 0.92 U    | NA        | NA        |
| Toxaphene                 |             | NA        | 45 U      | 48 U      | NA        | NA        |
| <b>PCB's (ug/kg)</b>      |             |           |           |           |           |           |
| PCB-1016                  |             | NA        | 4.1 U     | 4.4 U     | NA        | NA        |
| PCB-1221                  |             | NA        | 14 U      | 15 U      | NA        | NA        |
| PCB-1232                  |             | NA        | 8.1 U     | 8.6 U     | NA        | NA        |
| PCB-1242                  |             | NA        | 5.2 U     | 5.5 U     | NA        | NA        |
| PCB-1248                  |             | NA        | 5.5 U     | 5.8 U     | NA        | NA        |
| PCB-1254                  |             | NA        | 2.5 U     | 2.6 U     | NA        | NA        |
| PCB-1260                  |             | NA        | 5.2 U     | 5.5 U     | NA        | NA        |

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**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB05    | 62SB06    | 62SB06    | 62SB07    | 62SB07    |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Sample ID   | 62SB05-02 | 62SB06-01 | 62SB06-03 | 62SB07-01 | 62SB07-02 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  | 6/1/2008  |
| Depth Range | 3.0-5.0   | 1.0-3.0   | 5.0-7.0   | 1.0-3.0   | 3.0-5.0   |

**Metals (mg/kg)**

|           |          |          |          |          |          |
|-----------|----------|----------|----------|----------|----------|
| Antimony  | 0.072 UJ | 0.078 UJ | 0.49 UJ  | 0.1 UJ   | 0.095 UJ |
| Arsenic   | 0.99     | 1        | 5.2      | 1.1      | 0.84     |
| Barium    | 58       | 350      | 430      | 110      | 240      |
| Beryllium | 0.26     | 0.21     | 0.85     | 0.3      | 0.23     |
| Cadmium   | 0.028 U  | 0.032 U  | 0.032 U  | 0.035 U  | 0.029 U  |
| Chromium  | 20       | 29       | 1.8      | 1.9      | 2.2      |
| Cobalt    | 4.1      | 17       | 2.3      | 4.7      | 5.6      |
| Copper    | 6.1      | 140      | 2.6      | 50       | 55       |
| Lead      | 0.36     | 0.65     | 2        | 0.32 U   | 0.28 U   |
| Mercury   | 0.011 J  | 0.027    | 0.0043 J | 0.0042 U | 0.0035 U |
| Nickel    | 1.5      | 19       | 0.74     | 1.5      | 1.6      |
| Selenium  | 0.11 J   | 0.14 J   | 0.46 J   | 0.13 U   | 0.11 U   |
| Silver    | 0.015 UJ | 0.036 J  | 0.017 UJ | 0.018 UJ | 0.015 UJ |
| Thallium  | 0.11 U   | 0.13 U   | 0.12 U   | 0.13 U   | 0.11 U   |
| Tin       | 3.6 U    | 4.2 U    | 4.1 U    | 4.5 U    | 3.8 U    |
| Vanadium  | 25 J     | 110 J    | 31 J     | 35       | 34       |
| Zinc      | 6.2      | 40       | 3.8 J    | 16       | 17       |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|  | Site ID     | 62SB08    | 62SB08    | 62SB08     | 62SB09    | 62SB09    |
|--|-------------|-----------|-----------|------------|-----------|-----------|
|  | Sample ID   | 62SB08-01 | 62SB08-02 | 62SB08-02D | 62SB09-01 | 62SB09-02 |
|  | Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  | 6/1/2008  |
|  | Depth Range | 1.0-3.0   | 3.0-5.0   | 3.0-5.0    | 1.0-3.0   | 3.0-5.0   |

**Volatile Organic Compounds (ug/kg)**

|                             |         |         |         |         |        |
|-----------------------------|---------|---------|---------|---------|--------|
| 1,1,1,2-Tetrachloroethane   | 0.76 U  | 0.72 U  | 0.61 U  | 0.75 U  | 0.77 U |
| 1,1,1-Trichloroethane       | 0.69 UJ | 0.65 UJ | 0.55 UJ | 0.68 UJ | 0.7 UJ |
| 1,1,2,2-Tetrachloroethane   | 1.7 U   | 1.6 U   | 1.3 U   | 1.6 U   | 1.7 U  |
| 1,1,2-Trichloroethane       | 1.4 U   | 1.4 U   | 1.1 U   | 1.4 U   | 1.5 U  |
| 1,1-Dichloroethane          | 0.6 U   | 0.56 U  | 0.48 U  | 0.59 U  | 0.61 U |
| 1,1-Dichloroethene          | 0.64 U  | 0.61 U  | 0.51 U  | 0.63 U  | 0.65 U |
| 1,2,3-Trichloropropane      | 1.7 U   | 1.6 U   | 1.3 U   | 1.6 U   | 1.7 U  |
| 1,2-Dibromo-3-Chloropropane | 3.3 U   | 3.2 U   | 2.7 U   | 3.3 U   | 3.4 U  |
| 1,2-Dichloroethane          | 1.2 U   | 1.1 U   | 0.95 U  | 1.2 U   | 1.2 U  |
| 1,2-Dichloropropane         | 1.3 U   | 1.2 U   | 1 U     | 1.3 U   | 1.3 U  |
| 2-Butanone (MEK)            | 3.2 UJ  | 3 UJ    | 3.3 UJ  | 3.2 UJ  | 6.1 UJ |
| 2-Chloro-1,3-butadiene      | 0.68 U  | 0.64 U  | 0.54 U  | 0.67 U  | 0.69 U |
| 2-Hexanone                  | 2.5 U   | 2.4 U   | 2 U     | 2.5 U   | 2.5 U  |
| 3-Chloro-1-propene          | 1.8 UJ  | 1.7 U   | 1.4 U   | 1.8 U   | 1.8 U  |
| 4-Methyl-2-pentanone (MIBK) | 3.5 UJ  | 3.3 UJ  | 2.8 UJ  | 3.4 UJ  | 3.5 UJ |
| Acetone                     | 39 J    | 40 UJ   | 30 UJ   | 28 UJ   | 5.3 UJ |
| Acetonitrile                | 54 UJ   | 51 U    | 43 U    | 53 U    | 54 U   |
| Acrolein                    | 23 U    | 21 U    | 18 U    | 22 U    | 23 U   |
| Acrylonitrile               | 27 UJ   | 26 UJ   | 22 UJ   | 27 UJ   | 28 UJ  |
| Benzene                     | 0.94 U  | 0.89 U  | 0.75 U  | 0.93 U  | 0.96 U |
| Bromoform                   | 1.3 U   | 1.2 U   | 1 U     | 1.3 U   | 1.3 U  |
| Bromomethane                | 1.9 U   | 1.8 U   | 1.5 U   | 1.9 U   | 1.9 U  |
| Carbon disulfide            | 0.62 J  | 0.57 U  | 0.49 U  | 0.6 U   | 0.62 U |
| Carbon tetrachloride        | 1.2 UJ  | 1.1 UJ  | 0.95 UJ | 1.2 UJ  | 1.2 UJ |
| Chlorobenzene               | 0.87 U  | 0.82 U  | 0.69 U  | 0.86 U  | 0.88 U |
| Chlorodibromomethane        | 0.6 U   | 0.56 U  | 0.48 U  | 0.59 U  | 0.61 U |
| Chloroethane                | 1.4 UJ  | 1.4 UJ  | 1.1 UJ  | 1.4 UJ  | 1.5 UJ |
| Chloroform                  | 0.6 U   | 0.56 U  | 0.48 U  | 0.59 U  | 0.61 U |
| Chloromethane               | 0.85 U  | 0.8 U   | 0.68 U  | 0.83 U  | 0.86 U |
| cis-1,3-Dichloropropene     | 1 UJ    | 0.98 UJ | 0.83 UJ | 1 UJ    | 1.1 UJ |
| Dibromomethane              | 1.4 U   | 1.4 U   | 1.1 U   | 1.4 U   | 1.5 U  |
| Dichlorobromomethane        | 0.99 U  | 0.93 U  | 0.79 U  | 0.97 U  | 1 U    |
| Dichlorodifluoromethane     | 1.1 U   | 1 U     | 0.85 U  | 1 U     | 1.1 U  |
| Ethyl methacrylate          | 2.6 U   | 2.5 U   | 2.1 U   | 2.6 U   | 2.7 U  |
| Ethylbenzene                | 0.89 U  | 0.84 U  | 0.71 U  | 0.88 U  | 0.91 U |
| Ethylene Dibromide          | 1.8 U   | 1.7 U   | 1.4 U   | 1.8 U   | 1.8 U  |
| Iodomethane                 | 1.2 UJ  | 1.1 U   | 0.95 U  | 1.2 U   | 2.4 J  |
| Isobutyl alcohol            | 82 R    | 78 U    | 66 U    | 81 U    | 84 U   |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB08    | 62SB08    | 62SB08     | 62SB09    | 62SB09    |
|-------------|-----------|-----------|------------|-----------|-----------|
| Sample ID   | 62SB08-01 | 62SB08-02 | 62SB08-02D | 62SB09-01 | 62SB09-02 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  | 6/1/2008  |
| Depth Range | 1.0-3.0   | 3.0-5.0   | 3.0-5.0    | 1.0-3.0   | 3.0-5.0   |

**Volatile Organic Compounds (ug/kg)**

|                             |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|
| Methacrylonitrile           | 29 UJ  | 27 U   | 23 U   | 28 U   | 29 U   |
| Methyl methacrylate         | 4.4 UJ | 4.2 U  | 3.5 U  | 4.3 U  | 4.5 U  |
| Methylene Chloride          | 1.2 U  | 1.1 U  | 0.95 U | 1.2 U  | 1.2 U  |
| Pentachloroethane           | 2.6 R  | 2.5 R  | 2.1 R  | 2.6 R  | 2.7 R  |
| Propionitrile               | 25 UJ  | 24 U   | 20 U   | 25 U   | 25 U   |
| Styrene                     | 0.79 U | 0.74 U | 0.63 U | 0.77 U | 0.8 U  |
| Tetrachloroethene           | 0.87 U | 0.82 U | 0.69 U | 0.86 U | 0.88 U |
| Toluene                     | 0.94 U | 0.89 U | 0.75 U | 0.93 U | 0.96 U |
| trans-1,2-Dichloroethene    | 1.2 U  | 1.1 U  | 0.92 U | 1.1 U  | 1.2 U  |
| trans-1,3-Dichloropropene   | 1 U    | 0.98 U | 0.83 U | 1 U    | 1.1 U  |
| trans-1,4-Dichloro-2-butene | 3.7 U  | 3.5 U  | 2.9 U  | 3.6 U  | 3.8 U  |
| Trichloroethene             | 1.2 U  | 1.1 U  | 0.95 U | 1.2 U  | 1.2 U  |
| Trichlorofluoromethane      | 1.8 U  | 1.7 U  | 1.4 U  | 1.8 U  | 1.8 U  |
| Vinyl acetate               | 1.8 UJ | 1.7 U  | 1.4 U  | 1.8 U  | 1.8 U  |
| Vinyl chloride              | 0.69 U | 0.65 U | 0.55 U | 0.68 U | 0.7 U  |
| Xylenes, Total              | 2.7 U  | 2.6 U  | 2.2 U  | 2.7 U  | 2.8 U  |

**Semivolatile Organic Compounds (ug/kg)**

|                              |        |        |       |        |       |
|------------------------------|--------|--------|-------|--------|-------|
| 1,1'-Biphenyl                | 7.9 U  | 8.3 U  | 7.8 U | 8 U    | 7.7 U |
| 1,2,4,5-Tetrachlorobenzene   | 6.7 U  | 7.1 U  | 6.7 U | 6.9 U  | 6.5 U |
| 1,2,4-Trichlorobenzene       | 7.9 U  | 8.3 U  | 7.8 U | 8 U    | 7.7 U |
| 1,2-Dichlorobenzene          | 7.5 U  | 7.9 U  | 7.4 U | 7.6 U  | 7.3 U |
| 1,3,5-Trinitrobenzene        | 18 U   | 19 U   | 18 U  | 18 U   | 18 U  |
| 1,3-Dichlorobenzene          | 6.4 U  | 6.7 U  | 6.3 U | 6.5 U  | 6.2 U |
| 1,3-Dinitrobenzene           | 4.2 U  | 4.4 U  | 4.1 U | 4.2 U  | 4 U   |
| 1,4-Dichlorobenzene          | 6.6 U  | 7 U    | 6.6 U | 6.7 U  | 6.4 U |
| 1,4-Dioxane                  | 8.5 U  | 9 U    | 8.5 U | 8.7 U  | 8.3 U |
| 1,4-Naphthoquinone           | 4.2 U  | 4.4 U  | 4.1 U | 4.2 U  | 4 U   |
| 2,2'-oxybis[1-chloropropane] | 6.7 U  | 7.1 U  | 6.7 U | 6.9 U  | 6.5 U |
| 2,3,4,6-Tetrachlorophenol    | 4.5 U  | 4.7 U  | 4.4 U | 4.6 U  | 4.4 U |
| 2,4,5-Trichlorophenol        | 7.2 UJ | 7.6 UJ | 7.2 U | 7.4 UJ | 7.1 U |
| 2,4,6-Trichlorophenol        | 8.4 U  | 8.9 U  | 8.4 U | 8.6 U  | 8.2 U |
| 2,4-Dichlorophenol           | 8.6 U  | 9.1 U  | 8.6 U | 8.8 U  | 8.4 U |
| 2,4-Dimethylphenol           | 18 U   | 19 U   | 18 U  | 18 U   | 18 U  |
| 2,4-Dinitrophenol            | 88 UJ  | 93 UJ  | 88 U  | 90 UJ  | 86 U  |
| 2,4-Dinitrotoluene           | 6.3 U  | 6.6 U  | 6.2 U | 6.4 U  | 6.1 U |
| 2,6-Dichlorophenol           | 6.8 U  | 7.2 U  | 6.8 U | 7 U    | 6.6 U |
| 2,6-Dinitrotoluene           | 6.6 U  | 7 U    | 6.6 U | 6.7 U  | 6.4 U |
| 2-Acetylaminofluorene        | 5.4 U  | 5.7 U  | 5.4 U | 5.5 U  | 5.3 U |
| 2-Chloronaphthalene          | 6.6 U  | 7 U    | 6.6 U | 6.7 U  | 6.4 U |
| 2-Chlorophenol               | 7 U    | 7.4 U  | 7 U   | 7.2 U  | 6.9 U |
| 2-Methylnaphthalene          | 1.8 U  | 1.9 U  | 1.8 U | 1.8 U  | 1.8 U |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB08    | 62SB08    | 62SB08     | 62SB09    | 62SB09    |
|-------------|-----------|-----------|------------|-----------|-----------|
| Sample ID   | 62SB08-01 | 62SB08-02 | 62SB08-02D | 62SB09-01 | 62SB09-02 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  | 6/1/2008  |
| Depth Range | 1.0-3.0   | 3.0-5.0   | 3.0-5.0    | 1.0-3.0   | 3.0-5.0   |

**Semivolatile Organic Compounds (ug/kg)**

|                                     |         |         |        |         |         |
|-------------------------------------|---------|---------|--------|---------|---------|
| 2-Methylphenol                      | 8.6 U   | 9.1 U   | 8.6 U  | 8.8 U   | 8.4 U   |
| 2-Naphthylamine                     | 21 UJ   | 22 UJ   | 21 UJ  | 22 UJ   | 21 UJ   |
| 2-Nitroaniline                      | 6.9 U   | 7.3 U   | 6.9 U  | 7.1 U   | 6.7 U   |
| 2-Nitrophenol                       | 7.8 U   | 8.2 U   | 7.7 U  | 7.9 U   | 7.6 U   |
| 2-Picoline                          | 13 U    | 13 U    | 13 U   | 13 U    | 12 U    |
| 2-Toluidine                         | 9.9 U   | 10 U    | 9.8 U  | 10 U    | 9.7 U   |
| 3 & 4 Methylphenol                  | 7.8 U   | 8.2 U   | 7.7 U  | 7.9 U   | 7.6 U   |
| 3,3'-Dichlorobenzidine              | 9.8 U   | 10 U    | 9.7 U  | 10 U    | 9.5 U   |
| 3,3'-Dimethylbenzidine              | 190 UJ  | 200 UJ  | 190 UJ | 200 UJ  | 190 UJ  |
| 3-Methylcholanthrene                | 6.5 U   | 6.9 U   | 6.4 U  | 6.6 U   | 6.3 U   |
| 3-Nitroaniline                      | 4.8 UJ  | 5.1 UJ  | 4.8 U  | 4.9 UJ  | 4.7 U   |
| 4,6-Dinitro-2-methylphenol          | 6.2 U   | 6.5 U   | 6.1 U  | 6.3 U   | 6 U     |
| 4-Aminobiphenyl                     | 14 U    | 15 U    | 14 U   | 14 U    | 13 U    |
| 4-Bromophenyl phenyl ether          | 7.6 U   | 8 U     | 7.5 U  | 7.7 U   | 7.4 U   |
| 4-Chloro-3-methylphenol             | 8 U     | 8.4 U   | 7.9 U  | 8.2 U   | 7.8 U   |
| 4-Chloroaniline                     | 6.4 U   | 6.7 U   | 6.3 U  | 6.5 U   | 6.2 U   |
| 4-Chlorophenyl phenyl ether         | 6.6 U   | 7 U     | 6.6 U  | 6.7 U   | 6.4 U   |
| 4-Nitroaniline                      | 8.2 U   | 8.7 U   | 8.1 U  | 8.4 U   | 8 U     |
| 4-Nitrophenol                       | 35 U    | 37 U    | 35 U   | 36 U    | 34 U    |
| 4-Nitroquinoline-1-oxide            | 12 R    | 12 R    | 12 R   | 12 R    | 11 R    |
| 7,12-Dimethylbenz(a)anthracene      | 9.9 U   | 10 U    | 9.8 U  | 10 U    | 9.7 U   |
| Acenaphthene                        | 0.61 U  | 0.64 U  | 0.6 U  | 0.62 U  | 0.59 U  |
| Acenaphthylene                      | 1.8 U   | 1.9 U   | 1.8 U  | 1.8 U   | 1.8 U   |
| Acetophenone                        | 9.2 U   | 9.7 U   | 9.1 U  | 9.4 U   | 8.9 U   |
| alpha,alpha-Dimethyl phenethylamine | 63 U    | 66 U    | 62 U   | 64 U    | 61 U    |
| Aniline                             | 6.7 U   | 7.1 U   | 6.7 U  | 6.9 U   | 6.5 U   |
| Anthracene                          | 1.8 U   | 1.9 U   | 1.8 U  | 1.8 U   | 1.8 U   |
| Aramite, Total                      | 12 U    | 12 U    | 12 U   | 12 U    | 11 U    |
| Benzo[a]anthracene                  | 1.8 U   | 1.9 U   | 1.8 U  | 1.8 U   | 1.8 U   |
| Benzo[a]pyrene                      | 0.7 U   | 0.74 U  | 0.7 U  | 0.72 U  | 0.69 U  |
| Benzo[b]fluoranthene                | 0.81 UJ | 0.85 UJ | 0.8 UJ | 0.83 UJ | 0.79 UJ |
| Benzo[g,h,i]perylene                | 1.8 U   | 1.9 U   | 1.8 U  | 1.8 U   | 1.8 U   |
| Benzo[k]fluoranthene                | 1.1 U   | 1.1 U   | 1.1 U  | 1.1 U   | 1 U     |
| Benzyl alcohol                      | 8.5 U   | 9 U     | 8.5 U  | 8.7 U   | 8.3 U   |
| Bis(2-chloroethoxy)methane          | 7.2 U   | 7.6 U   | 7.2 U  | 7.4 U   | 7.1 U   |
| Bis(2-chloroethyl)ether             | 6.1 U   | 6.4 U   | 6 U    | 6.2 U   | 5.9 U   |
| Bis(2-ethylhexyl) phthalate         | 13 U    | 39 U    | 16 U   | 12 U    | 15 U    |
| Butyl benzyl phthalate              | 7.7 U   | 8.1 U   | 7.6 U  | 7.8 U   | 7.5 U   |
| Chrysene                            | 0.65 U  | 0.69 U  | 0.64 U | 0.66 U  | 0.63 U  |
| Diallate                            | 10 U    | 11 U    | 10 U   | 10 U    | 10 U    |
| Dibenz(a,h)anthracene               | 0.63 U  | 0.66 U  | 0.62 U | 0.64 U  | 0.61 U  |
| Dibenzofuran                        | 4.5 U   | 4.7 U   | 4.4 U  | 4.6 U   | 4.4 U   |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICAL RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|   | Site ID     | 62SB08    | 62SB08    | 62SB08     | 62SB09    | 62SB09    |
|---|-------------|-----------|-----------|------------|-----------|-----------|
|   | Sample ID   | 62SB08-01 | 62SB08-02 | 62SB08-02D | 62SB09-01 | 62SB09-02 |
|   | Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  | 6/1/2008  |
|   | Depth Range | 1.0-3.0   | 3.0-5.0   | 3.0-5.0    | 1.0-3.0   | 3.0-5.0   |
| <b>Semivolatile Organic Compounds (ug/kg)</b> |             |           |           |            |           |           |
| Diethyl phthalate                             |             | 12 U      | 12 U      | 12 U       | 12 U      | 11 U      |
| Dimethyl phthalate                            |             | 6.8 U     | 7.2 U     | 6.8 U      | 7 U       | 6.6 U     |
| Di-n-butyl phthalate                          |             | 27 U      | 28 U      | 26 U       | 27 U      | 26 U      |
| Di-n-octyl phthalate                          |             | 3.5 U     | 3.7 U     | 3.5 U      | 3.6 U     | 3.4 U     |
| Dinoseb                                       |             | 18 U      | 19 U      | 18 U       | 18 U      | 18 U      |
| Ethyl methanesulfonate                        |             | 12 U      | 12 U      | 12 U       | 12 U      | 11 U      |
| Fluoranthene                                  |             | 1.8 U     | 1.9 U     | 1.8 U      | 1.8 U     | 1.8 U     |
| Fluorene                                      |             | 0.82 U    | 0.87 U    | 0.81 U     | 0.84 U    | 0.8 U     |
| Hexachlorobenzene                             |             | 7.2 U     | 7.6 U     | 7.2 U      | 7.4 U     | 7.1 U     |
| Hexachlorobutadiene                           |             | 9.7 U     | 10 U      | 9.6 U      | 9.9 U     | 9.4 U     |
| Hexachlorocyclopentadiene                     |             | 15 U      | 16 U      | 15 U       | 15 U      | 15 U      |
| Hexachloroethane                              |             | 7.9 U     | 8.3 U     | 7.8 U      | 8 U       | 7.7 U     |
| Hexachlorophene                               |             | 880 U     | 930 U     | 880 U      | 900 U     | 860 U     |
| Hexachloropropene                             |             | 7.7 U     | 8.1 U     | 7.6 U      | 7.8 U     | 7.5 U     |
| Indeno[1,2,3-cd]pyrene                        |             | 1.3 U     | 1.3 U     | 1.3 U      | 1.3 U     | 1.2 U     |
| Isophorone                                    |             | 6.6 U     | 7 U       | 6.6 U      | 6.7 U     | 6.4 U     |
| Isosafrole                                    |             | 7.6 U     | 8 U       | 7.5 U      | 7.7 U     | 7.4 U     |
| Methapyrilene                                 |             | 9.9 UJ    | 10 UJ     | 9.8 U      | 10 UJ     | 9.7 U     |
| Methyl methanesulfonate                       |             | 9.9 U     | 10 U      | 9.8 U      | 10 U      | 9.7 U     |
| Naphthalene                                   |             | 0.64 UJ   | 0.67 UJ   | 0.82 J     | 0.65 UJ   | 0.62 UJ   |
| Nitrobenzene                                  |             | 7.3 U     | 7.8 U     | 7.3 U      | 7.5 U     | 7.2 U     |
| N-Nitro-o-toluidine                           |             | 6.4 U     | 6.7 U     | 6.3 U      | 6.5 U     | 6.2 U     |
| N-Nitrosodiethylamine                         |             | 13 U      | 13 U      | 13 U       | 13 U      | 12 U      |
| N-Nitrosodimethylamine                        |             | 10 U      | 11 U      | 10 U       | 11 U      | 10 U      |
| N-Nitrosodi-n-butylamine                      |             | 9.7 U     | 10 U      | 9.6 U      | 9.9 U     | 9.4 U     |
| N-Nitrosodi-n-propylamine                     |             | 6.9 U     | 7.3 U     | 6.9 U      | 7.1 U     | 6.7 U     |
| N-Nitrosodiphenylamine                        |             | 7.6 U     | 8 U       | 7.5 U      | 7.7 U     | 7.4 U     |
| N-Nitrosomethylethylamine                     |             | 6.1 U     | 6.4 U     | 6 U        | 6.2 U     | 5.9 U     |
| N-Nitrosomorpholine                           |             | 7 U       | 7.4 U     | 7 U        | 7.2 U     | 6.9 U     |
| N-Nitrosopiperidine                           |             | 9 U       | 9.6 U     | 9 U        | 9.2 U     | 8.8 U     |
| N-Nitrosopyrrolidine                          |             | 9.5 U     | 10 U      | 9.4 U      | 9.7 U     | 9.2 U     |
| p-Dimethylamino azobenzene                    |             | 7.6 U     | 8 U       | 7.5 U      | 7.7 U     | 7.4 U     |
| Pentachlorobenzene                            |             | 6.6 U     | 7 U       | 6.6 U      | 6.7 U     | 6.4 U     |
| Pentachloronitrobenzene                       |             | 6.3 U     | 6.6 U     | 6.2 UJ     | 6.4 U     | 6.1 UJ    |
| Pentachlorophenol                             |             | 8.8 U     | 9.3 U     | 8.8 U      | 9 U       | 8.6 U     |
| Phenacetin                                    |             | 5 U       | 5.3 U     | 5 U        | 5.1 U     | 4.9 U     |
| Phenanthrene                                  |             | 1.8 U     | 1.9 U     | 1.8 U      | 1.8 U     | 1.8 U     |
| Phenol  |             | 5.1 U     | 5.4 U     | 5.1 U      | 5.2 U     | 5 U       |
| p-Phenylene diamine                           |             | 170 U     | 180 U     | 170 U      | 170 U     | 170 U     |
| Pronamide                                     |             | 9.6 U     | 10 U      | 9.5 U      | 9.8 U     | 9.3 U     |
| Pyrene  |             | 1.8 U     | 1.9 U     | 1.8 U      | 1.8 U     | 1.8 U     |
| Pyridine                                      |             | 12 U      | 12 U      | 12 U       | 12 U      | 11 U      |
| Safrole, Total                                |             | 8.8 U     | 9.3 U     | 8.8 U      | 9 U       | 8.6 U     |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|                           | Site ID     | 62SB08    | 62SB08    | 62SB08     | 62SB09    | 62SB09    |
|---------------------------|-------------|-----------|-----------|------------|-----------|-----------|
|                           | Sample ID   | 62SB08-01 | 62SB08-02 | 62SB08-02D | 62SB09-01 | 62SB09-02 |
|                           | Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  | 6/1/2008  |
|                           | Depth Range | 1.0-3.0   | 3.0-5.0   | 3.0-5.0    | 1.0-3.0   | 3.0-5.0   |
| <b>Pesticides (ug/kg)</b> |             |           |           |            |           |           |
| 4,4'-DDD                  |             | 0.39 U    | 0.4 U     | 0.38 U     | 0.4 U     | 0.37 U    |
| 4,4'-DDE                  |             | 0.34 U    | 0.36 U    | 0.34 U     | 0.35 U    | 0.33 U    |
| 4,4'-DDT                  |             | 0.56 U    | 0.58 U    | 0.55 U     | 0.57 U    | 0.54 U    |
| Aldrin                    |             | 0.12 U    | 0.12 U    | 0.12 U     | 0.12 U    | 0.11 U    |
| alpha-BHC                 |             | 0.089 U   | 0.093 U   | 0.088 U    | 0.091 U   | 0.086 U   |
| beta-BHC                  |             | 0.24 U    | 0.25 U    | 0.23 U     | 0.24 U    | 0.23 U    |
| Chlordane (technical)     |             | 1.5 U     | 1.6 U     | 1.5 U      | 1.5 U     | 1.5 U     |
| Chlorobenzilate           |             | 5 U       | 5.3 U     | 5 U        | 5.2 U     | 4.9 U     |
| delta-BHC                 |             | 0.13 U    | 0.13 U    | 0.13 U     | 0.13 U    | 0.12 U    |
| Dieldrin                  |             | 0.33 U    | 0.35 U    | 0.33 U     | 0.34 U    | 0.32 U    |
| Endosulfan I              |             | 0.3 U     | 0.31 U    | 0.3 U      | 0.31 U    | 0.29 U    |
| Endosulfan II             |             | 0.73 U    | 0.76 U    | 0.72 U     | 0.75 U    | 0.71 U    |
| Endosulfan sulfate        |             | 0.29 U    | 0.3 U     | 0.29 U     | 0.3 U     | 0.28 U    |
| Endrin                    |             | 0.36 U    | 0.38 U    | 0.36 U     | 0.37 U    | 0.35 U    |
| Endrin aldehyde           |             | 0.69 U    | 0.72 U    | 0.68 U     | 0.7 U     | 0.66 U    |
| Endrin ketone             |             | 0.36 U    | 0.38 U    | 0.36 U     | 0.37 U    | 0.35 U    |
| gamma-BHC (Lindane)       |             | 0.11 U    | 0.11 U    | 0.11 U     | 0.11 U    | 0.1 U     |
| Heptachlor                |             | 0.25 U    | 0.26 U    | 0.24 U     | 0.25 U    | 0.24 U    |
| Heptachlor epoxide        |             | 0.11 U    | 0.11 U    | 0.11 U     | 0.11 U    | 0.1 U     |
| Isodrin                   |             | 0.24 U    | 0.25 U    | 0.23 U     | 0.24 U    | 0.23 U    |
| Kepone                    |             | 1.5 U     | 1.6 U     | 1.5 U      | 1.5 U     | 1.5 U     |
| Methoxychlor              |             | 0.86 U    | 0.9 U     | 0.84 U     | 0.88 U    | 0.83 U    |
| Toxaphene                 |             | 45 U      | 47 U      | 44 U       | 46 U      | 44 U      |
| <b>PCB's (ug/kg)</b>      |             |           |           |            |           |           |
| PCB-1016                  |             | 4.1 U     | 4.3 U     | 4 U        | 4.2 U     | 3.9 U     |
| PCB-1221                  |             | 14 U      | 15 U      | 14 U       | 14 U      | 13 U      |
| PCB-1232                  |             | 8 U       | 8.4 U     | 7.9 U      | 8.3 U     | 7.8 U     |
| PCB-1242                  |             | 5.2 U     | 5.4 U     | 5.1 U      | 5.3 U     | 5 U       |
| PCB-1248                  |             | 5.5 U     | 5.7 U     | 5.4 U      | 5.6 U     | 5.3 U     |
| PCB-1254                  |             | 2.5 U     | 2.6 U     | 2.4 U      | 2.5 U     | 2.4 U     |
| PCB-1260                  |             | 5.2 U     | 5.4 U     | 5.1 U      | 5.3 U     | 5 U       |

**APPENDIX B**

**SUBSURFACE SOIL ANALYTICA RESULTS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

| Site ID     | 62SB08    | 62SB08    | 62SB08     | 62SB09    | 62SB09    |
|-------------|-----------|-----------|------------|-----------|-----------|
| Sample ID   | 62SB08-01 | 62SB08-02 | 62SB08-02D | 62SB09-01 | 62SB09-02 |
| Sample Date | 6/1/2008  | 6/1/2008  | 6/1/2008   | 6/1/2008  | 6/1/2008  |
| Depth Range | 1.0-3.0   | 3.0-5.0   | 3.0-5.0    | 1.0-3.0   | 3.0-5.0   |

**Metals (mg/kg)**

|           |          |         |         |          |          |
|-----------|----------|---------|---------|----------|----------|
| Antimony  | 0.1 UJ   | 0.11 UJ | 0.11 UJ | 0.09 UJ  | 0.071 UJ |
| Arsenic   | 1.8      | 1.4     | 1.9     | 2        | 1.4      |
| Barium    | 130      | 160     | 140     | 160      | 180      |
| Beryllium | 0.84     | 0.45    | 0.36    | 1        | 1.2      |
| Cadmium   | 0.031 U  | 0.033 U | 0.037 J | 0.032 U  | 0.029 U  |
| Chromium  | 1.9      | 4.8     | 8.2     | 2.4      | 1.7      |
| Cobalt    | 7.4      | 4.5     | 6.9     | 4.7      | 7.5      |
| Copper    | 22       | 22      | 19      | 9.1      | 4.2      |
| Lead      | 0.54     | 1.1     | 2       | 0.5      | 0.34     |
| Mercury   | 0.0043 U | 0.026   | 0.033   | 0.0042 U | 0.0039 U |
| Nickel    | 1.4      | 2.3     | 3.2     | 1.1      | 1        |
| Selenium  | 0.2 J    | 0.35 J  | 0.36 J  | 0.2 J    | 0.15 J   |
| Silver    | 0.016 UJ | 0.03 J  | 0.022 J | 0.016 UJ | 0.015 UJ |
| Thallium  | 0.12 U   | 0.13 U  | 0.12 U  | 0.12 U   | 0.11 U   |
| Tin       | 4 U      | 4.2 U   | 3.9 U   | 4.1 U    | 3.8 U    |
| Vanadium  | 33       | 38      | 42      | 32       | 25       |
| Zinc      | 13       | 10      | 12      | 14       | 17       |

**QA/QC DATA**

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APPENDIX B

SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

|  | Sample ID<br>Date | QATB01<br>5/2/2008 | 62TB01<br>5/31/2008 | 62TB03<br>6/1/2008 | 71TB02<br>5/31/2008 |
|--|-------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Volatile Organic Compounds (mg/L)</b> |                   |                    |                     |                    |                     |
| 1,1,1,2-Tetrachloroethane                |                   | 0.29 U             | 0.29 U              | 0.29 U             | NA                  |
| 1,1,1-Trichloroethane                    |                   | 0.39 U             | 0.39 U              | 0.39 U             | NA                  |
| 1,1,2,2-Tetrachloroethane                |                   | 0.26 U             | 0.26 U              | 0.26 U             | NA                  |
| 1,1,2-Trichloroethane                    |                   | 0.51 U             | 0.51 U              | 0.51 U             | NA                  |
| 1,1-Dichloroethane                       |                   | 0.32 U             | 0.32 U              | 0.32 U             | NA                  |
| 1,1-Dichloroethene                       |                   | 0.36 U             | 0.36 U              | 0.36 U             | NA                  |
| 1,2,3-Trichloropropane                   |                   | 0.42 U             | 0.42 U              | 0.42 U             | NA                  |
| 1,2-Dibromo-3-Chloropropane              |                   | 0.48 U             | 0.48 UJ             | 0.48 UJ            | NA                  |
| 1,2-Dichloroethane                       |                   | 0.31 U             | 0.31 U              | 0.31 U             | NA                  |
| 1,2-Dichloropropane                      |                   | 0.36 U             | 0.36 U              | 0.36 U             | NA                  |
| 2-Butanone (MEK)                         |                   | 0.6 U              | 0.6 U               | 0.6 U              | NA                  |
| 2-Chloro-1,3-butadiene                   |                   | 0.35 U             | 0.35 U              | 0.35 U             | NA                  |
| 2-Hexanone                               |                   | 0.68 U             | 0.68 U              | 0.68 U             | NA                  |
| 3-Chloro-1-propene                       |                   | 0.46 U             | 0.46 U              | 0.46 U             | NA                  |
| 4-Methyl-2-pentanone (MIBK)              |                   | 0.6 U              | 0.6 U               | 0.6 U              | NA                  |
| Acetone                                  |                   | 5 U                | 5 U                 | 5 U                | NA                  |
| Acetonitrile                             |                   | 15 U               | 15 U                | 15 U               | NA                  |
| Acrolein                                 |                   | 18 U               | 18 UJ               | 18 UJ              | NA                  |
| Acrylonitrile                            |                   | 3.8 U              | 3.8 U               | 3.8 U              | NA                  |
| Benzene                                  |                   | 0.32 U             | 0.32 U              | 0.32 U             | NA                  |
| Bromoform                                |                   | 0.41 U             | 0.41 U              | 0.41 U             | NA                  |
| Bromomethane                             |                   | 0.5 U              | 0.5 UJ              | 0.5 UJ             | NA                  |
| Carbon disulfide                         |                   | 0.17 U             | 0.17 U              | 0.17 U             | NA                  |
| Carbon tetrachloride                     |                   | 0.27 U             | 0.27 U              | 0.27 U             | NA                  |
| Chlorobenzene                            |                   | 0.34 U             | 0.34 U              | 0.34 U             | NA                  |
| Chlorodibromomethane                     |                   | 0.3 U              | 0.3 U               | 0.3 U              | NA                  |
| Chloroethane                             |                   | 1 U                | 1 UJ                | 1 UJ               | NA                  |
| Chloroform                               |                   | 0.29 U             | 0.29 U              | 0.29 U             | NA                  |
| Chloromethane                            |                   | 0.28 U             | 0.28 UJ             | 0.28 UJ            | NA                  |
| cis-1,3-Dichloropropene                  |                   | 0.37 U             | 0.37 UJ             | 0.37 UJ            | NA                  |
| Dibromomethane                           |                   | 0.29 U             | 0.29 U              | 0.29 U             | NA                  |
| Dichlorobromomethane                     |                   | 0.34 U             | 0.34 U              | 0.34 U             | NA                  |
| Dichlorodifluoromethane                  |                   | 0.33 U             | 0.33 U              | 0.33 U             | NA                  |
| Ethyl methacrylate                       |                   | 1 U                | 1 U                 | 1 U                | NA                  |
| Ethylbenzene                             |                   | 0.3 U              | 0.3 U               | 0.3 U              | NA                  |
| Ethylene Dibromide                       |                   | 0.3 U              | 0.3 U               | 0.3 U              | NA                  |
| Iodomethane                              |                   | 1 U                | 1 U                 | 1 U                | NA                  |

**APPENDIX B**

**SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|  | Sample ID<br>Date | QATB01<br>5/2/2008 | 62TB01<br>5/31/2008 | 62TB03<br>6/1/2008 | 71TB02<br>5/31/2008 |
|--|-------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Volatile Organic Compounds (mg/L)</b>     |                   |                    |                     |                    |                     |
| Isobutyl alcohol                             |                   | 19 U               | 19 U                | 19 U               | NA                  |
| Methacrylonitrile                            |                   | 6.6 U              | 6.6 U               | 6.6 U              | NA                  |
| Methyl methacrylate                          |                   | 0.38 U             | 0.38 U              | 0.38 U             | NA                  |
| Methylene Chloride                           |                   | 1 U                | 1 U                 | 1 U                | NA                  |
| Pentachloroethane                            |                   | 1.3 UJ             | 1.3 R               | 1.3 R              | NA                  |
| Propionitrile                                |                   | 9.2 U              | 9.2 U               | 9.2 U              | NA                  |
| Styrene                                      |                   | 0.36 U             | 0.36 U              | 0.36 U             | NA                  |
| Tetrachloroethene                            |                   | 0.28 U             | 0.28 U              | 0.28 U             | NA                  |
| Toluene                                      |                   | 0.31 U             | 0.31 U              | 0.31 U             | NA                  |
| trans-1,2-Dichloroethene                     |                   | 0.3 U              | 0.3 U               | 0.3 U              | NA                  |
| trans-1,3-Dichloropropene                    |                   | 0.27 U             | 0.27 UJ             | 0.27 UJ            | NA                  |
| trans-1,4-Dichloro-2-butene                  |                   | 0.83 U             | 0.83 U              | 0.83 U             | NA                  |
| Trichloroethene                              |                   | 0.4 U              | 0.4 U               | 0.4 U              | NA                  |
| Trichlorofluoromethane                       |                   | 0.29 U             | 0.29 UJ             | 0.29 UJ            | NA                  |
| Vinyl acetate                                |                   | 0.62 UJ            | 0.62 U              | 0.62 U             | NA                  |
| Vinyl chloride                               |                   | 0.2 U              | 0.2 U               | 0.2 U              | NA                  |
| Xylenes, Total                               |                   | 0.87 U             | 0.87 U              | 0.87 U             | NA                  |
| <b>Semivolatile Organic Compounds (ug/L)</b> |                   |                    |                     |                    |                     |
| 1,1'-Biphenyl                                |                   | NA                 | NA                  | NA                 | NA                  |
| 1,2,4,5-Tetrachlorobenzene                   |                   | NA                 | NA                  | NA                 | NA                  |
| 1,2,4-Trichlorobenzene                       |                   | NA                 | NA                  | NA                 | NA                  |
| 1,2-Dichlorobenzene                          |                   | NA                 | NA                  | NA                 | NA                  |
| 1,3,5-Trinitrobenzene                        |                   | NA                 | NA                  | NA                 | NA                  |
| 1,3-Dichlorobenzene                          |                   | NA                 | NA                  | NA                 | NA                  |
| 1,3-Dinitrobenzene                           |                   | NA                 | NA                  | NA                 | NA                  |
| 1,4-Dichlorobenzene                          |                   | NA                 | NA                  | NA                 | NA                  |
| 1,4-Dioxane                                  |                   | NA                 | NA                  | NA                 | NA                  |
| 1,4-Naphthoquinone                           |                   | NA                 | NA                  | NA                 | NA                  |
| 2,2'-oxybis[1-chloropropane]                 |                   | NA                 | NA                  | NA                 | NA                  |
| 2,3,4,6-Tetrachlorophenol                    |                   | NA                 | NA                  | NA                 | NA                  |
| 2,4,5-Trichlorophenol                        |                   | NA                 | NA                  | NA                 | NA                  |
| 2,4,6-Trichlorophenol                        |                   | NA                 | NA                  | NA                 | NA                  |
| 2,4-Dichlorophenol                           |                   | NA                 | NA                  | NA                 | NA                  |
| 2,4-Dimethylphenol                           |                   | NA                 | NA                  | NA                 | NA                  |
| 2,4-Dinitrophenol                            |                   | NA                 | NA                  | NA                 | NA                  |
| 2,4-Dinitrotoluene                           |                   | NA                 | NA                  | NA                 | NA                  |
| 2,6-Dichlorophenol                           |                   | NA                 | NA                  | NA                 | NA                  |
| 2,6-Dinitrotoluene                           |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Acetylaminofluorene                        |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Chloronaphthalene                          |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Chlorophenol                               |                   | NA                 | NA                  | NA                 | NA                  |

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|  | Sample ID<br>Date | QATB01<br>5/2/2008 | 62TB01<br>5/31/2008 | 62TB03<br>6/1/2008 | 71TB02<br>5/31/2008 |
|--|-------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Semivolatile Organic Compounds (ug/L)</b> |                   |                    |                     |                    |                     |
| 2-Methylnaphthalene                          |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Methylphenol                               |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Naphthylamine                              |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Nitroaniline                               |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Nitrophenol                                |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Picoline                                   |                   | NA                 | NA                  | NA                 | NA                  |
| 2-Toluidine                                  |                   | NA                 | NA                  | NA                 | NA                  |
| 3 & 4 Methylphenol                           |                   | NA                 | NA                  | NA                 | NA                  |
| 3,3'-Dichlorobenzidine                       |                   | NA                 | NA                  | NA                 | NA                  |
| 3,3'-Dimethylbenzidine                       |                   | NA                 | NA                  | NA                 | NA                  |
| 3-Methylcholanthrene                         |                   | NA                 | NA                  | NA                 | NA                  |
| 3-Nitroaniline                               |                   | NA                 | NA                  | NA                 | NA                  |
| 4,6-Dinitro-2-methylphenol                   |                   | NA                 | NA                  | NA                 | NA                  |
| 4-Aminobiphenyl                              |                   | NA                 | NA                  | NA                 | NA                  |
| 4-Bromophenyl phenyl ether                   |                   | NA                 | NA                  | NA                 | NA                  |
| 4-Chloro-3-methylphenol                      |                   | NA                 | NA                  | NA                 | NA                  |
| 4-Chloroaniline                              |                   | NA                 | NA                  | NA                 | NA                  |
| 4-Chlorophenyl phenyl ether                  |                   | NA                 | NA                  | NA                 | NA                  |
| 4-Nitroaniline                               |                   | NA                 | NA                  | NA                 | NA                  |
| 4-Nitrophenol                                |                   | NA                 | NA                  | NA                 | NA                  |
| 4-Nitroquinoline-1-oxide                     |                   | NA                 | NA                  | NA                 | NA                  |
| 7,12-Dimethylbenz(a)anthracene               |                   | NA                 | NA                  | NA                 | NA                  |
| Acenaphthene                                 |                   | NA                 | NA                  | NA                 | NA                  |
| Acenaphthylene                               |                   | NA                 | NA                  | NA                 | NA                  |
| Acetophenone                                 |                   | NA                 | NA                  | NA                 | NA                  |
| alpha,alpha-Dimethyl phenethylamine          |                   | NA                 | NA                  | NA                 | NA                  |
| Aniline                                      |                   | NA                 | NA                  | NA                 | NA                  |
| Anthracene                                   |                   | NA                 | NA                  | NA                 | NA                  |
| Aramite, Total                               |                   | NA                 | NA                  | NA                 | NA                  |
| Benzo[a]anthracene                           |                   | NA                 | NA                  | NA                 | NA                  |
| Benzo[a]pyrene                               |                   | NA                 | NA                  | NA                 | NA                  |
| Benzo[b]fluoranthene                         |                   | NA                 | NA                  | NA                 | NA                  |
| Benzo[g,h,i]perylene                         |                   | NA                 | NA                  | NA                 | NA                  |
| Benzo[k]fluoranthene                         |                   | NA                 | NA                  | NA                 | NA                  |
| Benzyl alcohol                               |                   | NA                 | NA                  | NA                 | NA                  |
| Bis(2-chloroethoxy)methane                   |                   | NA                 | NA                  | NA                 | NA                  |
| Bis(2-chloroethyl)ether                      |                   | NA                 | NA                  | NA                 | NA                  |
| Bis(2-ethylhexyl) phthalate                  |                   | NA                 | NA                  | NA                 | NA                  |
| Butyl benzyl phthalate                       |                   | NA                 | NA                  | NA                 | NA                  |
| Chrysene                                     |                   | NA                 | NA                  | NA                 | NA                  |
| Diallate                                     |                   | NA                 | NA                  | NA                 | NA                  |
| Dibenz(a,h)anthracene                        |                   | NA                 | NA                  | NA                 | NA                  |
| Dibenzofuran                                 |                   | NA                 | NA                  | NA                 | NA                  |
| Diethyl phthalate                            |                   | NA                 | NA                  | NA                 | NA                  |

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| Sample ID<br>Date                            | QATB01<br>5/2/2008 | 62TB01<br>5/31/2008 | 62TB03<br>6/1/2008 | 71TB02<br>5/31/2008 |
|--|--------------------|---------------------|--------------------|---------------------|
| <b>Semivolatile Organic Compounds (ug/L)</b> |                    |                     |                    |                     |
| Dimethyl phthalate                           | NA                 | NA                  | NA                 | NA                  |
| Di-n-butyl phthalate                         | NA                 | NA                  | NA                 | NA                  |
| Di-n-octyl phthalate                         | NA                 | NA                  | NA                 | NA                  |
| Dinoseb                                      | NA                 | NA                  | NA                 | NA                  |
| Ethyl methanesulfonate                       | NA                 | NA                  | NA                 | NA                  |
| Fluoranthene                                 | NA                 | NA                  | NA                 | NA                  |
| Fluorene                                     | NA                 | NA                  | NA                 | NA                  |
| Hexachlorobenzene                            | NA                 | NA                  | NA                 | NA                  |
| Hexachlorobutadiene                          | NA                 | NA                  | NA                 | NA                  |
| Hexachlorocyclopentadiene                    | NA                 | NA                  | NA                 | NA                  |
| Hexachloroethane                             | NA                 | NA                  | NA                 | NA                  |
| Hexachlorophene                              | NA                 | NA                  | NA                 | NA                  |
| Hexachloropropene                            | NA                 | NA                  | NA                 | NA                  |
| Indeno[1,2,3-cd]pyrene                       | NA                 | NA                  | NA                 | NA                  |
| Isophorone                                   | NA                 | NA                  | NA                 | NA                  |
| Isosafrole                                   | NA                 | NA                  | NA                 | NA                  |
| Methapyrilene                                | NA                 | NA                  | NA                 | NA                  |
| Methyl methanesulfonate                      | NA                 | NA                  | NA                 | NA                  |
| Naphthalene                                  | NA                 | NA                  | NA                 | NA                  |
| Nitrobenzene                                 | NA                 | NA                  | NA                 | NA                  |
| N-Nitro-o-toluidine                          | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosodiethylamine                        | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosodimethylamine                       | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosodi-n-butylamine                     | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosodi-n-propylamine                    | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosodiphenylamine                       | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosomethylethylamine                    | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosomorpholine                          | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosopiperidine                          | NA                 | NA                  | NA                 | NA                  |
| N-Nitrosopyrrolidine                         | NA                 | NA                  | NA                 | NA                  |
| p-Dimethylamino azobenzene                   | NA                 | NA                  | NA                 | NA                  |
| Pentachlorobenzene                           | NA                 | NA                  | NA                 | NA                  |
| Pentachloronitrobenzene                      | NA                 | NA                  | NA                 | NA                  |
| Pentachlorophenol                            | NA                 | NA                  | NA                 | NA                  |
| Phenacetin                                   | NA                 | NA                  | NA                 | NA                  |
| Phenanthrene                                 | NA                 | NA                  | NA                 | NA                  |
| Phenol                                       | NA                 | NA                  | NA                 | NA                  |
| p-Phenylene diamine                          | NA                 | NA                  | NA                 | NA                  |
| Pronamide                                    | NA                 | NA                  | NA                 | NA                  |
| Pyrene                                       | NA                 | NA                  | NA                 | NA                  |
| Pyridine                                     | NA                 | NA                  | NA                 | NA                  |
| Safrole, Total                               | NA                 | NA                  | NA                 | NA                  |

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|                               | Sample ID<br>Date | QATB01<br>5/2/2008 | 62TB01<br>5/31/2008 | 62TB03<br>6/1/2008 | 71TB02<br>5/31/2008 |
|-------------------------------|-------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Pesticides/PCBs (ug/L)</b> |                   |                    |                     |                    |                     |
| 4,4'-DDD                      |                   | NA                 | NA                  | NA                 | NA                  |
| 4,4'-DDE                      |                   | NA                 | NA                  | NA                 | NA                  |
| 4,4'-DDT                      |                   | NA                 | NA                  | NA                 | NA                  |
| Aldrin                        |                   | NA                 | NA                  | NA                 | NA                  |
| alpha-BHC                     |                   | NA                 | NA                  | NA                 | NA                  |
| beta-BHC                      |                   | NA                 | NA                  | NA                 | NA                  |
| Chlordane (technical)         |                   | NA                 | NA                  | NA                 | NA                  |
| Chlorobenzilate               |                   | NA                 | NA                  | NA                 | NA                  |
| delta-BHC                     |                   | NA                 | NA                  | NA                 | NA                  |
| Dieldrin                      |                   | NA                 | NA                  | NA                 | NA                  |
| <b>Pesticides/PCBs (ug/L)</b> |                   |                    |                     |                    |                     |
| Endosulfan I                  |                   | NA                 | NA                  | NA                 | NA                  |
| Endosulfan II                 |                   | NA                 | NA                  | NA                 | NA                  |
| Endosulfan sulfate            |                   | NA                 | NA                  | NA                 | NA                  |
| Endrin                        |                   | NA                 | NA                  | NA                 | NA                  |
| Endrin aldehyde               |                   | NA                 | NA                  | NA                 | NA                  |
| Endrin ketone                 |                   | NA                 | NA                  | NA                 | NA                  |
| gamma-BHC (Lindane)           |                   | NA                 | NA                  | NA                 | NA                  |
| Heptachlor                    |                   | NA                 | NA                  | NA                 | NA                  |
| Heptachlor epoxide            |                   | NA                 | NA                  | NA                 | NA                  |
| Isodrin                       |                   | NA                 | NA                  | NA                 | NA                  |
| Kepone                        |                   | NA                 | NA                  | NA                 | NA                  |
| Methoxychlor                  |                   | NA                 | NA                  | NA                 | NA                  |
| PCB-1016                      |                   | NA                 | NA                  | NA                 | NA                  |
| PCB-1221                      |                   | NA                 | NA                  | NA                 | NA                  |
| PCB-1232                      |                   | NA                 | NA                  | NA                 | NA                  |
| PCB-1242                      |                   | NA                 | NA                  | NA                 | NA                  |
| PCB-1248                      |                   | NA                 | NA                  | NA                 | NA                  |
| PCB-1254                      |                   | NA                 | NA                  | NA                 | NA                  |
| PCB-1260                      |                   | NA                 | NA                  | NA                 | NA                  |
| Toxaphene                     |                   | NA                 | NA                  | NA                 | NA                  |
| <b>Metals (mg/L)</b>          |                   |                    |                     |                    |                     |
| Antimony                      |                   | NA                 | NA                  | NA                 | NA                  |
| Arsenic                       |                   | NA                 | NA                  | NA                 | NA                  |
| Barium                        |                   | NA                 | NA                  | NA                 | NA                  |
| Beryllium                     |                   | NA                 | NA                  | NA                 | NA                  |
| Cadmium                       |                   | NA                 | NA                  | NA                 | NA                  |
| Chromium                      |                   | NA                 | NA                  | NA                 | NA                  |
| Cobalt                        |                   | NA                 | NA                  | NA                 | NA                  |
| Copper                        |                   | NA                 | NA                  | NA                 | NA                  |
| Lead                          |                   | NA                 | NA                  | NA                 | NA                  |
| Mercury                       |                   | NA                 | NA                  | NA                 | NA                  |
| Nickel                        |                   | NA                 | NA                  | NA                 | NA                  |
| Selenium                      |                   | NA                 | NA                  | NA                 | NA                  |

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|                                      | Sample ID<br>Date | QATB01<br>5/2/2008 | 62TB01<br>5/31/2008 | 62TB03<br>6/1/2008 | 71TB02<br>5/31/2008 |
|--------------------------------------|-------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Metals (mg/L)</b>                 |                   |                    |                     |                    |                     |
| Silver                               |                   | NA                 | NA                  | NA                 | NA                  |
| Thallium                             |                   | NA                 | NA                  | NA                 | NA                  |
| Tin                                  |                   | NA                 | NA                  | NA                 | NA                  |
| Vanadium                             |                   | NA                 | NA                  | NA                 | NA                  |
| Zinc                                 |                   | NA                 | NA                  | NA                 | NA                  |
| <b>TPH DRO (mg/L)</b>                |                   |                    |                     |                    |                     |
| Diesel Range Organics [C10-C28]      |                   | NA                 | NA                  | NA                 | NA                  |
| Gasoline Range Organics (GRO)-C6-C10 |                   | 0.012 U            | NA                  | 0.012 U            | 0.012 U             |

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| Sample ID                                | 61TB02    | ER24      | ER25     | FB01     |
|--|-----------|-----------|----------|----------|
| Date                                     | 5/31/2008 | 5/31/2008 | 6/1/2008 | 5/2/2008 |
| <b>Volatile Organic Compounds (mg/L)</b> |           |           |          |          |
| 1,1,1,2-Tetrachloroethane                | 0.29 U    | 0.29 U    | 0.29 U   | 0.29 U   |
| 1,1,1-Trichloroethane                    | 0.39 U    | 0.39 U    | 0.39 U   | 0.39 U   |
| 1,1,2,2-Tetrachloroethane                | 0.26 U    | 0.26 U    | 0.26 U   | 0.26 U   |
| 1,1,2-Trichloroethane                    | 0.51 U    | 0.51 U    | 0.51 U   | 0.51 U   |
| 1,1-Dichloroethane                       | 0.32 U    | 0.32 U    | 0.32 U   | 0.32 U   |
| 1,1-Dichloroethene                       | 0.36 U    | 0.36 U    | 0.36 U   | 0.36 U   |
| 1,2,3-Trichloropropane                   | 0.42 U    | 0.42 U    | 0.42 U   | 0.42 U   |
| 1,2-Dibromo-3-Chloropropane              | 0.48 U    | 0.48 U    | 0.48 U   | 0.48 U   |
| 1,2-Dichloroethane                       | 0.31 U    | 0.31 U    | 0.31 U   | 0.31 U   |
| 1,2-Dichloropropane                      | 0.36 U    | 0.36 U    | 0.36 U   | 0.36 U   |
| 2-Butanone (MEK)                         | 0.79 J    | 1.1 J     | 0.74 J   | 0.69 J   |
| 2-Chloro-1,3-butadiene                   | 0.35 U    | 0.35 U    | 0.35 U   | 0.35 U   |
| 2-Hexanone                               | 0.68 U    | 0.68 U    | 0.68 U   | 0.68 U   |
| 3-Chloro-1-propene                       | 0.46 U    | 0.46 U    | 0.46 U   | 0.46 U   |
| 4-Methyl-2-pentanone (MIBK)              | 0.6 U     | 0.6 U     | 0.6 U    | 0.6 U    |
| Acetone                                  | 6.1 J     | 6.6 J     | 5 U      | 5 U      |
| Acetonitrile                             | 15 U      | 15 U      | 15 U     | 15 U     |
| Acrolein                                 | 18 UJ     | 18 UJ     | 18 UJ    | 18 U     |
| Acrylonitrile                            | 3.8 U     | 3.8 U     | 3.8 U    | 3.8 U    |
| Benzene                                  | 0.32 U    | 1.2       | 1.3      | 0.32 U   |
| Bromoform                                | 0.41 U    | 0.41 U    | 0.41 U   | 0.41 U   |
| Bromomethane                             | 0.5 U     | 0.5 U     | 0.5 U    | 0.5 UJ   |
| Carbon disulfide                         | 0.19 J    | 0.17 U    | 0.17 U   | 0.17 U   |
| Carbon tetrachloride                     | 0.27 U    | 0.27 U    | 0.27 U   | 0.27 U   |
| Chlorobenzene                            | 0.34 U    | 0.34 U    | 0.34 U   | 0.34 U   |
| Chlorodibromomethane                     | 0.3 U     | 0.3 U     | 0.3 U    | 0.3 U    |
| Chloroethane                             | 1 U       | 1 U       | 1 U      | 1 U      |
| Chloroform                               | 0.29 U    | 0.29 U    | 0.29 U   | 0.29 U   |
| Chloromethane                            | 0.28 U    | 0.28 U    | 0.28 U   | 0.28 UJ  |
| cis-1,3-Dichloropropene                  | 0.37 U    | 0.37 U    | 0.37 U   | 0.37 U   |
| Dibromomethane                           | 0.29 U    | 0.29 U    | 0.29 U   | 0.29 U   |
| Dichlorobromomethane                     | 0.34 U    | 0.34 U    | 0.34 U   | 0.34 U   |
| Dichlorodifluoromethane                  | 0.33 U    | 0.33 U    | 0.33 U   | 0.33 U   |
| Ethyl methacrylate                       | 1 U       | 1 U       | 1 U      | 1 U      |
| Ethylbenzene                             | 0.3 U     | 0.3 U     | 0.3 U    | 0.3 U    |
| Ethylene Dibromide                       | 0.3 U     | 0.3 U     | 0.3 U    | 0.3 U    |
| Iodomethane                              | 1 U       | 1 U       | 1 U      | 1 U      |

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|  | Sample ID<br>Date | 61TB02<br>5/31/2008 | ER24<br>5/31/2008 | ER25<br>6/1/2008 | FB01<br>5/2/2008 |
|--|-------------------|---------------------|-------------------|------------------|------------------|
| <b>Volatile Organic Compounds (mg/L)</b>     |                   |                     |                   |                  |                  |
| Isobutyl alcohol                             |                   | 19 UJ               | 19 UJ             | 19 UJ            | 19 U             |
| Methacrylonitrile                            |                   | 6.6 U               | 6.6 U             | 6.6 U            | 6.6 U            |
| Methyl methacrylate                          |                   | 0.38 U              | 0.38 U            | 0.38 U           | 0.38 U           |
| Methylene Chloride                           |                   | 1 U                 | 1 U               | 1 U              | 1 U              |
| Pentachloroethane                            |                   | 1.3 R               | 1.3 R             | 1.3 R            | 1.3 UJ           |
| Propionitrile                                |                   | 9.2 UJ              | 9.2 UJ            | 9.2 UJ           | 9.2 U            |
| Styrene                                      |                   | 0.36 U              | 0.38 J            | 0.36 U           | 0.36 U           |
| Tetrachloroethene                            |                   | 0.28 U              | 0.28 U            | 1.5              | 0.28 U           |
| Toluene                                      |                   | 0.31 U              | 0.5 J             | 0.52 J           | 0.31 U           |
| trans-1,2-Dichloroethene                     |                   | 0.3 U               | 0.3 U             | 0.3 U            | 0.3 U            |
| trans-1,3-Dichloropropene                    |                   | 0.27 U              | 0.27 U            | 0.27 U           | 0.27 U           |
| trans-1,4-Dichloro-2-butene                  |                   | 0.83 U              | 0.83 U            | 0.83 U           | 0.83 U           |
| Trichloroethene                              |                   | 0.4 U               | 0.4 U             | 0.4 U            | 0.4 U            |
| Trichlorofluoromethane                       |                   | 0.29 U              | 0.29 U            | 0.29 U           | 0.29 U           |
| Vinyl acetate                                |                   | 0.62 U              | 0.62 U            | 0.62 U           | 0.62 UJ          |
| Vinyl chloride                               |                   | 0.2 U               | 0.2 U             | 0.2 U            | 0.2 U            |
| Xylenes, Total                               |                   | 0.87 U              | 0.87 U            | 1.3 J            | 0.87 U           |
| <b>Semivolatile Organic Compounds (ug/L)</b> |                   |                     |                   |                  |                  |
| 1,1'-Biphenyl                                |                   | NA                  | 0.17 UJ           | 0.17 UJ          | 0.17 UJ          |
| 1,2,4,5-Tetrachlorobenzene                   |                   | NA                  | 0.23 UJ           | 0.23 UJ          | 0.23 UJ          |
| 1,2,4-Trichlorobenzene                       |                   | NA                  | 0.13 UJ           | 0.13 UJ          | 0.13 UJ          |
| 1,2-Dichlorobenzene                          |                   | NA                  | 0.13 UJ           | 0.13 UJ          | 0.13 UJ          |
| 1,3,5-Trinitrobenzene                        |                   | NA                  | 0.2 UJ            | 0.2 UJ           | 0.2 UJ           |
| 1,3-Dichlorobenzene                          |                   | NA                  | 0.12 UJ           | 0.12 UJ          | 0.12 UJ          |
| 1,3-Dinitrobenzene                           |                   | NA                  | 0.22 UJ           | 0.22 UJ          | 0.22 UJ          |
| 1,4-Dichlorobenzene                          |                   | NA                  | 0.12 UJ           | 0.12 UJ          | 0.16 J           |
| 1,4-Dioxane                                  |                   | NA                  | 0.49 UJ           | 0.49 UJ          | 0.49 UJ          |
| 1,4-Naphthoquinone                           |                   | NA                  | 0.16 UJ           | 0.16 UJ          | 0.16 UJ          |
| 2,2'-oxybis[1-chloropropane]                 |                   | NA                  | 0.097 UJ          | 0.097 UJ         | 0.097 UJ         |
| 2,3,4,6-Tetrachlorophenol                    |                   | NA                  | 0.29 UJ           | 0.29 UJ          | 0.29 UJ          |
| 2,4,5-Trichlorophenol                        |                   | NA                  | 0.16 UJ           | 0.16 UJ          | 0.16 UJ          |
| 2,4,6-Trichlorophenol                        |                   | NA                  | 0.16 UJ           | 0.16 UJ          | 0.16 UJ          |
| 2,4-Dichlorophenol                           |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |
| 2,4-Dimethylphenol                           |                   | NA                  | 0.4 UJ            | 0.4 UJ           | 0.4 UJ           |
| 2,4-Dinitrophenol                            |                   | NA                  | 2.4 UJ            | 2.4 UJ           | 2.4 UJ           |
| 2,4-Dinitrotoluene                           |                   | NA                  | 0.17 UJ           | 0.17 UJ          | 0.17 UJ          |
| 2,6-Dichlorophenol                           |                   | NA                  | 0.21 UJ           | 0.21 UJ          | 0.21 UJ          |
| 2,6-Dinitrotoluene                           |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |
| 2-Acetylaminofluorene                        |                   | NA                  | 0.19 UJ           | 0.19 UJ          | 0.19 UJ          |
| 2-Chloronaphthalene                          |                   | NA                  | 0.12 UJ           | 0.12 UJ          | 0.12 UJ          |
| 2-Chlorophenol                               |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |

## APPENDIX B

SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

|  | Sample ID<br>Date | 61TB02<br>5/31/2008 | ER24<br>5/31/2008 | ER25<br>6/1/2008 | FB01<br>5/2/2008 |
|--|-------------------|---------------------|-------------------|------------------|------------------|
| <b>Semivolatile Organic Compounds (ug/L)</b> |                   |                     |                   |                  |                  |
| 2-Methylnaphthalene                          |                   | NA                  | 0.032 J           | 0.038 J          | 0.022 UJ         |
| 2-Methylphenol                               |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |
| 2-Naphthylamine                              |                   | NA                  | 1.1 UJ            | 1.1 UJ           | 1.1 UJ           |
| 2-Nitroaniline                               |                   | NA                  | 0.14 UJ           | 0.14 UJ          | 0.14 UJ          |
| 2-Nitrophenol                                |                   | NA                  | 0.17 UJ           | 0.17 UJ          | 0.17 UJ          |
| 2-Picoline                                   |                   | NA                  | 0.57 UJ           | 0.57 UJ          | 0.57 UJ          |
| 2-Toluidine                                  |                   | NA                  | 0.32 UJ           | 0.32 UJ          | 0.32 UJ          |
| 3 & 4 Methylphenol                           |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |
| 3,3'-Dichlorobenzidine                       |                   | NA                  | 3.7 UJ            | 3.7 UJ           | 3.7 UJ           |
| 3,3'-Dimethylbenzidine                       |                   | NA                  | 3.7 UJ            | 3.7 UJ           | 3.7 UJ           |
| 3-Methylcholanthrene                         |                   | NA                  | 0.2 UJ            | 0.2 UJ           | 0.2 UJ           |
| 3-Nitroaniline                               |                   | NA                  | 0.28 UJ           | 0.28 UJ          | 0.28 UJ          |
| 4,6-Dinitro-2-methylphenol                   |                   | NA                  | 0.49 UJ           | 0.49 UJ          | 0.49 UJ          |
| 4-Aminobiphenyl                              |                   | NA                  | 0.68 UJ           | 0.68 UJ          | 0.68 UJ          |
| 4-Bromophenyl phenyl ether                   |                   | NA                  | 0.16 UJ           | 0.16 UJ          | 0.16 UJ          |
| 4-Chloro-3-methylphenol                      |                   | NA                  | 0.16 UJ           | 0.16 UJ          | 0.16 UJ          |
| 4-Chloroaniline                              |                   | NA                  | 0.4 UJ            | 0.4 UJ           | 0.4 UJ           |
| 4-Chlorophenyl phenyl ether                  |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |
| 4-Nitroaniline                               |                   | NA                  | 0.26 UJ           | 0.26 UJ          | 0.26 UJ          |
| 4-Nitrophenol                                |                   | NA                  | 0.18 UJ           | 0.18 UJ          | 0.18 UJ          |
| 4-Nitroquinoline-1-oxide                     |                   | NA                  | 0.26 R            | 0.26 R           | 0.26 R           |
| 7,12-Dimethylbenz(a)anthracene               |                   | NA                  | 0.2 UJ            | 0.2 UJ           | 0.2 UJ           |
| Acenaphthene                                 |                   | NA                  | 0.019 UJ          | 0.024 J          | 0.019 UJ         |
| Acenaphthylene                               |                   | NA                  | 0.049 UJ          | 0.049 UJ         | 0.049 UJ         |
| Acetophenone                                 |                   | NA                  | 0.49 J            | 0.75 J           | 0.38 J           |
| alpha,alpha-Dimethyl phenethylamine          |                   | NA                  | 1.3 UJ            | 1.3 UJ           | 1.3 UJ           |
| Aniline                                      |                   | NA                  | 0.4 UJ            | 0.4 UJ           | 0.4 UJ           |
| Anthracene                                   |                   | NA                  | 0.021 UJ          | 0.021 UJ         | 0.021 UJ         |
| Aramite, Total                               |                   | NA                  | 0.49 UJ           | 0.49 UJ          | 0.49 UJ          |
| Benzo[a]anthracene                           |                   | NA                  | 0.025 UJ          | 0.025 UJ         | 0.025 UJ         |
| Benzo[a]pyrene                               |                   | NA                  | 0.024 UJ          | 0.024 UJ         | 0.024 UJ         |
| Benzo[b]fluoranthene                         |                   | NA                  | 0.036 UJ          | 0.036 UJ         | 0.036 UJ         |
| Benzo[g,h,i]perylene                         |                   | NA                  | 0.023 UJ          | 0.023 UJ         | 0.023 UJ         |
| Benzo[k]fluoranthene                         |                   | NA                  | 0.019 UJ          | 0.019 UJ         | 0.019 UJ         |
| Benzyl alcohol                               |                   | NA                  | 0.16 UJ           | 0.16 UJ          | 0.16 UJ          |
| Bis(2-chloroethoxy)methane                   |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |
| Bis(2-chloroethyl)ether                      |                   | NA                  | 0.14 UJ           | 0.14 UJ          | 0.14 UJ          |
| Bis(2-ethylhexyl) phthalate                  |                   | NA                  | 0.43 J            | 0.34 UJ          | 0.34 UJ          |
| Butyl benzyl phthalate                       |                   | NA                  | 0.17 UJ           | 0.17 UJ          | 0.17 UJ          |
| Chrysene                                     |                   | NA                  | 0.027 UJ          | 0.027 UJ         | 0.027 UJ         |
| Diallate                                     |                   | NA                  | 0.19 UJ           | 0.19 UJ          | 0.19 UJ          |
| Dibenz(a,h)anthracene                        |                   | NA                  | 0.023 UJ          | 0.023 UJ         | 0.023 UJ         |
| Dibenzofuran                                 |                   | NA                  | 0.097 UJ          | 0.097 UJ         | 0.097 UJ         |
| Diethyl phthalate                            |                   | NA                  | 0.2 J             | 0.18 UJ          | 0.33 J           |

APPENDIX B

SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

|  | Sample ID<br>Date | 61TB02<br>5/31/2008 | ER24<br>5/31/2008 | ER25<br>6/1/2008 | FB01<br>5/2/2008 |
|--|-------------------|---------------------|-------------------|------------------|------------------|
| <b>Semivolatile Organic Compounds (ug/L)</b> |                   |                     |                   |                  |                  |
| Dimethyl phthalate                           |                   | NA                  | 0.17 UJ           | 0.17 UJ          | 0.17 UJ          |
| Di-n-butyl phthalate                         |                   | NA                  | 0.62 J            | 0.48 J           | 1.2 J            |
| Di-n-octyl phthalate                         |                   | NA                  | 0.097 UJ          | 0.097 UJ         | 0.097 UJ         |
| Dinoseb                                      |                   | NA                  | 0.49 UJ           | 0.49 UJ          | 0.49 UJ          |
| Ethyl methanesulfonate                       |                   | NA                  | 0.23 UJ           | 0.23 UJ          | 0.23 UJ          |
| Fluoranthene                                 |                   | NA                  | 0.049 UJ          | 0.049 UJ         | 0.049 UJ         |
| Fluorene                                     |                   | NA                  | 0.018 UJ          | 0.018 UJ         | 0.018 UJ         |
| Hexachlorobenzene                            |                   | NA                  | 0.16 UJ           | 0.16 UJ          | 0.16 UJ          |
| Hexachlorobutadiene                          |                   | NA                  | 0.13 UJ           | 0.13 UJ          | 0.13 UJ          |
| Hexachlorocyclopentadiene                    |                   | NA                  | 0.49 UJ           | 0.49 UJ          | 0.49 UJ          |
| Hexachloroethane                             |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |
| Hexachlorophene                              |                   | NA                  | 49 UJ             | 49 UJ            | 49 R             |
| Hexachloropropene                            |                   | NA                  | 0.12 UJ           | 0.12 UJ          | 0.12 UJ          |
| Indeno[1,2,3-cd]pyrene                       |                   | NA                  | 0.022 UJ          | 0.022 UJ         | 0.022 UJ         |
| Isophorone                                   |                   | NA                  | 0.15 UJ           | 0.15 UJ          | 0.15 UJ          |
| Isosafrole                                   |                   | NA                  | 0.3 UJ            | 0.3 UJ           | 0.3 UJ           |
| Methapyrilene                                |                   | NA                  | 0.26 UJ           | 0.26 UJ          | 0.26 UJ          |
| Methyl methanesulfonate                      |                   | NA                  | 0.46 UJ           | 0.46 UJ          | 0.46 UJ          |
| Naphthalene                                  |                   | NA                  | 0.65 J            | 0.64 J           | 0.049 UJ         |
| Nitrobenzene                                 |                   | NA                  | 0.14 UJ           | 0.14 UJ          | 0.14 UJ          |
| N-Nitro-o-toluidine                          |                   | NA                  | 0.24 UJ           | 0.24 UJ          | 0.24 UJ          |
| N-Nitrosodiethylamine                        |                   | NA                  | 0.32 UJ           | 0.32 UJ          | 0.32 UJ          |
| N-Nitrosodimethylamine                       |                   | NA                  | 0.19 UJ           | 0.19 UJ          | 0.19 UJ          |
| N-Nitrosodi-n-butylamine                     |                   | NA                  | 0.18 UJ           | 0.18 UJ          | 0.18 UJ          |
| N-Nitrosodi-n-propylamine                    |                   | NA                  | 0.13 UJ           | 0.13 UJ          | 0.13 UJ          |
| N-Nitrosodiphenylamine                       |                   | NA                  | 0.17 UJ           | 0.17 UJ          | 0.17 UJ          |
| N-Nitrosomethylethylamine                    |                   | NA                  | 0.28 UJ           | 0.28 UJ          | 0.28 UJ          |
| N-Nitrosomorpholine                          |                   | NA                  | 0.19 UJ           | 0.19 UJ          | 0.19 UJ          |
| N-Nitrosopiperidine                          |                   | NA                  | 0.22 UJ           | 0.22 UJ          | 0.22 UJ          |
| N-Nitrosopyrrolidine                         |                   | NA                  | 0.25 UJ           | 0.25 UJ          | 0.25 UJ          |
| p-Dimethylamino azobenzene                   |                   | NA                  | 0.6 UJ            | 0.6 UJ           | 0.6 UJ           |
| Pentachlorobenzene                           |                   | NA                  | 0.27 UJ           | 0.27 UJ          | 0.27 UJ          |
| Pentachloronitrobenzene                      |                   | NA                  | 0.3 R             | 0.3 R            | 0.3 UJ           |
| Pentachlorophenol                            |                   | NA                  | 0.18 UJ           | 0.18 UJ          | 0.18 UJ          |
| Phenacetin                                   |                   | NA                  | 0.2 UJ            | 0.2 UJ           | 0.2 UJ           |
| Phenanthrene                                 |                   | NA                  | 0.017 UJ          | 0.017 UJ         | 0.017 UJ         |
| Phenol                                       |                   | NA                  | 0.14 UJ           | 0.14 UJ          | 0.14 UJ          |
| p-Phenylene diamine                          |                   | NA                  | 2.4 UJ            | 2.4 UJ           | 2.4 UJ           |
| Pronamide                                    |                   | NA                  | 0.25 UJ           | 0.25 UJ          | 0.25 UJ          |
| Pyrene                                       |                   | NA                  | 0.026 UJ          | 0.026 UJ         | 0.026 UJ         |
| Pyridine                                     |                   | NA                  | 0.22 UJ           | 0.22 UJ          | 0.22 UJ          |
| Safrole, Total                               |                   | NA                  | 0.23 UJ           | 0.23 UJ          | 0.23 UJ          |

APPENDIX B

SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

|                               | Sample ID<br>Date | 61TB02<br>5/31/2008 | ER24<br>5/31/2008 | ER25<br>6/1/2008 | FB01<br>5/2/2008 |
|-------------------------------|-------------------|---------------------|-------------------|------------------|------------------|
| <b>Pesticides/PCBs (ug/L)</b> |                   |                     |                   |                  |                  |
| 4,4'-DDD                      |                   | NA                  | 0.0057 UJ         | 0.0057 UJ        | NA               |
| 4,4'-DDE                      |                   | NA                  | 0.0095 UJ         | 0.0095 UJ        | NA               |
| 4,4'-DDT                      |                   | NA                  | 0.015 UJ          | 0.015 UJ         | NA               |
| Aldrin                        |                   | NA                  | 0.0058 UJ         | 0.0058 UJ        | NA               |
| alpha-BHC                     |                   | NA                  | 0.0079 UJ         | 0.0079 UJ        | NA               |
| beta-BHC                      |                   | NA                  | 0.008 UJ          | 0.008 UJ         | NA               |
| Chlordane (technical)         |                   | NA                  | 0.048 UJ          | 0.048 UJ         | NA               |
| Chlorobenzilate               |                   | NA                  | 0.14 UJ           | 0.14 UJ          | NA               |
| delta-BHC                     |                   | NA                  | 0.0067 UJ         | 0.0067 UJ        | NA               |
| Dieldrin                      |                   | NA                  | 0.0076 UJ         | 0.0076 UJ        | NA               |
| <b>Pesticides/PCBs (ug/L)</b> |                   |                     |                   |                  |                  |
| Endosulfan I                  |                   | NA                  | 0.0053 UJ         | 0.0053 UJ        | NA               |
| Endosulfan II                 |                   | NA                  | 0.0049 UJ         | 0.0049 UJ        | NA               |
| Endosulfan sulfate            |                   | NA                  | 0.0068 UJ         | 0.0068 UJ        | NA               |
| Endrin                        |                   | NA                  | 0.0076 UJ         | 0.0076 UJ        | NA               |
| Endrin aldehyde               |                   | NA                  | 0.0087 UJ         | 0.0087 UJ        | NA               |
| Endrin ketone                 |                   | NA                  | 0.0088 UJ         | 0.0088 UJ        | NA               |
| gamma-BHC (Lindane)           |                   | NA                  | 0.0057 UJ         | 0.0057 UJ        | NA               |
| Heptachlor                    |                   | NA                  | 0.0044 UJ         | 0.0044 UJ        | NA               |
| Heptachlor epoxide            |                   | NA                  | 0.0068 UJ         | 0.0068 UJ        | NA               |
| Isodrin                       |                   | NA                  | 0.0096 UJ         | 0.0096 UJ        | NA               |
| Kepone                        |                   | NA                  | 0.049 UJ          | 0.049 UJ         | NA               |
| Methoxychlor                  |                   | NA                  | 0.022 UJ          | 0.022 UJ         | NA               |
| PCB-1016                      |                   | NA                  | 1.3 UJ            | 1.3 UJ           | NA               |
| PCB-1221                      |                   | NA                  | 0.094 UJ          | 0.094 UJ         | NA               |
| PCB-1232                      |                   | NA                  | 0.39 UJ           | 0.39 UJ          | NA               |
| PCB-1242                      |                   | NA                  | 0.081 UJ          | 0.081 UJ         | NA               |
| PCB-1248                      |                   | NA                  | 0.093 UJ          | 0.093 UJ         | NA               |
| PCB-1254                      |                   | NA                  | 0.081 UJ          | 0.081 UJ         | NA               |
| PCB-1260                      |                   | NA                  | 0.088 UJ          | 0.088 UJ         | NA               |
| Toxaphene                     |                   | NA                  | 0.097 UJ          | 0.097 UJ         | NA               |
| <b>Metals (mg/L)</b>          |                   |                     |                   |                  |                  |
| Antimony                      |                   | NA                  | 0.36 U            | 0.36 U           | 0.36 UJ          |
| Arsenic                       |                   | NA                  | 0.52 J            | 0.45 J           | 0.28 UJ          |
| Barium                        |                   | NA                  | 2 U               | 2 U              | 2 UJ             |
| Beryllium                     |                   | NA                  | 0.065 U           | 0.065 U          | 0.065 UJ         |
| Cadmium                       |                   | NA                  | 0.12 U            | 0.12 U           | 0.12 UJ          |
| Chromium                      |                   | NA                  | 0.6 U             | 0.86 J           | 0.6 UJ           |
| Cobalt                        |                   | NA                  | 0.029 U           | 0.085 J          | 0.029 UJ         |
| Copper                        |                   | NA                  | 1.2 U             | 4 J              | 2.1 J            |
| Lead                          |                   | NA                  | 0.15 U            | 0.17 J           | 0.38 J           |
| Mercury                       |                   | NA                  | 0.08 U            | 0.08 U           | 0.08 UJ          |
| Nickel                        |                   | NA                  | 0.32 U            | 1.1              | 0.32 UJ          |
| Selenium                      |                   | NA                  | 0.6 U             | 0.6 U            | 0.6 UJ           |

**APPENDIX B**

**SUMMARY OF ANALYTICAL RESULTS - QA/QC SAMPLES  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

|                                      | Sample ID | 61TB02    | ER24      | ER25     | FB01     |
|--------------------------------------|-----------|-----------|-----------|----------|----------|
|                                      | Date      | 5/31/2008 | 5/31/2008 | 6/1/2008 | 5/2/2008 |
| <b>Metals (mg/L)</b>                 |           |           |           |          |          |
| Silver                               |           | NA        | 0.09 UJ   | 0.09 UJ  | 0.09 UJ  |
| Thallium                             |           | NA        | 0.55 U    | 0.55 U   | 0.55 UJ  |
| Tin                                  |           | NA        | 1.6 J     | 1.3 J    | 0.9 UJ   |
| Vanadium                             |           | NA        | 0.8 U     | 1.7 J    | 0.8 UJ   |
| Zinc                                 |           | NA        | 6.5 U     | 6.5 U    | 6.5 UJ   |
| <b>TPH DRO (mg/L)</b>                |           |           |           |          |          |
| Diesel Range Organics [C10-C28]      |           | NA        | 0.028 J   | 0.028 J  | 0.028 UJ |
| Gasoline Range Organics (GRO)-C6-C10 |           | NA        | 0.012 U   | 0.012 U  | 0.012 U  |

**IDW DATA**

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APPENDIX B

SUMMARY OF ANALYTICAL RESULTS - IDW (SOIL)  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I - RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

|                                |           |
|--------------------------------|-----------|
| Sample ID                      | 74IDW01   |
| Sampling Date                  | 6/5/2008  |
| <b>TCLP VOA - 8260B (mg/L)</b> |           |
| Benzene                        | 0.13 U    |
| Carbon tetrachloride           | 0.11 U    |
| Chlorobenzene                  | 0.14 U    |
| Chloroform                     | 0.12 U    |
| 1,2-Dichloroethane             | 0.12 U    |
| 1,1-Dichloroethene             | 0.14 U    |
| 2-Butanone (MEK)               | 0.24 U    |
| Tetrachloroethene              | 0.11 U    |
| Trichloroethene                | 0.16 U    |
| Vinyl chloride                 | 0.08 U    |
| <b>TCLP Metals (mg/L)</b>      |           |
| Arsenic                        | 0.059 U   |
| Barium                         | 0.8 J     |
| Cadmium                        | 0.0053 U  |
| Chromium                       | 0.025 J   |
| Lead                           | 0.042 J   |
| Selenium                       | 0.036 U   |
| Silver                         | 0.0051 U  |
| Mercury                        | 0.008 U   |
| <b>Metals (mg/kg)</b>          |           |
| Arsenic                        | 1.9       |
| Barium                         | 83        |
| Cadmium                        | 0.063 J   |
| Chromium                       | 63        |
| Lead                           | 5.5       |
| Selenium                       | 0.93      |
| Silver                         | 0.032 J B |
| Copper                         | 79        |
| Nickel                         | 21        |
| Thallium                       | 0.13 U    |
| Tin                            | 4.4 U     |
| Vanadium                       | 240       |
| Zinc                           | 45        |
| Antimony                       | 0.22 J    |
| Beryllium                      | 0.39      |
| Cobalt                         | 21 B      |
| Mercury                        | 0.0087 J  |
| <b>General Chemistry</b>       |           |
| Ignitability - mm/sec          | NB        |
| Cyanide, Reactive - mg/Kg      | 100 U     |
| Sulfide, Reactive - mg/Kg      | 50 U      |
| pH - SU                        | 8.99      |

**APPENDIX B**

**SUMMARY OF ANALYTICAL RESULTS - IDW (SOIL)  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I - RFI REPORT  
NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO**

**Notes:**

- U: Undetected at the Limit of Detection.
- J: Estimated: The analyte was positively identified; the quantitation is an estimation
- B: Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
- NB: No burn

APPENDIX B

SUMMARY OF ANALYTICAL RESULTS - IDW (WATER)  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I - RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

| Sample ID                   | 74IDW02  |
|-----------------------------|----------|
| Sampling Date               | 6/5/2008 |
| GC/MS VOA - 8260B (ug/L)    |          |
| Acetone                     | 14 J     |
| Acetonitrile                | 15 U     |
| Acrolein                    | 18 U     |
| Acrylonitrile               | 3.8 U    |
| Benzene                     | 0.32 U   |
| Bromoform                   | 0.41 U   |
| Bromomethane                | 0.5 U    |
| 2-Butanone (MEK)            | 5 J      |
| Carbon disulfide            | 0.17 U   |
| Carbon tetrachloride        | 0.27 U   |
| Chlorobenzene               | 0.34 U   |
| 2-Chloro-1,3-butadiene      | 0.35 U   |
| Chlorodibromomethane        | 0.3 U    |
| Chloroethane                | 1 U      |
| Chloroform                  | 0.74 J   |
| Chloromethane               | 0.28 U   |
| 3-Chloro-1-propene          | 0.46 U   |
| cis-1,3-Dichloropropene     | 0.37 U   |
| 1,2-Dibromo-3-Chloropropane | 0.48 U   |
| Dibromomethane              | 0.29 U   |
| Dichlorobromomethane        | 0.34 U   |
| Dichlorodifluoromethane     | 0.33 U   |
| 1,1-Dichloroethane          | 0.32 U   |
| 1,2-Dichloroethane          | 0.31 U   |
| 1,1-Dichloroethene          | 0.36 U   |
| 1,2-Dichloropropane         | 0.36 U   |
| Ethylbenzene                | 0.3 U    |
| Ethylene Dibromide          | 0.3 U    |
| Ethyl methacrylate          | 1 U      |
| 2-Hexanone                  | 0.68 U   |
| Iodomethane                 | 1 U      |
| Isobutyl alcohol            | 19 U     |
| Methacrylonitrile           | 6.6 U    |
| Methylene Chloride          | 1 U      |
| Methyl methacrylate         | 0.38 U   |
| 4-Methyl-2-pentanone (MIBK) | 0.6 U    |
| Pentachloroethane           | 1.3 U    |
| Propionitrile               | 9.2 U    |
| Styrene                     | 0.36 U   |
| 1,1,1,2-Tetrachloroethane   | 0.29 U   |
| 1,1,2,2-Tetrachloroethane   | 0.26 U   |
| Tetrachloroethene           | 0.28 U   |
| Toluene                     | 0.31 U   |
| trans-1,4-Dichloro-2-butene | 0.83 U   |
| trans-1,2-Dichloroethene    | 0.3 U    |
| trans-1,3-Dichloropropene   | 0.27 U   |

APPENDIX B

SUMMARY OF ANALYTICAL RESULTS - IDW (WATER)  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I - RFI REPORT  
 NAVAL ACTIVITY PUERTO RICO, CEIBA, PUERTO RICO

Sample ID 74IDW02  
 Sampling Date 6/5/2008

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

|                        |        |
|------------------------|--------|
| 1,1,1-Trichloroethane  | 0.39 U |
| 1,1,2-Trichloroethane  | 0.51 U |
| Trichloroethene        | 0.4 U  |
| Trichlorofluoromethane | 0.29 U |
| 1,2,3-Trichloropropane | 0.42 U |
| Vinyl acetate          | 0.62 U |
| Vinyl chloride         | 0.2 U  |
| Xylenes, Total         | 0.87 U |

Metals (ug/L)

|           |         |
|-----------|---------|
| Antimony  | 0.44 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 |

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

**APPENDIX C**  
**PHASE I RFI DATA VALIDATION SUMMARIES**

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**TEST AMERICA SAVANNAH SDG 36419-4**

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# 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.

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,<br>%D                 | Samples                            | Q Flag |
|-------------|---|----------------------------------|------------------------------------|--------|
| CC 05/08/08 | pentachloroethane<br>vinyl acetate                                  | 67.2%<br>30.1%                   | ER01, ER02,<br>ER03, ER04,<br>ER05 | J/UJ   |
| CC 05/09/08 | pentachloroethane<br>vinyl acetate                                  | 67.6%<br>28.9%                   | FB02, QATB01                       | J/UJ   |
| CC 05/11/08 | pentachloroethane<br>chloromethane<br>bromomethane<br>vinyl acetate | 80.9%<br>24.1%<br>24.3%<br>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%         |                                    |        |
| IC 05/28/08 | methapyrilene                         | 29.1%         | ER04RE                             | J/R    |
|             | aramite, total                        | 33.3%         |                                    |        |
| 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%         |                                    |        |

### 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

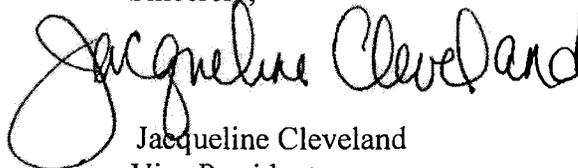
All samples were re-extracted out of holding time due to non-compliant LCS recoveries. The re-extracted samples were not used, except for sample ER04RE, due to exceeded holding times.

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<br>vinyl acetate                                  | +/-     | J/UJ   |
| FB02, QATB01                 | pentachloroethane<br>vinyl acetate                                  | +/-     | J/UJ   |
| FB01                         | pentachloroethane<br>chloromethane<br>bromomethane<br>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<br>hexachlorophene  | +/-     | J/R    |
| ER01                               | n-nitrosomorpholine<br>hexachloropropene<br>n-nitroso-di-n-butylamine<br>methapyrilene<br>3,3-dimethylbenzidine<br>aramite, total<br>4-nitrophenol<br>4,6-dinitro-2-methylphenol   | +/-     | J/UJ   |
| ER02, ER03, ER05, FB01, FB02       | 4-nitroquinoline-1-oxide<br>hexachlorophene  | +/-     | J/R    |
| ER02, ER03, ER05, FB01, FB02       | 4-nitrophenol<br>2,4-dinitrotoluene<br>4,6-dinitro-2-methylphenol<br>dibenz(a,h)anthracene<br>benzo(g,h,i)perylene<br>n-nitrosomorpholine<br>hexachloropropene<br>n-nitroso-di-n-butylamine<br>methapyrilene<br>aramite, total | +/-     | J/UJ   |
| ER04RE                             | 4-nitroquinoline-1-oxide   | +/-     | J/R    |
| ER04RE                             | 4-nitroquinoline-1-oxide<br>hexachlorophene  | +/-     | J/R    |
| ER04RE                             | 3-nitroaniline<br>4-nitrophenol<br>4-nitroaniline,<br>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:<br>perylene-d12 | +/- | J/UJ |
| ER04RE  | all compounds associated with:<br>perylene-d12 | +/- | J/R  |
| ER01, ER02, ER03, ER05, FB01,<br>FB02             | hexachlorocyclopentadiene                      | +/- | J/UJ |
| ER01RE, ER02RE, ER03RE, ER05RE,<br>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<br>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 SAVANNAH SDG 37251-1**

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# DataQual

## Environmental Services, LLC

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

September 29, 2008  
SDG# SWMU37251-1, 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 # SWMU37251-1. 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, SOP #HW-22, October 2006, 8081B SOP # HW-44, Rev 1 October 2006, 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). 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 | Metals |
|--------------|----------------|--------|------------|-------------|------------|------|--------|
| 62SB01-00    | 680-37251-1    | soil   | X          |             | X          |      | X      |
| 62SB01-03    | 680-37251-2    | soil   |            |             |            |      | X      |
| 62SB01-05    | 680-37251-3    | soil   |            |             |            |      | X      |
| 62SB04-00    | 680-37251-4    | soil   | X          |             | X          |      | X      |
| 62SB04-03    | 680-37251-5    | soil   |            |             |            |      | X      |
| 62SB04-03D   | 680-37251-6    | soil   |            |             |            |      | X      |
| 62SB04-05    | 680-37251-7    | soil   |            |             |            |      | X      |
| 62SB02-00    | 680-37251-8    | soil   | X          |             | X          |      | X      |
| 62SB02-01    | 680-37251-9    | soil   |            |             |            |      | X      |
| 62SB02-03    | 680-37251-10   | soil   |            |             |            |      | X      |
| 62SB03-00    | 680-37251-11   | soil   | X          | X           | X          | X    | X      |
| 62SB03-01    | 680-37251-12   | soil   | X          | X           | X          | X    | X      |
| 62SB03-05    | 680-37251-13   | soil   | X          | X           | X          | X    | X      |
| 62SB05-00    | 680-37251-14   | soil   | X          |             | X          |      | X      |
| 62SB05-01    | 680-37251-15   | soil   |            |             |            |      | X      |
| 62SB05-02    | 680-37251-16   | soil   |            |             |            |      | X      |
| 62SB06-00    | 680-37251-17   | soil   | X          | X           | X          | X    | X      |
| 62SB06-01    | 680-37251-18   | soil   | X          | X           | X          | X    | X      |
| 62SB06-03    | 680-37251-19   | soil   | X          | X           | X          | X    | X      |
| 62SB07-00    | 680-37251-22   | soil   | X          |             | X          |      | X      |
| 62SB04-00MS  | 680-37251-4MS  | soil   |            |             |            |      | X      |
| 62SB04-00MSD | 680-37251-4MSD | 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
- 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.

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 % 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.

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

One sample exhibited surrogate recoveries below 10% that resulted in qualify positive results as estimated and rejecting non-detected results.

### **Pesticides/PCBs**

No qualification of the data was 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 for the analytes antimony and vanadium. All results for antimony, and vanadium in the metals samples were qualified as estimated J/UJ. The analyte vanadium was recovered in the MS & MSD below the QC limits (<10%). The analyte was not rejected as suggested by the validation guidelines because the spike added amount was only 0.2 ug/L less than 4X the native sample concentration. At this 4X point the spike recoveries are no longer used to flag the data. Therefore, the validator flagged the vanadium results as estimated J/UJ.

The field duplicate pairs exhibited non-compliant RPDs for two analytes. These analytes were qualified as estimated in the field duplicate pairs.

### **Specific Evaluation of Data**

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were required for the SVOA fraction. A Form V was submitted for the SVOA fraction with incorrect sample ID

Michael Baker, Jr., Inc.  
NAPR SWMU62, Puerto Rico  
SDG# SWMU37251-1  
Page 3

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listed, the laboratory was contacted and a corrected form was received and included in this review. 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 05/31-06/01/08 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 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%        | 62SB01-00,<br>62SB04-00 | 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%                   |               |                         |        |

| Standard ID             | Compound(s)           | RRF, %RSD, %D | Samples   | Q Flag |
|-------------------------|-----------------------|---------------|---|--------|
| CC 06/11/08             | pentachloroethane     | 192.0%        | 62SB02-00,<br>62SB03-00,<br>62SB03-01,<br>62SB03-05,<br>62SB05-00,<br>62SB06-00,<br>62SB06-01,<br>62SB06-03,<br>62SB07-00 | 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 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    |
|             | 2-naphthylamine            | 28.636%       |             | J/UJ   |
| CC 06/16/08 | 4-nitroquinoline-1-oxide   | 0.02985       | all samples | J/R    |
|             | hexachlorophene            | 0.03887       |             |        |
|             | 3,3'-dichlorobenzidine     | 44.1%         |             | J/UJ   |
|             | dinoseb                    | 21.3%         |             |        |
|             | a,a-dimethylphenethylamine | 22.4%         |             |        |
|             | famphur                    | 32.0%         |             |        |

### **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 (79%/78%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/UJ in all samples.

## Blanks

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

| Blank ID     | Compound   | Concentration | Reporting Limit | Action Level |
|--------------|------------|---------------|-----------------|--------------|
| Method Blank | acetone    | 4.8J ug/Kg    | 50 ug/Kg        | 2X RL        |
| method Blank | toluene    | 1.0J ug/Kg    | 5.0 ug/Kg       | 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              |
|---|------------|---------------------|
| 62SB01-00, 62SB04-00, 62SB02-00, 62SB03-00, 62SB06-00, 62SB06-01, 62SB07-00 | 2-butanone | U at reported value |
| 62SB06-00   | toluene    | U at reported value |
| 62SB04-00   | 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 | 7.8J ug/Kg    | 33 ug/Kg        | 2X RL        |

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

| Sample ID                                  | Compound                   | Q Flag              |
|--|----------------------------|---------------------|
| 62SB03-00, 62SB03-05, 62SB06-01, 62SB06-03 | 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

Michael Baker, Jr., Inc.  
NAPR SWMU62, Puerto Rico  
SDG# SWMU37251-1  
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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 | 0.08160J 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      |

### Internal Standards

#### SVOA

Sample 62SB03-01 exhibited low internal standard area recovery for perylene-d12; therefore all compounds associated with this standard were qualified as estimated (J/UJ).

### Surrogate Recoveries

#### SVOA

Sample 62SB03-05 exhibited low surrogate recovery for 2-fluorophenol at 2% (QC limit 41-110%), phenol-d5 at 8% (QC limit 43-110%), nitrobenzene-d5 at 2% (QC limit 36-110%) and 2-fluorobiphenyl at 12% (QC limit 44-110%); therefore all positive results were qualified as estimated (J) and non-detected results were qualified as rejected (R).

### 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. Please note that the analyte vanadium was recovered in the MS & MSD below the QC limits (<10%). The analyte was not rejected as suggested by the validation guidelines because the spike added amount was only 0.2 ug/L less than 4X the native sample concentration. At this 4X point the spike recoveries are no longer used to flag the data. Therefore, the validator flagged the vanadium results as estimated J/UJ.

| MS        | Analytes | Samples     | %R    | Q Flag |
|-----------|----------|-------------|-------|--------|
| 62SB04-00 | antimony | all samples | 56/61 | J/UJ   |
|           | vanadium |             | 1/6   |        |

## Field Duplicates

### Metals

The field duplicate pair of samples 62SB04-03 and 62SB04-03D exhibited metals results that did not compare. The analytes chromium (119%) and nickel (46%) exhibited RPDs that were  $\geq 35\%$  but less than 120% and were qualified as estimated J in both samples.

### Identification/Quantitation

#### SVOA

Sample 62SB03-01RA was not used in favor of the initial analysis due to non-compliant internal standard area recoveries.

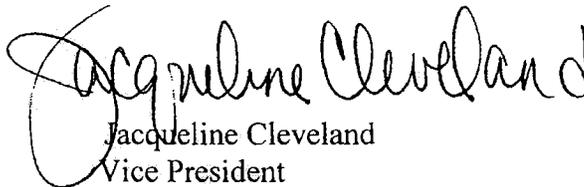
Sample 62SB03-05RE was not used in favor of the initial analysis due to grossly exceeded extraction holding time.

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              |
|---|--|---------|---------------------|
| 62SB01-00, 62SB04-00  | pentachloroethane  | +/-     | J/R                 |
| 62SB01-00, 62SB04-00  | iodomethane<br>acetonitrile<br>3-chloro-1-propene<br>2-chloro-1,3-butadiene<br>propionitrile<br>methacrylonitrile<br>methyl methacrylate<br>chloroethane<br>acetone<br>2-butanone<br>1,1,1-trichloroethane<br>carbon tetrachloride<br>cis-1,3-dichloropropene<br>4-methyl-2-pentanone<br>1,2-dibromo-3-chloropropane | +/-     | J/UJ                |
| 62SB02-00, 62SB03-00, 62SB03-01,<br>62SB03-05, 62SB05-00, 62SB06-00,<br>62SB06-01, 62SB06-03, 62SB07-00 | pentachloroethane<br>isobutyl alcohol  | +/-     | J/R                 |
| 62SB02-00, 62SB03-00, 62SB03-01,<br>62SB03-05, 62SB05-00, 62SB06-00,<br>62SB06-01, 62SB06-03, 62SB07-00 | iodomethane<br>acetonitrile<br>3-chloro-1-propene<br>acrylonitrile<br>propionitrile<br>methacrylonitrile<br>methyl methacrylate<br>chloroethane<br>acetone<br>vinyl acetate<br>2-butanone<br>1,1,1-trichloroethane<br>carbon tetrachloride<br>cis-1,3-dichloropropene<br>4-methyl-2-pentanone                        | +/-     | J/UJ                |
| 62SB01-00, 62SB04-00, 62SB02-00,<br>62SB03-00, 62SB06-00, 62SB06-01,<br>62SB07-00                       | 2-butanone   | +       | U at reported value |
| 62SB06-00   | toluene  | +       | U at reported value |
| 62SB04-00   | acetone  | +       | U at reported value |

## Summary of Data Qualifications, continued

### 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                      |
| all samples                                   | 4-nitroquinoline-1-oxide<br>hexachlorophene                                | +/-     | J/R                       |
| all samples                                   | 3,3'-dichlorobenzidine<br>dinoseb<br>a,a-dimethylphenethylamine<br>famphur | +/-     | J/UJ                      |
| 62SB03-00, 62SB03-05, 62SB06-01,<br>62SB06-03 | bis(2-ethylhexyl)phthalate   | +       | U at<br>reported<br>value |
| 62SB03-01                                     | all compounds associated<br>with:<br>perylene-d12                          | +/-     | J/UJ                      |
| 62SB03-05                                     | all results  | +/-     | J/R                       |
| 62SB03-01RA, 62SB03-05RE                      | all results  | +/-     | R                         |

### Pesticides/PCBs

| Sample ID         | Compound | Results | Q flag |
|-------------------|----------|---------|--------|
| No qualifications |          |         |        |

### Metals

| Sample ID             | Analyte              | Results       | Q flag |
|-----------------------|----------------------|---------------|--------|
| all samples           | silver               | +/-           | J/UJ   |
| all samples           | antimony             | >MDL up to RL | U      |
| all samples           | antimony<br>vanadium | +/-           | J/UJ   |
| 62SB04-03, 62SB04-03D | chromium<br>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 SAVANNAH SDG 37251-2**

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# DataQual

## Environmental Services, LLC

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

September 29, 2008  
SDG# SWMU37251-2, 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 # SWMU37251-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22, 8081B SOP # HW-44, Rev 1 October 2006, 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). 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 | PCB | Metals |
|---------------|-----------------|--------|------------|-------------|------------|-----|--------|
| 62SB07-01     | 680-37251-23    | soil   |            |             |            |     | X      |
| 62SB07-02     | 680-37251-24    | soil   |            |             |            |     | X      |
| 62SB08-00     | 680-37251-25    | soil   | X          | X           | X          | X   | X      |
| 62SB08-00D    | 680-37251-26    | soil   | X          | X           | X          | X   | X      |
| 62SB08-01     | 680-37251-27    | soil   | X          | X           | X          | X   | X      |
| 62SB08-02     | 680-37251-28    | soil   | X          | X           | X          | X   | X      |
| 62SB08-02D    | 680-37251-29    | soil   | X          | X           | X          | X   | X      |
| 62SB09-00     | 680-37251-30    | soil   | X          | X           | X          | X   | X      |
| 62SB09-01     | 680-37251-31    | soil   | X          | X           | X          | X   | X      |
| 62SB09-02     | 680-37251-32    | soil   | X          | X           | X          | X   | X      |
| 62SB08-00 MS  | 680-37251-25MS  | soil   | X          | X           | X          | X   | X      |
| 62SB08-00 MSD | 680-37251-25MSD | soil   | X          | X           | X          | X   | X      |
| 62SB08-02 MS  | 680-37251-28MS  | soil   | X          | X           | X          | X   | X      |
| 62SB08-02 MSD | 680-37251-28MSD | soil   | X          | X           | X          | X   | X      |

The following quality control samples were provided with this SDG: sample 62SB08-00D-field duplicate of sample 62SB08-00; sample 62SB08-02D-field duplicate of sample 62SB08-02. The samples were evaluated based on the following criteria:

- Data Completeness \*
- Sample Condition \*
- Technical Holding Times \*
- GC/MS Tuning \*

- GC Performance \*
- Initial/Continuing Calibrations
- 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.

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

#### **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.

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.

### **Pesticides/PCBs**

Three compounds in one of the MS/MSD pairs submitted exhibited low recovery. These compounds were qualified as estimated J/UJ in the native sample and the field duplicate.

The field duplicate pairs exhibited RPDs >100% for two compounds. These results were flagged as estimated J in the field duplicate pair.

Some reported positive results exhibited column quantitation %Ds greater than 25%. These results were flagged based on Region II guidelines.

### **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 pairs submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD for the analytes tin and antimony. All results for antimony in the metals samples were qualified as estimated J/UJ. All positive results for the analyte vanadium were qualified as estimated J.

The field duplicate pair exhibited non-compliant RPDs for three analytes. These analytes were qualified as estimated in the field duplicate pairs.

### **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

Michael Baker, Jr., Inc.  
NAPR SWMU62, Puerto Rico  
SDG# SWMU37251-2

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 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 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 06/11/08             | pentachloroethane       | 192.0%        | 62SB08-00,<br>62SB08-00D,<br>62SB08-01               | 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%                   |               |  |        |
| CC 06/12/08             | pentachloroethane       | 161.9%        | 62SB08-02,<br>62SB08-02D,<br>62SB09-00,<br>62SB09-01 | J/R    |
|                         | acrylonitrile           | 24.1%         |  | J/UJ   |
|                         | chloroethane            | 34.4%         |  |        |
|                         | acetone                 | 27.1%         |  |        |
|                         | 2-butanone              | 26.4%         |  |        |
|                         | 1,1,1-trichloroethane   | 29.2%         |  |        |
|                         | 1,1-dichloropropene     | 32.3%         |  |        |
|                         | carbon tetrachloride    | 27.9%         |  |        |
|                         | cis-1,3-dichloropropene | 25.5%         |  |        |
|                         | 4-methyl-2-pentanone    | 39.2%         |  |        |
| CC 06/13/08             | pentachloroethane       | 182.6%        | 62SB09-02  | J/R    |

| Standard ID | Compound(s)             | RRF, %RSD, %D | Samples | Q Flag |
|-------------|-------------------------|---------------|---------|--------|
|             | acrylonitrile           | 28.2%         |         | J/UJ   |
|             | chloroethane            | 45.3%         |         |        |
|             | acetone                 | 29.4%         |         |        |
|             | 2-butanone              | 31.4%         |         |        |
|             | 1,1,1-trichloroethane   | 31.4%         |         |        |
|             | 1,1-dichloropropene     | 35.9%         |         |        |
|             | carbon tetrachloride    | 29.9%         |         |        |
|             | cis-1,3-dichloropropene | 29.8%         |         |        |
|             | 4-methyl-2-pentanone    | 45.6%         |         |        |

### 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 06/24/08 | 4-nitroquinoline-1-oxide   | 0.02682       | 62SB08-01,  | J/R    |
|             | 2,4,5-trichlorophenol      | 20.7%         | 62SB08-02,  | J/UJ   |
|             | 3-nitroaniline             | 20.7%         | 62SB09-00,  |        |
|             | 2,4-dinitrophenol          | 26.6%         | 62SB09-01,  |        |
|             | benzo(b)fluoranthene       | 26.5%         | 62SB08-00D  |        |
|             | 2-naphthylamine            | 41.9%         |             |        |
|             | methapyrilene              | 21.0%         |             |        |
| CC 06/25/08 | 3,3-dimethylbenzidine      | 59.6%         |             |        |
|             | 4-nitroquinoline-1-oxide   | 0.02650       | 62SB08-00   | J/R    |
|             | 3,3'-dichlorobenzidine     | 29.9%         |             | J/UJ   |
|             | benzo(g,h,i)perylene       | 26.9%         |             |        |
|             | a,a-dimethylphenethylamine | 23.3%         |             |        |
|             | pentachloronitrobenzene    | 25.4%         |             |        |
| CC 06/27/08 | 3,3-dimethylbenzidine      | 56.5%         |             |        |
|             | 4-nitroquinoline-1-oxide   | 0.02587       | 62SB08-02D, | J/R    |
|             | benzo(b)fluoranthene       | 27.7%         | 62SB09-02   | J/UJ   |
|             | 2-naphthylamine            | 46.6%         |             |        |
|             | pentachloronitrobenzene    | 20.1%         |             |        |
|             | 3,3-dimethylbenzidine      | 49.6%         |             |        |

### 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 (79%/78%/78%/79%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/UJ in all samples.

#### Blanks

Michael Baker, Jr., Inc.  
NAPR SWMU62, Puerto Rico  
SDG# SWMU37251-2

## 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   | 4.9J ug/Kg    | 50 ug/Kg        | 2X RL        |
| FB01         | 2-butanol | 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              |
|---|-----------|---------------------|
| 62SB08-02, 62SB08-02D, 62SB09-00, 62SB09-01             | acetone   | U at reported value |
| 62SB08-00, 62SB08-00D, 62SB08-02D, 62SB09-00, 62SB09-02 | 2-butanol | 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 | 7.8J ug/Kg    | 33 ug/Kg        | 2X RL        |
| FB01         | 1,4-dichlorobenzene        | 0.16J ug/L    | 0.97 ug/L       | RL           |

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

| Sample ID  | Compound                   | Q Flag              |
|--|----------------------------|---------------------|
| 62SB08-01, 62SB08-02, 62SB09-00, 62SB09-01, 62SB08-00D, 62SB08-02D, 62SB09-02, 62SB08-00 | bis(2-ethylhexyl)phthalate | U at reported value |
| 62SB08-00, 62SB08-00D  | 1,4-dichlorobenzene        | 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 | 0.08160J ug/L | >MDL up to RL | U      |
| ICB      | antimony | 0.07517J 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 | lead     | U      |

### Internal Standards

#### SVOA

Sample 62SB08-00 exhibited low internal standard area recovery for perylene-d12; therefore all compounds associated with this standard were qualified as estimated (J/UJ).

### Matrix Spikes

#### SVOA

A matrix spike and matrix spike duplicate was submitted for sample 62SB08-00 and duplicate 62SB08-00D. The MS and the MSD exhibited non-compliant recoveries for almost half of the spiked compounds ranging from zero to 231% recovery. 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.

### Pesticides/PCBs

The MS/MSD of sample 62SB08-00 exhibited non-compliant recoveries below the QC limits in both the MS/MSD for three compounds. The compounds 4,4'-DDE, dieldrin and endrin were flagged as noted in the following table.

| MS        | Compound | Samples Affected      | %R    | Q Flag |
|-----------|----------|-----------------------|-------|--------|
| 62SB08-00 | 4,4'-DDE | 62SB08-00, 62SB08-00D | 14/14 | J/UJ   |
|           | dieldrin |                       | 36/36 |        |
|           | endrin   |                       | 0/34  |        |

## Metals

The matrix spike pairs submitted in this SDG exhibited non-compliant %R's for antimony and tin, 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 |
|-----------|----------|-------------|---------|--------|
| 62SB08-00 | antimony | all samples | 67/73   | J/UJ   |
| 62SB08-02 | tin      | all samples | 132/131 | J      |

## **Field Duplicates**

### SVOA

Sample 62SB08-00 and duplicate sample 62SB08-00D did not exhibit comparable results for naphthalene at 87% RPD and 2-methylnaphthalene at 200% RPD; therefore results for these compounds will be qualified as estimated (J/UJ).

### Pesticides/PCBs

The field duplicate pair of samples 62SB08-00 and 62SB08-00D exhibited positive results above the reporting limits for two compounds that exhibited RPDs >100%. These compounds, 4,4'-DDE (111%) and 4,4'-DDT (121%) were qualified as estimated J in both samples.

### Metals

The field duplicate pair of samples 62SB08-00 and 62SB08-00D exhibited metals results that did not compare. The analytes barium (42%), beryllium (43%) and chromium (62%) exhibited RPDs that were  $\geq 35\%$  but less than 120% and were qualified as estimated J in both samples.

## **Identification/Quantitation**

### SVOA

Sample 62SB08-00RA was not used in favor of the initial analysis due to non-compliant internal standard area recoveries.

### Pesticides/PCBs

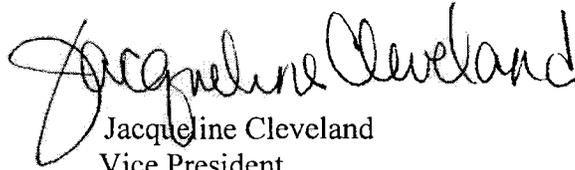
The samples 62SB09-01 and 62SB09-02 were re-extracted outside holding time due to non-compliant surrogate recoveries for one of the surrogate compounds. These RE samples are rejected in favor of the results reported from the original extraction analyses.

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              |
|--|---|---------|---------------------|
| 62SB08-00, 62SB08-00D, 62SB08-01                           | pentachloroethane<br>isobutyl alcohol   | +/-     | J/R                 |
| 62SB08-00, 62SB08-00D, 62SB08-01                           | iodomethane<br>acetonitrile<br>3-chloro-1-propene<br>acrylonitrile<br>propionitrile<br>methacrylonitrile<br>methyl methacrylate<br>chloroethane<br>acetone<br>vinyl acetate<br>2-butanone<br>1,1,1-trichloroethane<br>carbon tetrachloride<br>cis-1,3-dichloropropene<br>4-methyl-2-pentanone | +/-     | J/UJ                |
| 62SB08-02, 62SB08-02D, 62SB09-00,<br>62SB09-01             | pentachloroethane   | +/-     | J/R                 |
| 62SB08-02, 62SB08-02D, 62SB09-00,<br>62SB09-01             | acrylonitrile<br>chloroethane<br>acetone<br>2-butanone<br>1,1,1-trichloroethane<br>1,1-dichloropropene<br>carbon tetrachloride<br>cis-1,3-dichloropropene<br>4-methyl-2-pentanone   | +/-     | J/UJ                |
| 62SB09-02  | pentachloroethane   | +/-     | J/R                 |
| 62SB09-02  | acrylonitrile<br>chloroethane<br>acetone<br>2-butanone<br>1,1,1-trichloroethane<br>1,1-dichloropropene<br>carbon tetrachloride<br>cis-1,3-dichloropropene<br>4-methyl-2-pentanone   | +/-     | J/UJ                |
| 62SB08-02, 62SB08-02D, 62SB09-00,<br>62SB09-01             | acetone   | +       | U at reported value |
| 62SB08-00, 62SB08-00D, 62SB08-02D,<br>62SB09-00, 62SB09-02 | 2-butanol   | +       | U at reported value |

## Summary of Data Qualifications, continued

### SVOA

| Sample ID  | Compound  | Results | Q flag              |
|--|---|---------|---------------------|
| all samples  | naphthalene   | +/-     | J/UJ                |
| 62SB08-01, 62SB08-02, 62SB09-00,<br>62SB09-01, 62SB08-00D                                      | 4-nitroquinoline-1-oxide  | +/-     | J/R                 |
| 62SB08-01, 62SB08-02, 62SB09-00,<br>62SB09-01, 62SB08-00D                                      | 2,4,5-trichlorophenol<br>3-nitroaniline<br>2,4-dinitrophenol<br>benzo(b)fluoranthene<br>2-naphthylamine<br>methapyrilene<br>3,3-dimethylbenzidine | +/-     | J/UJ                |
| 62SB08-00  | 4-nitroquinoline-1-oxide  | +/-     | J/R                 |
| 62SB08-00  | 3,3'-dichlorobenzidine<br>benzo(g,h,i)perylene<br>a,a-dimethylphenethylamine<br>pentachloronitrobenzene<br>3,3-dimethylbenzidine                  | +/-     | J/UJ                |
| 62SB08-02D, 62SB09-02  | 4-nitroquinoline-1-oxide  | +/-     | J/R                 |
| 62SB08-02D, 62SB09-02  | benzo(b)fluoranthene<br>2-naphthylamine<br>pentachloronitrobenzene<br>3,3-dimethylbenzidine   | +/-     | J/UJ                |
| 62SB08-01, 62SB08-02, 62SB09-00,<br>62SB09-01, 62SB08-00D, 62SB08-02D,<br>62SB09-02, 62SB08-00 | bis(2-ethylhexyl)phthalate  | +       | U at reported value |
| 62SB08-00, 62SB08-00D  | 1,4-dichlorobenzene   | +       | U at reported value |
| 62SB08-00  | all compounds associated with:<br>perylene-d12  | +/-     | J/UJ                |
| 62SB08-00, 62SB08-00D  | all results   | +/-     | J/UJ                |
| 62SB08-00, 62SB08-00D  | naphthalene,<br>2-methylnaphthalene   | +/-     | J/UJ                |
| 62SB08-00RA  | all results   | +/-     | R                   |

### Pesticides/PCBs

| Sample ID                | Compound                         | Results | Q flag |
|--------------------------|----------------------------------|---------|--------|
| 62SB08-00, 62SB08-00D    | 4,4'-DDE<br>dieldrin<br>endrin   | +/-     | J/UJ   |
| 62SB08-00                | 4,4'-DDE<br>4,4'-DDD<br>4,4'-DDT | +       | J      |
| 62SB09-01RE, 62SB09-02RE | all compounds                    | +/-     | R      |
| 62SB08-00, 62SB08-00D    | 4,4'-DDE<br>4,4'-DDT             | +       | J      |

## Summary of Data Qualifications, continued

### Metals

| Sample ID                 | Analyte                         | Results       | Q flag |
|---------------------------|---------------------------------|---------------|--------|
| all samples               | silver                          | +/-           | J/UJ   |
| all samples >MDL up to RL | antimony<br>lead                | >MDL up to RL | U      |
| all samples               | antimony                        | +/-           | J/UJ   |
| all samples               | tin                             | +             | J      |
| 62SB08-00, 62SB08-00D     | barium<br>beryllium<br>chromium | +             | J      |

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

|    |   |
|----|---|
| U  | not detected above the reported sample quantitation limit                     |
| J  | estimated value   |
| UJ | reported quantitation limit is qualified as estimated                         |
| N  | analyte has been tentatively identified                                       |
| JN | analyte has been tentatively identified, estimated value                      |
| R  | result is rejected; the presence or absence of the analyte cannot be verified |

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

|      |  |
|------|--|
| NA   | The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.                                       |
| U*   | The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration. |
| RL** | The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.         |

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

|             |  |
|-------------|--|
| No Action - | The sample result is greater than the RL and greater than ten times (10X) the blank value.   |
| U -         | The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL. |

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note – Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

|      |                                      |
|------|--------------------------------------|
| RL   | reporting limit                      |
| IDL  | instrument detection limit           |
| MDL  | method detection limit               |
| CRDL | contract required detection limit    |
| CRQL | contract required quantitation limit |
| +    | positive result                      |
| -    | non-detect result                    |

**TEST AMERICA SAVANNAH SDG 37251-3**

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# DataQual

Environmental Services, LLC

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

September 29, 2008  
SDG# SWMU37251-3, Test America-Savannah  
NAPR SWMU 62, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # 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

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

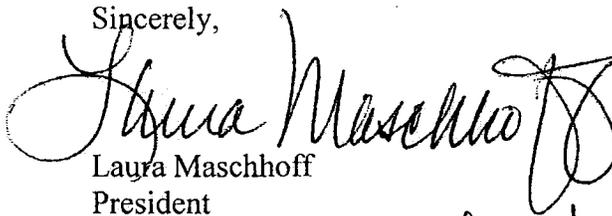
#### VOA

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.

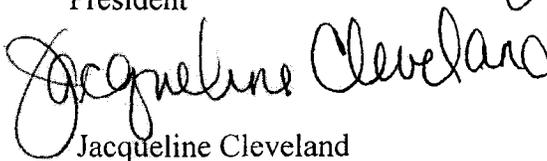
| Standard ID | Compound(s)                 | RRF, %RSD, %D | Samples     | Q Flag |
|-------------|-----------------------------|---------------|-------------|--------|
| CC 06/08/08 | pentachloroethane           | 103.2%        | all samples | J/R    |
|             | acrolein                    | 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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-003

## Summary of Data Qualifications

### VOA

| Sample ID   | Compound   | Results | Q flag |
|-------------|--|---------|--------|
| all samples | pentachloroethane  | +/-     | J/R    |
| all samples | acrolein<br>chloromethane<br>bromomethane<br>chloroethane<br>trichlorofluoromethane<br>cis-1,3-dichloropropene<br>trans-1,3-dichloropropene<br>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 SAVANNAH SDG 37369-2**

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# DataQual

## Environmental Services, LLC

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

November 23, 2008  
SDG# SWMU37369-2, Test America-Savannah  
NAPR SWMU 61, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37369-2. The data validation was performed in accordance with the SW-846 methods utilized by the laboratory, the Region II Standard Operating Procedures for the Validation of Organic Data Acquired Using SW-846 Methods (8260B-Rev 2, January 2006- SOP #HW-24 and 8270D-Rev 3, October 2006- SOP #HW-22), and professional judgment. Region II has not developed a validation checklist SOP for the methods used to assess the inorganic methods in this SDG (SW-846 methods 6020B, 7471A). 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 | Metals |
|--------------|-----------------|--------|------------|-------------|--------|
| 61SB12-00    | 680-37369-21    | soil   | X          | X           | X      |
| 61SB12-01    | 680-37369-22    | soil   | X          | X           | X      |
| 61SB12-05    | 680-37369-23    | soil   | X          | X           | X      |
| 61SB18-05    | 680-37369-24    | soil   | X          | X           | X      |
| 61SB19-01    | 680-37369-25    | soil   | X          | X           | X      |
| 61SB19-02    | 680-37369-26    | soil   | X          | X           | X      |
| 61SB19-00    | 680-37369-27    | soil   | X          | X           | X      |
| 61TB02       | 680-37369-28    | water  | X          |             |        |
| 61SB17-01    | 680-37369-34    | soil   | X          | X           | X      |
| 61SB12-05D   | 680-37369-39    | soil   | X          | X           | X      |
| 61SB18-05MS  | 680-37369-24MS  | soil   |            |             | X      |
| 61SB18-05MSD | 680-37369-24MSD | soil   |            |             | X      |

The following quality control sample was provided with this SDG: sample 61SB12-05D- field duplicate of sample 61SB12-05; and sample 61TB02-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 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.

The field duplicate pair did not exhibit comparable result that required qualifications to the data.

### **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.

The associated laboratory control spike exhibited non-compliant recovery for pentachlorophenol; therefore all samples were qualified as estimated for this compound.

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

## **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 spikes pair submitted in this SDG exhibited non-compliant recoveries in both the MS and the MSD for the analytes antimony and nickel for which qualifications were required. All results for antimony and nickel in the metals samples were qualified as estimated J/UJ.

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

The field duplicate pair exhibited a non-compliant RPD for one analyte. This analyte was qualified as estimated in the field duplicate pair.

## **Specific Evaluation of Data**

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required. Clarification questions were asked of the laboratory regarding the metals fraction. A copy of the e-mail correspondence is included in the validation worksheets.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 05/31 and 06/03/08 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.

### **Initial/Continuing Calibration**

### **VOA**

Calibration standards exhibited RRFs and %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%        | 61TB02  | J/R    |
|                             | acrolein                    | 63.1%         |   | J/UJ   |
|                             | propionitrile               | 20.9%         |   |        |
|                             | isobutyl alcohol            | 34.0%         |   |        |
| CC 06/14/08                 | isobutyl alcohol            | 0.02332       | 61SB12-01,<br>61SB12-05,<br>61SB18-05,<br>61SB19-01,<br>61SB19-02,<br>61SB19-00,<br>61SB17-01 | J/R    |
|                             | acrolein                    | 37.3%         |   | J/UJ   |
|                             | iodomethane                 | 22.0%         |   |        |
|                             | acetonitrile                | 30.4%         |   |        |
|                             | 3-chloro-1-propene          | 43.3%         |   |        |
|                             | pentachloroethane           | 29.7%         |   |        |
|                             | 2-butanone                  | 31.1%         |   |        |
|                             | 4-methyl-2-pentanone        | 35.2%         |   |        |
|                             | 2-hexanone                  | 32.9%         |   |        |
|                             | 1,1,2,2-tetrachloroethane   | 23.4%         |   |        |
|                             | 1,2,3-trichloropropane      | 25.6%         |   |        |
| 1,2-dibromo-3-chloropropane | 28.6%                       |               |   |        |
| CC 06/16/08                 | pentachloroethane           | 188.4%        | 61SB12-00   | J/R    |
|                             | acrolein                    | 32.1%         |   | J/UJ   |
|                             | acrylonitrile               | 34.8%         |   |        |
|                             | chloroethane                | 52.4%         |   |        |
|                             | acetone                     | 23.2%         |   |        |
|                             | 2-butanone                  | 23.4%         |   |        |
|                             | 4-methyl-2-pentanone        | 38.3%         |   |        |
|                             | 1,1,2,2-tetrachloroethane   | 21.6%         |   |        |
| CC 06/17/08                 | pentachloroethane           | 122.1%        | 61SB12-05D  | J/R    |
|                             | acrolein                    | 36.7%         |   | J/UJ   |
|                             | acrylonitrile               | 33.0%         |   |        |
|                             | ethyl methacrylate          | 21.5%         |   |        |
|                             | trans-1,4-dichloro-2-butene | 23.5%         |   |        |
|                             | chloroethane                | 38.1%         |   |        |
|                             | acetone                     | 30.9%         |   |        |
|                             | 2-butanone                  | 30.0%         |   |        |
|                             | 1,1,1-trichloroethane       | 29.5%         |   |        |
|                             | carbon tetrachloride        | 28.8%         |   |        |
|                             | cis-1,3-dichloropropene     | 32.9%         |   |        |
|                             | 4-methyl-2-pentanone        | 48.2%         |   |        |
| 1,1,2-trichloroethane       | 21.2%                       |               |   |        |

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               | 15.2%         | all samples  | J/UJ   |
| CC 07/01/08 | 4-nitroquinoline-1-oxide  | 0.02743       | 61SB12-00,<br>61SB12-01,<br>61SB12-05,<br>61SB18-05,<br>61SB19-01,<br>61SB19-00,<br>61SB17-01,<br>61SB12-05D | J/R    |
|             | 2,4-dinitrophenol         | 21.7%         |  | J/UJ   |
|             | benzo(g,h,i)perylene      | 21.4%         |  |        |
|             | 2-naphthylamine           | 33.0%         |  |        |
|             | pentachloronitrobenzene   | 26.5%         |  |        |
|             | methapyrilene             | 26.0%         |  |        |
|             | aramite, total            | 35.5%         |  |        |
|             | famphur                   | 30.5%         |  |        |
| CC 07/02/08 | 4-nitroquinoline-1-oxide  | 0.02683       | 61SB19-02  | J/R    |
|             | hexachlorocyclopentadiene | 21.9%         |  | J/UJ   |
|             | 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%         |  |        |
|             | 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 less than the lower QC limit for the analyte silver (78%/79%/78%). 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.

Michael Baker, Jr., Inc.  
NAPR SWMU 61, Puerto Rico  
SDG# SWMU37369-2

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| Blank ID     | Compound   | Concentration | Reporting Limit | Action Level |
|--------------|------------|---------------|-----------------|--------------|
| Method Blank | acetone    | 9.2 ug/Kg     | 50 ug/Kg        | 2X RL        |
| Method Blank | acetone    | 4.2J ug/Kg    | 50 ug/Kg        | 2X RL        |
| 61TB02       | 2-butanone | 0.79J ug/L    | 10 ug/L         | 2X RL        |
| ER26         | 2-butanone | 0.88J ug/L    | 10 ug/L         | 2X RL        |
|              | benzene    | 1             | 1               | 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              |
|--|------------|---------------------|
| 61SB12-00, 61SB12-01, 61SB12-05, 61SB18-05, 61SB19-01, 61SB19-02, 61SB19-00, 61SB17-01 | 2-butanone | U at reported value |
| 61SB12-01, 61SB12-05, 61SB18-05, 61SB19-01, 61SB19-02, 61SB17-01, 61SB12-00            | acetone    | U at reported value |
| 61SB12-00  | benzene    | 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 | 11J ug/Kg     | 33 ug/Kg        | 2X RL        |
| ER26         | naphthalene                | 0.78 ug/L     | 0.19 ug/L       | RL           |

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

| Sample ID   | Compound                   | Q Flag              |
|---|----------------------------|---------------------|
| 61SB12-00, 61SB12-01, 61SB12-05, 61SB18-05, 61SB19-00, 61SB17-01, 61SB12-05D, 61SB19-02 | bis(2-ethylhexyl)phthalate | U at reported value |
| 61SB12-00, 61SB12-01, 61SB19-01, 61SB19-00  | naphthalene                | 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 | 0.07517J 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      |

### Laboratory Control Samples

#### SVOA

The LCS associated with all the samples exhibited low recovery at 14% for pentachlorophenol (QC limits 28-117%); therefore all samples were qualified as estimated (J/UJ) for pentachlorophenol.

### Matrix Spikes

#### Metals

The matrix spike pair submitted in this SDG exhibited non-compliant %R's for antimony and nickel, 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 |
|-----------|----------|-------------|-------|--------|
| 61SB18-05 | antimony | all samples | 49/48 | J/UJ   |
|           | nickel   |             | 63/69 |        |

### Serial Dilutions

#### Metals

The serial dilution analysis submitted in this SDG exhibited a non-compliant %D for cobalt, requiring qualification in the field samples. A summary of these non-compliances and affected samples are noted in the following table.

| SD        | Analytes | Samples     | %D   | Q Flag |
|-----------|----------|-------------|------|--------|
| 61SB18-05 | cobalt   | all samples | 11.3 | J/UJ   |

### Field Duplicates

#### VOA

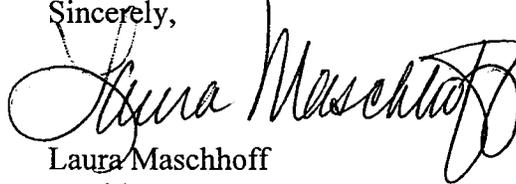
Sample 61SB12-05 and field duplicate 61SB12-05D did not exhibit comparable results for iodomethane with 200% RPD; therefore results for this compound were qualified as estimated (J/UJ).

Metals

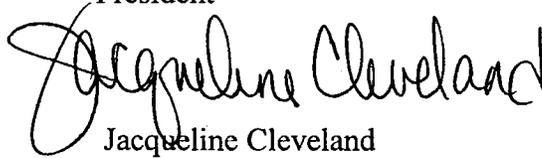
The field duplicate pair of samples 61SB12-05 and 61SB12-05D exhibited metals results that did not compare. The analyte barium exhibited a RPD that was  $\geq 35\%$  but less than 120% and was qualified as estimated J in both samples.

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

VOA

| Sample ID  | Compound   | Results | Q flag                    |
|--|--|---------|---------------------------|
| 61TB02   | pentachloroethane  | +/-     | J/R                       |
| 61TB02   | acrolein<br>propionitrile<br>isobutyl alcohol  | +/-     | J/UJ                      |
| 61SB12-01, 61SB12-05, 61SB18-05,<br>61SB19-01, 61SB19-02, 61SB19-00,<br>61SB17-01            | isobutyl alcohol   | +/-     | J/R                       |
| 61SB12-01, 61SB12-05, 61SB18-05,<br>61SB19-01, 61SB19-02, 61SB19-00,<br>61SB17-01            | acrolein<br>iodomethane<br>acetonitrile<br>3-chloro-1-propene<br>pentachloroethane<br>2-butanone<br>4-methyl-2-pentanone<br>2-hexanone<br>1,1,2,2-tetrachloroethane<br>1,2,3-trichloropropane<br>1,2-dibromo-3-chloropropane                         | +/-     | J/UJ                      |
| 61SB12-00  | pentachloroethane  | +/-     | J/R                       |
| 61SB12-00  | acrolein<br>acrylonitrile<br>chloroethane<br>acetone<br>2-butanone<br>4-methyl-2-pentanone<br>1,1,2,2-tetrachloroethane  | +/-     | J/UJ                      |
| 61SB12-05D   | pentachloroethane  | +/-     | J/R                       |
| 61SB12-05D   | acrolein<br>acrylonitrile<br>ethyl methacrylate<br>trans-1,4-dichloro-2-butene<br>chloroethane<br>acetone<br>2-butanone<br>1,1,1-trichloroethane<br>carbon tetrachloride<br>cis-1,3-dichloropropene<br>4-methyl-2-pentanone<br>1,1,2-trichloroethane | +/-     | J/UJ                      |
| 61SB12-00, 61SB12-01, 61SB12-05,<br>61SB18-05, 61SB19-01, 61SB19-02,<br>61SB19-00, 61SB17-01 | 2-butanone   | +       | U at<br>reported<br>value |
| 61SB12-01, 61SB12-05, 61SB18-05,<br>61SB19-01, 61SB19-02, 61SB17-01,<br>61SB12-00            | acetone  | +       | U at<br>reported<br>value |
| 61SB12-00  | benzene  | +       | U at<br>reported<br>value |
| 61SB12-05, 61SB12-05D  | iodomethane  | +/-     | J/UJ                      |

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## Summary of Data Qualifications, continued

### SVOA

| Sample ID   | Compound   | Results | Q flag                    |
|---|--|---------|---------------------------|
| all samples   | naphthalene  | +/-     | J/UJ                      |
| 61SB12-00, 61SB12-01, 61SB12-05,<br>61SB18-05, 61SB19-01, 61SB19-00,<br>61SB17-01, 61SB12-05D | 4-nitroquinoline-1-oxide   | +/-     | J/R                       |
| 61SB12-00, 61SB12-01, 61SB12-05,<br>61SB18-05, 61SB19-01, 61SB19-00,<br>61SB17-01, 61SB12-05D | 2,4-dinitrophenol<br>benzo(g,h,i)perylene<br>2-naphthylamine<br>pentachloronitrobenzene<br>methapyrilene<br>aramite, total<br>famphur  | +/-     | J/UJ                      |
| 61SB19-02   | 4-nitroquinoline-1-oxide   | +/-     | J/R                       |
| 61SB19-02   | hexachlorocyclopentadiene<br>2,4-dinitrophenol<br>3,3'-dichlorobenzidine<br>benzo(b)fluoranthene<br>benzo(g,h,i)perylene<br>hexachloropropene<br>2-naphthylamine<br>pentachloronitrobenzene<br>methapyrilene<br>3,3-dimethylbenzidine<br>famphur | +/-     | J/UJ                      |
| 61SB12-00, 61SB12-01, 61SB12-05,<br>61SB18-05, 61SB19-00, 61SB17-01,<br>61SB12-05D, 61SB19-02 | bis(2-ethylhexyl)phthalate   | +       | U at<br>reported<br>value |
| 61SB12-00, 61SB12-01, 61SB19-01,<br>61SB19-00   | naphthalene  | +       | U at<br>reported<br>value |
| all samples   | pentachlorophenol  | +/-     | J/UJ                      |

### Metals

| Sample ID                 | Analyte            | Results       | Q flag |
|---------------------------|--------------------|---------------|--------|
| all samples               | silver             | +/-           | J/UJ   |
| all samples >MDL up to RL | antimony           | >MDL up to RL | U      |
| all samples               | antimony<br>nickel | +/-           | J/UJ   |
| all samples               | cobalt             | +             | J      |
| 61SB12-05, 61SB12-05D     | barium             | +             | J      |

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

|    |   |
|----|---|
| U  | not detected above the reported sample quantitation limit                     |
| J  | estimated value   |
| UJ | reported quantitation limit is qualified as estimated                         |
| N  | analyte has been tentatively identified                                       |
| JN | analyte has been tentatively identified, estimated value                      |
| R  | result is rejected; the presence or absence of the analyte cannot be verified |

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

|      |  |
|------|--|
| NA   | The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.                                       |
| U*   | The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration. |
| RL** | The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.         |

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

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NAPR SWMU 61, Puerto Rico  
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## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note – Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.
- R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.
- J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

|      |                                      |
|------|--------------------------------------|
| RL   | reporting limit                      |
| IDL  | instrument detection limit           |
| MDL  | method detection limit               |
| CRDL | contract required detection limit    |
| CRQL | contract required quantitation limit |
| +    | positive result                      |
| -    | non-detect result                    |

**TEST AMERICA SAVANNAH SDG 37369-3**

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# DataQual

## Environmental Services, LLC

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

November 23, 2008  
SDG# SWMU37369-3, Test America-Savannah  
NAPR SWMU 71, Puerto Rico

Dear Mr. Kimes,

The following Data Validation report is provided as requested for the parameters noted in the table below for SDG # SWMU37369-3. 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; 8081A, October 2006-SOP HW-44), 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 | Pest | DRO | GRO | TMetals | DMetals |
|-----------|-----------------|--------|------------|------|-----|-----|---------|---------|
| 71GW06    | 680-37369-35    | water  | X          | X    | X   | X   | X       | X       |
| 71TB02    | 680-37369-36    | water  |            |      |     | X   |         |         |
| 71GW08    | 680-37369-37    | water  |            |      |     | X   |         |         |
| 71GW08D   | 680-37369-38    | water  |            |      |     | X   |         |         |
| 71GW08MS  | 680-37369-37MS  | water  |            |      |     | X   |         |         |
| 71GW08MSD | 680-37369-37MSD | water  |            |      |     | X   |         |         |

The following quality control samples were provided with this SDG: Sample 71GW08D-field duplicate of sample 71GW08; sample 71TB02-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. Please note that the reviewer added an F to the sample ID to indicate dissolved metals analysis when necessary. When more than one qualifier is associated with a compound/analyte the validator has chosen the qualifier that best indicates possible bias in the results and flagged the data accordingly. However, information regarding all quality control issues is provided in the body of the report and on the qualification summary page.

### **VOA**

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

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

### **Pesticides**

No qualifications to the data were required.

### **DRO/GRO**

No qualifications to the data were required.

## **Metals**

The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries below the QC limit for the analyte silver. Based on Region II guidelines all positive and non-detect results for silver in the total metals samples were qualified as estimated J/UJ.

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

The serial dilution submitted with the dissolved metals analysis exhibited a non-compliant %D for the analyte cobalt. The result for cobalt in the dissolved metals sample was qualified as estimated J/UJ.

The samples 71GW06 and 71GW06F exhibited a %D between the total metals and dissolved metals analysis that was greater than 20% for one analyte. This analyte was qualified as estimated J in the two samples.

## **Specific Evaluation of Data**

### **Data Completeness**

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/GRO fractions. A copy of these e-mail correspondences is included in the project file.

Please note that for the LCS in the Pesticides analysis, raw data final concentrations and Form 10 results did not reflect the reported concentrations for spiked compounds. The data on the quantitation pages was not always reflective of the extraction information. This happened because the quantitation page data were entered for soil extracts rather than water extracts. However, the Form 1 and Form 3 concentrations were correctly calculated and reported for the spike samples. There were no detections in the field sample.

### **Technical Holding Times**

According to chain of custody records, sampling was performed on 06/03/08 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.

## 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     | 20.1%         |             |        |
|             | isobutyl alcohol  | 34.0%         |             |        |

## 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 the total metals sample.

### **Blanks**

### VOA

The associated method and/or QC blanks exhibited contamination as noted in the following table. Compounds for which there was no action required, are not included in the following table. Please note that the laboratory reported non-detect results down to the MDL for this project. Therefore, the blank flagging actions were modified as follows to take this into consideration. Positive results greater than the MDL but less than the CRQL are qualified as U at the reported concentration when affected by blank contamination.

| Blank ID | Compound         | Concentration | Reporting Limit | Action Level |
|----------|------------------|---------------|-----------------|--------------|
| 71TB01   | 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.

| Sample ID | Compound         | Q Flag              |
|-----------|------------------|---------------------|
| 71GW06    | acetone          | U at reported value |
| 71GW06    | 2-butanone       | U at reported value |
| 71GW06    | carbon disulfide | U at reported value |

### Metals

Associated blanks exhibited contamination as noted in the following table. The laboratory reported non-detect results to the MDL for this project. Therefore, the blank flagging actions were modified to take this into consideration. Please see the Glossary of Qualification Flags and Abbreviations for details.

| Blank ID      | Analyte  | Concentration | Action Level  | Q Flag |
|---------------|----------|---------------|---------------|--------|
| PBW total     | arsenic  | 0.3534J ug/L  | >MDL up to RL | U      |
|               | tin      | 2.5480J ug/L  | >MDL up to RL | U      |
| ICB total     | antimony | 0.07517J ug/L | >MDL up to RL | U      |
| ICB dissolved | antimony | 0.11780J ug/L | >MDL up to RL | U      |
| ER27          | arsenic  | 0.31J 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      |
| 71GW06                    | tin      | U      |

### **Serial Dilution**

### Metals

The serial dilution submitted for the dissolved metals analysis exhibited a non-compliant %D for cobalt. A summary of this non-compliance and affected samples are noted in the following table.

| SD     | Analytes | Samples                  | %D   | Q Flag |
|--------|----------|--------------------------|------|--------|
| 61GW03 | cobalt   | dissolved metals samples | 44.7 | J/UJ   |

### **Identification/Quantitation**

### Metals

The total and dissolved metals analysis exhibited a %D >20% but less than or equal to 50% for one analyte. Elements exhibiting >20% but less than or equal to 50% difference

between total and dissolved concentrations were qualified as estimated J based on the Region II guidelines. Specific action is noted in the following table.

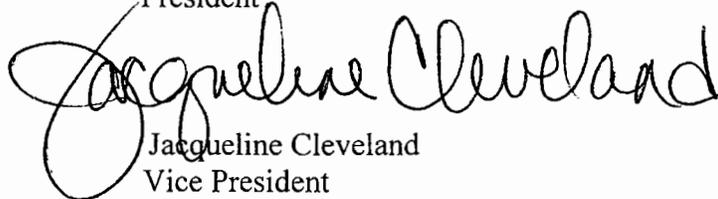
| Sample ID       | Analyte  | %D  | Q Flag |
|-----------------|----------|-----|--------|
| 71GW06, 71GW06F | vanadium | 40% | J      |

A summary of qualifications required is provided on the following page. Please do not hesitate to contact DataQual ES with any questions regarding this validation report.

Sincerely,



Laura Maschhoff  
President



Jacqueline Cleveland  
Vice President

## Summary of Data Qualifications

### VOA

| Sample ID   | Compound                                      | Results | Q flag              |
|-------------|---|---------|---------------------|
| all samples | pentachloroethane                             | +/-     | J/R                 |
| all samples | acrolein<br>propionitrile<br>isobutyl alcohol | +/-     | J/UJ                |
| 71GW06      | acetone                                       | +       | U at reported value |
| 71GW06      | 2-butanone                                    | +       | U at reported value |
| 71GW06      | carbon disulfide                              | +       | U at reported value |

### Pesticides

| 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 total metals samples     | silver   | +/-           | J/UJ   |
| all samples                  | antimony | >MDL up to RL | U      |
| all samples                  | arsenic  | >MDL up to RL | U      |
| 71GW06                       | tin      | >MDL up to RL | U      |
| all dissolved metals samples | cobalt   | +/-           | J/UJ   |
| 71GW06, 71GW06F              | vanadium | +             | J      |

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

|    |   |
|----|---|
| U  | not detected above the reported sample quantitation limit                     |
| J  | estimated value   |
| UJ | reported quantitation limit is qualified as estimated                         |
| N  | analyte has been tentatively identified                                       |
| JN | analyte has been tentatively identified, estimated value                      |
| R  | result is rejected; the presence or absence of the analyte cannot be verified |

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

|      |  |
|------|--|
| NA   | The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.                                       |
| U*   | The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration. |
| RL** | The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.         |

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

- No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.
- U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL.

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/UJ - Sample result is less than 10X RL when blank result is below the negative RL.

### **Field QC Blank action:**

*Note – Use field blanks to qualify data only if field blank results are greater than prep blank results.*

*Do not use rinsate blank associated with soils to qualify water samples and vice versa.*

No Action - The sample result is greater than the RL and greater than ten times (10X) the blank value.

U - The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the FB result is less or greater than the RL.

R - Sample result is greater than the RL and less than the FB value when the FB value is greater than the RL.

J - Sample result is greater than the FB value but less than 10X the FB value when FB value is greater than the RL.

### General Abbreviations

|      |                                      |
|------|--------------------------------------|
| RL   | reporting limit                      |
| IDL  | instrument detection limit           |
| MDL  | method detection limit               |
| CRDL | contract required detection limit    |
| CRQL | contract required quantitation limit |
| +    | positive result                      |
| -    | non-detect result                    |

**TEST AMERICA SAVANNAH SDG 37369-4**

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# DataQual

## Environmental Services, LLC

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

November 21, 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 | LL-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
- ICESA/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**

All 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 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**

All samples exceeded extraction holding time by 8 to 12 days; 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 06/21/08 | pentachloronitrobenzene    | 0.0481        | all samples | J/R    |
|             | benzo(k)fluoranthene       | 16.5%         |             | J/UJ   |
|             | benzo(a)pyrene             | 15.9%         |             |        |
| CC 06/25/08 | 4-nitroquinoline-1-oxide   | 0.02492       | all samples | 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     | 29.1%         |             |        |
|             | a,a-dimethylphenethylamine | 20.2%         |             |        |
|             | hexachlorophene            | 21.0%         |             |        |
|             | aramite, total             | 25.9%         |             |        |
|             | thionazin                  | 20.5%         |             |        |
|             | phorate                    | 22.7%         |             |        |
|             | disulfoton                 | 20.6%         |             |        |
|             | famphur                    | 26.9%         |             |        |

Michael Baker, Jr., Inc.  
NAPR, Puerto Rico  
SDG# SWMU37369-4

## ICSA/ICSAB Standards

### Metals

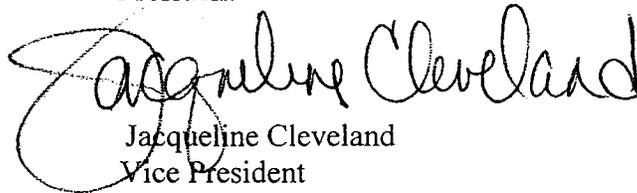
The ICSAB standards associated with the total metals analysis exhibited non-compliant recoveries less than the lower QC limit for the analyte silver (78%/79%). Based on Region II guidelines, reported positive and non-detect results for silver were qualified as estimated J/UJ in all samples.

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<br>propionitrile<br>isobutyl alcohol | +/-     | J/UJ   |

### SVOA

| Sample ID   | Compound  | Results | Q flag |
|-------------|---|---------|--------|
| all samples | all results   | +/-     | J/UJ   |
| all samples | pentachloronitrobenzene   | +/-     | J/R    |
| all samples | benzo(k)fluoranthene<br>benzo(a)pyrene  | +/-     | J/UJ   |
| all samples | 4-nitroquinoline-1-oxide  | +/-     | J/R    |
| all samples | 2,4-dinitrophenol<br>4,6-dinitro-2-methylphenol<br>3,3'-dichlorobenzidine<br>indeno(1,2,3-cd)pyrene<br>a,a-dimethylphenethylamine<br>hexachlorophene<br>aramite, total<br>thionazin<br>phorate<br>disulfoton<br>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   |

Michael Baker, Jr., Inc.  
NAPR, Puerto Rico  
SDG# SWMU37369-4

## Glossary of Qualification Flags and Abbreviations

### Qualification Flags (Q-Flags)

|    |   |
|----|---|
| U  | not detected above the reported sample quantitation limit                     |
| J  | estimated value   |
| UJ | reported quantitation limit is qualified as estimated                         |
| N  | analyte has been tentatively identified                                       |
| JN | analyte has been tentatively identified, estimated value                      |
| R  | result is rejected; the presence or absence of the analyte cannot be verified |

### Method/Preparation/Field QC Blank Qualification Flags (Q-Flags)

#### Organic Methods

|      |  |
|------|--|
| NA   | The sample result for the blank contaminant is greater than the RL (2X sample RL for common laboratory contaminants) when the blank value is less than the RL. The sample result for the blank contaminant is not qualified with any blank qualifiers.                                       |
| U*   | The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is qualified as non-detect U at the reported concentration. |
| RL** | The sample result for the blank contaminant is less than the RL (2X sample RL for common laboratory contaminants) but greater than the MDL when the blank value is less than the RL. The sample result for the blank contaminant is changed to the RL and qualified as non-detect U.         |

\* This guideline is used when the laboratory is reporting non-detects to the MDL. \*\* This guideline is used when the laboratory is reporting non-detects to the RL.

#### Inorganic Methods

##### **ICB/CCB/PB Action:**

|             |  |
|-------------|--|
| No Action - | The sample result is greater than the RL and greater than ten times (10X) the blank value.   |
| U -         | The sample result is greater than or equal to the MDL but less than or equal to the RL, result is reported as non-detect at the reported concentration, when the ICB/CCB/PB result is less or greater than the RL. |

## Glossary of Qualification Flags and Abbreviations, continued

- R - Sample result is greater than the RL and less than the ICB/CCB/PB value when the ICB/CCB/PB value is greater than the RL.
- J - Sample result is greater than the ICB/CCB/PB value but less than 10X the ICB/CCB/PB value when ICB/CCB/PB value is greater than the RL.
- J/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 CERTIFICATION**

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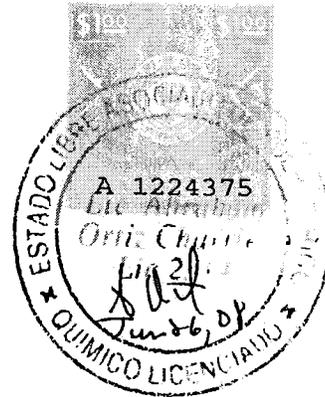
---

## 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

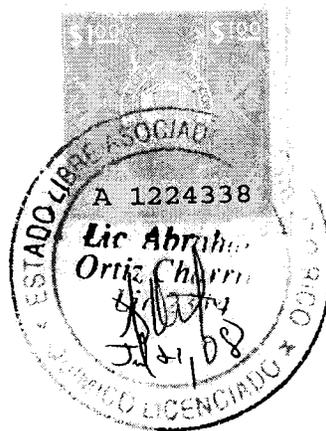


## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37251-1, 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 680-37251-2, 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 680-37251-3, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37369-2, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz

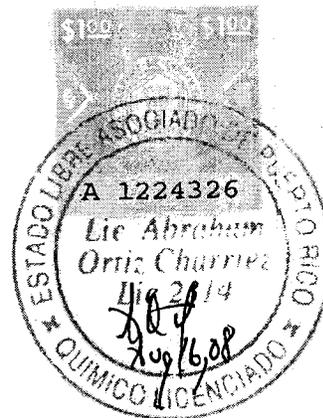


## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37369-3, and to the best of my knowledge, the results are correct and reliable.

---

Abraham Ortiz

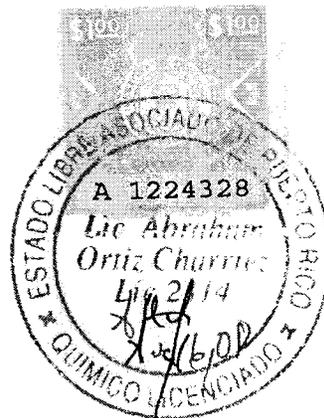


## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37369-4, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37406-3, and to the best of my knowledge, the results are correct and reliable.

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## PUERTO RICO CERTIFICATION

I Herby certify that I have reviewed the Quality Assurance Data for Project Number 680-37406-4, and to the best of my knowledge, the results are correct and reliable.

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Abraham Ortiz



**APPENDIX D**  
**PRELIMINARY HUMAN HEALTH RISK CALCULATIONS**

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**TABLE D-1**  
**SURFACE SOIL DATA AND COPC SELECTION SUMMARY**  
**SWMU 62 - FORMER BUNDY DISPOSAL AREA**  
**PHASE I RFI REPORT**  
**NAVAL ACTIVITY PERTO RICO, CEIBA, PUERTO RICO**

| Contaminant                      | Criteria <sup>(1)</sup>                   | Contaminant Frequency / Range / Location |                              |                               | Background <sup>(2)</sup> | COPC Selection      |                                     | Exposure Concentration Selection |                        |                                       |
|----------------------------------|---|--|------------------------------|-------------------------------|---------------------------|---------------------|-------------------------------------|----------------------------------|------------------------|---------------------------------------|
|                                  | Regional Residential Soil Screening Level | No. of Positive Detects / No. of Samples | Range of Positive Detections | Location of Maximum Detection | ULM                       | Selected as a COPC? | Rationale for Selection or Deletion | 95% UCL <sup>(3)</sup> (ProUCL)  | Exposure Concentration | Rationale for Concentration Selection |
| <b>Metals (mg/kg)</b><br>Arsenic | 0.390 C                                   | 11/12                                    | 0.91 B - 3.7                 | 62SB09-00                     | 2.65                      | YES                 | ASL                                 | 2.32 (NP)                        | 2.32                   | 95% KM (BCA) UCL                      |

Notes:

UCL - Upper Confidence Limit  
COPC - Chemical of Potential Concern

ug/kg - microgram per kilogram  
mg/kg - milligram per kilogram  
C = Carcinogenic

Rationale Codes:

(ASL) Above Screening Level

Shaded constituents were identified as COPCs for quantitative risk evaluation.

- (1) All non-carcinogenic criteria were divided by 10 to account for potential additive effects of chemicals. USEPA Regional Residential Soil Screening Level Table (September, 2008)
- (2) Revised Final II Summary Report for Environmental Background Concentrations (Baker, 2008): ULM
- (3) ProUCL was used to calculate the 95% UCL and distribution (>8 detected site observations):  
(NP) - Non-parametric distribution

TABLE D-2

**SUMMARY OF EXPOSURE PARAMETERS  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE I RFI REPORT  
NAVAL ACTIVITY PERTO RICO, CEIBA, PUERTO RICO**

| Parameter                               | Units                | Future Adult Residents          | Future Young Child Residents    |
|---|----------------------|---------------------------------|---------------------------------|
|   |                      | RME                             | RME                             |
| <b>Soil</b>                             |                      |                                 |                                 |
| Ingestion Rate of Soil (IR-S)           | mg/day               | 100<br>USEPA, 1991              | 200<br>USEPA, 1991              |
| Fraction Ingested from Source (Fi)      | NA                   | 1<br>Prof Judge <sup>(1)</sup>  | 1<br>Prof Judge <sup>(1)</sup>  |
| Exposure Frequency (EF)                 | days/year            | 350<br>USEPA, 1991              | 350<br>USEPA, 1991              |
| Exposure Duration (ED)                  | years                | 24<br>USEPA, 1991               | 6<br>USEPA, 1991                |
| Exposure Time (ET)                      | hours/day            | 24<br>Prof Judge <sup>(2)</sup> | 24<br>Prof Judge <sup>(2)</sup> |
| Surface Area Available for Contact (SA) | cm <sup>2</sup> /day | 5,700<br>USEPA, 2004            | 2,800<br>USEPA, 2004            |
| Respiration Rate (RR)                   | m <sup>3</sup> /hour | 0.83<br>USEPA, 2002             | 0.83<br>USEPA, 2002             |
| Conversion Factor (CF)                  | kg/mg                | 1.00E-06<br>USEPA, 1989         | 1.00E-06<br>USEPA, 1989         |
| Averaging Time (Non-Cancer) (AT-N)      | days                 | 8,760<br>USEPA, 1989            | 2,190<br>USEPA, 1989            |
| <b>Other Parameters</b>                 |                      |                                 |                                 |
| Body Weight (BW)                        | kg                   | 70<br>USEPA, 1997               | 15<br>USEPA, 1997               |
| Soil to Skin Adherence Factor (AF)      | mg/cm <sup>2</sup>   | 0.07<br>USEPA, 2004             | 0.2<br>USEPA, 2004              |
| Particulate Emission Factor (PEF)       | m <sup>3</sup> /kg   | 1.36E+09<br>USEPA, 2002         | 1.36E+09<br>USEPA, 2002         |
| Averaging Time (Cancer) (AT-C)          | days                 | 25,550<br>USEPA, 1989           | 25,550<br>USEPA, 1989           |

**Notes:**

RME - Reasonable Maximum Exposure  
Prof Judge - Professional Judgment

<sup>(1)</sup> Conservative assumption of 100% ingested from source.

<sup>(2)</sup> Conservatively assumes receptor remains at residence 24 hours/day.

As applicable, gastrointestinal absorption efficiencies (GIABS) and dermal absorption factors (ABS) obtained from RAGS Part E (USEPA, 2004).

- USEPA, 1989. Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part A) Interim Final.
- USEPA, 1991. Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual Supplemental Guidance. "Standard Default Exposure Factors."
- USEPA, 1997. Exposure Factors Handbook, Vol. 1: General Factors. ORD. EPA/600/P-95/002Fa.
- USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4 24. December 2002.
- USEPA, 2004. Risk Assessment Guidance for Superfund Vol 1, Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). EPA/540/R-99/005.

**TABLE D-3**  
**HUMAN HEALTH RISK ASSESSMENT TOXICITY FACTORS**  
**SWMU 62 - FORMER BUNDY DISPOSAL AREA**  
**PHASE I RFI REPORT**  
**NAVAL ACTIVITY PERTO RICO, CEIBA, PUERTO RICO**

| Constituents     | Oral CSF<br>(mg/kg/day) <sup>-1</sup> | Inhalation CSF<br>(mg/kg/day) <sup>-1</sup> | Oral RfD<br>(mg/kg/day) <sup>-1</sup> | Inhalation RfD<br>(mg/kg/day) <sup>-1</sup> | Oral Absorption Factors <sup>(1)</sup> | Oral to <sup>(2)</sup> Dermal Adjustment | WOE | Target Organ<br>(Systemic Toxicity) | Critical Effect<br>(Systemic Toxicity)                            |
|------------------|---------------------------------------|---|---------------------------------------|---|--|--|-----|-------------------------------------|---|
| <b>Volatiles</b> |                                       |   |                                       |   |  |  |     |                                     |   |
| Arsenic          | 1.50E+00                              | 1.51E+01                                    | 3.00E-04                              | 8.57E-06                                    | 0.03                                   | 100%                                     | A   | (o) Skin / CVS                      | (o) Hyperpigmentation, keratosis, possible vascular complications |

Notes:

CSF = Cancer Slope Factor  
RfD = Reference Dose  
WOE = Weight of Evidence

NA = Not Available  
(o) = Toxicity due to oral exposure  
(i) = Toxicity due to inhalation exposure

(1) - ABS - Absorption Factors taken from RAGS Part E (USEPA, 2004)  
(2) - Oral to dermal adjustment taken from RAGS Part E (USEPA, 2004)

WOE / EPA Group:

A - Human carcinogen  
B1 - Probable human carcinogen - indicates that limited human data are available  
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans  
C - Possible human carcinogen  
D - Not classifiable as a human carcinogen  
E - Evidence of noncarcinogenicity

Known/Likely (EPA classes A, B1, B2, C)  
Cannot be Determined (EPA class D)  
Not Likely (EPA class E)

Target Organ Abbreviations:

CVS = Cardiovascular System

TABLE D-4  
 SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs  
 REASONABLE MAXIMUM EXPOSURE  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PERTO RICO, CEIBA, PUERTO RICO

Scenario Timeframe: Future  
 Receptor Population: Residents  
 Receptor Age: Adult

| Medium       | Exposure Medium              | Exposure Point | Chemical             | Carcinogenic Risk     |            |         |                      |                       | Non-Carcinogenic Hazard Quotient |           |            |         |                       |             |  |  |
|--------------|------------------------------|----------------|----------------------|-----------------------|------------|---------|----------------------|-----------------------|----------------------------------|-----------|------------|---------|-----------------------|-------------|--|--|
|              |                              |                |                      | Ingestion             | Inhalation | Dermal  | External (Radiation) | Exposure Routes Total | Primary Target Organ             | Ingestion | Inhalation | Dermal  | Exposure Routes Total |             |  |  |
| Surface Soil | Surface Soil                 | Surface Soil   | Arsenic              | 1.6E-06               | --         | 2.0E-07 | --                   | 1.8E-06               | Skin / CVS                       | 0.01      | --         | <0.01   | 0.01                  |             |  |  |
|              |                              |                | Chemical Total       | 1.6E-06               | --         | 2.0E-07 | --                   | 1.8E-06               |                                  | 0.01      | --         | <0.01   | 0.01                  |             |  |  |
|              |                              |                | Exposure Point Total |                       |            |         |                      |                       |                                  | 1.8E-06   |            |         |                       |             |  |  |
|              | Exposure Medium Total        |                |                      |                       |            |         |                      |                       | 1.8E-06                          |           |            |         |                       |             |  |  |
|              | Air                          | Fugative Dust  |                      | Arsenic               | --         | 2.4E-09 | --                   | --                    | 2.4E-09                          | NA        | --         | <0.01   | --                    | <0.01       |  |  |
|              |                              |                |                      | Chemical Total        | --         | 2.4E-09 | --                   | --                    | 2.4E-09                          |           | --         | <0.01   | --                    | <0.01       |  |  |
|              |                              |                |                      | Exposure Point Total  |            |         |                      |                       |                                  |           | 2.4E-09    |         |                       |             |  |  |
|              |                              |                |                      | Exposure Medium Total |            |         |                      |                       |                                  |           |            | 2.4E-09 |                       |             |  |  |
|              | <b>Surface Soil Total</b>    |                |                      |                       |            |         |                      |                       | <b>1.83E-06</b>                  |           |            |         |                       | <b>0.01</b> |  |  |
|              | <b>Adult Residents Total</b> |                |                      |                       |            |         |                      |                       | <b>1.83E-06</b>                  |           |            |         |                       | <b>0.01</b> |  |  |

Total Risk Across Surface Soil 1.8E-06  
 Total Risk Across All Media and All Exposure Routes 1.8E-06

Total Hazard Index Across Surface Soil 0.01  
 Total Hazard Index Across All Media and All Exposure Routes 0.01

Notes.  
 Target Organ Abbreviations:  
 CVS = Cardiovascular System

**Oral and Dermal Exposure Routes:**  
 Oral / Dermal Cardiovascular System HI = 0.01  
 Oral / Dermal Skin HI = 0.01

Ingestion Pathway Intake:  
 $CDI (mg/kg\text{-}day) = C \times IR \times CF \times Fi \times EF \times ED \times 1/BW \times 1/AT$

Carcinogenic Risk =  
 $ILCR = \sum CDI \times CSF$

Dermal Pathway Intake:  
 $CDI (mg/kg\text{-}day) = C \times CF \times SA \times AF \times ABS \times EF \times ED \times 1/BW \times 1/AT$

Noncarcinogenic Risk =  
 $HQ = \sum CDI/RI/D$

Inhalation Pathway Intake:  
 $CDI (mg/kg\text{-}day) = Ca \times RR \times ET \times EF \times ED \times 1/PEF \times 1/BW \times 1/AT$

TABLE D-5  
 SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs  
 REASONABLE MAXIMUM EXPOSURE  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE I RFI REPORT  
 NAVAL ACTIVITY PERTO RICO, CEIBA, PUERTO RICO

Scenario Timeframe: Future  
 Receptor Population: Residents  
 Receptor Age: Young Child

| Medium       | Exposure Medium                    | Exposure Point | Chemical             | Carcinogenic Risk     |            |         |                      |                       | Non-Carcinogenic Hazard Quotient |             |            |        |                       |       |  |
|--------------|------------------------------------|----------------|----------------------|-----------------------|------------|---------|----------------------|-----------------------|----------------------------------|-------------|------------|--------|-----------------------|-------|--|
|              |                                    |                |                      | Ingestion             | Inhalation | Dermal  | External (Radiation) | Exposure Routes Total | Primary Target Organ             | Ingestion   | Inhalation | Dermal | Exposure Routes Total |       |  |
| Surface Soil | Surface Soil                       | Surface Soil   | Arsenic              | 3.8E-06               | --         | 3.2E-07 | --                   | 4.1E-06               | Skin / CVS                       | 0.10        | --         | <0.01  | 0.11                  |       |  |
|              |                                    |                | Chemical Total       | 3.8E-06               | --         | 3.2E-07 | --                   | 4.1E-06               |                                  | 0.10        | --         | <0.01  | 0.11                  |       |  |
|              |                                    |                | Exposure Point Total | 4.1E-06               |            |         |                      |                       |                                  | 0.11        |            |        |                       |       |  |
|              | Exposure Medium Total              |                |                      | 4.1E-06               |            |         |                      |                       | 0.11                             |             |            |        |                       |       |  |
|              | Air                                | Fugative Dust  |                      | Arsenic               | --         | 2.8E-09 | --                   | --                    | 2.8E-09                          | NA          | --         | <0.01  | --                    | <0.01 |  |
|              |                                    |                |                      | Chemical Total        | --         | 2.8E-09 | --                   | --                    | 2.8E-09                          |             | --         | <0.01  | --                    | <0.01 |  |
|              |                                    |                |                      | Exposure Point Total  | 2.8E-09    |         |                      |                       |                                  |             | <0.01      |        |                       |       |  |
|              |                                    |                |                      | Exposure Medium Total |            |         | 2.8E-09              |                       |                                  |             |            | <0.01  |                       |       |  |
|              | <b>Surface Soil Total</b>          |                |                      |                       |            |         |                      |                       | <b>4.14E-06</b>                  | <b>0.11</b> |            |        |                       |       |  |
|              | <b>Young Child Residents Total</b> |                |                      |                       |            |         |                      |                       | <b>4.14E-06</b>                  | <b>0.11</b> |            |        |                       |       |  |

Total Risk Across Surface Soil 4.1E-06  
 Total Risk Across All Media and All Exposure Routes 4.1E-06

Total Hazard Index Across Surface Soil 0.1  
 Total Hazard Index Across All Media and All Exposure Routes 0.1

Notes:  
Target Organ Abbreviations:  
 CVS = Cardiovascular System

**Oral and Dermal Exposure Routes:**  
 Oral / Dermal Cardiovascular System HI = 0.1  
 Oral / Dermal Skin HI = 0.1

Ingestion Pathway Intake:  
 $CDI (mg/kg\text{-}day) = C \times IR \times CF \times Fi \times EF \times ED \times 1/BW \times 1/AT$

Carcinogenic Risk =  
 $ILCR = \sum CDI \times CSF$

Dermal Pathway Intake:  
 $CDI (mg/kg\text{-}day) = C \times CF \times SA \times AF \times ABS \times EF \times ED \times 1/BW \times 1/AT$

Noncarcinogenic Risk =  
 $HQ = \sum CDI/RIID$

Inhalation Pathway Intake:  
 $CDI (mg/kg\text{-}day) = Ca \times RR \times ET \times EF \times ED \times 1/PEF \times 1/BW \times 1/AT$

**APPENDIX E**  
**SUMMARY OF ANALYTICAL RESULTS FROM PHASE II ECP**

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SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL  
 SWMU 62 - FORMER BUNDY DISPOSAL AREA  
 PHASE II ECP REPORT  
 NAVAL ACTIVITY PUERTO RICO

| Site ID<br>Sample ID<br>Sample Date<br>Sample Depth (ft bgs) | EPA<br>Region III<br>Industrial<br>RBCs<br>(mg/kg) | EPA<br>Region III<br>Residential<br>RBCs<br>(mg/kg) | <u>2x Average</u><br>Detected<br>Background<br>(mg/kg) | 8E-01<br>8E-SB01-01<br>05/14/04<br>1.00 - 3.00 | 8E-03<br>8E-SB03-01<br>05/14/04<br>1.00 - 3.00 | Number<br>Exceeding<br>EPA<br>Region III<br>Industrial<br>RBCs | Range<br>Exceeding<br>EPA<br>Region III<br>Industrial<br>RBCs | Number<br>Exceeding<br>EPA<br>Region III<br>Residential<br>RBCs | Range<br>Exceeding<br>EPA<br>Region III<br>Residential<br>RBCs | <u>Number</u><br>Exceeding<br><u>2x Average</u><br>Detected<br>Background | <u>Range</u><br>Exceeding<br><u>2x Average</u><br>Detected<br>Background | Location of<br>Maximum<br>Detection |
|--|--|---|--|--|--|--|---|---|--|---|--|-------------------------------------|
| <b>Appendix IX Inorganics (mg/kg)</b>                        |  |   |  |  |  |  |   |   |  |   |  |                                     |
| Barium   | 7,200  | 550   | 222  | 180 N  | <b>590 N</b>                                   | 0/2  |   | 1/2   | 590N   | 1/2   | 590N   | 8E-SB03-01                          |
| Beryllium  | 200  | 16  | 0.74   | <u>0.77</u>                                    | <u>0.56</u>                                    | 0/2  |   | 0/2   |  | 1/2   | 0.77   | 8E-SB01-01                          |
| Chromium   | 310  | 23  | 133  | 2.7  | 8.2  | 0/2  |   | 0/2   |  | 0/2   |  | 8E-SB03-01                          |
| Cobalt   | 2,000  | 160   | 30.0   | 11   | 5.4  | 0/2  |   | 0/2   |  | 0/2   |  | 8E-SB01-01                          |
| Copper   | 4,100  | 310   | 193  | 22 N   | 14 N   | 0/2  |   | 0/2   |  | 0/2   |  | 8E-SB01-01                          |
| Lead   | 400 <sup>(1)</sup>                                 | 400 <sup>(1)</sup>                                  | 8.68   | 0.93   | 0.91   | 0/2  |   | 0/2   |  | 0/2   |  | 8E-SB01-01                          |
| Nickel   | 2,000  | 160   | 31.9   | 1.6 B  | 2.8 B  | 0/2  |   | 0/2   |  | 0/2   |  | 8E-SB03-01                          |
| Tin  | 61,000   | 4,700   | 2.96   | 2.4 B  | 2.3 B  | 0/2  |   | 0/2   |  | 0/2   |  | 8E-SB01-01                          |
| Vanadium   | 100  | 7.8   | 462  | <b>24</b>                                      | <b>34</b>                                      | 0/2  |   | 2/2   | 24 - 34  | 0/2   |  | 8E-SB03-01                          |
| Zinc   | 31,000   | 2,300   | 88.6   | 14 E   | 11 E   | 0/2  |   | 0/2   |  | 0/2   |  | 8E-SB01-01                          |

**Notes:**

B - The reported result is an estimated concentration that is less than the PQL, but greater than or equal to the MDL.

N - The matrix spike recovery is not within control limits.

E- The reported value is an estimated because of the presence of matrix interference.

<sup>(1)</sup> - 1996 Soil Screening Guidance.

ft bgs - feet below ground surface.

mg/kg - milligrams per kilogram.

**Bold** indicates exceedance of EPA Region III Residential RBCs

Underline indicates exceedance of 2 x Average Detected Background

**SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL  
SWMU 62 - FORMER BUNDY DISPOSAL AREA  
PHASE II ECP REPORT  
NAVAL ACTIVITY PUERTO RICO**

| Site ID                               | EPA Region III Industrial RBCs (mg/kg) | EPA Region III Residential RBCs (mg/kg) | 2x Average Detected Background (mg/kg) | 8E-01<br>8E-SS01<br>05/14/04<br>0.00 - 1.00 | 8E-02<br>8E-SS02<br>05/14/04<br>0.00 - 1.00 | 8E-02<br>8E-SS02D<br>05/14/04<br>0.00 - 1.00 | 8E-03<br>8E-SS03<br>05/14/04<br>0.00 - 1.00 | Number Exceeding EPA Region III Industrial RBCs | Range Exceeding EPA Region III Industrial RBCs | Number Exceeding EPA Region III Residential RBCs | Range Exceeding EPA Region III Residential RBCs | Number Exceeding 2x Average Detected Background | Range Exceeding 2x Average Detected Background | Location of Maximum Detection |
|---------------------------------------|--|---|--|---|---|--|---|---|--|--|---|---|--|-------------------------------|
| <b>Appendix IX Inorganics (mg/kg)</b> |  |   |  |   |   |  |   |   |  |  |   |   |  |                               |
| Arsenic                               | 1.9                                    | 0.43                                    | 2.4                                    | <b>1.3</b>                                  | 1.1 U                                       | <b>0.91 B</b>                                | 1 U   | 0/4   |  | 2/4  | 0.91B - 1.3                                     | 0/4   |  | 8E-SS01                       |
| Barium                                | 7,200                                  | 550                                     | 181                                    | <u>220 N</u>                                | 90 N  | 120 N  | <u>190 N</u>                                | 0/4   |  | 0/4  |   | 2/4   | 190N - 220N                                    | 8E-SS01                       |
| Beryllium                             | 200                                    | 16                                      | 0.45                                   | 0.37 B                                      | 0.26 B                                      | 0.21 B                                       | <u>0.58</u>                                 | 0/4   |  | 0/4  |   | 1/4   | 0.58   | 8E-SS03                       |
| Chromium                              | 310                                    | 23                                      | 59.3                                   | 12  | 2.8   | 2.4  | 12  | 0/4   |  | 0/4  |   | 0/4   |  | 8E-SS01,<br>8E-SS03           |
| Cobalt                                | 2,000                                  | 160                                     | 44.0                                   | 12  | 1.9   | 2  | 11  | 0/4   |  | 0/4  |   | 0/4   |  | 8E-SS01                       |
| Copper                                | 4,100                                  | 310                                     | 234                                    | 130 N                                       | 60 N  | 58 N   | 13 N  | 0/4   |  | 0/4  |   | 0/4   |  | 8E-SS01                       |
| Lead                                  | 400 <sup>(1)</sup>                     | 400 <sup>(1)</sup>                      | 125                                    | 18  | 1.3   | 0.91   | 2   | 0/4   |  | 0/4  |   | 0/4   |  | 8E-SS01                       |
| Mercury                               | 31 <sup>(2)</sup>                      | 2.3 <sup>(2)</sup>                      | 0.11                                   | 0.039                                       | 0.02 U                                      | 0.021 U                                      | 0.038                                       | 0/4   |  | 0/4  |   | 0/4   |  | 8E-SS01                       |
| Nickel                                | 2,000                                  | 160                                     | 16.6                                   | 6.4   | 1.1 B                                       | 1 B  | 3.4 B                                       | 0/4   |  | 0/4  |   | 0/4   |  | 8E-SS01                       |
| Sulfide                               | NE                                     | NE                                      | 27.1                                   | 32 U  | 28 U  | 27 B   | 30 U  | NE  |  | NE   |   | 0/4   |  | 8E-SS02D                      |
| Tin                                   | 61,000                                 | 4,700                                   | 2.43                                   | <u>3.2 B</u>                                | <u>3.5 B</u>                                | <u>3 B</u>                                   | 1.9 B                                       | 0/4   |  | 0/4  |   | 3/4   | 3B - 3.5B                                      | 8E-SS02                       |
| Vanadium                              | 100                                    | 7.8                                     | 355                                    | <b>82</b>                                   | <b>34</b>                                   | <b>36</b>                                    | <b>35</b>                                   | 0/4   |  | 4/4  | 34 - 82   | 0/4   |  | 8E-SS01                       |
| Zinc                                  | 31,000                                 | 2,300                                   | 125                                    | 45 E  | 11 E  | 13 E   | 6.2 E                                       | 0/4   |  | 0/4  |   | 0/4   |  | 8E-SS01                       |

**Notes:**

B - The reported result is an estimated concentration that is less than the PQL, greater than or equal to the MDL.

N - The matrix spike recovery is not within control limits.

U - The compound was analyzed for, but was not detected at or above the MDL/PQL.

E- The reported value is an estimated because of the presence of matrix interference.

<sup>(1)</sup> - 1996 Soil Screening Guidance.

<sup>(2)</sup> - Value based on the RBC for Mercuric Chloride.

NE - Not Established.

ft bgs - feet below ground surface.

mg/kg - milligrams per kilogram.

**Bold** indicates exceedance of EPA Region III Residential RBCs

Underline indicates exceedance of 2 x Average Detected Background