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Final

RCRA Facility Investigation Report

SWMUs 53 and 54

Naval Station Roosevelt Roads
RCRA/HSWA Permit No. PR2170027203
Ceiba, Puerto Rico

Prepared For

Department of the Navy
Atlantic Division
Naval Facilities Engineering Command

Norfolk, Virginia

Contract No. N62470-95-D-6007
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September 30, 2002

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FINAL

RCRA FACILITY INVESTIGATION REPORT

SWMUs 53 AND 54

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RCRA/HSWA PERMIT NO. PR2170027203
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SEPTEMBER 30, 2002

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NAVAL FACILITIES
ENGINEERING COMMAND
Norfolk, Virginia

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ACRONYMS AND ABBREVIATIONS

Baker	Baker Environmental, Inc.
BB&L	Blasland, Bouck, and Lee
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
COCs	chemicals of concern
CMS	Corrective Measures Study
CRQL	Contract Required Quantitation Limits
CTO	Contract Task Order
D	duplicate
DDT	dichlorodiphenyltrichloroethane
DPT	Direct Push Technology
DRO	Diesel Range Organics
EPA	United States Environmental Protection Agency
ER	Equipment Rinsate
F	Fahrenheit
FB	Field Blank
ft	feet
GRO	Gasoline Range Organics
IAS	Initial Assessment Study
ID	Inside Diameter
IDW	Investigative Derived Waste
LANTDIV	Naval Facilities Engineering Command, Atlantic Division
MCL	Maximum Contaminant Level
mgd	million gallons per day
MS	matrix spike
MSD	matrix spike duplicate
msl	mean sea level
NEESA	Naval Energy and Environmental Support Activity
NEX	Navy Exchange
NSRR	Naval Station Roosevelt Roads
OP	organophosphorus
PAH	polyaromatic hydrocarbon
PCB	polychlorinated biphenyl
ppm	parts per million
PVC	polyvinyl chloride
QA	Quality Assurance
QC	Quality Control

ACRONYMS AND ABBREVIATIONS
(Continued)

RBC	Risk Based Concentration
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SOP	Standard Operating Procedure
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit
TB	Trip Blank
TCE	trichloroethene
TCLP	Toxicity Characteristic Leachate Procedure
TPH	Total Petroleum Hydrocarbon
UST	Underground Storage Tank
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

INTRODUCTION

This Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) evaluates the nature and extent of contamination at Solid Waste Management Units (SWMUs) 53 and 54 located at Naval Station Roosevelt Roads (NSRR), Ceiba, Puerto Rico. This document presents the results of the sampling conducted during the field investigation. The objective of the RFI is to summarize the results of the data and determine the nature and extent of contamination.

INVESTIGATION ACTIVITIES

The field portion of the RFI was conducted in February 2002. Field activities included the sampling of surface and subsurface soil at SWMU 53 and the sampling of surface soil, subsurface soil, and groundwater at SWMU 54. Soil samples at SWMU 53 were analyzed for DDT, arsenic, and lead. Soil and groundwater samples at SWMU 54 were analyzed for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs).

FINDINGS OF THE INVESTIGATION

SWMU 53 – Building 64 (Malaria Control Building)

Based on results of the 2000 and 2002 field investigations, arsenic, lead, and 4,4-DDT, the three primary chemicals of concern (COCs) identified from the Sampling and Analysis Report (Baker, 2001b) were delineated at SWMU 53. Of these three, only the metals, lead and arsenic, exceed the EPA Region III Industrial RBC. They were found to exceed the Industrial RBC only in the surface soils and only in the 2000 investigation. The results from the 2002 investigation provided delineation, but no other exceedance of the Industrial RBC.

Arsenic, lead, 4,4-DDT, chlordane, and heptachlor epoxide were found to exceed the EPA Region III Residential RBCs in surface soil during these investigations. Chlordane and heptachlor epoxide were found in 53SB14 on the outer edge of the investigated area and have not been delineated. Heptachlor epoxide was detected in a very small quantity, not above EPA Region III

Residential RBC, during the 2000 investigation. Chlordane was not detected in the 2000 investigation sampling.

Arsenic was detected in the subsurface soil at a level higher than the EPA Region III Residential RBC but lower than twice the background level. No other compound exceeded any RBC in the subsurface soil.

SWMU 54 – Building 1914 (Former NEX Repair/Maintenance Shop)

Based on results of the field investigation, it has been determined that no further action is required to mitigate surface soil or subsurface soil. One VOC, 1,2-Dibromo-3-chloropropane, was detected above screening criteria in the subsurface soil. This is indicative of a BTEX plume located in the vicinity of sample 54TW15A.

A plume of TCE contamination in groundwater has been identified and delineated as a result of the field investigation. In addition, a plume of benzene and ethylbenzene was delineated in the vicinity of Bairoko Street around 54TW15.

RECOMMENDATIONS

SWMU 53 – Building 64 (Malaria Control Building)

Arsenic, lead, and 4,4-DDT were delineated around Building 64 during the 2002 investigation. Chlordane and heptachlor epoxide were not delineated because they were found in a sample on the outer edge of the area under investigation.

It is recommended that the chlordane and heptachlor epoxide be delineated. Once this is complete, it is further recommended that a corrective measure study (CMS) be completed to develop remedial alternatives for the pesticides and metals that are present in the surface soil at SWMU 53.

SWMU 54 – Building 1914 (Former NEX Repair/Maintenance Shop)

The extents of the TCE, benzene, and ethylbenzene groundwater contamination have been delineated in the 2002 RFI. Because of the relatively high levels of benzene and ethylbenzene, it is recommended that a CMS be developed to determine remedial alternatives for the compounds in the groundwater at this site.

1.0 INTRODUCTION

This Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report has been prepared by Baker Environmental, Inc. (Baker) under contract to the Atlantic Division, Naval Facilities Engineering Command (LANTDIV) Contract Number N62470-95-D-6007, Contract Task Order (CTO) 099. This report has been prepared to present results of the RFI field investigation work at SWMU 53 – Building 64 (Malaria Control Building) and SWMU 54 – Building 1914 (Former Navy Exchange [NEX] Repair/Maintenance Shop) at NSRR, under the Corrective Action provisions of the Station's RCRA Part B Permit No. PR2170027203.

1.1 SWMU 53 and 54 Investigation History

Building 64 (Malaria Control Building) and Building 1914 (Former NEX Repair/Maintenance Shop) were first listed as SWMUs in the May 31, 2000 RCRA Quarterly Progress Report (Baker, 2000a). Attachments two and three of the aforementioned report contained the Phase I Environmental Assessment Report for SWMUs 53 and 54, respectively. A Draft Sampling and Analysis Plan was submitted for SWMUs 53 and 54 on August 4, 2000 (Baker, 2000b), and was approved by the United States Environmental Protection Agency (EPA) on October 10, 2000. The field investigation was conducted in December 2000 in accordance with the EPA approved sampling and analysis plan. The Draft Sampling and Analysis Report for SWMUs 53 and 54 was submitted on April 11, 2001. The EPA commented on this report on July 5, 2001, requesting that a RFI work plan be submitted to further delineate contamination found at SWMUs 53 and 54, as well as the submission of a Final Sampling and Analysis Report. The Final Sampling and Analysis Report was submitted on August 27, 2001. The Final RFI Work Plan for SWMUs 53 and 54 was submitted on December 6, 2001 (Baker, 2001a), and was approved by the EPA on January 3, 2002.

1.2 Scope and Objectives

The scope of the RFI included completion of a field investigation at SWMUs 53 and 54 to assess the environmental impact of operations at the sites. This document presents the results of the sampling conducted during the field investigation. The objective of the RFI is to summarize the results of the data gathered, evaluate the nature and extent of contamination at the sites, and to provide recommendations for SWMUs 53 and 54.

1.3 Report Organization

Section 1.0 of this document includes this introduction and the scope and objectives of this RFI Report. Section 2.0 provides a description of the facility and historical background. Section 3.0 provides a description of the physical characteristics, including geology and hydrology, of SWMUs 53 and 54. Section 4.0 describes the field activities conducted during the RFI at SWMUs 53 and 54. This section also describes the sampling procedures, sampling locations for all media, and quality control (QC) conducted during sampling activities. Section 5.0 discusses the nature and extent of contamination detected in the environmental samples from each media sampled. A summary of findings and conclusions is presented in Section 6.0 along with recommendations for SWMUs 53 and 54. The report references are listed in Section 7.0.

2.0 FACILITY BACKGROUND

This section contains a description of the physical layout and background history of NSRR, as well as a description of the physical layout of SWMUs 53 and 54.

2.1 Facility Description

NSRR occupies over 33,500 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. The north entrance to NSRR is about 35 miles east along the coast road (Route 3) from San Juan. The closest large town is Fajardo (population approximately 37,000), which is about 10 miles north of NSRR off Route 3. Ceiba (population approximately 17,000) adjoins the west boundary of NSRR (Figure 2-1).

NSRR was commissioned in 1943 as a Naval Operations Base and redesignated as a Naval Station in 1957. The current primary mission of NSRR is provision of full support for Atlantic Fleet weapons training and development activities. NSRR has administrative and command responsibilities for some operations separated from the main base on Vieques Island.

2.2 SWMU 53 – Building 64 (Malaria Control Building)

The Malaria Control Building (Building 64) was built in 1942 and condemned in 1980. The building is presently unoccupied and lies on approximately 1/8 acre. The building structure itself is 21 feet by 18 feet in dimension, and occupies about 10 percent of the total SWMU 53 acreage. This SWMU is located on a gentle slope (approximately 5-7% grade) from northeast (upgradient) to the southwest (downgradient) approximately 200 feet away from Forrestal Drive. The building was utilized to store pesticides, such as malathion, aldrin, and dichlorodiphenyltrichloroethane (DDT). It is not known if stocks of pesticides were maintained in the building for the entire duration. Although no direct evidence exists, it is assumed that mixing and other preparation for pesticide use was also performed at the building. No wastes are known to have been disposed of at the unit and there are no known releases related to this unit. No other use of the site was identified. SWMU 53 is located across Forrestal Drive from SWMU 13, as presented on Figures 2-2 and Figure 2-3. The information gathered from the visual site inspection by Baker and environmental staff at NSRR revealed that there are no known wastes dumped at this facility, nor is there any evidence of source contamination (Baker, 2000a). Baker observed signs of possible

past leakage of chemicals on the storage shelves inside the building, and identified migration pathways along the floor leading to the outside. With this information, along with the activities known to have taken place at this SWMU, a site characterization was performed to determine whether a release of hazardous waste including hazardous constituents has occurred, is likely to have occurred, or is likely to occur.

2.3 SWMU 54 – Building 1914 (Former NEX Repair/Maintenance Shop)

The Former NEX Repair/Maintenance Shop (Building 1914) built in 1979, is currently unoccupied and lies on approximately 1 acre of land in the Bundy Area of NSRR. The building structure and pavement covers approximately 40 percent of the total SWMU 54 acreage. This SWMU contains a slight slope to the west and a small hill to the east approximately 100 feet in elevation. A small hill lies in the southern part of this SWMU, which is approximately 50 feet in elevation. The building structure itself consists of a small concrete block building with a center office area and open bays on either side. The building was used to perform maintenance on vehicles including oil changes, lubrications, etc. No wastes are known to have been disposed of at the unit and there are no known releases related to the unit. SWMU 54 is located north-northeast across Bairoko Street from SWMU 26 and west across Bairoko Street from Building 1686 (Former Base Laundromat), as presented on Figure 2-4. Site 510 is an underground storage tank (UST) site located south of Building 1914 as shown on Figure 2-4. A 4,000 gallon UST associated with Building 510 was located south of Building 1914. The UST was constructed of steel and used to store fuel for fueling operations conducted in the area. The date of installation and the type of fuel stored is unknown, but is assumed to be gasoline. In December 1992, the tank was removed from Site 510 (Blasland, Bouck, and Lee [BB&L], 1995).

The information gathered from the visual site inspection performed by CH2M Hill and environmental staff at NSRR revealed that there were several areas of oil stained soil around NEX Building 1914 (CH2M Hill, 2000). For that reason, it was recommended that a sampling program be performed to characterize the areas around several structures in the SWMU 54 area. The results from the Site Characterization for Site 510 developed by BB&L (BB&L, 1995) were taken into consideration in development of the work plan utilized during this investigation, due to the close proximity of its existing monitoring wells to SWMU 54. CH2M Hill also observed two open excavation locations south of the building containing algae stained water. With this information, along with the activities (oil changes, lubrications, etc.) known to have taken place at

this SWMU, a site characterization was performed to determine whether a release of hazardous waste including hazardous constituents has occurred, is likely to have occurred, or is likely to occur.

2.4 Summary of Previous Investigations

This section summarizes the findings of previous environmental investigations conducted at SWMUs 53 and 54.

2.4.1 Site Characterization for Site 510

BB&L conducted a site characterization to evaluate the potential impact of the UST on the soils and groundwater in the area of Site 510, located on the western end of the Naval Station, just south of SWMU 54. The site formerly contained a 4,000-gallon UST; its contents are unknown, but were assumed to be gasoline. The objective of the investigation was to define the areas of soil and groundwater contamination. Petroleum hydrocarbons were detected in soil samples at concentrations exceeding target levels and dissolved petroleum hydrocarbons were detected at concentrations exceeding target levels in groundwater samples obtained from two of the seven monitoring wells installed. No free product was detected in the monitoring wells during this investigation.

Results of the qualitative risk assessment indicated that the human health risks associated with Site 510 were extremely low. Based on the results of the site characterization, the contaminated soil will remain in place due to the low health hazards associated with the soil. Similarly, groundwater contamination will not be remediated due to the low hydraulic conductivity of the soils in the area and the low health hazards associated with the groundwater (BB&L, 1995).

2.4.2 Sampling and Analysis Investigation

The objective of the Sampling and Analysis Investigation at SWMUs 53 and 54 (Baker, 2000b) was to present the data collected in the field, compare analytical results to various screening criteria, and determine if additional investigations were warranted for these sites through the performance of a RFI.

A sampling program was conducted at SWMU 53 that included the collection of surface soil, subsurface soil, and wipe samples. All surface and subsurface soil samples were analyzed for pesticides/polychlorinated biphenyls (PCBs) and Appendix IX metals. Wipe samples were collected outside Building 64 from areas of visible staining on the floors and were analyzed for pesticides/PCBs. A review of the analytical data indicated that it is likely there was a release of contaminants to the surface soils in the vicinity of Building 64. The results from this investigation indicated the presence of pesticides, as well as arsenic and lead in surface soils in the vicinity of Building 64 (Baker, 2001b). Also, wipe samples taken from the inside of Building 64 show pesticides were detected on the floor of the unoccupied building, a direct result of prior use of the building for storing/mixing pesticides. The sampling and analysis investigation recommended that a RFI be conducted at this SWMU to delineate the 4,4'-DDT, lead, and arsenic contamination in the surface and subsurface soils. Groundwater was not encountered during the investigation due to split-spoon refusal at the subsurface soils bedrock interface indicating that groundwater underlying SWMU 53 is not likely to have been impacted by the soils at this site (Baker, 2001b).

A sampling program was conducted at SWMU 54 that included the collection of surface soil, subsurface soil, groundwater, and standing water samples (Baker 2000b). The surface and subsurface soil samples, as well as the standing water samples, were analyzed for the full Appendix IX list, as well as TPH diesel range organics (DRO) and gasoline range organics (GRO). All groundwater samples were analyzed for the full Appendix IX list. Results from the analytical data associated with soil at SWMU 54 showed minor detections of various constituents in the surface and subsurface soil samples, the majority below RBCs (Baker 2001b). The results from the groundwater portion of the investigation indicate that there has been a release of trichloroethene (TCE) in the vicinity of SWMU 54. The other groundwater contaminants observed during this investigation are believed to be related to the former UST associated with Site 510. However, results comparing the data collected during this report and 1995 data indicate natural attenuation of the groundwater is occurring, decreasing the concentration of petroleum related contaminants. Low levels of polyaromatic hydrocarbons (PAHs) (at estimated concentrations less than the analytical method detection limit) were detected in soil, groundwater, and in standing water from SWMU 54. This data is considered more likely to represent anthropogenic background than site-related contamination (Baker, 2001b).

The sampling and analysis investigation recommended that the standing water be removed and properly disposed of from the open excavation at SWMU 54 followed by backfilling the excavation. It was also recommended that a RFI be conducted at this SWMU to further investigate the presence of TCE in groundwater. The results presented in the Site 510 Site Characterization (BB&L, 1995) and the Sampling and Analysis Report indicate that natural biodegradation is effectively remediating the contaminants associated with Site 510. Therefore, further investigations related to those particular contaminants are not warranted (Baker, 2001b).

3.0 PHYSICAL CHARACTERISTICS OF STUDY AREA

The physical setting of NSRR was documented in the 1984 Initial Assessment Study (IAS) (NEESA, 1984). This information is summarized below.

3.1 Climatology

The climate of the Roosevelt Roads area 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 9 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 Roosevelt Roads 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 the Station, elevations range from sea level to approximately 295 feet. Immediately to the north of the NSRR 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 Station boundary. There is a series of three hilly areas on the Station, 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 the Station, 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

The following subsections present a description of the general geology at NSRR and site-specific geologic information obtained at SWMUs 53 and 54.

3.3.1 Soils

The soil associations found at NSRR 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 NSRR.

The Swamps-Marshes and Mabi-Rio-Arriba-Cayagua associations cover over one half of NSRR'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 NSRR 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 the Station by soils of the Sabana series, which are found on the side slopes and the hilly terrain west of Langley Drive in the Fort Bundy area. These soils are suited for pasture and woodland. Steep slopes, susceptibility to erosion, and depth to bedrock are the main limitations for farming and for recreation and urban areas.

The Coloso-Toa-Bajura Association consists of deep, moderately well drained to poorly drained, nearly level soils found on floodplains. This soil association extends along the western boundary of NSRR 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 NSRR 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 NSRR area is predominantly volcanic (composed of lava and tuff), as well as sedimentary (rocks derived from discontinuous beds of limestone). These rock all range in age from early Cretaceous to middle Eocene. The volcanic rocks and interbedded limestones 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 NSRR are various beach deposits, alluvium, quartz diorite and granodiorite, quartz keratophyre, the Daguao Formation, and the Figuera Lava. The Peña Pobre fault zone traverses NSRR.

3.3.3 Site Geology SWMU 53 – Building 64 (Malaria Control Building)

Weathered bedrock was the primary stratigraphic feature observed in borings at SWMU 53 (refer to test boring construction records in Appendix A.1). A thin surficial layer consisting of rock fragments and silt was observed to a depth of 1- to 2-feet below ground surface (bgs). Weathered bedrock was observed from a depth of 1- to 2-feet bgs to boring terminus (a maximum of 7.0-feet bgs at borings 53SB10 and 53SB11). The weathered bedrock was observed to be mottled in appearance and generally gray or brown in color. Borings were terminated at split-spoon refusal (more than 50 blows in a 6-inch or less interval). Groundwater was not encountered during the investigation.

3.3.4 Site Geology SWMU 54 – Building 1914 (Former NEX Repair/Maintenance Shop)

The stratigraphy observed during the investigation consists of two distinct units, a surficial fill, and clay. Only three borings were advanced in SWMU 54 as part of this investigation. However, observations correlate well with those of the more-extensive site characterization of Site 510 (BB&L, 1995) and the Sampling and Analysis Investigation (Baker, 2001b). The paragraphs that follow describe site stratigraphy based on the current investigation, supplemented with information from the BB&L study and the 2000 Baker investigation.

The surficial fill was observed to consist of predominantly silt or fine sand, with lesser amounts of fine to coarse gravel and cinders (refer to test boring and well construction records in Appendix A.2). The fill was observed to be approximately two-feet thick in all three borings (surface to two-feet bgs) which was also found in the 2000 investigation. BB&L observed the fill to be clay and gravel fill approximately two- to four-feet thick.

A predominantly clay unit was generally observed from 2-feet bgs to boring terminus (20-feet bgs). This clay unit was observed to contain thin silt lenses in all three borings. Some thin clay-filled fractures were additionally observed in all borings. BB&L also observed this clay unit throughout the site to a depth of approximately 45-feet (at well 510DW2). This clay is likely a saprolite. A saprolite is a soft, thoroughly decomposed rock, which is predominantly composed of clay-rich minerals. Saprolite is formed in place by chemical weathering of igneous rocks (typically in tropical climates).

3.4 Hydrology

The following sections present a description of the hydrologic conditions that exist at NSRR. Both regional conditions and site-specific conditions at SWMU 54 are discussed.

3.4.1 Regional Hydrology

The surface waters that flow across the northeastern plain of Puerto Rico, where the Station 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 the Station and, in periods of heavy rain, on-Station flooding 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 the Station's northern boundary, has significantly increased the surface runoff reaching the Station, 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 stormwater management features.

In the low-lying shore areas, seawater flooding results from storms, wind, and abnormally high tides. The tidal ranges in the Roosevelt Roads 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 the Station.

Little information exists concerning the geohydrology of NSRR. 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 base from these layers. Some wells had been developed upgradient of the Station 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 the Station 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 NSRR 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 Station boundary. A raw water reservoir is located at the water treatment plant and has a 45-million gallon capacity. Additionally, there are 2 fire protection storage reservoirs with a total capacity of 520,000 gallons.

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

The single potable water supply system provides water to all industrial operations at the facility. The water supply is low in hardness, and, therefore, is an excellent source for industrial uses, particularly in boiler operation and maintenance.

Three hundred acres are used for pasture near Gate 1 and are irrigated as needed. Extensive sprinkling of lawns and green areas is evident throughout the base.

3.4.2 SWMU 54 Hydrology

Include Tables 3-1 and 3-2 and Figure 3-1.

Groundwater was encountered during the SWMU 54 investigation. Groundwater was measured in the permanent and temporary wells at three different times. The depth to groundwater ranged

between 3.08 to 15.79-feet below top of casing. Based on depth to groundwater information as presented in Table 3-1, potentiometric surface maps were generated (Figures 3-1 and 3-2) for the March 3, 2002 round of water levels. Two contour maps were generated due to the mounding identified in three areas across the site as identified on Figure 3-1. It is believed that this mounding is caused by perched groundwater on clay lenses. Figure 3-2 presents groundwater contours without points 54PZ02, 54TW07, 54TW12, and 510MW1.

Utilizing Figure 3-2 groundwater flow beneath SWMU 54 appears to be divided with a ridge from northwest to the southeast. This groundwater flow direction has been determined from evaluating groundwater data from 29 measurement points across the site. These tendencies were consistent for the two previous rounds as shown in Table 3-1. Information from the BB&L study suggests a fairly consistent hydraulic gradient across the site (0.008 to 0.01 feet/foot).

Evidence from this investigation as well as the BB&L Site Characterization suggests that groundwater beneath SWMU 54 occurs in a low-yield (low hydraulic conductivity) aquifer with narrow relatively higher yield zones. Clay was observed to predominate in the subsurface at SWMU 54. Boring logs from the BB&L report suggest that the clays appeared only moist, substantial flow zones were not observed. Additionally, BB&L reported hydraulic conductivity to range from 0.027 feet per day (ft/day) (9.5×10^{-6} centimeters per second (cm/sec)) to 0.272 feet/day (9.6×10^{-5} cm/sec). In some of the temporary wells Baker personnel observed narrow flow zones (approximately 0.5 feet thick) embedded in moist clay. These zones likely correspond to fractures in the clay and would exhibit a higher hydraulic conductivity than the surrounding matrix.

4.0 FACILITY INVESTIGATION

The following sections present a description of the procedures utilized as well as the environmental field investigation activities conducted at SWMUs 53 and 54. All investigations performed and the methodologies used were in accordance with the approved Final RFI Work Plan (Baker, 2001a). Sampling locations at SWMUs 53 and 54 are provided in Figures 4-1 through 4-3.

4.1 Soil Sampling Procedures

The following subsections present a description of the surface and subsurface soil sampling procedures utilized during the field investigation at SWMUs 53 and 54.

4.1.1 Direct Push Procedures

Subsurface soil sampling at SWMU 53 was conducted on February 15, 2002 using direct push technology (DPT). A Geoprobe® DPT rig was used to collect soil borings at the site. The Geoprobe® is a track-mounted, hydraulically powered probing machine that uses static and percussive force to advance small diameter sampling probes.

A macro core sampler was used during the investigation. The macro core sampler used during this investigation was 1-5\8-inch inside diameter (ID) and 5 feet long. One end of the probe is threaded to fit driving rods used to advance the sampler. The other end of the probe is also threaded to fit a "drive shoe." The drive shoe, which was decontaminated between samples, is a tapered hollow stainless steel fitting threaded onto the leading end of the probe to facilitate pushing the tube through subsurface materials. The tubes are fitted with disposable inner, clear acetate liners that hold the soil core. The specific procedures used during the subsurface soil sampling are presented in Section 4.1.3. Borehole information pertaining to soil classification and environmental sampling depths were recorded on soil boring records presented in Appendix A.1.

4.1.2 Drilling Procedures

Soil borings at SWMU 54 as part of the temporary monitoring well installation were collected using a Mobile B-90 truck mounted drill rig and a trailer-mounted auger rig from February 12,

2002 to March 4, 2002. The soil borings were advanced using 3-1/4 inch ID, hollow-stem augers, and 2-inch, nominal diameter split spoons. Soil samples were initially collected continuously (at 2-foot intervals) from the ground surface to the water table. Once the water table was established in separate areas of SWMU 54, samples were collected at 5-foot intervals. Borehole information pertaining to soil classification, environmental sampling depths, and depth to groundwater measurements for SWMU 54 were recorded on soil boring and well construction records presented in Appendix A.2.

4.1.3 Surface and Subsurface Soil Sampling Procedures at SWMU 53

Surface and subsurface soil samples collected at SWMU 53 were screened in the field for lead and 4,4'-DDT. The field test kits included Lead Check Soil and EnviroGard® DDT in Soil Test Kit (EPA SW-846 Method #4042). At the present time there is not a field screening test for arsenic, therefore all the samples were submitted to the mainland fixed-base analytical laboratory for analysis of arsenic. If positive detections of lead above 400 parts per million (ppm) or DDT above 1 ppm were detected then additional samples were obtained another 10 feet away from the previous location. This methodology continued until the site was characterized for lead and DDT in soil.

A minimum of three of the surface soil samples and three of the subsurface soil samples screened in the field were submitted to the mainland laboratory for confirmatory analysis of 4,4'-DDT and lead. Twenty percent of all additional samples collected and screened in the field were submitted to the mainland laboratory for the above-mentioned confirmatory analysis as shown in Table 4-1. This provided verification on the test kits being used in the field along with validated data to be utilized for assessing risks at a later date if required. The Appendix IX compound list and contract required quantitation limits (CRQL) for this RFI are presented in Table 4-2. The fixed-base laboratory results were validated by an independent, third party, data validator.

At each soil boring location, a surface soil sample was collected from 0-1 foot bgs and a subsurface soil sample was collected at the mid depth between the ground surface and top of bedrock.

Surface soil and subsurface soil samples were collected using a macro sampler with a disposable acetate liner. Soil samples collected for field screening were placed directly into sealable plastic

bags and placed in a cooler with ice. Subsequent to field screening, the samples chosen for submission to the fixed base laboratory, were homogenized in aluminum pie pans and placed into laboratory prepared containers beginning with pesticides, followed by inorganic analyses. Samples were kept in coolers on ice and under strict chain-of-custody until delivered to the laboratory. Chain-of-custody forms for environmental media samples are provided in Appendix B.

4.1.4 Surface and Subsurface Soil Sampling Procedures at SWMU 54

During the installation of temporary monitor well 54TW15, the Baker geologist observed an odor emanating from the soil collected from the split-spoon sampler starting at approximately seven feet below ground surface. This information was then brought to the attention of the Baker Project Manager, who then spoke with the Navy Technical Representative. The decision was made by the Navy to collect surface and subsurface soil samples at SWMU 54 in the vicinity of 54TW15 including soil borings 54TW15A, 54TW19, and 54TW20 as presented on Figure 4-2. These soil samples were collected at these locations to define the horizontal and vertical extent of elevated VOCs in the soil. These locations were chosen based on the quick-turn analytical results from the groundwater samples collected from temporary monitor wells at SWMU 54 (see Figure 4-3).

Surface and subsurface soil were collected using two-inch nominal diameter stainless-steel split-spoons. At the request of the project manager, surface soil samples were collected from 0 to 1-foot below ground surface, and subsurface soil samples were collected at depths which contained a noticeable odor of solvent, as well as at the interface where the soil and groundwater meet. Soil samples were collected directly from the split-spoon sampler, placed into laboratory supplied containers, and stored in a cooler with ice under strict chain-of-custody until delivered to the laboratory. The soil samples were analyzed for VOCs and SVOCs at the mainland fixed-base laboratory using the current Appendix IX CRQLs presented in Table 4-2. Table 4-3 provides a summary of the sampling and analysis program at SWMU 54.

4.2 Groundwater Investigation Procedures – SWMU 54

The groundwater investigation for SWMU 54 included the installation, development, and sampling of 20 new temporary monitoring wells and the sampling of 7 existing monitoring wells.

4.2.1 Temporary Monitoring Well/Piezometer Installation Procedures

The temporary monitoring wells were installed via a truck-mounted drill rig and a trailer-mounted auger rig. The soil borings were advanced using 3-1/4 inch inside diameter hollow-stem augers. Soil samples were initially collected continuously (at 2-foot intervals) using 2-inch inside diameter split-spoons. Once the groundwater depth was established in separate areas of SWMU 54, the soil samples were collected at 5-foot intervals. The soil samples were for descriptive purposes only. Each soil boring was advanced to a depth that enabled the temporary monitoring well to be screened across the water table (total depth of 20 feet). Temporary monitoring wells were constructed of 2-inch nominal inside diameter, Schedule 40, flush-joint and threaded polyvinyl chloride (PVC) casing, screen (10 feet long with 0.010-inch slots), and a threaded bottom cap inside the open borehole. The open borehole was protected to prevent foreign material from falling into the borehole. Table 4-4 provides a summary of the temporary well construction details.

Three temporary piezometers were also installed during the investigation to assist in determining the groundwater flow characteristics of the site. The piezometers were installed utilizing the same procedures as the temporary monitoring wells.

4.2.2 Groundwater Sampling Procedures

Prior to groundwater sampling, water level and total depth measurements were collected from the well in order to calculate well volumes. Measurements of pH, temperature, and specific conductance were taken at approximately five-minute intervals until these parameters were stabilized. Table 4-5 provides a summary of the groundwater field parameters at SWMU 54.

The temporary monitor wells were sampled approximately 24 hours following the installation of the wells to allow the monitoring well to equilibrate with the surrounding aquifer. Groundwater samples from the 20 temporary monitor wells and 7 existing permanent wells were obtained using a low flow sampling method and analyzed for VOCs via quick turn analysis and SVOCs on routine 28 day analysis at the mainland laboratory as shown in Table 4-3.

Groundwater samples were introduced into laboratory-prepared containers directly from the sampling device. Sample bottles for the VOC analysis were filled first, followed by bottles for SVOC analysis. Groundwater samples were kept in coolers on ice and under strict chain-of-

custody until delivered to the laboratory. Analytical results from the mainland laboratory were validated by an independent, third party, data validator.

4.2.3 Temporary Monitoring Well/Piezometer Abandonment Procedures

The temporary monitoring wells and the three temporary piezometers were abandoned on March 4, and March 5, 2002. Well abandonment activities included pulling the PVC casing and screen and disposing of the PVC off-site. The borehole was then filled with soil cuttings following receipt of analytical results of the investigative derived waste (IDW). The remainder of the borehole was filled to near ground surface with grout.

4.3 Quality Assurance/Quality Control Sampling Procedures

Extensive field Quality Assurance/Quality Control (QA/QC) samples were collected during the investigation as shown in Table 4-6. These samples were obtained to:

(1) Ensure that decontamination procedures were properly implemented (i.e., equipment rinsate blanks);
(2) Evaluate field methodology (i.e., duplicate samples);
(3) Establish field background conditions (i.e., field blanks);
(4) Evaluate whether cross-contamination occurred during sampling and/or shipping (i.e., trip blanks); and
(5) Establish proper disposal method for investigation derived waste (IDW).

Several types of field QA/QC samples were collected and analyzed including duplicate samples, equipment rinsate samples, field blanks, matrix spike/matrix spike duplicate (MS/MSD), trip blanks, and IDW samples. These QA/QC samples are defined below:

- Duplicate Sample (D): Two samples collected simultaneously into separate containers from the same source under identical conditions. One duplicate sample was collected for every 10 environmental samples collected for each media type.

- Equipment Rinsate Sample (ER): Sample obtained by running laboratory supplied deionized water over/through sample collection equipment after it was decontaminated. These samples were used to determine if decontamination procedures were adequate.

- Field Blank (FB): Sample obtained from each water source utilized during the field program. The water sources used during the field program included: laboratory supplied deionized water utilized to collect rinsate blanks; store bought distilled water utilized for decontamination, and potable water utilized for decontamination.

- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSDs are not field samples but are laboratory derived, and are collected to evaluate the matrix effect of the sample upon the analytical methodology. An MS and MSD must be performed for each group of samples of a similar matrix. MS/MSD samples were collected at a frequency of five percent.

- Trip Blank (TB): Trip blanks were prepared at the laboratory and shipped with the sample containers. Trip blanks were packaged for shipment with the other VOC samples and sent for analysis. At no time after preparation were the trip blank sample containers opened before they reached the laboratory. At least one trip blank per shipping cooler containing samples requiring VOC analysis was sent to the laboratory for VOC analysis.

- Investigative Derived Waste (IDW): Samples were collected to determine proper disposal procedures for IDW. Soil boring cuttings and decontamination water were sampled prior to disposal. Following receipt of the analytical results of the soil boring cuttings, the soil was placed back in the borehole during temporary monitoring well abandonment. Decontamination water was drummed and will be disposed of following receipt of the analytical data.

4.4 Decontamination Procedures

Decontamination procedures performed in the field were conducted in accordance with EPA Region II guidelines. For routine sample collection equipment, the following steps were implemented:

- Clean with potable water and low-phosphate detergent
- Tap water rinse
- Ten percent nitric acid solution rinse

- Tap water rinse
- Methanol followed by a hexane or an acetone rinse
- Air dry
- Analyte-free deionized water rinse
- Wrap in aluminum foil, shiny side out, for storage or transport

This decontamination procedure was performed on stainless steel sampling spoons and the split-spoon samplers used in drilling operations in accordance with Baker's Standard Operating Procedure (SOP) F502. Decontamination of heavy equipment (i.e., hollow-stem augers and drill rods) was performed by rinsing with potable water to remove soil followed by steam cleaning, in accordance with SOP F501 as contained in the EPA approved work plan.

5.0 NATURE AND EXTENT OF CONTAMINATION

This section presents an overview of chemical analytical results obtained from samples collected during the RFI. The objective of this section is to characterize the nature and delineate the extent of potential contamination at each site. SWMU 53 characterization data was obtained through sample collection and analysis of surface and subsurface soil, and SWMU 54 characterization data was obtained through sample collection and analysis of surface soil, subsurface soil, and groundwater. The analytical results for environmental and QA/QC samples are also presented in this section.

SWMUs 53 and 54 area-specific soil sample results presented in the following sections have been compared with several criteria. Organic compounds detected in soil samples were compared with their respective risk-based concentrations (RBCs) for both industrial and residential conditions as determined by EPA Region III (EPA, 2002a). Inorganic compounds were compared against the RBCs and the base background analytical data. The background screening criteria was determined by taking twice the average of each constituent detected in the four base background surface soil samples and eight base background subsurface soil samples. In the case of a non-detect, one-half the detection limit was used to calculate the average. This background value was determined in accordance with EPA guidance (EPA, 1999).

Organic and inorganic compounds detected in the groundwater samples were compared with the respective tap water RBCs as well as the Federal Maximum Contaminant Levels (MCLs) (EPA, 2002b). Appendix B provides the chain-of-custody records for samples collected at SWMUs 53 and 54. Appendix C provides analytical results for media collected during the sampling and analysis investigation during December 2000, while Appendix D provides the analytical results for the media samples and QA/QC samples collected during this RFI investigation. Appendix E provides data validation report narratives and Appendix F provides field notes taken during the investigation.

5.1 SWMU 53 – Building 64 (Malaria Control Building)

Sampling activities conducted at SWMU 53 included the collection of surface soil and subsurface soil samples. These samples were analyzed in the field for DDT using the Envirogard® DDT in Soil Test Kit and Lead Check test kits. The worksheets from the Envirogard® DDT in Soil Test

Kit and Lead Check test kit with results are provided in Tables 5-1 and 5-2, respectively. A total of 28 samples (14 surface and 14 subsurface soil) and two duplicate samples were screened in the field for DDT. Four surface and four subsurface soil samples were submitted to the mainland laboratory for confirmatory analysis. One hundred percent correlation was achieved with the test kits and the laboratory confirmatory analysis as shown in Table 5-1. A total of 28 samples (14 surface and 14 subsurface soil) and five duplicate samples were screened in the field for lead. Four surface and four subsurface soil samples were submitted to the mainland laboratory for confirmatory analysis. Eighty eight percent correlation was achieved with the test kits and the laboratory confirmatory analysis as shown in Table 5-2. Results of the 2000 sampling investigation will also be discussed in the following sections to assist in delineating contaminants on site.

5.1.1 Surface Soil

Surface soil samples collected during the 2000 investigation were analyzed for pesticides/PCBs and Appendix IX metals. A total of 12 samples were collected during this investigation. 4,4'-DDT was the only pesticide detected which exceeded any of the screening criteria. No other pesticides were detected above the screening criteria. Fifteen different metals were detected in the surface soil, five of them were detected in excess of the residential RBCs, including antimony, arsenic, barium, vanadium, and zinc. All of the vanadium detections were below background criteria. Four of the arsenic detections were in excess of the industrial RBCs. Lead was detected in five of eight samples exceeding the soil screening value (Baker, 2001b).

Based on the 2000 investigation, samples collected for the 2002 investigation were analyzed in the field for DDT and lead, and analyzed by the mainland laboratory for pesticides, arsenic, and lead. A total of 15 samples (including 1 duplicate) were analyzed in the field using the Envirogard® DDT in Soil Test Kit and Lead Check test kits. There were no detections above 0.2 ppm for DDT using the Envirogard® DDT in Soil Test Kit. One Lead Check test kit sample detected lead above 400 ppm. Four surface soil samples were analyzed for pesticides and four separate samples were analyzed for lead by the mainland laboratory. Only one sample, 53SB14-00, contained pesticide concentrations (chlordane and heptachlor) exceeding residential RBCs as shown in Table 5-3.

Arsenic was detected in 14 of the 16 samples exceeding residential RBCs. Only one of these samples exceeded the background screening criteria as shown in Table 5-4. Arsenic is shown on the isoconcentration contour drawing on Figure 5-1. Both the 2000 and 2002 investigation results are shown, and only results exceeding twice the average background arsenic level are contoured. Two of the four surface soil confirmation samples had lead concentrations exceeding background screening criteria and none had lead concentrations exceeding the EPA Soil Screening Guidance of 400 mg/kg. Figure 5-2 depicts the lead concentrations in the surface soil exceeding the EPA Soil Screening Guidance of 400 mg/kg. The results of both the 2000 and 2002 investigations are shown. Three of the four surface soil confirmation samples detected 4,4'-DDT, although none of these concentrations exceeded the RBCs. Only one sample location from the 2000 investigation detected DDT above the Residential RBC. Figure 5-3 depicts the 4,4'-DDT concentrations in the surface soil and the area where the concentrations exceed the residential RBC of 1,900 mg/kg. The results of both the 2000 and 2002 investigations are shown.

5.1.2 Subsurface Soil

Subsurface soil samples collected during the 2000 investigation were analyzed for pesticides/PCBs and Appendix IX metals. A total of seven subsurface soil samples were collected as part of the SWMU 53 investigation. 4,4'-DDT was detected in two of the samples at concentrations below the screening criteria. Twelve different metals were detected in the samples. Of the 12 different metals, only 2 were detected in excess of the residential RBCs and below the industrial RBCs. These included arsenic and vanadium. All of the arsenic and vanadium detections were below the background criteria (Baker, 2001b).

Based on the 2000 investigation, samples collected for the 2002 investigation were analyzed in the field for DDT and lead, and analyzed by the mainland laboratory for pesticides, arsenic, and lead. A total of 15 samples (including 1 duplicate) were analyzed in the field using the Envirogard® DDT in Soil Test Kit and Lead Check test kits. There were no detections above 0.2 ppm for DDT using the Envirogard® DDT in Soil Test Kit. The Lead Check test kits did not detect lead above 400 ppm. Four subsurface soil samples were analyzed for pesticides and four separate samples were analyzed for lead by the mainland laboratory. No pesticides were detected at concentrations exceeding the screening criteria as shown in Table 5-5. Arsenic was detected in 12 of the 16 samples exceeding the residential RBC. None of these 12 exceeded the background screening criteria as shown in Table 5-6. Lead was detected in one sample at a concentration

exceeding the background criteria, but was below the EPA Soil Screening Guidance of 400 mg/kg.

5.2 SWMU 54 – Building 1914 (Former NEX Repair/Maintenance Shop)

Sampling activities conducted at SWMU 54 included the collection of surface soil, subsurface soil, and groundwater samples. Samples for each medium were analyzed for VOCs and SVOCs at the mainland laboratory. Results of the 2000 sampling investigation will also be discussed in the following sections.

5.2.1 Surface Soil

Surface soil samples collected during the 2000 investigation were analyzed for VOCs, SVOCs, pesticides/PCBs, organophosphorus (OP)-pesticides, dioxins, chlorinated herbicides, Appendix IX metals, and TPH. A total of 16 samples, including 2 duplicates, were collected during this investigation. Analytical results of the samples concluded the following:

- Six VOCs were detected at concentrations below the screening criteria.
- Benzo(a)pyrene was detected in one of the 16 samples exceeding the residential RBC.
- Pesticides were detected below the screening criteria.
- No PCBs, OP-pesticides, or dioxins/furans were detected in any of the samples.
- One chlorinated herbicide was detected at a concentration below the screening criteria.
- TPH DRO and TPH GRO were detected at concentrations below the screening criteria.
- Arsenic, cadmium, chromium, and vanadium were detected above the residential RBCs but were below the industrial RBCs. Arsenic was detected in 15 samples above the residential RBC and only 3 were above the background criteria. Vanadium was detected in all of the samples in excess of the residential RBC but below the background criteria (Baker, 2001b).

As discussed in Section 4.1.4, three surface soil samples were collected during the 2002 investigation. The mainland laboratory analyzed these samples for VOCs and SVOCs. No VOCs or SVOCs were detected in any of the surface soil samples.

5.2.2 Subsurface Soil

Subsurface soil samples collected during the 2000 investigation were analyzed for the same parameters as the surface soil samples. A total of four subsurface soil samples were collected as part of the SWMU 54 investigation. Three VOCs, one SVOC, and two pesticides were detected, however the detections were below both industrial and residential RBCs (see Appendix C). One chlorinated herbicide was detected but was below the screening criteria. There were no detections of OP-pesticides, dioxins/furans, or TPH. Thirteen different metals were detected in the subsurface soil samples. Arsenic, chromium, and vanadium were detected above the residential RBCs but below the industrial RBCs. Chromium and vanadium exceeded background screening criteria in one of the four samples, while arsenic was below background screening criteria in all four of the subsurface samples (Baker, 2001b).

As discussed in Section 4.1.4, five subsurface samples (including one duplicate) were collected during the 2002 investigation. The mainland laboratory analyzed these samples for VOCs and SVOCs. A total of 13 VOCs were detected as shown in Table 5-7. Of these 13 VOCs, only one VOC, 1,2-Dibromo-3-chloropropane, exceeded residential RBCs. This VOC is likely attributed to the suspected BTEX plume located in the vicinity of sample 54TW15A. Only one SVOC, 2,4-Dimethylphenol, was detected and was below screening criteria.

5.2.3 Groundwater

Groundwater samples collected during the 2000 investigation were analyzed for VOCs, SVOCs, pesticides/PCBs, OP-pesticides, dioxins, chlorinated herbicides, Appendix IX metals, and TPH. Analytical results (see Appendix C) of the samples concluded the following:

- Eleven VOCs were detected in the groundwater samples and were isolated to four of the monitoring wells. It is likely that detections in these wells are associated with Site 510 activities and are not SWMU 54-related. There were no VOCs detected from the two temporary wells installed.
- Fifteen SVOCs were detected in the groundwater samples, most of which were PAHs. Six SVOCs were detected at concentrations exceeding the tap water RBCs in samples 510MW1 and 510MW2. Of those detections, benzo(a)pyrene also exceeded the Federal MCLs in both samples.

- There were no positive detections of pesticides/PCBs, OP-pesticides, chlorinated herbicides, or dioxins/furans.
- TPH DRO was detected in eight of the nine samples and TPH GRO was detected in three samples.
- Fourteen inorganic compounds were detected. Beryllium was detected above the Federal MCL in one sample (54TW01) while thallium was detected above the Federal MCL in sample 510MW2. Detections of thallium are not indicative of past releases associated with SWMU 54 (Baker, 2001b).

Based on the 2000 investigation, 30 groundwater samples (including 3 duplicates) were collected during the 2002 investigation. The mainland laboratory analyzed these samples for VOCs and SVOCs. A total of 12 VOCs were detected in the samples as shown in Table 5-8. Trichloroethene was detected in 18 of the samples exceeding the tap water RBCs; 12 of those exceeded the Federal MCL. Its extent is shown on Figure 5-4. Benzene and ethylbenzene were detected in four samples (including one duplicate) exceeding the Region III Tap Water RBC. Three of these samples also exceeded the Federal MCL for benzene. Ethylbenzene exceeded the Federal MCL in only one sample. Their concentrations are shown on Figures 5-5 and 5-6. Chloroform was detected in nine samples, all of which exceeded the Region III Tap Water RBC. It should be noted that a Federal MCL has not been established for chloroform. Only two SVOCs, 2-methylnaphthalene and naphthalene, were detected at concentrations exceeding tap water RBCs, there are no Federal MCLs established for these constituents.

5.3 Quality Assurance/Quality Control Sample Results

A portion of the QA/QC sampling efforts consisted of equipment rinsate samples, trip blanks, field blanks, and IDW samples. The analytical results from the QA/QC sampling is presented as Appendix D.

5.3.1 Equipment Rinsate Samples

Two equipment rinsate blanks (53ER01 and 54ER01) were collected during the field activities. Samples 53ER01 and 54ER01 were collected while pouring lab grade deionized water over an acetate sleeve and a silicon tubing, respectively. Sample 53ER01 was analyzed for lead, arsenic, and pesticides, and sample 54ER01 was analyzed for VOCs and SVOCs. No pesticides or lead

were detected in Sample 53ER01, although an arsenic concentration of 3.8 J was detected. No VOCs or SVOCs were detected in Sample 54ER01.

5.3.2 Trip Blanks

A total of eight trip blanks was collected at SWMU 54 and analyzed for VOCs. No VOCs were detected in the trip blank samples.

5.3.3 Field Blanks

Three field blank samples (2001FB02, 2001FB02, and 2001FB03) were collected during the investigation and analyzed for VOCs, SVOCs, pesticides, and metals. The water analyzed included lab grade deionized water; store-bought distilled water, and NSRR potable water from a spicket located on the side of Building 1914 (Former NEX Repair/Maintenance Shop). No contaminants were detected in the samples.

5.3.4 IDW Samples

Two IDW samples were collected at SWMU 54 (54IDW-WATER and 54IDW-SOIL). Sample 54IDW-WATER was collected from the decontamination water and was analyzed for benzene and RCRA Metals. Arsenic, barium, cadmium, chromium, lead, and mercury were detected in the sample as shown in Table 5-9. Sample 54IDW-SOIL was collected from soil boring cuttings and was analyzed for Toxicity Characteristics Leachate Procedure (TCLP) Benzene and TCLP RCRA Metals. Low concentrations of barium and chromium were detected in the sample as shown in Tables 5-9.

5.4 Data Validation

A detailed and independent data validation was performed by Heartland Environmental Services, Inc. to verify the qualitative and quantitative reliability of the data presented and adherence to stated analytical protocols. This review included a detailed review and interpretation of all the data generated by the laboratory for data quality Level D deliverables. The primary tools that were utilized by the experienced data validation personnel included analytical method operating

procedures, Statement of Work for CLP guidance documents, EPA Region II guidelines for data validation, established criteria, and professional judgement.

The data validation reports stated that the overall laboratory performance was acceptable. The overall quality of the data package is acceptable. The reported results are accepted as reported by the laboratory with the noted qualifications. Data validation reports were prepared by the data validator that provided the back-up information accompanying the qualifying statements presented in the QA review. The report narratives can be found in Appendix E.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The following section provides the conclusions and recommendations for SWMUs 53 and 54 as determined from the findings of the investigations discussed previously.

6.1 Conclusions

This section of the report provides overall conclusions regarding SWMUs 53 and 54 based on results of this and past field investigations.

6.1.1 SWMU 53 – Building 64 (Malaria Control Building)

Based on results of the 2000 and 2002 field investigations, arsenic, lead, and 4,4-DDT, the three primary chemicals of concern (COCs) identified from the Sampling and Analysis Report (Baker, 2001b) were delineated at SWMU 53. Of these three, only the metals, lead and arsenic, exceed the EPA Region III Industrial RBC. They were found to exceed the Industrial RBC only in the surface soils and only in the 2000 investigation. The results from the 2002 investigation provided delineation, but no other exceedance of the Industrial RBC.

Arsenic, lead, 4,4-DDT, chlordane, and heptachlor epoxide were found to exceed the EPA Region III Residential RBCs in surface soil during these investigations. Chlordane and heptachlor epoxide were found in 53SB14 on the outer edge of the investigated area during the 2002 RFI and have not been delineated. Heptachlor epoxide was detected in a very small quantity, below EPA Region III Residential RBC, during the 2000 investigation, however was found to exceed the EPA Region III residential RBC. Due to the location of this sample on the outer edge of the investigation area, this contaminant was not delineated. Chlordane was not detected in the 2000 investigation.

Arsenic was detected in the subsurface soil at a level higher than the EPA Region III Residential RBC but lower than twice the background level. No other compound exceeded any RBC in the subsurface soil.

6.1.2 SWMU 54 – Building 1914 (Former NEX Repair/Maintenance Shop)

Based on results of the field investigation, it has been determined that no further action is required to mitigate surface soil or subsurface soil. One VOC, 1,2-Dibromo-3-chloropropane, was detected above screening criteria in the subsurface soil. This is indicative of a BTEX plume located in the vicinity of sample 54TW15A.

A plume of TCE contamination in groundwater has been identified and delineated as a result of the field investigation. In addition, a plume of benzene and ethylbenzene was delineated in the vicinity of Bairoko Street around 54TW15.

6.2 Recommendations

This section provides recommendations for SWMUs 53 and 54.

6.2.1 SWMU 53 – Building 64 (Malaria Control Building)

Arsenic, lead, and 4,4-DDT were delineated around Building 64 during the 2002 investigation. Chlordane and heptachlor epoxide were not delineated because they were found in a sample on the outer edge of the area under investigation.

It is recommended that the chlordane and heptachlor epoxide be delineated. Once this is complete, it is further recommended that a corrective measure study (CMS) be completed to develop remedial alternatives for the pesticides and metals that are present in the surface soil at SWMU 53.

6.2.2 SWMU 54 – Building 1914 (Former NEX Repair/Maintenance Shop)

The extents of the TCE, benzene, and ethylbenzene groundwater contamination have been delineated in the 2002 RFI. Because of the relatively high levels of benzene and ethylbenzene, it is recommended that a CMS be developed to determine remedial alternatives for the compounds in the groundwater at this site.

7.0 REFERENCES

Baker, 2001a. Final RFI Work Plan SWMUs 53 and 54, Naval Station Roosevelt Roads, Ceiba, Puerto Rico. December 2001.

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TABLES

TABLE 3-1

SUMMARY OF GROUNDWATER ELEVATIONS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

		February 20, 2002		February 26, 2002		March 3, 2002	
Well No.	Top of PVC Elevation (feet msl)	Depth to Water (feet from top of PVC)	Groundwater Elevation (feet msl)	Depth to Water (feet from top of PVC)	Groundwater Elevation (feet msl)	Depth to Water (feet from top of PVC)	Groundwater Elevation (feet msl)
510MW1	117.01	NR	NA	5.12	111.89	5.30	111.71
510MW2	122.31	NR	NA	15.67	106.64	15.79	106.52
510MW3	117.37	10.94	106.43	10.85	106.52	10.91	106.46
510MW4	115.99	NR	NA	9.71	106.28	9.24	106.75
510MW5	119.72	13.14	106.58	13.20	106.52	13.35	106.37
510DW1	117.19	NR	NA	NR	NA	10.72	106.47
510DW2	117.18	NR	NA	NR	NA	10.67	106.51
54TW03	119.84	13.18	106.66	13.30	106.54	13.43	106.41
54TW04	120.36	13.71	106.65	13.76	106.60	13.89	106.47
54TW05	119.95	13.18	106.77	13.26	106.69	13.37	106.58
54TW06	119.69	13.02	106.67	13.14	106.55	13.26	106.43
54TW07	116.95	8.34	108.61	8.48	108.47	8.68	108.27
54TW08	116.34	9.69	106.65	9.78	106.56	9.95	106.39
54TW09	115.43	8.82	106.61	8.88	106.55	9.10	106.33
54TW10	116.04	9.45	106.59	9.58	106.46	9.77	106.27
54TW11	119.87	11.32	108.55	12.98	106.89	13.13	106.74
54TW12	120.43	11.75	108.68	11.80	108.63	11.93	108.50
54TW13	118.98	12.41	106.57	12.42	106.56	12.53	106.45
54TW14	120.55	14.12	106.43	14.11	106.44	14.20	106.35
54TW15	116.07	9.38	106.69	9.46	106.61	9.59	106.48
54TW16	115.69	9.07	106.62	9.18	106.51	9.36	106.33
54TW17	115.01	8.50	106.51	8.60	106.41	8.80	106.21
54TW18	119.25	12.55	106.70	12.52	106.73	12.64	106.61
54TW19	117.16	NR	NA	NR	NA	10.66	106.50
54TW20	114.79	NR	NA	NR	NA	8.25	106.54
54TW21	115.18	NR	NA	NR	NA	8.72	106.46
54PZ01	120.48	14.25	106.23	13.80	106.68	13.91	106.57
54PZ02	116.30	3.08	113.22	6.53	109.77	7.95	108.35
54PZ03	118.22	11.44	106.78	11.62	106.60	11.73	106.49

Notes:
NA - Not Available.
NR - Not Recorded.
msl - mean sea level + 100 feet.
PVC - Polyvinyl Chloride.

TABLE 4-1

SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

			Analytical Parameters					
			Field Screening Kits		Mainland Laboratory			
Sample Media	Sample Designation	Sample Depth (ft bgs)	DDT	Lead	Pesticides [2]	Arsenic	Lead [2]	Comments
Surface Soil	53SB07-00	0.0-1.0	X	X		X	X	
	53SB08-00	0.0-1.0	X	X		X		
	53SB09-00	0.0-1.0	X	X	X	X		
	53SB10-00	0.0-1.0	X	X		X		
	53SB11-00	0.0-1.0	X	X		X		
	53SB12-00	0.0-1.0	X	X		X	X	
	53SB13-00	0.0-1.0	X	X		X		
	53SB14-00	0.0-1.0	X	X	X	X		
	53SB15-00	0.0-1.0	X	X		X	X	
	53SB15-00D	0.0-1.0	X	X		X		Duplicate
	53SB15-00MS/MSD	0.0-1.0	X	X		X		Matrix Spike/ Matrix Spike Duplicate
	53SB16-00	0.0-1.0	X	X	X	X		
	53SB17-00	0.0-1.0	X	X	X	X		
	53SB18-00	0.0-1.0	X	X		X		
	53SB18-00D	0.0-1.0	X	X		X		Duplicate
	53SB19-00	0.0-1.0	X	X		X	X	
	53SB20-00	0.0-1.0	X	X		X		
Subsurface Soil [1]	53SB07-01	1.0-2.0	X	X		X	X	
	53SB08-01	1.5-2.5	X	X		X		
	53SB09-01	1.5-2.5	X	X		X	X	
	53SB10-01	3.0-4.0	X	X	X	X		
	53SB11-01	3.0-4.0	X	X		X		
	53SB11-01D	3.0-4.0	X	X		X		Duplicate
	53SB12-01	2.0-3.0	X	X		X		
	53SB13-01	1.5-2.5	X	X		X	X	
	53SB14-01	1.5-2.5	X	X		X		
	53SB15-01	1.5-2.5	X	X	X	X		
	53SB16-01	1.0-2.0	X	X		X		
	53SB16-01D	1.0-2.0	X	X		X		Duplicate
	53SB16-01MS/MSD	1.0-2.0	X	X		X		Matrix Spike/ Matrix Spike Duplicate
	53SB17-01	1.5-2.5	X	X		X		
	53SB18-01	1.0-2.0	X	X		X	X	
	53SB19-01	2.5-3.5	X	X	X	X		
	53SB20-01	2.0-3.0	X	X	X	X		

Notes:
ft bgs - feet below ground surface.
[1] - Samples collected at the mid-depth between the ground surface and top of competent bedrock.
[2] - Samples sent to the mainland fixed base laboratory were dependent on the results of the field test kits.

TABLE 4-2

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

Volatiles	Quantitation Limits*		Method Number
	Water (mg/L)	Low Soil (mg/kg)	
Acetone	50	50	8260
Acetonitrile	200	200	8260
Acrolein	100	100	8260
Acrylonitrile	100	100	8260
Benzene	5.0	5.0	8260
Bromodichloromethane	5.0	5.0	8260
Bromoform	5.0	5.0	8260
Bromomethane	10	10	8260
Carbon Disulfide	5.0	5.0	8260
Carbon Tetrachloride	5.0	5.0	8260
Chlorobenzene	5.0	5.0	8260
Chloroethane	10	10	8260
Chloroform	5.0	5.0	8260
Chloromethane	10	10	8260
Chloroprene	5.0	3.0	8260
3-Chloro-1-propene	5.0	5.0	8260
1,2-Dibromo-3-chloropropane	5.0	10	8260
Dibromochloromethane	5.0	5.0	8260
1,2-Dibromoethane	5.0	5.0	8260
Dibromomethane	5.0	5.0	8260
trans-1,4-Dichloro-2-butene	10	10	8260
Dichlorodifluoromethane	10	5.0	8260
Dibromomethane	5.0	5.0	8260
1,1-Dichloroethane	5.0	5.0	8260
1,2-Dichloroethane	5.0	5.0	8260
trans-1,2-dichloroethene	5.0	5.0	8260
1,1-Dichloroethene	5.0	5.0	8260
Methylene Chloride	5.0	5.0	8260
1,2-Dichloropropane	5.0	5.0	8260
cis-1,3-Dichloropropene	5.0	5.0	8260
trans-1,3-Dichloropropene	5.0	5.0	8260
Ethyl benzene	5.0	5.0	8260
Ethyl methacrylate	5.0	5.0	8260
2-Hexanone	25	25	8260
Iodomethane	5.0	5.0	8260
Isobutanol	200	200	8260
Methacrylonitrile	100	100	8260
2-Butanone	25	25	8260
Methyl methacrylate	5.0	5.0	8260
4-Methyl-2-pentanone	25	25	8260
Pentachloroethane	25	25	8260
Propionitrile	100	100	8260
Stryene	5.0	5.0	8260

TABLE 4-2

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

Volatiles (Continued)	Quantitation Limits*		Method Number
	Water (mg/L)	Low Soil (mg/kg)	
1,1,1,2-Tetrachloroethane	5.0	5.0	8260
1,1,2,2-Tetrachloroethane	5.0	5.0	8260
Tetrachloroethene	5.0	5.0	8260
Toluene	5.0	5.0	8260
1,1,1-Trichloroethane	5.0	5.0	8260
1,1,2-Trichloroethane	5.0	5.0	8260
Trichloroethene	5.0	5.0	8260
Trichlorofluoromethane	5.0	5.0	8260
1,2,3-Trichloropropane	5.0	5.0	8260
Vinyl Acetate	10	10	8260
Vinyl Chloride	10	10	8260
Xylene	10	10	8260

* 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/kg - micrograms per kilogram.
µg/L - micrograms per liter.

TABLE 4-2

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

Semivolatiles	Quantitation Limits*		Method Number
	Water (mg/L)	Low Soil (mg/kg)	
Acenaphthene	10	330	8270
Acenaphthylene	10	330	8270
Acetophenone	10	330	8270
2-Acetylaminofluorene	10	330	8270
4-Aminobiphenyl	20	330	8270
Aniline	20	330	8270
Anthracene	10	330	8270
Aramite	10	330	8270
Benzo(a)anthracene	10	330	8270
Benzo(b)fluoranthene	10	330	8270
Benzo(k)fluoranthene	10	330	8270
Benzo(g,h,i)perylene	10	330	8270
Benzo(a)pyrene	10	330	8270
Benzyl alcohol	10	330	8270
Bis(2-chloroethoxyl)methane	10	330	8270
Bis(2-chloroethyl)ether	10	330	8270
Bis(2-ethylhexyl)phthalate	10	330	8270
4-Bromophenyl phenyl ether	10	330	8270
Butylbenzylphthalate	10	330	8270
4-Chloroaniline	20	660	8270
4-Chloro-3-methylphenol	10	330	8270
2-Chloronaphthalene	10	330	8270
2-Chlorophenol	10	330	8270
4-Chlorophenyl phenyl ether	10	330	8270
Chrysene	10	330	8270
3&4 Methylphenol	10	330	8270
2-Methylphenol	10	330	8270
Diallate	10	330	8270
Dibenzofuran	10	330	8270
Di-n-butyl phthalate	10	330	8270
Dibenzo(a,h)anthracene	10	330	8270
o-Dichlorobenzene	10	330	8270
m-Dichlorobenzene	10	330	8270
p-Dichlorobenzene	10	330	8270
3,3'-Dichlorobenzidine	20	660	8270
2,4-Dichlorophenol	10	330	8270
2,6-Dichlorophenol	10	330	8270
Diethylphthalate	10	330	8270
p-(Dimethylamino)azobenzene	10	330	8270
7,12-Dimethyl benz(a)anthracene	10	330	8270
3,3-Dimethyl benzidine	20	1,700	8270
2,4-Dimethylphenol	10	330	8270
alpha, alpha-Dimethylphenethylamine	2,000	67,000	8270

TABLE 4-2

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

Semivolatiles (Continued)	Quantitation Limits*		Method Number
	Water (mg/L)	Low Soil (mg/kg)	
Dimethyl phthalate	10	330	8270
m-Dinitrobenzene	10	330	8270
4,6-Dinitro-2-methylphenol	50	1,700	8270
2,4-Dinitrophenol	50	1,700	8270
2,4-Dinitrotoluene	10	330	8270
2,6-Dinitrotoluene	10	330	8270
Di-n-octylphthalate	10	330	8270
1,4-Dioxane	10	330	8270
Dinoseb	10	330	8270
Ethylmethanesulfonate	10	330	8270
Fluoranthene	10	330	8270
Fluorene	10	330	8270
Hexachlorobenzene	10	330	8270
Hexachlorobutadiene	10	330	8270
Hexachlorocyclopentadiene	10	330	8270
Hexachloroethane	10	330	8270
Hexachlorophene	5,000	170,000	8270
Hexachloropropene	10	330	8270
Indeno(1,2,3-cd)pyrene	10	330	8270
Isophorone	10	330	8270
Isosafrole	10	330	8270
Methapyrilene	2,000	67,000	8270
3-Methylcholanthrene	10	330	8270
Methyl methanesulfonate	10	330	8270
2-Methylnaphthalene	10	330	8270
Naphthalene	10	330	8270
1,4-Naphthoquinone	10	330	8270
1-Naphthylamine	10	330	8270
2-Naphthylamine	10	330	8270
2-Nitroaniline	50	1,700	8270
3-Nitroaniline	50	1,700	8270
4-Nitroaniline	50	1,700	8270
Nitrobenzene	10	330	8270
2-Nitrophenol	10	330	8270
4-Nitrophenol	50	1,700	8270
4-Nitroquinoline-1-oxide	20	3,300	8270
n-Nitrosodi-n-butylamine	10	330	8270
n-Nitrosodiethylamine	10	330	8270
n-Nitrosodimethylamine	10	330	8270
n-Nitrosodiphenylamine	NA	330	8270
n-Nitrosodi-n-propylamine	10	330	8270
n-Nitrosomethylethylamine	10	330	8270
n-Nitrosomorpholine	10	330	8270

TABLE 4-2

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

Semivolatiles (Continued)	Quantitation Limits*		Method Number
	Water (mg/L)	Low Soil (mg/kg)	
n-Nitrosopiperidine	10	330	8270
n-Nitrosopyrrolidine	10	330	8270
5-Nitro-o-toluidine	10	330	8270
bis-(2-chloroisopropyl)ether	10	330	8270
Pentachlorobenzene	10	330	8270
Pentachloronitrobenzene	10	330	8270
Pentachlorophenol	50	1,700	8270
Phenacetin	10	330	8270
Phenanthrene	10	330	8270
Phenol	10	330	8270
1,4-Phenylenediamine	2,000	1,700	8270
2-Picolin	10	330	8270
Pronamide	10	330	8270
Pyrene	10	330	8270
Pyridine	50	330	8270
Safrole	10	330	8270
1,2,4,5-Tetrachlorobenzene	10	330	8270
2,3,4,6-Tetrachlorophenol	10	330	8270
o-Toluidine	10	330	8270
1,2,4-Trichlorobenzene	10	330	8270
2,4,5-Trichlorophenol	10	330	8270
2,4,6-Trichlorophenol	10	330	8270
1,3,5-Trinitrobenzene	10	330	8270

* 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.
NA - Not Available
µg/kg - micrograms per kilogram.
µg/L - micrograms per liter.

TABLE 4-2

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

Pesticides	Quantitation Limits*		Method Number
	Water (mg/L)	Low Soil (mg/kg)	
Aldrin	0.05	1.7	8081
Alpha-BHC	0.05	1.7	8081
beta-BHC	0.05	1.7	8081
delta-BHC	0.05	1.7	8081
gamma-BHC	0.05	1.7	8081
Chlordane	0.5	17	8081
Chlorobenzilate	0.5	17	8081
4,4'-DDT	0.1	3.3	8081
4,4'-DDE	0.1	3.3	8081
4,4'-DDD	0.1	3.3	8081
Dieldrin	0.1	3.3	8081
Endosulfan I	0.05	1.7	8081
Endosulfan II	0.1	3.3	8081
Endosulfan sulfate	0.1	3.3	8081
Endrin	0.1	3.3	8081
Isodrin	0.05	3.3	8081
Kepone	1.0	170	8081
Toxaphene	5.0	170	8081
Endrin Aldehyde	0.1	3.3	8081
Heptachlor	0.05	1.7	8081
Heptachlor epoxide	0.05	1.7	8081
Methyoxychlor	0.5	17	8081

* 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/kg - micrograms per kilogram.
µg/L - micrograms per liter.

TABLE 4-2

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

Inorganics	Method Number	Quantitation Limits*		Method Description
		Water (mg/L)	Low Soil (mg/kg)	
Arsenic	6010	10	1.0	Inductively Coupled Plasma
Lead	6010	5.0	0.5	Inductively Coupled Plasma

* 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/kg - micrograms per kilogram.
µg/L - micrograms per liter.

TABLE 4-3

SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample Media	Sample Designation	Sample Depth (ft bgs)	Analytical Parameters		Comments
			VOCs[1]	SVOCs[1]	
Groundwater	510MW1	NA	X	X	
	510MW2	NA	X	X	
	510MW3	NA	X	X	
	510MW4	NA	X	X	
	510MW5	NA	X	X	
	510DW1	NA	X	X	
	510DW1D	NA	X	X	Duplicate
	510DW1MS	NA	X	X	Matrix Spike
	510DW1MSD	NA	X	X	Matrix Spike Duplicate
	510DW2	NA	X	X	
	54TW03	NA	X	X	
	54TW04	NA	X	X	
	54TW05	NA	X	X	
	54TW06	NA	X	X	
	54TW07	NA	X	X	
	54TW08	NA	X	X	
	54TW09	NA	X	X	
	54TW09D	NA	X	X	Duplicate
	54TW09MS	NA	X	X	Matrix Spike
	54TW09MSD	NA	X	X	Matrix Spike Duplicate
	54TW10	NA	X	X	
	54TW11	NA	X	X	
	54TW11D	NA	X	X	Duplicate
	54TW12	NA	X	X	
	54TW13	NA	X	X	
	54TW14	NA	X	X	
	54TW15	NA	X	X	
	54TW16	NA	X	X	
	54TW17	NA	X	X	
	54TW18	NA	X	X	
	54TW19	NA	X	X	
	54TW20	NA	X	X	
	54TW21	NA	X	X	
	54PZ01	NA	X	X	
Surface Soil	54TW15A-00	0.0-1.0	X	X	
	54TW15A-00MS	0.0-1.0	X	X	Matrix Spike
	54TW15A-00MSD	0.0-1.0	X	X	Matrix Spike Duplicate
	54TW19-00	0.0-1.0	X	X	
	54TW20-00	0.0-1.0	X	X	

TABLE 4-3

SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample Media	Sample Designation	Sample Depth (ft bgs)	Analytical Parameters		Comments
			VOCs[1]	SVOCs[1]	
Subsurface Soil	54TW15A-02	4.0-6.0	X	X	
	54TW15A-02D	4.0-6.0	X	X	Duplicate
	54TW15A-04	9.0-11.0	X	X	
	54TW19-05	10.0-11.4	X	X	
	54TW20-04	8.0-9.0	X	X	

Notes:
[1] - Quick Turn Mainland Laboratory Analysis
ft bgs - feet below ground surface.

TABLE 4-4

SUMMARY OF SOIL BORING AND TEMPORARY WELL CONSTRUCTION DETAILS
SWMUs 53 AND 54
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

SWMU	Location Type	Monitor Well No./ Soil Boring No.	Date Installed	Top of PVC Elevation (ft msl)	Ground Surface Elevation (ft msl)	Boring Depth (ft bgs)	Depth to Bedrock (ft bgs)	Top of PVC Casing Elevation (ft msl)	Well Depth (ft bgs)	Screen Interval Depth (ft bgs)	Stick-Up (ft bgs)
53	Soil Boring	53SB07	02/15/02	NA	122.26	3.0	3.0	NA	NA	NA	NA
		53SB08	02/15/02	NA	121.91	4.0	4.0	NA	NA	NA	NA
		53SB09	02/15/02	NA	121.26	4.5	4.5	NA	NA	NA	NA
		53SB10	02/15/02	NA	117.69	7.0	7.0	NA	NA	NA	NA
		53SB11	02/15/02	NA	116.37	7.0	7.0	NA	NA	NA	NA
		53SB12	02/15/02	NA	122.33	5.0	5.0	NA	NA	NA	NA
		53SB13	02/15/02	NA	123.01	4.0	4.0	NA	NA	NA	NA
		53SB14	02/15/02	NA	121.88	3.9	3.9	NA	NA	NA	NA
		53SB15	02/15/02	NA	123.04	4.0	4.0	NA	NA	NA	NA
		53SB16	02/15/02	NA	123.64	2.0	2.0	NA	NA	NA	NA
		53SB17	02/15/02	NA	123.65	4.0	4.0	NA	NA	NA	NA
		53SB18	02/15/02	NA	123.43	3.0	3.0	NA	NA	NA	NA
		53SB19	02/15/02	NA	123.49	6.0	6.0	NA	NA	NA	NA
		53SB20	02/15/02	NA	121.27	5.0	5.0	NA	NA	NA	NA
54	Soil Boring	54TW15A	03/01/02	NA	116.23	12.0	NA	NA	NA	NA	NA
	Temporary Monitor Well	54TW03	02/12/02	119.84	NM	20.0	NM	119.84	20.0	10.0-20.0	NM
		54TW04	02/13/02	120.36	NM	20.0	NM	120.36	20.0	10.0-20.0	NM
		54TW05	02/13/02	119.95	NM	20.0	NM	119.95	20.0	10.0-20.0	NM
		54TW06	02/14/02	119.69	NM	20.0	NM	119.69	20.0	10.0-20.0	NM
		54TW07	02/14/02	116.95	NM	20.0	NM	116.95	20.0	10.0-20.0	NM
		54TW08	02/14/02	116.34	NM	20.0	NM	116.34	20.0	10.0-20.0	NM
		54TW09	02/14/02	115.43	NM	20.0	NM	115.43	20.0	10.0-20.0	NM
		54TW10	02/14/02	116.04	NM	20.0	NM	116.04	20.0	10.0-20.0	NM
		54TW11	02/16/02	119.87	NM	20.0	NM	119.87	20.0	10.0-20.0	NM
		54TW12	02/18/02	120.43	NM	20.0	NM	120.43	20.0	10.0-20.0	NM
		54TW13	02/18/02	118.98	NM	20.0	NM	118.98	20.0	10.0-20.0	NM
		54TW14	02/18/02	120.55	NM	20.0	NM	120.55	20.0	10.0-20.0	NM
		54TW15	02/18/02	116.07	NM	20.0	NM	116.07	20.0	10.0-20.0	NM
		54TW16	02/18/02	115.69	NM	20.0	NM	115.69	20.0	10.0-20.0	NM

TABLE 4-4

SUMMARY OF SOIL BORING AND TEMPORARY WELL CONSTRUCTION DETAILS
SWMUs 53 AND 54
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

SWMU	Location Type	Monitor Well No./ Soil Boring No.	Date Installed	Top of PVC Elevation (ft msl)	Ground Surface Elevation (ft msl)	Boring Depth (ft bgs)	Depth to Bedrock (ft bgs)	Top of PVC Casing Elevation (ft msl)	Well Depth (ft bgs)	Screen Interval Depth (ft bgs)	Stick-Up (ft bgs)
54 (Cont.)	Temporary Monitor Well (Cont.)	54TW17	02/20/02	115.01	NM	20.0	NM	115.01	20.0	10.0-20.0	NM
		54TW18	02/20/02	119.25	NM	20.0	NM	119.25	20.0	10.0-20.0	NM
		54TW19	03/02/02	117.16	NM	20.0	NM	117.16	20.0	10.0-20.0	NM
		54TW20	03/02/02	114.79	NM	20.0	NM	114.79	20.0	10.0-20.0	NM
		54TW21	3/4/2002	115.18	NM	20.0	NM	115.18	20.0	10.0-20.0	NM
	Temporary Piezometer	54PZ01	02/16/02	120.48	NM	20.0	NM	120.48	20.0	10.0-20.0	NM
		54PZ02	02/19/02	116.30	NM	20.0	NM	116.30	20.0	10.0-20.0	NM
		54PZ03	02/19/02	118.22	NM	20.0	NM	118.22	20.0	10.0-20.0	NM

Notes:
ft msl - feet mean sea level + 100 feet.
ft bgs - feet below ground surface.
NA - Not Applicable.
NM - Not Measured.

TABLE 4-5

SUMMARY OF GROUNDWATER FIELD PARAMETERS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Well ID/ Sample Date	Time Interval	Static Water Level (ft from top of PVC)	Temperature (^{O}C)	pH (S.U.)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (N.T.U.)
510MW1	1416	5.12						
2/26/02	1422	5.16	27.6	6.17	768		-9.1	9.7
	1429	5.17	27.0	6.27	756		-14.4	6.6
	1435	5.17	27.0	6.51	763		-31.3	2.7
	1448	5.18	27.1	6.63	757		-43.3	1.1
	1457	5.18	27.0	6.69	755		-50.0	0.5
	1509	5.19	27.0	6.71	743	0.6	-50.0	0.2
510MW2	0804	15.68						
2/27/02	0810	15.91	24.4	6.64	1,400		114.7	6.4
	0817	16.05	25.0	6.66	1,399		108.1	3.7
	0824	16.11	25.2	6.68	1,420		104.7	1.7
	0830	16.15	25.6	6.69	1,425		101.7	2.0
	0836	16.18	25.7	6.74	1,434	0.5	97.4	1.3
510MW3	0804	10.69						
2/13/02	0810	10.97	27.1	6.35	1,250		172.0	2.0
	0815	11.14	27.5	6.86	1,261		167.0	1.9
	0821	11.24	27.4	6.88	1,265		176.3	1.2
	0826	11.33	27.5	6.71	1,265		177.1	0.6
	0831	11.40	27.7	6.66	1,270		172.0	0.3
	0836	11.46	27.4	6.33	1,278		171.1	0.3
	0841	11.52	27.8	6.39	1,288	0.7	170.1	0.3
510MW4	1308	9.71						
2/26/02	1314	9.97	28.1	6.79	1,998		-44.1	3.9
	1320	10.29	28.5	6.82	2,000		-33.5	3.0
	1328	10.42	28.2	6.83	1,985		-32.6	1.3
	1334	10.63	28.6	6.82	1,971		-28.6	2.3
	1339	10.78	28.5	6.81	1,964	0.8	-22.6	1.5
510MW5	0942	13.12						
2/13/02	0948	13.35	29.5	4.95	1,969		-57.9	9.3
	0953	13.51	29.2	5.46	1,907		-70.6	3.3
	0957	13.66	29.1	5.61	1,901		-61.5	2.1
	1002	13.79	29.1	5.69	1,882		-44.1	2.4
	1008	13.97	29.1	5.65	1,879		-47.0	1.7
	1013	14.10	29.2	5.69	1,867	0.9	-48.6	1.8
510DW1	1037	10.53						
2/27/02	1044	11.20	30.1	7.31	795		-69.9	2.6
	1051	11.02	29.3	7.17	779		-99.1	1.1
	1057	11.17	29.3	7.13	761		-102.3	0.6
	1104	11.18	29.5	7.12	762	0.5	-93.0	0.4

TABLE 4-5

SUMMARY OF GROUNDWATER FIELD PARAMETERS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Well ID/ Sample Date	Time Interval	Static Water Level (ft from top of PVC)	Temperature (^{O}C)	pH (S.U.)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (N.T.U.)
510DW2	0915	10.55						
2/27/02	0921	10.67	28.8	6.45	982		96.8	24.3
	0932	10.72	28.6	6.54	992		113.7	10.7
	0947	10.70	28.7	6.54	987		109.3	7.4
	0953	10.71	28.6	6.59	985		124.6	6.4
	1000	10.70	29.1	6.66	999		120.4	4.1
	1006	10.72	29.1	6.76	998		115.2	3.0
	1012	10.69	28.7	6.76	993	0.9	117.7	1.7
54TW03	0800	13.21						
2/14/02	0808	13.39	27.6	6.55	1,560		37.0	Over-range
	0814	13.58	28.1	6.31	1,650		60.2	Over-range
	0820	13.70	28.3	6.40	1,681		88.1	Over-range
	0827	13.84	28.1	6.41	1,679		96.0	Over-range
	0833	13.95	27.9	6.41	1,679	1.0	95.7	969
54TW04	0920	13.70						
2/14/02	0927	13.86	27.8	6.67	1,510		-16.8	1,000
	0934	14.10	28.0	6.61	1,537		-4.2	400
	0940	14.16	28.2	6.69	1,546		12.4	192
	0947	14.25	28.1	6.73	1,549		15.7	128
	0954	14.33	28.1	6.77	1,558	2.0	5.2	184
54TW05	1051	13.21						
2/14/02	1057	13.38	30.1	6.11	1,554		15.7	Over-range
	1104	13.46	30.3	6.06	1,607		29.4	Over-range
	1111	13.63	29.9	6.09	1,619		48.7	Over-range
	1118	13.71	29.8	6.12	1,615		33.4	Over-range
	1124	13.82	29.4	6.10	1,609		42.8	Over-range
	1130	13.90	29.5	6.16	1,613	2.0	42.8	Over-range
54TW06	0805	14.64						
2/15/02	0820	15.07	28.3	7.16	2,396		68.9	Over-range
	0828	15.18	28.6	6.86	2,415		79.4	Over-range
	0834	15.27	28.6	6.84	2,407		89.4	Over-range
	0843	15.38	28.5	6.93	2,462	2.0	84.3	Over-range
54TW07	1200	8.65						
2/15/02	1206	8.70	29.0	6.33	1,031		37.4	Over-range
	1212	8.79	28.6	6.28	1,029		8.6	Over-range
	1218	8.85	28.3	6.30	1,038		11.4	675
	1224	8.89	28.1	6.32	1,046	0.5	10.1	226
54TW08	1047	9.69						
2/15/02	1056	9.92	28.6	6.27	1,244		17.5	1,006
	1102	10.00	28.2	6.19	1,255		15.7	134
	1109	10.05	28.1	6.25	1,242	1.0	12.6	59.9

TABLE 4-5

SUMMARY OF GROUNDWATER FIELD PARAMETERS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Well ID/ Sample Date	Time Interval	Static Water Level (ft from top of PVC)	Temperature (^{O}C)	pH (S.U.)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (N.T.U.)
54TW09	1306	8.85						
2/15/02	1312	9.07	30.3	6.36	1,387		-50.2	Over-range
	1318	9.17	30.1	6.32	1,359		-40.3	Over-range
	1324	9.22	30.4	6.32	1,338		-28.8	Over-range
	1330	9.30	30.3	6.34	1,336		-25.9	Over-range
	1336	9.33	30.1	6.37	1,328	NA	-19.4	369
54TW10	0934	9.48						
2/15/02	0940	9.74	28.1	6.39	1,099		87.5	429
	0946	9.83	27.9	6.22	1,108		76.6	119
	0952	9.88	28.2	6.23	1,103		61.0	Over-range
	0958	9.92	27.6	6.26	1,101		36.6	283
	1004	9.95	27.8	6.20	1,094		26.7	405
	1010	9.97	27.9	6.22	1,096	1.0	28.9	121
54TW11	0853	13.08						
2/18/02	0900	13.18	27.6	6.88	2,007		22.6	120
	0907	13.27	28.2	6.84	2,034		96.6	31.4
	0913	13.35	28.1	6.85	2,154		105.6	20.5
	0919	13.38	28.1	6.88	2,231		112.3	18.7
	0926	13.45	28.3	6.83	2,268		120.9	15.5
	0933	13.52	28.2	6.85	2,256		130.1	39.9
	0942	13.58	28.6	6.75	2,291		130.8	49.6
	0950	13.65	28.5	6.75	2,295	2.0	138.8	28.8
54TW12	0828	10.82						
2/19/02	0834	11.10	29.4	6.58	2,011		132.6	Over-range
	0840	11.17	29.8	6.53	2,030		127.8	Over-range
	0846	11.36	29.2	6.57	1,284		144.0	Over-range
	0851	11.46	28.9	6.56	1,289		140.8	Over-range
	0856	11.52	29.1	6.54	1,259	0.8	150.7	Over-range
54TW13	0913	11.85						
2/19/02	0918	12.01	27.9	6.82	846		3.6	Over-range
	0923	12.20	27.9	6.72	846		10.5	Over-range
	0929	12.41	27.9	6.74	831	0.8	7.8	Over-range
54TW14	0755	14.61						
2/19/02	0800	14.80	27.2	7.40	1,805		0.4	Over-range
	0805	14.87	27.4	7.27	1,778		15.9	Over-range
	0810	14.94	27.5	7.22	1,771		17.8	Over-range
	0815	14.98	27.6	7.20	1,772	1.0	18.3	Over-range
54TW15	1025	9.41						
2/19/02	1030	9.54	29.0	5.49	1,384		24.3	Over-range
	1035	9.64	29.0	5.65	1,408		-31.9	349
	1040	9.71	29.0	6.25	1,401		-33.8	220
	1045	9.75	29.1	6.30	1,394		-31.6	227
	1050	9.78	28.7	6.29	1,385	0.6	-32.8	172

TABLE 4-5

SUMMARY OF GROUNDWATER FIELD PARAMETERS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Well ID/ Sample Date	Time Interval	Static Water Level (ft from top of PVC)	Temperature (^{O}C)	pH (S.U.)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (N.T.U.)
54TW16	0949	8.55						
2/19/02	0954	8.75	29.2	6.75	1,047		1.8	Over-range
	0959	8.95	29.0	6.76	1,008		12.2	Over-range
	1004	9.20	29.4	6.77	993		11.0	Over-range
	1009	9.45	29.4	6.77	986	0.6	9.5	Over-range
54PZ01	0925	13.77						
2/20/02	0932	13.98	25.9	7.25	2,658		-5.9	112
	0937	14.09	26.5	7.06	2,605		2.5	80.7
	0942	14.15	26.6	7.12	2,596		4.1	45.3
	0947	14.31	26.5	7.05	2,624		3.0	42.7
	0952	14.37	26.5	7.01	2,643	1.0	4.0	37.2
54TW17	0755	8.47						
2/21/02	0801	8.64	26.9	6.84	1,570		17.0	158
	0807	8.75	27.2	6.82	1,573		14.5	90.5
	0813	8.83	27.0	6.81	1,567		12.8	45.9
	0819	8.89	27.3	6.77	1,560		3.0	32.2
	0825	8.93	27.0	6.76	1,571	0.8	10.9	27.7
54TW18	0908	12.49						
2/21/02	0915	12.64	26.5	6.76	1,645		19.5	188
	0921	12.79	26.5	6.83	1,700		33.1	35.1
	0928	12.95	26.4	6.90	1,693		42.8	31.5
	0934	13.06	26.6	7.00	1,695		15.1	26.0
	0940	13.17	26.6	7.00	1,697		7.2	21.3
	0946	13.24	26.8	7.02	1,679	1.0	8.1	24.0
54TW19	0808	10.62						
3/3/02	0814	10.71	28.6	7.32	1,479		-2.6	Over-range
	0821	10.80	28.2	7.28	1,444		19.4	353
	0827	10.95	28.1	7.22	1,475		27.0	226
	0835	11.06	28.5	7.24	1,481		30.5	44.0
	0842	11.13	28.5	7.23	1,496		21.6	124
	0848	11.19	28.5	7.22	1,511		17.9	122
	0855	11.28	28.3	7.25	1,479	0.8	20.5	82.2

TABLE 4-5

SUMMARY OF GROUNDWATER FIELD PARAMETERS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Well ID/ Sample Date	Time Interval	Static Water Level (ft from top of PVC)	Temperature (^{O}C)	pH (S.U.)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (N.T.U.)
54TW20 3/3/02	0935	8.23						
	0942	8.37	28.9	6.92	861		16.6	171
	0949	8.52	28.6	6.98	854		24.2	254
	0956	8.66	28.8	7.03	852		21.8	223
	1003	8.73	28.7	7.06	848		19.0	163
	1010	8.84	28.8	7.08	849		10.5	104
	1016	8.89	29.2	7.09	846		7.9	98.9
	1022	8.93	28.6	7.08	837	0.6	5.5	90.7
54TW21 3/5/02	0730	8.72						
	0747	8.85	28.2	6.65	1,803		-3.6	Over-range
	0753	8.93	28.1	6.71	1,906		1.7	Over-range
	0800	9.00	27.6	6.69	1,858		7.1	Over-range
	0806	9.07	27.9	6.71	1,883		8.4	Over-range
	0814	9.14	27.5	6.73	1,902	0.6	8.3	Over-range

Notes:
PVC - Polyvinyl chloride riser.
^{o} C - Degrees Celsius.
S.U. - Standard Unit.
umhos/cm - micro ohms per centimeter.
mg/L - milligrams per liter.
mV - millivolts.
N.T.U. - Nephlometric Turbidity Units.
NA - Not Available.

TABLE 4-6

SUMMARY OF SAMPLING AND ANALYTICAL PROGRAM
QA/QC SAMPLE MATRIX - SWMUs 53 AND 54
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

	Analysis Requested									
Sample ID	Lead	Arsenic	Pesticides	VOCs	SVOCs	Benzene	RCRA Metals	TCLP Benzene	TCLP RCRA Metals	Comments
SWMUs 53 and 54 - Equipment Rinsates										
53ER01	X	X	X							(1)
54ER01				X	X					(2)
SWMU 54 - Trip Blanks										
54TB01				X						Trip Blank
54TB02				X						Trip Blank
54TB03				X						Trip Blank
54TB04				X						Trip Blank
54TB05				X						Trip Blank
54TB06				X						Trip Blank
54TB07				X						Trip Blank
54TB08				X						Trip Blank
SWMUs 53 and 54 - Field Blanks										
2001FB01	X	X	X	X	X					(A)
2001FB02	X	X	X	X	X					(B)
2001FB03	X	X	X	X	X					(C)
SWMU 54 - IDW Samples										
54IDW-WATER						X	X			
54IDW-SOIL								X	X	

Notes:
(1) - Acetate sleeve
(2) - Silicon tubing
(A) - Lab grade deionized water
(B) - Store bought distilled water
(C) - NSRR base potable water supply

TABLE 5-1

ENVIROGARD® DDT IN SOIL TEST KIT WORKSHEET
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

		Optical Density (OD)						
Sample ID	**Date of Test Kit Analysis**	**Negative Control**	**0.2 ppm Calibrator**	**1.0 ppm Calibrator**	**10 ppm Calibrator**	**Sample Result**	**Interpretation**	**Laboratory Confirmation Result (ppm)**
53SB07-00	02/17/02	1.48	1.32	1.26	0.84	1.40	<0.2 ppm	
53SB07-01	02/17/02	1.48	1.32	1.26	0.84	1.48	<0.2 ppm	
53SB08-00	02/17/02	1.48	1.32	1.26	0.84	1.63	<0.2 ppm	
53SB08-01	02/17/02	1.48	1.32	1.26	0.84	1.54	<0.2 ppm	
53SB09-00	02/17/02	1.48	1.32	1.26	0.84	1.56	<0.2 ppm	0.038
53SB09-01	02/17/02	1.48	1.32	1.26	0.84	1.59	<0.2 ppm	
53SB10-00	02/17/02	1.48	1.32	1.26	0.84	1.58	<0.2 ppm	
53SB10-01	02/17/02	1.48	1.32	1.26	0.84	1.59	<0.2 ppm	0.0046U
53SB11-00	02/17/02	1.48	1.32	1.26	0.84	1.39	<0.2 ppm	
53SB11-01	02/17/02	1.48	1.32	1.26	0.84	1.59	<0.2 ppm	
53SB12-00	02/17/02	1.32	1.29	0.96	0.81	1.44	<0.2 ppm	
53SB12-01	02/17/02	1.32	1.29	0.96	0.81	1.50	<0.2 ppm	
53SB13-00	02/17/02	1.32	1.29	0.96	0.81	1.49	<0.2 ppm	
53SB13-01	02/17/02	1.32	1.29	0.96	0.81	1.34	<0.2 ppm	
53SB14-00	02/17/02	1.32	1.29	0.96	0.81	1.40	<0.2 ppm	0.020J
53SB14-01	02/17/02	1.32	1.29	0.96	0.81	1.35	<0.2 ppm	
53SB15-00	02/17/02	1.32	1.29	0.96	0.81	1.46	<0.2 ppm	
53SB15-01	02/17/02	1.32	1.29	0.96	0.81	1.39	<0.2 ppm	0.0042U
53SB16-00	02/17/02	1.32	1.29	0.96	0.81	1.41	<0.2 ppm	0.00098J
53SB16-00D	02/17/02	1.32	1.29	0.96	0.81	1.40	<0.2 ppm	
53SB16-01	02/17/02	1.44	1.26	1.19	0.73	1.44	<0.2 ppm	
53SB17-00	02/17/02	1.44	1.26	1.19	0.73	1.54	<0.2 ppm	0.0038U
53SB17-01	02/17/02	1.44	1.26	1.19	0.73	1.55	<0.2 ppm	
53SB18-00	02/17/02	1.44	1.26	1.19	0.73	1.44	<0.2 ppm	
53SB18-01	02/17/02	1.44	1.26	1.19	0.73	1.44	<0.2 ppm	
53SB19-00	02/17/02	1.44	1.26	1.19	0.73	1.49	<0.2 ppm	
53SB19-01	02/17/02	1.44	1.26	1.19	0.73	1.50	<0.2 ppm	0.0042U
53SB20-00	02/17/02	1.44	1.26	1.19	0.73	1.42	<0.2 ppm	
53SB20-01	02/17/02	1.44	1.26	1.19	0.73	1.51	<0.2 ppm	0.0044U
53SB20-01D	02/17/02	1.44	1.26	1.19	0.73	1.53	<0.2 ppm	

Interpretation:
If sample OD is equal to the OD of a calibrator, the sample contains DDT at a concentration approximately equal to the calibrator.
If sample OD is greater than a calibrator OD, the sample contains less DDT than the calibrator.
If sample OD is lower than a calibrator OD, the sample contain more DDT than the calibrator.

Notes:
mg/kg - milligrams per kilogram.
ppm - parts per million.
U - Not Detected.
J - Estimated Value.
OD - Optical Density
-00 - Surface Soil Sample.
-01 - Subsurface Soil Sample.

TABLE 5-2

LEAD CHECK SOIL TEST KIT WORKSHEET
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICC

		Visible Result		
Sample ID	**Date**	**<400 ppm**	**>400 ppm**	**Laboratory Confirmation Result (ppm)**
53SB07-00	02/17/02		X	200
53SB07-00D	02/17/02		X	200
53SB07-01	02/17/02	X		2.3
53SB08-00	02/17/02	X		
53SB08-01	02/17/02	X		
53SB09-00	02/17/02	X		
53SB09-01	02/17/02	X		13
53SB10-00	02/17/02	X		
53SB10-01	02/17/02	X		
53SB11-00	02/17/02	X		
53SB11-01	02/17/02	X		
53SB12-00	02/17/02	X		12
53SB12-00D	02/17/02	X		12
53SB12-01	02/17/02	X		
53SB12-01D	02/17/02	X		
53SB13-00	02/17/02	X		
53SB13-01	02/17/02	X		2.6
53SB14-00	02/17/02	X		
53SB14-01	02/17/02	X		
53SB15-00	02/17/02	X		3.7
53SB15-01	02/17/02	X		
53SB16-00	02/17/02	X		
53SB16-01	02/17/02	X		
53SB17-00	02/17/02	X		
53SB17-01	02/17/02	X		
53SB18-00	02/17/02	X		
53SB18-00D	02/17/02	X		
53SB18-01	02/17/02	X		8.5
53SB19-00	02/17/02	X		23
53SB19-00D	02/17/02	X		23
53SB19-01	02/17/02	X		
53SB20-00	02/17/02	X		
53SB20-01	02/17/02	X		

Notes:
ppm - parts per million.
-00 - Surface Soil Sample.
-01 - Subsurface Soil Sample.

TABLE 5-3

SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	III	**III**	53SB09	53SB14	53SB16	53SB17
Sample ID	Industrial	**Residential**	53SB09-00	53SB14-00	53SB16-00	53SB17-00
Sample Date	RBCs	**RBCs**	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	(ug/kg)	(ug/kg)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Pesticides (ug/kg)						
4,4'-DDE	16,833	1,879	79	21 U	4.4 U	3.8 U
4,4'-DDT	16,833	1,879	38	20 J	0.98 J	3.8 U
Aldrin	337	37.6	1.1 J	11 U	2.3 U	2 U
Chlordane	16,352	1,825	630	**2,700**	23 U	20 U
Heptachlor	1,272	142	10 UJ	1.7 J	2.3 UJ	2 UJ
Heptachlor epoxide	629	70.2	5.6 J	**160**	2.3 U	2 U
Kepone	NE	NE	440 J	380 J	230 U	200 U

Notes:

J - Estimated value.
U - Not detected.
UJ - Reported quantitation limit is qualified as estimated.
NE - Not Established.
ft bgs - feet below ground surface.
ug/kg - micrograms per kilogram.

TABLE 5-3

SUMMARY OF ORGANIC DETECTIONS IN SURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample ID Sample Date Depth (ft bgs)	III Industrial RBCs (ug/kg)	**III Residential RBCs (ug/kg)**	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**	Location of Maximum Detection
Pesticides (ug/kg)							
4,4'-DDE	16,833	1,879	0/4		0/4		53SB09-00
4,4'-DDT	16,833	1,879	0/4		0/4		53SB09-00
Aldrin	337	37.6	0/4		0/4		53SB09-00
Chlordane	16,352	1,825	0/4		1/4	2,700	53SB14-00
Heptachlor	1,272	142	0/4		0/4		53SB14-00
Heptachlor epoxide	629	70.2	0/4		1/4	160	53SB14-00
Kepone	NE	NE	NE		NE		53SB09-00

Notes:

J - Estimated value.
U - Not detected.
UJ - Reported quantitation limit is qualified as estimated.
NE - Not Established.
ft bgs - feet below ground surface.
ug/kg - micrograms per kilogram.

TABLE 5-4

SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	EPA Region III	**EPA Region III**	2x Average	53SB07	53SB08	53SB09	53SB10	53SB11
Sample ID	Industrial	**Residential**	Detected	53SB07-00	53SB08-00	53SB09-00	53SB10-00	53SB11-00
Sample Date	RBCs	**RBCs**	Background	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	(mg/kg)	(mg/kg)	(mg/kg)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Inorganics - Total (mg/kg)								
Arsenic	3.82	0.43	2.43	**1.1**	**0.65** J	**1.7**	**0.97** J	2.6 U
Lead	400[1]	400[1]	15.3	200	NA	NA	NA	NA

Notes:

J - Estimated value.
U - Not detected.
NA - Not Analyzed.
[1] - 1996 Soil Screening Guidance.
ft bgs - feet below ground surface.
mg/kg - milligrams per kilogram.

TABLE 5-4

SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	EPA Region III	**EPA Region III**	2x Average	53SB12	53SB13	53SB14	53SB15	53SB15	53SB16
Sample ID	Industrial	**Residential**	Detected	53SB12-00	53SB13-00	53SB14-00	53SB15-00	53SB15-00D	53SB16-00
Sample Date	RBCs	**RBCs**	Background	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	(mg/kg)	(mg/kg)	(mg/kg)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Inorganics - Total (mg/kg)									
Arsenic	3.82	0.43	2.43	**3**	**0.66** J	**0.8** J	**0.79** J	**0.62** J	**0.78** J
Lead	400[1]	400[1]	15.3	12	NA	NA	3.7	NA	NA

Notes:

J - Estimated value.
U - Not detected.
NA - Not Analyzed.
[1] - 1996 Soil Screening Guidance.
ft bgs - feet below ground surface.
mg/kg - milligrams per kilogram.

TABLE 5-4

SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	EPA Region III	**EPA Region III**	2x Average	53SB17	53SB18	53SB18	53SB19	53SB20
Sample ID	Industrial	**Residential**	Detected	53SB17-00	53SB18-00	53SB18-00D	53SB19-00	53SB20-00
Sample Date	RBCs	**RBCs**	Background	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	(mg/kg)	(mg/kg)	(mg/kg)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Inorganics - Total (mg/kg)								
Arsenic	3.82	0.43	2.43	1.1 U	**1.6**	**1.6**	**0.81** J	**0.79** J
Lead	400[1]	400[1]	15.3	NA	NA	NA	23	NA

Notes:

J - Estimated value.
U - Not detected.
NA - Not Analyzed.
[1] - 1996 Soil Screening Guidance.
ft bgs - feet below ground surface.
mg/kg - milligrams per kilogram.

TABLE 5-4

SUMMARY OF INORGANIC DETECTIONS IN SURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample ID Sample Date Depth (ft bgs)	EPA Region III Industrial RBCs (mg/kg)	**EPA Region III Residential RBCs** (mg/kg)	2x Average Detected Background (mg/kg)	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 2 x Average Detected Background	Range Exceeding 2 x Average Detected Background	Location of Maximum Detection
Inorganics - Total (mg/kg)										
Arsenic	3.82	0.43	2.43	0/16		14/16	0.62J - 3	1/16	3	53SB12-00
Lead	400[(1)]	400[(1)]	15.3	0/4		0/4		2/4	23 - 200	53SB07-00

Notes:

J - Estimated value.
U - Not detected.
NA - Not Analyzed.
[(1)] - 1996 Soil Screening Guidance.
ft bgs - feet below ground surface.
mg/kg - milligrams per kilogram.

TABLE 5-5

SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	EPA Region III	**EPA Region III**	53SB10	53SB15	53SB19	53SB20
Sample ID	Industrial	**Residential**	53SB10-01	53SB15-01	53SB19-01	53SB20-01
Sample Date	RBCs	**RBCs**	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	(ug/kg)	(ug/kg)	3.0-4.0	1.5-2.5	2.5-3.5	2.0-3.0
Pesticides (ug/kg)						
Chlorobenzilate	21,197	2,366	4.2 J	22 U	22 U	23 U
Heptachlor	1,272	142	9.3 J	2.2 UJ	2.2 UJ	2.3 UJ

Notes:
J - Estimated value.
U - Not detected.
UJ - Reported quantitation limit is qualified as estimated.
ft bgs - feet below ground surface.
ug/kg - micrograms per kilogram.

TABLE 5-5

SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample ID Sample Date Depth (ft bgs)	EPA Region III Industrial RBCs (ug/kg)	**EPA Region III Residential RBCs** (ug/kg)	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**	Location of Maximum Detection
Pesticides (ug/kg)							
Chlorobenzilate	21,197	2,366	0/4		0/4		53SB10-01
Heptachlor	1,272	142	0/4		0/4		53SB10-01

Notes:
J - Estimated value.
U - Not detected.
UJ - Reported quantitation limit is qualified as estimated.
ft bgs - feet below ground surface.
ug/kg - micrograms per kilogram.

TABLE 5-6

SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	EPA Region III	**EPA Region III**	2x Average	53SB07	53SB08	53SB09	53SB10	53SB11
Sample ID	Industrial	**Residential**	Detected	53SB07-01	53SB08-01	53SB09-01	53SB10-01	53SB11-01
Sample Date	RBCs	**RBCs**	Background	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	(mg/kg)	(mg/kg)	(mg/kg)	1.0-2.0	1.5-2.5	1.5-2.5	3.0-4.0	3.0-4.0
Inorganics - Total (mg/kg)								
Arsenic	3.82	0.43	2.05	1.1 U	**1.3**	**0.63** J	**0.58** J	**0.61** J
Lead	400[1]	400[1]	8.68	2.3	NA	13	NA	NA

Notes:
J - Estimated value.
U - Not detected.
NA - Not Analyzed.
[1] - 1996 Soil Screening Guidance.
ft bgs - feet below ground surface.
mg/kg - milligrams per kilogram.

TABLE 5-6

SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	EPA Region III	**EPA Region III**	2x Average	53SB11	53SB12	53SB13	53SB14	53SB15
Sample ID	Industrial	**Residential**	Detected	53SB11-01D	53SB12-01	53SB13-01	53SB14-01	53SB15-01
Sample Date	RBCs	**RBCs**	Background	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	(mg/kg)	(mg/kg)	(mg/kg)	3.0-4.0	2.0-3.0	1.5-2.5	1.5-2.5	1.5-2.5
Inorganics - Total (mg/kg)								
Arsenic	3.82	0.43	2.05	**0.69** J	**0.57** J	**0.85** J	**0.75** J	**1** J
Lead	400[(1)]	400[(1)]	8.68	NA	NA	2.6	NA	NA

Notes:
J - Estimated value.
U - Not detected.
NA - Not Analyzed.
[(1)] - 1996 Soil Screening Guidance.
ft bgs - feet below ground surface.
mg/kg - milligrams per kilogram.

TABLE 5-6

SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	EPA Region III	**EPA Region III**	2x Average	53SB16	53SB16	53SB17	53SB18	53SB19	53SB20
Sample ID	Industrial	**Residential**	Detected	53SB16-01	53SB16-01D	53SB17-01	53SB18-01	53SB19-01	53SB20-01
Sample Date	RBCs	**RBCs**	Background	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	(mg/kg)	(mg/kg)	(mg/kg)	1.0-2.0	1.0-2.0	1.5-2.5	1.0-2.0	2.5-3.5	2.0-3.0
Inorganics - Total (mg/kg)									
Arsenic	3.82	0.43	2.05	**0.5** J	1 U	1.4 U	**0.77** J	**0.86** J	1.2 U
Lead	400[1]	400[1]	8.68	NA	NA	NA	8.5	NA	NA

Notes:
J - Estimated value.
U - Not detected.
NA - Not Analyzed.
[1] - 1996 Soil Screening Guidance.
ft bgs - feet below ground surface.
mg/kg - milligrams per kilogram.

TABLE 5-6

SUMMARY OF INORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample ID Sample Date Depth (ft bgs)	EPA Region III Industrial RBCs (mg/kg)	**EPA Region III Residential RBCs** (mg/kg)	2x Average Detected Background (mg/kg)	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 2 x Average Detected Background	Range Exceeding 2 x Average Detected Background	Location of Maximum Detection
Inorganics - Total (mg/kg)										
Arsenic	3.82	0.43	2.05	0/16		12/16	0.5J - 1.3	0/16		53SB08-01
Lead	400[(1)]	400[(1)]	8.68	0/4		0/4		1/4	13	53SB09-01

Notes:
J - Estimated value.
U - Not detected.
NA - Not Analyzed.
[(1)] - 1996 Soil Screening Guidance.
ft bgs - feet below ground surface.
mg/kg - milligrams per kilogram.

TABLE 5-7

SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	EPA Region III	**EPA Region III**	54TW15A	54TW15A	54TW15A	54TW19	54TW20
Sample ID	Industrial	**Residential**	54TW15A-02	54TW15A-02D	54TW15A-04	54TW19-05	54TW20-04
Sample Date	RBCs	**RBCs**	03/01/02	03/01/02	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	(ug/kg)	(ug/kg)	4.0-6.0	4.0-6.0	9.0-11.0	10.0-11.4	8.0-9.0
Volatiles (ug/kg)							
1,1,2,2-Tetrachloroethane	28,616	3,194	7.6 U	7.6 U	210 J	8 U	280 U
1,1-Dichloroethene	9,539	1,065	7.6 U	7.6 U	140 J	8 U	280 U
1,2-Dibromo-3-chloropropane	4,088	456	15 U	15 U	**610**	16 U	560 U
2-Butanone	NE	NE	38 U	38 U	1,500	40 U	1,400 U
2-Hexanone	8,176,000	312,857	38 U	38 U	1,700	40 U	1,400 U
Acetone	20,440,000	782,142	76 U	76 U	2,900 J	80 U	1,400 J
Carbon tetrachloride	44,025	4,913	7.6 U	7.6 U	110 J	8 U	280 U
Chlorobenzene	4,088,000	156,428	7.6 U	7.6 U	110 J	8 U	280 U
Ethylbenzene	20,440,000	782,142	7.6 U	7.6 U	190 J	8 U	280 U
Styrene	40,880,000	1,564,285	7.6 U	7.6 U	100 J	8 U	280 U
Trichloroethene	14,308	1,596	7.6 U	7.6 U	130 J	8 U	280 U
Trichlorofluoromethane	61,320,000	2,346,428	7.6 U	7.6 U	160 J	8 U	280 U
Xylenes	408,800,000	15,642,857	7.6 U	7.6 U	640	8 U	560 U
Semivolatiles (ug/kg)							
2,4-Dimethylphenol	408,800	156,428	520 U	530 U	68 J	540 U	480 R

Notes:

J - Estimated value.
U - Not detected.
R - Result is rejected and unusable.
NE - Not Established.
ft bgs - feet below ground surface.
ug/kg - micrograms per kilogram.

TABLE 5-7

SUMMARY OF ORGANIC DETECTIONS IN SUBSURFACE SOIL
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample ID Sample Date Depth (ft bgs)	EPA Region III Industrial RBCs (ug/kg)	**EPA Region III Residential RBCs** (ug/kg)	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**	Location of Maximum Detection
Volatiles (ug/kg)							
1,1,2,2-Tetrachloroethane	28,616	3,194	0/5		0/5		54TW15A-04
1,1-Dichloroethene	9,539	1,065	0/5		0/5		54TW15A-04
1,2-Dibromo-3-chloropropane	4,088	456	0/5		1/5	610	54TW15A-04
2-Butanone	NE	NE	NE		NE		54TW15A-04
2-Hexanone	8,176,000	312,857	0/5		0/5		54TW15A-04
Acetone	20,440,000	782,142	0/5		0/5		54TW15A-04
Carbon tetrachloride	44,025	4,913	0/5		0/5		54TW15A-04
Chlorobenzene	4,088,000	156,428	0/5		0/5		54TW15A-04
Ethylbenzene	20,440,000	782,142	0/5		0/5		54TW15A-04
Styrene	40,880,000	1,564,285	0/5		0/5		54TW15A-04
Trichloroethene	14,308	1,596	0/5		0/5		54TW15A-04
Trichlorofluoromethane	61,320,000	2,346,428	0/5		0/5		54TW15A-04
Xylenes	408,800,000	15,642,857	0/5		0/5		54TW15A-04
Semivolatiles (ug/kg)							
2,4-Dimethylphenol	408,800	156,428	0/4		0/4		54TW15A-04

Notes:

J - Estimated value.
U - Not detected.
R - Result is rejected and unusable.
NE - Not Established.
ft bgs - feet below ground surface.
ug/kg - micrograms per kilogram.

TABLE 5-8

SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID		**EPA Region III**	510DW1	510DW1	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03
Sample ID	Federal	**Tap Water**	510DW1	510DW1D	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03
Sample Date	MCL	**RBC**	02/27/02	02/27/02	02/27/02	02/26/02	02/27/02	02/13/02	02/26/02	02/13/02	02/20/02	02/14/02
	(ug/L)	(ug/L)										
Volatiles (ug/L)												
1,1,1-Trichloroethane	200	317	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7	0.04	5 U	5 U	5 U	5 U	5 U	**1.5** J	5 U	**0.79** J	5 U	**0.8** J
1,2-Dichloroethane	5	0.12	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	0.32	**92**	**91**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	100	10.6	5 U	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U	5 U
Chloroform	NE	0.15	**7.8**	**7.1**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	3.25	**64**	**62**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isobutanol	NE	183	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R
Methylene chloride	5	4.1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.54 J
Toluene	1,000	74.7	5.4	5.3	5 U	5 U	0.56 J	2.5 J	5 U	5 U	5 U	5 U
Trichloroethene	5	0.03	5 U	5 U	5 U	5 U	5 U	**2.8** J	5 U	**190**	**2.4** J	**53**
Xylene	10,000	1,217	14	14	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles (ug/L)												
2,4-Dimethylphenol	NE	73	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	NE	12.2	0.51 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	6	4.78	10 U	10 U	10 U	0.88 J	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	NE	370	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	NE	2,920	10 U	10 U	10 U	10 U	1.3 J	10 U	0.86 J	10 U	10 U	10 U
Fluorene	NE	24.3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	NE	0.65	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	NE	NE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Notes:
D - Result value is based on dilution analysis.
J - Estimated value.
U - Not detected.
R - Result is rejected and unusable.
NE - Not Established.
UJ - Reported quantitation limit is qualified as estimated.
ug/L - micrograms per liter.

TABLE 5-8

SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID		**EPA Region III**	54TW04	54TW05	54TW06	54TW07	54TW08	54TW09
Sample ID	Federal	**Tap Water**	54TW04	54TW05	54TW06	54TW07	54TW08	54TW09
Sample Date	MCL	**RBC**	02/14/02	02/14/02	02/15/02	02/15/02	02/15/02	02/15/02
	(ug/L)	(ug/L)						
Volatiles (ug/L)								
1,1,1-Trichloroethane	200	317	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7	0.04	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	0.12	5 U	5 U	5 U	**2.8** J	**2.2** J	5 U
Benzene	5	0.32	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	100	10.6	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	NE	0.15	**2.1** J	**2.9** J	5 U	5 U	**8**	**4.5** J
Ethylbenzene	700	3.25	5 U	5 U	5 U	5 U	5 U	5 U
Isobutanol	NE	183	200 R	200 R	200 R	200 R	200 R	200 R
Methylene chloride	5	4.1	0.54 J	5 U	5 U	5 U	5 U	5 U
Toluene	1,000	74.7	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	0.03	**84**	**170** D	**34**	5 U	**8**	**20**
Xylene	10,000	1,217	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles (ug/L)								
2,4-Dimethylphenol	NE	73	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	NE	12.2	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	6	4.78	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	NE	370	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	NE	2,920	10 U	10 U	10 U	2.7 J	10 U	10 U
Fluorene	NE	24.3	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	NE	0.65	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	NE	NE	0.46 J	10 U	10 U	10 U	10 U	10 U

Notes:
D - Result value is based on dilution analysis.
J - Estimated value.
U - Not detected.
R - Result is rejected and unusable.
NE - Not Established.
UJ - Reported quantitation limit is qualified as estimat
ug/L - micrograms per liter.

TABLE 5-8

SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID		**EPA Region III**	54TW09	54TW10	54TW11	54TW11	54TW12	54TW13	54TW14	54TW15
Sample ID	Federal	**Tap Water**	54TW09D	54TW10	54TW11	54TW11D	54TW12	54TW13	54TW14	54TW15
Sample Date	MCL	**RBC**	02/15/02	02/15/02	02/18/02	02/18/02	02/19/02	02/19/02	02/19/02	02/19/02
	(ug/L)	(ug/L)								
Volatiles (ug/L)										
1,1,1-Trichloroethane	200	317	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	120 UJ
1,1-Dichloroethene	7	0.04	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U
1,2-Dichloroethane	5	0.12	5 U	**1.2** J	5 U	5 U	5 UJ	5 UJ	5 UJ	120 UJ
Benzene	5	0.32	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**3,000**
Chlorobenzene	100	10.6	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U
Chloroform	NE	0.15	**4.3** J	**6.4**	5 U	5 U	5 U	5 U	**1.8** J	120 U
Ethylbenzene	700	3.25	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**2,400**
Isobutanol	NE	183	200 R	200 R	200 R	200 R	200 R	200 R	200 R	**2,600** J
Methylene chloride	5	4.1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U
Toluene	1,000	74.7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**400**
Trichloroethene	5	0.03	**19**	**11**	**140**	**150**	5 U	**1.1** J	**25**	120 U
Xylene	10,000	1,217	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**8,000**
Semivolatiles (ug/L)										
2,4-Dimethylphenol	NE	73	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8.5 J
2-Methylnaphthalene	NE	12.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**65**
Bis(2-ethylhexyl)phthalate	6	4.78	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	NE	370	10 U	10 U	10 U	10 U	0.26 J	10 U	10 U	10 U
Diethylphthalate	NE	2,920	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	NE	24.3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.6 J
Naphthalene	NE	0.65	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**190**
Phenanthrene	NE	NE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Notes:
D - Result value is based on dilution analysis.
J - Estimated value.
U - Not detected.
R - Result is rejected and unusable.
NE - Not Established.
UJ - Reported quantitation limit is qualified as estimat
ug/L - micrograms per liter.

TABLE 5-8

SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID		**EPA Region III**	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample ID	Federal	**Tap Water**	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample Date	MCL	**RBC**	02/19/02	02/21/02	02/21/02	03/03/02	03/03/02	03/05/02
	(ug/L)	(ug/L)						
Volatiles (ug/L)								
1,1,1-Trichloroethane	200	317	5 UJ	5 U	5 U	0.64 J	5 U	5 U
1,1-Dichloroethene	7	0.04	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	0.12	5 UJ	5 U	5 U	5 U	5 U	5 U
Benzene	5	0.32	5 U	5 U	5 U	5 U	**2** J	5 U
Chlorobenzene	100	10.6	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	NE	0.15	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	3.25	5 U	5 U	5 U	5 U	**68**	5 U
Isobutanol	NE	183	200 R	200 U	200 U	200 R	200 R	200 R
Methylene chloride	5	4.1	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	1,000	74.7	5 U	5 U	5 U	5 U	0.76 J	5 U
Trichloroethene	5	0.03	**0.34** J	**1.3** J	5 U	**3.2** J	5 U	5 U
Xylene	10,000	1,217	10 U	10 U	10 U	10 U	5.5 J	10 U
Semivolatiles (ug/L)								
2,4-Dimethylphenol	NE	73	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	NE	12.2	10 U	10 U	10 U	10 U	1.2 J	10 U
Bis(2-ethylhexyl)phthalate	6	4.78	10 U	10 U	10 U	10 U	1 J	10 U
Di-n-butylphthalate	NE	370	0.37 J	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	NE	2,920	10 U	10 U	10 U	10 U	10 U	0.96 J
Fluorene	NE	24.3	10 U	10 U	10 U	10 U	0.64 J	10 U
Naphthalene	NE	0.65	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	NE	NE	10 U	10 U	10 U	10 U	10 U	10 U

Notes:
D - Result value is based on dilution analysis.
J - Estimated value.
U - Not detected.
R - Result is rejected and unusable.
NE - Not Established.
UJ - Reported quantitation limit is qualified as estimat
ug/L - micrograms per liter.

TABLE 5-8

SUMMARY OF ORGANIC DETECTIONS IN GROUNDWATER
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID Sample ID Sample Date	Federal MCL (ug/L)	**EPA Region III Tap Water RBC** (ug/L)	Number Exceeding Federal MCL	Range Exceeding Federal MCL	**Number Exceeding EPA Region III Tap Water RBC**	**Range Exceeding EPA Region III Tap Water RBC**	Location Maximum Detect
Volatiles (ug/L)							
1,1,1-Trichloroethane	200	317	0/30		0/30		54TW19
1,1-Dichloroethene	7	0.04	0/30		3/30	0.79J-1.5J	510MW3
1,2-Dichloroethane	5	0.12	0/30		3/30	1.2J-2.8J	54TW07
Benzene	5	0.32	3/30	91-3,000	4/30	2J-3,000	54TW15
Chlorobenzene	100	10.6	0/30		0/30		510MW3
Chloroform	NE	0.15	NE		9/30	1.8J-8	54TW08
Ethylbenzene	700	3.25	1/30	2,400	4/30	62-2,400	54TW15
Isobutanol	NE	183	NE		1/3	2,600J	54TW15
Methylene chloride	5	4.1	0/30		0/30		54TW03,54TW04
Toluene	1,000	74.7	0/30		1/30	400	54TW15
Trichloroethene	5	0.03	12/30	8-190	18/30	0.34J-190	510MW5
Xylene	10,000	1,217	0/30		1/30	8,000	54TW15
Semivolatiles (ug/L)							
2,4-Dimethylphenol	NE	73	NE		0/30		54TW15
2-Methylnaphthalene	NE	12.2	NE		1/30	65	54TW15
Bis(2-ethylhexyl)phthalate	6	4.78	0/30		0/30		54TW20
Di-n-butylphthalate	NE	370	NE		0/30		54TW16
Diethylphthalate	NE	2,920	NE		0/30		54TW07
Fluorene	NE	24.3	NE		0/30		54TW15
Naphthalene	NE	0.65	NE		1/30	190	54TW15
Phenanthrene	NE	NE	NE		NE		54TW04

Notes:
D - Result value is based on dilution analysis.
J - Estimated value.
U - Not detected.
R - Result is rejected and unusable.
NE - Not Established.
UJ - Reported quantitation limit is qualified as estimat
ug/L - micrograms per liter.

TABLE 5-9

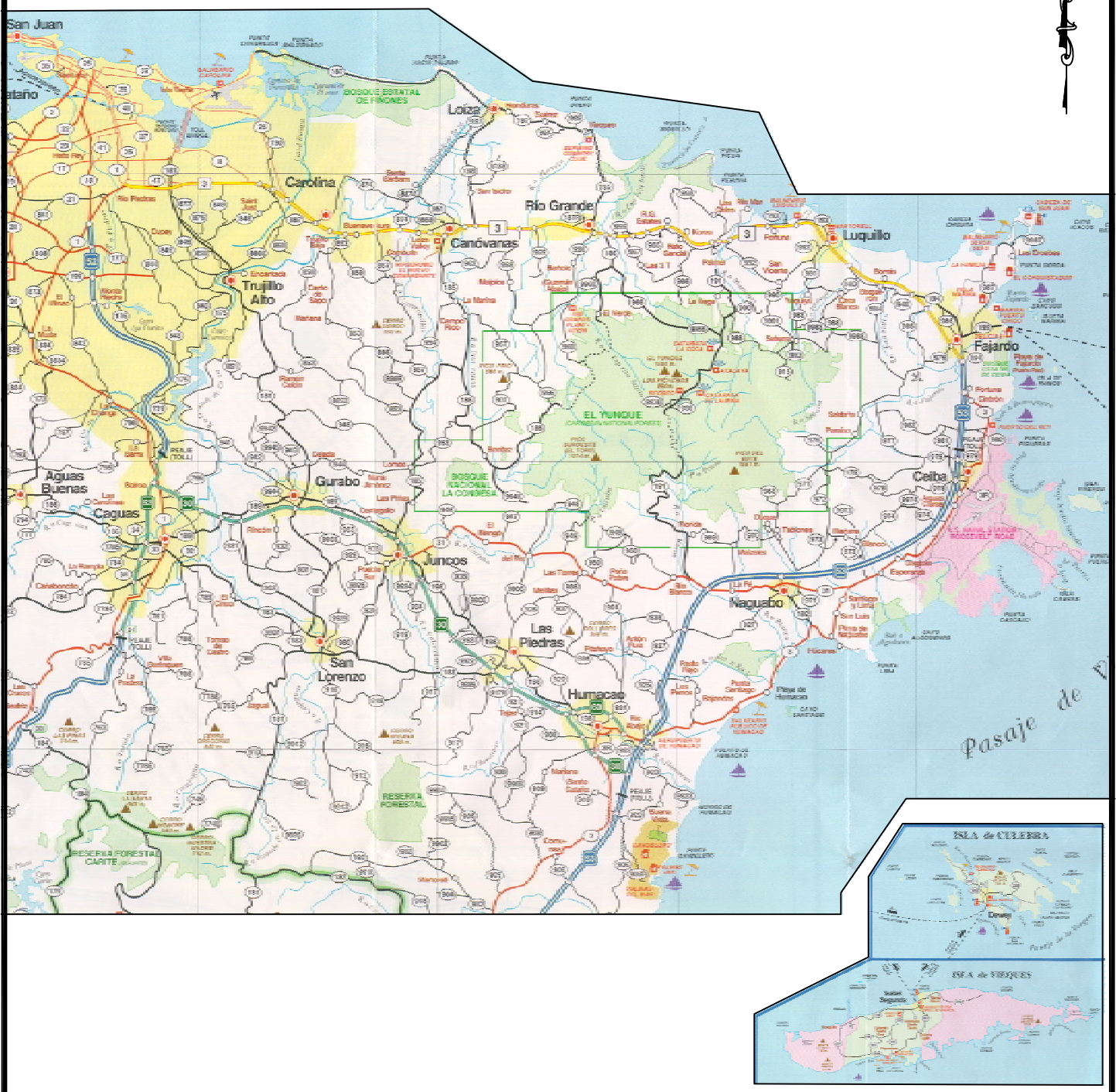
SUMMARY OF INORGANIC DETECTIONS IN IDW SAMPLES
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54IDW-SOIL [1]	54IDW-WATER [2]
Sample Date	03/12/02	03/12/02
RCRA Metals (mg/L)		
Arsenic	NA	0.03 B
Barium	NA	7.5
Cadmium	NA	0.015 B
Chromium	NA	1.1
Lead	NA	0.26
Mercury	NA	0.00038 B
RCRA Metals - TCLP (mg/L)		
Barium	0.7 B	NA
Chromium	0.018 B	NA

Notes:
mg/L - milligrams per liter.
B - Reported value was obtained from a reading less than the project reporting limit but greater than or equal to the method detection limit.
NA - Not Applicable.
(1) - Non-Aqueous Sample.
(2) - Aqueous Sample.

FIGURES

K:\CAD\277-TEMP\2099546S



4 0 2 4 8

1 inch = 4 miles

Baker

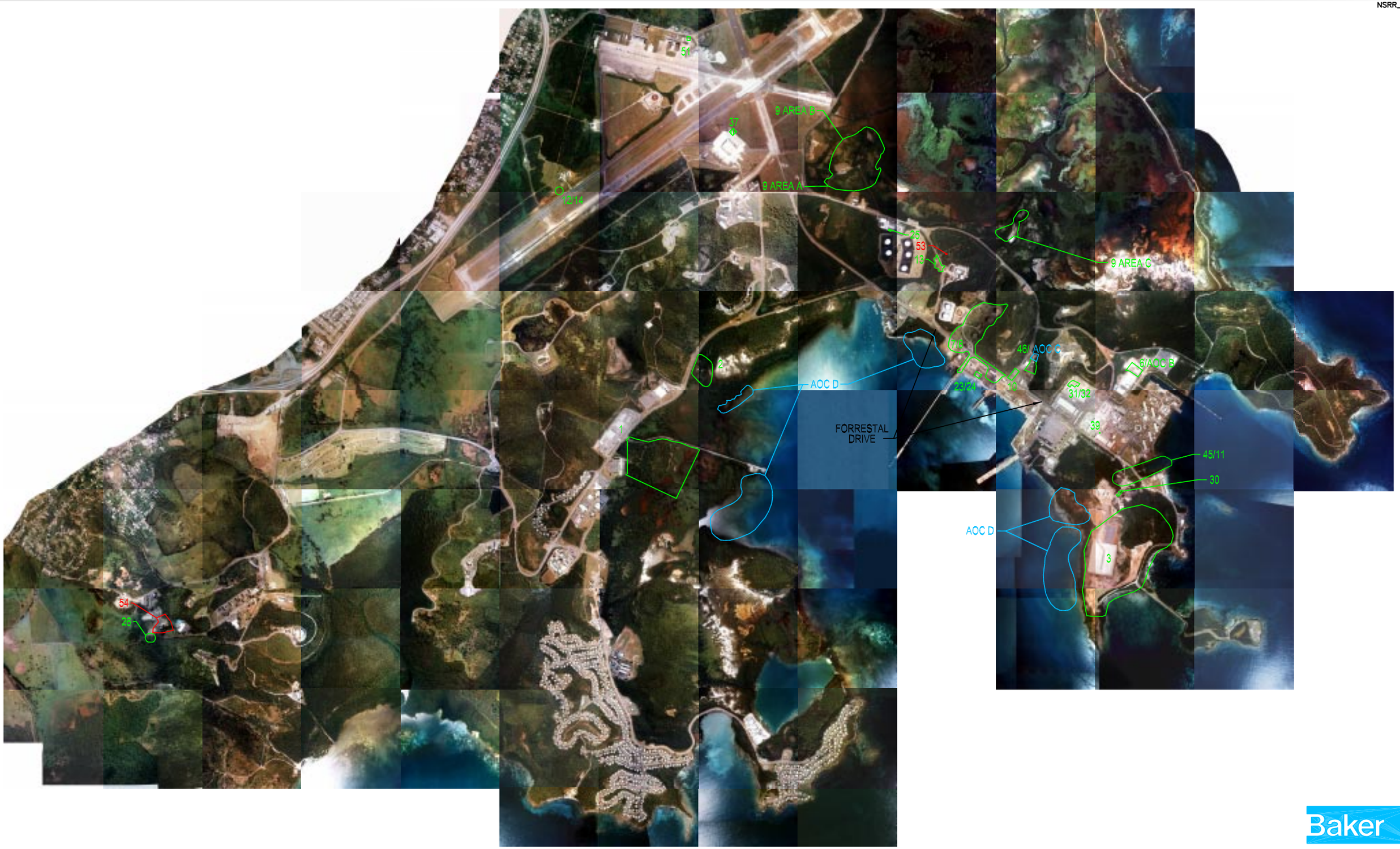
Baker Environmental Inc.

FIGURE 2-1
REGIONAL LOCATION MAP

NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

SOURCE: METRODATA, INC., 1999.

NSRR_BASE



Baker

LEGEND

1 – SWMUs

53 – AREA OF WHICH THIS INVESTIGATION PERTAINS TO

AOC D – AOCs

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

2500 0 1250 2500

1 inch = 2500 ft.

FIGURE 2–2
SWMU/AOC LOCATION MAP

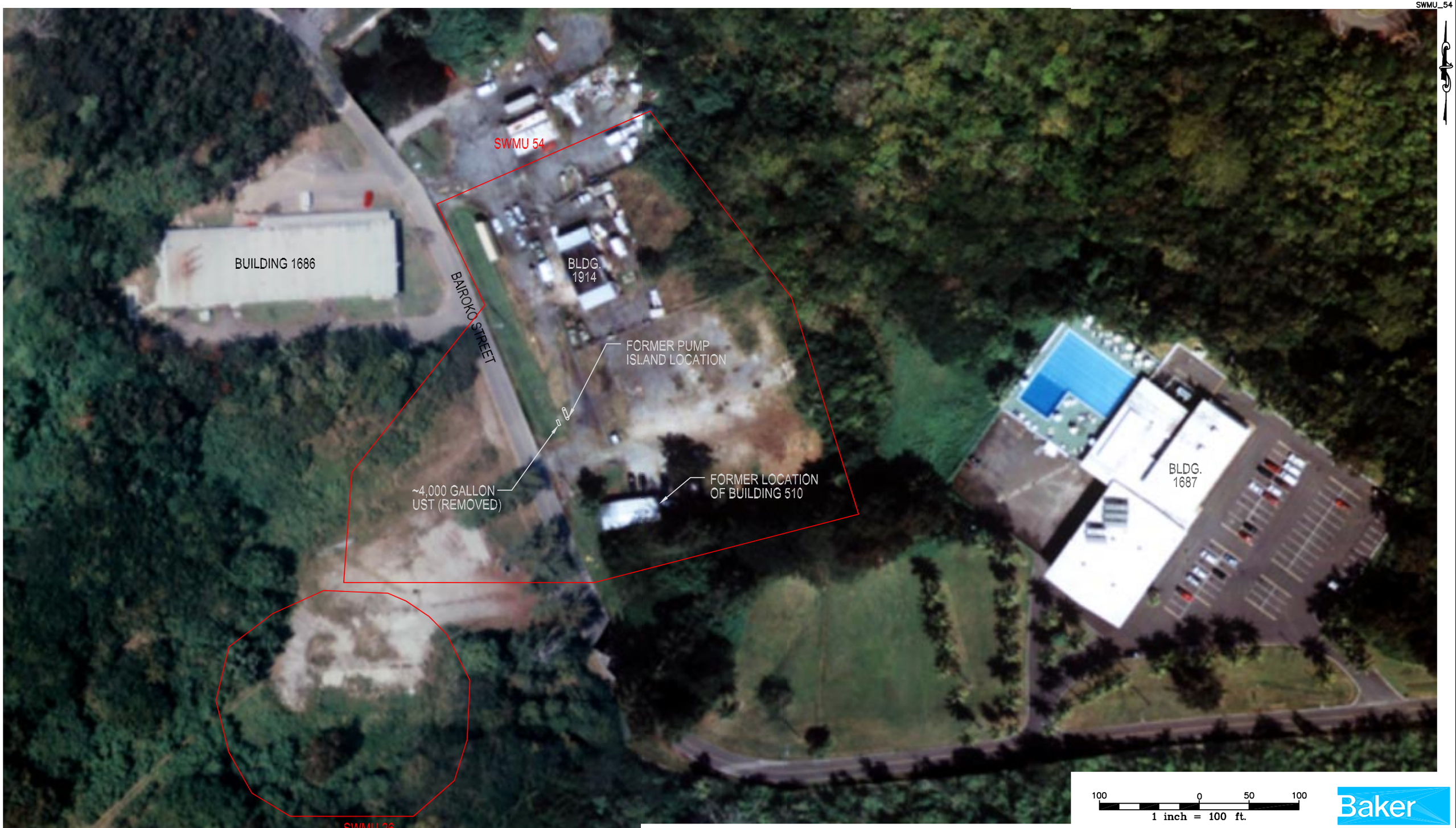
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

Baker

LEGEND

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

FIGURE 2-3
SITE LOCATION MAP
SWMU 53, BUILDING 64
(MALARIA CONTROL BUILDING)
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO



Baker

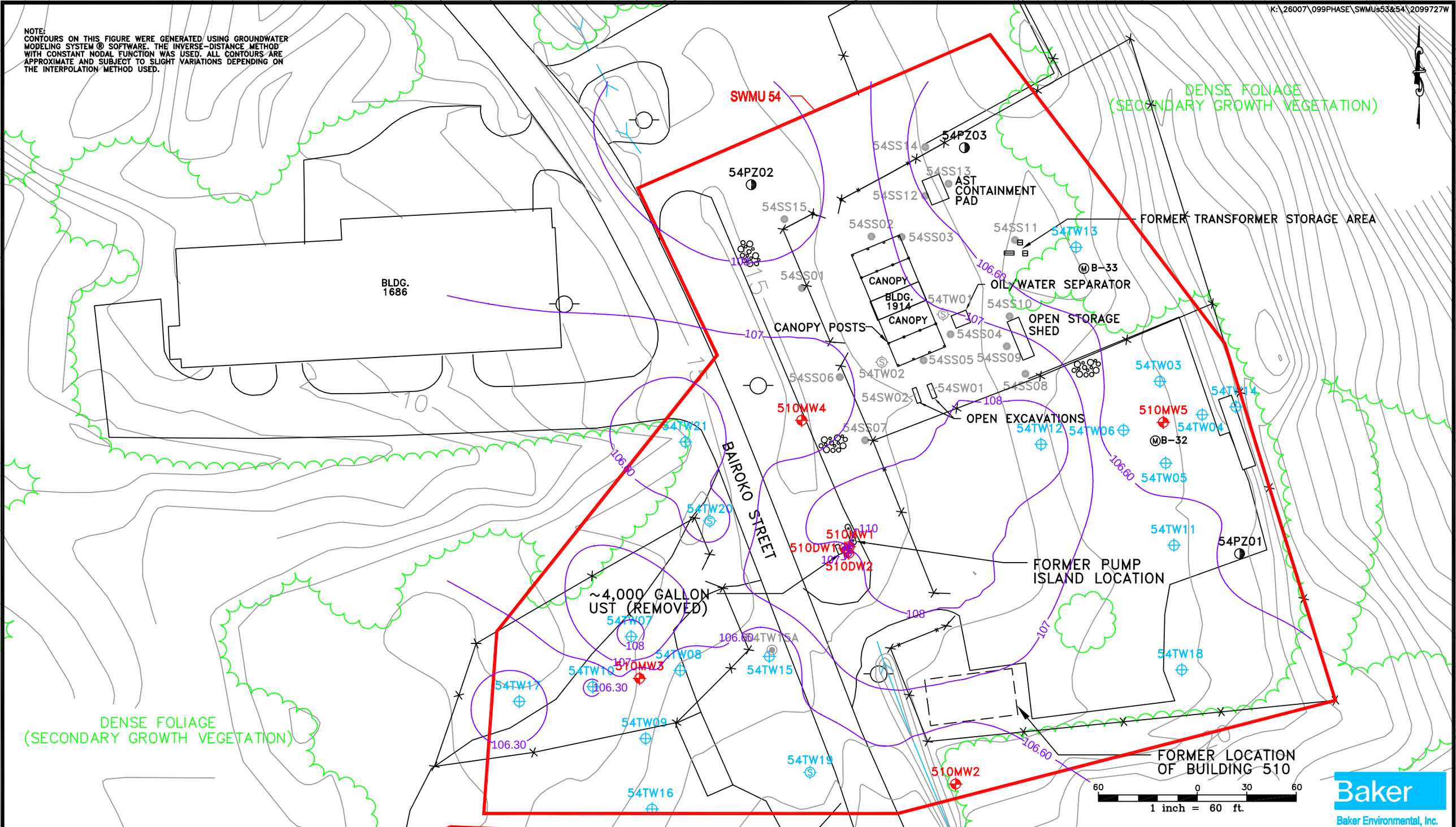
LEGEND

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

FIGURE 2-4
SITE LOCATION MAP
SWMU 54, BUILDING 1914
(FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099727W

NOTE:
CONTOURS ON THIS FIGURE WERE GENERATED USING GROUNDWATER MODELING SYSTEM ® SOFTWARE. THE INVERSE-DISTANCE METHOD WITH CONSTANT NODAL FUNCTION WAS USED. ALL CONTOURS ARE APPROXIMATE AND SUBJECT TO SLIGHT VARIATIONS DEPENDING ON THE INTERPOLATION METHOD USED.



Baker
Baker Environmental, Inc.

LEGEND

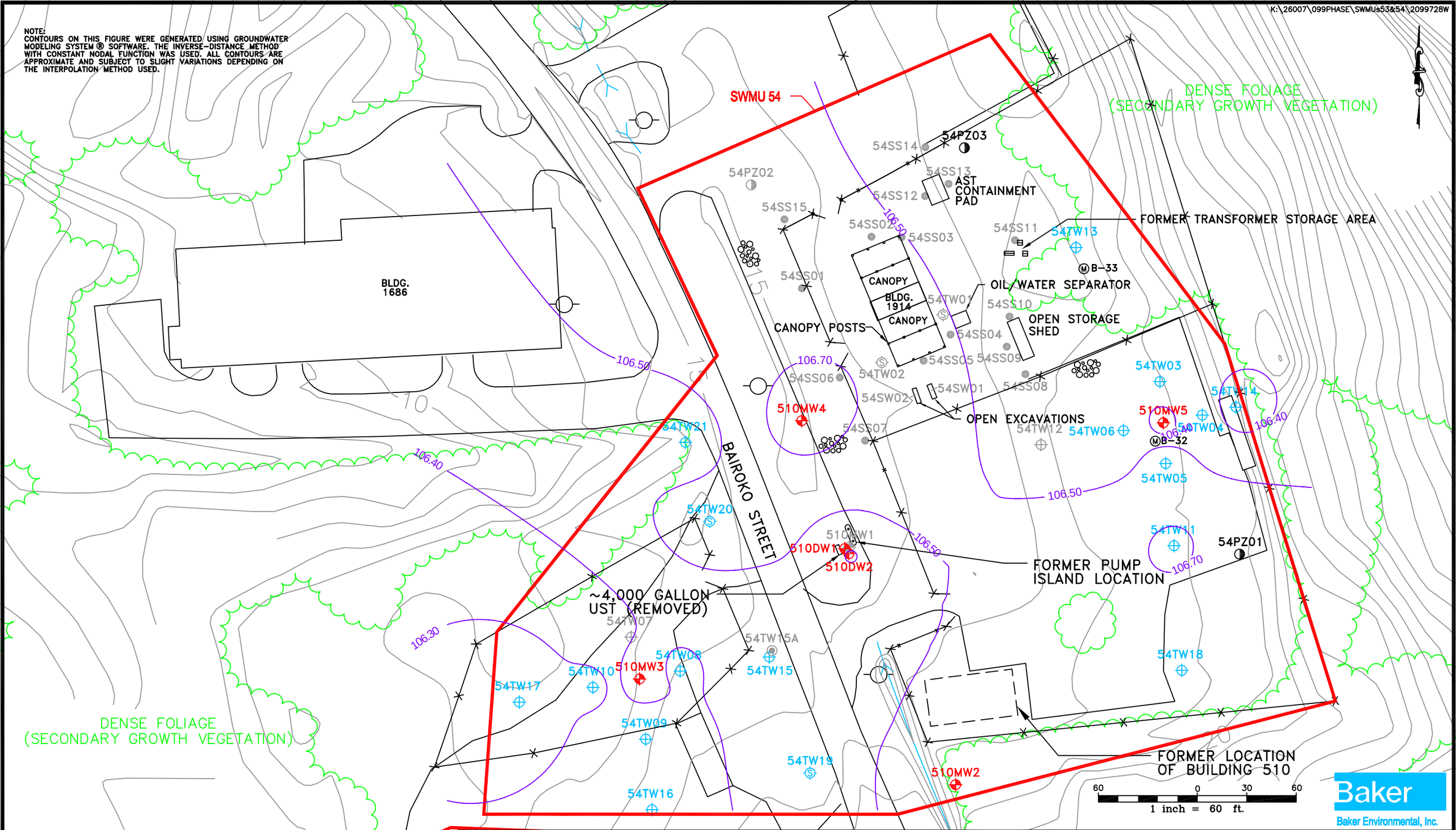
- TEMPORARY PIEZOMETER LOCATION (RFI, 2002)
- SANITARY SEWER MANHOLE
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- EXISTING MONITOR WELL LOCATION
- STANDING WATER SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- TEMPORARY SHALLOW MONITOR WELL LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2002)
- SOIL BORING LOCATION (RFI, 2002)
- FENCE LINE
- BUILDING
- TREE LINE
- EDGE OF GRAVEL
- FORMER TRANSFORMER STORAGE PALLETS
- GROUND SURFACE CONTOUR LINE
- GROUNDWATER ELEVATION CONTOUR

SOURCE: DEPT. OF THE NAVY, SEPTEMBER 1999.

FIGURE 3-1
GROUNDWATER CONTOUR MAP
SWMU 54, BUILDING 1914
(FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099728W

NOTE:
CONTOURS ON THIS FIGURE WERE GENERATED USING GROUNDWATER MODELING SYSTEM ® SOFTWARE. THE INVERSE-DISTANCE METHOD WITH CONSTANT NODAL FUNCTION WAS USED. ALL CONTOURS ARE APPROXIMATE AND SUBJECT TO SLIGHT VARIATIONS DEPENDING ON THE INTERPOLATION METHOD USED.



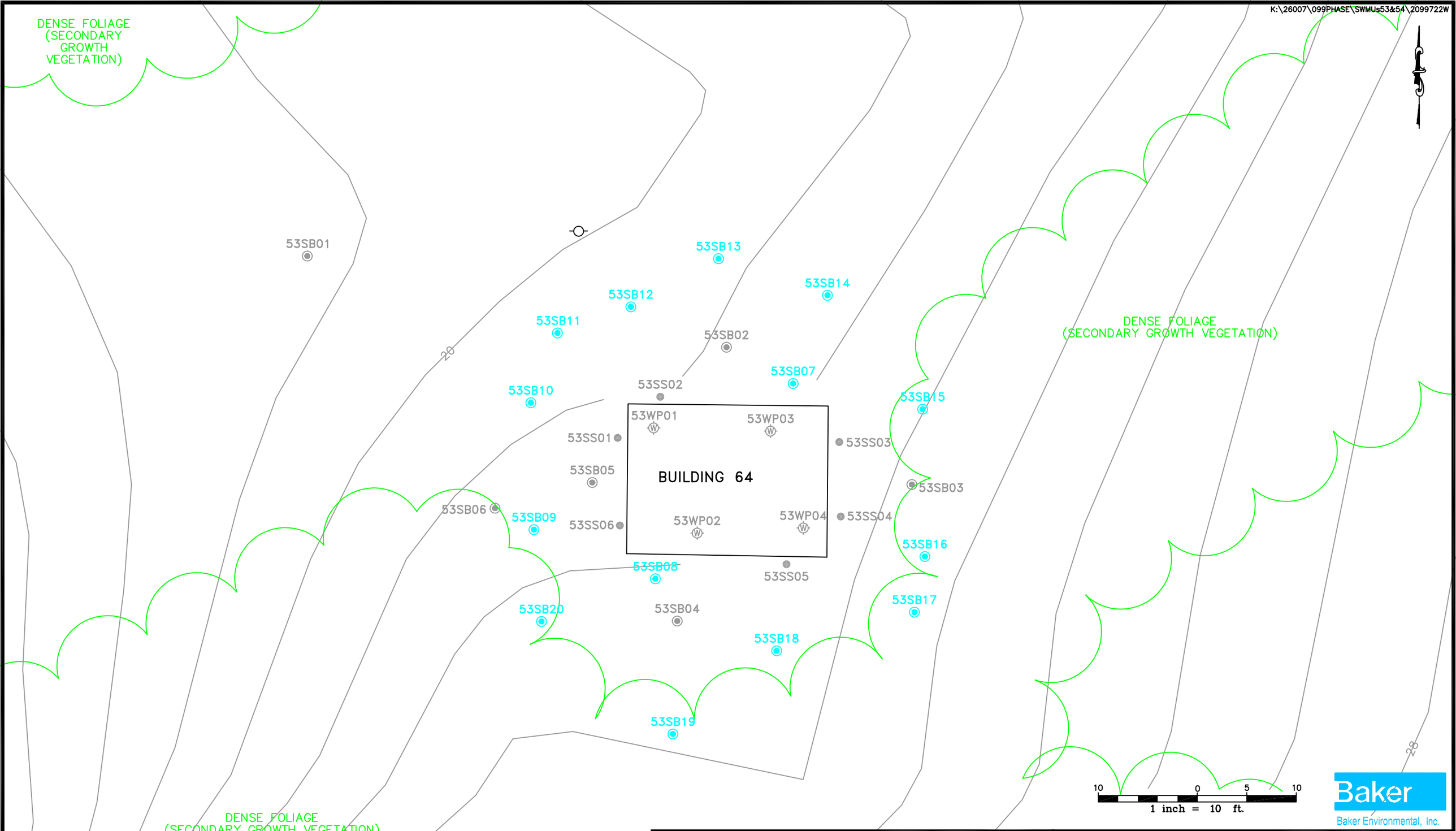
SOURCE: DEPT. OF THE NAVY, SEPTEMBER 1999.

LEGEND

- TEMPORARY PIEZOMETER LOCATION (RFI, 2002)
- SANITARY SEWER MANHOLE
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- EXISTING MONITOR WELL LOCATION
- STANDING WATER SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- TEMPORARY SHALLOW MONITOR WELL LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2002)
- SOIL BORING LOCATION (RFI, 2002)
- FENCE LINE
- BUILDING
- TREE LINE
- EDGE OF GRAVEL
- FORMER TRANSFORMER STORAGE PALLETS
- GROUND SURFACE CONTOUR LINE
- GROUNDWATER ELEVATION CONTOUR (106.30)

FIGURE 3-2
MODIFIED GROUNDWATER CONTOUR MAP
SWMU 54, BUILDING 1914
(FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099722W



Baker
Baker Environmental, Inc.

LEGEND

- (W) – WIPE SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- – SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- – SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- – SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION (RFI, 2002)
- – OVERHEAD ELECTRIC UTILITY POLE
- – BUILDING
- – GROUND SURFACE CONTOUR LINE
- – TREE LINE

SOURCE: DEPT. OF THE NAVY, SEPEMBER 1999.

FIGURE 4–1
SURFACE AND SUBSURFACE SOIL SAMPLE LOCATIONS
SWMU 53, BUILDING 64
(MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMU53&54\2099720W

SWMU 54

DENSE FOLIAGE
(SECONDARY GROWTH VEGETATION)

BLDG. 1686

54PZ02
54SS14
54PZ03
54SS13
54SS12
AST CONTAINMENT PAD
54SS15
54SS02
54SS03
54SS11
54TW13
FORMER TRANSFORMER STORAGE AREA
B-33
54SS01
CANOPY
BLDG. 1914
CANOPY
54TW01
OIL/WATER SEPARATOR
54SS10
OPEN STORAGE SHED
CANOPY POSTS
54SS04
54SS05
54SS09
54SS06
54TW02
54SW01
54SS08
54TW03
54SW02
510MW4
OPEN EXCAVATIONS
54SS07
54TW12
54TW06
510MW5
54TW04
B-32
54TW21
BAIROKO STREET
54TW05
54TW20
510DW1
510DW2
54TW11
54PZ01
FORMER PUMP ISLAND LOCATION
~4,000 GALLON UST (REMOVED)
54TW07
54TW15A
54TW08
54TW15
54TW18
54TW10
510MW3
54TW17
DENSE FOLIAGE
(SECONDARY GROWTH VEGETATION)
54TW09
54TW19
510MW2
FORMER LOCATION OF BUILDING 510
54TW16
SWMU 26

60 0 30 60
1 inch = 60 ft.

Baker
Baker Environmental, Inc.

SOURCE: DEPT. OF THE NAVY, SEPTEMBER 1999.

LEGEND

- TEMPORARY PIEZOMETER LOCATION (RFI, 2002)
- SANITARY SEWER MANHOLE
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- EXISTING MONITOR WELL LOCATION
- STANDING WATER SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- TEMPORARY SHALLOW MONITOR WELL LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2002)
- SOIL BORING LOCATION (RFI, 2002)
- FENCE LINE
- BUILDING
- TREE LINE
- EDGE OF GRAVEL
- FORMER TRANSFORMER STORAGE PALLETS
- GROUND SURFACE CONTOUR LINE

FIGURE 4-2
SURFACE AND SUBSURFACE SOIL SAMPLE LOCATIONS
SWMU 54, BUILDING 1914
(FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099721W

SWMU 54

DENSE FOLIAGE
(SECONDARY GROWTH VEGETATION)

BLDG. 1686

54SS14
54PZ03
54PZ02
54SS13
AST CONTAINMENT PAD
54SS12
54SS15
54SS02
54SS03
54SS11
54TW13
FORMER TRANSFORMER STORAGE AREA
B-33
54SS01
CANOPY
BLDG. 1914
CANOPY
54TW01
OIL/WATER SEPARATOR
54SS10
OPEN STORAGE SHED
CANOPY POSTS
54SS04
54SS05
54SS09
54SS06
54TW02
54SS08
54TW03
54SW01
54SW02
510MW4
OPEN EXCAVATIONS
510MW5
54TW14
54TW21
54SS07
54TW12
54TW06
54TW04
B-32
BAIROKO STREET
54TW05
54TW20
510MW1
510DW1
510DW2
54TW11
54PZ01
FORMER PUMP ISLAND LOCATION
~4,000 GALLON UST (REMOVED)
54TW07
54TW15A
54TW08
54TW18
54TW10
510MW3
54TW15
54TW17
DENSE FOLIAGE
(SECONDARY GROWTH VEGETATION)
54TW09
54TW19
510MW2
FORMER LOCATION OF BUILDING 510
54TW16
SWMU 26

60 0 30 60
1 inch = 60 ft.

Baker
Baker Environmental, Inc.

SOURCE: DEPT. OF THE NAVY, SEPTEMBER 1999.

LEGEND

- TEMPORARY PIEZOMETER LOCATION (RFI, 2002)
- SANITARY SEWER MANHOLE
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- EXISTING MONITOR WELL LOCATION
- STANDING WATER SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- TEMPORARY SHALLOW MONITOR WELL LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2002)
- SOIL BORING LOCATION (RFI, 2002)
- FENCE LINE
- BUILDING
- TREE LINE
- EDGE OF GRAVEL
- FORMER TRANSFORMER STORAGE PALLETS
- GROUND SURFACE CONTOUR LINE

FIGURE 4-3
GROUNDWATER SAMPLE LOCATIONS
SWMU 54, BUILDING 1914
(FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099723W

DENSE FOLIAGE (SECONDARY GROWTH VEGETATION)

ARSENIC (mg/kg)

6.0

5.0

4.0

3.0

2.43 (2 x AVERAGE DETECTED BACKGROUND)

53SB01

53SB13

53SB14

53SB12

53SB11

53SB02

53SB07

53SB10

53SS02

53SB15

53WP01

53WP03

53SS01

53SS03

53SB05

BUILDING 64

53SB03

53SB06

53SB09

53SS06

53WP02

53WP04

53SS04

53SB16

53SB08

53SS05

53SB17

53SB20

53SB04

53SB18

53SB19

DENSE FOLIAGE (SECONDARY GROWTH VEGETATION)

DENSE FOLIAGE (SECONDARY GROWTH VEGETATION)

10 0 5 10

1 inch = 10 ft.

Baker

Baker Environmental, Inc.

NOTE: CONCENTRATIONS OBTAINED FROM DUPLICATE SAMPLES AT THE SAME LOCATION WERE AVERAGED.

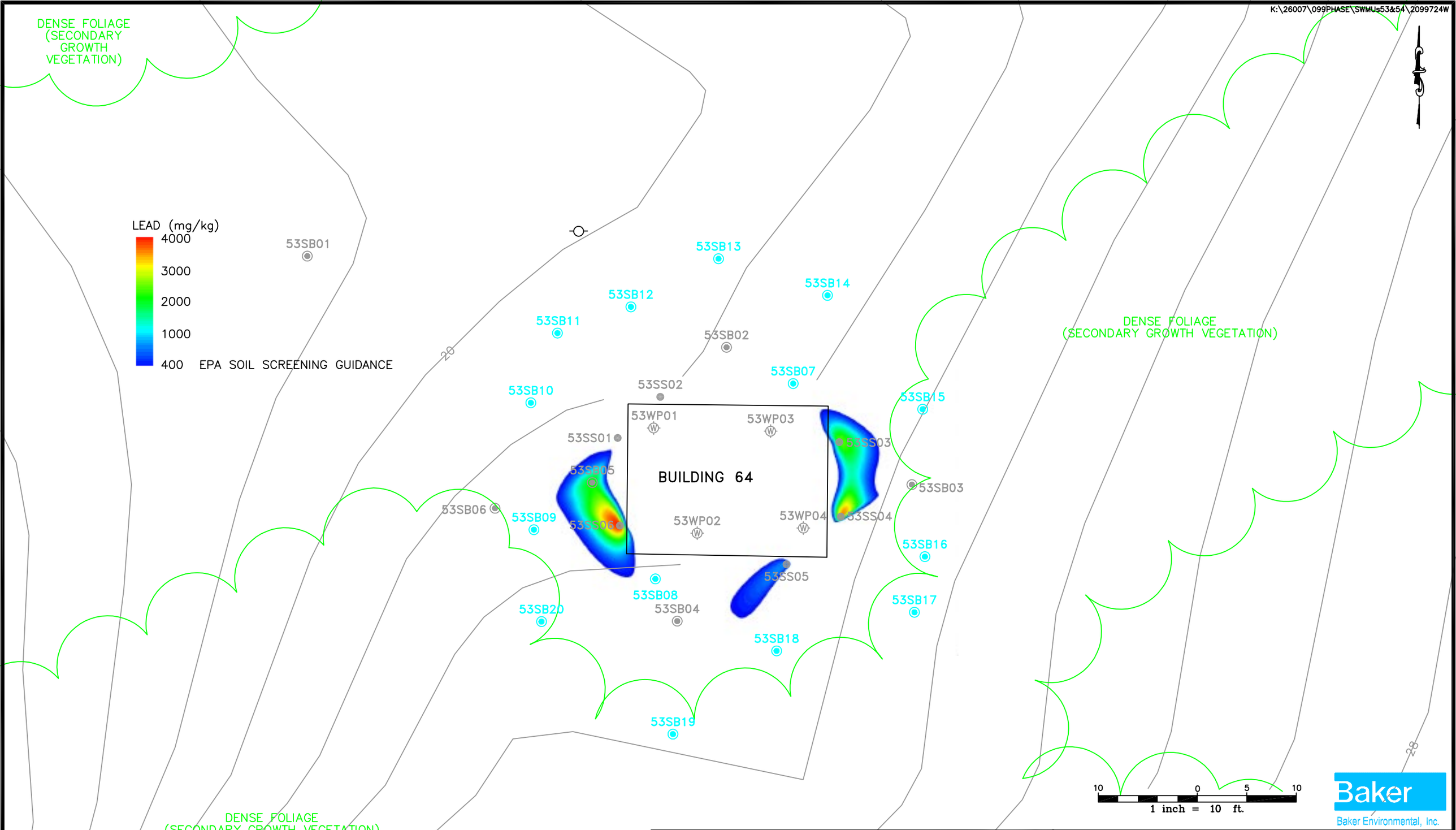
LEGEND

- WIPE SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION (RFI, 2002)
- OVERHEAD ELECTRIC UTILITY POLE
- BUILDING
- GROUND SURFACE CONTOUR LINE
- TREE LINE

SOURCE: DEPT. OF THE NAVY, SEPEMBER 1999.

FIGURE 5-1
ARSENIC IN SURFACE SOILS
SWMU 53, BUILDING 64
(MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099724W



Baker
Baker Environmental, Inc.

NOTE: CONCENTRATIONS OBTAINED FROM DUPLICATE SAMPLES AT THE SAME LOCATION WERE AVERAGED.

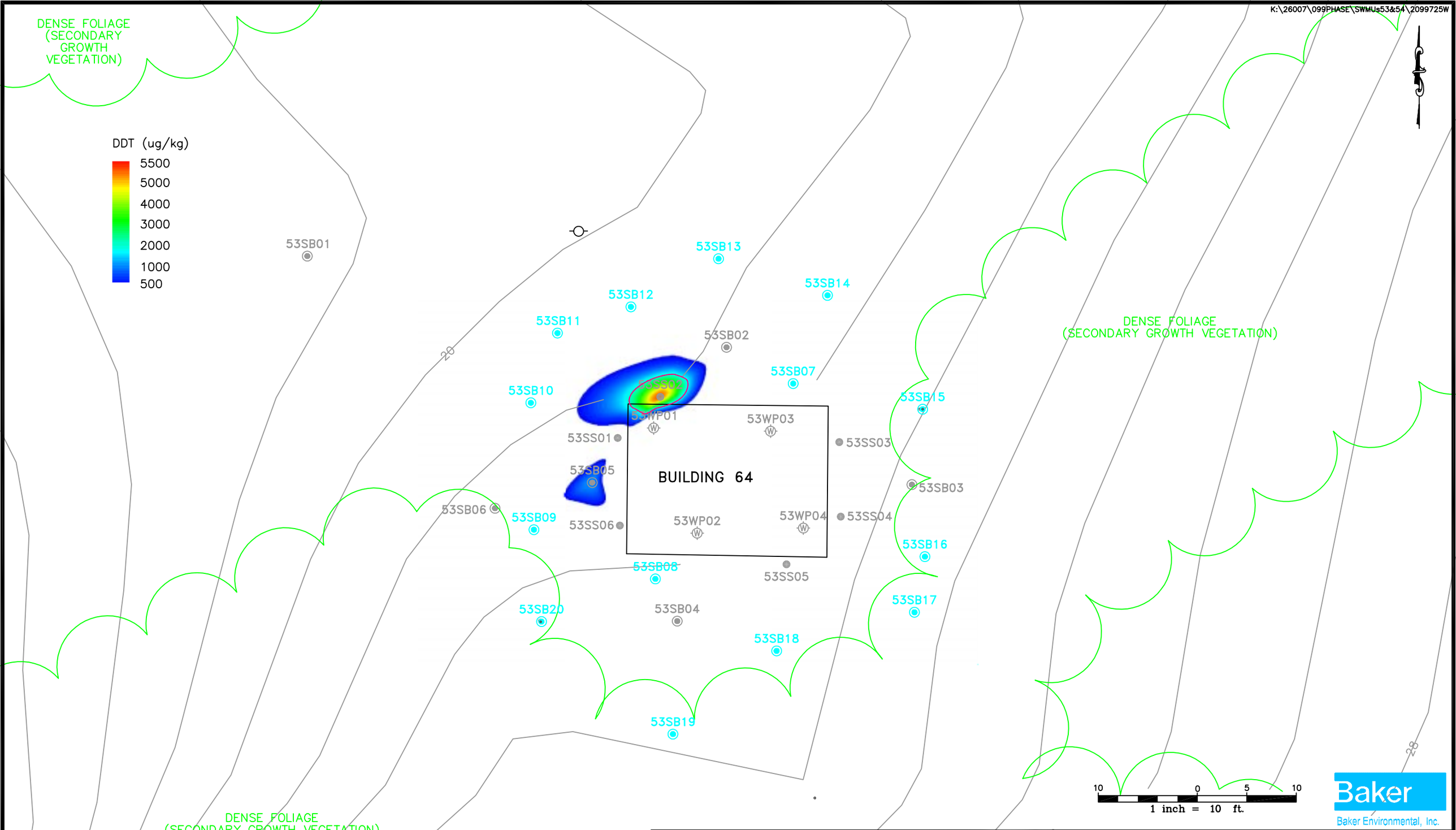
LEGEND

- WIPE SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION (RFI, 2002)
- OVERHEAD ELECTRIC UTILITY POLE
- BUILDING
- GROUND SURFACE CONTOUR LINE
- TREE LINE

SOURCE: DEPT. OF THE NAVY, SEPEMBER 1999.

FIGURE 5-2
LEAD IN SURFACE SOIL
SWMU 53, BUILDING 64
(MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099725W



Baker
Baker Environmental, Inc.

NOTE: CONCENTRATIONS OBTAINED FROM DUPLICATE SAMPLES AT THE SAME LOCATION WERE AVERAGED.

LEGEND

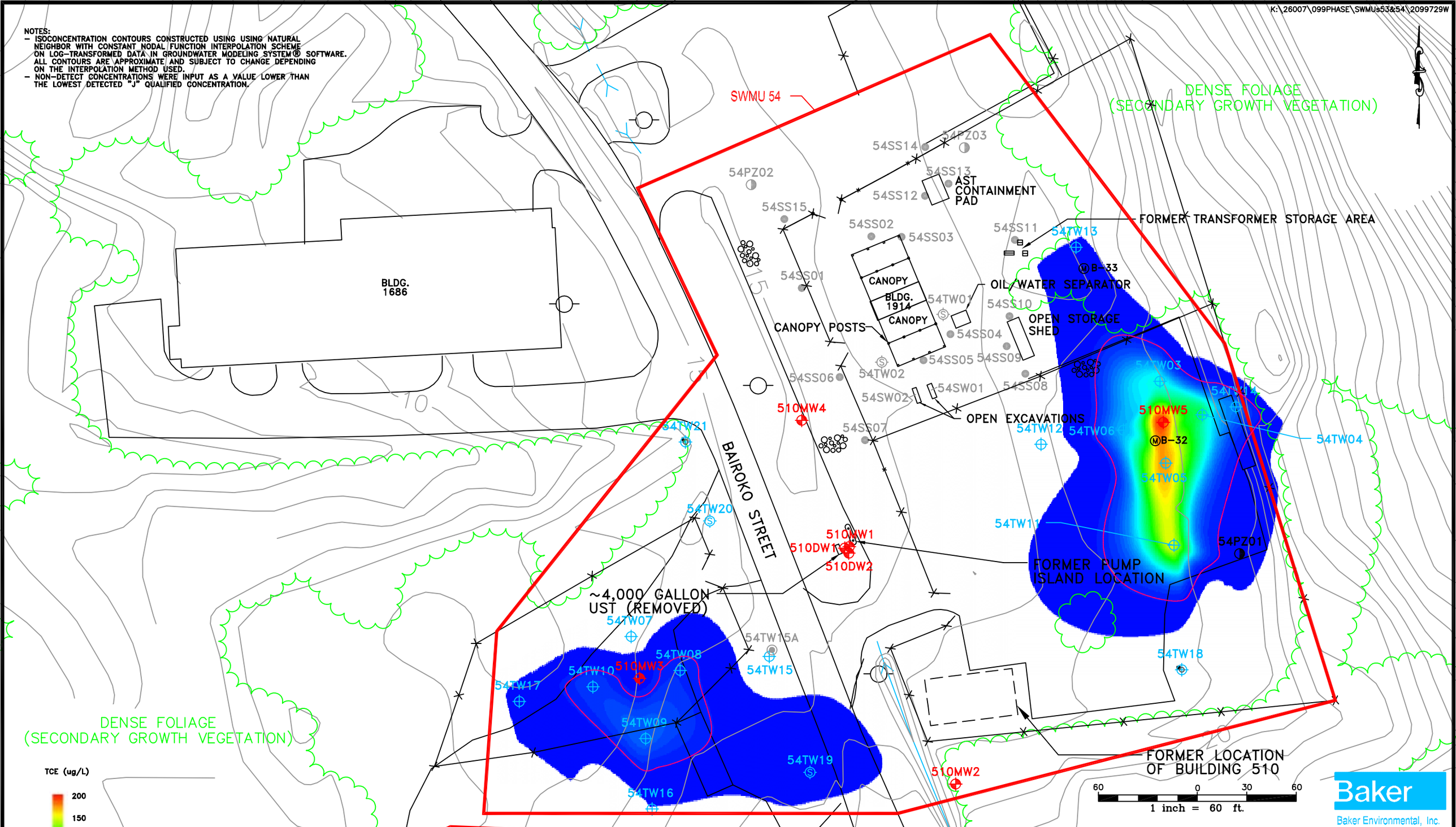
- WIPE SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION (RFI, 2002)
- OVERHEAD ELECTRIC UTILITY POLE
- BUILDING
- GROUND SURFACE CONTOUR LINE
- TREE LINE
- RESIDENTAL RBC FOR 4,4'-DDT OF 1900 ug/kg

SOURCE: DEPT. OF THE NAVY, SEPEMBER 1999.

FIGURE 5-3
DDT IN SURFACE SOIL
SWMU 53, BUILDING 64
(MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099729W

NOTES:
- ISOCONCENTRATION CONTOURS CONSTRUCTED USING USING NATURAL NEIGHBOR WITH CONSTANT NODAL FUNCTION INTERPOLATION SCHEME ON LOG-TRANSFORMED DATA IN GROUNDWATER MODELING SYSTEM® SOFTWARE. ALL CONTOURS ARE APPROXIMATE AND SUBJECT TO CHANGE DEPENDING ON THE INTERPOLATION METHOD USED.
- NON-DETECT CONCENTRATIONS WERE INPUT AS A VALUE LOWER THAN THE LOWEST DETECTED "J" QUALIFIED CONCENTRATION.



Baker
Baker Environmental, Inc.

LEGEND

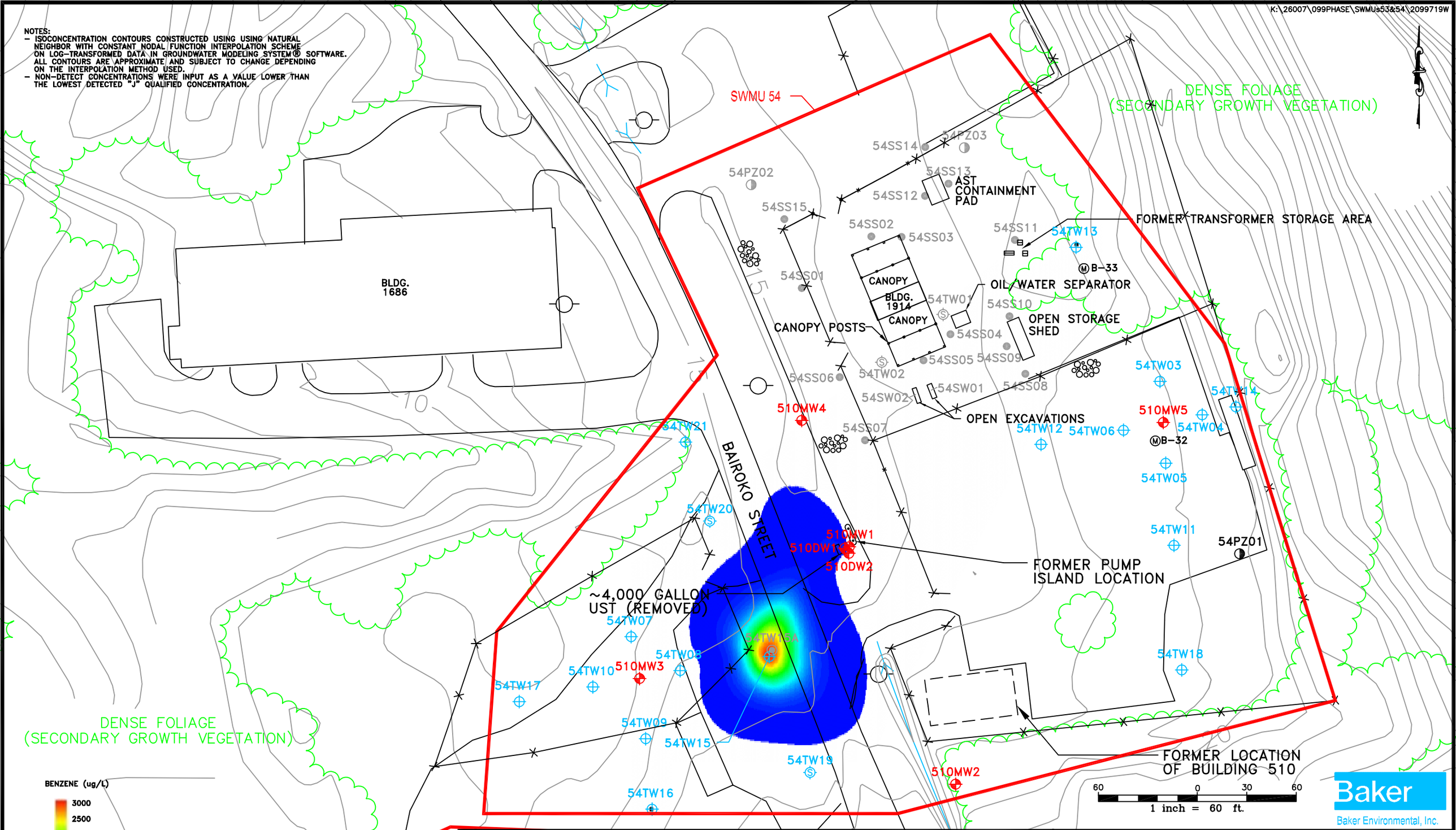
- TEMPORARY PIEZOMETER LOCATION (RFI, 2002)
- SANITARY SEWER MANHOLE
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- EXISTING MONITOR WELL LOCATION
- STANDING WATER SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- TEMPORARY SHALLOW MONITOR WELL LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2002)
- SOIL BORING LOCATION (RFI, 2002)
- FENCE LINE
- BUILDING
- TREE LINE
- EDGE OF GRAVEL
- FORMER TRANSFORMER STORAGE PALLETS
- GROUND SURFACE CONTOUR LINE
- FEDERAL MCL FOR TCE = 5 ug/L

SOURCE: DEPT. OF THE NAVY, SEPTEMBER 1999.

FIGURE 5-4
TCE IN GROUNDWATER
SWMU 54, BUILDING 1914
(FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099719W

NOTES:
- ISOCONCENTRATION CONTOURS CONSTRUCTED USING USING NATURAL NEIGHBOR WITH CONSTANT NODAL FUNCTION INTERPOLATION SCHEME ON LOG-TRANSFORMED DATA IN GROUNDWATER MODELING SYSTEM® SOFTWARE. ALL CONTOURS ARE APPROXIMATE AND SUBJECT TO CHANGE DEPENDING ON THE INTERPOLATION METHOD USED.
- NON-DETECT CONCENTRATIONS WERE INPUT AS A VALUE LOWER THAN THE LOWEST DETECTED "J" QUALIFIED CONCENTRATION.



SOURCE: DEPT. OF THE NAVY, SEPTEMBER 1999.

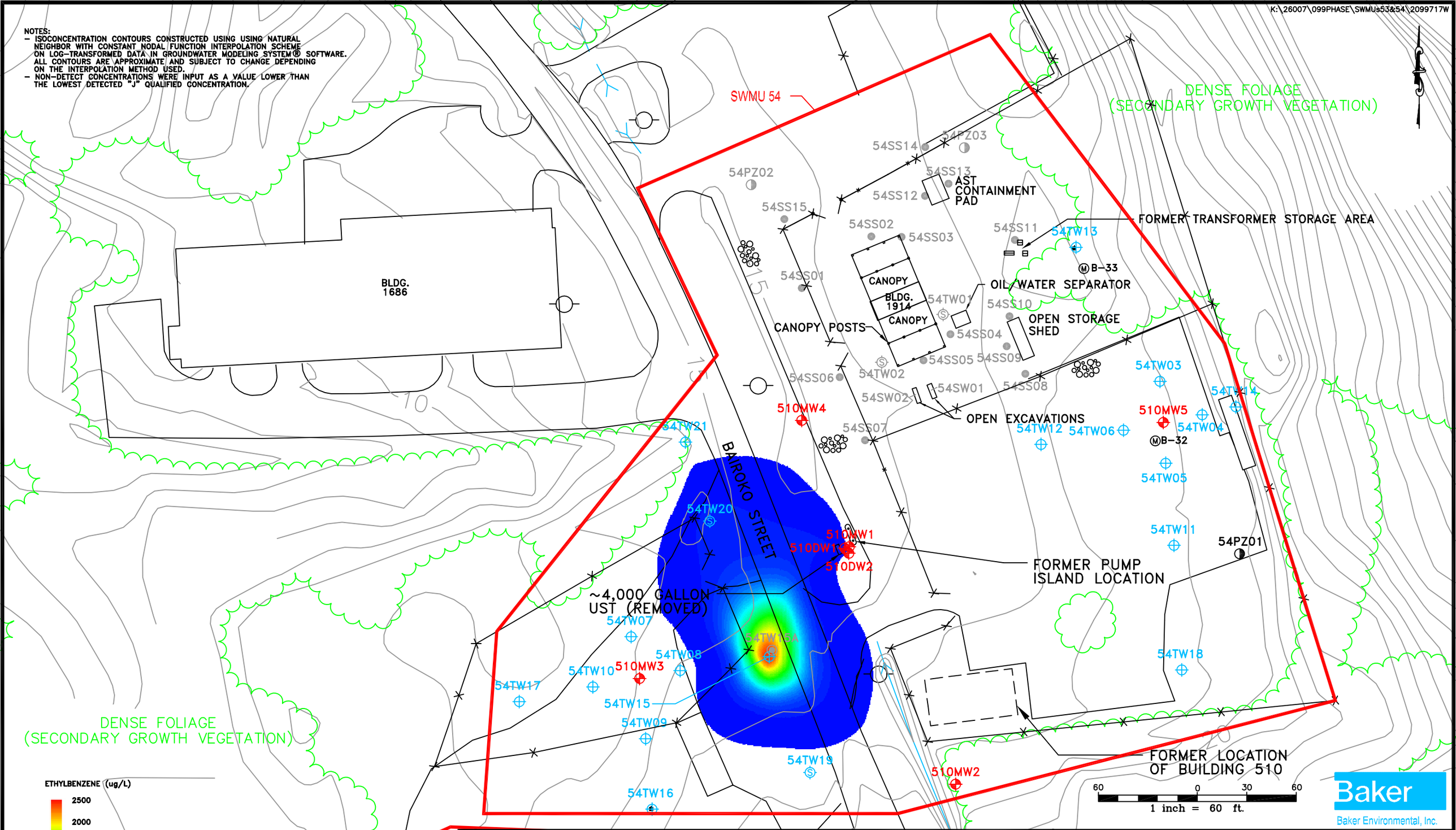
LEGEND

- TEMPORARY PIEZOMETER LOCATION (RFI, 2002)
- SANITARY SEWER MANHOLE
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- EXISTING MONITOR WELL LOCATION
- STANDING WATER SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- TEMPORARY SHALLOW MONITOR WELL LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2002)
- SOIL BORING LOCATION (RFI, 2002)
- FENCE LINE
- BUILDING
- TREE LINE
- EDGE OF GRAVEL
- FORMER TRANSFORMER STORAGE PALLETS
- GROUND SURFACE CONTOUR LINE

FIGURE 5-5
BENZENE IN GROUNDWATER
SWMU 54, BUILDING 1914
(FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

K:\26007\099PHASE\SWMUs53&54\2099717W

NOTES:
- ISOCONCENTRATION CONTOURS CONSTRUCTED USING USING NATURAL NEIGHBOR WITH CONSTANT NODAL FUNCTION INTERPOLATION SCHEME ON LOG-TRANSFORMED DATA IN GROUNDWATER MODELING SYSTEM® SOFTWARE. ALL CONTOURS ARE APPROXIMATE AND SUBJECT TO CHANGE DEPENDING ON THE INTERPOLATION METHOD USED.
- NON-DETECT CONCENTRATIONS WERE INPUT AS A VALUE LOWER THAN THE LOWEST DETECTED "J" QUALIFIED CONCENTRATION.



Baker
Baker Environmental, Inc.

SOURCE: DEPT. OF THE NAVY, SEPTEMBER 1999.

LEGEND

- TEMPORARY PIEZOMETER LOCATION (RFI, 2002)
- SANITARY SEWER MANHOLE
- SURFACE SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- EXISTING MONITOR WELL LOCATION
- STANDING WATER SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2000)
- TEMPORARY SHALLOW MONITOR WELL LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (RFI, 2002)
- TEMPORARY SHALLOW MONITOR WELL LOCATION/ SOIL SAMPLE LOCATION (SAMPLING AND ANALYSIS INVESTIGATION, 2002)
- SOIL BORING LOCATION (RFI, 2002)
- FENCE LINE
- BUILDING
- TREE LINE
- EDGE OF GRAVEL
- FORMER TRANSFORMER STORAGE PALLETS
- GROUND SURFACE CONTOUR LINE

FIGURE 5-6
ETHYLBENZENE IN GROUNDWATER
SWMU 54, BUILDING 1914
(FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

APPENDIX A
Soil Boring and Well Construction Records

APPENDIX A.1
Soil Boring Records – SWMU 53

Baker

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TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB07

COORDINATES: EAST: 781,454.31 NORTH: 148,530.66

ELEVATION: SURFACE: 122.26

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 3.0	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
					53SB07-00 Sample from 0-1'		SILT, trace to little clay and roots; brown; damp	0.4	121.86
1		D-1	2.8				CLAY, little silt, trace fine gravel; light brown; damp	1.3	120.96
2					53SB07-01 Sample from 1-2'		SILT, trace to little clay, little fine sand and fine gravel; light brown, tan		
3	3.0						Refusal at 3.0'	3.0	119.26
4							Bottom of Boring at 3.0'		
5									
6									
7									
8									
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB07 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB08

COORDINATES: EAST: 781,440.39 NORTH: 148,510.93

ELEVATION: SURFACE: 121.91

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 4	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1					53SB08-00 Sample from 0-1'		SILT, little to some clay and rock fragments (FILL) brown; damp	1.7	120.21
2		D-1	4.0						
3					53SB08-01 Sample 1.5-2.5'		CLAY, trace to little silt; light brown; damp (Native)	2.9	119.01
4	4.0						SILT, trace to little clay, little rock fragments and fine sand; tan, light brown, orangish-brown; dry	4.0	117.91
							Refusal at 4.0'		
5							Bottom of Boring at 4.0'		
6									
7									
8									
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB08 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB09

COORDINATES: EAST: 781,428.12 NORTH: 148,515.90

ELEVATION: SURFACE: 121.26

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 4.5	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
				53SB09-00 Sample from 0-1'		SILT, trace clay, little roots; brown; damp	0.3	120.96
1						Clay seam from 0.3 to 0.5'	0.5	120.76
2						SILT AND CLAY, some rock fragments (FILL); brown, light brown, orangish-brown; dry to damp	2.5	118.76
	D-1	4.5		53SB09-01 Sample 1.5 to 2.5'				
3						SILTY CLAY, trace fine gravel (Native); light brown; damp	3.9	117.36
4								
5						SILT, little fine sand, trace clay; light brown, tan; dry Refusal at 4.5'	4.5	116.76
						Bottom of Boring at 4.5'		
6								
7								
8								
9								
10						Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB09 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB10

COORDINATES: EAST: 781,427.81 NORTH: 148,528.72

ELEVATION: SURFACE: 117.69

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 7	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
					53SB10-00 Sample from 0-1'		SILT, trace clay, little roots; brown; damp	0.4	117.29
1							SILTY CLAY, some rock fragments (FILL); brown damp	1.3	116.39
2		D-1	5.0				CLAY, little silt, trace fine gravel (Native); light brown	2.7	114.99
3									
					53SB10-01 Sample from 3-4'		SILT, little to some clay; tan, orangish-brown; damp	4.4	113.29
4									
5	5.0						SILT, trace clay, little fine sand; tan, orangish-brown dry		
6		D-2	2.0				Same as Above at 5', little clay and fine gravel		
7	7.0						Refusal at 7.0'	7.0	110.69
8							Bottom of Boring at 7.0'		
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB10 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB11

COORDINATES: EAST: 781,430.50 NORTH: 148,535.76

ELEVATION: SURFACE: 116.37

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 7	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
					53SB11-00 Sample from 0-1'		SILT, little to some clay, little roots; brown; damp	0.3	116.07
1							SILTY CLAY, little rock fragments (FILL); brown, light brown; damp	1.1	115.27
2		D-1	5.0				CLAY, little silt, trace rock fragments and fine gravel; light brown; damp (Native)	3.0	113.37
3					53SB11-01 Sample from 3-4'		SILT, little clay and rock fragments; light brown, tan; dry to damp		
4									
5	5.0							5.0	111.37
6		D-2	2.0				SILT, little to some clay, trace fine sand and fine gravel; tan, light brown, white, orangish-brown mottling; damp		
7	7.0						Refusal at 7.0'	7.0	109.37
8							Bottom of Boring at 7.0'		
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB11 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB12

COORDINATES: EAST: 781,437.92 NORTH: 148,538.41

ELEVATION: SURFACE: 122.33

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 5	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1					53SB12-00 Sample from 0-1'		SILT, little clay and roots; brown; dry to damp	0.4	121.93
							SILTY CLAY, some rock fragments (FILL); brown light brown, gray; damp	1.2	121.13
2		D-1	5.0		53SB12-01 Sample from 2-3'		CLAY, trace to little silt, trace fine gravel; light brown, light gray; damp (Native)	2.5	119.83
3							SILT, little clay, trace fine sand; light brown, tan; dry to damp		
4								3.8	118.53
5	5.0						SILT, trace clay, little to some rock fragments and subrounded coarse gravel; light brown, tan, black mottling; dry	5.0	117.33
6							Refusal at 5.0'		
7							Bottom of Boring at 5.0'		
8									
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB12 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB13

COORDINATES: EAST: 781,446.77 NORTH: 148,543.27

ELEVATION: SURFACE: 123.01

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 4	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1					53SB13-00 Sample from 0-1'		SILT, little clay, some rock fragments; brown ; damp	0.8	122.21
2		D-1	3.8		53SB13-01 Sample 1.5-2.5'		CLAY, little silt, trace fine gravel; light brown; damp little black staining (organics) from 1.6 to 2'	2.0	121.01
3							SILT, trace to little clay, little fine gravel; light brown, tan; dry more clay starting at 3.0'		.
4	4.0						Refusal at 4.0'	4.0	119.01
5							Bottom of Boring at 4.0'		
6									
7									
8									
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB13 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB14

COORDINATES: EAST: 781,457.78 NORTH: 148,539.57

ELEVATION: SURFACE: 121.88

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 3.9	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1					53SB14-00 Sample from 0-1'		SILT, trace to little clay, little to some rock fragments (FILL); brown; damp	0.8	121.08
2		D-1	3.9		53SB14-01 Sample 1.5-2.5'		CLAY, little silt, trace fine gravel; light brown; damp (Native) rock fragments from 1.2 to 1.6'	1.7	120.18
3							SILT, trace to little clay, little fine gravel and rock fragments		
4	3.9						Refusal at 3.9'	3.9	117.98
5							Bottom of Boring at 3.9'		
6									
7									
8									
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB14 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB15

COORDINATES: EAST: 781,467.39 NORTH: 148,528.07

ELEVATION: SURFACE: 123.04

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 4	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
					53SB15-00 Sample from 0-1'		SILT, little clay & roots; brown; dry to damp	0.4	122.64
1							SILT, little fine sand, trace clay and rock frag-		
2		D-1	4.0		53SB15-01 Sample 1.5-2.5'		ments; light brown, tan, orangish-brown mottling; dry		
3							more rock fragments starting at 1.8 to 2.3'		
4	4.0						Refusal at 4.0'	4.0	119.04
							Bottom of Boring at 4.0'		
5									
6									
7									
8									
9									
10									
							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB15 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB16

COORDINATES: EAST: 781,467.62 NORTH: 148,513.18

ELEVATION: SURFACE: 123.64

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 2	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1		D-1	1.6		53SB16-00 Sample from 0-1'		SILTY CLAY, trace roots; brown; damp	0.8	122.84
2	2.0				53SB16-01 Sample from 1-2'		ROCK FRAGMENTS, little silt; light gray, light brown; dry	2.0	121.64
3							Refusal at 2.0' (Try 2 locations)		.
4							Bottom of Boring at 2.0'		
5									
6									
7									
8									
9									
10									

Match to Sheet 2

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB16 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB17

COORDINATES: EAST: 781,466.56 NORTH: 148,507.56

ELEVATION: SURFACE: 123.65

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 4	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1					53SB17-00 Sample from 0-1'		SILT, little to some clay, little rock fragments; brown; dry to damp; less clay after 0.8'	1.0	122.65
2		D-1	4.0		53SB17-01 Sample 1.5-2.5'		SILT, trace clay; light brown, tan; dry		
3									
4	4.0						Refusal at 4.0'	4.0	119.65
5							Bottom of Boring at 4.0'		
6									
7									
8									
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB17 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB18

COORDINATES: EAST: 781,452.64 NORTH: 148,503.66

ELEVATION: SURFACE: 123.43

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	2/15/2002	0 to 3	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1		D-1	1.8		53SB18-00 Sample from 0-1'		SILT, trace clay and roots; brown; damp	0.4	123.03
2					53SB18-01 Sample from 1-2'		SILT, little to some clay, little rock fragments; light brown, light gray; dry	1.2	122.23
3	3.0						SILTY CLAY AND ROCK FRAGMENTS (FILL); light brown, orangish-brown refusal at 3.0'		.
4							Bottom of Boring at 3.0'		
5									
6									
7									
8									
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB18 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB19

COORDINATES: EAST: 781,442.163 NORTH: 148,495.25

ELEVATION: SURFACE: 123.49

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	#######	0 to 6	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
							SILT, trace clay and roots; brown; dry to damp	0.5	122.99
1					53B19-00 Sample from 0-1'		SILT AND ROCK FRAGMENTS; gray; dry (FILL)		
2							less rocks after 1'		
		D-1	5.0						
3					53SB19-01 Sample 2.5 - 3.5'			2.9	120.59
							SILTY CLAY; light brown; dry to damp	3.3	120.19
4							SILT, little to some clay, trace rock fragments and fine sand; orangish-brown, tan, white mottling; dry		
5	5.0								
		D-2	1.0				more fine sand after 5'		
6	6.0						refusal at 6.0'	6.0	117.49
							Bottom of Boring at 6.0'		
7									
8									
9									
10									
							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB19 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 53 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 53SB20

COORDINATES: EAST: 781,428.89 NORTH: 148,506.62

ELEVATION: SURFACE: 121.27

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	---	---	#######	0 to 5	Pt. Cloudy, 80s	
Length	5.0 feet	---	---	---				
Type	---	---	---	---				
Hammer Wt.	---	---	---	---				
Fall	---	---	---	---				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
1		D-1	5.0		53SB20-00 Sample from 0-1'		SILT, trace clay, little roots and rock fragments; brown; dry to damp (FILL)	0.5	120.77
2							SILT, little to some clay, little rock fragments; light brown, orangish-brown; dry to damp (FILL)	2.3	118.97
3					53SB20-01 Sample from 2-3'		CLAY, little silt, trace rock fragments; brown, orangish-brown; damp (Native)	3.9	117.37
4									
5	5.0						SILT, trace to little clay, little rock frags and fine sand; tan, orangish-brown, black mottling; dry	5.0	116.27
							Refusal at 5.0'		
6							Bottom of Boring at 5.0'		
7									
8									
9									
10							Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 53SB20 SHEET 1 OF 1

APPENDIX A.2
Soil Boring and Well Construction Records – SWMU 54

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54PZ01
COORDINATES:	EAST: 761,852.39	NORTH:	139,166.76
ELEVATION:	SURFACE:	TOP OF PVC CASING:	120.48

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/16/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			13.8
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.7	12 25 7 10			SILT, little clay, little to some rock fragments; brown, light gray (FILL); damp 1.6'		118.88
2 2.0						SILT, trace to little clay; orangish-brown, light gray, black; dry to damp		.
3	A-N						2" PVC Riser	
4								
5 5.0						5.0'		115.48
6	S-2	1.3	6 9 13 18			SILT AND CLAY; orangish-brown, tan, light gray; damp		
7 7.0								
8	A-N							
9								
10 10.0						10.0'	Top of Screen at 10'	110.48
	S-3	1.3	24			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54PZ01 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54PZ01

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-3	1.3	38			Continued from Sheet 1		
11.4			50/0.4'			SILT, little to some rock fragments, little fine sand, trace clay; orangish-brown, tan, light gray; dry		
12								
13	A-N							
14								
15							2" PVC Screen	
15.0	S-4	1.0	19			Same as Above at 15.0'		
16			50/0.5'					
17								
18	A-N							
19								
20							Bottom of Screen at 20'	100.48
20.0						Bottom of Boring at 20.0'		
21								
22								
23								
24								
25								
26								
27								
28								
29								
30						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54PZ01 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54PZ02
COORDINATES:	EAST: 761,556.37	NORTH:	139,390.56
ELEVATION:	SURFACE:	TOP OF PVC CASING:	116.30

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/19/2002	0 to 20	Mostly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			6.53
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.1	33 21 9 7			SANDY SILT AND ROCK FRAGMENTS; brown, light gray; damp (FILL) 0.6'		115.7
2 2.0						CLAY, little to some silt; dark and light brown; damp (FILL)		
3 4 5 5.0	A-N						2" PVC Riser	
6 7 7.0	S-2	1	2 3 3 3			Same As Above at 5.0', little rock fragments; moist to wet (FILL)		
8 9 10 10.0	A-N					10.0'	Top of Screen at 10'	106.3
	S-3	1.5	5			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54PZ02 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54PZ02

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				8			Continued from Sheet 1		
		S-3	1.5	7			CLAY, little silt; reddish and orangish		
12	12.0			11			brown, light gray; damp (Native)		
13									
		A-N							
14									
15	15.0							2" PVC	
				3			Same as Above at 15.0', trace rock	Screen	
16		S-4	0.4	3			fragments and fine gravel		
				4					
17	17.0			7					
18									
		A-N							
19									
								Bottom of	
20	20.0							Screen at 20'	96.3
							Bottom of Boring at 20.0'		
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54PZ02 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54PZ03
COORDINATES:	EAST: 761,685.63	NORTH:	139,413.00
ELEVATION:	SURFACE:	TOP OF PVC CASING:	118.22

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/19/2002	0 to 20	Mostly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			11.62
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 / 2.0	S-1	0.9	17 16 7 5			SANDY SILT, some rock fragments trace clay; brown, light brown, light gray; damp to wet (FILL)		
3 / 4 / 5.0	A-N						2" PVC Riser	
6 / 7.0	S-2	0.0	4 4 5 7			No Sample Recovery at 5.0'		
8 / 9 / 10.0	A-N						Top of Screen at 10'	
	S-3	1.9	4			10.0' Match to Sheet 2		108.22

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54PZ03 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54PZ03

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				4			Continued from Sheet 1 11.3'		106.92
		S-3	1.9	10			SILT, little to some clay; orangish-		
12	12.0			21			brown, tan, light gray, white, pink		106.32
							mottling; clay seam from 11.2 to 11.3'		
13							SILT, little clay, fine sand and rock;		
		A-N					light gray rock frags., iron staining from		
14							11.7 to 11.9', light gray, tan, orangish-		
							brown; damp 11.9'		
15	15.0						SILT, little to some fine sand; very light	2" PVC	
				12			gray, light olive; damp	Screen	102.92
16		S-4	1.9	22			Same As Above at 15.0', wet zone from		
				29			15.3 to 15.6' (Silt, some rock fragments,		
17	17.0			33			trace clay) 15.3'		
18							SILT, trace to little clay, fine sand and		
		A-N					rock fragments, little fine gravel from		
19							15.3 to 15.9'; orangish-brown, tan, light		
							gray with iron oxide staining		
								Bottom of	
20	20.0							Screen at 20'	98.22
							Bottom of Boring at 20.0'		
21									
22									
23									
24									
25									
26									
27									
28									
29									
30							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54PZ03 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW03
COORDINATES:	EAST: 761,804.140	NORTH:	139,271.31
ELEVATION:	SURFACE:	TOP OF PVC CASING:	119.84

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/12/2002	0 to 20	Partly Cloudy, 80s	
Length	2'	--	5'	--	2/13/2002	---		13.26
Type	Std.	--	HS	--	2/26/2002			13.3
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.4	4 6 9 12			CLAYEY SILT, some rock frags; brown; dry 0.4'		119.44
2 2.0						SILTY CLAY; red with light gray and tan mottling; dry to damp 2.5'		117.34
3 4 4.0	S-2	1.8	12 18 25 28			SILT, little to some clay, little fine gravel; orangish-brown with light gray and black mottling; dry	2" PVC Riser	
5 6 6.0	S-3	1.6	9 10 8 12			quartz fragments at 5' 6.5'		113.34
7 8 8.0	S-4	1.5	12 14 15 18			CLAY AND SILT; tan, orangish-brown and light gray; dry to damp 7.8'		112.04
9 10 10.0	S-5	1.6	6 12 17 18			SILT, trace clay, little fine sand; tan and orangish-brown with rust staining; dry little to some clay after 10'	Top of Screen at 10'	109.84
	S-6		5			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW03 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW03

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11			7			Continued from Sheet 1		
	S-6	1.8	10					
12 12.0			11					
			10					
13	S-7	1.8	14			13.2'		106.64
			14			SILT, little to some clay and fine		
14 14.0			12			gravel; tan, orangish-brown, light		
			4			gray mottling; damp; wet zone at 14'		
15	S-8	2.0	9				2" PVC	
			20			gray rock fragments at 15.8'	Screen	
16 16.0			25			15.8'		104.04
			18			SILT, trace to little clay; gray and		
17	S-9	1.7	24			white with vertical fractures; damp		
			28					
18 18.0			30					
			9			18 to 20' Split-spoon wet		
19	S-10	1.8	9					
			14				Bottom of	
20 20.0			18				Screen at 20'	99.84
						Bottom of Boring at 20.0'		
21								
22								
23								
24								
25								
26								
27								
28								
29								
30						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW03 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW04
COORDINATES:	EAST: 761,829.760	NORTH:	139,251.02
ELEVATION:	SURFACE:	TOP OF PVC CASING:	120.36

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/13/2002	0 to 20	Partly Cloudy, 80s	15.7
Length	2'	--	5'	--	2/26/2002			13.76
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.1	5 4 3 6			CLAYEY SILT AND ROCK FRAGMENTS; brown; damp to moist 0.7'		119.66
2 2.0						SILTY CLAY; orangish-brown and light gray; damp		
3	A-N						2" PVC Riser	
4								
5 5.0						5.5'		114.86
6	S-2	1.9	12 20 23 38			SILT, little to some clay, trace fine gravel; orangish-brown with black and light gray mottling; dry to damp		
7 7.0								
8	A-N							
9								
10 10.0						10.0'	Top of Screen at 10'	110.36
	S-3		8			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW04 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW04

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11			16			Continued from Sheet 1		
	S-3	1.3	20			SILT, little fine sand, trace to little		
12 12.0			30			clay; tan with light gray and orangish		
						brown mottling and rust staining; dry		
13	A-N							
14								
15 15.0							2" PVC	
			15				Screen	
16	S-4	1.6	21			15.8'		104.56
			30			SILT, little to some clay, little fine		
17 17.0			40			sand, trace rock fragments; tan, light		
						gray; damp		
18	A-N							
19								
20 20.0							Bottom of Screen at 20'	100.36
						Bottom of Boring at 20.0'		
21								
22								
23								
24								
25								
26								
27								
28								
29								
30						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW04 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW05
COORDINATES:	EAST: 761,807.630	NORTH:	139,221.63
ELEVATION:	SURFACE:	TOP OF PVC CASING:	119.95

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/13/2002	0 to 20	Partly Cloudy, 80s	15.7
Length	2'	--	5'	--	2/26/2002			13.26
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 / 2.0	S-1	1.2	16 30 31 10			SANDY SILT AND ROCK FRAGMENTS; brown and black; dry to damp		
3 / 4 / 5.0	A-N						2" PVC Riser	114.95
						5.0'		
6 / 7.0	S-2	1.3	5 7 8 8			SILTY CLAY; light gray, orangish-brown mottling with trace rust staining; damp		
8 / 9 / 10.0	A-N						Top of Screen at 10'	109.95
						10.0'		
	S-3	1.8	4			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW05 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW05

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11			10			Continued from Sheet 1		
	S-3	1.8	17			SILT, some clay, trace to little fine		
12 12.0			23			sand and fine gravel; light gray,		
						orangish-brown; damp		
13						wet zone at 10.7'		
	A-N							
14								
15 15.0						15.0'	2" PVC	104.95
			11			SILT, little clay and fine sand, trace	Screen	
16	S-4	1.6	14			to little fine gravel; orangish-brown,		
			26			light gray, tan; damp		
17 17.0			35					
	A-N							
18 18.0								
			16			Same as above, trace clay, more		
19	S-5	1.6	25			fine sand after 18'		
			35				Bottom of	
20 20.0			48				Screen at 20'	99.95
						Bottom of Boring at 20.0'		
21								
22								
23								
24								
25								
26								
27								
28								
29								
30						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW05 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW06
COORDINATES:	EAST: 761,782.060	NORTH:	139,241.63
ELEVATION:	SURFACE:	TOP OF PVC CASING:	119.69

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/14/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			13.14
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.2	15 26 14 4			SANDY SILT AND ROCK FRAGMENTS; brown and grey; dry to damp		
2.0						1.6' SILTY CLAY, trace coarse sand; reddish-brown; damp		118.09
3	A-N							
4							2" PVC Riser	
5.0						5.0'		114.69
6	S-2	1.3	5 6 8 10			SILT, little to some fine sand, trace clay; tan, orangish-brown, light gray; damp		
7.0								
8	A-N							
9								
10							Top of Screen at 10'	
10.0								109.69
	S-3	1.4	10			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW06 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW06

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				17			Continued from Sheet 1		
		S-3	1.4	25			Same as Above at 10'		
12	12.0			26					
13		A-N							
14									
15	15.0							2" PVC Screen	
				12			Same as Above at 15', little clay and		
16		S-4	1.3	13			fine gravel and rock fragments		
				14					
17	17.0			17					
18		A-N							
19									
20	20.0							Bottom of Screen at 20'	99.69
21							Bottom of Boring at 20.0'		
22									
23									
24									
25									
26									
27									
28									
29									
30							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW06 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW07
COORDINATES:	EAST: 761,483.650	NORTH:	139,116.46
ELEVATION:	SURFACE:	TOP OF PVC CASING:	116.95

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/14/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			8.48
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 1.0	S-1	0.4	12 50/0.5'			CLAYEY SILT AND ROCK FRAGMENTS; brown, gray; damp		
2								
3	A-N							
4							2" PVC Riser	
5 5.0						5.0'		111.95
6	S-2	1.0	15 11 6 6			SILTY CLAY, little coarse sand, trace rock fragments; brown; damp		
7 7.0								
8	A-N							
9								
10 10.0						10.0'	Top of Screen at 10'	106.95
	S-3	0.8	7			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW07 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW07

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				7			Continued from Sheet 1		
		S-3	0.8	10			SILT, little fine sand, trace to little		
12	12.0			14			clay, orangish-brown and light gray;		
							dry to damp		
13									
		A-N							
14									
15	15.0							2" PVC	
				12			15 to 17' Split-spoon wet	Screen	
16		S-4	1.1	12			Same as above at 15', more fine sand		
				19			and clay		
17	17.0			25					
18									
		A-N							
19									
								Bottom of	
20	20.0							Screen at 20'	96.95
							Bottom of Boring at 20.0'		
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW07 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW08
COORDINATES:	EAST: 761,513.350	NORTH:	139,095.92
ELEVATION:	SURFACE:	TOP OF PVC CASING:	116.34

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/14/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			9.78
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 0.9'	S-1	0.5	4 50/0.4'			CONCRETE 0.5'		115.84
2 3 4 5 5.0	A-N					SANDY SILTY AND ROCK FRAGMENTS; brown and gray; dry to damp	2" PVC Riser	
6 7 7.0	S-2	0.0	8 8 6 8					
8 9 10 10.0	A-N					10.0'	Top of Screen at 10'	106.34
	S-3	1.4	15			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW08 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW08

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11			22			Continued from Sheet 1		
	S-3	1.4	29			SILT, some fine to coarse sand, little		
12 12.0			29			rock fragments; tan, orangish-brown,		
						light gray, white; dry to damp		
13								
	A-N							
14								
15 15.0							2" PVC	
			7			15 to 17' Split-spoon wet	Screen	
16	S-4	0.0	10					
			12					
17 17.0			16					
18								
	A-N							
19								
							Bottom of	
20 20.0							Screen at 20'	96.34
						Bottom of Boring at 20.0'		
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW08 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW09
COORDINATES:	EAST: 761,492.460	NORTH:	139,054.60
ELEVATION:	SURFACE:	TOP OF PVC CASING:	115.43

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/14/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			8.88
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.0	20 29 50 8			SILTY AND ROCK FRAGMENTS, trace clay; light brown, gray; damp		
2 2.0								
3	A-N							
4							2" PVC Riser	
5 5.0						5.0'		110.43
6	S-2	1.1	17 19 53 50/0.3'			SILT, little fine sand; tan, white mottling, trace black; dry		
7 6.8								
8	A-N							
9								
10 10.0						Same as Above at 10', little rock frags.	Top of Screen at 10'	105.43
	S-3	0.8	42			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW09 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW09

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	10.9	S-3	0.8	50/0.4'			Continued from Sheet 1		
12									
13		A-N							
14									
15	15.0							2" PVC	
	15.4	S-4	0.4	50/0.4'			15 to 15.4' Split-spoon wet	Screen	
16							Same as Above at 15', more rock fragments		
17									
18		A-N							
19									
20	20.0							Bottom of Screen at 20'	95.43
21							Bottom of Boring at 20.0'		
22									
23									
24									
25									
26									
27									
28									
29									
30							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW09 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW10
COORDINATES:	EAST: 761,460.480	NORTH:	139,086.00
ELEVATION:	SURFACE:	TOP OF PVC CASING:	116.04

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/14/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			9.58
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.0	10 12 6 22			CLAYEY SILT AND ROCK FRAGMENTS; gray and brown; damp to dry		
2 2.0						Gabro rock at 2.4' (Auger refusal)-		
2.4	S-2	0.3	50/0.4'			FILL, bit came off lead auger, Move location 3.5' further West (Auger to 4')		
3	A-N							
4 4.0						4.0'	2" PVC Riser	112.04
5	S-3	0.4	2 2 3 4			CLAY, little silt; light brown and light gray; damp		
6 6.0								
7	S-4	1.7	5 4 7 9			7.0' SILTY CLAY; light brown, light gray and black mottling; damp		109.04
8 8.0								
9	S-5	1.8	6 9 12 19			8.8' SILT, little fine sand, trace to little clay light brown, tan, orangish-brown, light gray mottling with rust staining; damp	Top of Screen at 10'	107.24
10 10.0								106.04
	S-6		9					

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW10 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW10

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				17			Continued from Sheet 1		
		S-6	1.7	18			Clay seam at 9.5'		
12	12.0			28			Same as Above at 10', trace fine gravel		
				21					
13		S-7	1.5	29			Same as Above at 12'		
				42					
14	14.0			50			Rock fragments from 13.7 to14'		
				10					
15		S-8	1.0	7				2" PVC	
				8				Screen	
16	16.0			10			15.8'		100.24
				8			CLAYEY SILT; tan, light gray with rust		
17		S-9	2.0	9			staining, vertical fracturing; damp		99.14
				13			pink and tan mottling from 16 to 16.6'		
18	18.0			17			wet zone from 16 to 16.9' 16.9'		
				7			SILT, little to some clay, little fine gravel		
19		S-10	1.5	9			and carbonaceous rock frags.; black,		
				13			white, olive mottling;damp; gray with	Bottom of	
20	20.0			22			white fractures at 19.4 and 19.7', rust	Screen at 20'	96.04
							color from 19.7 to 19.8' 20.0'		
21							Bottom of Boring at 20.0'		
22									
23									
24									
25									
26									
27									
28									
29									
30									

Match to Sheet 3

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW10 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW11
COORDINATES:	EAST: 761,812.67	NORTH:	139,171.83
ELEVATION:	SURFACE:	TOP OF PVC CASING:	119.87

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/16/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	2/26/2002			12.98
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1, 2.0	S-1	1.4	19, 34, 11, 4			SANDY SILT, some rock fragments trace clay; dark brown, light gray; dry to damp		
						1.8'		118.07
3, 4, 5, 5.0	A-N					CLAY, trace silt; light brown; damp	2" PVC Riser	.
						5.0'		114.87
6, 7, 7.0	S-2	1.2	17, 11, 13, 17			SILT, little to some clay, trace coarse gravel; reddish and orangish-brown, light gray; dry to damp		
8, 9, 10, 10.0	A-N							
						10.0'	Top of Screen at 10'	109.87
	S-3	0.7	2			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW11 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW11

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				3			Continued from Sheet 1		
		S-3	0.7	7			SILT, some clay; orangish-brown,		
12	12.0			12			tan and black mottling; damp		
13									
		A-N							
14									
15	15.0						15.0'	2" PVC	104.87
				11			SILT, little clay and fine sand; light	Screen	
16		S-4	1.6	13			gray, tan, orangish-brown; damp		
				11			16.5'		103.37
17	16.9			50/0.4'			SILT, some rock fragments, little to		
							some clay, little fine sand; reddish to		
18							orangish-brown, light gray, tan; damp		
		A-N							
19									
								Bottom of	
20	20.0							Screen at 20'	99.87
							Bottom of Boring at 20.0'		
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW11 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW12
COORDINATES:	EAST: 761,732.10	NORTH:	139.233.05
ELEVATION:	SURFACE:	TOP OF PVC CASING:	120.43

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/18/2002	0 to 20	Partly Cloudy, 80s	
Length	2'	--	5'	--	2/26/2002			11.8
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1, 2.0	S-1	1.2	14 30 19 8			SILT, some rock fragments, little fine sand, trace to little clay; light brown, brown, light gray; dry to damp (FILL)		
3, 4, 5.0	A-N						2" PVC Riser	
						5.0'		115.43
6, 7.0	S-2	0.6	5 7 7 9			CLAY, little silt, trace fine gravel; light gray, reddish-brown; damp (Native)		
8, 9, 10.0	A-N						Top of Screen at 10'	110.43
	S-3	1.6	3			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW12 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW12

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				3			Continued from Sheet 1		
		S-3	1.6	4			Same As Above at 10', light gray,		
12	12.0			4			reddish and orangish-brown, tan		
							mottling with white vertical fractures		
13									
		A-N							
14									
15	15.0							2" PVC	
				3			Same As Above at 15', more silt;	Screen	
16		S-4	2.0	2			white, light gray, orangish-brown,		
				4			trace to little purple		
17	17.0			4					
18									
		A-N							
19									
								Bottom of	
20	20.0							Screen at 20'	100.43
							Bottom of Boring at 20.0'		
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW12 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW13
COORDINATES:	EAST: 761,753.30	NORTH:	139,352.58
ELEVATION:	SURFACE:	TOP OF PVC CASING:	118.98

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/18/2002	0 to 20	Partly Cloudy, 80s	
Length	2'	--	5'	--	2/26/2002			12.42
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.3	14 5 3 5			SANDY SILT AND ROCK FRAGMENTS; brown, light gray; dry 0.4' CLAY, little to some silt, little rock fragments; brown; damp		118.58
2 2.0								
3	A-N						2" PVC Riser	
4								
5 5.0						5.0'		113.98
6	S-2	1.5	5 10 10 12			SILT, little clay and fine sand; light gray, orangish-brown; dry to damp rock fragments at 6.3'		
7 7.0								
8	A-N							
9								
10 10.0							Top of Screen at 10'	108.98
	S-3	1.7	13			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW13 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW13

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				18			Continued from Sheet 1		
		S-3	1.7	21			Same As Above at 10'		
12	12.0			27			rock fragments at 11.7'		
13									
		A-N							
14									
15	15.0							2" PVC	
				8			Same As Above at 15'	Screen	
16		S-4	1.7	12			wet zone at 15.7' (Sandy Silt and		
				21			Rock Fragments)		
17	17.0			29					
18									
		A-N							
19									
20	20.0							Bottom of Screen at 20'	98.98
21							Bottom of Boring at 20.0'		
22									
23									
24									
25									
26									
27									
28									
29									
30							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW13 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW14
COORDINATES:	EAST: 761,850.19	NORTH:	139,255.80
ELEVATION:	SURFACE:	TOP OF PVC CASING:	120.55

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/18/2002	0 to 20	Partly Cloudy, 80s	
Length	2'	--	5'	--	2/26/2002			14.11
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1		S-1	0.8	7 7 6 10			SILT, some rock fragments, little clay; brown, light brown; dry to damp		
2	2.0								
3		A-N						2" PVC Riser	
4									
5	5.0						5.0'		115.55
6		S-2	1.7	18 11 17 25			SILT, some clay, little to some rock fragments; reddish and orangish-brown, light gray; damp (FILL) 6.0'		114.55
7	7.0						SILT, little to some clay, trace fine sand; tan, orangish-brown, black mottling; dry to damp (Native)		
8		A-N							
9									
10	10.0						10.0'	Top of Screen at 10'	110.55
		S-3	1.4	7			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW14 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW14

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				17			Continued from Sheet 1		
		S-3	1.4	17			SILT, little fine sand, trace to little		
12	12.0			21			clay, trace fine gravel; light gray, tan,		
							orangish-brown; dry		
13									
		A-N							
14									
15	15.0							2" PVC	
				9				Screen	
16		S-4	1.7	16			moist zone at 15.5' (Silt and rock fragments) 16.3'		104.25
				49					
17	16.9			50/0.4'			WEATHERED SAPROLITE; white,		
							light green; dry to damp		
18									
		A-N							
19									
								Bottom of	
20	20.0							Screen at 20'	100.55
							Bottom of Boring at 20.0'		
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW14 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW15
COORDINATES:	EAST: 761,567.39	NORTH:	139,104.41
ELEVATION:	SURFACE:	TOP OF PVC CASING:	116.07

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/18/2002	0 to 20	Partly Cloudy, 80s	
Length	2'	--	5'	--	2/26/2002			9.46
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.2	11 37 31 14			SILT AND CLAY, little rock fragments; brown; damp 0.6'		115.47
2 2.0						SILT, ROCK AND SAND; brown, tan; dry (FILL)		
3	A-N						2" PVC Riser	
4								
5 5.0						5.0'		111.07
6	S-2	0.9	11 13 15 22			SILT, little to some clay; orangish-brown; dry		
7 7.0						Solvent odor noticed ~7'		
8	A-N							
9								
10 10.0						10.0'	Top of Screen at 10'	106.07
	S-3	1.3	14			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW15 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW15

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				9			Continued from Sheet 1		
		S-3	1.3	11			CLAY, some silt; light gray, orangish-		
12	12.0			11			brown mottling; rock fragments at 11.3'		
							(light gray) damp, solvent odor		
13		A-N							
14									
15	15.0						15.0'	2" PVC	101.07
				5			SILT, little to some clay, trace rock	Screen	
16		S-4	1.5	6			fragments; orangish-brown, light		
				7			gray, tan; damp; slight solvent odor		
17	17.0			12					
18									
		A-N							
19									
20	20.0							Bottom of Screen at 20'	96.07
							Bottom of Boring at 20.0'		
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW15 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW15A

COORDINATES: EAST: 761,569.01 NORTH: 139,108.32

ELEVATION: SURFACE: 116.23

Rig: Mobile B-90 Truck Mount	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	---	3-1/4" I.D.	---	3/1/2002	0 to 12	Cloudy, Rain, 80s	
Length	2'	---	5'	---				
Type	Std.	---	HS	---				
Hammer Wt.	140#	---	---	---				
Fall	30"	---	---	---				

Remarks: Soil boring adjacent to 54TW15 (4' northeast from 54TW15)

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
BG/PS = Background/Point Source
ppm = parts per million

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description		Elevation (Ft. MSL)
				12	54TW15A-		SANDY SILT, little to some rock fragments, trace		
1		S-1	1.7	38	00		to little clay (FILL); brown, dark brown, light gray;		
				26	Sample		damp		
2	2.0			20	from 0-1'		0850 - Collect surface soil sample 54TW15A-00 &		
				4			MS/MSD	2.5	113.73
3		S-2	1.7	4			CLAY, little to some silt, trace fine to coarse gravel;		
				10			light brown; damp		
4	4.0			9					
				10	54TW15A-				
5		S-3	1.6	19	02		Solvent odor at 5'		
				18	Sample		1620 - Collect soil sample from 4 to 6' (54TW15A-02)		
6	6.0			24	from 4-6'		and Duplicate	6.0	110.23
				30			SILT, trace to little clay; light brown; damp		
7		S-4	1.8	28			Slight solvent odor at 7'		
				33				7.5	108.73
8	8.0			40			SILT, little to some fine gravel and rock fragments, trace		
				13	54TW15A-		to little clay; light and dark brown; damp; slight solvent		
9		S-5	1.8	18	04		odor, stronger odor at 8' (while augering) more rock		
				13	Sample		fragments at 8.6' (stronger petro odor)		
10	10.0			11	from 9-11'		Moist at 9.6' (strong petro odor)	9.6	106.63
			1.7	6			Match to Sheet 2		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW15A SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW15A

SAMPLE TYPE	DEFINITIONS
S = Split Spoon A = Auger	SPT = Standard Penetration Test (ASTM D1586)
T = Shelby Tube W = Wash	PID = Photo Ionization Detector Measurement
R = Air Rotary C = Core	MSL = Mean Sea Level
D = Denison P = Piston N = No Sample	ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Elevation (Ft. MSL)
11				8			CLAY, some silt and rock fragments; light gray, light	
		S-6	1.7	8			brown; damp to moist	
12	12.0			8			1642 - collect soil/water interface sample from 9 to 11'	
							(54TW15A-04) 12.0	104.23
13							Bottom of Boring at 12.0'	
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW15A SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW16
COORDINATES:	EAST: 761,496.31	NORTH:	139,011.84
ELEVATION:	SURFACE:	TOP OF PVC CASING:	115.69

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/18/2002	0 to 20	Partly Cloudy, 80s	
Length	2'	--	5'	--	2/26/2002			9.18
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.7	10 2 8 27			SANDY SILT AND ROCK FRAGS., trace clay; brown, light gray; damp 0.6'		115.09
2 2.0						CLAY, little to some silt, trace to little fine sand and rock fragments; light brown; damp		
3	A-N							
4							2" PVC Riser	
5 5.0						5.0'		110.69
6 5.7	S-2	0.7	44 50/0.2'			SILT, little fine sand and rock fragments; light brown, light gray; dry		
7								
8	A-N							
9								
10 10.0							Top of Screen at 10'	105.69
	S-3	1.4	40			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW16 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW16

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-3	1.4	50			Continued from Sheet 1		
11.4			50/0.4'			Same As Above at 10', more rock fragments		
12						hard gray rock fragments from 10.8 to 11.1'		
13	A-N							
14								
15						15 to 16.3' Split-spoon wet	15.0' 2" PVC Screen	100.69
16	S-4	1.0	37 47			SILT AND ROCK FRAGMENTS; trace to little clay and fine sand; gray, orangish-brown; wet		
16.3			50/0.3'					
17								
18	A-N							
19								
20							Bottom of Screen at 20'	95.69
20.0						Bottom of Boring at 20.0'		
21								
22								
23								
24								
25								
26								
27								
28								
29								
30						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW16 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW17
COORDINATES:	EAST: 761,415.87	NORTH:	139,077.06
ELEVATION:	SURFACE:	TOP OF PVC CASING:	115.01

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/20/2002	0 to 20	Partly Cloudy, 80s	
Length	2'	--	5'	--	2/26/2002			8.6
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 / 2.0	S-1	0.6	9 8 5 5			SANDY SILT AND ROCK FRAGMENTS, little to some clay; brown, light gray; dry to damp (FILL)		
3 / 4 / 5.0	A-N					5.0'	2" PVC Riser	
6 / 7.0	S-2	0.9	2 3 8 10			SILT, little fine sand, trace to little clay and rock fragments; orangish-brown, light gray; damp (Native)		
8 / 9 / 10.0	A-N					Same as Above at 10.0', tan	Top of Screen at 10'	105.01
	S-3	1.1	17			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW17 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW17

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-3	1.1	49			Continued from Sheet 1		
11.4			50/0.4'			Moist to wet zone at 10.8' (Clayey silt and rock fragments; tan, orangish brown)		
12								
13	A-N					some hard rock fragments after 10.8' gray (weathered saprolite)		
14								
15						Same As Above at 15', Silt and hard rock fragments; gray with white specks and vertical fractures, trace iron oxide staining; dry to damp	2" PVC Screen	
15.0	S-4	1.4	15 25 34					
16								
17			50/0.4'					
16.9								
18	A-N							
19								
20							Bottom of Screen at 20'	95.01
20.0						Bottom of Boring at 20.0'		
21								
22								
23								
24								
25								
26								
27								
28								
29								
30						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW17 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW18
COORDINATES:	EAST: 761,817.39	NORTH:	139,096.31
ELEVATION:	SURFACE:	TOP OF PVC CASING:	119.25

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	2/20/2002	0 to 20	Partly Cloudy, 80s	
Length	2'	--	5'	--	2/26/2002			12.52
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.9	14 15 7 9			SANDY SILT, some rock fragments trace clay; brown, gray; damp to moist (FILL) 1.4'		117.85
2 2.0						CLAY, little to some silt, trace to little rock fragments; brown; damp (FILL)		
3	A-N						2" PVC Riser	
4								
5 5.0						5.0'		114.25
6	S-2	1.4	13 17 12 21			SILT, little to some clay and rock fragments; orangish-brown, tan, light gray to gray (FILL)		
7 7.0								
8	A-N							
9								
10 10.0						10.0'	Top of Screen at 10'	109.25
	S-3	1.8	5			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW18 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW18

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				6			Continued from Sheet 1		
		S-3	1.8	9			SILT, little to some clay, trace fine		
12	12.0			11			sand; orangish-brown, tan, white,		
13							light gray with vertical iron oxide fractures; damp (Native)		
		A-N							
14									
15	15.0						Same As Above at 15.0', trace to	2" PVC	
				4			little pink color	Screen	
16		S-4	1.7	8					
				14			hard light green rock fragments with		
17	17.0			9			iron oxide staining from 16.3 to 16.6'		
18									
		A-N							
19									
20	20.0							Bottom of Screen at 20'	99.25
21							Bottom of Boring at 20.0'		
22									
23									
24									
25									
26									
27									
28									
29									
30							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW18 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW19
COORDINATES:	EAST: 761,592.07	NORTH:	139,034.12
ELEVATION:	SURFACE:	TOP OF PVC CASING:	117.16

Rig: Trailer Mount Auger Rig

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	3/2/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	3/3/2002			10.62
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks: Located South of 54TW15

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.6	8 21 5 3	54TW19-00 Sample from 0-1'		SANDY SILT, some rock fragments, little medium sand, trace clay; brown, light brown, light gray, tan; dry to damp		
2 2.0						0725 - Collect surface sample (54TW19-00) 2.0'		115.16
3	S-2	1.3	4 6 18 12			CLAY, little silt, trace organics; light brown; damp 3.0'	2" PVC Riser	114.16
4 4.0						SILT, little to some clay, little fine gravel and rock fragments; light brown, light gray; damp, same as above at 4', some clay, less rock fragments		
5	S-3	1.3	7 12 9 11					
6 6.0						6.5'		110.66
7	S-4	2.0	11 14 19 24			CLAY, little to some silt; light brown; dry to damp 7.5'		109.66
8 8.0						SILT, little clay and fine sand, trace fine gravel; tan, orangish-brown, light gray; dry to damp, same as above at 8', little to some fine sand		
9	S-5	1.6	8 19 34 48				Top of Screen at 10'	
10 10.0								107.16
	S-6	1.1	24			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW19 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW19

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-6	1.1	37	54TW19-05		Continued from Sheet 1		
11.4			50/0.4'	Sample		0800 - Collect soil/groundwater		
12 12.0	A-N			10-11.4'		interface sample (54TW19-05)		
			17			wet zone at 10.9' (Sand, Silt and rock		
13	S-7	1.7	40			fragments; light gray)		
			47			13.6'		103.56
14 13.8			50/0.3'			SILT AND FINE SAND, some gray		
14.0			24			rock fragments; light brown, light		
15	S-8	1.7	37			gray, gray; dry to damp	2" PVC	
			47			SILT, trace to little clay, little fine	Screen	
16 16.0			32			sand, trace rock fragments; orangish-		
16.4	S-9	0.4	50/0.4'			brown, light gray; dry to damp from		
17						15.7 to 16.0'		
	A-N							
18 18.0								
18.5	S-10	0.4	50/0.5'					
19								
	A-N						Bottom of	
20 20.0							Screen at 20'	97.16
						Bottom of Boring at 20.0'		
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW19 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW20
COORDINATES:	EAST: 761,531.29	NORTH:	139,186.57
ELEVATION:	SURFACE:	TOP OF PVC CASING:	114.79

Rig: Mobile B-90 Truck Mount

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	3/2/2002	0 to 20	Partly Cloudy, Rain, 80s	
Length	2'	--	5'	--	3/3/2002			8.23
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks: Located North of 54TW15

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1		S-1	1.2	20 22 11 15	54TW20-00 Sample from 0-1'		SANDY SILT, some rock fragments, trace clay; light brown, light gray; dry to damp 0912 - Collect surface soil sample (54TW20-00)		
2	2.0								
3		S-2	0.4	9 5 8 10					
4	4.0						4.0'	2" PVC Riser	110.79
5		S-3	0.3	7 9 11 10			CLAY, little to some silt; brown; damp		
6	6.0								
7		S-4	0.5	10 12 13 13					
8	8.0						7.8'		106.99
9		S-5	1.8	9 9 13 15	54TW20-04 Sample from 8-9'		SILT, some clay, little fine gravel; brown damp; wet zone at 8.4' (slight petro odor silt, little clay and fine gravel) 0940 - Collect soil/groundwater interface sample (54TW20-04)	Top of Screen at 10'	
10	10.0								104.79
		S-6	1.8	6					

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW20 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW20

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11				12			Continued from Sheet 1		
		S-6	1.8	22			Same as above at 10', slight solvent		
12	12.0			17			odor, little rock fragments 12.0'		102.79
				19			SILT, some clay and rock fragments		
13		S-7	0.8	19			no odor; orangish-brown, light gray;		
				11			dry to damp		
14	14.0			9			14.0'		100.79
				6			SILT AND CLAY; little fine sand,		
15		S-8	0.5	8			trace fine gravel; orangish-brown,	2" PVC	
				10			tan, light gray; damp; very slight	Screen	
16	16.0			12			solvent odor		
				7			Same as above at 16' with very		
17		S-9	1.1	13			slight solvent odor		
				15			S-10 split-spoon wet from water		
18	18.0			16			collecting in borehole 18.0'		'96.79
				5			SILT, some fine sand, trace clay;		
19		S-10	0.5	8			light brown, tan, light gray; damp to		
				18			moist	Bottom of	
20	20.0			25				Screen at 20'	94.79
							Bottom of Boring at 20.0'		
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
							Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW20 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	SWMU 54 - RCRA Facility Investigation		
PROJ. NO.:	CTO-0099	BORING NO.:	54TW21
COORDINATES:	EAST: 761,516.57	NORTH:	139,234.49
ELEVATION:	SURFACE:	TOP OF PVC CASING:	115.18

Rig: Trailer Mount Auger Rig

	Split Spoon	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	2"	--	3-1/4" I.D.	--	3/4/2002	0 to 20	Sun, 80s	
Length	2'	--	5'	--	3/5/2002			8.72
Type	Std.	--	HS	--				
Hammer Wt.	140#	--	--	--				
Fall	30"	--	--	--				

Remarks:

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Direct Push P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Schedule 40 PVC Casing	2"	0.0	10.0
PVC Slotted 10 Slot Screen	2"	10.0	20.0

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 / 2.0	S-1	1.6	6 5 8 11			SILT, little to some rock fragments, trace to little clay (FILL); dark brown light gray; dry to damp		
3 / 4 / 5.0	A-N					5.0'	2" PVC Riser	110.18
6 / 7.0	S-2	1.8	5 6 6 6			CLAY, little to some silt, trace to little fine gravel and rock fragments; light brown, dark brown and light gray mottling (Native); damp		
8 / 9 / 10.0	A-N					10.0'	Top of Screen at 10'	105.18
	S-3	1.6	4			Match to Sheet 2		

DRILLING CO.:	ERTEC, Inc.	BAKER REP.:	Dave Gaviglia
DRILLER:	Andy Cosme	BORING NO.:	54TW21 SHEET 1 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: SWMU 54 - RCRA Facility Investigation

CTO NO.: CTO-0099 BORING NO.: 54TW21

SAMPLE TYPE

S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
PID = Photo Ionization Detector Measurement
MSL = Mean Sea Level
ps/bg = point source/background

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT Blows per 0.5'	Lab ID	PID (ppm) ps/bg	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11			14			Continued from Sheet 1		
	S-3	1.6	22			CLAY, trace to little silt; light brown,		103.88
12 12.0			13			light gray; damp 11.3'		
13	A-N					SILT, some rock fragments, little to some clay; orangish-brown, dark brown, light gray; damp		
14								
15 15.0						15.0'	2" PVC Screen	100.18
16	S-4	1.6	6 9 12			SILT, some fine sand, trace coarse gravel; tan with little pink and light gray seams; damp		
17 17.0			19					
18 18.0	A-N							
19	S-5	1.5	12 16 21			Same as above at 18', little medium sand, trace to little fine gravel and rock fragments; tan, orangish-brown		
20 20.0			39			damp	Bottom of Screen at 20'	95.18
21						Bottom of Boring at 20.0'		
22								
23								
24								
25								
26								
27								
28								
29								
30						Match to Sheet 3		

DRILLING CO.: ERTEC, Inc. BAKER REP.: Dave Gaviglia

DRILLER: Andy Cosme BORING NO.: 54TW21 SHEET 2 OF 2

APPENDIX B
Chain-of-Custody Records

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 5375 5865

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

54-01

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU 54 - NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1093	CLIENT FAX:
CLIENT NAME: Baker Environmental	CLIENT E-MAIL:	
CLIENT ADDRESS: Ad 3, 420 Rouser Rd., Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ◯
DATE DUE_____
EXPEDITED REPORT DELIVERY (SURCHARGE) ◯
DATE DUE_____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOCs (Quick Turn)	SVOCs	REMARKS
							HCl	1 PRESERVATIVE		
2/13/02	0855	510MW3		X				3	2	
2/13/02	1025	510MW5		X				3	2	Please analyze this first!
2/13/02	1350	54ER01		X				3	2	
2/13/02	1355	54SB01		X				3		

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/13/02	1430			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
KC	2/14/02	1017	YES ◯ NO ◯		5241027	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 540001

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Way Bill # 8078 5375 5876

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-02

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: SWMU 54-NSRR	PROJECT NO.: 26003-099	PROJECT LOCATION (STATE): PR	PAGE 1 OF 1
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ○ DATE DUE
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1093	CLIENT FAX	EXPEDITED REPORT DELIVERY (SURCHARGE) ○ DATE DUE
CLIENT NAME: Baker Environmental	CLIENT E-MAIL		
CLIENT ADDRESS: AOP 3, 420 Rouser Rd., Coraopolis, PA 15108			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1
COMPANY CONTRACTING THIS WORK (if applicable)			

REQUIRED ANALYSIS: VOCs (Quick Turn); SVOCs

PRESERVATIVE: HCl — 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOCs (Quick Turn)	SVOCs	REMARKS
2/14/02	0850	54TW03		X				3	2	
2/14/02	1005	54TW04		X				3	2	
2/14/02	1145	54TW05		X				3	2	
2/14/02	1430	54TB02		X				3		

NUMBER OF CONTAINERS SUBMITTED

RUSH

RUSH

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS	1/2/07	1512	Jon C. Edel Jr.	2/14/02	1500			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
F Sewafford	2/15/02	8:42	YES ✓ NO ○		S241057	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 544555

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 5375 5729

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-03

◯ Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)	PAGE	OF
SWMU 54-NSRR	26007-099	PR	1	1

STL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Melanie Jakubsen		

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Jon EDEL		

CLIENT NAME	CLIENT E-MAIL
Baker Environmental	

CLIENT ADDRESS
AOI 3, 420 Rouser Rd., Coraopolis, PA 15108

COMPANY CONTRACTING THIS WORK (if applicable)

STANDARD REPORT DELIVERY ◯
DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯
DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOCs Quick Turn	SVOC								REMARKS
								HCl	1 PRESERVATIVE								
2/15/02	0855	54TW06		X				3	2								
	1240	54TW07		X				3	2								
	1120	54TW08		X				3	2								
	1350	54TW09		X				3									
	1350	54TW09D		X				3									
	1350	54TW09MS		X				3									
	1350	54TW09MSD		X				3									
	1020	54TW10		X				3									
	1450	54TB03		X				3									
		RUSH															

RUSH

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/15/02	1500			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
F Swafford	7/16/02	10:43	YES ✓ NO ◯		5241097	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 544054

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8232 7444 5213

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

54-04

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU 54-NSRR	PROJECT NO.: 26003-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-465-1097	CLIENT FAX:
CLIENT NAME: Baker Environmental	CLIENT E-MAIL:	
CLIENT ADDRESS: AOP 3, 420 Rouser Rd, Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ( )
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

REQUIRED ANALYSIS: SVOC

PRESERVATIVE: 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
2/15/02	1350	54TW09		X				2	
↓	1350	54TW09D		X				2	
↓	1020	54TW10		X				2	

RUSH

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/15/02	1500			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	2/16/02	10:43	YES (✓) NO ( )		5241097	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number: 044000

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8232 7444 5224

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-05

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: SWMU 54-NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR	PAGE 1 OF 1
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ○ DATE DUE ____
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX	EXPEDITED REPORT DELIVERY (SURCHARGE) ○ DATE DUE ____
CLIENT NAME: Baker Environmental	CLIENT E-MAIL		
CLIENT ADDRESS: AOP 3, 420 Rouser Rd, Coraopolis, PA 15108			
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	SVOC									REMARKS
								1	PRESERVATIVE								
2/15/02	1350	54TW09MS		X				2									
2/15/02	1350	54TW09MSD		X				2									

NUMBER OF CONTAINERS SUBMITTED

RUSH

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/15/02	1500			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
F Swafford	2/16/02	10:43	YES ✓ NO ○		5241097	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 055122

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8058 4171 5294

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-06

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: SWMU 54-NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX:
CLIENT NAME: Baker Environmental	CLIENT E-MAIL:	
CLIENT ADDRESS: AOP 3, 420 Rouser Rd, Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ( )
DATE DUE

EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2

Turn

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOCs (Quick	SVOCs	Arsenic/Lead	DDT									REMARKS
								HCl	—	HNO3	—									
								NUMBER OF CONTAINERS SUBMITTED												
2/18/02	1000	54TW11		X				3	2											
2/18/02	1000	54TW11D		X				3	2											
2/18/02	1520	54TB04		X				3												
2/18/02	1600	53EB01		X					[redacted]	1	2									
									JEE											

PRESERVATIVE

RUSH!

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/18/02	1600			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	2/19/02	9:34	YES ( ) NO ( )		5241136	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 030710

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8038 4171 5309

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

53-01

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: SWMU 53 - NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: MELANIE JAKOBSEN	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: JON EDEL	CLIENT PHONE: 787 485-1097	CLIENT FAX:
CLIENT NAME: BAKER ENV., INC.	CLIENT E-MAIL:	
CLIENT ADDRESS: ~~BAKER~~ 420 ROUSER RD CORAOPOLIS, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 2 OF 2

STANDARD REPORT DELIVERY ●
DATE DUE 28 DAY TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

PRESERVATIVE

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	ARSENIC	PESTICIDES	LEAD								REMARKS
2/15/02	1510	53SB12-01			X			1										
	1530	53SB13-00			X			1										
	1533	53SB13-01			X			1		1								
	1605	53SB14-00			X			1	1									
	1608	53SB14-01			X			1										
	1125	53SB15-00			X			1		1								
	1125	53SB15-00D			X			1										
	1125	53SB15-00MS/MSD			X			1										
	1128	53SB15-01			X			1	1									
	1100	53SB16-00			X			1	1									
	1104	53SB16-01			X			1										
	1104	53SB16-01D			X			1										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Mark E. Kim	2/18/02	1700			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
Jon C. Edel Jr	2/4/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	2/19/02	9:34	YES ✓ NO ○		SZ41136	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 030700

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8038 4171 5309

STL Savannah

(X) **STL Savannah**
5102 LaRoche Avenue
Savannah, GA 31404

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

53-01

( ) Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
SWMU 53 - NSRR	26007-099	PR
STL (LAB) PROJECT MANAGER: MELANIE JAKUBSEN	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: JON EDEL	CLIENT PHONE: 787 485-1097	CLIENT FAX
CLIENT NAME: BAKER ENV., INC.	CLIENT E-MAIL	
CLIENT ADDRESS: 420 ROUSER RD, CORAOPOLIS, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 2

STANDARD REPORT DELIVERY (●)
DATE DUE 28 DAY TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	ARSENIC	PESTICIDES	LEAD	REMARKS
		PRESERVATIVE						—	—	—	
2/15/02	1630	53SB07-00			X			1		1	
	1633	53SB07-01			X			1		1	
	1443	53SB08-00			X			1			
	1445	53SB08-01			X			1			
	1315	53SB09-00			X			1	1		
	1317	53SB09-01			X			1		1	
	1342	53SB10-00			X			1			
	1344	53SB10-01			X			1	1		
	1415	53SB11-00			X			1			
	1418	53SB11-01			X			1			
	1418	53SB11-01D			X			1			
	1508	53SB12-00			X			1		1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS D. Swafford	2/31/02		Mark E. K	2/18/02	1700			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel	2/4/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
F Swafford	2/19/02	9:34	YES (—) NO ( )		5241136	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number: 000100

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8232 7444 5268

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

53-02

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: SWMU 53 - NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: MELANIE JAKUBSEN	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: JON EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX:
CLIENT NAME: BAKER ENV., INC.	CLIENT E-MAIL:	
CLIENT ADDRESS: 420 ROUSER RD, CORAOPOLIS, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY (●)
DATE DUE: 28 DAY TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE:

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	ARSENIC	PESTICIDES	LEAD								REMARKS
								1	1	1								
								PRESERVATIVE										
								NUMBER OF CONTAINERS SUBMITTED										
2/15/02	1104	535B16-01 MS/MSD			X			1										
	1035	17-00			X			1	1									
	1037	17-01			X			1										
	1012	18-00			X			1										
	1012	18-00D			X			1										
	1020	18-01			X			1		1								
	0935	19-00			X			1		1								
	0952	19-01			X			1	1									
	1143	20-00			X			1										
	1145	20-01			X			1	1									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Mark E. [illegible]	2/18/02	1700			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/4/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	2/19/02	9:34	YES (✓) NO ( )		S24136	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 055124

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 4171 5283

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-08

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
SWMU 54-NSRR	26007-099	PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX
CLIENT NAME: Baker Environmental	CLIENT E-MAIL	
CLIENT ADDRESS: AOP 3, 420 Rouser Rd, Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ◯

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 4

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOCs (Quick Turn)	SVOCs	VOCs	Pesticides	Lead/Arsenic JCE						REMARKS
								HCl	-	HCl		HNO3						
2/18/02	1630	2001FB01		X					2	3	2	1						
2/18/02	1635	2001FB02		X						3	2							
2/18/02	1640	2001FB03		X						3								
2/18/02	1730	54TB05		X						3								
2/19/02	0820	54TW14		X				3										Rush
2/19/02	0900	54TW12		X				3										
2/19/02	0935	54TW13		X				3										
2/19/02	1015	54TW16		X				3										
2/19/02	1055	54TW15		X				3										

NUMBER OF CONTAINERS SUBMITTED

RUSH

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/19/02	1400			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
K	2/20/02	840	YES ◯ NO ◯		S241170	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 055125

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8232 7444 5360

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-09

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
SWMU 54-NSRR	26003-099	PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1093	CLIENT FAX
CLIENT NAME: Baker Environmental	CLIENT E-MAIL	
CLIENT ADDRESS: AOP 3, 420 Rouser Rd, Coraopolis PA, 15108		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ◯
DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯
DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 4

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	SVOCs	Pesticides	Lead/Arsenic								REMARKS
								PRESERVATIVE										
								NUMBER OF CONTAINERS SUBMITTED										
2/18/02	1635	2001FB02		X				2		1								
2/18/02	1640	2001FB03		X				2	2	1								
2/18/02	1630	2001FB01		X						1								

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/19/02	1400			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
KL	2/20/02	840	YES ◯ NO ◯		S241170	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 055120

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Imps# 8232 7444 5371

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-10

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: SWMU 54-NSRR	PROJECT NO.: 26003-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1093	CLIENT FAX
CLIENT NAME: Baker Environmental	CLIENT E-MAIL	
CLIENT ADDRESS: AOP 3, 430 Rouser Rd., Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ●

DATE DUE 28 DAY TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 4

REQUIRED ANALYSIS: VOCs (24 HR TAT REQUEST); SVOCs

PRESERVATIVE: HCl

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOCs (24 HR TAT REQUEST)	SVOCs	REMARKS
2/19/02	0820	54TW14		X				3	2	
2/19/02	0900	54TW12		X					2	
2/19/02	0935	54TW13		X					2	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Mark E. K	2/19/02	1400			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
K	2/20/02	840	YES ○ NO ○		5241170	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 055127

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS# 8232 7444 5382

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-11

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
SWMU 54-NSRR	26007-099	PR

STL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
MELANIE JAKUBSEN		

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
JON EDEL	787-485-1097	

CLIENT NAME	CLIENT E-MAIL
BAKER ENVIRONMENTAL	

CLIENT ADDRESS: 420 ROUSER RD, CORAOPOLIS, PA 15108

COMPANY CONTRACTING THIS WORK (if applicable):

PAGE 1 OF 1

STANDARD REPORT DELIVERY ●

DATE DUE 28 DAY TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 4

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	SVOCs									REMARKS
			REQUIRED ANALYSIS														
			PRESERVATIVE					1									
			NUMBER OF CONTAINERS SUBMITTED														
2/19/02	1015	54 TW 16		X				2									
2/19/02	1055	54 TW 15		X				2									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			[signature]	2/19/02	1400			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	2/20/02	840	YES ○ NO ○		S241170	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 055120

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Way bill # 8078 4171 5310

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-12

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
SWMU 54-NSRR	26002-079	PR

STL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Melanie Jakubsen		

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Jon EDEL		

CLIENT NAME	CLIENT E-MAIL
Baker Env.	

CLIENT ADDRESS: AOP 3, 420 Rouser Rd., Coraopolis, PA 15108

COMPANY CONTRACTING THIS WORK (if applicable):

PAGE 1 OF 1

STANDARD REPORT DELIVERY ◯

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

REQUIRED ANALYSIS / NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOC (Capillary Tube)	VOCs	SVOCs								REMARKS
PRESERVATIVE								HCl	HCl	—								
2/20/02	1000	54P201		X				3		2								Rush
2/19/02	1500	54TB06		X					3									

RUSH!

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/20/02	1545			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS Jon C. Edel Jr.	2/04/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	2-21-02	840	YES ✓ NO ◯		S2-41194	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill #8078 5375 5718

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

54-13

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU54-NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX:
CLIENT NAME: Baker Environmental	CLIENT E-MAIL:	
CLIENT ADDRESS: AOP 3, 420 Rouser Rd, Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ( )
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

PRESERVATIVE

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOCs (Quick Turn)	VOCs	SVOCs								REMARKS
								HCl	HCl	—								
2/21/02	0840	54TW17		X				3		2								Rush
2/21/02	0955	54TW18		X				3		2								Rush
2/21/02	1025	54TB07		X					3									

RUSH!

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/21/02	1300			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/4/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
KC	2/22/02	844	YES ( ) NO ( )		S241238	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 044000

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 5325 5730

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

54-15

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)	PAGE 1 OF 1
SWMU 54 - NSRR	26007-099	PR	
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.	
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX	
CLIENT NAME: Baker Environmental	CLIENT E-MAIL		
CLIENT ADDRESS: AOP 3, 420 Rouser Rd., Coraopolis, PA 15108			
COMPANY CONTRACTING THIS WORK (if applicable)			

STANDARD REPORT DELIVERY ( )
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

REQUIRED ANALYSIS: VOCs (Quick Turn) (App. IX); VOCs (App. IX); SVOCs (App. IX)

PRESERVATIVE: HCl; HCl; —

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	VOCs (Quick Turn) (App. IX)	VOCs (App. IX)	SVOCs (App. IX)	REMARKS
2/26/02	1520	510MW1		X				3		2	Rush
2/27/02	0845	510MW2		X				3		2	
2/26/02	1350	510MW4		X				3		2	
2/27/02	1115	510DW1		X				3			
2/27/02	1115	510DW1D		X				3			
2/27/02	1115	510DW1MS		X				3			
2/27/02	1115	510DW1MSD		X				3			
2/27/02	1020	510DW2		X				3			
2/27/02	1330	54TB08		X					3		

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/27/02	1430			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/4/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
Michael Hill	022802	0853	YES ✓ NO ( )		S24137 1	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 044990

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8232 7444 5419

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

54-16

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU 54 - NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX:
CLIENT NAME: Baker Environmental	CLIENT E-MAIL:	
CLIENT ADDRESS: AOP 3, 400 Rouser Rd, Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ( )
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: App. IX SVOCs									REMARKS
		PRESERVATIVE						1									
2/22/02	1115	510DWID		X				2									
↓	↓	510DWIMS		X				2									
↓	↓	510DWIMSD		X				2									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/22/02	1430			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/4/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	022202	0830	YES ✓ NO ( )		S241371	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8232 7444 5420

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

54-17

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU 54-NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX
CLIENT NAME: Baker Environmental	CLIENT E-MAIL	
CLIENT ADDRESS: AOP 3, 420 Rouser Rd., Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ( )
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

REQUIRED ANALYSIS: AP. IX SVOCs

PRESERVATIVE: 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
2/27/02	1115	510DW1		X				2	
2/27/02	1020	510DW2		X				2	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	2/27/02	1430			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
Jon C. Edel Jr. EMPTY CONTAINERS	2/4/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	022802	0853	YES (✓) NO ( )		5241371	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 041455

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8232 7444 [redacted] 5496

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

3-03

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: SWMU 3 - NSRR	PROJECT NO.: 26002-099	PROJECT LOCATION (STATE): PR	PAGE 1 OF 1
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ●
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX	DATE DUE: 28TAT
CLIENT NAME: Baker Environmental	CLIENT E-MAIL		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: ACP 3, 420 Rouser Rd., Coraopolis, PA 15108			DATE DUE:
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 5

MATRIX TYPE — COMPOSITE (C) OR GRAB (G) INDICATE

REQUIRED ANALYSIS / NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	App. IX Pesticides/PCBs	App. IX Dioxins/Furans	App. IX Chlorinated Herbicides	App. IX VOCs (QUIK Turn)	App. IX SVOCs						REMARKS
								1	1	PRESERVATIVE								
2/28/02	1555	RJGW08R		X				2	2	2								
3/1/02	0850	54TW15A-00	6								1	1						Rush
3/1/02	0850	54TW15A-00 MS/MSD	6								1	1						Rush

RUSH

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	3/1/02	1400			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/26/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Bradford	3/2/02	10:38	YES ✓ NO ○		S241444	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 038704

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 5325 5784

STL Savannah

SWMU 54-NSRR

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

3-10.

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)	PAGE
SWMU 3-NSRR	26007-099	PR	1 OF 2
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ○ DATE DUE
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX	EXPEDITED REPORT DELIVERY (SURCHARGE) ○ DATE DUE
CLIENT NAME: Baker Environmental	CLIENT E-MAIL		
CLIENT ADDRESS: AOP 3, 420 Rouser Rd., Coraopolis, PA 15108			
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 10

MATRIX TYPE — COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

REQUIRED ANALYSIS — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	App. IX VOCs (Quick Turn)	App. IX VOCs	App. IX SVOCs	REMARKS
3/2/02	0935	R7GW05R		X				3			Rush VOCs only
3/2/02	1410	R7GW04R		X				3			
3/2/02	1635	R7GW01R		X				3			
3/3/02	1410	R7GW09		X				3			
3/3/02	1615	R7GW10		X				3			
3/4/02	1300	3TB02		X				3			
3/1/02	1620	54TW15A-02	G						1	1	
3/1/02	1620	54TW15A-02D	G						1	1	
3/1/02	1642	54TW15A-04	G						1	1	
3/2/02	0725	54TW19-00	G						1	1	
3/2/02	0800	54TW19-05	G						1	1	
3/2/02	0912	54TW20-00	G						1	1	

HCl - PRESERVATIVE

RUSH

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	3/4/02	1500			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS Jon C. Edel Jr.	2/26/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	3/5/02	9:30	YES ✓ NO ○		5241490	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill #8058 5355 5784

STL Savannah

SWMU 54 NSRR

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

3-11

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU 3-NSRR	PROJECT NO.: 26002-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 732-485-1097	CLIENT FAX:
CLIENT NAME: Baker Environmental	CLIENT E-MAIL:	
CLIENT ADDRESS: AOP3, 420 Rouser Rd., Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 2 OF 2

STANDARD REPORT DELIVERY ( )
DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 10

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: App. IX VOCs	App. IX SVOCs									REMARKS
								NUMBER OF CONTAINERS SUBMITTED										
								1	1									
3/2/02	0940	54TW20-04	6					1	1									

PRESERVATIVE

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	3/4/02	1500			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/26/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	3/5/02	9:30	YES ( ) NO ( )		S241490	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 041700

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8230 7444 5555

STL Savannah

SWMU 54-NSRR

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

3-16

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: SWMU 3- NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakobsen	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 707-485-1097	CLIENT FAX:
CLIENT NAME: Baker Env.	CLIENT E-MAIL:	
CLIENT ADDRESS: Aof 3, 420 Rousse, Rd., Cornopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ( )
DATE DUE_____

EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE_____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 10

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	App. 1X SVOCs	App. 1X Cyanide	App. 1X Sulfide	App. 1X Pest/PCB						REMARKS
							PRESERVATIVE	—	NaOH/ZnACE	—							
							NUMBER OF CONTAINERS SUBMITTED										
3/3/02	0905	54TW19		X				2									
3/3/02	1030	54TW20		X				2									
3/3/02	1615	RZGW10		X					1	1	2						

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	3/4/02	1500			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/20/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	3/5/02	9:30	YES (✓) NO ( )		S241490	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

IMPS # 8230 7444 5555

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

3-16

Alternate Laboratory Name/Location
Phone:
Fax:

SWMU 54-NSRR

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)	PAGE	OF
SWMU 3- NSRR	26007-099	PR	1	1
STL (LAB) PROJECT MANAGER: Melanie Jakobsen	P.O. NUMBER	CONTRACT NO.		
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 707-485-1097	CLIENT FAX		
CLIENT NAME: BAKER ENV.	CLIENT E-MAIL			
CLIENT ADDRESS: AOP 3, 420 Rouser Rd., Coraopolis, PA 15108				
COMPANY CONTRACTING THIS WORK (if applicable)				

STANDARD REPORT DELIVERY ( )
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 10

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: App. IX SVOCs	App. IX Cyanide	App. IX Sulfide	App. IX Pest/PCB						REMARKS
							PRESERVATIVE	–	NONE	NONE	NONE						
							NUMBER OF CONTAINERS SUBMITTED										
3/3/02	0905	54TW19		X				2									
3/3/02	1030	54TW20		X				2									
3/3/02	1615	RZ6W10		X					1	1	2						

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	3/4/02	1500			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/20/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
J Swafford	3/5/02	9:30	YES ✓ NO ( )		S241490	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 038716

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 5375 5800

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

3-23

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU 3 - NSRR	PROJECT NO.: 26007-099	PROJECT LOCATION (STATE): AR	PAGE 1 OF 1
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ● DATE DUE 28 FAT
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 787-485-1097	CLIENT FAX	EXPEDITED REPORT DELIVERY (SURCHARGE) ○ DATE DUE
CLIENT NAME: Baker Env.	CLIENT E-MAIL		
CLIENT ADDRESS: AOP3, 420 Rouser Rd., Coraopolis, PA 15108			
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 4

PRESERVATIVE

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	App. IX VOCs (Quick Turn)	App. IX VOCs	App. IX Chlor. Herb.	App. IX Explosives	App. IX Silvics						REMARKS
								HCl	HCl									
								NUMBER OF CONTAINERS SUBMITTED										
3/5/02	1145	R7GW02R		X				3		2	2							
3/5/02	1145	R7GW02RD		X				3										
3/5/02	0825	54TW21		X					3	[redacted] JCE		2						Rush
3/5/02	1400	3TB03		X				3										
3/5/02	1145	R7GW02RMS		X				3										
3/5/02	1145	R7GW02RJ JCE MSD		X				3										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	3/5/02	1530			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/26/02	1530						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
S. Campbell	03/06/02	9:30	YES ○ NO ○		S241533	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

Serial Number 054000

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Master Air Waybill # 8078 5375 5946

STL Savannah

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

54-19

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: SWMU 54-NSRR	PROJECT NO.: 26003-099	PROJECT LOCATION (STATE): PR
STL (LAB) PROJECT MANAGER: Melanie Jakubsen	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: Jon EDEL	CLIENT PHONE: 703-485-1093	CLIENT FAX:
CLIENT NAME: Baker Environmental	CLIENT E-MAIL:	
CLIENT ADDRESS: Ap 3, 420 Rouser Rd., Coraopolis, PA 15108		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ●
DATE DUE 28 TAT

EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	TCLP Benzene	TCLP Lead	RCRA Metals							REMARKS
								PRESERVATIVE									
								1	1	1							
3/12/02	1530	54IDW-Soil	C					1	1	1							
3/12/02	1620	54IDW-Water *	C					1	1	1							*Samples need preserved by lab.
~~3/12/02~~	~~0830~~	~~54RBCK~~ *	~~C~~	~~X~~				~~3~~									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS			Jon C. Edel Jr.	3/13/02	1400			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS Jon C. Edel Jr.	2/4/02	1430						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
K	3/14/02	0841	YES ○ NO ○		5241801	

ORIGINAL – RETURN TO LABORATORY WITH SAMPLE(S)

APPENDIX C
Sampling and Analysis Investigation – 2000
Analytical Laboratory Results

Data Qualifiers:

U – Not Detected.
J – Estimated value.
UJ – Report quantitation limit is qualified as estimated.
NJ – Result is considered present at an estimated concentration.
R – Result is rejected and unusable.
D – Result value is based on dilution analysis.
B – Reported value was obtained from a reading that was less than the Project Reporting Limits but greater than or equal to the Method Detection Limit.

Notes:

mg/kg – milligrams per kilogram.
µg/kg – micrograms per kilogram.
µg/L – micrograms per liter.
mg/L – milligrams per liter.
ft/bgs – feet below ground surface.
L – Langlier Index.
PCU – primary color units.
TON – threshold odor number.

APPENDIX C.1
SWMU 53, Surface Soil – Pesticides/PCBs

APPENDIX C.1

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - PESTICIDES/PCBs
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SS01	53SS02	53SS03	53SS04	53SS05	53SS06	53SS06	53SB01
Sample ID	53SS01	53SS02	53SS03	53SS04	53SS05	53SS06	53SS06D	53SB01-00
Sample Date	12/13/00	12/13/00	12/13/00	12/13/00	12/13/00	12/13/00	12/13/00	12/14/00
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Pesticides/PCBs (ug/kg)								
4,4'-DDD	38 UJ	430 UJ	7.8 UJ	48 J	4.2 UJ	21 J	71 J	4.5 U
4,4'-DDE	300 J	970	28	310	8	140 J	360 J	4.5 U
4,4'-DDT	290 J	5,100 J	80 J	230	14	85 J	390 J	4.5 U
Aldrin	19 U	220 U	4 U	39 U	2.2 U	19 U	37 U	2.3 U
Chlordane	190 U	2,200 U	40 U	390 U	22 U	190 U	370 U	23 U
Dieldrin	38 UJ	430 UJ	7.8 UJ	76 U	4.2 U	36 U	72 U	4.5 UJ
Endosulfan I	19 U	220 U	4 U	39 U	2.2 U	19 U	37 U	2.3 U
Endosulfan II	38 UJ	430 UJ	7.8 UJ	76 U	4.2 U	36 U	72 U	4.5 U
Endosulfan sulfate	38 U	430 U	7.8 U	76 UJ	4.2 UJ	36 UJ	72 UJ	4.5 U
Endrin	38 UJ	430 UJ	7.8 UJ	76 UJ	4.2 UJ	36 UJ	72 UJ	4.5 UJ
Endrin aldehyde	38 U	430 U	7.8 U	76 U	4.2 U	36 U	72 U	4.5 UJ
Heptachlor	19 U	220 U	4 U	39 U	2.2 U	19 U	37 U	2.3 U
Heptachlor epoxide	19 UJ	220 UJ	4 UJ	39 UJ	2.2 UJ	3.2 J	37 UJ	2.3 U
Methoxychlor	190 U	2,200 U	40 U	390 U	22 U	190 U	370 U	23 UJ
Toxaphene	1,900 U	22,000 U	400 U	3,900 U	220 U	1,900 U	3,700 U	230 U
alpha-BHC	19 U	220 U	4 U	39 U	2.2 U	19 U	37 U	2.3 U
beta-BHC	19 U	220 U	4 U	39 U	2.2 U	19 U	37 U	2.3 U
delta-BHC	19 U	220 U	4 U	39 U	2.2 U	19 U	37 U	2.3 U
gamma-BHC (Lindane)	19 U	220 U	4 U	39 U	2.2 U	19 U	37 U	2.3 U
Aroclor-1016	380 U	4,300 U	78 U	760 U	42 U	360 U	720 U	45 U
Aroclor-1221	760 U	8,800 U	160 U	1,500 U	86 U	740 U	1,500 U	92 U
Aroclor-1232	380 U	4,300 U	78 U	760 U	42 U	360 U	720 U	45 U
Aroclor-1242	380 U	4,300 U	78 U	760 U	42 U	360 U	720 U	45 U
Aroclor-1248	380 U	4,300 U	78 U	760 U	42 U	360 U	720 U	45 U
Aroclor-1254	380 U	4,300 U	78 U	760 U	42 U	360 U	720 U	45 U
Aroclor-1260	380 UJ	4,300 UJ	78 UJ	760 U	42 U	360 U	720 U	45 U

APPENDIX C.1

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - PESTICIDES/PCBs
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB02	53SB02	53SB03	53SB04	53SB04	53SB05	53SB06
Sample ID	53SB02-00	53SB02-00D	53SB03-00	53SB04-00	53SB04-00D	53SB05-00	53SB06-00
Sample Date	12/14/00	12/14/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Pesticides/PCBs (ug/kg)							
4,4'-DDD	12 J	4 J	4.1 U	8.5 U	4.2 U	370 UJ	3.6 UJ
4,4'-DDE	47 J	25 J	0.5 J	19	11	390 NJ	32
4,4'-DDT	340 J	150 J	1.4 J	38	14	1,200 J	25
Aldrin	24 U	4.6 U	2.1 U	4.4 U	2.2 U	190 U	1.9 U
Chlordane	240 U	46 U	21 U	44 U	22 U	1,900 U	19 U
Dieldrin	46 UJ	8.9 UJ	4.1 UJ	8.5 UJ	4.2 UJ	370 UJ	3.6 U
Endosulfan I	24 U	4.6 U	2.1 U	4.4 U	2.2 U	190 U	1.9 U
Endosulfan II	46 U	8.9 U	4.1 U	8.5 U	4.2 U	370 UJ	3.6 U
Endosulfan sulfate	46 U	8.9 U	4.1 U	8.5 U	4.2 U	370 U	3.6 UJ
Endrin	46 UJ	8.9 UJ	4.1 UJ	8.5 UJ	4.2 UJ	370 UJ	3.6 UJ
Endrin aldehyde	46 UJ	8.9 UJ	4.1 UJ	8.5 UJ	4.2 UJ	370 U	3.6 U
Heptachlor	24 U	4.6 U	2.1 U	0.34 J	2.2 U	190 U	1.9 U
Heptachlor epoxide	24 U	4.6 U	2.1 U	4.4 U	2.2 U	190 UJ	0.43 J
Methoxychlor	240 UJ	46 UJ	21 UJ	44 UJ	22 UJ	1,900 U	19 U
Toxaphene	2,400 U	460 U	210 U	440 U	220 U	19,000 U	190 U
alpha-BHC	24 U	4.6 U	2.1 U	4.4 U	2.2 U	190 U	1.9 U
beta-BHC	24 U	4.6 U	2.1 U	4.4 U	2.2 U	190 U	1.9 U
delta-BHC	24 U	4.6 U	2.1 U	4.4 U	2.2 U	190 U	1.9 U
gamma-BHC (Lindane)	24 U	4.6 U	2.1 U	4.4 U	2.2 U	190 U	1.9 U
Aroclor-1016	460 U	89 U	41 U	85 U	42 U	3,700 U	36 U
Aroclor-1221	940 U	180 U	83 U	170 U	86 U	7,500 U	74 U
Aroclor-1232	460 U	89 U	41 U	85 U	42 U	3,700 U	36 U
Aroclor-1242	460 U	89 U	41 U	85 U	42 U	3,700 U	36 U
Aroclor-1248	460 U	89 U	41 U	85 U	42 U	3,700 U	36 U
Aroclor-1254	460 U	89 U	41 U	85 U	42 U	3,700 U	36 U
Aroclor-1260	460 U	89 U	41 U	85 U	42 U	3,700 UJ	36 U

APPENDIX C.2
SWMU 53, Surface Soil – Inorganics

APPENDIX C.2

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SS01	53SS02	53SS03	53SS04	53SS05	53SS06	53SS06	53SB01
Sample ID	53SS01	53SS02	53SS03	53SS04	53SS05	53SS06	53SS06D	53SB01-00
Sample Date	12/13/00	12/13/00	12/13/00	12/13/00	12/13/00	12/13/00	12/13/00	12/14/00
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Inorganics - Total (mg/kg)								
Antimony	0.53 J	0.97 J	3.1 J	6.1 J	1.5 J	5.9 J	0.71 J	2.5 UJ
Arsenic	5.6	1.5	3.1	3.1	1.3	4.7	2.2	2.3 J
Barium	170 J	110 J	390 J	670 J	200 J	630 J	160 J	100 J
Beryllium	0.2 J	0.38 J	0.33 J	0.29 J	0.21 J	0.21	0.15 J	0.28 J
Cadmium	0.94	0.81	1.6	2.1	2.8	3.6	1.1	0.54 J
Chromium	39 J	59 J	87 J	130 J	52 J	62 J	26 J	45 J
Cobalt	35	57	47	40	33	31	24	38
Copper	87 J	84 J	79 J	70 J	120 J	99 J	110 J	83
Lead	300	120	2,500	3,600	900	3,900	470	11 R
Mercury	0.021 J	0.056 J	0.046 J	0.061 J	0.027 J	0.069 J	0.013 J	0.018 J
Nickel	25	23	25	24	23	18	13	24
Selenium	1 U	1.2 U	1	0.71 J	0.72 J	0.59 J	1 U	1.2 U
Silver	1 U	1.2 U	1.2 U	1.1 U	1.3 U	1.1 U	1 U	1.2 U
Thallium	1 U	1.2 U	1.2 U	1.1 U	1.3 U	1.1 U	1 U	1.2 U
Tin	5.2 U	6 U	20	10	35	6.5	5 U	6.2 U
Vanadium	170	180	170	160	170	150	130	170
Zinc	580	350	2,200	3,100	3,300	5,800	1,600	83 J

APPENDIX C.2

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB02	53SB02	53SB03	53SB04	53SB04	53SB05	53SB06
Sample ID	53SB02-00	53SB02-00D	53SB03-00	53SB04-00	53SB04-00D	53SB05-00	53SB06-00
Sample Date	12/14/00	12/14/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Inorganics - Total (mg/kg)							
Antimony	1.2 J	0.8 J	2.2 UJ	2.3 UJ	1.1 J	2.8 J	2 UJ
Arsenic	3.4 J	2.7	0.86 J	2.9	4.7	5.6	1.1
Barium	120 J	100 J	120 J	82 J	100 J	270 J	68 J
Beryllium	0.24 J	0.2 J	0.25 J	0.17 J	0.19 J	0.17 J	0.16 J
Cadmium	1.5 J	0.87 J	0.48 J	1.2 J	1.5 J	2.3	0.47 J
Chromium	32 J	33 J	42 J	35 J	38 J	38 J	29 J
Cobalt	20	20	27	21	24	25	22
Copper	85	69	68	75	86	89 J	76 J
Lead	150 R	220 R	81 R	120 R	210 R	2,200	55
Mercury	0.047 J	0.041 J	0.028 J	0.039 J	0.043 J	0.037 J	0.011 J
Nickel	15	17	17	18	17	18	17
Selenium	1.4 U	1 J	0.58 J	0.72 J	0.65 J	1.3	1 U
Silver	1.4 U	1.2 U	1.1 U	1.2 U	1.3 U	1.1 U	1 U
Thallium	1.4 U	1.2 U	1.1 U	1.2 U	1.3 U	1.1 U	1 U
Tin	16 J	6.1 J	5.6 U	6.2 J	6.7 J	6.4	5 U
Vanadium	110	110	150	110	130	140	130
Zinc	1,000 J	530 J	300 J	530 J	750 J	2,400	120

APPENDIX C.3
SWMU 53, Subsurface Soil – Pesticides/PCBs

APPENDIX C.3

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - PESTICIDES/PCBs
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB01	53SB01	53SB02	53SB03	53SB04	53SB05	53SB06
Sample ID	53SB01-03	53SB01-05	53SB02-02	53SB03-01	53SB04-02	53SB05-02	53SB06-03
Sample Date	12/14/00	12/14/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	4.0-6.0	8.0-10.0	2.0-4.0	0.0-2.0	4.0-5.5	2.0-4.0	4.0-6.0
Pesticides/PCBs (ug/kg)							
alpha-BHC	2.2 U	1.9 U	1.9 U	2 U	1.9 U	3.9 U	2 U
beta-BHC	2.2 U	1.9 U	1.9 U	2 U	1.9 U	3.9 U	2 U
delta-BHC	2.2 U	1.9 U	1.9 U	2 U	1.9 U	3.9 U	2 U
gamma-BHC (Lindane)	2.2 U	1.9 U	1.9 U	2 U	1.9 U	3.9 U	2 U
Heptachlor	2.2 U	1.9 U	1.9 U	2 U	1.9 U	3.9 U	2 U
Aldrin	2.2 U	1.9 U	1.9 U	2 U	1.9 U	3.9 U	2 U
Heptachlor epoxide	2.2 U	1.9 U	1.9 U	2 U	1.9 U	3.9 UJ	2 UJ
Dieldrin	4.2 UJ	3.7 U	3.6 UJ	3.8 UJ	3.7 UJ	7.5 UJ	3.8 U
4,4'-DDE	4.2 U	3.7 U	3.6 U	3.8 U	3.7 U	7.5 U	3.8 U
Endrin	4.2 UJ	3.7 U	3.6 UJ	3.8 UJ	3.7 UJ	7.5 UJ	3.8 UJ
Endosulfan II	4.2 U	3.7 U	3.6 U	3.8 U	3.7 U	7.5 UJ	3.8 U
4,4'-DDD	4.2 U	3.7 U	3.6 U	3.8 U	3.7 U	7.5 UJ	3.8 UJ
Endosulfan sulfate	4.2 U	3.7 U	3.6 U	3.8 U	3.7 U	7.5 U	3.8 UJ
4,4'-DDT	4.2 U	3.7 U	3.6 U	3.8 U	3.7 U	24 J	1.1 J
Methoxychlor	22 UJ	19 U	19 UJ	20 UJ	19 UJ	39 U	20 U
Endrin aldehyde	4.2 UJ	3.7 U	3.6 UJ	3.8 UJ	3.7 UJ	7.5 U	3.8 U
Toxaphene	220 U	190 U	190 U	200 U	190 U	390 U	200 U
Aroclor-1016	42 U	37 U	36 U	38 U	37 U	75 U	38 U
Aroclor-1221	86 U	74 U	74 U	77 U	74 U	150 U	78 U
Aroclor-1232	42 U	37 U	36 U	38 U	37 U	75 U	38 U
Aroclor-1242	42 U	37 U	36 U	38 U	37 U	75 U	38 U
Aroclor-1248	42 U	37 U	36 U	38 U	37 U	75 U	38 U
Aroclor-1254	42 U	37 U	36 U	38 U	37 U	75 U	38 U
Aroclor-1260	42 U	37 U	36 U	38 U	37 U	75 UJ	38 U
Chlordane	22 U	19 U	19 U	20 U	19 U	39 U	20 U

APPENDIX C.4
SWMU 53, Subsurface Soil – Inorganics

APPENDIX C.4

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL -INORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB01	53SB01	53SB02	53SB03	53SB04	53SB05	53SB06
Sample ID	53SB01-03	53SB01-05	53SB02-02	53SB03-01	53SB04-02	53SB05-02	53SB06-03
Sample Date	12/14/00	12/14/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	4.0-6.0	8.0-10.0	2.0-4.0	0.0-2.0	4.0-5.5	2.0-4.0	4.0-6.0
Inorganics - Total (mg/kg)							
Antimony	2.6 UJ	2.2 UJ	2.2 UJ	2.1 UJ	2.2 UJ	2.3 UJ	2.3 UJ
Arsenic	1.6 J	0.79 J	0.61 J	0.59 J	1.6	0.56 J	0.88 J
Barium	43 J	1.5 J	57 J	170 J	130 J	160 J	130 J
Beryllium	0.81	0.19 J	0.17 J	0.28 J	0.27 J	0.24 J	0.42 J
Cadmium	0.46 J	0.24 J	0.36 J	0.37 J	0.54 J	0.24 J	0.31 J
Chromium	28 J	8 J	82 J	73 J	150 J	50 J	70 J
Cobalt	44	7.8	23	38	33	53	56
Copper	74	75	100	84	54	57 J	9.2 J
Lead	0.87 R	0.73 R	0.77 R	7.8 R	8.3 R	10	2.8
Mercury	0.023 UJ	0.0029 J	0.02 UJ	0.019 UJ	0.022 UJ	0.013 J	0.021 UJ
Nickel	19	12	42	30	40	18	32
Selenium	1.3 U	1.1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Silver	1.3 U	1.1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Thallium	1.3 U	1.1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Tin	6.4 U	5.6 U	5.5 U	5.2 U	5.6 U	5.7 U	5.8 U
Vanadium	170	110	120	150	140	120	120
Zinc	76 J	47 J	36 J	46 J	80 J	36	60

APPENDIX C.5
SWMU 54, Surface Soil – Organics

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Volatiles (ug/kg)								
Dichlorodifluoromethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
Chloromethane	11 U	11 U	13 U	11 U	11 UJ	11 U	11 U	11 U
Vinyl chloride	11 U	11 U	13 U	11 U	11 UJ	11 U	11 U	11 U
Bromomethane	11 U	11 U	13 U	11 U	11 UJ	11 U	11 U	11 U
Chloroethane	11 U	11 U	13 U	11 U	11 UJ	11 U	11 U	11 U
Trichlorofluoromethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
1,1-Dichloroethene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
Methylene chloride	5.5 U	5.4 U	6.8	4.2 J	4.1 J	3.2 J	5.6 U	5.5 U
trans-1,2-Dichloroethene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
1,1-Dichloroethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
Chloroform	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
1,1,1-Trichloroethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Carbon tetrachloride	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Benzene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
1,2-Dichloroethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Trichloroethene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
1,2-Dichloropropane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Bromodichloromethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Dibromomethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Toluene	7.8	10	2.7 J	2.1 J	5.6 U	3 J	2.7 J	4.4 J
1,1,2-Trichloroethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Tetrachloroethene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Dibromochloromethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
1,2-Dibromoethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Chlorobenzene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	18
1,1,1,2-Tetrachloroethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Ethylbenzene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Styrene	5.5 U	2.1 J	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Bromoform	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
1,1,2,2-Tetrachloroethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
1,2,3-Trichloropropane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
1,2-Dibromo-3-chloropropane	11 U	11 U	13 U	11 U	11 U	11 U	11 U	11 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Volatiles (Cont.) (ug/kg)								
Acrolein	110 R	110 R	130 UJ	110 UJ	110 UJ	110 UJ	110 R	110 R
Acetone	55 U	54 U	66 U	56 U	56 UJ	54 U	56 U	55 U
Iodomethane	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
Acetonitrile	220 U	220 U	260 U	220 U	220 UJ	220 U	220 U	220 U
Carbon disulfide	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
Vinyl acetate	11 U	11 U	13 U	11 U	11 UJ	11 U	11 U	11 U
2-Butanone	27 U	27 U	33 U	28 U	28 UJ	27 U	28 U	27 U
4-Methyl-2-pentanone	27 U	27 U	33 U	28 U	28 U	27 U	28 U	27 U
cis-1,3-Dichloropropene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
trans-1,3-Dichloropropene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
2-Hexanone	27 U	27 U	33 U	28 U	28 U	27 U	28 U	27 U
trans-1,4-Dichloro-2-butene	11 U	11 U	13 U	11 U	11 U	11 U	11 U	11 U
Xylenes, Total	11 U	11 U	13 U	11 U	11 U	11 U	11 U	11 U
Chloroprene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
Pentachloroethane	27 U	27 U	33 U	28 U	28 UJ	27 U	28 U	27 U
Acrylonitrile	110 U	110 U	130 U	110 U	110 UJ	110 U	110 U	110 U
3-Chloro-1-Propene	5.5 U	5.4 U	6.6 U	5.6 U	5.6 UJ	5.4 U	5.6 U	5.5 U
Propionitrile	110 U	110 U	130 U	110 U	110 UJ	110 U	110 U	110 U
Methacrylonitrile	110 U	110 U	130 U	110 U	110 UJ	110 U	110 U	110 U
Isobutanol	220 U	220 U	260 U	220 U	220 UJ	220 U	220 U	220 U
Methyl methacrylate	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U
Ethyl methacrylate	5.5 U	5.4 U	6.6 U	5.6 U	5.6 U	5.4 U	5.6 U	5.5 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Semivolatiles (ug/kg)								
Aniline	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Phenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
bis(2-Chloroethyl)ether	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Chlorophenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1,3-Dichlorobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1,4-Dichlorobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Benzyl alcohol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1,2-Dichlorobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Methylphenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Bis(2-Chloroisopropyl) ether	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
N-Nitrosodi-n-propylamine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
3&4-Methylphenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Hexachloroethane	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Nitrobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Isophorone	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Nitrophenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2,4-Dimethylphenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
bis(2-Chloroethoxy)methane	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2,4-Dinitrophenol	19,000 U	18,000 U	22,000 U	19,000 U	19,000 U	18,000 U	19,000 U	19,000 U
1,2,4-Trichlorobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Naphthalene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
4-Chloroaniline	7,500 U	7,200 U	8,700 U	7,400 U	7,400 U	7,200 U	7,400 U	7,200 U
Hexachlorobutadiene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
4-Chloro-3-methylphenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Methylnaphthalene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Hexachlorocyclopentadiene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2,4,5-Trichlorophenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2,4,6-Trichlorophenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Chloronaphthalene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Nitroaniline	19,000 U	18,000 U	22,000 U	19,000 U	19,000 U	18,000 U	19,000 U	19,000 U
Acenaphthylene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2,6-Dinitrotoluene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Semivolatiles (Cont.) (ug/kg)								
3-Nitroaniline	19,000 U	18,000 U	22,000 U	19,000 U	19,000 U	18,000 U	19,000 U	19,000 U
Acenaphthene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2,4-Dichlorophenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Dibenzofuran	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
4-Nitrophenol	19,000 U	18,000 U	22,000 U	19,000 U	19,000 U	18,000 U	19,000 U	19,000 U
2,4-Dinitrotoluene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Fluorene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2,3,4,6-Tetrachlorophenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Dimethylphthalate	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Diethylphthalate	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
4-Chlorophenyl-Phenylether	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
4-Nitroaniline	19,000 U	18,000 U	22,000 U	19,000 U	19,000 U	18,000 U	19,000 U	19,000 U
4,6-Dinitro-2-methylphenol	19,000 U	18,000 U	22,000 U	19,000 U	19,000 U	18,000 U	19,000 U	19,000 U
N-Nitrosodiphenylamine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
4-Bromophenylphenyl ether	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Hexachlorobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Pentachlorophenol	19,000 U	18,000 U	22,000 U	19,000 U	19,000 U	18,000 U	19,000 U	19,000 U
Phenanthrene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	220 J
Anthracene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Di-n-butylphthalate	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Fluoranthene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	420 J	630 J
Pyrene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Butylbenzylphthalate	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Benzo(a)anthracene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	350 J
3,3'-Dichlorobenzidine	7,500 U	7,200 U	8,700 U	7,400 U	7,400 U	7,200 U	7,400 U	7,200 U
Chrysene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
bis(2-Ethylhexyl)phthalate	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Di-n-octylphthalate	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Benzo(b)fluoranthene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Benzo(k)fluoranthene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	560 J
Benzo(a)pyrene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	580 J
Indeno(1,2,3-cd)pyrene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Semivolatiles (Cont.) (ug/kg)								
Dibenzo(a,h)anthracene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Pyridine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Benzo(g,h,i)perylene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
N-Nitrosodimethylamine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1,4-Dioxane	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Picoline	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Methyl methanesulfonate	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Ethyl methanesulfonate	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Acetophenone	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
a,a-Dimethylphenethylamine	760,000 U	730,000 U	880,000 U	750,000 U	750,000 U	730,000 U	750,000 U	740,000 U
2,6-Dichlorophenol	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
N-Nitrosopiperidine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
N-Nitrosodi-n-butylamine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1,2,4,5-Tetrachlorobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Pentachlorobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1-Naphthylamine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Naphthylamine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Phenacetin	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Pentachloronitrobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Pronamide	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
7,12-Dimethylbenz(a)anthracen	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
3-Methylcholanthrene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
N-Nitrosomethylethylamine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
N-Nitrosodiethylamine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
N-Nitrosopyrrolidine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
o-Toluidine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1,4-Phenylenediamine	19,000 UJ	18,000 UJ	22,000 UJ	19,000 UJ	19,000 UJ	18,000 UJ	19,000 UJ	19,000 UJ
Hexachloropropene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Safrole	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Isosafrole	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1,4-Naphthoquinone	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
m-Dinitrobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Semivolatiles (Cont.) (ug/kg)								
5-Nitro-o-toluidine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
1,3,5-Trinitrobenzene	3,800 R	3,600 R	4,300 R	3,700 R	3,700 R	3,600 R	3,700 R	3,600 R
4-Aminobiphenyl	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Dinoseb	3,800 UJ	3,600 UJ	4,300 UJ	3,700 UJ	3,700 UJ	3,600 UJ	3,700 UJ	3,600 UJ
4-Nitroquinoline-1-oxide	38,000 R	36,000 R	43,000 R	37,000 R	37,000 R	36,000 R	37,000 R	36,000 R
Methapyrilene	760,000 U	730,000 U	880,000 U	750,000 U	750,000 U	730,000 U	750,000 U	740,000 U
p-Dimethylaminoazobenzene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
2-Acetylaminofluorene	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
3,3'-Dimethylbenzidine	19,000 U	18,000 U	22,000 U	19,000 U	19,000 U	18,000 U	19,000 U	19,000 U
N-Nitrosomorpholine	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Aramite, Total	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Hexachlorophene	1,900,000 U	1,800,000 U	2,200,000 U	1,900,000 U	1,900,000 U	1,800,000 U	1,900,000 U	1,900,000 U
Diallate, Total	3,800 U	3,600 U	4,300 U	3,700 U	3,700 U	3,600 U	3,700 U	3,600 U
Pesticides/PCBs (ug/kg)								
alpha-BHC	9.6 U	9.2 U	2.2 U	9.6 U	9.6 U	1.8 U	3.8 U	1.9 U
gamma-BHC (Lindane)	9.6 UJ	9.2 UJ	2.2 UJ	9.6 UJ	9.6 UJ	1.8 UJ	3.8 UJ	1.9 UJ
beta-BHC	9.6 U	9.2 U	2.2 U	9.6 U	9.6 U	1.8 U	3.8 U	1.9 U
Heptachlor	9.6 UJ	9.2 UJ	2.2 UJ	9.6 UJ	9.6 UJ	1.8 J	3.8 UJ	1.9 UJ
delta-BHC	9.6 U	9.2 U	2.2 U	9.6 U	9.6 U	1.8 U	3.8 U	1.9 U
Aldrin	9.6 UJ	9.2 UJ	2.2 UJ	9.6 UJ	9.6 UJ	1.8 UJ	3.8 UJ	1.9 UJ
Heptachlor epoxide	9.6 U	9.2 U	2.2 U	9.6 U	9.6 U	1.8 U	3.8 U	1.9 U
Isodrin	19 UJ	18 UJ	4.3 UJ	18 UJ	18 UJ	3.6 UJ	7.4 UJ	3.6 UJ
Endosulfan I	9.6 U	9.2 U	2.2 U	9.6 U	9.6 U	1.8 U	3.8 U	1.9 U
4,4'-DDE	9.1 J	51 J	9.8 J	5.4 J	9.6 J	6.7 J	28 J	22 J
Dieldrin	19 UJ	18 UJ	4.3 UJ	18 UJ	18 UJ	3.6 UJ	7.4 UJ	3.6 UJ
Chlorobenzilate	96 UJ	92 UJ	22 UJ	96 UJ	96 UJ	18 UJ	38 UJ	19 UJ
Endrin	19 UJ	18 UJ	4.3 UJ	18 UJ	18 UJ	3.6 UJ	7.4 UJ	3.6 UJ
4,4'-DDD	19 U	18 U	2.5 J	18 U	18 U	1.2 J	6.9 J	2.3 J
Endosulfan II	19 U	18 U	4.3 U	18 U	18 U	3.6 U	7.4 U	3.6 U
Kepone	960 UJ	920 UJ	220 UJ	960 UJ	960 UJ	180 UJ	380 UJ	190 UJ
4,4'-DDT	19 U	15 J	4.3 U	18 U	18 U	1.7 J	2 J	4.6

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Pesticides/PCBs (Cont.) (ug/kg)								
Endrin aldehyde	19 UJ	18 UJ	4.3 UJ	18 UJ	1.9 J	3.6 UJ	7.4 UJ	3.6 UJ
Endosulfan sulfate	19 U	18 U	4.3 U	18 U	18 U	3.6 U	7.4 U	3.6 U
Methoxychlor	96 UJ	92 UJ	22 UJ	96 UJ	96 UJ	18 UJ	38 UJ	19 UJ
Aroclor-1016	190 U	180 U	43 U	180 U	180 U	36 U	74 U	36 U
Aroclor-1221	380 U	360 U	88 U	380 U	380 U	73 U	150 U	74 U
Aroclor-1232	190 U	180 U	43 U	180 U	180 U	36 U	74 U	36 U
Aroclor-1242	190 U	180 U	43 U	180 U	180 U	36 U	74 U	36 U
Aroclor-1248	190 U	180 U	43 U	180 U	180 U	36 U	74 U	36 U
Aroclor-1254	190 U	180 U	43 U	180 U	180 U	36 U	74 U	36 U
Aroclor-1260	190 U	180 U	43 U	180 U	180 U	36 U	74 U	36 U
Chlordane	96 U	92 U	22 U	96 U	96 U	18 U	38 U	19 U
Toxaphene	960 U	920 U	220 U	960 U	960 U	180 U	380 U	190 U
OP-Pesticides (ug/kg)								
Dimethoate	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
Disulfoton	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
Famphur	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
Methyl parathion	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
O,O,O-Triethylphosphorothioat	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
Parathion	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
Phorate	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
Sulfotepp	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
Thionazin	3800 U	3600 U	4300 U	3700 U	3700 U	3600 U	3700 U	3600 U
Chlorinated Herbicides (ug/kg)								
2,4-D	9.4 U	9 U	11 U	9.3 U	9.3 U	9 U	9.3 U	9.1 U
2,4,5-TP	9.4 U	9 U	11 U	1.4 J	9.3 U	9 U	9.3 U	9.1 U
2,4,5-T	9.4 U	9 U	11 U	9.3 U	9.3 U	9 U	9.3 U	9.1 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Dioxin/Furans (ug/kg)								
TCDD	0.55 U	0.57 U	0.54 U	0.66 U	0.56 U	0.56 U	0.54 U	0.56 U
PCDF	0.55 U	0.57 U	0.54 U	0.66 U	0.56 U	0.56 U	0.54 U	0.56 U
PCDD	0.55 U	0.57 U	0.54 U	0.66 U	0.56 U	0.56 U	0.54 U	0.56 U
HCDF	0.55 U	0.57 U	0.54 U	0.66 U	0.56 U	0.56 U	0.54 U	0.56 U
HCDD	0.55 U	0.57 U	0.54 U	0.66 U	0.56 U	0.56 U	0.54 U	0.56 U
TCDF	0.55 U	0.57 U	0.54 U	0.66 U	0.56 U	0.56 U	0.54 U	0.56 U
TPH (mg/kg)								
Diesel Range Organics	7.5 U	5.7 J	320	33 J	95 J	47	35	28
Gasoline Range Organics	0.28 U	0.27 U	0.33 U	0.29 U	0.28 U	0.27 U	0.11 J	0.27 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/14/00	12/14/00	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Volatiles (ug/kg)										
Dichlorodifluoromethane	7.8 U	5.5 U	6 UJ	5.6 UJ	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 UJ
Chloromethane	16 U	11 U	12 UJ	11 UJ	12 U	11 U	12 U	11 U	11 U	11 UJ
Vinyl chloride	16 U	11 U	12 UJ	11 UJ	12 U	11 U	12 U	11 U	11 U	11 UJ
Bromomethane	16 U	11 U	12 UJ	11 UJ	12 U	11 U	12 U	11 U	11 U	11 UJ
Chloroethane	16 U	11 U	12 UJ	11 UJ	12 U	11 U	12 U	11 U	11 U	11 UJ
Trichlorofluoromethane	7.8 U	5.5 U	6 UJ	5.6 UJ	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 UJ
1,1-Dichloroethene	7.8 U	5.5 U	6 UJ	5.6 UJ	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 UJ
Methylene chloride	9.1	6.4	6 UJ	5.6 UJ	5.8 U	3.7 J	4 J	5.6 U	5.5 U	5.4 UJ
trans-1,2-Dichloroethene	7.8 U	5.5 U	6 UJ	5.6 UJ	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 UJ
1,1-Dichloroethane	7.8 U	5.5 U	6 UJ	5.6 UJ	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Chloroform	7.8 U	5.5 U	6 UJ	5.6 UJ	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 UJ
1,1,1-Trichloroethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Carbon tetrachloride	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Benzene	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
1,2-Dichloroethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Trichloroethene	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
1,2-Dichloropropane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Bromodichloromethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Dibromomethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Toluene	15	13	6 U	5.6 U	6.7	5.6 U	6.1 U	15	4.6 J	2.8 J
1,1,2-Trichloroethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Tetrachloroethene	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Dibromochloromethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
1,2-Dibromoethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Chlorobenzene	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
1,1,1,2-Tetrachloroethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Ethylbenzene	7.8 U	5.5 U	6 U	3.8 J	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Styrene	7.8 U	2.4 J	6 U	22	5.8 U	5.6 U	6.1 U	2.5 J	5.5 U	5.4 U
Bromoform	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
1,1,2,2-Tetrachloroethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
1,2,3-Trichloropropane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
1,2-Dibromo-3-chloropropane	16 U	11 U	12 U	11 U	12 UJ	11 U	12 U	11 U	11 U	11 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/14/00	12/14/00	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Volatiles (Cont.) (ug/kg)										
Acrolein	160 UJ	110 UJ	120 R	110 R	120 R	110 UJ	120 UJ	110 R	110 R	110 R
Acetone	78 U	55 U	48 J	9.6 J	58 U	4.2 J	61 U	56 U	55 U	54 U
Iodomethane	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Acetonitrile	310 U	220 U	240 U	220 U	230 U	220 U	240 U	220 U	220 U	220 U
Carbon disulfide	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Vinyl acetate	16 U	11 U	12 UJ	11 UJ	12 U	11 U	12 U	11 U	11 U	11 UJ
2-Butanone	39 U	27 U	30 UJ	28 UJ	29 U	28 U	30 U	28 U	27 U	27 UJ
4-Methyl-2-pentanone	39 U	27 U	30 U	28 U	29 U	28 U	30 U	28 U	27 U	27 U
cis-1,3-Dichloropropene	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
trans-1,3-Dichloropropene	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
2-Hexanone	39 U	27 U	30 U	28 U	29 U	28 U	30 U	28 U	27 U	27 U
trans-1,4-Dichloro-2-butene	16 U	11 U	12 U	11 U	12 UJ	11 U	12 U	11 U	11 U	11 U
Xylenes, Total	16 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Chloroprene	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Pentachloroethane	39 U	27 U	30 U	28 U	29 UJ	28 U	30 U	28 U	27 U	27 U
Acrylonitrile	160 U	110 U	120 U	110 U	120 U	110 U	120 U	110 U	110 U	110 U
3-Chloro-1-Propene	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Propionitrile	160 U	110 U	120 U	110 U	120 U	110 U	120 U	110 U	110 U	110 U
Methacrylonitrile	160 U	110 U	120 U	110 U	120 U	110 U	120 U	110 U	110 U	110 U
Isobutanol	310 U	220 U	240 U	220 U	230 U	220 U	240 U	220 U	220 U	220 U
Methyl methacrylate	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U
Ethyl methacrylate	7.8 U	5.5 U	6 U	5.6 U	5.8 U	5.6 U	6.1 U	5.6 U	5.5 U	5.4 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/14/00	12/14/00	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Semivolatiles (ug/kg)										
Aniline	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Phenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
bis(2-Chloroethyl)ether	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2-Chlorophenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
1,3-Dichlorobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
1,4-Dichlorobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Benzyl alcohol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
1,2-Dichlorobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2-Methylphenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Bis(2-Chloroisopropyl) ether	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
N-Nitrosodi-n-propylamine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
3&4-Methylphenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Hexachloroethane	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Nitrobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Isophorone	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2-Nitrophenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2,4-Dimethylphenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
bis(2-Chloroethoxy)methane	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2,4-Dinitrophenol	26,000 U	19000 U	2000 U	1900 U	20000 U	19000 U	21000 U	19000 U	19000 U	18000 U
1,2,4-Trichlorobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Naphthalene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
4-Chloroaniline	10,000 U	7200 U	800 U	730 U	7700 U	7400 U	8000 U	7300 U	7200 U	7100 U
Hexachlorobutadiene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
4-Chloro-3-methylphenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2-Methylnaphthalene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Hexachlorocyclopentadiene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2,4,5-Trichlorophenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2,4,6-Trichlorophenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2-Chloronaphthalene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2-Nitroaniline	26,000 U	19000 U	2000 U	1900 U	20000 U	19000 U	21000 U	19000 U	19000 U	18000 U
Acenaphthylene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2,6-Dinitrotoluene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/14/00	12/14/00	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Semivolatiles (Cont.) (ug/kg)										
3-Nitroaniline	26,000 U	19000 U	2000 U	1900 U	20000 U	19000 U	21000 U	19000 U	19000 U	18000 U
Acenaphthene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2,4-Dichlorophenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Dibenzofuran	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
4-Nitrophenol	26,000 U	19000 U	2000 U	1900 U	20000 U	19000 R	21000 U	19000 U	19000 U	18000 U
2,4-Dinitrotoluene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Fluorene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2,3,4,6-Tetrachlorophenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Dimethylphthalate	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Diethylphthalate	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
4-Chlorophenyl-Phenylether	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
4-Nitroaniline	26,000 U	19000 U	2000 U	1900 U	20000 U	19000 U	21000 U	19000 U	19000 U	18000 U
4,6-Dinitro-2-methylphenol	26,000 U	19000 U	2000 U	1900 U	20000 U	19000 U	21000 U	19000 U	19000 U	18000 U
N-Nitrosodiphenylamine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
4-Bromophenylphenyl ether	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Hexachlorobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Pentachlorophenol	26,000 U	19000 U	2000 U	1900 U	20000 U	19000 R	21000 U	19000 U	19000 U	18000 U
Phenanthrene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Anthracene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Di-n-butylphthalate	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Fluoranthene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Pyrene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Butylbenzylphthalate	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Benzo(a)anthracene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
3,3'-Dichlorobenzidine	10,000 U	7200 U	800 U	730 U	7700 U	7400 U	8000 U	7300 U	7200 U	7100 U
Chrysene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
bis(2-Ethylhexyl)phthalate	5,200 U	3600 U	400 U	370 U	3800 U	530 J	4000 U	3700 U	3600 U	3500 U
Di-n-octylphthalate	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Benzo(b)fluoranthene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Benzo(k)fluoranthene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Benzo(a)pyrene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Indeno(1,2,3-cd)pyrene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/14/00	12/14/00	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Semivolatiles (Cont.) (ug/kg)										
Dibenzo(a,h)anthracene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Pyridine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Benzo(g,h,i)perylene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
N-Nitrosodimethylamine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 UJ
1,4-Dioxane	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2-Picoline	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Methyl methanesulfonate	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Ethyl methanesulfonate	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Acetophenone	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
a,a-Dimethylphenethylamine	1,000,000 U	740000 U	81000 U	74000 U	780000 U	750000 U	820000 U	740000 U	740000 U	720000 U
2,6-Dichlorophenol	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
N-Nitrosopiperidine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 UJ
N-Nitrosodi-n-butylamine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
1,2,4,5-Tetrachlorobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Pentachlorobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
1-Naphthylamine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
2-Naphthylamine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Phenacetin	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Pentachloronitrobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Pronamide	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
7,12-Dimethylbenz(a)anthracen	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
3-Methylcholanthrene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
N-Nitrosomethylethylamine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
N-Nitrosodiethylamine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
N-Nitrosopyrrolidine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
o-Toluidine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
1,4-Phenylenediamine	26,000 UJ	19000 UJ	2000 U	1900 U	20000 UJ	19000 UJ	21000 UJ	19000 UJ	19000 UJ	18000 UJ
Hexachloropropene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Safrole	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Isosafrole	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
1,4-Naphthoquinone	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
m-Dinitrobenzene	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/14/00	12/14/00	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Semivolatiles (Cont.) (ug/kg)										
5-Nitro-o-toluidine	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
1,3,5-Trinitrobenzene	5,200 R	3600 R	400 U	370 U	3800 R	3700 R	4000 R	3700 R	3600 R	3500 R
4-Aminobiphenyl	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Dinoseb	5,200 UJ	3600 UJ	400 U	370 U	3800 UJ	3700 UJ	4000 UJ	3700 UJ	3600 UJ	3500 UJ
4-Nitroquinoline-1-oxide	52,000 R	36000 R	4000 R	3700 R	38000 R	37000 R	40000 R	37000 R	36000 R	35000 R
Methapyrilene	1,000,000 U	740,000 U	81,000 U	74,000 U	780,000 U	750,000 U	820,000 U	740,000 U	740,000 U	720,000 U
p-Dimethylaminoazobenzene	5,200 U	3,600 U	400 U	370 U	3,800 U	3,700 U	4,000 U	3,700 U	3,600 U	3,500 U
2-Acetylaminofluorene	5,200 U	3,600 U	400 U	370 U	3,800 U	3,700 U	4,000 U	3,700 U	3,600 U	3,500 U
3,3'-Dimethylbenzidine	26,000 U	19,000 U	2,000 U	1,900 U	20,000 U	19,000 U	21,000 U	19,000 U	19,000 U	18,000 U
N-Nitrosomorpholine	5,200 U	3,600 U	400 U	370 U	3,800 U	3,700 U	4,000 U	3,700 U	3,600 U	3,500 U
Aramite, Total	5,200 U	3,600 U	400 U	370 U	3,800 U	3,700 U	4,000 U	3,700 U	3,600 U	3,500 U
Hexachlorophene	2,600,000 U	1,900,000 U	200,000 U	190,000 U	2,000,000 U	1,900,000 U	2,100,000 U	1,900,000 U	1,900,000 U	1,800,000 U
Diallate, Total	5,200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Pesticides/PCBs (ug/kg)										
alpha-BHC	13 U	9.3 U	2 U	1.9 U	9.9 U	7.6 U	2.1 U	7.6 U	3.7 U	1.8 U
gamma-BHC (Lindane)	13 UJ	9.3 UJ	2 U	1.9 U	9.9 UJ	7.6 UJ	2.1 UJ	7.6 UJ	3.7 UJ	1.8 U
beta-BHC	13 U	9.3 U	2 U	1.9 U	9.9 U	7.6 U	2.1 U	7.6 U	3.7 U	1.8 U
Heptachlor	13 UJ	9.3 UJ	2 UJ	1.9 UJ	9.9 UJ	7.6 UJ	2.1 UJ	7.6 UJ	3.7 UJ	1.8 UJ
delta-BHC	13 U	9.3 U	2 U	1.9 U	9.9 U	7.6 U	2.1 U	7.6 U	3.7 U	1.8 U
Aldrin	13 UJ	9.3 UJ	2 U	1.9 U	9.9 UJ	7.6 UJ	2.1 UJ	7.6 UJ	3.7 UJ	1.8 U
Heptachlor epoxide	13 U	9.3 U	2 U	1.9 U	9.9 U	7.6 U	2.1 U	7.6 U	3.7 U	1.8 U
Isodrin	26 UJ	18 UJ	4 U	3.7 U	19 UJ	15 UJ	4 UJ	15 UJ	7.2 UJ	3.5 U
Endosulfan I	13 U	9.3 U	2 U	1.9 U	9.9 U	7.6 U	2.1 U	7.6 U	3.7 U	1.8 U
4,4'-DDE	3.3 J	18 J	18	16	15 J	46 J	14 J	43 J	36 J	11
Dieldrin	5.4 J	18 UJ	4 U	3.7 U	19 UJ	15 UJ	4 UJ	15 UJ	7.2 UJ	3.5 U
Chlorobenzilate	130 UJ	93 UJ	20 UJ	19 UJ	99 UJ	76 UJ	21 UJ	76 UJ	37 UJ	18 UJ
Endrin	26 UJ	18 UJ	4 UJ	3.7 UJ	19 UJ	15 UJ	4 UJ	15 UJ	7.2 UJ	3.5 UJ
4,4'-DDD	26 U	18 U	2.4 J	3.7 U	19 U	15 UJ	1.1 J	3.5 J	1.9 J	1.6 J
Endosulfan II	26 U	18 U	4 UJ	3.7 UJ	19 U	15 U	4 U	15 U	7.2 U	3.5 UJ
Kepone	1300 UJ	930 UJ	200 UJ	190 UJ	990 UJ	760 UJ	210 UJ	760 UJ	370 UJ	180 UJ
4,4'-DDT	2.8 J	2.3 J	1.9 J	2.1 J	3.5 J	4.5 J	1.2 J	7.5 J	5.6 J	3.4 J

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/14/00	12/14/00	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Pesticides/PCBs (Cont.) (ug/k										
Endrin aldehyde	26 UJ	18 UJ	4 U	3.7 U	19 UJ	15 UJ	4 UJ	15 UJ	7.2 UJ	3.5 U
Endosulfan sulfate	26 U	18 U	4 U	3.7 U	19 U	15 U	4 U	15 U	7.2 U	3.5 U
Methoxychlor	130 UJ	93 UJ	20 UJ	19 UJ	99 UJ	76 UJ	21 UJ	76 UJ	37 UJ	18 UJ
Aroclor-1016	260 U	180 U	40 U	37 U	190 U	150 U	40 U	150 U	72 U	35 U
Aroclor-1221	520 U	370 U	81 U	74 U	390 U	300 U	82 U	300 U	150 U	72 U
Aroclor-1232	260 U	180 U	40 U	37 U	190 U	150 U	40 U	150 U	72 U	35 U
Aroclor-1242	260 U	180 U	40 U	37 U	190 U	150 U	40 U	150 U	72 U	35 U
Aroclor-1248	260 U	180 U	40 U	37 U	190 U	150 U	40 U	150 U	72 U	35 U
Aroclor-1254	260 U	180 U	40 U	37 U	190 U	150 U	40 U	150 U	72 U	35 U
Aroclor-1260	260 U	180 U	40 U	37 U	190 U	150 U	40 U	150 U	72 U	35 U
Chlordane	130 U	93 U	20 U	19 U	99 U	76 U	21 U	76 U	37 U	18 U
Toxaphene	1300 U	930 U	200 U	190 U	990 U	760 U	210 U	760 U	370 U	180 U
OP-Pesticides (ug/kg)										
Dimethoate	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Disulfoton	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Famphur	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Methyl parathion	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
O,O,O-Triethylphosphorothioat	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Parathion	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Phorate	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Sulfotepp	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Thionazin	5200 U	3600 U	400 U	370 U	3800 U	3700 U	4000 U	3700 U	3600 U	3500 U
Chlorinated Herbicides (ug/k										
2,4-D	13 U	9.1 U	10 UJ	9.2 UJ	9.6 U	9.3 U	10 U	9.2 U	9.1 U	8.9 UJ
2,4,5-TP	13 U	9.1 U	10 UJ	9.2 UJ	9.6 U	9.3 U	10 U	9.2 U	9.1 U	8.9 UJ
2,4,5-T	13 U	9.1 U	10 UJ	9.2 UJ	9.6 U	9.3 U	10 U	9.2 U	9.1 U	8.9 UJ

APPENDIX C.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS08	54SS09	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/14/00	12/14/00	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Dioxin/Furans (ug/kg)										
TCDD	0.78 U	0.55 U	0.6 U	0.56 U	0.58 U	0.56 U	0.61 U	0.56 U	0.55 U	0.54 U
PCDF	0.78 U	0.55 U	0.6 U	0.56 U	0.58 U	0.56 U	0.61 U	0.56 U	0.55 U	0.54 U
PCDD	0.78 U	0.55 U	0.6 U	0.56 U	0.58 U	0.56 U	0.61 U	0.56 U	0.55 U	0.54 U
HCDF	0.78 U	0.55 U	0.6 U	0.56 U	0.58 U	0.56 U	0.61 U	0.56 U	0.55 U	0.54 U
HCDD	0.78 U	0.55 U	0.6 U	0.56 U	0.58 U	0.56 U	0.61 U	0.56 U	0.55 U	0.54 U
TCDF	0.78 U	0.55 U	0.6 U	0.56 U	0.58 U	0.56 U	0.61 U	0.56 U	0.55 U	0.54 U
TPH (mg/kg)										
Diesel Range Organics	36	14	4 U	3.7 U	490	17 J	23	32	33	3.5 U
Gasoline Range Organics	0.38 U	0.27 U	0.33 UJ	0.29 U	0.28 UJ	0.28 U	0.32 U	0.28 UJ	0.27 U	0.27 U

APPENDIX C.6
SWMU 54, Surface Soil – Inorganics

APPENDIX C.6

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS01	54SS02	54SS03	54SS04	54SS04	54SS05	54SS06	54SS07	54SS08	54SS09
Sample ID	54SS01	54SS02	54SS03	54SS04	54SS04D	54SS05	54SS06	54SS07	54SS08	54SS09
Sample Date	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/14/00	12/13/00	12/13/00	12/14/00	12/14/00
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Inorganics - Total (mg/kg)										
Antimony	2.1 UJ	0.5 J	2.4 UJ	2 UJ	2.2 UJ	2.2 UJ	2 UJ	2.2 UJ	2.8 UJ	2 UJ
Arsenic	1 U	1.4	2.2	0.95 J	0.87 J	2.7	1.4	2.3	3.4	1.3
Barium	41	39	41	59	52	36	46	41	61	45
Beryllium	0.059 J	0.15 J	0.13 J	0.13 J	0.13 J	0.15 J	0.16 J	0.16 J	0.2 J	0.16 J
Cadmium	0.22 J	0.55	0.86	0.71	0.62	1.4	1.1	1.4	0.78	0.64
Chromium	41 R	71 R	34 R	57 R	59 R	90 R	75 R	41 R	84 R	67 R
Cobalt	10	13	10	16	14	13	14	10	14	14
Copper	37 J	70 J	51 J	51 J	57 J	110 J	89 J	52 J	89 J	77 J
Lead	2.2	17	34	8.6	10	30	17	27	37	15
Mercury	0.011 R	0.038 R	0.026 R	0.044 R	0.1 R	0.11 R	0.069 R	0.022 R	0.064 R	0.058 R
Nickel	12	28	20	23	24	39	44	22	47	46
Selenium	1 U	0.99 U	1.2 U	1 U	1.1 U	1.1 U	1 U	1.1 U	1.4 U	1 U
Silver	1 U	0.38 J	1.2 U	1 U	1.1 U	1.1 U	1 U	1.1 U	1.4 U	1 U
Thallium	1 U	0.99 U	1.2 U	1 U	1.1 U	1.1 U	1 U	1.1 U	1.4 U	1 U
Tin	5.2 U	4.9 U	6 U	5.1 U	5.6 U	5.4 U	5.1 U	5.5 U	7.1 U	5 U
Vanadium	69	84	87	94	94	94	100	89	98	89
Zinc	20 J	69 J	97 J	52 J	46 J	120 J	81 J	77 J	150 J	42 J
Cyanide, Total	1.1 U	1.1 U	1.3 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.6 U	1.1 U
Sulfide	28 UJ	27 UJ	33 UJ	28 UJ	28 UJ	27 UJ	28 UJ	28 UJ	39 UJ	28 UJ

APPENDIX C.6

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54SS10	54SS11	54SS12	54SS13	54SS13	54SS14	54SS15	54TW01
Sample ID	54SS10	54SS11	54SS12	54SS13	54SS13D	54SS14	54SS15	54SB01-00
Sample Date	12/20/00	12/20/00	12/13/00	12/14/00	12/14/00	12/13/00	12/13/00	12/15/00
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Inorganics - Total (mg/k								
Antimony	2.4 UJ	0.56 J	2.1 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	0.79 J
Arsenic	2	1.4	2.3	1.1 J	1.5	0.6 J	3.6	2
Barium	66	38	53	66	67	52	49	75
Beryllium	0.17 J	0.23 J	0.17 J	0.16 J	0.18 J	0.11 J	0.16 J	0.16 J
Cadmium	0.59 J	0.59	4.4	0.8	0.77	0.3 J	1.2	1.5
Chromium	96 J	98 J	98 R	74 R	75 R	81 R	51 R	68 J
Cobalt	14	13	11	11	11	14	12	13
Copper	69 J	94 J	82 J	63 J	68 J	58 J	81 J	240 J
Lead	19	19	160	25	24	5.4	39	69
Mercury	0.049 J	0.11 J	0.061 R	0.031 R	0.037 R	0.06 R	0.056 R	0.04 J
Nickel	34	59	35	30	35	24	29	25
Selenium	1.2 U	0.93 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Silver	1.2 U	0.93 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.43 J
Thallium	1.2 U	0.93 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Tin	6 U	4.6 U	5.3 U	5.6 U	5.5 U	5.6 U	5.5 U	5.4 U
Vanadium	130	100	71	98	100	87	91	110
Zinc	85 J	43 J	200 J	58 J	55 J	32 J	91 J	79 J
Cyanide, Total	1.1 U	1.1 U	1.2 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U
Sulfide	30 UJ	28 UJ	29 UJ	28 UJ	30 UJ	28 UJ	28 UJ	27 UJ

APPENDIX C.7
SWMU 54, Subsurface Soil – Organics

APPENDIX C.7

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW01	54TW01	54TW02	54TW02
Sample ID	54SB01-05	54SB01-08	54SB02-02	54SB02-06
Sample Date	12/15/00	12/15/00	12/15/00	12/15/00
Depth (ft bgs)	8.0-10.0	14.0-16.0	2.0-4.0	10.0-12.0
Volatiles (ug/kg)				
Dichlorodifluoromethane	6.6 U	6.8 U	6.8 U	6.9 U
Chloromethane	13 U	14 U	14 U	14 U
Vinyl chloride	13 U	14 U	14 U	14 U
Bromomethane	13 U	14 U	14 U	14 U
Chloroethane	13 U	14 U	14 U	14 U
Trichlorofluoromethane	6.6 U	6.8 U	6.8 U	6.9 U
1,1-Dichloroethene	6.6 U	6.8 U	6.8 U	6.9 U
Methylene chloride	6.6 U	6.8 U	6.8 U	6.9 U
trans-1,2-Dichloroethene	6.6 U	6.8 U	6.8 U	6.9 U
1,1-Dichloroethane	6.6 U	6.8 U	6.8 U	6.9 U
Chloroform	6.6 U	6.8 U	6.8 U	6.9 U
1,1,1-Trichloroethane	6.6 U	6.8 U	6.8 U	6.9 U
Carbon tetrachloride	6.6 U	6.8 U	6.8 U	6.9 U
Benzene	6.6 U	6.8 U	6.8 U	6.9 U
1,2-Dichloroethane	6.6 U	6.8 U	6.8 U	6.9 U
Trichloroethene	6.6 U	6.8 U	6.8 U	6.9 U
1,2-Dichloropropane	6.6 U	6.8 U	6.8 U	6.9 U
Bromodichloromethane	6.6 U	6.8 U	6.8 U	6.9 U
Dibromomethane	6.6 U	6.8 U	6.8 U	6.9 U
Toluene	6.6 U	2.8 J	3.6 J	2.6 J
1,1,2-Trichloroethane	6.6 U	6.8 U	6.8 U	6.9 U
Tetrachloroethene	6.6 U	6.8 U	6.8 U	6.9 U
Dibromochloromethane	6.6 U	6.8 U	6.8 U	6.9 U
1,2-Dibromoethane	6.6 U	6.8 U	6.8 U	6.9 U
Chlorobenzene	6.6 U	6.8 U	6.8 U	6.9 U
1,1,1,2-Tetrachloroethane	6.6 U	6.8 U	6.8 U	6.9 U
Ethylbenzene	6.6 U	6.8 U	6.8 U	6.9 U
Styrene	6.6 U	6.8 U	6.8 U	6.9 U
Bromoform	6.6 U	6.8 U	6.8 U	6.9 U
1,1,2,2-Tetrachloroethane	6.6 U	6.8 U	6.8 U	6.9 U
1,2,3-Trichloropropane	6.6 U	6.8 U	6.8 U	6.9 U
1,2-Dibromo-3-chloropropane	13 U	14 U	14 U	14 U
Acrolein	130 R	140 R	140 R	140 R
Acetone	89 J	18 J	130 J	43 J
Iodomethane	6.6 U	6.8 U	6.8 U	6.9 U
Acetonitrile	260 U	270 U	270 U	280 U
Carbon disulfide	6.6 U	6.8 U	6.8 U	6.9 U
Vinyl acetate	13 U	14 U	14 U	14 U
2-Butanone	33 U	34 U	6.2 J	35 U
cis-1,3-Dichloropropene	6.6 U	6.8 U	6.8 U	6.9 U
trans-1,3-Dichloropropene	6.6 U	6.8 U	6.8 U	6.9 U
2-Hexanone	33 U	34 U	34 U	35 U
trans-1,4-Dichloro-2-butene	13 U	14 U	14 U	14 U
Xylenes, Total	13 U	14 U	14 U	14 U
Chloroprene	6.6 U	6.8 U	6.8 U	6.9 U
Pentachloroethane	33 U	34 U	34 U	35 U
Acrylonitrile	130 U	140 U	140 U	140 U

APPENDIX C.7

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW01	54TW01	54TW02	54TW02
Sample ID	54SB01-05	54SB01-08	54SB02-02	54SB02-06
Sample Date	12/15/00	12/15/00	12/15/00	12/15/00
Depth (ft bgs)	8.0-10.0	14.0-16.0	2.0-4.0	10.0-12.0
Volatiles (Cont.) (ug/kg)				
3-Chloro-1-Propene	6.6 U	6.8 U	6.8 U	6.9 U
Propionitrile	130 U	140 U	140 U	140 U
Methacrylonitrile	130 U	140 U	140 U	140 U
Isobutanol	260 U	270 U	270 U	280 U
Methyl methacrylate	6.6 U	6.8 U	6.8 U	6.9 U
Ethyl methacrylate	6.6 U	6.8 U	6.8 U	6.9 U
Semivolatiles (ug/kg)				
Aniline	430 U	450 U	440 U	460 U
Phenol	430 U	450 U	440 U	460 U
bis(2-Chloroethyl)ether	430 U	450 U	440 U	460 U
2-Chlorophenol	430 U	450 U	440 U	460 U
1,3-Dichlorobenzene	430 U	450 U	440 U	460 U
1,4-Dichlorobenzene	430 U	450 U	440 U	460 U
Benzyl alcohol	430 U	450 U	440 U	460 U
1,2-Dichlorobenzene	430 U	450 U	440 U	460 U
2-Methylphenol	430 U	450 U	440 U	460 U
Bis(2-Chloroisopropyl) ether	430 U	450 U	440 U	460 U
N-Nitrosodi-n-propylamine	430 U	450 U	440 U	460 U
3&4-Methylphenol	430 U	450 U	440 U	460 U
Hexachloroethane	430 U	450 U	440 U	460 U
Nitrobenzene	430 U	450 U	440 U	460 U
Isophorone	430 U	450 U	440 U	460 U
2-Nitrophenol	430 U	450 U	440 U	460 U
2,4-Dimethylphenol	430 U	450 U	440 U	460 U
bis(2-Chloroethoxy)methane	430 U	450 U	440 U	460 U
2,4-Dinitrophenol	2,200 U	2,300 U	2,300 U	2,400 U
1,2,4-Trichlorobenzene	430 U	450 U	440 U	460 U
Naphthalene	430 U	450 U	440 U	460 U
4-Chloroaniline	870 U	900 U	890 U	920 U
Hexachlorobutadiene	430 U	450 U	440 U	460 U
4-Chloro-3-methylphenol	430 U	450 U	440 U	460 U
2-Methylnaphthalene	430 U	450 U	440 U	460 U
Hexachlorocyclopentadiene	430 U	450 U	440 U	460 U
2,4,5-Trichlorophenol	430 U	450 U	440 U	460 U
2,4,6-Trichlorophenol	430 U	450 U	440 U	460 U
2-Chloronaphthalene	430 U	450 U	440 U	460 U
2-Nitroaniline	2,200 U	2,300 U	2,300 U	2,400 U
Acenaphthylene	430 U	450 U	440 U	460 U
2,6-Dinitrotoluene	430 U	450 U	440 U	460 U
3-Nitroaniline	2,200 U	2,300 U	2,300 U	2,400 U
Acenaphthene	430 U	450 U	440 U	460 U
2,4-Dichlorophenol	430 U	450 U	440 U	460 U
Dibenzofuran	430 U	450 U	440 U	460 U
4-Nitrophenol	2,200 U	2,300 U	2,300 U	2,400 U
2,4-Dinitrotoluene	430 U	450 U	440 U	460 U
Fluorene	430 U	450 U	440 U	460 U

APPENDIX C.7

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW01	54TW01	54TW02	54TW02
Sample ID	54SB01-05	54SB01-08	54SB02-02	54SB02-06
Sample Date	12/15/00	12/15/00	12/15/00	12/15/00
Depth (ft bgs)	8.0-10.0	14.0-16.0	2.0-4.0	10.0-12.0
Semivolatiles(Cont.) (ug/kg)				
2,3,4,6-Tetrachlorophenol	430 U	450 U	440 U	460 U
Dimethylphthalate	430 U	450 U	440 U	460 U
Diethylphthalate	430 U	450 U	440 U	460 U
4-Chlorophenyl-Phenylether	430 U	450 U	440 U	460 U
4-Nitroaniline	2,200 U	2,300 U	2,300 U	2,400 U
4,6-Dinitro-2-methylphenol	2,200 U	2,300 U	2,300 U	2,400 U
N-Nitrosodiphenylamine	430 U	450 U	440 U	460 U
4-Bromophenylphenyl ether	430 U	450 U	440 U	460 U
Hexachlorobenzene	430 U	450 U	440 U	460 U
Pentachlorophenol	2,200 U	2,300 U	2,300 U	2,400 U
Phenanthrene	430 U	450 U	440 U	460 U
Anthracene	430 U	450 U	440 U	460 U
Di-n-butylphthalate	430 U	57 J	440 U	460 U
Fluoranthene	430 U	450 U	440 U	460 U
Pyrene	430 U	450 U	440 U	460 U
Butylbenzylphthalate	430 U	450 U	440 U	460 U
Benzo(a)anthracene	430 U	450 U	440 U	460 U
3,3'-Dichlorobenzidine	870 U	900 U	890 U	920 U
Chrysene	430 U	450 U	440 U	460 U
bis(2-Ethylhexyl)phthalate	430 U	150 U	440 U	460 U
Di-n-octylphthalate	430 U	450 U	440 U	460 U
Benzo(b)fluoranthene	430 U	450 U	440 U	460 U
Benzo(k)fluoranthene	430 U	450 U	440 U	460 U
Benzo(a)pyrene	430 U	450 U	440 U	460 U
Indeno(1,2,3-cd)pyrene	430 U	450 U	440 U	460 U
Dibenzo(a,h)anthracene	430 U	450 U	440 U	460 U
Pyridine	430 U	450 U	440 U	460 U
Benzo(g,h,i)perylene	430 U	450 U	440 U	460 UJ
N-Nitrosodimethylamine	430 UJ	450 UJ	440 UJ	460 U
1,4-Dioxane	430 U	450 U	440 U	460 U
2-Picoline	430 U	450 U	440 U	460 U
Methyl methanesulfonate	430 U	450 U	440 U	460 U
Ethyl methanesulfonate	430 U	450 U	440 U	460 U
Acetophenone	430 U	450 U	440 U	460 U
a,a-Dimethylphenethylamine	88,000 U	92,000 U	90,000 U	93,000 U
2,6-Dichlorophenol	430 U	450 U	440 U	460 UJ
N-Nitrosopiperidine	430 UJ	450 UJ	440 UJ	460 U
N-Nitrosodi-n-butylamine	430 U	450 U	440 U	460 U
1,2,4,5-Tetrachlorobenzene	430 U	450 U	440 U	460 U
Pentachlorobenzene	430 U	450 U	440 U	460 U
1-Naphthylamine	430 U	450 U	440 U	460 U
2-Naphthylamine	430 U	450 U	440 U	460 U
Phenacetin	430 U	450 U	440 U	460 U
Pentachloronitrobenzene	430 U	450 U	440 U	460 U
Pronamide	430 U	450 U	440 U	460 U
7,12-Dimethylbenz(a)anthracer	430 U	450 U	440 U	460 U
3-Methylcholanthrene	430 U	450 U	440 U	460 U

APPENDIX C.7

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW01	54TW01	54TW02	54TW02
Sample ID	54SB01-05	54SB01-08	54SB02-02	54SB02-06
Sample Date	12/15/00	12/15/00	12/15/00	12/15/00
Depth (ft bgs)	8.0-10.0	14.0-16.0	2.0-4.0	10.0-12.0
Semivolatiles(Cont.) (ug/kg)				
N-Nitrosomethylethylamine	430 U	450 U	440 U	460 U
N-Nitrosodiethylamine	430 U	450 U	440 U	460 U
N-Nitrosopyrrolidine	430 U	450 U	440 U	460 U
o-Toluidine	430 U	450 U	440 U	460 UJ
1,4-Phenylenediamine	2,200 UJ	2,300 UJ	2,300 UJ	2,400 U
Hexachloropropene	430 U	450 U	440 U	460 U
Safrole	430 U	450 U	440 U	460 U
Isosafrole	430 U	450 U	440 U	460 U
1,4-Naphthoquinone	430 U	450 U	440 U	460 U
m-Dinitrobenzene	430 U	450 U	440 U	460 U
5-Nitro-o-toluidine	430 U	450 U	440 U	460 R
1,3,5-Trinitrobenzene	430 R	450 R	440 R	460 U
4-Aminobiphenyl	430 U	450 U	440 U	460 UJ
Dinoseb	430 UJ	450 UJ	440 UJ	460 R
4-Nitroquinoline-1-oxide	4,300 R	4,500 R	4,400 R	4,600 U
Methapyrilene	88,000 U	92,000 U	90,000 U	93,000 U
p-Dimethylaminoazobenzene	430 U	450 U	440 U	460 U
2-Acetylaminofluorene	430 U	450 U	440 U	460 U
3,3'-Dimethylbenzidine	2,200 U	2,300 U	2,300 U	2,400 U
N-Nitrosomorpholine	430 U	450 U	440 U	460 U
Aramite, Total	430 U	450 U	440 U	460 U
Hexachlorophene	220,000 U	230,000 U	230,000 U	240,000 U
Diallate, Total	430 U	450 U	440 U	460 U
Pesticides/PCBs (ug/kg)				
alpha-BHC	2.2 U	2.3 U	2.3 U	2.4 U
gamma-BHC (Lindane)	2.2 U	2.3 U	2.3 U	2.4 U
beta-BHC	2.2 U	2.3 U	2.3 U	2.4 UJ
Heptachlor	2.2 UJ	2.3 UJ	2.3 UJ	2.4 U
delta-BHC	2.2 U	2.3 U	2.3 U	2.4 U
Aldrin	2.2 U	2.3 U	2.3 U	2.4 U
Heptachlor epoxide	2.2 U	2.3 U	2.3 U	2.4 U
Isodrin	4.3 U	4.5 U	4.4 U	4.6 U
Endosulfan I	2.2 U	2.3 U	2.3 U	2.4 U
4,4'-DDE	4.3 U	4.5 U	1.5 J	4.6 U
Dieldrin	4.3 U	4.5 U	4.4 U	4.6 UJ
Chlorobenzilate	22 UJ	23 UJ	23 UJ	24 UJ
Endrin	4.3 UJ	4.5 UJ	4.4 UJ	4.6 U
4,4'-DDD	4.3 U	4.5 U	0.67 J	4.6 UJ
Endosulfan II	4.3 UJ	4.5 UJ	4.4 UJ	4.6 UJ
Kepone	220 UJ	230 UJ	230 UJ	240 UJ
4,4'-DDT	4.3 UJ	4.5 UJ	4.4 UJ	4.6 U
Endrin aldehyde	4.3 U	4.5 U	4.4 U	4.6 U
Endosulfan sulfate	4.3 U	4.5 U	4.4 U	4.6 UJ
Methoxychlor	22 UJ	23 UJ	23 UJ	24 U
Aroclor-1016	43 U	45 U	44 U	46 U
Aroclor-1221	88 U	92 U	90 U	93 U

APPENDIX C.7

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW01	54TW01	54TW02	54TW02
Sample ID	54SB01-05	54SB01-08	54SB02-02	54SB02-06
Sample Date	12/15/00	12/15/00	12/15/00	12/15/00
Depth (ft bgs)	8.0-10.0	14.0-16.0	2.0-4.0	10.0-12.0
Pesticides/PCBs (Cont.) (ug/kg)				
Aroclor-1232	43 U	45 U	44 U	46 U
Aroclor-1242	43 U	45 U	44 U	46 U
Aroclor-1248	43 U	45 U	44 U	46 U
Aroclor-1254	43 U	45 U	44 U	46 U
Aroclor-1260	43 U	45 U	44 U	46 U
Chlordane	22 U	23 U	23 U	24 U
Toxaphene	220 U	230 U	230 U	240 U
OP-Pesticides (ug/kg)				
Dimethoate	430 U	450 U	440 U	460 U
Disulfoton	430 U	450 U	440 U	460 U
Famphur	430 U	450 U	440 U	460 U
Methyl parathion	430 U	450 U	440 U	460 U
O,O,O-Triethylphosphorothioa	430 U	450 U	440 U	460 U
Parathion	430 U	450 U	440 U	460 U
Phorate	430 U	450 U	440 U	460 U
Sulfotepp	430 U	450 U	440 U	460 U
Thionazin	430 U	450 U	440 U	460 UJ
Chlorinated Herbicides (ug/kg)				
2,4-D	11 U	11 U	11 U	12 UJ
2,4,5-TP	11 U	11 U	11 U	12 UJ
2,4,5-T	11 U	1.7 J	11 U	12 U

APPENDIX C.7

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW01	54TW01	54TW02	54TW02
Sample ID	54SB01-05	54SB01-08	54SB02-02	54SB02-06
Sample Date	12/15/00	12/15/00	12/15/00	12/15/00
Depth (ft bgs)	8.0-10.0	14.0-16.0	2.0-4.0	10.0-12.0
Dioxin/Furans (ug/kg)				
TCDD	0.66 U	0.68 U	0.68 U	0.69 U
PCDF	0.66 U	0.68 U	0.68 U	0.69 U
PCDD	0.66 U	0.68 U	0.68 U	0.69 U
HCDF	0.66 U	0.68 U	0.68 U	0.69 U
HCDD	0.66 U	0.68 U	0.68 U	0.69 U
TCDF	0.66 U	0.68 U	0.68 U	0.69 U
TPH (mg/kg)				
Diesel Range Organics	4.3 U	5.6 U	4.6 U	4.6 U
Gasoline Range Organics	0.33 U	0.35 U	0.34 U	0.36 U

APPENDIX C.8
SWMU 54, Subsurface Soil – Inorganics

APPENDIX C.8

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW01	54TW01	54TW02	54TW02
Sample ID	54SB01-05	54SB01-08	54SB02-02	54SB02-06
Sample Date	12/15/00	12/15/00	12/15/00	12/15/00
Depth (ft bgs)	8.0-10.0	14.0-16.0	2.0-4.0	10.0-12.0
Inorganics - Total (mg/kg)				
Antimony	2.6 UJ	2.7 UJ	2.7 UJ	2.5 UJ
Arsenic	1.5	1 J	1.3 J	1.3 U
Barium	44	220	120	35
Beryllium	0.75	2.4	0.63	0.23 J
Cadmium	1.8	0.75	0.9	0.78
Chromium	100 J	6.2 J	40 J	10 J
Cobalt	23	34	30	2.9
Copper	160 J	140 J	82 J	61 J
Lead	5.9	1.6	4.4	1.3
Mercury	0.011 J	0.0065 J	0.13 J	0.028 U
Nickel	12	7.6	7.6	1.7 J
Selenium	0.76 J	1.4 U	2.2	1.3 U
Silver	1.3 U	1.4 U	1.4 U	1.3 U
Thallium	2.6 U	1.4 U	1.4 U	1.3 U
Tin	6.6 U	6.8 U	6.8 U	6.3 U
Vanadium	450	120	230	140
Zinc	57 J	82 J	31 J	15 J
Cyanide, Total	1.3 U	1.4 U	1.3 U	1.4 U
Sulfide	33 UJ	34 UJ	34 UJ	35 UJ

APPENDIX C.9
SWMU 54, Groundwater – Organics

APPENDIX C.9

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/19/00	12/18/00	12/21/00	12/19/00	12/19/00	12/20/00	12/19/00
Volatiles (ug/L)										
Dichlorodifluoromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichlorofluoromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	0.61 J	5 U	5 U	5 U	5 U
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5 U	5 U	5 U	5.8	5 U	1.4 J	5 U	1.2 J	5 U	5 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	91	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	0.86 J	5 U	5 U	5 U	3 J	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5.9	5 U	230 D	5 U	1.1 J	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromomethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	3.7 J	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	32	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX C.9

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/19/00	12/18/00	12/21/00	12/19/00	12/19/00	12/20/00	12/19/00
Volatiles (Cont.) (ug/L)										
1,2-Dibromo-3-chloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R
Acetone	50 U	50 U	50 U	50 U	50 U	50 U	40 J	50 U	50 U	50 U
Iodomethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetonitrile	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl acetate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	25 U	25 U	25 U	25 U	25 U	25 U	26	25 U	25 U	25 U
4-Methyl-2-pentanone	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,4-Dichloro-2-butene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylenes, Total	10 U	10 U	10 U	10 U	10 U	10 U	19	10 U	10 U	10 U
Chloroprene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachloroethane	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acrylonitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
3-Chloro-1-Propene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Propionitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Methacrylonitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Isobutanol	200 R	200 R	200 R	200 R	200 R	200 R	2900 J	200 R	200 R	200 R
Methyl methacrylate	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl methacrylate	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX C.9

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/19/00	12/18/00	12/21/00	12/19/00	12/19/00	12/20/00	12/19/00
Semivolatiles (ug/L)										
Aniline	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-Chloroisopropyl) ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodi-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3&4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	0.4 J	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX C.9

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/19/00	12/18/00	12/21/00	12/19/00	12/19/00	12/20/00	12/19/00
Semivolatiles(Cont.) (ug/L)										
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	0.52 J	10 U	10 U	0.6 J	10 U	0.68 J	10 U
4-Chlorophenyl-Phenylether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromopheny-phenylether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.2 J
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	0.44 J	10 U	10 U	2.4 J	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	0.77 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	0.95 J	10 U	0.86 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Chrysene	1.5 J	10 U	1.2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U	3.9 J	10 U	10 U	10 U
Di-n-octylphthalate	0.89 J	0.68 J	0.87 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	1.7 J	0.73 J	0.76 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	1.5 J	1 J	1.1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX C.9

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/19/00	12/18/00	12/21/00	12/19/00	12/19/00	12/20/00	12/19/00
Semivolatiles(Cont.) (ug/L)										
Benzo(a)pyrene	2 J	1 J	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	2.5 J	1.3 J	1.2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	2.7 J	1.2 J	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyridine	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Benzo(g,h,i)perylene	2.9 J	1.6 J	1.5 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodimethylamine	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dioxane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Picoline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl methanesulfonate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetophenone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
a,a-Dimethylphenethylamine	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
2,6-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopiperidine	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4,5-Tetrachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1-Naphthylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Naphthylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenacetin	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachloronitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pronamide	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7,12-Dimethylbenz(a)anthrace	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Methylcholanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosomethylethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopyrrolidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
o-Toluidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Phenylenediamine	2000 UJ	2000 UJ	2000 UJ	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Hexachloropropene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Safrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX C.9

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/19/00	12/18/00	12/21/00	12/19/00	12/19/00	12/20/00	12/19/00
Semivolatiles(Cont.) (ug/L)										
Isosafrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Naphthoquinone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
m-Dinitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
5-Nitro-o-toluidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3,5-Trinitrobenzene	10 R	10 R	10 R	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Aminobiphenyl	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroquinoline-1-oxide	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R
Methapyrilene	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
p-Dimethylaminoazobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Acetylaminofluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dimethylbenzidine	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
N-Nitrosomorpholine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aramite, Total	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorophene	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U
Diallate, Total	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pesticides/PCBs (ug/L)										
alpha-BHC	0.05 U	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 U	0.05 R	0.05 U	0.05 R	0.05 R
gamma-BHC (Lindane)	0.05 U	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 U	0.05 R	0.05 U	0.05 R	0.05 R
beta-BHC	0.05 U	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 U	0.05 R	0.05 U	0.05 R	0.05 R
Heptachlor	0.05 UJ	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 UJ	0.05 R	0.05 UJ	0.05 R	0.05 R
delta-BHC	0.05 U	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 U	0.05 R	0.05 U	0.05 R	0.05 R
Aldrin	0.05 U	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 U	0.05 R	0.05 U	0.05 R	0.05 R
Heptachlor epoxide	0.05 U	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 UJ	0.05 R	0.05 U	0.05 R	0.05 R
Isodrin	0.05 U	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 U	0.05 R	0.05 U	0.05 R	0.05 R
Endosulfan I	0.05 UJ	0.05 R	0.05 R	0.05 R	0.05 UJ	0.05 U	0.05 R	0.05 UJ	0.05 R	0.05 R
4,4'-DDE	0.1 U	0.1 R	0.1 R	0.1 R	0.1 UJ	0.1 U	0.1 R	0.1 UJ	0.1 R	0.1 R
Dieldrin	0.1 UJ	0.1 R	0.1 R	0.1 R	0.1 UJ	0.1 UJ	0.1 R	0.1 UJ	0.1 R	0.1 R
Chlorobenzilate	0.5 UJ	0.5 R	0.5 R	0.5 R	0.5 UJ	0.5 U	0.5 R	0.5 UJ	0.5 R	0.5 R
Endrin	0.1 UJ	0.1 R	0.1 R	0.1 R	0.1 UJ	0.1 UJ	0.1 R	0.1 UJ	0.1 R	0.1 R

APPENDIX C.9

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/19/00	12/18/00	12/21/00	12/19/00	12/19/00	12/20/00	12/19/00
Pesticides/PCBs(Cont.)(ug/L)										
4,4'-DDD	0.1 UJ	0.1 R	0.1 R	0.1 R	0.1 UJ	0.1 U	0.1 R	0.1 UJ	0.1 R	0.1 R
Endosulfan II	0.1 U	0.1 R	0.1 R	0.1 R	0.1 UJ	0.1 U	0.1 R	0.1 U	0.1 R	0.1 R
Kepone	1 UJ	1 R	1 R	1 R	1 UJ	1 UJ	1 R	1 UJ	1 R	1 R
4,4'-DDT	0.1 UJ	0.1 R	0.1 R	0.1 R	0.1 UJ	0.1 UJ	0.1 R	0.1 UJ	0.1 R	0.1 R
Endrin aldehyde	0.1 UJ	0.1 R	0.1 R	0.1 R	0.1 UJ	0.1 U	0.1 R	0.1 UJ	0.1 R	0.1 R
Endosulfan sulfate	0.1 U	0.1 R	0.1 R	0.1 R	0.1 UJ	0.1 U	0.1 R	0.1 U	0.1 R	0.1 R
Methoxychlor	0.5 UJ	0.5 R	0.5 R	0.5 R	0.5 UJ	0.5 UJ	0.5 R	0.5 UJ	0.5 R	0.5 R
Aroclor-1016	1 U	1 R	1 R	1 R	1 UJ	1 U	1 R	1 U	1 R	1 R
Aroclor-1221	2 U	2 R	2 R	2 R	2 UJ	2 U	2 R	2 U	2 R	2 R
Aroclor-1232	1 U	1 R	1 R	1 R	1 UJ	1 U	1 R	1 U	1 R	1 R
Aroclor-1242	1 U	1 R	1 R	1 R	1 UJ	1 U	1 R	1 U	1 R	1 R
Aroclor-1248	1 U	1 R	1 R	1 R	1 UJ	1 U	1 R	1 U	1 R	1 R
Aroclor-1254	1 U	1 R	1 R	1 R	1 UJ	1 U	1 R	1 U	1 R	1 R
Aroclor-1260	1 U	1 R	1 R	1 R	1 UJ	1 U	1 R	1 U	1 R	1 R
Chlordane	0.5 U	0.5 R	0.5 R	0.5 R	0.5 UJ	0.5 U	0.5 R	0.5 U	0.5 R	0.5 R
Toxaphene	5 U	5 R	5 R	5 R	5 UJ	5 U	5 R	5 U	5 R	5 R
OP-Pesticides (ug/L)										
Dimethoate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Disulfoton	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Famphur	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl parathion	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
O,O,O-Triethylphosphorothioa	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Parathion	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phorate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sulfotepp	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Thionazin	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX C.9

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/19/00	12/18/00	12/21/00	12/19/00	12/19/00	12/20/00	12/19/00
Chlorinated Herbicides (ug/L)										
2,4-D	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-TP	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-T	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dioxin/Furans (ug/L)										
TCDD	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
PCDF	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
PCDD	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
HCDF	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
HCDD	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
TCDF	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
TPH (mg/L)										
Diesel Range Organics	0.33	0.2	0.21	0.37	0.84	0.1 U	1.2	0.59	6.7	1.6
Gasoline Range Organics	0.036 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.84	0.05 U	0.13	0.05 U

APPENDIX C.10
SWMU 54, Groundwater – (Total) Inorganics

APPENDIX C.10

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - (TOTAL) INORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2	510MW2	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample ID	510MW1	510MW2	510MW2D	510MW3	510MW4	510MW5	510DW1	510DW2	54TW01	54TW02
Sample Date	12/15/00	12/19/00	12/19/00	12/18/00	12/18/00	12/21/00	12/18/00	12/18/00	12/20/00	12/19/00
Inorganics - Total (mg/L)										
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.01 U	0.01 U	0.01 U	0.01 U	0.0044 J	0.0095 J	0.01 U	0.01 U	0.006 J	0.0046 J
Barium	0.22	0.28	0.17	0.14	0.16	0.22	0.35	0.04	1.5	0.82
Beryllium	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.014	0.0019 J
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0017 J	0.0029 J
Chromium	0.0061 J	0.011	0.0087 J	0.0094 J	0.0074 J	0.01	0.01 U	0.01 U	0.026	0.066
Cobalt	0.0034 J	0.017	0.0092 J	0.0046 J	0.0059 J	0.019	0.0063 J	0.01 U	0.31	0.025
Copper	0.011 J	0.025	0.011 J	0.0098 J	0.027	0.048	0.0084 J	0.02 U	0.61	0.52
Lead	0.005 U	0.0017 J	0.005 U	0.005 U	0.0023 J	0.0089	0.005 U	0.005 U	0.0042 J	0.015
Mercury	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0001 J	0.0002 UJ	0.0002 UJ
Nickel	0.04 U	0.013 J	0.0083 J	0.04 U	0.04 U	0.0074 J	0.04 U	0.04 U	0.036 J	0.017 J
Selenium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Thallium	0.01 U	0.0054 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Tin	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0083 J	0.017 J
Vanadium	0.015	0.11	0.059	0.019	0.062	0.068	0.0084 J	0.028	0.41	0.82
Zinc	0.0061 J	0.045	0.022	0.031	0.027	0.29	0.13	0.02 U	0.72	0.16
Cyanide, Total	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.5 U	1 U
Sulfide	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ

APPENDIX C.11
SWMU 54, Groundwater –Water Quality

APPENDIX C.11

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - WATER QUALITY
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510MW1	510MW2
Sample ID	510MW1	510MW2
Sample Date	12/20/00	12/20/00
Groundwater Quality		
Chloride (mg/L)	27	140
Color (PCU)	5	5
Fluoride (mg/L)	0.47	0.45
Langlier Index (l)	1.6	1.3
Odor (TON)	2	1
Salinity (ppt)	2 U	2 U
Sulfate as SO4 (mg/L)	19	70
Total Dissolved Solids (mg/	520	990
Aluminum (mg/L)	2.7	34
Iron (mg/L)	3.7	37
Manganese (mg/L)	0.24 J	0.99 J
Hardness as CaCO3 (mg/L)	410	230
Copper	0.011 B	0.025
Silver	0.01 U	0.01 U
Zinc	0.0061 B	0.045

APPENDIX D
RCRA Facility Investigation – 2002
Analytical Laboratory Results

Data Qualifiers:

U – Not Detected.
J – Estimated value.
UJ – Report quantitation limit is qualified as estimated.
R – Result is rejected and unusable.
D – Result value is based on dilution analysis.
B – Reported value was obtained from a reading that was less than the Project Reporting Limits but greater than or equal to the Method Detection Limit.
NA – Not Analyzed.
NE – Not Established.

Notes:

mg/kg – milligrams per kilogram.
µg/kg – micrograms per kilogram.
µg/L – micrograms per liter.
mg/L – milligrams per liter.
ft/bgs – feet below ground surface.

APPENDIX D.1
SWMU 53, Surface Soil - Organics

APPENDIX D.1

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB09	53SB14	53SB16	53SB17
Sample ID	53SB09-00	53SB14-00	53SB16-00	53SB17-00
Sample Date	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0	0.0-1.0
Pesticides (ug/kg)				
4,4'-DDD	19 U	21 U	4.4 U	3.8 U
4,4'-DDE	79	21 U	4.4 U	3.8 U
4,4'-DDT	38	20 J	0.98 J	3.8 U
Aldrin	1.1 J	11 U	2.3 U	2 U
Chlordane (technical)	630	2,700	23 U	20 U
Chlorobenzilate	100 UJ	110 UJ	23 U	20 U
Dieldrin	19 U	21 U	4.4 U	3.8 U
Endosulfan I	10 U	11 U	2.3 U	2 U
Endosulfan II	19 U	21 U	4.4 U	3.8 U
Endosulfan sulfate	19 U	21 U	4.4 U	3.8 U
Endrin	19 U	21 U	4.4 U	3.8 U
Endrin aldehyde	19 U	11 U	4.4 UJ	3.8 UJ
Heptachlor	10 UJ	1.7 J	2.3 UJ	2 UJ
Heptachlor epoxide	5.6 J	160	2.3 U	2 U
Isodrin	19 U	21 U	4.4 U	3.8 U
Kepone	440 J	380 J	230 U	200 U
Methoxychlor	100 UJ	110 UJ	23 U	20 U
Toxaphene	1,000 U	1,100 U	230 U	200 U
alpha-BHC	10 U	11 U	2.3 U	2 U
beta-BHC	10 UJ	11 UJ	2.3 U	2 U
delta-BHC	10 UJ	11 UJ	2.3 UJ	2 UJ
gamma-BHC (Lindane)	10 U	11 U	2.3 U	2 U

APPENDIX D.2
SWMU 53, Surface Soil - Inorganics

APPENDIX D.2

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB07	53SB08	53SB09	53SB10	53SB11	53SB12	53SB13	53SB14
Sample ID	53SB07-00	53SB08-00	53SB09-00	53SB10-00	53SB11-00	53SB12-00	53SB13-00	53SB14-00
Sample Date	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
Inorganics - Total (mg/k								
Arsenic	1.1	0.65 J	1.7	0.97 J	2.6 U	3	0.66 J	0.8 J
Lead	200	NA	NA	NA	NA	12	NA	NA

APPENDIX D.2

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - INORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB15	53SB15	53SB16	53SB17	53SB18	53SB18	53SB19	53SB20
Sample ID	53SB15-00	53SB15-00D	53SB16-00	53SB17-00	53SB18-00	53SB18-00D	53SB19-00	53SB20-00
Sample Date	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
Inorganics - Total (mg/k								
Arsenic	0.79 J	0.62 J	0.78 J	1.1 U	1.6	1.6	0.81 J	0.79 J
Lead	3.7	NA	NA	NA	NA	NA	23	NA

APPENDIX D.3
SWMU 53, Subsurface Soil - Organics

APPENDIX D.3

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB10	53SB15	53SB19	53SB20
Sample ID	53SB10-01	53SB15-01	53SB19-01	53SB20-01
Sample Date	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	3.0-4.0	1.5-2.5	2.5-3.5	2.0-3.0
Pesticides (ug/kg)				
4,4'-DDD	4.6 U	4.2 U	4.2 U	4.4 U
4,4'-DDE	4.6 U	4.2 U	4.2 U	4.4 U
4,4'-DDT	4.6 U	4.2 U	4.2 U	4.4 U
Aldrin	2.4 U	2.2 U	2.2 U	2.3 U
Chlordane (technical)	24 U	22 U	22 U	23 U
Chlorobenzilate	4.2 J	22 U	22 U	23 U
Dieldrin	4.6 U	4.2 U	4.2 U	4.4 U
Endosulfan I	2.4 U	2.2 U	2.2 U	2.3 U
Endosulfan II	4.6 U	4.2 U	4.2 U	4.4 U
Endosulfan sulfate	4.6 U	4.2 U	4.2 U	4.4 U
Endrin	4.6 U	4.2 U	4.2 U	4.4 U
Endrin aldehyde	4.6 UJ	4.2 UJ	4.2 UJ	4.4 UJ
Heptachlor	9.3 J	2.2 UJ	2.2 UJ	2.3 UJ
Heptachlor epoxide	2.4 U	2.2 U	2.2 U	2.3 U
Isodrin	4.6 U	4.2 U	4.2 U	4.4 U
Kepone	240 U	220 U	220 U	200 U
Methoxychlor	24 U	22 U	22 U	23 U
Toxaphene	240 U	220 U	220 U	230 U
alpha-BHC	2.4 U	2.2 U	2.2 U	2.3 U
beta-BHC	2.4 U	2.2 UJ	2.2 U	2.3 U
delta-BHC	2.4 UJ	2.2 U	2.2 UJ	2.3 UJ
gamma-BHC (Lindane)	2.4 U	2.2 U	2.2 U	2.3 U

APPENDIX D.4
SWMU 53, Subsurface Soil - Inorganics

APPENDIX D.4

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB07	53SB08	53SB09	53SB10	53SB11	53SB11	53SB12	53SB13	53SB14
Sample ID	53SB07-01	53SB08-01	53SB09-01	53SB10-01	53SB11-01	53SB11-01D	53SB12-01	53SB13-01	53SB14-01
Sample Date	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	1.0-2.0	1.5-2.5	1.5-2.5	3.0-4.0	3.0-4.0	3.0-4.0	2.0-3.0	1.5-2.5	1.5-2.5
Inorganics - Total (mg/k									
Arsenic	1.1 U	1.3	0.63 J	0.58 J	0.61 J	0.69 J	0.57 J	0.85 J	0.75 J
Lead	2.3	NA	13	NA	NA	NA	NA	2.6	NA

APPENDIX D.4

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - INORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	53SB15	53SB16	53SB16	53SB17	53SB18	53SB19	53SB20
Sample ID	53SB15-01	53SB16-01	53SB16-01D	53SB17-01	53SB18-01	53SB19-01	53SB20-01
Sample Date	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
Depth (ft bgs)	1.5-2.5	1.0-2.0	1.0-2.0	1.5-2.5	1.0-2.0	2.5-3.5	2.0-3.0
Inorganics - Total (mg/k							
Arsenic	1 J	0.5 J	1 U	1.4 U	0.77 J	0.86 J	1.2 U
Lead	NA	NA	NA	NA	8.5	NA	NA

APPENDIX D.5
SWMU 54, Surface Soil - Organics

APPENDIX D.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW15A	54TW19	54TW20
Sample ID	54TW15A-00	54TW19-00	54TW20-00
Sample Date	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0
Volatiles (ug/kg)			
1,1,1,2-Tetrachloroethane	5.2 U	7.8 U	9.2 U
1,1,1-Trichloroethane	5.2 U	7.8 U	9.2 U
1,1,2,2-Tetrachloroethane	5.2 U	7.8 U	9.2 U
1,1,2-Trichloroethane	5.2 U	7.8 U	9.2 U
1,1-Dichloroethane	5.2 UJ	7.8 U	9.2 U
1,1-Dichloroethene	5.2 U	7.8 U	9.2 U
1,2,3-Trichloropropane	5.2 U	7.8 U	9.2 U
1,2-Dibromo-3-chloropropane	10 UJ	16 U	18 U
1,2-Dibromoethane	5.2 U	7.8 U	9.2 U
1,2-Dichloroethane	5.2 U	7.8 U	9.2 U
1,2-Dichloropropane	5.2 U	7.8 U	9.2 U
2-Chloro-1,3-butadiene	5.2 UJ	7.8 U	9.2 U
2-Hexanone	26 U	39 U	46 U
3-Chloropropene	5.2 UJ	7.8 UJ	9.2 UJ
Acetone	52 U	78 U	92 U
Acetonitrile	210 UJ	310 UJ	370 UJ
Acrolein	100 R	160 U	180 U
Acrylonitrile	100 UJ	160 U	180 U
Benzene	5.2 U	7.8 U	9.2 U
Bromodichloromethane	5.2 U	7.8 U	9.2 U
Bromoform	5.2 U	7.8 U	9.2 U
Bromomethane	10 UJ	16 U	18 U
Carbon disulfide	5.2 UJ	7.8 UJ	9.2 UJ
Carbon tetrachloride	5.2 U	7.8 U	9.2 U
Chlorobenzene	5.2 U	7.8 U	9.2 U
Chloroethane	10 U	16 U	18 U
Chloroform	5.2 U	7.8 U	9.2 U
Chloromethane	10 U	16 U	18 U
Dibromochloromethane	5.2 U	7.8 U	9.2 U
Dichlorodifluoromethane	5.2 UJ	7.8 U	9.2 U
Ethyl methacrylate	5.2 U	7.8 U	9.2 U
Ethylbenzene	5.2 U	7.8 U	9.2 U
Iodomethane	5.2 UJ	7.8 U	9.2 U
Isobutanol	210 R	310 R	370 R
Methacrylonitrile	100 U	160 U	180 U
Methyl Ethyl Ketone	26 U	39 U	46 U
Methyl isobutyl ketone	26 U	39 U	46 U
Methyl methacrylate	5.2 U	7.8 U	9.2 U
Methylene bromide	5.2 U	7.8 U	9.2 U
Methylene chloride	5.2 UJ	7.8 U	9.2 U
Pentachloroethane	26 UJ	39 UJ	46 UJ
Propionitrile	100 U	160 U	180 U
Styrene	5.2 U	7.8 U	9.2 U
Tetrachloroethene	5.2 U	7.8 U	9.2 U
Toluene	5.2 U	7.8 U	9.2 U

APPENDIX D.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW15A	54TW19	54TW20
Sample ID	54TW15A-00	54TW19-00	54TW20-00
Sample Date	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0
Volatiles (Cont.) (ug/kg)			
Trichloroethene	5.2 U	7.8 U	9.2 U
Trichlorofluoromethane	5.2 U	7.8 U	9.2 U
Vinyl acetate	10 UJ	16 U	18 U
Vinyl chloride	10 U	16 U	18 U
Xylenes, Total	5.2 U	7.8 U	9.2 U
cis-1,3-Dichloropropene	5.2 U	7.8 U	9.2 U
trans-1,2-Dichloroethene	5.2 UJ	7.8 U	9.2 U
trans-1,3-Dichloropropene	5.2 U	7.8 U	9.2 U
trans-1,4-Dichloro-2-butene	10 U	16 U	18 U
Semivolatiles (ug/kg)			
1,2,4,5-Tetrachlorobenzene	350 U	560 U	570 U
1,2,4-Trichlorobenzene	350 U	560 U	570 U
1,2-Dichlorobenzene	350 U	560 U	570 U
1,3,5-Trinitrobenzene	350 UJ	560 UJ	570 UJ
1,3-Dichlorobenzene	350 U	560 U	570 U
1,3-Dinitrobenzene	350 U	560 UJ	570 UJ
1,4-Dichlorobenzene	350 U	560 U	570 U
1,4-Dioxane	350 U	560 U	570 U
1,4-Naphthoquinone	350 U	560 U	570 U
1,4-Phenylenediamine	1,800 U	2,900 R	2,900 R
1-Diallate	350 U	560 U	570 U
1-Naphthylamine	350 U	560 U	570 U
2,2'-Oxybis(1-chloropropane)	350 U	560 U	570 U
2,3,4,6-Tetrachlorophenol	350 U	560 U	570 U
2,4,5-Trichlorophenol	350 U	560 U	570 U
2,4,6-Trichlorophenol	350 U	560 U	570 U
2,4-Dichlorophenol	350 U	560 U	570 U
2,4-Dimethylphenol	350 U	560 U	570 U
2,4-Dinitrophenol	1,800 U	2,900 U	2,900 UJ
2,4-Dinitrotoluene	350 U	560 U	570 U
2,6-Dichlorophenol	350 U	560 U	570 UJ
2,6-Dinitrotoluene	350 UJ	560 U	570 U
2-Acetylaminofluorene	350 UJ	560 U	570 UJ
2-Chloronaphthalene	350 U	560 U	570 U
2-Chlorophenol	350 U	560 U	570 U
2-Diallate	350 U	560 U	570 U
2-Methylnaphthalene	350 U	560 U	570 U
2-Methylphenol	350 U	560 U	570 U
2-Naphthylamine	350 U	560 U	570 UJ
2-Nitroaniline	1,800 U	2,900 U	2,900 U
2-Nitrophenol	350 U	560 U	570 U
2-Picoline	350 U	560 U	570 U
3&4-Methylphenol	350 U	560 U	570 U
3,3'-Dichlorobenzidine	710 UJ	1,100 U	1,100 U
3,3'-Dimethylbenzidine	1,800 UJ	2,900 U	2,900 U

APPENDIX D.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW15A	54TW19	54TW20
Sample ID	54TW15A-00	54TW19-00	54TW20-00
Sample Date	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0
Semivolatiles (Cont.) (ug/kg)			
3-Methylcholanthrene	350 UJ	560 U	570 U
3-Nitroaniline	1,800 U	2,900 U	2,900 U
4,6-Dinitro-2-methylphenol	1,800 U	2,900 U	2,900 UJ
4-Aminobiphenyl	350 U	560 U	570 U
4-Bromophenyl phenyl ether	350 U	560 U	570 U
4-Chloro-3-methylphenol	350 U	560 U	570 U
4-Chloroaniline	710 U	1,100 U	1,100 U
4-Chlorophenylphenylether	350 U	560 U	570 U
4-Nitroaniline	1,800 U	2,900 U	2,900 U
4-Nitrophenol	1,800 U	2,900 U	2,900 U
4-Nitroquinoline-1-oxide	3,500 R	5,600 R	5,700 R
5-Nitro-o-toluidine	350 U	560 UJ	570 UJ
7,12-Dimethylbenz(a)anthracene	350 U	560 U	570 U
Acenaphthene	350 U	560 U	570 U
Acenaphthylene	350 U	560 U	570 U
Acetophenone	350 U	560 U	570 U
Aniline	350 U	560 U	570 U
Anthracene	350 U	560 U	570 U
Aramite, Total	350 UJ	560 U	570 U
Aramite-1	350 UJ	560 U	570 U
Aramite-2	350 UJ	560 U	570 U
Benzo(a)anthracene	350 UJ	560 U	570 U
Benzo(a)pyrene	350 UJ	560 U	570 U
Benzo(b)fluoranthene	350 UJ	560 U	570 U
Benzo(g,h,i)perylene	350 U	560 U	570 U
Benzo(k)fluoranthene	350 UJ	560 U	570 U
Benzyl alcohol	350 U	560 U	570 U
Bis(2-chloroethoxy)methane	350 U	560 U	570 U
Bis(2-chloroethyl)ether	350 U	560 U	570 U
Bis(2-ethylhexyl)phthalate	350 UJ	560 U	570 U
Butylbenzylphthalate	350 UJ	560 U	570 U
Chrysene	350 UJ	560 U	570 U
Di-n-butylphthalate	350 U	560 U	570 U
Di-n-octyl phthalate	350 UJ	560 U	570 U
Diallate, Total	350 U	560 U	570 U
Dibenzo(a,h)anthracene	350 UJ	560 U	570 U
Dibenzofuran	350 U	560 U	570 U
Diethylphthalate	350 U	560 U	570 U
Dimethylphthalate	350 U	560 U	570 U
Dinoseb	350 U	560 UJ	570 UJ
Ethyl methanesulfonate	350 U	560 U	570 U
Fluoranthene	350 U	560 U	570 U
Fluorene	350 U	560 U	570 U
Hexachlorobenzene	350 U	560 U	570 U
Hexachlorobutadiene	350 U	560 U	570 U
Hexachlorocyclopentadiene	350 UJ	560 U	570 U

APPENDIX D.5

SUMMARY OF ANALYTICAL RESULTS, SURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW15A	54TW19	54TW20
Sample ID	54TW15A-00	54TW19-00	54TW20-00
Sample Date	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	0.0-1.0	0.0-1.0	0.0-1.0
Semivolatiles (Cont.) (ug/kg)			
Hexachloroethane	350 U	560 U	570 U
Hexachlorophene	180,000 R	290,000 U	290,000 UJ
Hexachloropropene	350 U	560 UJ	570 U
Indeno(1,2,3-cd)pyrene	350 UJ	560 U	570 U
Isophorone	350 U	560 U	570 U
Isosafrole	350 U	560 U	570 UJ
Methapyrilene	72,000 U	110,000 U	120,000 U
Methyl methanesulfonate	350 U	560 U	570 U
N-Nitroso-di-n-butylamine	350 U	560 U	570 UJ
N-Nitroso-di-n-propylamine	350 U	560 U	570 U
N-Nitrosodiethylamine	350 U	560 U	570 U
N-Nitrosodimethylamine	350 U	560 U	570 U
N-Nitrosodiphenylamine	350 U	560 U	570 U
N-Nitrosomethylethylamine	350 U	560 U	570 U
N-Nitrosomorpholine	350 U	560 U	570 UJ
N-Nitrosopiperidine	350 U	560 U	570 U
N-Nitrosopyrrolidine	350 U	560 U	570 UJ
Naphthalene	350 U	560 U	570 U
Nitrobenzene	350 U	560 U	570 U
O,O,O-Triethylphosphorothioate	350 U	560 U	570 U
Pentachlorobenzene	350 U	560 U	570 U
Pentachloronitrobenzene	350 UJ	560 U	570 U
Pentachlorophenol	1,800 U	2,900 U	2,900 U
Phenacetin	350 U	560 U	570 UJ
Phenanthrene	350 U	560 U	570 U
Phenol	350 U	560 U	570 U
Pronamide	350 U	560 U	570 U
Pyrene	350 UJ	560 U	570 U
Pyridine	350 U	560 U	570 U
Safrole	350 U	560 U	570 U
alpha,alpha-Dimethylphenethylamine	72,000 UJ	110,000 UJ	120,000 UJ
o-Toluidine	350 U	560 U	570 U
p-Dimethylaminoazobenzene	350 UJ	560 U	570 U

APPENDIX D.6
SWMU 54, Subsurface Soil - Organics

APPENDIX D.6

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW15A	54TW15A	54TW15A	54TW19	54TW20
Sample ID	54TW15A-02	54TW15A-02D	54TW15A-04	54TW19-05	54TW20-04
Sample Date	03/01/02	03/01/02	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	4.0-11.4	4.0-11.4	4.0-11.4	4.0-11.4	4.0-11.4
Volatiles (ug/kg)					
1,1,1,2-Tetrachloroethane	7.6 U	7.6 U	260 U	8 U	280 U
1,1,1-Trichloroethane	7.6 U	7.6 U	260 U	8 U	280 U
1,1,2,2-Tetrachloroethane	7.6 U	7.6 U	210 J	8 U	280 U
1,1,2-Trichloroethane	7.6 U	7.6 U	260 U	8 U	280 U
1,1-Dichloroethane	7.6 U	7.6 U	260 U	8 U	280 U
1,1-Dichloroethene	7.6 U	7.6 U	140 J	8 U	280 U
1,2,3-Trichloropropane	7.6 U	7.6 U	260 U	8 U	280 U
1,2-Dibromo-3-chloropropane	15 U	15 U	610	16 U	560 U
1,2-Dibromoethane	7.6 U	7.6 U	260 U	8 U	280 U
1,2-Dichloroethane	7.6 U	7.6 U	260 U	8 U	280 U
1,2-Dichloropropane	7.6 U	7.6 U	260 U	8 U	280 U
2-Chloro-1,3-butadiene	7.6 U	7.6 U	260 U	8 U	280 U
2-Hexanone	38 U	38 U	1,700	40 U	1,400 U
3-Chloropropene	7.6 UJ	7.6 UJ	260 U	8 UJ	280 U
Acetone	76 U	76 U	2,900 J	80 U	1,400 J
Acetonitrile	300 UJ	300 UJ	10,000 R	320 UJ	11,000 R
Acrolein	150 U	150 U	5,200 R	160 U	5,600 R
Acrylonitrile	150 U	150 U	5,200 U	160 U	5,600 U
Benzene	7.6 U	7.6 U	260 U	8 U	280 U
Bromodichloromethane	7.6 U	7.6 U	260 U	8 U	280 U
Bromoform	7.6 U	7.6 U	260 U	8 U	280 U
Bromomethane	15 U	15 U	520 UJ	16 U	560 UJ
Carbon disulfide	7.6 UJ	7.6 UJ	260 U	8 UJ	280 U
Carbon tetrachloride	7.6 U	7.6 U	110 J	8 U	280 U
Chlorobenzene	7.6 U	7.6 U	110 J	8 U	280 U
Chloroethane	15 U	15 U	520 U	16 U	560 U
Chloroform	7.6 U	7.6 U	260 U	8 U	280 U
Chloromethane	15 U	15 U	520 U	16 U	560 U
Dibromochloromethane	7.6 U	7.6 U	260 U	8 U	280 U
Dichlorodifluoromethane	7.6 U	7.6 U	260 U	8 U	280 U
Ethyl methacrylate	7.6 U	7.6 U	260 U	8 U	280 U
Ethylbenzene	7.6 U	7.6 U	190 J	8 U	280 U
Iodomethane	7.6 U	7.6 U	260 U	8 U	280 U
Isobutanol	300 R	300 R	10,000 R	320 R	11,000 R
Methacrylonitrile	150 U	150 U	5,200 U	160 U	5,600 U
Methyl Ethyl Ketone	38 U	38 U	1,500	40 U	1,400 U
Methyl isobutyl ketone	38 U	38 U	1,300 U	40 U	1,400 U
Methyl methacrylate	7.6 U	7.6 U	260 U	8 U	280 U
Methylene bromide	7.6 U	7.6 U	260 U	8 U	280 U
Methylene chloride	7.6 U	7.6 U	260 U	8 U	280 U
Pentachloroethane	38 UJ	38 UJ	1,300 R	40 UJ	1,400 R
Propionitrile	150 U	150 U	5,200 U	160 U	5,600 U
Styrene	7.6 U	7.6 U	100 J	8 U	280 U
Tetrachloroethene	7.6 U	7.6 U	260 U	8 U	280 U

APPENDIX D.6

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW15A	54TW15A	54TW15A	54TW19	54TW20
Sample ID	54TW15A-02	54TW15A-02D	54TW15A-04	54TW19-05	54TW20-04
Sample Date	03/01/02	03/01/02	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	4.0-11.4	4.0-11.4	4.0-11.4	4.0-11.4	4.0-11.4
Volatiles (Cont.) (ug/kg)					
Toluene	7.6 U	7.6 U	260 U	8 U	280 U
Trichloroethene	7.6 U	7.6 U	130 J	8 U	280 U
Trichlorofluoromethane	7.6 U	7.6 U	160 J	8 U	280 U
Vinyl acetate	15 U	15 U	520 U	16 U	560 U
Vinyl chloride	15 U	15 U	520 U	16 U	560 U
Xylenes, Total	7.6 U	7.6 U	640	8 U	560 U
cis-1,3-Dichloropropene	7.6 U	7.6 U	260 U	8 U	280 U
trans-1,2-Dichloroethene	7.6 U	7.6 U	260 U	8 U	280 U
trans-1,3-Dichloropropene	7.6 U	7.6 U	260 U	8 U	280 U
trans-1,4-Dichloro-2-butene	15 U	15 U	520 U	16 U	560 U
Semivolatiles (ug/kg)					
1,2,4,5-Tetrachlorobenzene	520 U	530 U	430 U	540 U	480 U
1,2,4-Trichlorobenzene	520 U	530 U	430 U	540 U	480 U
1,2-Dichlorobenzene	520 U	530 U	430 U	540 U	480 U
1,3,5-Trinitrobenzene	520 UJ	530 UJ	430 UJ	540 UJ	480 UJ
1,3-Dichlorobenzene	520 U	530 U	430 U	540 U	480 U
1,3-Dinitrobenzene	520 UJ	530 UJ	430 UJ	540 UJ	480 UJ
1,4-Dichlorobenzene	520 U	530 U	430 U	540 U	480 U
1,4-Dioxane	520 U	530 U	430 U	540 U	480 UJ
1,4-Naphthoquinone	520 U	530 U	430 U	540 U	480 U
1,4-Phenylenediamine	2,700 R	2,700 R	2,200 R	2,800 R	2,500 R
1-Diallate	520 U	530 U	430 U	540 U	480 U
1-Naphthylamine	520 U	530 U	430 U	540 U	480 U
2,2'-Oxybis(1-chloropropane)	520 U	530 U	430 U	540 U	480 U
2,3,4,6-Tetrachlorophenol	520 U	530 U	430 U	540 U	480 U
2,4,5-Trichlorophenol	520 U	530 U	430 U	540 U	480 U
2,4,6-Trichlorophenol	520 U	530 U	430 U	540 U	480 U
2,4-Dichlorophenol	520 U	530 U	430 U	540 U	480 U
2,4-Dimethylphenol	520 U	530 U	68 J	540 U	480 U
2,4-Dinitrophenol	2,700 U	2,700 U	2,200 U	2,800 UJ	2,500 UJ
2,4-Dinitrotoluene	520 U	530 U	430 U	540 U	480 U
2,6-Dichlorophenol	520 U	530 U	430 U	540 UJ	480 UJ
2,6-Dinitrotoluene	520 U	530 U	430 U	540 U	480 U
2-Acetylaminofluorene	520 U	530 U	430 U	540 UJ	480 UJ
2-Chloronaphthalene	520 U	530 U	430 U	540 U	480 U
2-Chlorophenol	520 U	530 U	430 U	540 U	480 U
2-Diallate	520 U	530 U	430 U	540 U	480 U
2-Methylnaphthalene	520 U	530 U	430 U	540 U	480 U
2-Methylphenol	520 U	530 U	430 U	540 U	480 U
2-Naphthylamine	520 U	530 U	430 U	540 UJ	480 UJ
2-Nitroaniline	2,700 U	2,700 U	2,200 U	2,800 U	2,500 U
2-Nitrophenol	520 U	530 U	430 U	540 U	480 U
2-Picoline	520 U	530 U	430 U	540 U	480 U
3&4-Methylphenol	520 U	530 U	430 U	540 U	480 U

APPENDIX D.6

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW15A	54TW15A	54TW15A	54TW19	54TW20
Sample ID	54TW15A-02	54TW15A-02D	54TW15A-04	54TW19-05	54TW20-04
Sample Date	03/01/02	03/01/02	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	4.0-11.4	4.0-11.4	4.0-11.4	4.0-11.4	4.0-11.4
Semivolatiles (Cont.) (ug/kg)					
3,3'-Dichlorobenzidine	1,000 U	1,100 U	860 U	1,100 U	970 U
3,3'-Dimethylbenzidine	2,700 U	2,700 U	2,200 U	2,800 U	2,500 UJ
3-Methylcholanthrene	520 U	530 U	430 U	540 U	480 U
3-Nitroaniline	2,700 U	2,700 U	2,200 U	2,800 U	2,500 U
4,6-Dinitro-2-methylphenol	2,700 U	2,700 U	2,200 U	2,800 UJ	2,500 UJ
4-Aminobiphenyl	520 U	530 U	430 U	540 U	480 U
4-Bromophenyl phenyl ether	520 U	530 U	430 U	540 U	480 U
4-Chloro-3-methylphenol	520 U	530 U	430 U	540 U	480 U
4-Chloroaniline	1,000 U	1,100 U	860 U	1,100 U	970 U
4-Chlorophenylphenylether	520 U	530 U	430 U	540 U	480 U
4-Nitroaniline	2,700 U	2,700 U	2,200 U	2,800 U	2,500 U
4-Nitrophenol	2,700 U	2,700 U	2,200 U	2,800 U	2,500 U
4-Nitroquinoline-1-oxide	5,200 R	5,300 R	4,300 R	5,400 R	4,800 R
5-Nitro-o-toluidine	520 UJ	530 UJ	430 UJ	540 UJ	480 UJ
7,12-Dimethylbenz(a)anthracene	520 U	530 U	430 U	540 U	480 U
Acenaphthene	520 U	530 U	430 U	540 U	480 U
Acenaphthylene	520 U	530 U	430 U	540 U	480 U
Acetophenone	520 U	530 U	430 U	540 U	480 U
Aniline	520 U	530 U	430 U	540 U	480 U
Anthracene	520 U	530 U	430 U	540 U	480 U
Aramite, Total	520 U	530 U	430 U	540 U	480 U
Aramite-1	520 U	530 U	430 U	540 U	480 U
Aramite-2	520 U	530 U	430 U	540 U	480 U
Benzo(a)anthracene	520 U	530 U	430 U	540 U	480 U
Benzo(a)pyrene	520 U	530 U	430 U	540 U	480 UJ
Benzo(b)fluoranthene	520 U	530 U	430 U	540 U	480 UJ
Benzo(g,h,i)perylene	520 U	530 U	430 U	540 U	480 UJ
Benzo(k)fluoranthene	520 U	530 U	430 U	540 U	480 UJ
Benzyl alcohol	520 U	530 U	430 U	540 U	480 U
Bis(2-chloroethoxy)methane	520 U	530 U	430 U	540 U	480 U
Bis(2-chloroethyl)ether	520 U	530 U	430 U	540 U	480 U
Bis(2-ethylhexyl)phthalate	520 U	530 U	430 U	540 U	480 UJ
Butylbenzylphthalate	520 U	530 U	430 U	540 U	480 U
Chrysene	520 U	530 U	430 U	540 U	480 UJ
Di-n-butylphthalate	520 U	530 U	430 U	540 U	480 U
Di-n-octyl phthalate	520 U	530 U	430 U	540 U	480 UJ
Diallate, Total	520 U	530 U	430 U	540 U	480 U
Dibenzo(a,h)anthracene	520 U	530 U	430 U	540 U	480 UJ
Dibenzofuran	520 U	530 U	430 U	540 U	480 U
Diethylphthalate	520 U	530 U	430 U	540 U	480 U
Dimethylphthalate	520 U	530 U	430 U	540 U	480 U
Dinoseb	520 UJ	530 UJ	430 UJ	540 UJ	480 UJ
Ethyl methanesulfonate	520 U	530 U	430 U	540 U	480 U
Fluoranthene	520 U	530 U	430 U	540 U	480 U
Fluorene	520 U	530 U	430 U	540 U	480 U

APPENDIX D.6

SUMMARY OF ANALYTICAL RESULTS, SUBSURFACE SOIL - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW15A	54TW15A	54TW15A	54TW19	54TW20
Sample ID	54TW15A-02	54TW15A-02D	54TW15A-04	54TW19-05	54TW20-04
Sample Date	03/01/02	03/01/02	03/01/02	03/02/02	03/02/02
Depth (ft bgs)	4.0-11.4	4.0-11.4	4.0-11.4	4.0-11.4	4.0-11.4
Semivolatiles (Cont.) (ug/kg)					
Hexachlorobenzene	520 U	530 U	430 U	540 U	480 U
Hexachlorobutadiene	520 U	530 U	430 U	540 U	480 U
Hexachlorocyclopentadiene	520 U	530 U	430 U	540 U	480 U
Hexachloroethane	520 U	530 U	430 U	540 U	480 U
Hexachlorophene	270,000 U	270,000 U	220,000 U	280,000 UJ	250,000 UJ
Hexachloropropene	520 UJ	530 UJ	430 UJ	540 U	480 U
Indeno(1,2,3-cd)pyrene	520 U	530 U	430 U	540 U	480 UJ
Isophorone	520 U	530 U	430 U	540 U	480 U
Isosafrole	520 U	530 U	430 U	540 UJ	480 UJ
Methapyrilene	110,000 U	110,000 U	87,000 U	110,000 U	98,000 U
Methyl methanesulfonate	520 U	530 U	430 U	540 U	480 U
N-Nitroso-di-n-butylamine	520 U	530 U	430 U	540 UJ	480 UJ
N-Nitroso-di-n-propylamine	520 U	530 U	430 U	540 U	480 U
N-Nitrosodiethylamine	520 U	530 U	430 U	540 U	480 U
N-Nitrosodimethylamine	520 U	530 U	430 U	540 U	480 UJ
N-Nitrosodiphenylamine	520 U	530 U	430 U	540 U	480 U
N-Nitrosomethylethylamine	520 U	530 U	430 U	540 U	480 U
N-Nitrosomorpholine	520 U	530 U	430 U	540 UJ	480 UJ
N-Nitrosopiperidine	520 U	530 U	430 U	540 U	480 U
N-Nitrosopyrrolidine	520 U	530 U	430 U	540 UJ	480 UJ
Naphthalene	520 U	530 U	430 U	540 U	480 U
Nitrobenzene	520 U	530 U	430 U	540 U	480 U
O,O,O-Triethylphosphorothioate	520 U	530 U	430 U	540 U	480 U
Pentachlorobenzene	520 U	530 U	430 U	540 U	480 U
Pentachloronitrobenzene	520 U	530 U	430 U	540 U	480 U
Pentachlorophenol	2,700 U	2,700 U	2,200 U	2,800 U	2,500 U
Phenacetin	520 U	530 U	430 U	540 UJ	480 UJ
Phenanthrene	520 U	530 U	430 U	540 U	480 U
Phenol	520 U	530 U	430 U	540 U	480 U
Pronamide	520 U	530 U	430 U	540 U	480 U
Pyrene	520 U	530 U	430 U	540 U	480 U
Pyridine	520 U	530 U	430 U	540 U	480 UJ
Safrole	520 U	530 U	430 U	540 U	480 U
alpha,alpha-Dimethylphenethylam	110,000 UJ	110,000 UJ	87,000 UJ	110,000 UJ	98,000 UJ
o-Toluidine	520 U	530 U	430 U	540 U	480 U
p-Dimethylaminoazobenzene	520 U	530 U	430 U	540 U	480 U

APPENDIX D.7
SWMU 54, Groundwater - Organics

APPENDIX D.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510DW1	510DW1	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample ID	510DW1	510DW1D	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample Date	02/27/02	02/27/02	02/27/02	02/26/02	02/27/02	02/13/02	02/26/02	02/13/02	02/20/02	02/14/02	02/14/02	02/14/02	02/15/02	02/15/02	02/15/02
Volatiles (ug/L)															
1,1,1,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	1.5 J	5 U	0.79 J	5 U	0.8 J	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U
1,2-Dibromoethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.8 J	2.2 J
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloro-1,3-butadiene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
2-Hexanone	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
3-Chloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U
Acetone	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 R	50 R	50 R
Acetonitrile	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 U	200 UJ	200 U	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ
Acrolein	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R
Acrylonitrile	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 U	100 UJ	100 U	100 UJ	100 UJ	100 UJ	100 UJ	100 U	100 U	100 U
Benzene	92	91	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	7.8	7.1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.1 J	2.9 J	5 U	5 U	8
Chloromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methacrylate	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U

APPENDIX D.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510DW1	510DW1	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample ID	510DW1	510DW1D	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample Date	02/27/02	02/27/02	02/27/02	02/26/02	02/27/02	02/13/02	02/26/02	02/13/02	02/20/02	02/14/02	02/14/02	02/14/02	02/15/02	02/15/02	02/15/02
Volatiles (Cont.) (ug/L)															
Ethylbenzene	64	62	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Iodomethane	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
Isobutanol	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R
Methacrylonitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ	100 UJ	100 U	100 U	100 U
Methyl Ethyl Ketone	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	12 U	25 UJ	25 U	25 U	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Methyl isobutyl ketone	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 UJ	25 UJ	25 UJ
Methyl methacrylate	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U
Methylene bromide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.54 J	0.54 J	5 U	5 U	5 U	5 U
Pentachloroethane	25 R	25 R	25 R	25 R	25 R	25 R	25 R	25 R	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U
Propionitrile	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 U	100 UJ	100 U	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5.4	5.3	5 U	5 U	0.56 J	2.5 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	2.8 J	5 U	190	2.4 J	53	84	170 D	34	5 U	8
Trichlorofluoromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl acetate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylenes, Total	14	14	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ

APPENDIX D.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510DW1	510DW1	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample ID	510DW1	510DW1D	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample Date	02/27/02	02/27/02	02/27/02	02/26/02	02/27/02	02/13/02	02/26/02	02/13/02	02/20/02	02/14/02	02/14/02	02/14/02	02/15/02	02/15/02	02/15/02
Semivolatiles (ug/L)															
1,2,4,5-Tetrachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3,5-Trinitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dinitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dioxane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Naphthoquinone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Phenylenediamine	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 U	2,000 R	2,000 U	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R
1-Diallate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1-Naphthylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-Oxybis(1-chloropropane)	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 UJ	50 UJ	50 U	50 UJ	50 UJ	50 UJ
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Acetylaminofluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Diallate	10 R	10 R	10 R	10 R	10 R	10 U	10 R	10 U	10 R	10 R	10 R	10 R	10 R	10 R	10 R
2-Methylnaphthalene	0.51 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Naphthylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 UJ	50 UJ	50 U	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 UJ	50 UJ	50 UJ
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX D.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510DW1	510DW1	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample ID	510DW1	510DW1D	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample Date	02/27/02	02/27/02	02/27/02	02/26/02	02/27/02	02/13/02	02/26/02	02/13/02	02/20/02	02/14/02	02/14/02	02/14/02	02/15/02	02/15/02	02/15/02
Semivolatiles (Cont.) (ug/L)															
2-Picoline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3&4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
3,3'-Dimethylbenzidine	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
3-Methylcholanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Aminobiphenyl	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Chlorophenylphenylether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 UJ	50 UJ	50 U	50 U	50 U	50 U
4-Nitroquinoline-1-oxide	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 U	20 U	20 R	20 R	20 R	20 R
5-Nitro-o-toluidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
7,12-Dimethylbenz(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetophenone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aniline	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aramite, Total	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aramite-1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aramite-2	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

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SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510DW1	510DW1	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample ID	510DW1	510DW1D	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample Date	02/27/02	02/27/02	02/27/02	02/26/02	02/27/02	02/13/02	02/26/02	02/13/02	02/20/02	02/14/02	02/14/02	02/14/02	02/15/02	02/15/02	02/15/02
Semivolatiles (Cont.) (ug/L)															
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Bis(2-ethylhexyl)phthalate	10 U	10 U	10 U	0.88 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diallate, Total	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	1.3 J	10 U	0.86 J	10 U	10 U	10 U	10 U	10 U	10 U	2.7 J	10 U
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methanesulfonate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorophene	5,000 UJ	5,000 UJ	5,000 R	5,000 U	5,000 R	5,000 U	5,000 R	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U
Hexachloropropene	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isosafrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methapyrilene	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U
Methyl methanesulfonate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodimethylamine	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ

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SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	510DW1	510DW1	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample ID	510DW1	510DW1D	510DW2	510MW1	510MW2	510MW3	510MW4	510MW5	54PZ01	54TW03	54TW04	54TW05	54TW06	54TW07	54TW08
Sample Date	02/27/02	02/27/02	02/27/02	02/26/02	02/27/02	02/13/02	02/26/02	02/13/02	02/20/02	02/14/02	02/14/02	02/14/02	02/15/02	02/15/02	02/15/02
Semivolatiles (Cont.) (ug/L)															
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosomethylethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosomorpholine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopiperidine	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopyrrolidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachloronitrobenzene	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenacetin	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.46 J	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pronamide	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyridine	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Safrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
alpha,alpha-Dimethylphenethylamine	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U
o,o,o-Triethylphosphorothioate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
o-Toluidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
p-Dimethylaminoazobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

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SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW09	54TW09	54TW10	54TW11	54TW11	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample ID	54TW09	54TW09D	54TW10	54TW11	54TW11D	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample Date	02/15/02	02/15/02	02/15/02	02/18/02	02/18/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/21/02	02/21/02	03/03/02	03/03/02	03/05/02
Volatiles (ug/L)															
1,1,1,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	120 UJ	5 UJ	5 U	5 U	0.64 J	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 UJ
1,2-Dibromo-3-chloropropane	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	120 UJ	5 UJ	5 U	5 U	5 U	5 U	5 UJ
1,2-Dibromoethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	1.2 J	5 U	5 U	5 UJ	5 UJ	5 UJ	120 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloro-1,3-butadiene	5 UJ	5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	120 UJ	5 UJ	5 U	5 U	5 U	5 U	5 UJ
2-Hexanone	25 U	25 U	25 U	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	620 UJ	25 UJ	25 U	25 U	25 U	25 U	25 UJ
3-Chloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Acetone	50 R	50 R	50 R	50 R	50 R	50 UJ	50 UJ	50 UJ	1,200 UJ	50 UJ	50 U	50 U	50 UJ	50 UJ	50 UJ
Acetonitrile	200 UJ	200 UJ	200 UJ	200 U	200 U	200 UJ	200 UJ	200 UJ	5,000 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ
Acrolein	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R	2,500 R	100 R	100 R	100 R	100 R	100 R	100 R
Acrylonitrile	100 U	100 U	100 U	100 U	100 U	100 UJ	100 UJ	100 UJ	2,500 UJ	100 UJ	100 U	100 U	100 U	100 U	100 U
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3,000	5 U	5 U	5 U	5 U	2 J	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	120 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ
Bromomethane	10 UJ	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	250 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	250 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	4.5 J	4.3 J	6.4	5 U	5 U	5 U	5 U	1.8 J	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	250 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	250 U	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl methacrylate	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U

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SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW09	54TW09	54TW10	54TW11	54TW11	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample ID	54TW09	54TW09D	54TW10	54TW11	54TW11D	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample Date	02/15/02	02/15/02	02/15/02	02/18/02	02/18/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/21/02	02/21/02	03/03/02	03/03/02	03/05/02
Volatiles (Cont.) (ug/L)															
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2,400	5 U	5 U	5 U	5 U	68	5 U
Iodomethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ
Isobutanol	200 R	200 R	200 R	200 R	200 R	200 R	200 R	200 R	2,600 J	200 R	200 U	200 U	200 R	200 R	200 R
Methacrylonitrile	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	2,500 U	100 U	100 U	100 U	100 U	100 U	100 U
Methyl Ethyl Ketone	25 UJ	25 UJ	25 UJ	25 U	25 U	25 UJ	25 UJ	25 UJ	620 UJ	25 UJ	25 UJ	25 UJ	25 U	25 U	25 UJ
Methyl isobutyl ketone	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	620 UJ	25 UJ	25 U	25 U	25 U	25 U	25 U
Methyl methacrylate	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Methylene bromide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Pentachloroethane	25 U	25 U	25 U	25 R	25 R	25 U	25 U	25 U	620 U	25 U	25 UJ	25 UJ	25 U	25 U	25 UJ
Propionitrile	100 UJ	100 UJ	100 UJ	100 U	100 U	100 UJ	100 U	100 UJ	2,500 U	100 U	100 U	100 U	100 U	100 U	100 UJ
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	400	5 U	5 U	5 U	5 U	0.76 J	5 U
Trichloroethene	20	19	11	140	150	5 U	1.1 J	25	120 U	0.34 J	1.3 J	5 U	3.2 J	5 U	5 U
Trichlorofluoromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl acetate	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	250 UJ	10 UJ	10 U	10 U	10 U	10 U	10 UJ
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	250 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylenes, Total	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8,000	10 U	10 U	10 U	10 U	5.5 J	10 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	250 U	10 U	10 U	10 U	10 U	10 U	10 UJ

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SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW09	54TW09	54TW10	54TW11	54TW11	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample ID	54TW09	54TW09D	54TW10	54TW11	54TW11D	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample Date	02/15/02	02/15/02	02/15/02	02/18/02	02/18/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/21/02	02/21/02	03/03/02	03/03/02	03/05/02
Semivolatiles (ug/L)															
1,2,4,5-Tetrachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3,5-Trinitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dinitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dioxane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Naphthoquinone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Phenylenediamine	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R	2,000 R
1-Diallate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1-Naphthylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-Oxybis(1-chloropropane)	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8.5 J	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 UJ	50 UJ	50 UJ	50 U	50 U	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Acetylaminofluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Diallate	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	65	10 U	10 U	10 U	10 U	1.2 J	10 U
2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
2-Naphthylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50 UJ	50 UJ	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U

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SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW09	54TW09	54TW10	54TW11	54TW11	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample ID	54TW09	54TW09D	54TW10	54TW11	54TW11D	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample Date	02/15/02	02/15/02	02/15/02	02/18/02	02/18/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/21/02	02/21/02	03/03/02	03/03/02	03/05/02
Semivolatiles (Cont.) (ug/L)															
2-Picoline	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3&4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
3,3'-Dimethylbenzidine	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
3-Methylcholanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U	50 UJ	50 U	50 UJ
4-Aminobiphenyl	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl phenyl ether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Chlorophenylphenylether	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitroquinoline-1-oxide	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R	20 R
5-Nitro-o-toluidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
7,12-Dimethylbenz(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetophenone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aniline	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aramite, Total	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aramite-1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aramite-2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U

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SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW09	54TW09	54TW10	54TW11	54TW11	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample ID	54TW09	54TW09D	54TW10	54TW11	54TW11D	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample Date	02/15/02	02/15/02	02/15/02	02/18/02	02/18/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/21/02	02/21/02	03/03/02	03/03/02	03/05/02
Semivolatiles (Cont.) (ug/L)															
Bis(2-chloroethoxy)methane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1 J	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U	0.26 J	10 U	10 U	10 U	0.37 J	10 U	10 U	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diallate, Total	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.96 J
Dimethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dinoseb	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Ethyl methanesulfonate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.6 J	10 U	10 U	10 U	10 U	0.64 J	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorophene	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U	5,000 U
Hexachloropropene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isosafrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methapyrilene	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U
Methyl methanesulfonate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodimethylamine	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U

APPENDIX D.7

SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Site ID	54TW09	54TW09	54TW10	54TW11	54TW11	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample ID	54TW09	54TW09D	54TW10	54TW11	54TW11D	54TW12	54TW13	54TW14	54TW15	54TW16	54TW17	54TW18	54TW19	54TW20	54TW21
Sample Date	02/15/02	02/15/02	02/15/02	02/18/02	02/18/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/21/02	02/21/02	03/03/02	03/03/02	03/05/02
Semivolatiles (Cont.) (ug/L)															
N-Nitrosodiphenylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosomethylethylamine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosomorpholine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopiperidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosopyrrolidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	190	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachloronitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
Phenacetin	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 UJ
Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
Pronamide	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyridine	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Safrole	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
alpha,alpha-Dimethylphenethylamine	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 UJ	2,000 UJ	2,000 UJ
o,o,o-Triethylphosphorothioate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
o-Toluidine	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
p-Dimethylaminoazobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

APPENDIX D.8
SWMU 53, Equipment Rinsate Sample - Organics

APPENDIX D.8

SUMMARY OF ANALYTICAL RESULTS, EQUIPMENT RINSATE SAMPLE - ORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	53ER01	
Sample Date	02/18/02	
Pesticides (ug/L)		
4,4'-DDD	0.1	U
4,4'-DDE	0.1	U
4,4'-DDT	0.1	U
Aldrin	0.05	U
Chlordane (technical)	0.5	U
Chlorobenzilate	0.5	U
Dieldrin	0.1	U
Endosulfan I	0.05	U
Endosulfan II	0.1	U
Endosulfan sulfate	0.1	U
Endrin	0.1	U
Endrin aldehyde	0.1	U
Heptachlor	0.05	UJ
Heptachlor epoxide	0.05	U
Isodrin	0.05	U
Kepone	1	U
Methoxychlor	0.5	U
Toxaphene	5	U
alpha-BHC	0.05	U
beta-BHC	0.05	U
delta-BHC	0.05	UJ
gamma-BHC (Lindane)	0.05	U

APPENDIX D.9
SWMU 53, Equipment Rinsate Sample – (Total) Inorganics

APPENDIX D.9

SUMMARY OF ANALYTICAL RESULTS, EQUIPMENT RINSATE SAMPLES - (TOTAL) INORGANICS
SWMU 53 - BUILDING 64 (MALARIA CONTROL BUILDING)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	53ER01	
Sample Date	02/18/02	
Inorganics - Total (ug/L		
Arsenic	3.8	J
Lead	5	U

APPENDIX D.10
SWMU 54, Equipment Rinsate Sample – Organics

APPENDIX D.10

SUMMARY OF ANALYTICAL RESULTS, EQUIPMENT RINSATE SAMPLE - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54ER01	
Sample Date	02/13/02	
Volatiles (ug/L)		
1,1,1,2-Tetrachloroethane	5	U
1,1,1-Trichloroethane	5	U
1,1,2,2-Tetrachloroethane	5	U
1,1,2-Trichloroethane	5	U
1,1-Dichloroethane	5	U
1,1-Dichloroethene	5	U
1,2,3-Trichloropropane	5	U
1,2-Dibromo-3-chloropropane	5	U
1,2-Dibromoethane	5	U
1,2-Dichloroethane	5	U
1,2-Dichloropropane	5	U
2-Butanone	110	
2-Hexanone	25	U
3-Chloro-1-propene	5	U
4-Methyl-2-pentanone	25	U
Acetone	50	U
Acetonitrile	200	U
Acrolein	100	R
Acrylonitrile	100	U
Benzene	5	U
Bromodichloromethane	5	U
Bromoform	5	U
Bromomethane	10	U
Carbon disulfide	5	U
Carbon tetrachloride	5	U
Chlorobenzene	5	U
Chloroethane	10	U
Chloroform	5	U
Chloromethane	10	U
Chloroprene	5	U
Dibromochloromethane	5	U
Dibromomethane	5	U
Dichlorodifluoromethane	10	U
Ethyl methacrylate	5	U
Ethylbenzene	5	U
Iodomethane	5	U
Isobutanol	200	R
Methacrylonitrile	100	U
Methyl methacrylate	5	U
Methylene chloride	5	U
Pentachloroethane	25	R
Propionitrile	100	U
Styrene	5	U
Tetrachloroethene	5	U
Toluene	5	U
Trichloroethene	5	U
Trichlorofluoromethane	5	U

APPENDIX D.10

SUMMARY OF ANALYTICAL RESULTS, EQUIPMENT RINSATE SAMPLE - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54ER01
Sample Date	02/13/02
Volatiles (Cont.) (ug/L)	
Vinyl acetate	10 U
Vinyl chloride	10 U
Xylene	10 U
cis-1,3-Dichloropropene	5 U
trans-1,2-Dichloroethene	5 U
trans-1,3-Dichloropropene	5 U
trans-1,4-Dichloro-2-butene	10 U
Semivolatiles (ug/L)	
1,2,4,5-Tetrachlorobenzene	10 U
1,2,4-Trichlorobenzene	10 U
1,2-Dichlorobenzene	10 U
1,3,5-Trinitrobenzene	10 U
1,3-Dichlorobenzene	10 U
1,4,-Dichlorobenzene	10 U
1,4-Dioxane	10 U
1,4-Naphthoquinone	10 U
1,4-Phenylenediamine	2,000 U
1-Diallate	10 U
1-Naphthylamine	10 U
2,3,4,6-Tetrachlorophenol	10 U
2,4,5-Trichlorophenol	10 U
2,4,6-Trichlorophenol	10 U
2,4-Dichlorophenol	10 U
2,4-Dimethylphenol	10 U
2,4-Dinitrophenol	50 U
2,4-Dinitrotoluene	10 U
2,6-Dichlorophenol	10 U
2,6-Dinitrotoluene	10 U
2-Acetylaminofluorene	10 U
2-Chloronaphthalene	10 U
2-Chlorophenol	10 U
2-Diallate	10 U
2-Methylnaphthalene	10 U
2-Methylphenol	10 U
2-Naphthalamine	10 U
2-Nitroaniline	50 U
2-Nitrophenol	10 U
2-Picoline	10 U
3&4-Methylphenol	10 U
3,3'-Dichlorobenzidine	20 U
3,3'-Dimethylbenzidine	20 U
3-Methylcholanthrene	10 U
3-Nitroaniline	50 U
4,6-Dinitro-2-methylphenol	50 U
4-Aminobiphenyl	10 U
4-Bromophenyl phenyl ether	10 U

APPENDIX D.10

SUMMARY OF ANALYTICAL RESULTS, EQUIPMENT RINSATE SAMPLE - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54ER01	
Sample Date	02/13/02	
Semivolatiles (Cont.) (ug/L)		
4-Chloro-3-methylphenol	10	U
4-Chloroaniline	20	U
4-Chlorophenyl-Phenylether	10	U
4-Nitroaniline	50	U
4-Nitrophenol	50	U
4-Nitroquinoline-1-oxide	20	R
5-Nitro-o-toluidine	10	U
7,12-Dimethyl benz(a)anthracene	10	U
A, A-Dimethylphenethylamine	2,000	U
Acenaphthene	10	U
Acenaphthylene	10	U
Acetophenone	10	U
Aniline	20	U
Anthracene	10	U
Aramite	10	U
Aramite-1	10	U
Aramite-2	10	U
Benzo(a)anthracene	10	U
Benzo(a)pyrene	10	U
Benzo(b)fluoranthene	10	U
Benzo(g,h,i)perylene	10	U
Benzo(k)fluoranthene	10	U
Benzyl alcohol	10	U
Bis(2-chloroethoxy)methane	10	U
Bis(2-chloroethyl)ether	10	U
Bis(2-chloroisopropyl)ether	10	U
Bis(2-ethylhexyl)phthalate	10	U
Butylbenzylphthalate	10	U
Chrysene	10	U
Di-n-butylphthalate	10	U
Di-n-octylphthalate	10	U
Diallate	10	U
Dibenzo(a,h)anthracene	10	U
Dibenzofuran	10	U
Diethylphthalate	10	U
Dimethylphthalate	10	U
Dinoseb	10	U
Ethyl methanesulfonate	10	U
Fluoranthene	10	U
Fluorene	10	U
Hexachlorobenzene	10	U
Hexachlorobutadiene	10	U
Hexachlorocyclopentadiene	10	U
Hexachloroethane	10	U
Hexachlorophene	5,000	U
Hexachloropropene	10	U
Indeno(1,2,3-cd)pyrene	10	U

APPENDIX D.10

SUMMARY OF ANALYTICAL RESULTS, EQUIPMENT RINSATE SAMPLE - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54ER01
Sample Date	02/13/02
Semivolatiles (Cont.) (ug/L)	
Isophorone	10 U
Isosafrole	10 U
Methapyrilene	2,000 U
Methyl methanesulfonate	10 U
Naphthalene	10 U
Nitrobenzene	10 U
Pentachlorobenzene	10 U
Pentachloronitrobenzene	10 U
Pentachlorophenol	50 U
Phenacetin	10 U
Phenanthrene	10 U
Phenol	10 U
Pronamide	10 U
Pryridine	50 U
Pyrene	10 U
Safrole	10 U
m-Dinitrobenzene	10 U
n-Nitroso-di-n-butylamine	10 U
n-Nitroso-di-n-propylamine	10 U
n-Nitrosodiethylamine	10 U
n-Nitrosodimethylamine	10 U
n-Nitrosodiphenylamine	10 U
n-Nitrosomethylethylamine	10 U
n-Nitrosomorpholine	10 U
n-Nitrosopiperidine	10 U
n-Nitrosopyrrolidine	10 U
o,o,o-Triethylphosphorothioate	10 U
o-Toluidine	10 U
p-Dimethylaminoazobenzene	10 U

APPENDIX D.11
SWMU 54, Trip Blank Samples – Organics

APPENDIX D.11

SUMMARY OF ANALYTICAL RESULTS, TRIP BLANK SAMPLES - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54TB01	54TB02	54TB03	54TB04	54TB05	54TB06	54TB07	54TB08
Sample Date	02/13/02	02/14/02	02/15/02	02/18/02	02/18/02	02/19/02	02/21/02	02/27/02
Volatiles (ug/L)								
1,1,1,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ
1,2-Dibromo-3-chloropropan	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 UJ
1,2-Dibromoethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	25 U	25 UJ	25 UJ	25 U	25 U	25 U	25 UJ	25 UJ
2-Hexanone	25 U	25 U	25 U	25 UJ	25 U	25 U	25 U	25 UJ
3-Chloro-1-propene	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	25 U	25 U	25 UJ	25 UJ	25 U	25 U	25 U	25 UJ
Acetone	50 U	50 U	50 R	50 R	50 U	50 U	50 U	50 U
Acetonitrile	200 U	200 UJ	200 UJ	200 U	200 UJ	200 UJ	200 UJ	200 UJ
Acrolein	100 R	100 R	100 R	100 R	100 R	100 R	100 R	100 R
Acrylonitrile	100 U	100 UJ	100 U	100 U	100 UJ	100 UJ	100 U	100 UJ
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Bromomethane	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	10 U
Carbon disulfide	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U
Chloroprene	5 U	5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromomethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U
Ethyl methacrylate	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 UJ
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Iodomethane	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ
Isobutanol	200 R	200 R	200 R	200 U	200 R	200 R	200 U	200 R
Methacrylonitrile	100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U
Methyl methacrylate	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 UJ
Methylene chloride	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.67 J
Pentachloroethane	25 R	25 U	25 U	25 R	25 UJ	25 UJ	25 UJ	25 R
Propionitrile	100 U	100 UJ	100 UJ	100 U	100 UJ	100 UJ	100 U	100 UJ
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5 U	5 U	5 U	5 U	0.56 J	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

APPENDIX D.11

SUMMARY OF ANALYTICAL RESULTS, TRIP BLANK SAMPLES - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54TB01	54TB02	54TB03	54TB04	54TB05	54TB06	54TB07	54TB08
Sample Date	02/13/02	02/14/02	02/15/02	02/18/02	02/18/02	02/19/02	02/21/02	02/27/02
Volatiles (Cont.) (ug/L)								
Trichlorofluoromethane	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl acetate	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ

APPENDIX D.12
SWMU 54, Field Blank Samples – Organics

APPENDIX D.12

SUMMARY OF ANALYTICAL RESULTS, FIELD BLANK SAMPLES - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	2001FB01	2001FB02	2001FB03
Sample Date	02/18/02	02/18/02	02/18/02
Volatiles (ug/L)			
1,1,1,2-Tetrachloroethane	5 U	5 U	5 U
1,1,1-Trichloroethane	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U
1,2,3-Trichloropropane	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5 U	5 U	5 U
1,2-Dibromoethane	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U
2-Butanone	25 U	25 U	25 U
2-Hexanone	25 U	25 U	25 U
3-Chloro-1-propene	5 U	5 U	5 U
4-Methyl-2-pentanone	25 U	25 U	25 U
Acetone	50 U	50 U	50 U
Acetonitrile	200 UJ	200 UJ	200 UJ
Acrolein	100 R	100 R	100 R
Acrylonitrile	100 UJ	100 UJ	100 UJ
Benzene	1.2 J	0.42 J	5 U
Bromodichloromethane	5 U	5 U	13
Bromoform	5 U	5 U	5 U
Bromomethane	10 U	10 U	10 U
Carbon disulfide	5 U	5 U	5 U
Carbon tetrachloride	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U
Chloroethane	10 U	10 U	10 U
Chloroform	5 U	5 U	66
Chloromethane	10 U	10 U	10 U
Chloroprene	5 UJ	5 UJ	5 UJ
Dibromochloromethane	5 U	5 U	3.6 J
Dibromomethane	5 U	5 U	5 U
Dichlorodifluoromethane	10 U	10 U	10 U
Ethyl methacrylate	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U
Iodomethane	5 UJ	5 UJ	5 UJ
Isobutanol	200 R	200 R	200 R
Methacrylonitrile	100 U	100 U	100 U
Methyl methacrylate	5 U	5 U	5 U
Methylene chloride	5 U	5 U	5 U
Pentachloroethane	25 UJ	25 UJ	25 UJ
Propionitrile	100 UJ	100 UJ	100 U
Styrene	5 U	5 U	5 U
Tetrachloroethene	5 U	5 U	5 U
Toluene	3.7 J	1.8 J	5 U
Trichloroethene	5 U	5 U	5 U

APPENDIX D.12

SUMMARY OF ANALYTICAL RESULTS, FIELD BLANK SAMPLES - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	2001FB01	2001FB02	2001FB03
Sample Date	02/18/02	02/18/02	02/18/02
Volatiles (Cont.) (ug/L)			
Trichlorofluoromethane	5 U	5 U	5 U
Vinyl acetate	10 U	10 U	10 U
Vinyl chloride	10 U	10 U	10 U
Xylene	10 U	10 U	10 U
cis-1,3-Dichloropropene	5 U	5 U	5 U
trans-1,2-Dichloroethene	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U
trans-1,4-Dichloro-2-butene	10 U	10 U	10 U
Semivolatiles (ug/L)			
1,2,4,5-Tetrachlorobenzene	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U
1,3,5-Trinitrobenzene	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U
1,4,-Dichlorobenzene	10 U	10 U	10 U
1,4-Dioxane	10 U	10 U	10 U
1,4-Naphthoquinone	10 U	10 U	10 U
1,4-Phenylenediamine	2,000 R	2,000 R	2,000 R
1-Diallate	10 U	10 U	10 U
1-Naphthylamine	10 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 U	10 U	10 R
2,4,5-Trichlorophenol	10 U	10 U	10 R
2,4,6-Trichlorophenol	10 U	10 U	10 R
2,4-Dichlorophenol	10 U	10 U	10 R
2,4-Dimethylphenol	10 U	10 U	10 R
2,4-Dinitrophenol	50 U	50 U	50 R
2,4-Dinitrotoluene	10 U	10 U	10 U
2,6-Dichlorophenol	10 U	10 U	10 R
2,6-Dinitrotoluene	10 U	10 U	10 U
2-Acetylaminofluorene	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 R
2-Diallate	10 R	10 R	10 R
2-Methylnaphthalene	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 R
2-Naphthalamine	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U
2-Nitrophenol	10 U	10 U	10 R
2-Picoline	10 U	10 U	10 U
3&4-Methylphenol	10 U	10 U	10 R
3,3'-Dichlorobenzidine	20 U	20 U	20 U
3,3'-Dimethylbenzidine	20 U	20 U	20 U
3-Methylcholanthrene	10 U	10 U	10 U
3-Nitroaniline	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 R
4-Aminobiphenyl	10 U	10 U	10 U

APPENDIX D.12

SUMMARY OF ANALYTICAL RESULTS, FIELD BLANK SAMPLES - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	2001FB01	2001FB02	2001FB03
Sample Date	02/18/02	02/18/02	02/18/02
Semivolatiles (Cont.) (ug/L)			
4-Bromophenyl phenyl ether	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 R
4-Chloroaniline	20 U	20 U	20 U
4-Chlorophenyl-Phenylether	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U
4-Nitrophenol	50 U	50 U	50 R
4-Nitroquinoline-1-oxide	20 R	20 R	20 R
5-Nitro-o-toluidine	10 U	10 U	10 U
7,12-Dimethyl benz(a)anthracene	10 U	10 U	10 U
A, A-Dimethylphenethylamine	2,000 U	2,000 U	2,000 U
Acenaphthene	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U
Acetophenone	10 U	10 U	10 U
Aniline	20 U	20 U	20 U
Anthracene	10 U	10 U	10 U
Aramite	10 U	10 U	10 U
Aramite-1	10 U	10 U	10 U
Aramite-2	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U
Benzyl alcohol	10 U	10 U	10 U
Bis(2-chloroethoxy)methane	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U
Bis(2-chloroisopropyl)ether	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U
Diallate	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U
Dimethylphthalate	10 U	10 U	10 U
Dinoseb	10 U	10 U	10 U
Ethyl methanesulfonate	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U
Hexachlorophene	5,000 U	5,000 U	5,000 U
Hexachloropropene	10 U	10 U	10 U

APPENDIX D.12

SUMMARY OF ANALYTICAL RESULTS, FIELD BLANK SAMPLES - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	2001FB01	2001FB02	2001FB03
Sample Date	02/18/02	02/18/02	02/18/02
Semivolatiles (Cont.) (ug/L)			
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U
Isosafrole	10 U	10 U	10 U
Methapyrilene	2,000 U	2,000 U	2,000 U
Methyl methanesulfonate	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U
Pentachlorobenzene	10 U	10 U	10 U
Pentachloronitrobenzene	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 R
Phenacetin	10 U	10 U	10 U
Phenanthrene	10 U	10 U	10 U
Phenol	10 U	10 U	10 R
Pronamide	10 U	10 U	10 U
Pryridine	50 U	50 U	50 U
Pyrene	10 U	10 U	10 U
Safrole	10 U	10 U	10 U
m-Dinitrobenzene	10 U	10 U	10 U
n-Nitroso-di-n-butylamine	10 U	10 U	10 U
n-Nitroso-di-n-propylamine	10 U	10 U	10 U
n-Nitrosodiethylamine	10 U	10 U	10 U
n-Nitrosodimethylamine	10 UJ	10 UJ	10 UJ
n-Nitrosodiphenylamine	10 U	10 U	10 U
n-Nitrosomethylethylamine	10 U	10 U	10 U
n-Nitrosomorpholine	10 U	10 U	10 U
n-Nitrosopiperidine	10 U	10 U	10 U
n-Nitrosopyrrolidine	10 U	10 U	10 U
o,o,o-Triethylphosphorothioate	10 U	10 U	10 U
o-Toluidine	10 U	10 U	10 U
p-Dimethylaminoazobenzene	10 U	10 U	10 U

APPENDIX D.12

SUMMARY OF ANALYTICAL RESULTS, FIELD BLANK SAMPLES - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	2001FB01	2001FB02	2001FB03
Sample Date	02/18/02	02/18/02	02/18/02
Pesticides (ug/L)			
4,4'-DDD	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U
Aldrin	0.05 U	0.05 U	0.05 U
Chlordane (technical)	0.5 U	0.5 U	0.5 U
Chlorobenzilate	0.5 U	0.5 U	0.5 U
Dieldrin	0.1 U	0.1 U	0.1 U
Endosulfan I	0.05 U	0.05 U	0.05 U
Endosulfan II	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1 U	0.1 U	0.1 U
Endrin	0.1 U	0.1 U	0.1 U
Endrin aldehyde	0.1 U	0.1 U	0.1 U
Heptachlor	0.05 UJ	0.05 UJ	0.05 UJ
Heptachlor epoxide	0.05 U	0.05 U	0.05 U
Isodrin	0.05 U	0.05 U	0.05 U
Kepone	1 U	1 U	1 U
Methoxychlor	0.5 U	0.5 U	0.5 U
Toxaphene	5 U	5 U	5 U
alpha-BHC	0.05 U	0.05 U	0.05 U
beta-BHC	0.05 U	0.05 U	0.05 U
delta-BHC	0.05 UJ	0.05 UJ	0.05 UJ
gamma-BHC (Lindane)	0.05 U	0.05 U	0.05 U

APPENDIX D.13
SWMU 54, Field Blank Samples – (Total) Inorganics

APPENDIX D.13

SUMMARY OF ANALYTICAL RESULTS, FIELD BLANK SAMPLES - (TOTAL) INORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	2001FB01	2001FB02	2001FB03
Sample Date	02/18/02	02/18/02	02/18/02
Inorganics - Total (mg/L			
Arsenic	0.01 U	0.01 U	0.01 U
Lead	0.005 U	0.005 U	0.005 U

APPENDIX D.14
SWMU 54, IDW Samples – Organics

APPENDIX D.14

SUMMARY OF ANALYTICAL RESULTS, IDW SAMPLES - ORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54IDW-SOIL	54IDW-WATER
Sample Date	03/12/02	03/12/02
Volatiles (ug/L)		
Benzene	NA	5 UX
TCLP Volatiles (ug/L)		
Benzene	20 U	NA

APPENDIX D.15
SWMU 54, IDW Samples – Inorganics

APPENDIX D.15

SUMMARY OF ANALYTICAL RESULTS, IDW SAMPLES - INORGANICS
SWMU 54 - BUILDING 1914 (FORMER NEX REPAIR/MAINTENANCE SHOP)
RCRA FACILITY INVESTIGATION
NAVAL STATION ROOSEVELT ROADS, CEIBA, PUERTO RICO

Sample ID	54IDW-SOIL	54IDW-WATER
Sample Date	03/12/02	03/12/02
RCRA Metals (mg/L)		
Arsenic	0.2 U	NA
Barium	0.7 B	NA
Cadmium	0.1 U	NA
Chromium	0.018 B	NA
Lead	0.2 U	NA
Mercury	0.02 U	NA
Selenium	0.5 U	NA
Silver	0.1 U	NA
RCRA Metals - TCLP (mg/		
Arsenic	NA	0.03 B
Barium	NA	7.5
Cadmium	NA	0.015 B
Chromium	NA	1.1
Lead	NA	0.26
Mercury	NA	0.00038 B
Selenium	NA	0.05 U
Silver	NA	0.05 U

APPENDIX E
Data Validation Report Narratives

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS22
Date:	March 14, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 13, 2002
Number of Samples:	4 Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition and USEPA Approved Methodologies
Analytical Fractions:	Volatiles and Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scafton
for Paul B. Humburg, President

3-14-02.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS22

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		SVOA	
510MW3	WATER	X		X	
510MW3 MS	WATER	X			
510MW3 MSD	WATER	X			
510MW5	WATER	X		X	
54ER01	WATER	X		X	
TRIP BLANK	WATER	X			
Total Billable Samples (Water/Soil)		6	0	3	0

VOA= Volatiles
SVOA= Semivolatiles

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS22

A validation was performed on the Volatile Data from SDG #PRNS22. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibration, AQ280 and AQ281, contained compounds with RRFs less than 0.050 and/or %Ds greater than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol pentachloroethane

Blanks

The blank(s) associated with samples in this SDG exhibited contamination. Qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Associated blank	Compound	Concentration	Action Level
54ER01	2-butanone	110 ug/L	550 ug/L

Samples	Compound	Qualification
510MW3	2-butanone	CRQL

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acrolein isobutanol pentachloroethane	+/-	J/R
510MW3	2-butanone	+	CRQL
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS22

A validation was performed on the Semivolatile Data from SDG #PRNS22. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 01/20/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	4-nitroquinoline-1-oxide

The continuing calibration, EQ932, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

54ER01	4-nitroquinoline-1-oxide
510MW3	

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	4-nitroquinoline-1-oxide	+/-	J/R
54ER01 510MW3	4-nitroquinoline-1-oxide	+/-	J/R
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS23
Date:	March 29, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 14, 2002
Number of Samples:	4 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles and Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scanlon
for Paul B. Humburg, President

3-28-02
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS23

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		SVOA	
54TW03	WATER	X		X	
54TW04	WATER	X		X	
54TW05	WATER	X		X	
54TB02	WATER	X			
Total Billable Samples (Water/Soil)		4	0	3	0

VOA= Volatiles
SVOA= Semivolatiles

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS23

A validation was performed on the Volatile Data from SDG #PRNS23. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, PQ399 and PQ400, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol

The continuing calibrations, PQ399 and PQ400, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	bromomethane acetonitrile 3-chloro-1-propene acrylonitrile vinyl acetate chloroprene 2-butanone propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene 1,2-dibromo-3-chloropropane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

Do not use the E-flagged compounds in sample 54TW05 in favor of the corresponding D-flagged compound results in the dilution.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acrolein isobutanol	+/-	J/R
All Samples	bromomethane acetonitrile 3-chloro-1-propene acrylonitrile vinyl acetate chloroprene 2-butanone propionitrile methacrylonitrile methyl methacrylate ethyl methacrylate trans-1,4-dichloro-2-butene 1,2-dibromo-3-chloropropane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J
54TW05	all E-flagged compounds	+	R
54TW05DL	all results except D-flagged compounds	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS23

A validation was performed on the Semivolatile Data from SDG #PRNS23. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate

The continuing calibration, DQ334, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW03	2,4-dinitrophenol
54TW04	4-nitrophenol benzo(b)fluoranthene

The continuing calibration, DQ342, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

54TW05	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide

The continuing calibration, DQ341, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW05	n-nitrosodimethylamine

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine 2-diallate	+/-	J/R
54TW03 54TW04	2,4-dinitrophenol 4-nitrophenol benzo(b)fluoranthene	+/-	J/UJ
54TW05	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide	+/-	J/R
54TW05	n-nitrosodimethylamine	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS24
Date:	April 2, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 15, 2002
Number of Samples:	7 Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles and Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Seaxson
Paul B. Humburg, President

4.2.02.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS24

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		SVOA	
54TW06	WATER	X		X	
54TW07	WATER	X		X	
54TW08	WATER	X		X	
54TW09	WATER	X		X	
54TW09 MS	WATER	X		X	
54TW09 MSD	WATER	X		X	
54TW09D	WATER	X		X	
54TW10	WATER	X		X	
54TB03	WATER	X			
Total Billable Samples (Water/Soil)		9	0	8	0

VOA= Volatiles
SVOA= Semivolatiles

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS24

A validation was performed on the Volatile Data from SDG #PRNS24. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, PQ406 and PQ409, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	bromomethane acetonitrile chloroprene 2-butanone propionitrile 4-methyl-2-pentanone trans-1,4-dibromo-2-butene

The continuing calibrations, PQ406 and PQ409, contained compounds with RRFs less than 0.050 or %Ds greater than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol acetone

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	bromomethane acetonitrile chloroprene 2-butanone propionitrile 4-methyl-2-pentanone trans-1,4-dibromo-2-butene	+/-	J/UJ
All Samples	acrolein isobutanol acetone	+/-	J/R
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS24

A validation was performed on the Semivolatile Data from SDG #PRNS24. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate

The continuing calibration, DQ347, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide

The continuing calibration, DQ346, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	bis(2-chloroisopropyl)ether 2-nitroaniline 2,4-dinitrophenol 2,3,4,6-tetrachlorophenol n-nitrosodimethylamine

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

Reject sample 54TW09DRE, in favor of the initial analysis, due to exceeded holding times.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine 2-diallate	+/-	J/R
All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide	+/-	J/R
All Samples	bis(2-chloroisopropyl)ether 2-nitroaniline 2,4-dinitrophenol 2,3,4,6-tetrachlorophenol n-nitrosodimethylamine	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J
54TW09DRE	all results	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS25
Date:	March 29, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 18, 2002
Number of Samples:	4 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles, Appendix IX Semivolatiles, Appendix IX Pesticides, Arsenic and Lead

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scanlon

Paul B. Humburg, President

3-29-02.

Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS25

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

CH2M HILL ID	MATRIX	VOA		SVOA		PEST		As		Pb	
54TW11	WATER	X		X							
54TW11D	WATER	X		X							
53ER01	WATER					X		X		X	
54TB04	WATER	X									
Total Billable Samples (Water/Soil)		3	0	2	0	1	0	1	0	1	0

VOA= Volatiles
SVOA= Appendix IX Semivolatiles
PEST= Appendix IX Pesticides
As= Arsenic
Pb= Lead

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS25

A validation was performed on the Volatile Data from SDG #PRNS25. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 01/16/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	isobutanol

The initial calibration, analyzed on 01/16/02, contained compounds %Ds greater than 15% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	chloromethane pentachloroethane

The continuing calibrations, OQ620 and OQ622, contained compounds with RRFs less than 0.050 or %Ds greater than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein acetone isobutanol pentachloroethane

The continuing calibrations, OQ620 and OQ622, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	dichlorodifluoromethane chloromethane trans-1,2-dichloroethene 1,1-dichloroethane vinyl acetate 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane trans-1,4-dichloro-2-butene 1,2-dibromo-3-chloropropane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	isobutanol	+/-	J/R
All Samples	chloromethane pentachloroethane	+/-	J/UJ
All Samples	acrolein acetone isobutanol pentachloroethane	+/-	J/R
All Samples	dichlorodifluoromethane chloromethane trans-1,2-dichloroethene 1,1-dichloroethane vinyl acetate 4-methyl-2-pentanone 2-hexanone 1,2,3-trichloropropane trans-1,4-dichloro-2-butene 1,2-dibromo-3-chloropropane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS25

A validation was performed on the Semivolatile Data from SDG #PRNS25. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate

The continuing calibration, DQ344, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide

The continuing calibration, DQ343, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	bis(2-chloroisopropyl)ether benzo(b)fluoranthene n-nitrosodimethylamine

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine 2-diallate	+/-	J/R
All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide	+/-	J/R
All Samples	bis(2-chloroisopropyl)ether benzo(b)fluoranthene n-nitrosodimethylamine	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

APPENDIX IX PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 8081A and 8082; Region II Data Validation Guidelines SOP HW-23, Revision 0, April 1995, as applicable; and NEESA Level D requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG# PRNS25

A validation was performed on the Appendix IX Pesticide/PCB data from SDG PRNS25. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC Performance
	•	Calibrations
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
*	•	Compound Identification
*	•	Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration IFB27035 analyzed on 2/27/02 at 2352 exhibited two (2) compounds with %Ds greater than 15% but less than 90%. For the following samples and non-compliant compounds, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

53ER01	heptachlor
	delta-BHC

System Performance and Overall Assessment

The data required qualifications. This SDG consisted of a field QC blank only.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
53ER01	heptachlor delta-BHC	+/-	J/UJ

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods for Metals and the Evaluation of Metals Data for the Contract Laboratory Program for Region II Jan 1992, and NEESA D requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # PRNS25

A validation was performed on the Metals Data from SDG PRNS25. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
*	●	Blanks
*	●	Interferences
*	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

All results with a "B" qualifier that have not been previously flagged will be changed to a "J" qualifier. These results fall between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL) and may have an element of uncertainty associated with them due to the variability of IDLs. (J2)

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL	NUM
all "B" results	all analytes	B	J	2

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS26
Date:	March 29, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 15, 2002
Number of Samples:	16 Non-Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Inorganic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Arsenic

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Simpson
for Paul B. Humburg, President

3-28-02.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS26

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	As	
53SB08-00	SOIL		X
53SB08-01	SOIL		X
53SB10-00	SOIL		X
53SB11-00	SOIL		X
53SB11-01	SOIL		X
53SB11-01D	SOIL		X
53SB12-01	SOIL		X
53SB13-00	SOIL		X
53SB14-01	SOIL		X
53SB15-00D	SOIL		X
53SB16-01	SOIL		X
53SB16-01 MS	SOIL		X
53SB16-01 MSD	SOIL		X
53SB16-01D	SOIL		X
53SB17-01	SOIL		X
53SB18-00	SOIL		X
53SB18-00D	SOIL		X
53SB20-00	SOIL		X
Total Billable Samples (Water/Soil)		0	18

As= Arsenic

DATA ASSESSMENT NARRATIVE
METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods for Metals and the Evaluation of Metals Data for the Contract Laboratory Program for Region II Jan 1992, and NEESA D requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # PRNS26

A validation was performed on the Metals Data from SDG PRNS26. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
*	●	Blanks
*	●	Interferences
*	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

All results with a "B" qualifier that have not been previously flagged will be changed to a "J" qualifier. These results fall between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL) and may have an element of uncertainty associated with them due to the variability of IDLs. (J2)

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL	NUM
all "B" results	all analytes	B	J	2

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS27
Date:	March 29, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 15, 2002
Number of Samples:	16 Non-Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Appendix IX Pesticides, Arsenic and Lead

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

for Craig G. Scarfoss
Paul B. Humburg, President

3-29-02.
Date

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SDG# PRNS27

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	PEST		As		Pb	
53SB07-00	SOIL				X		X
53SB07-01	SOIL				X		X
53SB09-01	SOIL				X		X
53SB12-00	SOIL				X		X
53SB13-01	SOIL				X		X
53SB15-00	SOIL				X		X
53SB15-00 MS	SOIL				X		X
53SB15-00 MSD	SOIL				X		X
53SB18-01	SOIL				X		X
53SB19-00	SOIL				X		X
53SB09-00	SOIL		X		X		
53SB10-01	SOIL		X		X		
53SB14-00	SOIL		X		X		
53SB15-01	SOIL		X		X		
53SB16-00	SOIL		X		X		
53SB17-00	SOIL		X		X		
53SB19-01	SOIL		X		X		
53SB20-01	SOIL		X		X		
Total Billable Samples (Water/Soil)		0	8	0	18	0	10

PEST= Appendix IX Pesticides
As= Arsenic
Pb= Lead

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

APPENDIX IX PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 8081A and 8082; Region II Data Validation Guidelines SOP HW-23, Revision 0, April 1995, as applicable; and NEESA Level D requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG# PRNS27

A validation was performed on the Appendix IX Pesticide/PCB data from SDG PRNS27. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC Performance
	•	Calibrations
	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
*	•	Compound Identification
	•	Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration IFB27055 analyzed on 2/28/02 at 0756 exhibited three (3) compounds with %Ds greater than 15% but less than 90%. For the following samples and non-compliant compounds, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

53SB10-01	heptachlor
53SB15-01	delta-BHC
53SB16-00	endrin aldehyde
53SB17-00	
53SB19-01	
53SB20-01	

The continuing calibrations IMR04005 analyzed on 3/4/02 at 1419 and IMR04007 analyzed on 3/4/02 at 1507 exhibited six (6) compounds with %Ds greater than 15% but less than 90%. For the following samples and non-compliant compounds, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

53SB09-00	beta-BHC
53SB14-00	heptachlor
	delta-BHC
	methoxychlor
	chlorobenzilate
	kepone

Blanks

The method blank associated with the field samples in this SDG exhibited contamination for which qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Associated blank	Compound	Concentration	Action Level
0222Q-IMB	kepone	0.88JP ug/Kg	4.4 ug/Kg

Samples	Compound	Qualifications
53SB20-01	kepone	CRQL

Compound Quantitation

Several samples exhibited positive results with column quantitation %Ds greater than 25%. The following guidelines were used to qualify the data:

1. All positive results exhibiting column quantitation %Ds greater than 50% and the reported result is less than the CRQL, are raised to the CRQL and qualified as non-detect, U.

2. The positive sample results which exhibited column quantitation differences >25%, but ≤70% are qualified as estimated, J.

The following samples and compounds have been qualified for high column quantitation %Ds.

Sample ID	Compound	%D	Lab Qual.	HESI Qual.
53SB09-00	aldrin	48.3	JP	J
	heptachlor epoxide	48.6	JP	J
	dieldrin	102.5	JP	U at CRQL
	endrin aldehyde	112.8	JP	U at CRQL
53SB10-01	heptachlor	73.0	JP	J
53SB14-00	aldrin	82.8	JP	U at CRQL
	dieldrin	69.1	JP	U at CRQL
	kepone	37.5	JP	J
	endrin aldehyde	95.8	JP	U at CRQL
	methoxychlor	70.3	JP	U at CRQL
53SB20-01	heptachlor epoxide	116.4	JP	U at CRQL
	kepone	38.3	JP	J

System Performance and Overall Assessment

The data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
53SB10-01 53SB15-01 53SB16-00 53SB17-00 53SB19-01 53SB20-01	heptachlor delta-BHC endrin aldehyde	+/-	J/UJ
53SB09-00 53SB14-00	beta-BHC heptachlor delta-BHC methoxychlor chlorobenzilate kepone	+/-	J/UJ
53SB20-01	kepone	+B	CRQL
All Samples	All P > 50% And < CRQL	+JP	CRQL
All Samples	All P > 25% But ≤ 70%	+P or +JP	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods for Metals and the Evaluation of Metals Data for the Contract Laboratory Program for Region II Jan 1992, and NEESA D requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # PRNS27

A validation was performed on the Metals Data from SDG PRNS27. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
	●	Calibrations
*	●	Blanks
*	●	Interferences
*	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

Calibration Verification Standard results

The beginning calibration verification standard for Lead (129%) was above the control limits for waters (>120%). All positive results are qualified as estimated, "J" for any samples below two times the CRDL plus the CRI. (J1) There was no impact on the data.

All results with a "B" qualifier that have not been previously flagged will be changed to a "J" qualifier. These results fall between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL) and may have an element of uncertainty associated with them due to the variability of IDLs. (J2)

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL	NUM
no impact	Pb.	+	J	1
all "B" results	all analytes	B	J	2

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS29
Date:	March 29, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 18 - 19, 2002
Number of Samples:	5 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles and Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Simpson
for Paul B. Humburg, President

3-28-02.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS29

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		SVOA	
54TW14	WATER	X		X	
54TW12	WATER	X		X	
54TW13	WATER	X		X	
54TW16	WATER	X		X	
54TW15	WATER	X		X	
Total Billable Samples (Water/Soil)		5	0	5	0

VOA= Volatiles
SVOA= Semivolatiles

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS29

A validation was performed on the Volatile Data from SDG #PRNS29. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, PQ433 and PQ434, contained compounds with RRFs less than 0.050 or %Ds greater than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol iodomethane

The continuing calibrations, PQ433 and PQ434, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	bromomethane acetone acetonitrile acrylonitrile vinyl acetate chloroprene 2-butanone propionitrile 1,1,1-trichloroethane 1,2-dichloroethane bromodichloromethane 4-methyl-2-pentanone 2-hexanone 1,2-dibromo-3-chloropropane

Blanks

Blanks

The blank(s) associated with samples in this SDG exhibited contamination. Qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Blanks (cont.)

Associated blank	Compound	Concentration	Action Level
54TB05	toluene	0.56J ug/L	2.8 ug/L

Samples	Compound	Qualification
54TW14	toluene	CRQL

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acrolein isobutanol	+/-	J/R
All Samples	bromomethane acetone acetonitrile acrylonitrile vinyl acetate chloroprene 2-butanone propionitrile 1,1,1-trichloroethane 1,2-dichloroethane bromodichloromethane 4-methyl-2-pentanone 2-hexanone 1,2-dibromo-3-chloropropane	+/-	J/UJ
54TW14	toluene	+	CRQL
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS29

A validation was performed on the Semivolatile Data from SDG #PRNS29. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
  Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate

The continuing calibration, DQ342, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide

The continuing calibration, DQ341, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	n-nitrosodimethylamine

Blank

Reject all "B" flagged TICs due to blank contamination.

Surrogates

Sample 54TW15 exhibited low surrogate recoveries for 2-fluorophenol and phenol-d5. Qualify all acid fraction compound positive results as estimated (J) and non detected compound results as estimated (UJ).

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

Reject sample 54TW15 RE, in favor of the initial analysis, due to exceeded holding times.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine 2-diallate	+/-	J/R
All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide	+/-	J/R
All Samples	n-nitrosodimethylamine	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
54TW15	acid fraction compounds	+/-	J/UJ
All Samples	all results below CRQL	+	J
54TW15 RE	all results	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS30
Date:	March 29, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 18, 2002
Number of Samples:	4 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles, Appendix IX Semivolatiles, Appendix IX Pesticides, Arsenic and Lead

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Seaybon
for Paul B. Humburg, President

3-29-02.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS30

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

CH2M HILL ID	MATRIX	VOA		SVOA		PEST		As		Pb	
2001FB01	WATER	X		X		X		X		X	
2001FB02	WATER	X		X		X		X		X	
2001FB03	WATER	X		X		X		X		X	
54TB05	WATER	X									
Total Billable Samples (Water/Soil)		4	0	3	0	3	0	3	0	3	0

VOA= Volatiles
SVOA= Appendix IX Semivolatiles
PEST= Appendix IX Pesticides
As= Arsenic
Pb= Lead

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS30

A validation was performed on the Volatile Data from SDG #PRNS30. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
  Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, PQ447 and PQ450, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol

The continuing calibrations, PQ447 and PQ450, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	iodomethane acetonitrile acrylonitrile chloroprene propionitrile pentachloroethane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Surrogates

Sample 2001FB03 exhibited low surrogate recovery for toluene-d8. Qualify all results as estimated (J/UJ).

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acrolein isobutanol	+/-	J/R
All Samples	iodomethane acetonitrile acrylonitrile chloroprene propionitrile pentachloroethane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
2001FB03	all results	+/-	J/UJ
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS30

A validation was performed on the Semivolatile Data from SDG #PRNS30. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
  Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate

The continuing calibration, DQ342, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide

The continuing calibration, DQ341, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	n-nitrosodimethylamine

Blank

Reject all "B" flagged TICs due to blank contamination.

Surrogates

Sample 2001FB003 exhibited 1% recovery for phenol-d5. Qualify all acid fraction compound positive results as estimated (J) and non detected compound results as rejected (R).

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

Reject sample 2001FB003 RE, in favor of the initial analysis, due to non compliant surrogate recoveries and exceeded holding times.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine 2-diallate	+/-	J/R
All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide	+/-	J/R
All Samples	n-nitrosodimethylamine	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
2001FB003	acid fraction compounds	+/-	J/R
All Samples	all results below CRQL	+	J
2001FB003 RE	all results	+/-	R

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

APPENDIX IX PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 8081A and 8082; Region II Data Validation Guidelines SOP HW-23, Revision 0, April 1995, as applicable; and NEESA Level D requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualifications table.

SDG# PRNS30

A validation was performed on the Appendix IX Pesticide/PCB data from SDG PRNS30. The data was evaluated based on the following parameters.

*	•	Data Completeness
*	•	Holding Times
*	•	GC Performance
	•	Calibrations
*	•	Blanks
*	•	Surrogate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicates
*	•	Field Duplicates
*	•	Compound Identification
*	•	Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration IFB27035 analyzed on 2/27/02 at 2352 exhibited two (2) compounds with %Ds greater than 15% but less than 90%. For the following samples and non-compliant compounds, the positive results are qualified as estimated, J, and the non-detect results are qualified as estimated, UJ.

2001FB01	heptachlor
2001FB02	delta-BHC
2001FB03	

System Performance and Overall Assessment

The data required qualifications. This SDG consisted of field QC blanks only.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

NJ = Result is considered presumptively present at an estimated concentration

R = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
2001FB01	heptachlor	+/-	J/UJ
2001FB02	delta-BHC		
2001FB03			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods for Metals and the Evaluation of Metals Data for the Contract Laboratory Program for Region II Jan 1992, and NEESA D requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # PRNS30

A validation was performed on the Metals Data from SDG PRNS30. The data was evaluated based on the following parameters.

*	●	Data Completeness
*	●	Holding Times
*	●	Calibrations
*	●	Blanks
*	●	Interferences
*	●	Matrix Spike Recovery
*	●	Matrix Duplicates
*	●	Field Duplicates
*	●	Laboratory Control Samples
*	●	Serial Dilutions

* - All criteria were met for this parameter.

All results with a "B" qualifier that have not been previously flagged will be changed to a "J" qualifier. These results fall between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL) and may have an element of uncertainty associated with them due to the variability of IDLs. (J2)

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL	NUM
all "B" results	all analytes	B	J	2

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS31
Date:	March 29, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 19 - 20, 2002
Number of Samples:	2 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles and Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scarfone
Paul B. Humburg, President

3-28-02.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS31

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		SVOA	
54PZ01	WATER	X		X	
54TB06	WATER	X			
Total Billable Samples (Water/Soil)		2	0	1	0

VOA= Volatiles
SVOA= Semivolatiles

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS31

A validation was performed on the Volatile Data from SDG #PRNS31. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, PQ447 and PQ450, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol

The continuing calibrations, PQ447 and PQ450, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	iodomethane acetonitrile acrylonitrile chloroprene propionitrile pentachloroethane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acrolein isobutanol	+/-	J/R
All Samples	iodomethane acetonitrile acrylonitrile chloroprene propionitrile pentachloroethane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS31

A validation was performed on the Semivolatile Data from SDG #PRNS31. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate

The continuing calibration, DQ342, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide

The continuing calibration, DQ341, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	n-nitrosodimethylamine

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine 2-diallate	+/-	J/R
All Samples	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide	+/-	J/R
All Samples	n-nitrosodimethylamine	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS32
Date:	April 2, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 21, 2002
Number of Samples:	3 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles and Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Searson — 4.2.02

Paul B. Humburg, President — Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS32

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA		SVOA	
54TW17	WATER	X		X	
54TW18	WATER	X		X	
54TB07	WATER	X			
Total Billable Samples (Water/Soil)		3	0	2	0

VOA= Volatiles
SVOA= Semivolatiles

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS32

A validation was performed on the Volatile Data from SDG #PRNS32. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibration, PQ474, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein

The continuing calibrations, PQ474 and PQ476, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	iodomethane acetonitrile pentachloroethane bromomethane 2-butanone

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acrolein	+/-	J/R
All Samples	iodomethane acetonitrile pentachloroethane bromomethane 2-butanone	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS32

A validation was performed on the Semivolatile Data from SDG #PRNS32. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 2-diallate

The continuing calibration, DQ341, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	n-nitrosodimethylamine

The continuing calibration, DQ342, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 4-nitroquinoline-1-oxide 2-diallate

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine 2-diallate	+/-	J/R
All Samples	n-nitrosodimethylamine	+/-	J/UJ
All Samples	1,4-phenylenediamine 4-nitroquinoline-1-oxide 2-diallate	+/-	J/R
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS33
Date:	April 2, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 26 - 27, 2002
Number of Samples:	7 Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Seufass

Paul B. Humburg, President

4.2.02.

Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS33

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA	
510MW1	WATER	X	
510MW2	WATER	X	
510MW4	WATER	X	
510DW1	WATER	X	
510DW1 MS	WATER	X	
510DW1 MSD	WATER	X	
510DW1D	WATER	X	
510DW2	WATER	X	
54TB08	WATER	X	
Total Billable Samples (Water/Soil)		9	0

VOA= Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS33

A validation was performed on the Volatile Data from SDG #PRNS33. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, AQ474 and AQ475, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	iodomethane
	acetonitrile
	acrylonitrile
	2-butanone
	propionitrile
	methyl methacrylate
	4-methyl-2-pentanone
	ethyl methacrylate
	2-hexanone
	bromoform
	1,1,2,2,-tetrachloroethane
	1,2,3-trichloropropane
	trans-1,4-dichloro-2-butene
	1,2-dibromo-3-chloropropane

The continuing calibrations, AQ474 and AQ475, contained compounds with RRFs less than 0.050 or %Ds greater than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein
	isobutanol
	pentachloroethane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	iodomethane	+/-	J/UJ
	acetonitrile		
	acrylonitrile		
	2-butanone		
	propionitrile		
	methyl methacrylate		
	4-methyl-2-pentanone		
	ethyl methacrylate		
	2-hexanone		
	bromoform		
	1,1,2,2,-tetrachloroethane		
	1,2,3-trichloropropane		
	trans-1,4-dichloro-2-butene		
	1,2-dibromo-3-chloropropane		
All Samples	acrolein	+/-	J/R
	isobutanol		
	pentachloroethane		
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS34
Date:	April 2, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	February 27, 2002
Number of Samples:	6 Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Seufert — 4.2.02

Paul B. Humburg, President — Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS34

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	SVOA	
510MW1	WATER	X	
510MW2	WATER	X	
510MW4	WATER	X	
510DW1	WATER	X	
510DW1 MS	WATER	X	
510DW1 MSD	WATER	X	
510DW1D	WATER	X	
510DW2	WATER	X	
Total Billable Samples (Water/Soil)		8	0

SVOA= Semivolatiles

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS34

A validation was performed on the Semivolatile Data from SDG #PRNS34. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine
	2-diallate

The continuing calibration, DQ361, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

510MW2	1,4-phenylenediamine
510MW4	2-diallate
510DW2	4-nitroquinoline-1-oxide
	hexachlorophene

The continuing calibration, DQ360, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

510MW2	n-nitrosodimethylamine
510MW4	
510DW2	

The continuing calibration, DQ363, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

510MW1	1,4-phenylenediamine
510DW1	4-nitroquinoline-1-oxide
510DW1D	

Calibrations (cont.)

The continuing calibration, DQ362 and DQ363, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

510MW1	bis(2-chloroisopropyl)ether
510DW1	2-nitroaniline
510DW1D	2,3,4,6-tetrachlorophenol
	n-nitrosodimethylamine
	n-nitrosopiperidine
	phenacetin
	pentachloronitrobenzene
	pronamide
	hexachloropropene
	aramite-2

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine 2-diallate	+/-	J/R
510MW2 510MW4 510DW2	1,4-phenylenediamine 2-diallate 4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
510MW2 510MW4 510DW2	n-nitrosodimethylamine	+/-	J/UJ
510MW1 510DW1 510DW1D	1,4-phenylenediamine 4-nitroquinoline-1-oxide	+/-	J/R
510MW1 510DW1 510DW1D	bis(2-chloroisopropyl)ether 2-nitroaniline 2,3,4,6-tetrachlorophenol n-nitrosodimethylamine n-nitrosopiperidine phenacetin pentachloronitrobenzene pronamide hexachloropropene aramite-2	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS35
Date:	April 16, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 1, 2002
Number of Samples:	1 Non-Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Sanfon for Paul B. Humburg, President

4-16-02
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS35

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA	
54TW15A-00	SOIL		X
54TW15A-00 MS	SOIL		X
54TW15A-00 MSD	SOIL		X
Total Billable Samples (Water/Soil)		0	3

VOA= Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS35

A validation was performed on the Volatile Data from SDG #PRNS35. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 03-01-02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	isobutanol

The continuing calibrations, MQ441 and MQ442, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol

The continuing calibrations, MQ441 and MQ442, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	dichlorodifluoromethane bromomethane iodomethane carbon disulfide acetonitrile 3-chloro-1-propene methylene chloride acrylonitrile trans-1,2-dichloroethene 1,1-dichloroethane vinyl acetate chloroprene pentachloroethane 1,2-dibromo-3-chloropropane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	isobutanol	+/-	J/R
All Samples	acrolein isobutanol	+/-	J/R
All Samples	dichlorodifluoromethane bromomethane iodomethane carbon disulfide acetonitrile 3-chloro-1-propene methylene chloride acrylonitrile trans-1,2-dichloroethene 1,1-dichloroethane vinyl acetate chloroprene pentachloroethane 1,2-dibromo-3-chloropropane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS36
Date:	April 2, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 1, 2002
Number of Samples:	1 Non-Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Searson — 4.2.02.

Paul B. Humburg, President — Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS36

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	SVOA	
54TW15A-00	SOIL		X
54TW15A-00 MS	SOIL		X
54TW15A-00 MSD	SOIL		X
Total Billable Samples (Water/Soil)		0	3

SVOA= Semivolatiles

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS36

A validation was performed on the Semivolatile Data from SDG #PRNS36. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
  Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 02/28/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	4-nitroquinoline-1-oxide hexachlorophene

The continuing calibrations, JQ418 and JQ419, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	hexachlorocylopentadiene 2,6-dinitrotoluene a,a-dimethylphenethylamine pentachloronitrobenzene 1,3,5-trinitrobenzene

The continuing calibration, JQ419, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	4-nitroquinoline-1-oxide hexachlorophene

Internal Standards

Sample 54TW15A-00 exhibited high internal standard area recoveries for chrysene-d5 and perylene-d12. Qualify all associated compounds as estimated (J/UJ).

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
All Samples	hexachlorocylopentadiene 2,6-dinitrotoluene a,a-dimethylphenethylamine pentachloronitrobenzene 1,3,5-trinitrobenzene	+/-	J/UJ
All Samples	4-nitroquinoline-1-oxide hexachlorophene	+/-	J/R
54TW15A-00	*All Associated Compounds* chrysene-d5 perylene-d12	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS41
Date:	April 16, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 3, 2002
Number of Samples:	2 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scayhan
Paul B. Humburg, President

4-16-02
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS41

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA	
54TW19	WATER	X	
54TW20	WATER	X	
Total Billable Samples (Water/Soil)		2	0

VOA= Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS41

A validation was performed on the Volatile Data from SDG #PRNS41. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, AQ494 and AQ495, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol

The continuing calibrations, AQ494 and AQ495, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	bromomethane acetone acetonitrile bromoform

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acrolein isobutanol	+/-	J/R
All Samples	bromomethane acetone acetonitrile bromoform	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS44
Date:	April 16, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 1 - 3, 2002
Number of Samples:	7 Non-Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scafan
Paul B. Humburg, President

4-16-02
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS44

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA	
54TW15A-02	SOIL		X
54TW15A-02D	SOIL		X
54TW15A-04	SOIL		X
54TW19-00	SOIL		X
54TW19-05	SOIL		X
54TW20-00	SOIL		X
54TW20-00 MS	SOIL		X
54TW20-00 MSD	SOIL		X
54TW20-04	SOIL		X
Total Billable Samples (Water/Soil)		0	9

VOA= Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS44

A validation was performed on the Volatile Data from SDG #PRNS44. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibrations, analyzed on 03-01-02 and 01-16-02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	isobutanol

The continuing calibrations, MQ469 and MQ470, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

54TW15A-02	isobutanol
54TW15A-02D	
54TW19-00	
54TW19-05	
54TW20-00	

The continuing calibrations, MQ469 and MQ470, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW15A-02	carbon disulfide
54TW15A-02D	acetonitrile
54TW19-00	3-chloro-1-propene
54TW19-05	pentachloroethane
54TW20-00	

The continuing calibrations, OQ763 and OQ764, contained compounds with RRFs less than 0.050 and/or %Ds greater than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

54TW15A-04	isobutanol
54TW20-04	pentachloroethane
	acrolein
	acetone
	acetonitrile

Calibrations (cont.)

The continuing calibrations, OQ763 and OQ764, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW15A-04	bromomethane
54TW20-04	

Blanks

The blank(s) associated with samples in this SDG exhibited contamination. Qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Associated blank	Compound	Concentration	Action Level
1M0313MB	acetone	3.6J ug/Kg	36 ug/Kg

Samples	Compound	Qualification
54TW15A-02	acetone	CRQL
54TW15A-02D		
54TW19-00		
54TW19-05		
54TW20-00		

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	isobutanol	+/-	J/R
54TW15A-02 54TW15A-02D 54TW19-00 54TW19-05 54TW20-00	isobutanol	+/-	J/R
54TW15A-02 54TW15A-02D 54TW19-00 54TW19-05 54TW20-00	carbon disulfide acetonitrile 3-chloro-1-propene pentachloroethane	+/-	J/UJ
54TW15A-04 54TW20-04	isobutanol pentachloroethane acrolein acetone acetonitrile	+/-	J/R
54TW15A-04 54TW20-04	bromomethane	+/-	J/UJ
54TW15A-02 54TW15A-02D 54TW19-00 54TW19-05 54TW20-00	acetone	+	CRQL
54TW15A-04	toluene	+	CRQL
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS44
Date:	April 30, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 1 - 3, 2002
Number of Samples:	7 Non-Aqueous Sample(s) with 1 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Appendix IX Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scanlon
Paul B. Humburg, President

4-30-02.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS44

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	SVOA	
54TW15A-02	SOIL		X
54TW15A-02D	SOIL		X
54TW15A-04	SOIL		X
54TW19-00	SOIL		X
54TW19-00 MS	SOIL		X
54TW19-00 MSD	SOIL		X
54TW19-05	SOIL		X
54TW20-00	SOIL		X
54TW20-04	SOIL		X
Total Billable Samples (Water/Soil)		0	9

SVOA= Appendix IX Semivolatiles

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS44

A validation was performed on the Semivolatile Data from SDG #PRNS44. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
  Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 03/07/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine

The continuing calibrations, EQ056 and EQ057, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW15A-02	a,a-dimethylphenethylamine
54TW15A-02D	hexachloropropene
54TW15A-04	m-dinitrobenzene
54TW19-00	5-nitro-o-toluidine
	1,3,5-trinitrobenzene
	dinoseb

The continuing calibration, EQ059 and EQ060, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW19-05	a,a-dimethylphenethylamine
54TW20-00	2,6-dichlorophenol
54TW20-04RE	n-nitroso-di-n-butylamine
	2-naphthylamine
	phenacetin
	n-nitrosopyrrolidine
	isosafrole
	m-dinitrobenzene
	5-nitro-o-toluidine
	1,3,5-trinitrobenzene
	dinoseb
	2-acetylaminofluorene
	n-nitosomorpholine
	hexachlorophene
	2,4-dinitrophenol
	4,6-dinitro-2-methylphenol

Calibrations (cont.)

The continuing calibrations, OQ763 and OQ764, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW15A-04	bromomethane
54TW20-04	

Blanks

The blank(s) associated with samples in this SDG exhibited contamination. Qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Associated blank	Compound	Concentration	Action Level
1M0313MB	acetone	3.6J ug/Kg	36 ug/Kg
2001FB02	toluene	1.8J ug/L	18 ug/L

Samples	Compound	Qualification
54TW15A-02	acetone	CRQL
54TW15A-02D		
54TW19-00		
54TW19-05		
54TW20-00		
54TW15A-04	toluene	CRQL

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

Calibrations (cont.)

The continuing calibrations, EQ057 and EQ060, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine 4-nitroquinoline-1-oxide

Internal Standards

Sample 54TW20-04RE exhibited low internal standard area recoveries for chrysene-d12 and perylene-d12. Qualify all associated compounds as estimated (J/UJ).

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

Reject the results for 54TW20-04, in favor of the re-analysis, due to non compliant internal standard areas.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine	+/-	J/R
54TW15A-02 54TW15A-02D 54TW15A-04 54TW19-00	a,a-dimethylphenethylamine hexachloropropene m-dinitrobenzene 5-nitro-o-toluidine 1,3,5-trinitrobenzene dinoseb	+/-	J/UJ
54TW19-05 54TW20-00 54TW20-04RE	a,a-dimethylphenethylamine 2,6-dichlorophenol n-nitroso-di-n-butylamine 2-naphthylamine phenacetin n-nitrosopyrrolidine isosafrole m-dinitrobenzene 5-nitro-o-toluidine 1,3,5-trinitrobenzene dinoseb 2-acetylaminofluorene n-nitosomorpholine hexachlorophene 2,4-dinitrophenol 4,6-dinitro-2-methylphenol	+/-	J/UJ
All Samples	1,4-phenylenediamine 4-nitroquinoline-1-oxide	+/-	J/R
54TW20-04RE	*All Associated Compounds* chrysene-d12 perylene-d12	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
54TW20-04	all results	+/-	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS45
Date:	April 2, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 3, 2002
Number of Samples:	2 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Seaton
for Paul B. Humburg, President

4-2-02.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS45

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	SVOA	
54TW19	WATER	X	
54TW20	WATER	X	
Total Billable Samples (Water/Soil)		2	0

SVOA= Semivolatiles

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS45

A validation was performed on the Semivolatile Data from SDG #PRNS45. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 03/07/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	1,4-phenylenediamine

The continuing calibrations, EQ050 and EQ051, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW19	4,6-dinitro-2-methylphenol
	a,a-dimethylphenethylamine
	phenacetin
	hexachloropropene
	m-dinitrobenzene
	5-nitro-o-toluidine
	1,3,5-trinitrobenzene
	dinoseb

The continuing calibrations, EQ051 and EQ057, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

54TW19	1,4-phenylenediamine
54TW20	4-nitroquinoline-1-oxide

The continuing calibration, EQ057, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW20	a,a-dimethylphenethylamine
	hexachloropropene
	m-dinitrobenzene
	5-nitro-o-toluidine
	1,3,5-trinitrobenzene
	dinoseb

Blank

Reject all "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	1,4-phenylenediamine	+/-	J/R
54TW19	4,6-dinitro-2-methylphenol a,a-dimethylphenethylamine phenacetin hexachloropropene m-dinitrobenzene 5-nitro-o-toluidine 1,3,5-trinitrobenzene dinoseb	+/-	J/UJ
54TW19 54TW20	1,4-phenylenediamine 4-nitroquinoline-1-oxide	+/-	J/R
54TW20	a,a-dimethylphenethylamine hexachloropropene m-dinitrobenzene 5-nitro-o-toluidine 1,3,5-trinitrobenzene dinoseb	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS47
Date:	April 16, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 5, 2002
Number of Samples:	1 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scarfan
for Paul B. Humburg, President

4-16-02
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS47

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	VOA	
54TW21	WATER	X	
Total Billable Samples (Water/Soil)		1	0

VOA= Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8260B Appendix IX; Region II Standard Operating Procedure, June 1999, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS47

A validation was performed on the Volatile Data from SDG #PRNS47. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The continuing calibrations, AQ501 and AQ503, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as rejected (R).

All Samples	acrolein isobutanol

The continuing calibrations, AQ501 and AQ503, contained compounds %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below qualify all positive results as estimated (J) and non detected results as estimated (UJ).

All Samples	bromomethane acetone iodomethane acetonitrile 3-chloro-1-propene vinyl acetate chloroprene 2-butanone propionitrile methyl methacrylate 4-methyl-2-pentanone 2-hexanone bromoform 1,2,3-trichloropropane trans-1,4-dichloro-2-butene pentachloroethane 1,2-dibromo-3-chloropropane

Blanks

Reject all laboratory "B" flagged TICs due to blank contamination.

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
All Samples	acrolein isobutanol	+/-	J/R
All Samples	bromomethane acetone iodomethane acetonitrile 3-chloro-1-propene vinyl acetate chloroprene 2-butanone propionitrile methyl methacrylate 4-methyl-2-pentanone 2-hexanone bromoform 1,2,3-trichloropropane trans-1,4-dichloro-2-butene pentachloroethane 1,2-dibromo-3-chloropropane	+/-	J/UJ
All Samples	"B" flagged TICs	+	R
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	PRNS48
Date:	April 2, 2002
Client Name:	CH2M Hill / Baker Environmental, Inc.
Project/Site Name:	Roosevelt Roads
Date Sampled:	March 5, 2002
Number of Samples:	1 Aqueous Sample(s) with 0 MS(s)/MSD(s)
Laboratory:	STL Savannah
Validation Guidance:	National Functional Guidelines for Organic Data Review, Region II
QA/QC Level:	NEESA D
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Semivolatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Craig G. Scanlon — 4-2-02

for Paul R. Humburg, President — Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# PRNS48

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

CH2M HILL ID	MATRIX	SVOA	
54TW21	WATER	X	
Total Billable Samples (Water/Soil)		1	0

SVOA= Semivolatiles

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8270C Appendix IX; Region II Standard Operating Procedure for Validation, February 1995, and NEESA D. All comments made within this report should be considered when examining the analytical results.

SDG # PRNS48

A validation was performed on the Semivolatile Data from SDG #PRNS48. The data was evaluated based on the following parameters.

* Data Completeness
* Holding Times
* GC/MS Tuning
  Calibrations
* Internal Standard Performance
  Blanks
* Surrogate Recoveries
* Laboratory Control Samples
* Matrix Spike/Matrix Spike duplicate
* Field Duplicates
  Compound Identification/Quantitation

* - All criteria were met for this parameter

Calibrations

The initial calibration, analyzed on 03/07/02, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

54TW21	1,4-phenylenediamine

The continuing calibrations, EQ050 and EQ051, contained compounds with %Ds greater than 20% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as estimated (UJ).

54TW21	4,6-dinitro-2-methylphenol
	a,a-dimethylphenethylamine
	phenacetin
	hexachloropropene
	m-dinitrobenzene
	5-nitro-o-toluidine
	1,3,5-trinitrobenzene
	dinoseb

The continuing calibration, EQ051, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detected results as rejected (R).

54TW21	1,4-phenylenediamine
	4-nitroquinoline-1-oxide

Blank

Reject all "B" flagged TICs due to blank contamination.

Blank (cont.)

The blank(s) associated with samples in this SDG exhibited contamination. Qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Associated blank	Compound	Concentration	Action Level
0306B-EMB	di-n-butylphthalate	0.99J ug/L	9.9 ug/L

Samples	Compound	Qualification
54TW21	di-n-butylphthalate	CRQL

Compound Identification/Quantitation

Qualify all positive results below the CRQL as estimated (J).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
54TW21	1,4-phenylenediamine	+/-	J/R
54TW21	4,6-dinitro-2-methylphenol a,a-dimethylphenethylamine phenacetin hexachloropropene m-dinitrobenzene 5-nitro-o-toluidine 1,3,5-trinitrobenzene dinoseb	+/-	J/UJ
54TW21	1,4-phenylenediamine 4-nitroquinoline-1-oxide	+/-	J/R
All Samples	"B" flagged TICs	+	R
54TW21	di-n-butylphthalate	+	CRQL
All Samples	all results below CRQL	+	J

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

APPENDIX F
Field Notes from the RCRA Facility Investigation – SWMUs 53 and 54

APPENDIX F.1
Field Notes from Jon Edel – Site Manager

Name Jon Edel

Address AOP 3, 420 Rouser Rd.,
Coraopolis, PA 15108

Phone (412) 269-2031

* Return postage is guaranteed!

Projects

Field Crew

Jon Edel → JEE
Dave Gaviglia → DMG
Mark Kimes → MBK

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Projects (continued)

Th
sp
wa

DT

Monday February 11, 2002

0630 Arrive at Pittsburgh Intl. Airport.

0830 Leave Pittsburgh heading to Charlotte, N.C.

1000 Arrive in Charlotte, N.C.

1115 Leaving Charlotte heading to San Juan Puerto Rico.

1605 Arrive in San Juan. Heading to National Rental Car, then to Wal MART, grocery store, then onto Palmas Del MAR.

2015 Arrive at Palmas Del MAR.

Jon C. Edel Jr.

2/11/02 ①

Tuesday February 12, 2002

0600 Arrive at Gate 1 to get pass for vehicle.

0640 Arrive at Public Works to pick up Baker truck. The box truck will not start. Grabbing supplies.

0658 Arrive at SWMU 53 to flag locations.

0740 Finish flagging locations. Heading to SWMU 54 to flag those locations.

0752 Arrive at SWMU 54 to flag locations.

0821 Spoke with a gentleman who works in the JFM compound. He did not know they had monitor well in their compound.

0826 Spoke with the crew over at Dick Corps. trailer to let them know what we are doing.

0905 Heading back to Public works to get original fax to get drillers on base. (Spoke with MSK).

0917 Arrive at LB M on base to get second vehicle. Will then proceed to Madelline's office. LB M closed temporarily - will stop back.

Tuesday February 12, 2002

0946 Arrive back at LB M to try to get vehicle. We spoke with Madeline and she gave us original fax for drillers. She also asked us to stop back to speak with Caleb. She said SWMU 53 doesn't need to be cleared.

1010 Arrived at Public Works to speak with Madeline and Caleb. Caleb drew utilities on my map. Gave me a signed digging permit. The two northern piezometers are very close to utilities. We might need to offset. I will call Madeline immediately if we hit something.

1109 Arrive back SWMU 54 to flag the piezometers and find 510MW5 location. All four locations around 510MW2 have been flagged. All are 25' away except 54TW09. That is 35' away because of trailer being over top 25' area.

1115 Drillers showed up with their B-90 and a steam bed. Irsidia was the leader with Andy the leader of the drilling crew. I gave a HOS speech. They will sign papers this afternoon. I showed them SWMU 54. Irsidia, Andy, and I

went to SWMU 53 to show them that SWMU. They said looks fin.

1155 Leaving SWMU 53 to go back to 54.

1215 Arrive back at 54. Drillers breaking for lunch. Dave and I are going to make sure locations around 510MW5 are clear. We found 510MW 5. First sampling loop around 510MW5 looks to be clear off utilities.

1325 I am leaving SWMU 54 to go get sampling equipment for 510MW5 and 510MW3.

1342 Arrive at Public Works to drop off key to Madeline for SWMU 54. Picked up equipment. Heading back to SWMU 54.

1502 Arrive back SWMU 54. Drillers had a hard time getting steam cleaner working to decon rig.

1510 They are deconing rig now. Dave and are going to open last manhole to check for pipes.

1600 Drillers are moving from decon area (pad is behind bldg. 1914) to go to first temporary well around 510MW5.

1740 Called MEK to give last update for the day. Darrin is sending down two boxes to us tomorrow.

1854 Leaving site for the day. Drillers installed 54TW03. They are offsite. JFM's compound is locked for the day, drillers rig is in there. SWMU 54 compound is locked for the day.

Jon C. Edd Jr.

Wednesday February 13, 2002

0650 Pass through Gate 1.
0710 Arrive at SWMU 54.
0713 Drillers are onsite.
0720 Calibrated instruments for groundwater sampling. The conductivity meter and the 7 and 4 standard of the pH meter gave me problems. Should be getting more supplies today including new pH probes and conductivity solution.
0752 Arrive at 510MW3 to collect a groundwater sample.
0918 Finished sampling 510MW3. Moving to 510MW5 to collect groundwater samples.
0926 Arrive at 510MW5 to collect groundwater samples.
1113 Leaving SWMU54 to go get mechanics at front gate. Cat head on rig is leaking.
1130 Arrived at Front Gate.
1230 Leaving Front Gate - mechanics have a pass to get on.
1240 Arrive at PWA to see pt our

2/13/02 (6)

Wednesday February 13, 2002

510MW3

T.D. = 15.5'
Ø = 2"
SWL = 10.69'

well cap was locked
Bottom of tubing = 14.5'
Start pump 0804

Time	SWL	pH	Cond. (us)	Turb.	Redox (mv)	Temp. (°C)
0810	10.97	6.35	1250	2.04	172.0	27.1
0815	11.14	6.86	1261	1.87	167.0	27.5
0821	11.24	6.88	1265	1.18	176.3	27.4
0826	11.33	6.71	1265	0.55	177.1	27.5
0831	11.40	6.66	1270	0.33	172.0	27.7
0836	11.46	6.33	1278	0.28	171.1	27.4
0841	11.52	6.39	1288	0.25	170.1	27.8

* Sample time 0855.
* D.O. = 0.7 mg/L
* Sampling for VOCs and SVOCs.
* Peristaltic was used.

Jon C. Edel Jr.

2/13/02 (7)

Wednesday
510mw5

February 13, 2002

T.D. = 20.06'
Ø = 2"
SWL = 13.12"

Well cap was locked
Bottom of tubing = 19.86
Pump Start 0942

Time	SWL	pH	(us) Cond.	Turb.	(mv) Redox	(°C) Temp.
0948	13.35	4.95	1969	9.26	-57.9	29.5
0953	13.51	5.46	1907	3.32	-70.6	29.2
0957	13.66	5.61	1901	2.13	-61.5	29.1
1002	13.79	5.69	1882	2.37	-44.1	29.1
1008	13.97	5.65	1879	1.68	-47.0	29.1
1013	14.10	5.69	1867	1.84	-48.6	29.2

* Sample time 1025.
* D.O. = 0.9 mg/L
* Sampled for VOCs and SVOCs
* Peristaltic was used.
* Metal ring around flush mount of well comes off. Well cap is locked.

Jon C. Edell Jr.

2/13/02 (8)

Wednesday February 13, 2002

packages have arrived yet. Also, we want to pick up some more sampling bottles.

1280 Leaving to go back to Swmu 54.

1332 Arrive back at swmu 54 to pack samples. Drillers are not here nor is the mechanics.

1340 Drillers and mechanics show up.

1410 Called FedEx for pick up. Our number is NRE227.

1433 Collecting SWL from 510MW4 = 9.95'

1455 Collecting SWL from 510DW2 = 10.46'

1458 Collecting SWL from 510DW1 = 10.57'

1459 Collecting SWL from 510MW1 = 4.85'

1505 Collecting SWL from 510MW2 = 15.55'

1510 FedEx arrived to pick up cooler. We are heading over to PWD to pick up shipment from Darrin.

1535 Arrive at PWD to pick up Darrin Hupe's shipment.

1610 Arrive back at Swmu 54. Called MEK with an update.

1615 Drillers (Andy) are back at Swmu 54 with part for rig.

1712 After talking with Andy (Ertec) we decided to start the drilling first thing tomorrow morning. By the time

2/13/02 (9)

Wednesday February 13, 2002

they would get setup, they would have to drill for at least 1.5 hrs, with this in mind, we decided to wait till morning. Their equipment is already deconed to drill.

1724 Drillers left. Gate to SWMU 54 is locked. DMG and I are heading back to PWD to check on supplies. OFFsite.

1740 Arrived back at PWD. Found logbooks and more pin flags.

1749 Leaving PWD - finished for the day. Sample 54ER01 was collected at 1350 today. The sample was from silicon tubing.

2000 Preparing e-mail for Michelle and Mark dealing with samples send out.

2030 Finished with e-mail.

Jon C. Eckel Jr.

2/13/02 (10)

Thursday February 14, 2002

0630 Pass through Gate 1.

0640 Arrive at PWD to try to jump start the box truck.

0655 Leaving PWD - No luck getting truck started.

0705 Arrive at SWMU 54, drillers are here.

0725 Drillers move to 54TW06 to install temporary well.

0738 I arrived at 54TW03 to collect groundwater samples. This was installed Tuesday afternoon.

0908 Finish sampling 54TW03. Heading to 54TW04.

0909 Arrived at 54TW04 to collect groundwater samples. This well was installed on 2/13/02 at 0850.

1032 Finish sampling 54TW04. Heading to 54TW05.

1034 Arrive at 54TW04. This well was installed on 2/13/02 at 1030. I will collect groundwater samples.

1206 Finish sampling 54TW05. Breaking for lunch.

1215 Met up with DMG over at 510MW3. They finish 54TW08 and 54TW10.

1225 Leaving SWMU 54 to get ice and lunch.

2/14/02 (11)

Thursday
54TW03

February 14, 2002

T.D. = 20.0'
Ø = 2"
SWL = 13.21'

Bottom of tubing ≈ 19' approx
start pump at 0800

Time	SWL	pH	(µs) Cond.	Turb.	(mV) Redox	(°C) Temp.
0808	13.39	6.55	1560	over range	37.0	27.6
0814	13.58	6.31	1650	"	60.2	28.1
0820	13.70	6.40	1681	"	88.1	28.3
0827	13.84	6.41	1679	"	96.0	28.1
0833	13.95	6.41	1679	969	95.7	27.9

* Sample time 0850.
* Sample for VOCs and SVOCs.
* D.O. = 1.0 mg/L.
* Peristaltic was used.
* MEK mentioned try to get turbidity as consistent as possible. If not make sure the rest are good.

Jon C. Edel Jr.

2/14/02 (12)

Thursday
54TW04

February 14, 2002

T.D. = 20'
Ø = 2"
SWL = 13.7

start pump 0920
Bottom of tubing 19' approx

Time	SWL	pH	(µs) Cond.	Turb.	(mV) Redox	(°C) Temp.
0927	13.86	6.67	1510	1000	-16.8	27.8
0934	14.10	6.61	1537	400	-4.2	28.0
0940	14.16	6.69	1546	192	12.4	28.2
0947	14.25	6.73	1549	128	15.7	28.1
0954	14.33	6.77	1558	184	5.2	28.1

* Sample time 1005.
* Sample for VOCs and SVOCs.
* D.O. = 2.0 mg/L
* Peristaltic pump was used.
* MEK mentioned try ~~to get~~ JCE to get turbidity as consistent as possible. If not make sure the rest of the readings are consistent.

Jon C. Edel Jr.

2/14/02 (13)

Thursday February 14, 2002

54TW05

T.D. = 20.0'
Ø = 2"
SWL = 13.21'

Start pump 1051
Bottom of tubing 19' approx.

Time	SWL	pH	(us) Cond.	Turb.	(mv) Redox	(°C) Temp.
1057	13.38	6.11	1554	overrange	15.7	30.1
1104	13.46	6.06	1607	"	29.4	30.3
1111	13.63	6.09	1619	"	48.7	29.9
1118	13.71	6.12	1615	"	33.4	29.8
1124	13.82	6.10	1609	"	42.8 [redacted] see	29.4
see [redacted] 1130	13.90	6.16	1613	"	42.8	29.5

* Sample time 1145
* Sample for VOCs and SVOCs
* D.O. = 20 mg/L
* Peristaltic Pump was used.
* MEK mentioned try to get turbidity as consistent as possible. If not make sure the rest of the measurements are consistent.

Thursday February 14, 2002

1357 Arrived back at SWMU 54 after getting ice, lunch, and trying to jump battery in truck. No luck with the battery. Will back up samples.

1450 Called FedEx to arrange pickup. Pick up number is NRR240.

1455 Joe Etheridge called looking for O'Neil with Erbec. I said I would talk to Andy at Erbec when I see him.

1650 MEK called to see what our status is. I explained it.

1700 FedEx arrived. Picked up cooler.

1705 Called Leaseway to come fix the truck. They will call me back. I am leaving to go to PWD to wait for them.

1725 Arrive at Baker box truck.

1730 Received a call from Towing Service. I will meet them at front gate.

1745 Arrive at front gate. They are not there yet.

1810 Tow Truck arrived. He had a pass. We left to go to PWD.

1825 Arrived at PWD. He (Tow Truck Driver) got truck running. Battery was dead. He said he would charge Leaseway.

1834 I am taking truck over to

Thursday February 14, 2002

SUMU 54. Dave (DMG) is following me.

1853 Arrive back at SUMU 54 with truck.

1910 Leaving SUMU 54 for the day. offsite.

2000 working on e-mail to Michelle Russo and MSK about FedEx Shipment.

2030 Finished with e-mail. All meters were calibrated first thing this morning.

Jon C. Edell Jr.

2/14/02 (16)

Friday February 15, 2002

Jon C. Edell Jr.

2/15/02 (17)

Friday February 15, 2002

0630 Pass through Gate 1.

0637 Arrive at PWD to pick up DMG's car. Heading to SWMU 54.

0700 Arrive at SMUU 54 to pick up equipment and start sampling.

0740 Arrive at 54TW06 to collect groundwater samples.

0810 Received a phone call from DMG at front gate w/ drillers. He needs a fax from Madeline.

0815 Madeline will send fax for ODEO Claudio at Erbec.

0911 Finished 54TW06. Heading to 54TW10.

0915 Arrive at 54TW10 to collect groundwater samples.

1035 Finish sampling 54TW10. Heading to 54TW08.

1038 Arrive at 54TW08.

1134 Finished sampling 54TW08. Heading back to trailer to get more bottles.

1135 Arrive back at trailer.

1142 Arrive back at 54TW07 to collect

2/15/02

Friday February 15, 2002

54TW06

T.D. = 20.0'
Φ = 2"
SWL = 14.64'

Start pump at 0805
Bottom of tubing 19'

Time	SWL	pH	(µS) Cond.	Turb.	(mv) Redox	(°C) Temp.
0820	15.07	7.16	2396	Overrange	68.9	28.3
0828	15.18	6.86	2415	"	79.4	28.6
0834	15.27	6.84	2407	"	84.4	28.6
0843	15.38	6.93	2462	"	84.3	28.5

* Sample time 0855.
* Sample for VOCs and SVOCs.
* D.O. = 2.0 mg/L
* Peristaltic pump was used.
* MSK mentioned try to get turbidity as consistent as possible. If not make sure the rest of the readings are consistent.

Jan C. Edel Jr.

2/15/02

Friday
54TW10

February 15, 2002

T.D. 20.0'
Ø' = 2"
SWL = 9.48

Start pump 0934
Bottom of pump 18.5 approx.

Time	SWL	pH	(us) Cond.	Turb.	(mV) Redox	Temp.
0940	9.74	6.39	1099	429	87.5	28.1
0946	9.83	6.22	1108	119	76.6	27.9
0952	9.88	6.23	1103	overrange	61.0	28.2
0958	9.92	6.26	1101	283	36.6	27.6
1004	9.95	6.20	1094	405	26.7	27.8
1010	9.97	6.22	1096	121	28.9	27.9

* Sample time 1020 * Peristaltic pump used.
* Sample for VOCs and SVOCs
* D.O. = 1.0 mg/L
* Very turbid - thick when pump first turned on. The bucket over top the pvc was hit by a vehicle. PVC looks ok. Increased pump speed initially to pump out the silt, etc. Then decrease to normal power for low-flow.
* MSK mentioned try to get turbidity as consistent as possible. If not make sure the rest of the readings are consistent.

2/15/02

Friday
54-TW08

February 15, 2002

T.D. = 20.0'
Ø = 2"
SWL = 9.69'

Start pump 1047
Bottom of tubing approx. 18.5'

Time	SWL	pH	(us) Cond.	Turb.	(mV) Redox	Temp.
1056	9.92	6.27	1244	1006	17.5	28.6
1102	10.00	6.19	1255	134	15.7	28.2
1109	10.05	6.25	1242	59.9	12.6	28.1

* Peristaltic pump was used.
* Sample time 1120
* Sample for VOCs and SVOCs
* D.O. = 1.0 mg/L
* Very turbid - thick when pump was first turned on. Increased pump speed initially to pump out the silt, etc. Then decreased to normal power for low-flow.
* MSK mentioned try to get turbidity as consistent as possible. If not make sure the rest of the readings are consistent.

for C. Edel

2/15/02

groundwater samples.

1250 Finished Sampling 54TW07. Heading to 54TW09

1254 Arrive at 54TW09 to collect groundwater samples.

1425 Finish sampling 54TW09. Heading back to trailer to pack.

1428 Arrive back at trailer to pack samples.

1500 Called FedEx to schedule pickup. Pick up number is NRR223.

1630 FedEx arrived to pick up samples. I am cleaning up Baker truck, etc. All meters were calibrated first thing this morning. I had some trouble with the 7.0 standard for the pH meters.

1705 DMG arrived at SWMU 54 trailer.

1725 DMG and I are leaving SWMU 54. OFFsite. Melanie from STL Lab called to give us the results of initial analysis for TCE. Detection limit for TCE is 5 ppb.

54-TW07

T.D. = 20.0'
Ø = 2"
SWL = 8.65'

Start pump 1200
Bottom of tubing approx. 19'

Time	SWL	pH	(µs) Cond.	Turb.	(mv) Redox	Temp.
1206	8.70	6.33	1031	overrange	37.4	29.0
1212	8.79	6.28	1029	"	8.6	28.6
1218	8.85	6.30	1038	625	11.4	28.3
1224	8.89	6.32	1046	226	10.1	28.1

* Sample time 1240
* Sample for VOCs and SVOCs.
* D.O. = 0.5 mg/L
* Peristaltic pump was used.
* MSK mentioned try to get turbidity as consistent as possible. If not make sure the rest of the readings are consistent.

Jon E. Edelg.

Friday February 15, 2002

54-TW09

T.D. = 20.0'
Ø = 2"
SWL = 8.85'

Start pump 1306
Bottom of tubing approx. 19'

Time	SWL	pH	(us) Cond	Turb.	(mv) Redox	Temp.
1312	9.07	6.36	1387	overrange	-50.2	30.3
1318	9.17	6.32	1359	"	-41.3	30.1
1324	9.22	6.32	1338	"	-28.8	30.4
1330	9.30	6.34	1336	"	-25.9	30.3
1336	9.33	6.37	1328	369	-19.4	30.1

* Sample time 1350
* Sample for VOCs and SVOCs
* Collecting Duplicate, MS, and MSD
* Peristaltic pump was used.
* MEK mentioned try to get turbidity as consistent as possible. If not make sure the rest of the readings are consistent.

Jon C. Edell Jr.

2/15/02 (24)

Friday February 15, 2002

TCE results are as follows:

510MW3 = 2.8 J
510MW5 = 190
54TW03 = Nothing
54TW04 = Nothing
54TW05 = Roughly 200

Melanie said she will call us tomorrow with results from 54TW06 as well as 54TW07, 08, 09, and 10.

2030 Called MEK about tomorrow's activities. He wants us to go out 50' from 54TW05 South to put in another temporary well. If Melanie calls about 54TW06 saying result is hot, go ahead and put another temporary well in west of 54TW06. Also try to put in the three piezometers. He also gave me a list of what we need for Sunday.

Jon C. Edell Jr.

2/15/02 (25)

Saturday February 16, 2002

0700 Pass through Gate 3.

0710 Arrive at SMWU 54. Drillers pulled in right before us.

0720 DMG and I arrived at compound with SIOMWS to stake additional locations. The next location south of 54TW05 will be 54TW11. We also marked location 50' west of 54TW06. 54TW11 will be 50' South of 54TW05. We marked 54P201 which will be 95' Southeast of 54TW05.

0800 Drillers are proceeding to 54TW11 to install temporary well.

0803 We are all over by 54TW11. I am trying to locate any utilities. I found a 1" pvc line running up against the fence of the compound.

0851 Going to recheck utilities for 54P202 and 54P203.

1044 Restaked 54P202. It is 50' northwest of the furthest northwest pole of BIDG. 1914.

1055 Restaked 54P203. It is 80'

Saturday February 16, 2002

Northeast of the most north eastern post of Building 1914.

1115 Drillers arrive back at decon area at SWMU 54.

1130 Breaking for lunch.

1132 MEK called. Wants me to check kits to make sure we have all supplies we need.

1233 Arrive back at SWMU 54. [redacted]

1315 Received a phone call from [redacted] Carlos at Erbec. He said he received a phone call from Andy of the drillers, and they are having a problem with their flat bed truck. He thinks it is the transmission and the alternator. He said something caught fire when they were at lunch. They were going to drive back to their hotel to get another truck, but Andy wants to get that truck fixed because it is a big problem. I mentioned that there rig is outside the compound of 54. He said to call Andy about that. He said Andy would like to wait till Monday to come back to 54.

1324 Called and left a message for Andy

1428 Called Andy again and no answer.

1430 Leaving SWMU 54 to go to Fajardo to get distilled water. Since we can't get ahold of Andy we are going with what Jose said.

1500 Received another call from Carlos. He had an interpretor with him. The interpretor confirmed the trouble with the truck. Andy will not be on base the rest of the day. I told them we need the drillers first thing on Monday. Carlos is going to call Andy to get updates and he will call me back!

1505 Melanie from STL called. There are some changes. TCE results are:

54TW03 = >70 ppb
54TW04 = 120 ppb
54TW05 = Same 200 ppb
54TW06 = Approx. >70 ppb
& Toluene & Xylene - Approx. 60 ppb.
54TW07 = Approx. < 5 ppb but probably with J value.

She said the screener was off

reading 54TW03 and 54TW04. The remaining wells were being run as we spoke. She said TW07 through TW10 might have values around 7 or 8.

1530 Leaving Walgreens with D.I. Heading back to Palmas.

1624 Melanie Jakubsen called with some more results (initial) for 54TW08, TW09 and TW10.

54TW08 = 10 ppb approx.
54TW09 = 20 ppb approx.
54TW10 = 31 ppb approx.

For both 54TW08 and 09, ethylbenzene and xylene have J values. She will get back with us on Monday sometime with official results.

1646 Odnell Gonzales called to make sure I knew what was going on. I said I did, but we need to have them at the site Monday morning at 0700 if possible.

Jon C. Edell Jr.

Sunday February 17, 2002

0930 Starting to run field screening kits on SWMU 53 soil.

1900 Finished running field screening kits for the day.

Jon C. Edel Jr.

Monday February 18, 2002

0650 Passed through Gate 3.

0655 Arrived at SWMU 54.

0710 Drillers arrive at SWMU 54.

0730 MEK and I are going around to stake out locations around S10MW3 and S10MW5. These locations will be approx. 25' out from the existing locations (S10MW5 & S10MW3)

0830 Arrive at 54TW11 to collect groundwater samples.

0840 O'Neil from Erber called about the Geoprobe and the ODEX system. MEK is talking with him.

1025 Finishing sampling 54TW11. MEK arrived back onsite after bringing another Erber employee in to swap out the Geoprobe rig.

1049 Arrive back at trailer to pick up more supplies.

1101 MEK and I are leaving to go to TWFF.

1.5 liters / sample

ZONE 1

~~RW-1~~ UGW-25 / MW-MW 4 & 2

ZONE 2 – UGW-13 / RW-05 / RW-08

ZONE 3 – ALL WELLS CLEAN

1236 Arrived at Gate 1 to let in another Erber employee with more supplies.

Monday February 18, 2002

54TW11

T.D. = 20.0'

Ø = 2"

SWL = 13.08

Start pump 0853

Bottom of tubing approx. 19'

Time	SWL	pH	Cond. (us)	Turb	Redox (mv)	Temp.
0900	13.18	6.88	2007	120	22.6	27.6
0907	13.27	6.84	2034	31.4	96.6	28.2
0913	13.35	6.85	2154	20.5	105.6	28.1
0919	13.38	6.88	2231	18.7	112.3	28.1
0926	13.45	6.83	2268	15.5	120.9	28.3
0933	13.52	6.85	2256	39.9	130.1	28.2
0942	13.58	6.75	2291	49.6	130.8	28.6
0950	13.65	6.75	2295	28.8	138.8	28.5

* Sample time 1000.
* Sampling for VOCs and SVOCs.
* Collecting duplicate here.
* D.O. = 20 mg/L
* Peristaltic pump was used.
* MEK mentioned try to get turbidity as consistent as possible. If not make sure the rest of the readings are consistent.

Monday February 18, 2002

We arrived at Gate 1 after being at the TWFF.

1281 Arrive at UGW13 to collect a pSH samples.

1316 Arrive at UGW23 to collect pSH sample.

1423 Arrive back at SWMU54 to pick up samples for FedEx.

1431 Called FedEx to arrange a pickup. (UPS pick up number is NRR 13).

1600 Collected 53ER01. Used lab grade D.I. and a Geoprobe sleeve.

1630 Collected 2001FB01 using lab grade D.I.

1635 Collected 2001FB02 using store bought D.I.

1640 Collected 2001FB03 using potable water source.

1645 FedEx arrived to pick up our samples.

1836 Leaving SWMU 54. Drillers have left for the day. We are leaving also. Offsite. Mark and I flagged locations first thing this morning. I calibrated meters before I sampled 54TW11. The pH standard 7.0 gave me problems this morning, conductivity meter gave me problems also. 54TW16 is approx. 85' from 510MW3.

Jim C. Edel Jr.

Tuesday February 19, 2002

0650 Pass through Gate 3.

0657 Arrive at SWMU 54. Drillers just arrived onsite also.

0816 Arrive at 54TW14 to collect groundwater samples. 54TW14 is approx. 50' from SIOMMS going east. 54TW13 was not measured in.

0824 Finish sampling 54TW14.

0826 Arrive at 54TW12.

0904 Finish sampling 54TW12. Heading to 54TW13.

0907 Arrive at 54TW13 to collect groundwater samples.

0939 Finish sampling 54TW13. Heading to 54TW16.

0941 Arrive at 54TW16 to collect groundwater samples.

1018 Finish sampling 54TW16. Heading to 54TW15.

1020 Arrive at 54TW15 to collect groundwater samples.

1055 Finish sampling 54TW15. Heading back to trailer.

1100 Arrive back at trailer.

2/19/02

Tuesday February 19, 2002

54TW14

T.D = 20.0' Start pump 0755

Ø = 2" Bottom of tubing approx. 19'

SWL = 14.61

Time	SWL	pH	Cond (us)	Turb.	Redox (mv)	Temp.
0800	14.80	7.40	1805	overrange	0.4	27.2
0805	14.87	7.27	1778	"	15.9	27.4
0810	14.94	7.22	1771	"	17.8	27.5
0815	14.98	7.20	1772	"	18.3	27.6

* Sample time 0820.
* Sample for VOCs and SVOCs.
* D.O. = 1.0 mg/L
* MEK's comment about turbidity from the previous days still stands.
* Peristaltic pump was used.

Jon C. Eakle

Tuesday February 19, 2002

54TW12

T.D. = 20.0'

Ø = 2"

SWL = 10.82

Start pump 0828

Bottom of tubing approx. 19'

Time	SWL	pH	(us) Cond.	Turb.	(mv) Redox	Temp.
0834	11.10	6.58	2011	over.	132.6	29.4
0840	11.17	6.53	2030	"	127.8	29.8
0846	11.36	6.57	1284	"	144.0	29.2
0851	11.46	6.56	1289	"	140.8	28.9
0856	11.52	6.54	1259	"	150.7	29.1

* Peristaltic pump was used.
* D.O. = 0.8 mg/L
* Sample time 0900
* sample for VOCs and SVOCs.
* MEK's comments from the previous days about turbidity still stands.

Jon C. Edell Jr.

Tuesday February 19, 2002

54TW13

T.D. = 20.0'

Ø = 2"

SWL = 11.85 JCE

Start pump 0913 JCE

Bottom of tubing approx. 19'

Time	SWL JCE	pH	(us) Cond.	Turb.	(mv) Redox	Temp.
0918	12.01	6.82	846	over.	3.6	27.9
0923	12.20	6.72	846	"	10.5	27.9
0929	12.41	6.74	831	"	7.8	27.9

* Sample time 0935
* Sample for VOCs and SVOCs
* D.O. = 0.8 mg/L
* MEK's comment about turbidity from the previous day still stands.
* Peristaltic pump was used.

Jon C. Edell Jr.

Tuesday February 19, 2002

54TW16

T.D. = 20.0'

Ø = 2"

SWL = 8.55'

Start pump 0949

Bottom of tubing approx. 19'

Time	SWL	pH	Cond. (uS)	Turb.	Redox (mv)	Temp.
0954	8.75	6.75	1047	over.	1.8	29.2
0959	8.95	6.76	1008	"	12.2	29.0
1004	9.20	6.77	993	"	11.0	29.4
1009	9.45	6.77	986	"	9.5	29.4

* Sample time 1015
* sample for VOCs and SVOCs.
* D.O. = ~~[illegible]~~ see 0.6 mg/L
* Peristaltic pump was used.
* MEK's comment about turbidity from the previous day still stands.

Jon C. Edel Jr.

Tuesday February 19, 2002

54TW15

T.D = 20.0'

Ø = 2"

SWL = 9.41

Start pump 1025

Bottom of tubing approx. 18'

Time	SWL	pH	Cond. (uS)	Turb.	Redox (mv)	Temp.
1030	9.54	5.49	1384	over.	24.3	29.0
1035	9.64	5.65	1408	349	-31.9	29.0
1040	9.71	6.25	1401	220	-33.8	29.0
1045	9.75	6.30	1394	227	-31.6	29.1
1050	9.78	6.29	1385	172	-32.8	28.7

* Sample time 1065
* sample for VOCs and SVOCs.
* Peristaltic pump was used.
* D.O. = 0.60 mg/L
* MEK's comment about turbidity from the previous day still stands.

Jon C. Edel Jr.

Tuesday February 19, 2002

1127 Calling Melanie Jakobsen with STL.

Sample	Result (ppb)
54TW06	34
54TW07	5 U
54TW08	8
54TW09D	19
54TW10	11
54TW09	20

1142 Leaving SWMU54 to break for lunch. MSK and I ran out to get ice.

1242 Arrive back at SWMU 54.

1340 Called FedEx to schedule a pickup. Pickup number is NRE189. They should be here ~~bth~~ JET at 1533.

1400 Drillers are at front gate - Mechanics. I am going to pick them up.

1411 Arrive at front gate.

1441 Arrive back at SWMU54 after bringing on the two mechanics.

1516 FedEx arrived to pick up our packages. The meters were calibrated first thing this morning. The pH meter gave me problems with all three standards. I switched to a new probe but it didn't help.

Tuesday February 19, 2002

1544 Leaving SWMU54 (me) to go get some gatorade for DMG and I.

1613 Arrive back at SWMU 54. Drillers are still not back from when they left when I arrive at Gate 1 to get mechanics. I saw Andy (Erbec) pull up at Gate 1 to talk to mechanics. He said he was going to get hydraulic fluid.

1650 Andy and Odeo from Erbec are back with hydraulic fluid.

1810 Leaving SWMU54 - Offsite for the day. Drillers are gone.

1930 Preparing e-mail to Michelle Russo. (Sample Matrix of today)

2000 Finished with e-mail.

Jamie Edell Jr.

Wednesday February 20, 2002

0750 Arrive at Gate 3.

0756 Arrive at SWMU 54. Drillers arrive on Ribber US.

0850 Took drillers over to the compound containing S10MW3. Got them set up on ~~Sta~~ set 54TW13.

0912 Arrive at 54P201 to collect groundwater samples.

1004 Finish sampling 54P201. Heading back to trailer.

1006 Arrive back at Baker trailer.

1030 MEK and I are leaving SWMU54 to go to PWD to speak with Madeline.

1035 Melanie Jakobsen called and left a message. 54TW11 and 54TW13 came back 140 ppb and 150 ppb, respectively.

1050 Arrive at PWD to talk to Madeline.

1245 Leaving PWD to go get lunch.

1326 Arrive back at SWMU 54. Met up with Dave. He got both his wells in. Going to get well elevations.

1508 Called FedEx to arrange pick-up. She said to take to give confirmation number but she will send information to the driver. Arrive back at PWD

2/20/02

Wednesday February 20, 2002

54P201

T.D. = 20.0'
Ø = 2"
SWL = 13.77

Start pump at 0925

Bottom of tubing approx. 18'.

Time	SWL	pH	Cond (us)	Turb.	Redox (mv)	Temp.
0932	13.98	7.25	2658	112	-5.9	25.9
0937	14.09	7.06	2605	80.7	2.5	26.5
0942	14.15	7.12	2596	45.3	4.1	26.6
0947	14.31	7.05	2624	42.7	3.0	26.5
0952	14.37	7.01	2643	37.2	4.0	26.5

* Sample time 1000
+ Sample for VOCs and SVOCs

* D.O. = 1.0 mg/L
* Peristaltic pump was used.

Jon S. Edel Jr.

Wednesday February 20, 2002

Groundwater Elevations

Well	Elevation	Comment
54TW3	4.70'	
54TW4	4.18'	
54TW5	4.59'	
54TW6	4.83'	
A 54TW7	8.62'	
A 54TW8	7.56'	
A 54TW9		
A 54TW10	7.24'	
54TW11	4.68'	
54TW12	6.08'	
54TW13		
54TW14	3.99'	
A 54TW15	7.50'	
A 54TW16		
A 54TW17	8.60'	
54TW18	5.30'	
54PZ01	4.07'	
PT A	6.66'	
HI = 100.0'		
A HI =	5.68'	
A 54PZ02	7.28'	
A 54PZ03	5.36'	

2/20/02

Wednesday February 20, 2002

to drop off survey equipment we borrowed.

1530 Arrive back at SWMU 54.

54TW 12
54TW 13
54TW 14
54TW 16
> NO TCE

54TW 15 — NO TCE BUT MATRIX MIGHT BE XYLENE

1615 Leaving SWMU 54 for the day. FedEx did arrive to pick up our cooler. Offsite. Drillers have already left.

1900 Preparing e-mail for Michelle Rusco of samples send out.

1930 Finished preparing e-mail. Turbidity meter was calibrated first thing this morning. Had trouble with the pH and conductivity meter.

Jon C. Edell Jr.

2/20/02

Thursday February 21, 2002

0700 Pass through Gate 3.

0708 Arrive at SWMU54. Drillers are here. Explained to Andy (Erber) that we did not have any wells to put in today. We sent them home.

0722 They are offsite.

0737 Leaving BAKER trailer to go to 54TW17 to collect groundwater samples.

0739 Arrive at 54TW17 to collect groundwater samples.

0850 Finished sampling 54TW17. Heading to 54TW18. There is enough room in the compound containing SIOMW3 to go out 35' more Northwest past 54TW17.

0853 Arrive at 54TW18 to collect groundwater samples.

1004 Finish sampling 54TW18. Heading back to trailer.

1010 Arrive back at Baker trailer to pack up samples.

1028 Received a phone call from Michelle Owens from STL. She gave me hard numbers for TEF for wells 54TW14, 54TW12, 54TW13, 54TW16, and 54TW15.

Thursday February 21, 2002

54TW17

T.D. = 200'
Ø = 2"
SWL = 8.47

Start pump 0755
Bottom of tubing approx. 18'

Time	SWL	pH	Cond (us)	Turb.	Redox (mv)	Temp.
0801	8.64	6.84	1570	158	17.0	26.9
0807	8.75	6.82	1573	90.5	14.5	27.2
0813	8.83	6.81	1567	45.9	12.8	27.0
0819	8.89	6.77	1560	32.2	3.0	27.3
0825	8.93	6.76	1571	27.7	10.9	27.0

* Sample time 0840.
* Sample for VOCs and SVOCs.
* D.O. = 0.8 mg/L
* Peristaltic pump was used.

Jon E. Edel Jr.

Thursday February 21, 2002

54TW18

T.D.= 20.0'

Ø = 2"

SWL: 12.49

Start pump 0908

Bottom of tubing approx. 18'

Time	SWL	pH	(mS) Cond.	Turb.	(mV) Redox	Temp.
0915	12.64	6.76	1645	188	19.5	26.5
0921	12.79	6.83	1700	35.1	33.1	26.5
0928	12.95	6.90	1693	31.5	42.8	26.4
0934	13.06	7.00	1695	26.0	15.1	26.6
0940	13.17	7.00	1697	21.3	7.2	26.6
0946	13.24	7.02	1679	24.0	8.1	26.8

* Sample time 0955
* Sample for VOCs and SVOCs.
* D.O. = 1.0 mg/L
* Peristaltic pump was used.

Jon C. Eakel Jr.

Thursday February 21, 2002

The results are as follows:

54TW14 = 25 ppb

54TW12 = 5.0 U "

54TW13 = 1.1 J "

54TW16 = 0.34 J "

54TW15 = 120 U

u Xylene = 8,000

Toluene = 400

Isobutanol = 2,600 J

Ethylbenzene = 2,400

Benzene = 3,000

She said these still have to go through a secondary review. She will fax all hard numbers to MOE and call me.

1044 Leaving SWMU54 to drop off DMG's car at L&M rental on base.

1100 Arrive at L&M to drop car off.

1112 Arrive at Fuels office to talk to Jim Rice. Spoke with Carlos Brown instead of Jim. Jim wasn't there. Carlos explained there used to be three fuels at TWFF. (JP-5, DFM, and #6 oil). He can only get us samples of JP-5 and DFM. #6 oil isn't here anymore.

1120 Collected JP-5 and DFM.

Thursday February 21, 2002

1130 Arrive at Marina to get fuel and call back to BAKER. The Subcontractor is around the TWEF area it looks like collecting product. It looks like they are using a screwdriver to get the locking caps off with.

1200 Leaving Marina to go for lunch.

1304 Arrive back at SWMU 54 to pack up samples of JP-5 and DFM.

1345 Called FedEx to schedule pickup. Pickup number 1112002.

1550 FedEx arrived to pickup both coolers.

1610 DMO and I are heading over to take a look at a couple of SWMU3 wells.

1930 Leaving SWMU 3 for the day. OFFsite. All meters were calibrated over at 54TW17. The standard 7 for pH gave me some problems.

1720 Melanie Jakubsen from SSC called me. At this point, she can't tell if 54P201 will have TEE or not. We will have to wait for hard numbers. I asked her a few

Thursday February 21, 2002

questions dealing with SWMU 3. She had not received the delivery order ~~yet~~ from CHAMHILL. We talked about bottle requirements for App. IX and App. I sampling. We have enough bottles to sample SWMU 3 for App. I right now. They will send more bottles for App. IX next week.

1740 Received a phone call from MBK. Updated him on information from the lab.

Jon C. Edell Jr.

Friday February 22, 2002

1104 Melanie Jakubsen from SIL called to say the number for 54P201 was 2.4 J. I told her that Mark will probably be calling her today.

1320 Arrive at San Juan Airport.

1520 Leave San Juan Airport to go to Charlotte.

1850 Arrive in Charlotte.

1855 Leave Charlotte to go to Pittsburgh.

2030 Arrive in Pittsburgh.

Jon C. Edell Jr.

2/22/02 (52)

Monday February 25, 2002

0630 Arrive at Pittsburgh Intl. Airport.

0830 Leaving Pittsburgh to go to Charlotte.

1015 Arrive in Charlotte Airport.

1115 Leaving to go to San Juan Airport.

1525 Arrived in San Juan. Heading to go get rental vehicle. Will then proceed to Humacao to have dinner and get supplies. Then will go to Palmas Del Mar.

1930 Arrived at Palmas Del Mar. Spoke with MEK on the way to dinner. He indicated wells 54TW17 and 54TW18 were below the detection limit of 5 for TCE. We don't need to delineate out further. MEK mentioned in a phone call earlier results for ~~[illegible]~~ 54TW17 (180) and 54TW18 (1.2).

Jon C. Edell Jr.

2/25/02 (53)

Tuesday February 26, 2002

0600 Arrived at Gate 1 to get vehicle pass.

0620 Arrived at SWMU 54. Drillers should be here by 0700.

0740 Drillers called. They are at Gate 1 and they are not permitted on base. We are proceeding to gate 1. That was O'Neil from Erbec.

0755 Arrived at Gate 1. Drillers are there. I spoke with Andy of the drillers. He gave me information on all the guyes they need to get in.

0805 Called Pedro Ruiz of PWD. He will fax the info. to the front gate.

0850 Leaving Gate 1 with two vehicles from drillers and one vehicle from another company who is bringing in more drums.

0858 Received a call from Madeline Rivera. She wants us to drum the water over at the landfill. She asked me to coordinate with the two guyes at the landfill gate about where to store them until we are finished.

Tuesday February 26, 2002

She informed me that the Inspector general is in town at PWD. She said they will be touring some of the SWMUS on base. The IDW from SWMU 3 will be disposed of at the waste water treatment facility. She wants us to label the drums.

0930 DMG and I as well as Joe Etheridge are heading over to C&M Rental Car company on base to get Joe a car. Drillers will be approximately 1 hour to switch their rig over to air.

0945 Arrive at C&M to get Joe a car. MEK called and he wants us to sample the five remaining existing wells at SWMU 54. We stopped over at decon area at TWFF per MEK's request to check on drums.

1010 Arrive at decon area at TWFF to check on drums.

1018 Leaving TWFF to go get drillers over at SWMU 54 to take them to the TWFF.

1020 Arrive at SWMU 54. Andy from Erbec is getting water. We are waiting on him. DMG and I are getting bottles ready for SWMU 54.

1120 Andy is back at SWMU 54. We are

Tuesday February 26, 2002

Going to take the drillers over to Tuff to get rig setup.

1225 Arrive back at SWMU 54 after grabbing ice from the Marina.

1251 Arrive at 510MW4 to collect groundwater samples.

1400 Finish sampling 510MW4.

1405 Arrive at 510MW1 to collect groundwater samples.

1533 Finish sampling 510MW1. Heading to wells around 510MW3.

1550 FedEx arrived to drop off 17 coolers from the lab and 1 box from Baker for SWMU 3.

1735 Leaving SWMU 54 - OFFsite for the day.

1740 Arrived at mini-mart in Lundy to call Melanie from SRL to verify a few things with the shipment received.

1758 Leaving mini-mart to go to front gate to check for our surveyor.

1808 Arrived at front gate. Surveyor is not here. We are heading to the condo.

Tuesday February 26, 2002

510MW4

T.D.: 14.8' from Top of PVC
Ø: 2"
SWL: 9.71'

Time	SWL	pH	(us) Cond.	Turb	(mV) Redox	Temp.
1314	9.97	6.79	1,998	3.87	-44.1	28.1
1320	10.29	6.82	2000	2.95	-33.5	28.5
1328	10.42	6.83	1,985	1.34	-32.6	28.2
1334	10.63	6.82	1,971	2.31	-28.4	28.6
1339	10.78	6.81	1,964	1.54	-22.6	28.5

* Sample time 1350
* Sample for VOCs and SVOCs.
* Start pump at 1308
* Bottom of tubing is approx. 13.5'.
* Peristaltic pump was used to sample/purge
* D.O.: 0.8 mg/L
*

Tuesday February 26, 2002

510MW1

T.D.: 18.6'
Ø = 2"
SWL = 5.12'

Start pump 1416
Bottom of tubing approx. 18.6'.

Time	SWL	pH	(µS) Cond.	Turb.	(mv) Redox	Temp.
1422	5.16	6.17	768	9.73	-9.1	27.6
1429	5.17	6.27	756	6.63	-14.4	27.0
1435	5.17	6.51	763	2.71	-31.3	27.6
1448	5.18	6.63	757	1.10	-43.3	27.1
1457	5.18	6.69	755	0.53	-50.0	27.0
1509	5.19	6.71	743	0.20	-50.0	27.0

* Sample time 1520
* Sample for VOCs and SVOCs
* Peristaltic pump used.
* D.O = 0.6 mg/L.

* A petroleum odor was noted from the water.

Tuesday February 26, 2002

1900 Arrive back at Condo. Received phone call from MEK. Surveyor did not come down today. MEK has indicated that we will have to investigate further around 54TW15. He (MEK) wants us to sample rest of existing wells tomorrow. MEK also wants analysis to be run by Quick Turn (RUSH). MEK wants DMG and I to measure Cluster 510DW1, 510DW2, and 510MW1 from 54TW15. He also wants us to measure 510MW2 from 54TW15. All meters were calibrated before arriving at 510MW4.

Jon E. Gall Jr.

Wednesday February 27, 2002

0655 Pass through Gate 3.

0700 Arrive at SWMU54. Will collect rest of existing wells.

0730 Leaving Baker trailer at SWMU54 to go measure distance from 54TW15 to existing well cluster (510DW1, 510DW2, and 510MW1) as well as to 510MW2.

0735 Arrive at cluster. Middle of cluster is 80'. Bearing is 44° ~~N~~ NE Northeast of 54TW15.

0741 Arrive at 510MW2. This well is 137' from 54TW15. Bearing is 140° Southeast of 54TW15. MCK wanted us to check the area 75' north and South of 54TW15. The mark 75' South of 54TW15 is north of driveway to southern compound. (VanDuzee) 75' north of 54TW15 is just north of gate to Dick Corp. compound.

0750 Arrive at 510MW2 to collect groundwater samples.

0850 Finish sampling 510MW2. Heading back to trailer to pick up some more supplies.

Wednesday February 27, 2002

510MW2

T.D. = 21.4'
Ø = 2"
SWL = 15.68

Start pump at 0804
Bottom of tubing 20.5' approx.

Time	SWL	pH	Cond. (uS)	Turb.	Redox (mV)	Temp.
0810	15.91	6.64	1,400	6.36	114.7	24.4
0817	16.05	6.66	1,399	3.70	108.1	25.0
0824	16.11	6.68	1,420	1.72	104.7	25.2
0830	16.15	6.69	1,425	1.99	101.7	25.6
0836	16.18	6.74	1,434	1.29	97.4	25.7

* Sample time 0845
* Sample for VOCs and SVOCs
* Peristaltic pump was used
* D.O. = 0.5 mg/L

Jon C. Eckl Jr.

Wednesday February 27, 2002

0855 Arrive back at trailer.

0900 Heading to 510DW1 and 510DW2 to collect groundwater samples.

0902 Arrive at 510DW2 to collect groundwater samples.

0940 MEK called to discuss issues with fieldwork. He doesn't want any IDW from 54TW15 (Soil) returned back to hole. What is left from the other wells combine into one.

1145 Finish sampling 510DW1 and 510DW2.

1148 Taking measurement from 54TW15 to 510MW4. 510MW4 is 144.6' from 54TW15. The bearing for 510MW4 is 26° Northeast of 54TW15.

1153 Leaving 510DW1 to go back to trailer to drop off some sample equipment.

1201 Leaving SWMU54 to get ice and get lunch.

1308 Arrive back at SWMU 54 to pack up samples to ship out.

1404 Called in a pickup with FedEx. Pick up number is NRR235.

1500 Spoke with MEK. I had him order more soil jars and more tubing. I

Wednesday February 27, 2002

510DW2

T.D. = 44.7' Start pump 0915

Ø = 2" Bottom of tubing 42' approx.

SWL = 10.55'

Time	SWL	pH	(us) Cond.	Turb.	(mv) Redox	Temp.
0921	10.67	6.45	982	24.3	96.8	28.8
0932	10.72	6.54	992	10.67	113.7	28.6
0947	10.70	6.54	987	7.41	109.3	28.7
0953	10.71	6.59	985	6.41	124.6	28.6
1000	10.70	6.66	999	4.06	120.4	29.1
1006	10.72	6.76	998	3.01	115.2	29.1
1012	10.69	6.76	993	1.69	117.7	28.7

* Sample time 1020.
* Sample for VOCs and SVOCs.
* Peristaltic pump was used.
* D.O. = 0.9 mg/L

Jon C. Edel Jr.

Wednesday February 27, 2002

510DW1

T.D.= 25.2'
Ø= 2"
SWL= 10.53'

Start pump 1037
Bottom of tubing 23' approx.

Time	SWL	pH	(us) Cond.	Turb.	(mv) Redox	Temp.
1044	11.20	7.31	795	2.58	-69.9	30.1
1051	11.02	7.17	779	1.11	-99.1	29.3
1057	11.17	7.13	761	0.58	-102.3	29.3
1104	11.18	7.12	762	0.42	-93.0	29.5

* Sample time 1115
* Sample for VOCs and SVOCs.
* Peristaltic pump was used.
* Duplicate, MS, and MSD collected also.
* D.O. = 0.5 mg/L
* Petroleum odor is definitely present.

Jon C. Edell Jr.

2/27/02 (64)

Wednesday February 27, 2002

also had him order more empty coolers. The coolers and the containers will be delivered tomorrow at Fuels office. The tubing will be delivered Friday at PWD.

1513 Leaving SWMU 54 to go to gate to SWMU 3.

1530 Arrived at SWMU 3.

1545 Leaving SWMU 3 to go back to Baker trailer at SWMU 54.

1620 Arrived at SWMU 54 to label more containers for SWMU 3. MEK called to get an update.

1852 Leaving SWMU 54 for the day. OFFSite. All meters were calibrated before sampling 510MW2.

JEE
2105 Preparing e-mail to MEK and Michelle Russo about shipment today.

2130 Finish with e-mail.

Jon C. Edell Jr.

2/27/02 (65)

Thursday February 28, 2002

0645 Passed through Gate 3.

0655 Arrived at SWMU 54 to get equipment and Baker truck to go over to SWMU 3 to work for the day.

0710 Leaving SWMU 54 with box truck to take over to fuels area to stage.

0725 Arrive at TWFF Fuels Office. I am letting Jim Rice know we are staging our box truck across from front gate of TWFF. This is to receive a shipment from FedEx.

0748 Leaving TWFF area to go to SWMU 3.

1945 Left SWMU 54 after bringing truck back - Offsite.

Jon C. Edell Jr.

2/28/02 (66)

Friday March 1, 2002

0650 Passed through Gate 3.

0656 Arrived at SWMU 54.

0705 DMG and I marked two additional temporary well locations North and South of 54TW15. North of 54TW15 is 54TW20 at approx. 90'. South of 54TW15 is 54TW19 at approx. 75'.

0803 Leaving SWMU 54 to go to SWMU 3.

1103 Arrive back at SWMU 54. Apparently the drill rig burst a hydraulic line. Drilling has stopped. See DMG's logbook.

1121 Running out to get lunch.

1146 Arrive back at SWMU 54.

1451 Called in for a FedEx pickup. Pick up number is NRR244.

1550 Received a phone call from MSK. He said the initial screening for 51DW1 showed peaks for TCE and BTEX. That was the only well which had an initial peak.

1633 FedEx came to pickup all eight packages.

1801 Drillers left for the day. We are leaving also. Offsite.

Jon C. Edell Jr.

3/1/02 (67)

Saturday March 2, 2002

0635 Passed through Gate 3.

0645 Arrived at SWMU 54. Drillers are here already.

0721 Leaving SWMU 54 to go to SWMU 3 to sample wells.

1114 Arrive back at SWMU 54

1143 Leaving SWMU 54 to go to lunch then to SWMU 3.

1500 Arrived at R7GW04R to collect groundwater samples.

1732 Leaving SWMU 3 to go to SWMU 54.

1806 Arrive at SWMU 54. Dropping off equipment.

1820 Leaving SWMU 54 for the day. Offsite.

Jon C. Edell Jr.

3/2/02 (68)

Sunday March 3, 2002

0700 Arrive at Gate 1 to get our surveyor a temporary pass.

0715 Got the pass heading to SWMU 54.

0735 Arrive at SWMU 54.

0757 Arrive at 54TW19 to collect groundwater samples. All meters were calibrated that can be calibrated.

0920 Finish sampling 54TW19. Heading to 54TW20.

0923 Arrive at 54TW20 to collect groundwater samples.

1039 Finish sampling 54TW20. Heading back to Baker trailer to pick up supplies to sample over at SWMU 3.

1109 Leaving SWMU 54 to go to lunch then onto SWMU 3. Our surveyor will still be working in the SWMU 54 area.

1207 Arrive at R7GW09 to collect groundwater samples at SWMU 3.

1730 Arrived back at SWMU 54.

1745 DMG and I are going to collect a round of water levels.

1832 Leaving SWMU 54 to go get ice. Surveyor is heading back to condo.

1840 Gas station is closed. DMG and I determined we had enough ice till morning. Offsite.

Jon C. Edell Jr.

3/3/02 (69)

Sunday

March 3, 2002

54TW19

T.D. = 20.0'

Ø = 2"

SWL = 10.62'

* Start Pump at 0808
* Bottom of tubing at approx. 19'.

Time	SWL	pH	(µs) Cond.	Turb.	(mv) Redox	(°C) Temp.
0814	10.71	7.32	1,479	overrange	-2.6	28.6
0821	10.80	7.28	1,444	353	19.4	28.2
0827	10.95	7.22	1,475	226	27.0	28.1
0835	11.06	7.24	1,481	44	30.5	28.5
0842	11.13	7.23	1,496	124	21.6	28.5
0848	11.19	7.22	1,511	122	17.9	28.5
0855	11.28	7.25	1,479	82.2	20.5	28.3

* Sample time 0905
* Sample VOCs and SVOCs.
* D.O. = 0.8 mg/L
* Peristaltic pump was used.

Jon C. Edel Jr.

Sunday

March 3, 2002

54TW20

T.D. = 20.0'

Ø = 2"

SWL = 8.23'

Start pump at 0935

Bottom of tubing at approx. 18'.

Time	SWL	pH	Cond.	Turb	(mv) Redox	°C Temp.
0942	8.37	6.92	861	171	16.6	28.9
0949	8.52	6.98	854	254	24.2	28.6
0956	8.66	7.03	852	223	21.8	28.8
1003	8.73	7.06	848	163	19.0	28.7
1010	8.84	7.08	849	104	10.5	28.8
1016	8.89	7.09	846	98.9	7.9	29.2
1022	8.93	7.08	837	90.7	5.5	28.6

* Sample time 1030.
* Sample for VOCs and SVOCs.
* Peristaltic pump was used.
* D.O. = 0.6 mg/L

Jon C. Edel Jr.

Sunday March 3, 2002

Water Levels

Well	Time	SWL	Comment
510DW1	1748	10.72	well cap was on (Locked)
510DW2	1749	10.67	"
510MW1	1750	5.30	"
510MW4	1754	9.24	"
510MW2	1757	15.79	"
54TW09	1800	9.10	Push on cap
54TW16	1801	9.36	"
54TW19	1803	10.66	"
54TW15	1804	9.59	"
54TW20	1805	8.25	"
54TW07	1807	8.68	"
54TW08	1810	9.95	"
510MW3	1811	10.91	Locking cap on
54TW10	1812	9.77	Push on cap
54TW17	1813	8.80	"
54TW12	1816	11.93	"
54TW06	1817	13.26	"
54TW03	1818	13.43	"
54TW04	1819	13.89	"
54TW14	1820	14.20	"
510MW5	1821	13.35	Locking cap on
54TW05	1822	13.37	Push on cap

Sunday March 3, 2002

Water levels (Cont.)

Well	Time	SWL	Comment
54PZ01	1824	13.91	Push on cap
54TW11	1825	13.13	"
54TW18	1826	12.64	"
54PZ02	1831	7.95	"
54PZ03	1833	11.73	"
54TW13	1834	12.53	"

* All levels were measured from Top of PVC.

Jon C. Edell Jr.

Monday March 4, 2002

0610 Arrived at front gate to get our surveyor a day pass.

0700 Leaving front gate to go to SWMU 54.

0718 Arrive at SWMU 54 to get equipment and talk to drillers. Drillers are onsite. Drillers don't have bollards or cement yet, it will be coming today.

0755 Leaving SWMU 54 to go to SWMU 3 to collect asbestos samples. Dave is with drillers.

1034 Arrive back at SWMU 54 to start working with sampler.

1208 Arrive back at SWMU 54 to pack up sample, We went to lunch.

1210 Received voice mail that another truck from the drillers needs to come on base.

1225 Drove to front gate but there is nobody there from Erbec.

1229 Leaving to go back to SWMU 54.

1400 Arrive back at SWMU 54.

Monday March 4, 2002

1450 Called Fedex to arrange pickup. Pickup numbers are NTR 268 & 222.

1650 Fedex came to pick up the 12 coolers that we had.

1913 Leaving site for the day. Drillers have left along with surveyor. We are offsite.

Jon C. Gall Jr.

Tuesday March 5, 2002

0645 Passed through Gate 3.
0650 Arrived at SWMU 54.
0710 All meters were calibrated which could be calibrated. Drillers are onsite.
0730 Arrive at S4TW21 to collect groundwater samples.
0831 Finish sampling S4TW21. Going back to trailer.
0843 Leaving SWMU 54 to go to SWMU 3 to collect last groundwater sample.
1419 Arrive back at SWMU 54. Drillers are gone. There are some bags of sand and some extra drums still here. They probably will be back. We are packing up samples for FedEx.
1450 Called FedEx to arrange pickup. Pickup number was NRA55.
1600 FedEx came to pick up our 6 coolers.
1635 DMG and I are doing a site walk at SWMU 54. Drillers abandon and grouted up all temporary wells.
1710 DMG and I are taking a SWL

Tuesday March 5, 2002

S4TW21

T.D. ≈ 20.0'
Ø = 2"
SWL = 8.92'

* Start pump at 0730
* Bottom of tubing at approx. 19'

Time	SWL	pH	(us) Cond	Turb.	(mv) Redox	(°C) Temp.
0747	8.85	6.65	1,803	overrange	-3.6	28.2
0753	8.93	6.71	1,906	"	1.7	28.1
0800	9.00	6.69	1,858	"	7.1	27.6
0806	9.07	6.71	1,883	"	8.4	27.9
0814	9.14	6.73	1,902	"	8.3	27.5

* Sample time 0825
* Sample for VOCs and SVOCs.
* Peristaltic pump was used.
* D.O. = 0.6 mg/L
* I did not take first reading for awhile because of how turbid water was.

Jon C. Edel

Tuesday March 5, 2002

at SWMW4. SWL is 9.19' Top of Pvc.
Called O'Neill from Erbec. The drillers
will be back tomorrow morning.

1715 Finished at SWMU 54 for the day. DMG
and I are offsite.

Jon C. Edell Sr.

Wednesday March 6, 2002

0640 Pass through gate 3.

0645 Arrive at SWMU 54. Will be collecting field blanks and equipment rinsates for SWMU 3.

0810 Called Andy (Erbec) to find out what time they would be on base. Left a message.

0821 DMG and I are leaving SWMU 54 to go to Fajardo to extend box truck agreement.

0925 Arrive back at SWMU 54 after going to Ceaseway and getting new pass for truck. Drillers are onsite.

0940 Drillers left site. I called them to verify that they would be back to move drums. They will be back.

1008 Leaving SWMU 54 to go pick up coolers from fuels building.

1040 Arrive at fuels building after verifying that the drillers finished installing >MW17 and removing drum at TWFF.

1115 Arrive back at SWMU 54 to pack up all the samples for SWMU 3.

1455 Drillers arrive back at SWMU 54 to move drums.

1530 Drillers are finished with SWMU 54. They are offsite.

1636 Left SWMU 54 for the day. We are heading over to surface operations for

Wednesday March 6, 2002

for next weeks work.

1648 Arrive at Surface operations. They Said to stop by next week to arrange something. Heading to Condo.

Jon C. Edell Jr.

3/6/02 (80)

Thursday March 7, 2002

0615 Arrive at San Juan Airport.

0930 Depart San Juan for Philadelphia.

1220 Arrive in Philadelphia.

1610 Leaving Philadelphia to go to Pittsburgh.

1730 Arrive in Pittsburgh. Heading home.

Jon C. Edell Jr.

3/7/02 (81)

Monday March 11, 2002

0630 Arrive at Pittsburgh Airport.

0830 Leaving Pittsburgh to go to Charlotte Airport.

1000 Arrive in Charlotte.

1145 Leaving Charlotte to go to San Juan.

1540 Arrive at San Juan. Proceeding to National to get rental car, then on to dinner and then Palmas Del MAR.

1915 Arrive at Palmas Del MAR.

Jon C. Edell

Tuesday March 12, 2002

0610 Arrive at front gate to get a vehicle pass. Pass gate isn't open.

0710 Pass gate finally opens. DMG and I get pass.

0726 Arrive at SWMU 54.

0756 Leaving SWMU 54 to go back to landfill to get a round of water levels.

0815 Arrive at R>SWOARE to start collecting SWL

0857 Leaving SWMU 3. All work finished.

0905 Arrived at the TWFF area to resample the surface water along the bulk head next to the ensenada. Spoke with an officer/military personnel with last name Harkins. He said just stop by at 1300 to jump on a boat.

0950 Left TWFF to go to Marina to get ice.

1005 Heading back to TWFF/Ensenada area to collect surface water.

1008 Arrive at 7SW9 to collect surface water sample. Collected at 18.5' down.

1030 Arrive at 7SW8 to collect surface water sample. Collected at 18.0' down.

1043 Arrive at 7SW7 to collect surface water sample. Collected at 8.5' down.

1052 Arrive at 7SW6 to collect surface water sample. Collected at 8.0' down.

Tuesday March 12, 2002

1100 Leaving Ensenada/Honda area to go to lunch.

1153 Arrive back at SWMU 54 to pick up some more supplies.

1228 Leaving SWMU 54 to go back to TWFF/Ensenada Honda area.

1243 Arrive at parking area for surface ops over at the TWFF/Ensenada Honda area.

1330 Arrived at 7SD14 to collect sediment sample from boat.

1347 Arrived at 7SW5 to collect a surface water sample from boat. Collected at approx. 5' down.

1349 Arrived at 7SD8 to collect a sediment sample from boat.

1354 Arrived at 7SD7 to collect a sediment sample from boat.

1400 Arrived at 7SD13 to collect a sediment sample from boat.

1420 Leaving TWFF/Ensenada Honda area. Going to get more ice.

1440 Arrive back at SWMU 54 to collect IDW samples at SWMU 54.

1530 Sampled soil IDW from drums

Tuesday March 12, 2002

at SWMU 54. A composite of the drums was taken.

1615 Spoke with Melanie from the Lab (STL) about IDW sample containers. She said use at least 50 mL plastic containers for RCRA Metals. She said use 1 L Ambers for both TCLP Lead and TCLP Benzene.

1620 Sampled IDW water from drums at SWMU 54.

1635 Called Odneil from Erbec to have someone come out to pick up drum with plastic and hydraulic fluid from when their rig went down. He said he will send someone out tomorrow or Thursday.

1700 Left SWMU 54 for the day. Offsite.

Jon C. Edell Jr.

Wednesday March 13, 2002

0725 Pass through Gate 3.

0730 Arrive at SWMU 54. Going to pack up samples from yesterday and start packing up equipment.

1145 DMG and I broke for lunch and to get ice.

1250 Arrived at front gate to let Andy (Erbec) on to pickup drum with their plastic and hydraulic oil.

1310 Arrive back at SWMU 54 with Andy following us.

1313 Andy is finished and Offsite.

1430 Called FedEx to schedule a pickup. Our pickup number is NRR248.

1628 FedEx arrived to pickup our 12 boxes. Three of the boxes were samples sent to the lab. Nine boxes were equipment sent back to Baker.

1630 DMG and I are heading to TWFF to run a slug test on >MW17.

1702 Arrive at TWFF to run a slug test on >MW17.

1900 Finished with slug test. Heading

3/13/02 (86)

Wednesday March 13, 2002

to SWMU 54 to drop off equipment.

1918 Arrive back at SWMU 54. Dropping off equipment.

1924 Leaving SWMU 54 for the day. Offsite.

2200 Preparing e-mail to MSK about samples sent out today.

2230 Finish with e-mail.

Jon C. Edel Jr.

3/13/02 (87)

0730 Pass through Gate 3.

0736 Arrive at SWMU 54 to pick up Slug test equipment for >MW1> over at the TWFF. Test needs to be rerun.

0748 Leaving SWMU 54 to go to SWMU 7/8 (TWFF) to run slug test.

0804 Arrived at >MW1> to perform a Slug test.

1003 Leaving >MW1> to go talk to Jim Rice in the fuels bldg.

1005 Jim wasn't there, we will stop back.

1010 Arrive at PWD to talk to Madeline.

1101 Leaving PWD after speaking with Madeline.

1110 Arrive at fuels office to talk to Jim Rice and Lt. Feliz.

1125 Leaving fuels to break for lunch.

1155 Arrive back at SWMU 54 to take box truck back to Leaseway.

1205 Leaving SWMU 54 to go to Leaseway.

1300 Arrive back at SWMU 54 after dropping off truck at Leaseway. We are packing the rest of our

equipment.

1405 Called FedEx to arrange a pickup. Our pickup number is NRE209.

1620 FedEx came to pickup our four boxes.

1630 DMG and I are leaving site. We are leaving our keyed lock on gate. We gave a key to Madeline for that lock and the one at the TWFF decon area. We also gave Madeline some keys for the locking caps for the wells at SWMU 54 and SWMU 3, as well as the TWFF. Offsite.

Jon A. Edel Jr

Friday March 15, 2002

0500 Left Palmas Del Mar to go to the San Juan Airport.

0610 Arrive at National Rental Car to turn in our rental car.

0625 Arrive at the airport.

0930 Leaving San Juan to go to Philadelphia.

1215 Arrive in Philadelphia.

1545 Leaving Philadelphia to go to Pittsburgh.

1650 Arrive in Pittsburgh.

Jon C. Edell Jr.

APPENDIX F.2
Field Notes from David Gaviglia – Geologist

Name Dave M. Gaviglia

Address AOP Bldg. #3
420 Rouser Rd. Coraopolis, PA 15108

Phone 412-269-6017

Projects

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Projects (continued)

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water

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(1)

2/12/02 Weather: Pt. Cloudy, 80°

0600 - On site
- get gate pass
- Go to SWMU 53 to locate borings
- Go to SWMU 54 to locate borings
1130 - ~~Go~~ DMG to gate to get drillers onsite
1328 - Drillers on site (2), unload drums + equip. off supply truck.
1342 - Other drillers on site (2)
- Construct decon pad
1350 - ERTEC Super. leaves site
1430 - Set up for decon., trouble getting steam cleaner started
1500 - Steam cleaner working, Move Rig to decon pad.
1555 - Move Rig to 54TW03 (Ps.2)
1816 - check water level @ 510mws 13.11' (Top of PVC)
- Place PVC Screen + Riser in 54TW03
- pull augers
1830 - Finish pulling augers
1840 - Drillers off site
1855 - Off site

Rig - B-90 Mobile Drill
140# Hammer

54TW03

2

2/12/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
1611	S-1	0-2	4-6-9-12	1.4
1615	S-2	2-4	12-18-25-28	1.8
1630	S-3	4-6	9-10-8-12	1.6
1635	S-4	6-8	12-14-15-18	1.5
1650	S-5	8-10	6-12-17-18	1.6
1656	S-6	10-12	5-7-10-11	1.8
1700	S-7	12-14	10-14-14-12	1.8
1715	S-8	14-16	4-9-20-25	2.0
1721	S-9	16-18	18-24-28-30	1.7
1759	S-10	18-20	9-9-14-18	1.8

Screen from 20'-10' 2" PVC
Bottom + Top Caps

54TW03 Driller - Andy Cosme
Water ~14'
6" O.D. Augers (3¼" ID)

3

2/12/02

Description	
CLAYEY SILT, some rock frags.; brown; dry	0.4'
SILTY CLAY; red w/ lt. gray + tan mottling; dry - damp	2.5'
SILT, little to some clay, little fine gravel; orangish-brown w/ lt. gray + black mottling; dry quartz frags. @ 5'	6.5'
CLAY AND SILT; tan, orangish-brown + lt. gray mottling; dry - damp	7.8'
SILT, trace clay, little fine sand; tan + orangish-brown w/ rust staining; dry little to some clay after 10'	13.2'
SILT, little to some clay and fine gravel; tan, orangish-brown, lt. gray mottling; damp; wet zone @ 14' rock frags. @ 15.8' (gray)	15.8'
SILT, trace to little clay; gray + white w/ vertical fractures; damp 18-20' Split Spoon wet	20'

Bottom of Boring @ 20'

2/13/02 Weather: Pt. Cloudy, 80s

0700 - On site
- Drillers on site

0727 - Move Rig onto 54TW04 (See Pg. 8)
- enough augers, split-spoons clean w/ soapy water + tap rinse

0740 - Decon split-spoons

0850 - Finish drilling 54TW04, set PVC in borehole

0915 - Begin drilling 54TW05 (See Pg. 10)

1021 - Place Screen + Riser in 54TW05
- Cat head leaking hydraulic fluid, containerize into 5-gallon bucket w/ sorbent pads

1030 - Finish 54TW05

1034 - Water level @ 54TW03
13.26' - Top of PVC

1044 - Water level @ 54TW04
15.70' - Top of PVC

1050 - Will Decon ~~Rigs~~ Augers + Split-Spoons
- sending a mechanic to fix hydraulic leak.

1107 - DMG + Jon E. to gate to get 2 mechanics in.
- Go to Public Works to check on arrival of packages

2/13/02
- Get supplies @ Van
- Get ice @ Marina

1320 - Arrive on site, drillers + mechanics not on site

1333 - Drillers + mechanics arrive @ site work on Rig
- Help Jon E. collect Equip. Rinsate + pack samples for shipment

1505 - Finish helping Jon E. collect water levels
- Fed Ex arrives for pickup
- Go to Public Works + Van to pickup supplies

1605 - Arrive back @ 54, mechanics still working on Rig. Waiting for drillers to arrive w/ part. for Rig.

1611 - Drillers arrive w/ part

1634 - Finish fixing Rig - cleanup Rig + hydraulic fluid on decon pad. Additional plastic was placed under Rig @ decon pad to capture fluid. Place hydraulic fluid and stained plastic into 55-gallon drum.

2/13/02

1645 - Decon Rig
- Gate for access to 54TW06 is locked for the evening
1652 - Mechanics off site
- Talked to about drilling tonight, that we would finish a well over by 510 MW3 ~ 7pm. We agreed to start tomorrow AM
1710 - Finish Decon
1720 - Drillers off site
- DMG + Jon E. to Van to look for field books
1750 - Off site, go to buy jumper cables
2000 - Do drilling daily + transfer notes onto field book
2200 - Finish paper work

2/14/02 Weather: Pt. Cloudy, Rain 80s

0630 - On site
- Try to jump start Van, won't start
0655 - leave for SWMU 54
0706 - Arrive @ 54, Drillers on site
0725 - Go to 54TW06 (See Pg. 12)
0832 - Finish drilling 54TW06, place 2" PVC Screen + Riser down hole then pull augers
0838 - DMG talk to people from Dick Corp. about moving rig into their area and having to move cars. Dick rep. no problem.
0850 - Move to 54TW10 (See Pg. 14)
0858 - Check water level @ 510 MW3 9.1'-G.S.
1040 - Set 2" PVC Screen + Riser in 54TW10, pull augers
1110 - Move Rig to 54TW08 (See Pg. 16)
1117 - Rig leaking hydraulic fluid @ swivel, contain leakin using sorbant pads, Will watch closely for further leaking
1125 - Begin drilling @ 54TW08
1214 - Place 2" PVC Screen + Riser in 54TW08. Pull augers
~~1230 - Move Rig to Decon Pad~~
1240 - Drillers break for lunch

Cont. on Pg. 18

54TW04

(8)

2/13/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
0757	S-1 A-N	0-2	5-4-3-6	1.1'
0810	S-2 A-N	5-7	12-20-23-38	1.9'
0821	S-3 A-N	10-12	8-16-20-30	1.3'
0832	S-4 A-N	15-17	15-21-30-40	1.6'

2" PVC
Screen from 20' to 10'
Riser to surface

54TW04

(9)

2/13/02

Description	
CLAYEY SILT AND ROCK FRAGS.; brown; damp to moist	0.7'
SILTY CLAY; orangish-brown + lt. gray; damp	5.5'
SILT, little to some clay, trace fine gravel; orangish-brown w/ black + lt. gray mottling; dry-damp	10'
SILT, little fine sand, trace to little clay; tan w/ lt. gray + orangish-brown mottling + rust stainins; dry	15.8'
SILT, little to some clay, little fine sand, trace rock frags.; tan, lt. gray; damp	20.0'

Bottom of Boring @ 20.0'

54TW05

(10)

2/13/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
0918	S-1 A-N	0-2	16-30-31-10	1.2
0934	S-2 A-N	5-7	5-7-8-8	1.3
0947	S-3 A-N	10-12	4-10-17-23	1.8
1001	S-4 A-N	15-17	11-14-26-35	1.6
1012	S-5	18-20	16-25-35-48	1.6

2" PVC Screen
Screen from 20' to 10'
Riser to Surface

54TW05

(11)

2/13/02

Description

SANDY SILT AND ROCK FRAGS.; brown + black, dry - damp — 5.0'

SILTY CLAY; lt. gray, orangish-brown mottling w/ trace rust staining; damp — 10.0'

SILT, some clay, trace to little fine sand + fine gravel; lt. gray, orangish-brown; damp
wet zone @ 10.7' — 15.0'

SILT, little clay + fine sand, trace to little fine gravel; orangish-brown, lt. gray, tan; damp

Same As Above, trace clay, more fine sand after 18' — 20.0'

Bottom of Boring @ 20.0'

54TW06 (12)

2/14/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
0746	S-1 A-N	0-2	15-26-14-4	1.2
0757	S-2 A-N	5-7	5-6-8-10	1.3
0808	S-3 A-N	10-12	10-17-25-26	1.4
0820	S-4 A-N	15-17	12-13-14-17	1.3

2" PVC
Screen from 20' to 10'
Riser to surface

54TW06 (13)

2/14/02

Description	
SANDY SILT AND ROCK FRAGS.; brown, gray; dry-damp	1.6'
SILTY CLAY, trace coarse sand; reddish-brown; damp	5.0'
SILT, little to some fine sand, trace clay; tan orangish brown, lt. gray; damp	
Same As Above @ 10'	
Same As Above @ 15', little clay + fine gravel & rock fragments	20'

Bottom of Boring @ 20'

S4TW10

(14)

2/14/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
0904	S-1	0-2	10-12-6-22	1.0
0914	S-2	2-2.4	50/.4	0.3
	A-N	Move location 3.5' further West		
0933	S-3	4-6	2-2-3-4	0.4
0938	S-4	6-8	5-4-7-9	1.7
0945	S-5	8-10	6-9-12-19	1.8
0951	S-6	10-12	9-17-18-28	1.7
1002	S-7	12-14	21-29-42-50	1.5
1010	S-8	14-16	10-7-8-10	1.0
1014	S-9	16-18	8-9-13-17	2.0
1027	S-10	18-20	7-9-13-22	1.5

2" PVC Screen from 20' to 10'
Riser to surface

S4TW10

(15)

Water ~ 9.1'

2/14/02

Description

CLAYEY SILT AND ROCK FRAGS.; gray + brown; damp-dry
Gabbro frag. @ 2.4' (Auger refusal)-Fill bit came off of lead auger
Move location 3.5' further West (Auger to 4')
4.0'

CLAY, little silt, lt. brown; damp, lt. gray
7.0'

SILTY CLAY; lt. brown, lt. gray + black mottling; damp
8.8'

SILT, little fine sand, trace to little clay; lt. brown, tan, orangish-br, lt. gray mottling w/ little rust staining; damp
Clay seam @ 9.5'
Same as above @ 10', trace fine gravel
Same as above @ 12'
Rock frags @ 13.7' to 14'
15.8'

CLAYEY SILT; tan, lt. gray w/ rust staining vertical fracturing; damp
wet zone from 16 to 16.9'
pink + tan mottling 16 to 16.6'
16.9'

SILT, little to some clay, little fine gravel + carbonaceous rock frags.; black, white, ~~gray~~ olive mottling; damp
gray w/ white fractures @ 19.4 to 19.7'
rust color @ 19.7' to 19.8'
20.0'

Bottom of Boring @ 20'

54TW08 (16)

2/14/02

Time	ID	Depth (Ft.)	Blow Counts	Recovery
1134	S-1 A-N	0-1.4	4-50/.4	0.5
1140	S-2 A-N	5-7	8-8-6-8	No Recovery
1152	S-3 A-N	10-12	15-22-29-29	1.4
1203	S-4 A-N	15-17	7-10-12-16	No Recovery

2" PVC
10' Screen from 20' to 10'
Riser to Surface

54TW08 (17)

2/14/02

Description	
CONCRETE	0.5'
SANDY SILT AND Rock FRAGS.; brown + gray; dry-damp	10.0'
SILT, some fine to coarse sand, little rock frags.; tan, orange-brown, lt. gray, white; dry-damp 15-17' Split-Spoon Wet	20'

Bottom of Boring @ 20'

2/14/01 Cont. from Pg. 7

1245 - DMG + Jon E. to Van to attempt to jump start again.
- pick up ice

1355 - DMG + Jon E. on site Rig on 54TW07
- Decon augers + split-spoons

1417 - Finish decon, move to 54TW07 (see Pg. 20)

1505 - Place 2" PVC Screen + riser in 54TW07, pull augers.

1530 - load full drums ~~in~~ from 54 TW07, TW08 + TW10 onto supply truck

1544 - Move Rig to 54 TW09

1640 - Finish drilling, pull rods @ 54TW09

1700 - Pickup barrel @ 54TW09, collect dirty augers take to decon pad

1710 - Unload 55-gal. drums inside AST Containment pad adjacent to decon pad

1715 - Unload augers @ decon pad

1730 - Do paperwork w/ Andy - ERTEC

1800 - Drillers off site
- DMG to Public Works to meet Jon E.

2/14/02

- take van to 54, load equip to tomorrow Geoprobe

0710 - Off site

54TW07

(20)

2/14/02

Time	ID	Depth (Ft.)	Blow Counts	Recovery
1431	S-1 A-N	0-1	12-50/.5	0.4
1440	S-2 A-N	5-7	15-11-6-6	1.0
1447	S-3 A-N	10-12	7-7-10-14	0.8
1457	S-4 A-N	15-17	12-12-19-25	1.1

54TW07

(21)

2/14/02

Description

CLAYEY SILT AND ROCK FRAGS; brown, gray, damp 5.0'

SILTY CLAY, little coarse sand, trace rock frags.; brown; damp 10.0'

SILT, little fine sand, trace to little clay, orangish. br. + lt. gray; dry to damp
15-17' Split-spoon wet

Same as Above @ 15', more fine sand and clay 20'

Bottom of Boring @ 20'

54TW09

(22)

2/14/02

Time	ID	Depth (Ft.)	Blow Counts	Recovery
1558	S-1	0-2	20-29-50-8	1.0
	A-N			
1612	S-2	5-6.8	17-19-53-50/.3 ~~20-29-50-8~~	1.1
	A-N			
1623	S-3	10-10.9	42-50/.4	0.8
	A-N			
1633	S-4	15-15.4	50/.4	0.4
	A-N			

2" PVC
Screen from 20' to 10'
Riser to Surface

54TW09

(23)

2/14/02

Description

SILT AND ROCK FRAGS., trace clay; lt. brown, gray; damp

5.0'

SILT, little fine sand; tan, white mottling, trace black; dry

Same As Above @ 10', little rock frags.

15-15.4' Split-Spoon Wet

Same as Above @ 15', more rock frags.

20.0'

Bottom of Boring @ 20'

2/15/02 Weather: Pt. Cloudy, 80,

0630- On site
- Go to Public Works to pick up car
- load equip.

0715- Meet drillers @ gate to get vehicle pass for geoprobe, have to get another fax from Public Works
- M. Rivera sends fax, Guard said to go to shed by trucks to get truck pass. Only 1 day pass. Go back in line @ gate security

0840 - Get pass go to SWMU 53 w/ Geoprobe

0905- Set up on 53 SB19 (See Pg. 26)

~~Time~~ ~~ID~~ ~~53/SB19~~ ~~Depth (ft.)~~ ~~Re~~

ERTEC - 3 guys for Geoprobe

1200- Drillers take lunch
- DMG to get ice for Don E.
- Help Don Sample

1300- DMG back to 53
- Drillers arrive from lunch

1640- Finish 14 boreholes @ 53

1650- Drillers off site
- DMG to 54 to help Don E.

25 - Off site

1830 - Paperwork

2/16/02 Weather: Pt. Cloudy, Rain 80,

0700- DMG, Don E + Drillers on site
- mark locations @ 510 mw's
- Drillers decon Rig + equip

0755- Move to 54TW11 (See Pg. 38)

0839- Swivel leaking hydraulic fluid, clean Swivel and repack, sorbent pads on swivel w/ duct tape

0908- Place 2" PVC Riser + Screen in 54TW11, pull augers

0920 - Clear trees + brush for access to piezometer 54PZ01

0935- Move to 54PZ01 (See Pg. 40)
- clear tree limbs from around mast

1041 - Place 2" PVC down 54PZ01
- pull augers

1105 - Go to Decon pad

1122 Drillers break for lunch
- DMG + Don E. set gatorade
- 1/2 hr lunch break

1215 - wait for drillers

1305- Drillers Super. calls Don E on cell phone, The alternator on supply truck caught fire, Wait to hear back from driller, may be able to make it back to site.
- DMG + Don E. pack equip. + sample bottles for 53 soils, go over Equip Usage form

Cont. on Pg. 44

53SB19

2/15/02

Time	ID	Depth (ft.)	Recovery	Depth Sampled	Sample Time
0924	S-1	0-5	4.0	0-1'	0935
0948	S-2	5-6	5.0 1.0	2.5'-3.5'	0952

53SB18

Time	ID	Depth (ft.)	Recovery	Depth Sampled	Time Sampled
1008	S-1	0-3	1.8'	0-1'	1012
1018	S-2	0-2'		1-2'	

53SB17

Time	ID	Depth (ft.)	Recovery	Depth Sampled	Time Sampled
1029	S-1	0-4	4.0'	0-1	1035
				1.5'-2.5'	1037

53SB19

2/15/02

Description	
SILT, trace clay + roots; brown; dry-damp	0.5'
SILT AND ROCK FRAGS.; gray; dry (FILL) less rock frags after 1'	2.9'
SILTY CLAY; lt. brown; dry-damp	3.3'
SILT, little to some clay, trace rock frags.; orangish-br. + tan, white mottling; dry more f. sand after 5' + f. sand refusal @ 6'	

B.O.B. @ 6'

53SB18

Description	
SILT, trace clay + roots; brown; damp	0.4'
SILT, little to some clay, little rock frags.; lt. brown, lt. gray; dry	1.2'
SILTY CLAY AND ROCK FRAGS (FILL); lt. brown, orangish-br. Refusal @ 3'	

B.O.B. @ 3'

53SB17

Description	
SILT, little to some clay, little rock frags.; brown; dry-damp less clay after 0.8'	1.0'
SILT, trace clay; lt. brown, tan; dry refusal @ 4'	4.0'

B.O.B. @ 4'

53 SB16

2/15/02

Time	ID	Depth (ft.)	Recovery	Depth Sampled	Time Sampled
1056	S-1	0-2	1.6'	0-1'	1100
& try 2nd location				1-2'	1104

53 SB15

Time	ID	Depth (ft.)	Recovery	Depth Sampled	Time Sampled
1118	S-1	0-4	4.0	0-1'	1125
				1.5'-2.5'	1128

53 SB20

Time	ID	Depth (ft.)	Recovery	Depth Sampled	Time Sampled
1140	S-1	0-5	5.0	0-1'	1143
				2-3'	1145

53 SB16

2/15/02

Description	
SILTY CLAY, trace roots; brown; damp	0.8'
ROCK FRAGS, little silt, lt. gray, lt. br.; dry refusal @ 2.0'	2.0'

B.O.B. @ 2'

53 SB15

Description	
SILT, little clay + roots; brown; dry-damp	0.4'
SILT, little fine sand, trace clay + rock frags., lt. brown, tan, orangish-br. mottling; dry more rock frags. starting @ 1.8' to 2.3' refusal @ 4'	

B.O.B. @ 4'

53 SB20

Description	
SILT, trace clay, little roots + rock frags.; brown; dry-damp. (FILL)	0.5'
SILT, little to some clay, little rock frags.; lt. br., orangish-br.; dry-damp (FILL)	2.3'
CLAY, little silt; br., orangish-br; damp, trace rock frags. (Native)	3.9'
SILT, trace to little clay, little rock frags + f. sand; tan, orangish-br., black mottling; dry refusal @ 5'	

B.O.B. @ 5'

2/15/02

53 SB09

Time	ID	Depth (ft.)	Recovery	Depth sampled	Time sampled
1313	S-1	0-4.5	~~4.0~~ 4.3	0-1	1315
				1.5-2.5	1317

~~53SB09~~ 53SB10

Time	ID	Depth (ft.)	Recovery	Depth Sampled	Time Sampled
1334	S-1	0-5	5.0	0-1	1342
1347	S-2	5-7	2.0	3-4	1344

2/15/02

53 SB09

Description

SILT, trace clay, little roots; brown; damp — 0.3'

Clay seam 0.3'-0.5' — 0.5'

SILT AND CLAY, some rock frags. (FILL) brown, lt. brown, orangish. br.; dry-damp — 2.5'

SILTY CLAY, trace fine gravel (NATIVE) lt. brown; damp — 3.9'

SILT, little fine sand, trace clay; lt. brown, tan; dry refusal @ 4.5' — 4.5'

B.O.B. @ 4.5'

53SB10

Description

SILT, trace clay, little roots; brown; damp — 0.4'

SILTY CLAY, some rock frags. (FILL), brown damp — 1.3'

CLAY, little silt, trace f. gravel (Native); lt. brown — 2.7'

SILT, little ~~clay~~, to some clay, tan, orangish-br. damp — 4.4'

SILT, trace clay, little fine sand; tan, orangish-brown, dry

Same As Above @ 5', little clay + fine gravel refusal @ 7.0' — 7.0'

B.O.B. @ 7'

53 SB11

2/15/02

Time	ID	Depth (ft.)	Recovery	Sample Depth	Sample Time
1410	S-1	0-5	5.0'	0-1'	1415
1417	S-2	5-7	2.0'	3-4'	1418

53 SB08

Time	ID	Depth (ft.)	Recovery	Sample Depth	Sample Time
1440	S-1	0-4	4.0'	0-1'	1443
				1.5'-2.5'	1445

53 SB11

2/15/02

Description

SILT, little to some clay, little roots; brown; damp 0.7

SILTY CLAY, little rock frags. (FILL); brown lt. brown; damp 1.1'

CLAY, little silt, trace rock frags + f. gravel, lt. brown; damp (NATIVE) 3.0'

SILT, little clay + rock frags; lt. brown, tan; dry-damp 5.0'

SILT, little to some clay, trace f. sand + f. gravel tan, lt. brown, white, ~~orange~~ orangish. br mottling; damp
refusal @ 7.0' 7'

B.O.B. @ 7.0'

53 SB08

Description

SILT, little to some clay + rock frags., brown; damp (FILL) 1.7'

CLAY, trace to little silt; lt. brown; damp (NATIVE) 2.9'

SILT, trace to little clay, little rock frags. + f. sand; tan, lt. brown, orangish. brown, dry
refusal @ 4' 4.0'

B.O.B. @ 4'

53 SB12

2/15/02

Time	ID	Depth (ft.)	Recovery	Sample Depth	Sample Time
1503	S-1	0-5	5.0	0-1'	1508
				2-3'	1510

53SB13

Time	ID	Depth (ft.)	Recovery	Sample Depth	Sample Time
1525	S-1	0-4	3.8'	0-1'	1530
				1.5'-2.5'	1533

53 SB12

2/15/02

Description	
SILT, little clay + roots; brown; dry-damp	0.4'
SILTY CLAY, some rock frags. (FILL) brown, lt. brown, gray; damp	1.2'
CLAY, trace to little silt, trace f. gravel; lt. brown, lt. gray; damp (NATIVE)	2.5'
SILT, little clay, trace f. sand; lt. brown, tan; dry-damp	7.8'
SILT, trace clay, little to some rock frags + subrounded coarse gravel; lt. brown, tan, black mottles; dry refusal @ 5'	5.0'

B.O.B @ 5'

53SB13

Description	
SILT, little clay, some rock frags.; brown; damp	0.8'
CLAY, little silt, trace f. gravel, lt. brown; damp, little black staining from 1.6' to 2' (organics)	2.0'
SILT, trace to little clay, little f. gravel; lt. brown, tan; dry more clay starting @ 3' refusal @ 4.0'	4.0'

B.O.B @ 4'

53SB14

(36)

2/15/02

Time	ID	Depth (ft.)	Recovery	Sample Depth	Sample Time
1600	S-1	0-3.9'	3.9'	0-1'	1605
				1.5'-2.5'	1608

53SB07

Time	ID	Depth (ft.)	Recovery	Sample Depth	Sample Time
	S-1	0-3	2.8'	0-1'	1630
				1-2'	1633

53SB14

(37)

2/15/02

Description

SILT, trace to little clay, little to some rock frags. (FILL), brown, damp — 0.8'

CLAY, little silt, trace f. gravel, lt. brown, damp (Native)
rock frags. from 1.2 to 1.6' — 1.7'

SILT, trace to little clay, little f. gravel & rock frags.
refusal @ 3.9' — 7.9'

B.O.D. @ 3.9'

53SB07

Description

SILT, trace to little clay + roots; brown, damp — 0.4'

CLAY, little silt, trace fine gravel; lt brown; damp — 1.3'

SILT, trace to little clay, little f. sand + f. gravel, lt. brown, tan
refusal @ 3' — 3.0'

B.O.D. @ 3'

54TW11 (38)

2/16/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
0818	S-1 A-N	0-2	19-34-11-4	1.4
0829	S-2 A-N	5-7	17-11-13-17 2-3-7-12	1.2
0846	S-3 A-N	10-12	~~BLWLZ~~	0.7
0857	S-4 A-N	15-~~17~~ 16.9 ~~17~~ 16.9-20	11-13-11-50/.4	1.6

2" PVC
Screen from 20' to 10'
Riser to Surface

54TW11 (39)

2/16/02

Description	
SANDY SILT, some rock frags., trace clay; dk. brown, lt. gray, dry-damp	1.8
CLAY, trace silt; lt. brown, damp	5.0'
SILT, little to some clay, trace coarse gravel; reddish-brown, orangish-br, lt. gray; dry-damp	10.0'
SILT, some clay; orangish-brown, tan + black mottling; damp	15.0
SILT, little clay + f. sand; lt. gray, tan, orangish-br; damp	16.5
SILT, little to some clay, little f. sand some rock frags.; reddish to orangish-brown, lt. gray, tan; damp	20.0

B.O.B. 20'

54PZ01

(40)

2/16/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
0954	S-1 A-N	0-2	12-25-7-10	1.7
1003	S-2 A-N	5-7	6-9-13-18	1.3
1016	S-3 A-N	10-11.4	24-38-50/.4	1.3
1028	S-4 A-N	15-16 16-20	19-50/.5	1.0

2" PVC
Screen from 20' to 10'
Riser to Surface

54PZ01

(41)

2/16/02

Description

SILT, little clay, little to some rock frags; brown, lt. gray (FILL); damp — 1.6'

SILT, trace to little clay; orangish-br, lt. gray black; dry-damp — 5.0'

SILT AND CLAY; orangish-br., tan, lt. gray; damp — 10.0'

SILT, little fine sand, trace clay, little to some rock frags. & orangish-br., tan, lt. gray; dry

Same as Above @ 15' — 20.0'

B.O.B. @ 20'

2/18/02 ~~BARRIER~~ 54TW14 (42)

Time	ID	Depth (ft)	Blow Counts	Recovery
0852	S-1 A-N	0-2	7-7-6-10	0.8'
0903	S-2 A-N	5-7	18-11-17-25	1.7
0916	S-3 A-N	10-12	7-17-17-21	1.4
0930	S-4 A-N	15-16.9 / 16.9-20	9-16-49-50/.4	1.7

2" PVC
Screen from 20' to 10'
Riser to Surface

2/18/02 ~~BARRIER~~ 54TW14 (43)

Description	
SILT, little clay, some rock frags., brown, lt. brown, dry-damp	5.0'
SILT, some clay, little to some rock frags, reddish br., orangish-brown, lt. gray, damp (FILL)	6.0'
SILT, little to some clay, trace f. sand, tan, orangish-br., black mottling, dry-damp (NATIVE)	10.0'
SILT, little ~~to some~~ fine sand, trace to little clay, trace fine gravel; lt. gray, tan, orangish-br.; dry moist zone @ 15.5' (SILT + rock frags.)	16.3'
WEATHERED SAPROLITE; white, lt. green; dry to damp	20.0'

B.O.B @ 20'

Cont. from Pg. 25

2/16/02

1433- leave site to get distilled water @ Fajardo.

1530- ~~Beach~~ leave for Palmas

2/17/02

0900 - Do Envys Soil Tests for SWMU 53 (Lead & DDT)

1700 - Bottle samples for lab

1900 - Finish

2/18/02 Weather: Pt. Cloudy, 80s

0650- On site

0700- ERTEC on site, driving geoprobe rig, other truck down

0710- Decon equip + Rig

0720- Mark additional locations
- DMG clear area for 54TW14

0812 - Move Rig to 54TW14 (See Pg. 42)

0833 - Have drillers repack new sorbent pads around swivel
- Clear limbs around Rig Mast
- Move as close to fenceline as possible @ 54TW14

0954- Place 2" PVC Screen + Riser in 54TW14, pull augers

1015- Move Rig to 54TW12 (See Pg. 48)

1106- Place 2" PVC down 54TW12, pull augers
- Move Rig to 54TW13 (Pg. 50)
- 1130 [illegible] augers, trouble [illegible] cleaner

Fix [illegible] cleaner, begin decon

1225- Drillers break for lunch
- DMG to Gatel to get ERTEC Rig to access

2/18/02

1315- Drillers back on site, finish decon.

1320- finish decon, begin drilling 54TW13

1428- Place 2" PVC down 54TW13, pull augers.

1505- Move Rig to 54TW16 (Pg. 52) Move Rig 3' further south, don't want to block in car parked @ trailor. Owner not around will not be back till ~ 1700.

1606 - Place 2" PVC in 54TW16, pull augers

1738- 2" PVC down 54TW15, pull augers

1802- Move Rig to Decon Pad

1815- Paper w/ Andy (ERTEC)

1830- off site

54 TW12 (48)

2/18/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
1032	S-1 A-N	0-2	14-30-19-8	1.2
1039	S-2 A-N	5-7	5-7-7-9	0.6
1046	S-3 A-N	10-12	3-3-4-4	1.6
1055	S-4 A-N	15-17 17-20	3-2-4-4	2.0

2" PVC
Screen from 20' to 10'
Riser to Surface

54 TW12 (49)

2/18/02

Description

~~SA~~. SILT, some rock frags., little f. sand, trace to little clay; lt. brown, brown, lt. gray; dry-damp (FILL) 5.0'

CLAY, little silt; lt. gray, reddish-brown, damp (Native) ← trace fine gravel

Same as Above @ 10' lt. gray, reddish-brown, orangish-brown, tan mottling w/ white vertical fractures

Same as Above @ 15'; more silt; ~~w~~ white, lt. gray, orangish-brown, trace to little purple 20.0'

B.O.B @ 20.0'

54 TW13 (50)

2/18/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
1348	S-1 A-N	0-2	14-5-3-5	1.3
1357	S-2 A-N	5-7	5-10-10-12	1.5
1405	S-3 A-N	10-12	13-18-21-27	1.7
1418	S-4 A-N	15-17 17-20	8-12-21-29	1.7

2" PVC
Screen from 20' to 10'
Riser to surface

54 TW13 (51)

2/18/02

Description

SANDY SILT AND ROCK FRAGS., brown, lt. grey, dry 0.4'

CLAY, little to some silt, little rock frags; brown; damp 5.0'

SILT, little clay & fine sand, lt. grey, orangish brown; dry - damp
rock frags @ 6.3'
Same as Above @ 10'
rock frags. @ 11.7'
wet zone @ 15.7' (SANDY SILT & ROCK FRAGS)
Same as Above @ 15'
20.0'

B.O.B @ 20'

54TW16 (52)

2/18/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
1517	S-1 A-N	0-2	10-2-8-27	1.7
1526	S-2 A-N	5.7 S-~~2~~	44-50/.2	0.7
1542	S-3 A-N	10-11.4	40-50-50/.4	1.4
	S-4	15-16.3	37-47-50/.3	1.0
1553	A-N	16.3-20		

2" PVC
Screen from 20' to 10'
Riser to Surface

54TW16 (53)

2/18/02

10.8
11.1

Description

SANDY SILT, ~~trace clay~~ AND ROCK FRAGS trace clay; brown, lt. gray; damp 0.6'

CLAY, little to some silt, trace to little fine sand + rock frags.; lt. brown; damp 5.0'

SILT, little fine sand + rock frags.; lt. brown, lt. gray; dry

Same as Above @ 10', more rock frags. Hard gray rock frags. from 10.8' to 11.1'
15-16.3 split-spoon wet 15.0'

SILT AND ROCK FRAGMENTS, trace to little clay + fine sand; gray, ~~red~~ orange-brown; wet 20.0'

B.O.B @ 20'

S4TW15

(54)

2/18/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
1650	S-1 A-N	0-2	11-37-31-14	1.2
1700	S-2 A-N	5-7	11-13-15-22	0.9
1710	S-3 A-N	10-12	14-9-11-11	1.3
1721	S-4 A-N	15-17 17-20	5-6-7-12	1.5

2" PVC
Screen from 20' to 10'
Riser to surface

S4TW15

(55)

2/18/02

Description

SILT AND CLAY, little rock frag; brown; dary — 0.6'

SILT, ROCK AND SAND, brown, tan; dry (FILL) — 5.0'

SILT, little to some clay; orangish-brown; dry
Solvent odor noticed @ 7' — 10.0'

CLAY, some silt, lt. gray, orangish-br. mottling; rock frags > 11.3' (lt. gray) dary, solvent odor — 15.0'

SILT, little to some clay, trace rock frags. orangish-br., lt. gray, tan, dary; slight solvent odor — 20.0'

B.O.B > 20'

2/19/02 Weather: Mostly Cloudy, 80s, Rain

0647 - On site
- Drillers on site

0700 - Decon Rig + equip.
- Heavy Rain

0750 - Containerize decon pad water into 55-gallon drums

0820 - load augers, prepare to drill 54PZ03

0830 - Move Rig to 54PZ03 (Pg. 60)

0931 - Place PVC Screen + Riser in 54PZ03 pull augers

0950 - Move rig to 54PZ02 (Pg. 58)

0958 - Andy (ERTEC) called mechanic to change O-ring on swivel to stop hydraulic leak. leak has been contained using sorbent pads. Change O-ring after 54PZ02. Change sorbent pads on swivel

1053 - Swivel appears to be leaking again. Contain + finish 54PZ02.

1109 - Place 2" PVC down 54PZ02.
- pull augers

1145 - Break for lunch

1240 - Dave help Jon E. pack samples

1324 - Drillers on site

2/19/02

1325 - Decon augers (1 man)
- Mechanics on their way to replace O-ring

1350 - Mechanics @ Gate 1, Jon E. goes to Gate 1 for access
- Omar N. (Geo Works) stopped @ site, needs to move drums off pad @ Tow Way Fuel Farm. Has ~50 drums coming in. Said he would place drums on pallets behind pad. I told him he would have to talk to Pedro @ Fuels Dept. and to keep gray drums separate

1425 - Finish decon

1434 - Jon E. arrives on site w/ mechanics (2)

Andy + Odeo leave site to get hydraulic oil

1509 - Fed Ex arrives to pick up samples
- Still working on Rig

1645 - Andy (ERTEC) + Odeo return to site w/ hydraulic oil

1730 - Go over additional locations
- Will Decon Rig tomorrow AM
- paper work

1805 - off site

54PZ02 (58)

2/19/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
1016	S-1 A-N	0-2	33-21-9-7	1.1
1027	S-2 A-N	5-7	2-3-3-3	1.0
1038	S-3 A-N	10-12	5-8-7-11	1.5
1052	S-4 A-N	15-17 17-20	3-3-4-7	0.4

2" PVC
Screen from 20' to 10'
Riser to Surface

54PZ02 (59)

2/19/02

Description

SANDY SILT AND ROCK FRAGS; brown, lt. gray; damp (FILL) 0.6'

CLAY, little to some silt; dk. + lt. brown; damp (FILL)

Same as Above @ 5', little rock frags; moist-wet (FILL) 10.0'

CLAY, little silt, reddish-brown, orangish-brown, lt. gray; damp (Native)

Same As Above @ 15', trace rock frags. + fine gravel

20.0'

B.O.D @ 20.0'

54PZ03

(60)

2/19/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
0846	S-1	0-2	17-16-7-5	0.9
	A-N			
0856	S-2	5-7	4-4-5-7	No Recovery
	A-N			
0904	S-3	10-12	4-4-10-21	1.9
	A-N			
0916	S-4	15-17	12-22-29-33	1.9
	A-N	17-20		

2" PVC
Screen from 20' to 10'
Riser to Surface

54PZ03

(61)

2/19/02

Description

SANDY SILT, some rock frags., trace clay, brown, lt. brown, lt. gray, damp to wet (FILL) 5.0'

No Recovery 10.0'

SILT, little to some clay, orangish-br., tan, lt. gray, white, pink mottling. Clay seam @ 11.2 to 11.3' 11.3'

SILT, little ~~to~~ clay & fine sand and rock lt. gray rock frags., ~~dark~~ iron staining from 11.7' to 11.8', lt. gray, tan, orangish-br, damp 11.9'

SILT, little to some fine sand; very lt. gray; lt. olive; damp
Wet zone from 15.3' to 15.6' (Silt, trace clay, some rock frags.)
Same as above @ 15' 15.3'

SILT, trace to little clay, lt. sand and rock frags. ~~fine~~ little fine gravel from 15.3' to 15.9'; ~~little fine sand~~ orangish-brown, tan, lt. gray w/ iron oxide staining 20.0'

B.O.B @ 20'

54TW17

(62)

2/20/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
0911	S-1 A-N	0-2	9-8-5-5	0.6
0920	S-2 A-N	5-7	2-3-8-10	0.9
0935	S-3 A-N	10-11.4	17-49-50/.4	1.1
0949	S-4 A-N	15-16.9 16.9-20	15-25-34-50/.4	1.4

2" PVC
Screen from 20' to 10'
Riser to surface

54TW17

(63)

2/20/02

Description

SANDY SILT AND ROCK FRAGS. a little to some clay; brown, lt gray; dry-damp (FILL) 5.0'

SILT, little fine sand, trace to little clay + rock frags.; orangish-br., lt. gray; damp (Native)

Same as Above @ 10', tan

Moist to wet zone @ 10.8' (clayey silt + rock frags., tan; orangish-brown

Some hard rock frags after 10.8'; gray (Weathered Saprolite)

Same as Above @ 15', SILT and hard rock frags.; gray w/ white specks + vertical fractures, trace iron oxide staining; dry-damp ≈0.0'

B.O.B. @ 20'

2/20/02 Weather: Pt. Cloudy, 80s

0740 - On site
0748 - Drillers on site, Decon Rig
0800 - DMG to 53 to take soil back to site, drop soil @ each location
0852 - DMG back @ 54, Rig moving to 54TW17 (Pg. 62)
1005 - Place 2" PVC in 54TW17, pull augers
1032 - Move Rig to 54 TW18 (Pg. 65)
1040 - Clear tree limbs for mast
1134 - Place 2" PVC down 54TW18
1155 - Rig to Decon Pad, ~~[illegible]~~
1206 - Drillers break for lunch
- DMG dump empty soil bags + clean cooler
1238 - Wait for drillers, prepare paperwork
1300 - Drillers return from lunch
1317 - Begin decon
1345 - Finish decon, told Andy (ERTEC) to wait for awhile. Mark K. said we may have lab analytics later
- DMG collect water levels
1350 - drillers drum decon pad water
1405 - Drillers finish, waiting
1433 - Paperwork w/ Andy (ERTEC)
1500 - Drillers off site

2/20/02
Temp. Well Water Levels (Top of PVC)

54PZ02 - 3.08'
54PZ03 - 11.44'
54TW13 - 12.41'
510 MW5 - 13.14'
54 TW14 - 14.12'
54TW04 - 13.71'
54TW03 - 13.18'
54TW06 - 13.02'
54TW05 - 13.18'
54TW12 - 11.75'
54TW11 - 11.32'
54PZ01 - 14.25'
54TW18 - 12.55'
54TW15 - 9.38'
54TW07 - 8.34'
54TW08 - 9.69'
510 MW3 - 10.94
54TW10 - 9.45
54TW17 - 8.50'
54TW16 - 9.07'
54TW09 - 8.82'
1545 - Pack samples
1615 - off site

54TW18

(65)

2/20/02

Time	ID	Depth (ft.)	Blow Counts	Recovery
1051	S-1 A-N	0-2	14-15-7-9	1.9
1100	S-2 A-N	5-7	13-17-12-21	1.4
1110	S-3 A-N	10-12	5-6-9-11	1.8
1119	S-4 A-N	15-17 17-20	4-8-14-9	1.7

2" PVC
Screen from 20' to 10'
Riser to Surface

54TW18

(66)

2/20/02

Description

SANDY SILT, some rock frags., trace clay; brown, gray, damp-moist (FILL) 1.9'

CLAY, little to some silt, trace to little rock frags.; brown; damp (FILL) 5.0'

SILT, little to some clay ~~[illegible]~~ + rock frags.; orangish-br.; tan, lt. gray-gray (FILL) 10.0'

SILT, little to some clay, trace fine sand; orangish-br, tan, white, lt. gray w/ vertical iron oxide fractures; damp (Native)
Same as Above @ 15', trace to little pink color
~~Hard lt. gray, lt. 16.3-16.6'~~
Hard ~~lt. gray~~ lt. ~~olive~~ green rock frags. from 16.3 to 16.6'
w/ iron oxide staining 20.0'

B.O.B. @ 20'

2/21/02 Weather: Pt. Cloudy, 80.

0700 - On site
- Drillers on site, tell drillers no work today, can prepare for next week. drillers will go to shop to get ready.

0719 - Drillers off site

0730 - Go to 54TW17 to sample GW w/ Jon E.

0847 - Go to 54TW18 to sample

1008 - unload equip., get bottles to collect fuel samples.

1040 - leave 54 to return rental to L&M

1106 - Go to Fuel Dept. to obtain fuel samples

1257 - Go to truck to pack samples

1345 - Wait for Fed Ex pickup,
- go over equip. needs for next week (Site 54 + Landfill), review landfill sampling work plan

1550 - Fed Ex arrives for pickup

1605 - Go to SWMU 3 (landfill) to look @ wells

1640 - Off site

2/26/02 Weather: Pt. Cloudy, 80. Rain

0600 - Gate 1 for vehicle pass
- Go to 54 to meet drillers w/ Jon E. + Joe E.
- Wait for drillers

0733 - Drillers @ Gate 1 w/ different truck, need to get another pass Go to Gate 1.

0854 - Have passes, arrive @ 54 w/ drillers, have box truck w/ more drums
- drillers changing Rig from auger to air

0921 - Take Joe E. to get rental, stop @ Public Works

1000 - stop @ Tow Way Decon Pad to look @ drums by oil/water separator

1020 - Arrive @ 54, waiting for Andy (getting water), label bottles for 54 GW Sampling + Cal. meters

1110 - Andy returns to 54

1115 - Take rig + trucks to Tow Way

1154 - Set up Rig on MW17

1240 - Go to 510MW4 to sample (DMG + Jon E)

1400 - Go to 510MW1 to sample "

1526 - Finish GW Sampling, start collecting GW levels

2/26/02

Site 54 GW levels (Top of PVC)

510MW4 - 9.71'
510MW1 - 5.12'
√54PZ01 - 13.80'
√54TW11 - 12.98'
√54TW18 - 12.52'
√54TW05 - 13.26'
510MW5 - 13.20'
√54TW03 - 13.30'
√54TW04 - 13.76'
√54TW14 - 14.11'
√54TW06 - 13.14'
√54TW12 - 11.80'
√54PZ02 - 6.53'
√54PZ03 - 11.62'
√54TW13 - 12.42'
510MW3 - 10.85'
√54TW08 - 9.78'
√54TW07 - 8.48'
√54TW10 - 9.58'
√54TW17 - 8.60'
√54TW15 - 9.46'
√54TW09 - 8.88'
√54TW16 - 9.18'
510MW2 - 15.67'

2/26/02

510DW1 - 10.53'
510DW2 - 10.52'
1720 - Finish GW levels, help Jon E.
→ truck w/ SWMU3 sample bottles
1735 - Call lab about bottles, call → pay phone (cell phone batteries dead)
1752 - Go to Gate 1 to look for Dell Brown
1605 - At Gate 1, use pay phone
1607 - off site

2/27/02 Weather: Mostly Sun, 80s

0657 - On site
- prepare to sample 3 remaining existing wells @ 54
- cal. meters

0725 - Go to 510MW2 to sample + get well distance measurements from 54TW15

0856 - Go to 510DW1 + DW2 to sample

1146 - Finish sampling DW1 + measurements unload equip., set ice

1300 - Arrive back @ 54 to pack GW Samples for shipment

1430 - Gather equip. for water level + equip. @ SWMU 3

1506 - leave 54 for SWMU 3

1533 - Landfill personnel leaving for the day. Can't get access. Drop off empty drum. Pick up gate key tomorrow AM.
- Go back to 54 to prepare more SWMU 3 bottles

1850 - Off site

2/28/02 Weather: Pt. Cloudy, 80s

0638 - On site
- load equip. for SWMU 3

0705 - leave 54

0718 - Park box truck by Fuel Dept.
- Go to ~~Stn~~ SWMU 3
- Find 9 Wells

0850 - Collect GW levels from all 9 wells

1015 - Go to ~~R7~~ R7GW11 to sample

1320 - Finish sampling R7GW11, take purge water to drum.

1438 - Arrive @ R7GW08R to sample

~~1540~~ 1655 - finish sampling R7GW08R, purge water to drum

~~1~~ 1700 - Arrive @ R7GW07R to sample

1900 - leave well R7GW07R, go to drum to drop purge water

1904 - take box truck to 54

1920 - Arrive @ 54, unload equip.

1945 - off site

½ @ Apt. - prepare for soil sampling
45 min.

3/1/02 Weather: Cloudy, 80s, Rain (73)

0643 - On site
- load equip for 54 soil sampling
- Mark locations (54TW19 + 20)

0715 - Drillers on site, replace air → to augers.

0814 - Move Rig to 54TW15A (Pg.75)

0839 - Andy (ERTEC) goes to Tow Way
2-man crew on auger Rig
Odeo (Driller)

0936 - Hydraulic line blew @ swivel connection. Andy calls for mechanic

1005 - Talked to O'Neil (Ertec) on cell phone said they would send another rig to site ~ noon or after. to replace rig so we can cont. work + mechanic will work on current Rig.
- Will start new hole @ 54TW15A, hydraulic fluid appeared to fall down hole, decon augers

1024 - Drillers leave 54

1145 - Pack samples

1420 - Drillers @ leaking Rig, fixing Rig

3/1/02 (74)

1505 - Rig to Decon Pad for decon

1535 - Finish decon. Rig + augers., load equip

1545 - Move Rig back to 54TW15A (Pg.75)

1550 - Pull augers from 1st hole

1700 - Finish Soil Boring 54TW15A
- Will do 54TW19 + 20 tomorrow

1710 - Go to Box truck to unload equip.

1800 - Off site

3/1/02 — 54TW15A (Soil Boring) — Driller: Odeo — (75)

Time	ID	Depth (ft.)	Blow Counts	Recovery
0847	S-1	0-2	12-38-26-20	1.7
0857	S-2	2-4	~~10-9~~ 4-4-10-9	~~1.8~~ 1.7
0913	S-3	4-6	3-7-8-11	1.5
0917	S-4	6-8	13-19-27-37	1.8

*, Hydraulic leak, move hole 4' North East from 54TW15

3/1/02 1608	A-N	0-4'		
1614	S-5	4-6'	10-19-18-24	1.6
1625	S-6	6-8'	30-28-33-40	1.8
1633	S-7	8-10'	13-18-13-11	1.8
1643	S-8	10-12'	6-8-8-8	1.7

3/1/02 — 54TW15A (Soil Boring) (3' N of 54TW15) — (76)

Description

SANDY SILT, trace to little clay, little to some rock frags. (FILL); brown, dk. brown, lt. gray

* Collect Surface Soil Sample from 0-1' damp. (54TW15A + MS/MSD) - 0850 2.5'

CLAY, little to some silt, trace fine to coarse gravel; lt. brown, damp
~~slight~~ solvent odor @ 5' 6.8'

SILT, trace to little clay; lt. brown; damp
slight solvent odor @ 7' 7.5'

SILT, trace to little clay; little to some fine gravel + rock frags.; lt. brown, dk. brown damp; slight solvent odor
(Can't collect samples from either 4-6' or 6-8', hydraulic fluid on samples)
Will move hole once hydraulic line fixed.

* Collect Soil Sample from 4-6' (54TW15A-02) - 1620 + Duplicate (54TW15A-02D)
- stronger odor @ 8' (while augering)
More rock frags. @ 8.6' stronger odor (Petro?)
Moist @ 9.6' (Petro odor) strong

* Collect Soil/Water Interface sample from 9-11' (54TW15A-04) - 1642 9.6'

CLAY, some silt + rock frags.; lt. gray, lt. br.; damp-moist 12.0'

B.O.B. @ 12'

3/2/02 54TW19 Driller: A. Cosme (77)

Trailer Mount Auger Rig

Time	ID	Depth (ft.)	Blow Counts	Recovery
0720	S-1	0-2	8-21-5-3	1.6
0722	S-2	2-4	4-6-18-12	1.3
0730	S-3	4-6	7-12-9-11	1.3
0736	S-4	6-8	11-14-19-24	2.0
0744	S-5	8-10	8-19-34-48	1.6
0753	S-6	10-12	24-37-50/.4	1.1
0803	S-7	12-13.8	17-40-47-50/.3	1.7
0810	S-8	14-16	24-37-47-32	1.7
0820	S-9	16-16.4	50/.4	0.4
0827	S-10	18-18.45	50/.45	0.4

2" PVC
Screen from 20' to 10'
Riser to Surface

3/2/02 54TW19 (78)

Description

SANDY SILT, some rock frags, little med. sand trace clay; brown, lt. br., lt. gray, tan; dry - damp

* Collect Surface Soil Sample from 0-1' (54TW19-00)-0725 2.0'

CLAY, little silt, trace organics; lt. brown; damp 3.0'

SILT, little to some clay, little f. gravel + rock frags., lt. brown, lt. gray; damp
Same as Above @ 4', some clay, less rock frags. 6.5'

CLAY, little to some silt; lt. brown, dry-damp 7.5'

SILT, little clay + f. sand, trace f. gravel; tan, orangish-brown, lt. gray; dry-damp
Same As Above @ 8', little to some f. sand
* Collect Soil Sample from 10'-11.4' (54TW19-05)-0800 (Soil/GW Interface)
Wet zone @ 10.9' (Sand, Silt + rock frags; lt. gray
Same as Above @ 14', rock frags. @ 13.6' 13.6'

SILT AND FINE SAND, some gray rock frags. lt. brown, lt. gray, gray; dry-damp

SILT, trace to little clay, little f. sand, trace rock frags., orangish-br., lt. gray, dry-damp from 15.7-16' 20.0'

B.O.B @ 20'
S-10 Split-Spoon wet, Water collecting in borehole

3/2/02 ~~2/28/02~~

54TW20 (North of 54TW15)

(79)

Time	ID	Depth (ft.)	Blow Counts	Recovery
0909	S-1	0-2	20-22-11-15	1.2
0911	S-2	2-4	9-5-8-10	0.4
0917	S-3	4-6	7-9-11-10	0.3
0920	S-4	6-8	10-12-13-13	0.5
0934	S-5	8-10	9-9-13-15	1.8
0940	S-6	10-12	6-12-22-17	1.8
0948	S-7	12-14	19-19-11-9	0.8
0955	S-8	14-16	6-8-10-12	0.5
0959	S-9	16-18	7-13-15-16	1.1
1008	S-10	18-20	5-8-18-25	0.5

2" PVC
Screen from 20' to 10'
Riser to Surface

3/2/02 ~~2/28/02~~

54TW20 (North of 54TW15)

(80)

Description

SANDY SILT, trace clay, ~~trace~~ some rock frags., lt. brown, lt. gray; dry - damp

* Collect Surface Sample from 0-1' (54TW20-00) - 0912

4.0'

CLAY, little to some silt; brown, damp

7.8'

SILT, some clay, little fine gravel; brown; damp

Wet zone @ 8.4', (slight petro odor, silt, little clay + fine gravel)

* Collect Soil/Water interface from 8' to 9' - 0940 (54TW20-04)

Same as Above @ 8', little rock frags., slight petro odor

Same as Above @ 10', slight solvent odor, little rock frags.

12.0'

SILT, some clay + rock frags.; no odor; orangish. brown, lt. gray; dry - damp

14.5'

SILT AND CLAY, little f. sand, trace f. gravel orangish-br., tan, lt. gray, damp; ~~slt~~ very slight solvent odor.

Same as Above @ 16', v. slight solvent odor

S-10 split-spoon from water collection in borehole

18.0'

SILT, some f. sand, trace clay; lt. brown, tan, lt. gray; damp - moist

20.0'

B.O.B. @ 20.0'

3/2/02 Weather: ~~Mostly~~ Pt Cloudy, little Rain, 80s

0638 - On site
- Drillers on site, decon augers
- load soil sampling equip

0710 - Move Rig to 54TW19 (southeast 54TW15) (Pg. 77)

0845 - Place PVC screen + Riser in 54TW19, pull augers

0900 - Move Rig to 54TW20 (Pg. 79)

1017 - Place 2" PVC down 54TW20 pull augers

1040 - Finish 54TW20, go to pad to decon.
- Andy (ERTEC) said they will finish decon, then go to Tow Way (MW17) to ~~grout~~ set pad + protective casing, will get 4-bollards next week for well.

1107 - Andy + Odeo go to MW17 to set pads casing, other guy still decon.

1110 - Get bottle + equip. w/ Jon E. to cont. sampling @ SWMU 3

1300 - Go to R7GW04-R to sample

1501 - Finish sampling R7GW04-R, take purge water to drum

3/2/02

1510 - ~~Go~~ Go to R7GW01-R to sample

1725 - Finish sampling R7GW01-R
- Go to box truck (54)
- unload equip.

1820 - off site

3/3/02 Weather: Pt. Cloudy, 80s

0700 - Go to Gate 1 for Del Brown pass
- Go to SWMU 54

0730 - Arrive @ 54, load equip

0750 - Go to 54TW19 to GW Sample

0923 - Go to 54TW20 to GW Sample

1033 - Finish Sampling 54TW20, pack equip for SWMU 3

1140 - Get ice

1200 - Arrive @ well R7GW09 @ SWMU 3

56 - Clear brush + trees for access

14[illegible] - Finish sampling R7GW09, take purge water to drum

1510 - Go to R7GW[illegible]10 to sample

1715 - Finish sampling R7GW10, take purge water to drum

1730 - Arrive @ 54, unload equip.
- Prepare to take round of water levels @ 54 (See Jim E. field book)

1831 - Finish GW levels, go set ice for samples, store closed

1840 - Off site

½ hr. paperwork @ apt.

3/4/02 Weather: Sun, 80s

0602 - Go to Gate 1 for Del Brown pass

0710 - Arrive @ 54, have drillers go to Tow Way to place bollards @ GW17, load equip. to collect Asbestos samples @ 5 wells @ SWMU 3
- Talked to Andy (CERTEC), 4 bollards + cement coming some time today w/ supply truck. Will start to aband. temp. wells this AM.

0729 - Begin Aband. on 54PZ03 + 54TW13 + 54PZ02

0818 - Aband. 54TW17, pull PVC, cuttings in hole
- Pull PVC from 54TW10, TW07 + TW08

0839 - Aband. 54TW16, pull PVC, cuttings down hole

0851 - Pull PVC from 54TW09

0866 - Aband 54TW12, pull PVC, cuttings down hole

0908 - Told Andy (CERTEC) that soil is to be placed back in all holes w/ the exception of 54TW15 + 15A drums. Drums are to be combined for full drums. PVC to be cut for disposal. Info from Mark Kines.

0911 - Aband. 54TW18, pull PVC, cuttings down hole.

0925 - Aband 54TW06, pull PVC, cuttings down hole

3/4/02

0934- Aband. 54TW03, pull PVC, cuttings down hole

0939- Aban. 54TW04, 54TW14 same as above

0955- Aband. 54TW05.

1008- Aband 54PZ01

1021- Aband. 54TW11

1036- Aband. 54TW19 + 54TW20, pull PVC, cuttings down hole.
- Pull PVC @ 54TW15, contaminate cuttings, will grout entire borehole @ 54TW15 + 15A
- DMC help Joe E. w/ packing samples

1415- Drillers to Tow way to finish GW17 + Move drums to pad area

1620- Finish packing samples, locate 54TW21 (50' North of 54TW20)
- Drillers moving drums

1700- Move Rig to 54TW21 (Pg. 87)
Told Andy (ERTEC) that tomorrow he needs to take drums, currently staged @ decon pad to 510 MW3 area dump soil in holes + bring back to drum staging area

3/4/02

1752- hydraulic line leak on trailer mount rig after augering to 20' leak away from hole.
- cleanup trailer-mount rig

1820- Bring B-90 Rig to 54TW21 to pull augers.

1828- Place PVC down 54TW21, pull augers

1852- Finish 54TW21, survey in location + elevation

1905- Drillers off site

1915- off site

3/4/02

54TW21 (Trailer Mount Rig) (87)

Time	ID	Depth (ft.)	Blow Counts	Recovery
1709	S-1 A-N	0-2	6-5-8-11	1.6
1715	S-2 A-N	5-7	5-6-6-6	1.8
1725	S-3 A-N	10-12	4-14-22-13	1.6
1737	S-4 A-N	15-17	6-9-12-19	1.6
1745	S-5	18-20	12-16-21.39	1.5

2" PVC
Screen from 20' to 10'
Riser to Surface

54TW21 (88)

Description

SILT; trace to little clay, little to some rock frags. (FILL); dk. brown, lt. brown, lt. gray; dry - damp

5.0'

CLAY, little to some silt, trace to little f. gravel + rock frags.; lt. brown, dk. brown + lt. gray mottling (Native); damp

10.0'

CLAY, trace to little silt; lt. brown, lt. gray; damp

11.3'

SILT, some rock frags., little to some clay; orangish-br., dk. brown, lt. gray; damp

15.0'

SILT, some f. sand, trace coarse gravel; tan w/ ~~pink~~ little pink + lt. gray seams; damp

Same as Above @ 18'; little med sand, trace to little f. gravel + rock frags.; tan, orangish-br.; damp

20.0'

B.O.B. @ 20'

3/5/02 Weather: Sunny, 80s

0638 - On site
- load equip to sample 54TW21

0656 - ERTEC on site

0700 - Paperwork w/ Andy C. (ERTEC)
- Today ERTEC will dispose of soil drums in area of 510MW3 into boreholes. Place 1 to 2' grout caps on all boreholes. Told Andy to combine all soil drums. Dispose of PVC. Cleanup

0725 - Go to 54TW21 to sample

0825 - Finish 54TW21

0836 - leave 54 for SWMU 3 to sample

0908 - Arrive @ R7GW02R to GW sample, clear brush

1345 - Finish R7GW02R, leave to pack samples

1413 - Arrive @ 54, drillers off site

1611 - Site walk-through @ 54 to check all work was completed and cleanup.

1708 - Collect water level @ 510MW4

1716 - Off site

3/6/02 Weather: Pt. Cloudy, 80s, Rain

0635 - On site
- Collect Equip. Rinsate + Field Blank for ~~SWM~~ SWMU3.
~~- Pack samples~~

0811 - Finish collecting samples, go to ~~Fuels Dept. to pick up packages~~ Leaseway to renew contract.

0900 - Go to Gate 1 to get new pass for box truck

0930 - Do drum inventory

1000 - Go to Fuels Dept. for packages

1015 - Check GW17 @ Tow Way, well Const. complete, drums removed. Can't find drums @ Tow Way Decon Pad.

1033 - Pick up STC packages @ Fuel Dept.
- Go to 54 to pack samples

1435 - Finish packing samples
- Wait for Fed Ex + drillers to return to move + combine drums

1448 - Drillers on site to combine + move drums

1525 - Drillers off site

1625 - Fed Ex arrives
- leave 54, go to Service Ops to arrange for boat for next week

1700 - Off site

3/12/02 Weather: Pt. Cloudy, 80s

0605 - Go to Gate 1 to get pass

0715 - Arrive @ 54 to get equip. @ box truck

0750 - Go to SWMU3 to collect water levels

0850 - Go to pier to collect Water Samples for Tow Way. See Jon E. field book.

1100 - Finish collecting water samples along pier (4), go to box truck to label bottles, load equip for dredge + water samples @ Tow Way

1236 - Arrive @ Service Ops., wait for boat

1410 - Finish collecting Sed. + water samples for Tow Way, Go to box truck @ 54 to label + pack samples

1500 - Collect soil IDW @ 54

1640 - Collect water IDW @ 54
- cleanup

1700 - off site

3/13/02 Weather: Pt. Cloudy, Rain, 80s

0728 - On site, pack samples + equip for shipment.

1300 - Andy (Ertec) @ 54 to pick up drum w/ plastic + hydraulic oil

1500 - Finish packing, wait for Fed Ex

1620 - Fed Ex arrives,
- Go to Tow Way to perform slug test @ 7MW17, haul trash

1656 - Arrive @ 7MW17 for Slug Test

* <u>Slug Test @ 7MW17 (Rising Head)</u>
- Water level (Top of PVC) - 43.34'
- - Slug In = 1722
  - Start Test = 1803
  - Stop Test = 1846
- Total Depth (Top of PVC) - 49.63'

1900 - leave 7MW17, go to 54 to drop off equip.

1923 - off site

½ hr. @ apt. to download slug data

3/14/02 Weather: Sunny, 80.

0729. On site
- load equip @ SY to perform 2nd Slug test @ 7MW17, 1st test data ~~not~~ questionable

0741. leave for Tow Way to do slug test @ 7MW17

2nd Slug Test @ 7MW17 (Rising Head)
7MW17R2
- ~~Sta~~ Water level (Top of PVC) - 43.38'

0810 - Slug In

0851 - Start Test

0935 - Stop Test

1000. leave Tow Way, go to Fuel Dpt. to talk to Jim Rice, Rice not in

1004 - Go to Public Works to talk to M. Rivera, return to Fuel Dept.

1148. Arrive @ SY, unload box truck return box truck

1200. return box truck

1252 - Arrive @ SY to finish packing equip. + collect trash
- Wait for Fed Ex

1615 - Fed Ex arrives
- unload trash

1630. Off site