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RCRA FACILITY INVESTIGATION REPORT
ASSEMBLY A – SWMU 8
CEMETERY DISPOSAL AREA
NAVAL SUPPORT ACTIVITY MID-SOUTH
MILLINGTON, TENNESSEE

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The Contractor, EnSafe Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0318 is complete, accurate, and complies with all requirements of the contract.

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Acronyms

ASTM	American Society of Testing and Materials
atm-m^3/mole	atmosphere-cubic meter per mole
BCT	BRAC Cleanup Team
BEHP	bis(2-ethylhexyl)2-phathalate
bls	below land surface
BRAC	Base Closure and Realignment Act
°C	Degrees Celsius
cm/sec	centimeters per second
COCs	chemicals of concern
COPC	chemical of potential concern
CS/VP	Confirmation Study/Verification Phase
DPT	Direct Push Technology
DQOs	Data Quality Objectives
DRO	Diesel range organics
E/A&H	EnSafe/Allen&Hoshall
EM	Electromagnetic
ERA	Ecological risk assessment
FAA	Federal Aviation Administration
ft/day	feet per day
gpm/ft	gallons per minute per foot
GRO	Gasoline range organics
HHRA	Human health risk assessment
HSWA	Hazardous and Solid Waste Amendments
IAS	Initial Assessment Study
IDW	Investigation-derived waste
μg/kg	micrograms per kilogram
μg/l	micrograms per liter
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
ml/g	milliliters per gram
mmHg	millimeters of mercury
mS/cm	milliSiemens per centimeter
msl	relating to mean sea level
NET	National Environmental Testing, Inc.
NSA	Naval Support Activity
NTU	Nephelometric turbidity units
OSWER	Office of Solid Waste and Emergency Response
PCBs	Polychlorinated biphenyls
PID	Photoionization detector
pH	negative logarithm of the hydrogen ion
ppm	parts per million
PVC	Polyvinyl chloride

QA/QC	Quality assurance/quality control
RBC	Risk-based concentration
RC	background reference concentration
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SSL	soil screening level
SVOCs	Semivolatile organic compounds
SWMU	Solid Waste Management Unit
TAL	Target Analyte List
TTAL	Treatment Technique Action Level
TCL	Target Compound List
TDEC	Tennessee Department of Environment
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCA	Voluntary Corrective Action
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

Solid Waste Management Unit (SWMU) 8, the Cemetery Disposal Area, comprises approximately five to eight acres in the northwest quadrant of the northside of Naval Support Activity Mid-South (NAVSUPPACT Mid-South or NSA Mid-South). At the time of the RCRA Facility Investigation (RFI), SWMU 8 was bounded to the north by a wetlands area, to the east-southeast by the main runway, and to the west-northwest by a stand of pine trees. The Chamberlayne Cemetery, dating from the early 1800s, is approximately 800 feet southwest of the reported disposal area. Surface drainage across the site was northerly toward the wetlands area which is drained by a westward-trending drainage ditch leading to the west NSA Mid-South perimeter. This drainage ditch intersected a southerly flowing tributary of North Fork Creek. SWMU 8 reportedly was used for solid and hazardous waste disposal from 1965 to 1980. In 1998, the site was cleared and graded by the Millington Airport Authority as part of the runway protection zone in compliance with Federal Aviation Administration (FAA) regulations, and has been substantially altered from the time of the original RFI fieldwork.

The objective of the RFI at SWMU 8, was to:

- Assess the nature and extent of contaminants in soil and groundwater, if any
- Conduct a human health risk assessment (HHRA)
- Conduct an ecological risk assessment (ERA)
- Assess the fate and transport of contaminants from one medium to another

Because site conditions have dramatically changed since the original RFI, this report presents the contamination detected in surface and subsurface soil; however, these media are not considered in human health risk assessment and fate and transport sections, because excavation has since removed the threat. The only medium not affected by site grading is the contamination in groundwater, which is addressed in the HHRA and fate and transport sections.

Conclusions

Based on the results of the RFI investigation and confirmation from the Voluntary Corrective Action (VCA), the following has been concluded.

Human Health Risk

Prior to grading, dieldrin was the only chemical of potential concern (COPC) identified in soil, while acetone, lead, and BEHP were identified as COPCs in groundwater. Site-wide risk estimates for these compounds were within the U.S. Environmental Protection Agency (USEPA) acceptable risk range of 1 in 10,000 to 1 in 1,000,000 excess cancer risk. A preliminary risk evaluation (PRE) was performed for groundwater (Section 8), evaluating the excess cancer risk posed by the maximum detected concentration of BEHP. The incremental lifetime cancer risk (ILCR) was estimated to be 2.3E-6, which is less than the USEPA's risk threshold of 1E-4 (USEPA, November 1994c). The hazard index (HI) for acetone (5.1) exceeded the USEPA's threshold of 1 at one sample location.

Version 0.99d of the USEPA's Integrated Exposure-Uptake Biokinetic (IEUBK) lead exposure model was used to estimate the probability that a blood lead level of 10 μg/dL would be reached based on soil and groundwater lead concentrations. The USEPA's model predicted a 1.31% probability that a blood lead level of 10 μg/dL would be reached, and the predicted geometric mean concentration was 3.6 μg/dL. The USEPA's threshold probability is 5%, so SWMU 8 lead concentrations reported in groundwater and soil would not be expected to result in unacceptable blood lead levels based on the IEUBK model.

After cutting the SWMU 8 hillside away, the site was graded and seeded, and will be maintained as a mowed area. The most likely exposure pathway for soil would be maintenance workers who mow the grass and incidentally ingest soil and dust. These workers would be exposed less frequently than default site workers, and exposure would occur only during the mowing season. Maintenance workers would also be exposed to soil contaminant concentrations which have been diluted, which would further reduce any estimated risk.

The dilution of SWMU 8 soil and associated contaminant concentrations with less contaminated soil would be expected to reduce the concentrations reported in Sections 6 and 7, thereby reducing corresponding risk estimates (Section 8). The dilution amount is unknown, so current risk could not be estimated, and risk estimates based on pre-existing conditions would not represent current or future conditions. The removal action reduced contamination in SWMU 8 soil in 1997, and the SWMU 8 site conditions have changed in ways that would be expected to limit exposure and reduce corresponding risks.

Ecological Risk

The habitat that once supported terrestrial wildlife has been eliminated by grading and the removal of stockpiled soil, which contained most of the contamination. SWMU 8 has been seeded and will be maintained as a mowed area, and thus no quality habitat is available. There are no longer exposure pathways to assess.

Contaminant Transport

The primary receptor impacted at SWMU 8 is fluvial deposits groundwater, which is not a source of drinking water in the NSA Mid-South area. The relatively low contaminant concentrations (specifically organic compounds) and the amount of dilution minimize the impact to any potential receptors.

Due to the physical soil properties, the chemical properties of inorganics and the pesticide dieldrin, and the depths at which they were detected at SWMU 8, these contaminants are not expected to leach in appreciable quantities (if at all) into underlying groundwater. Adsorption of the contaminants to soil particles and organic material greatly limits horizontal migration. If the metals detected in SWMU 8 groundwater are associated with the site, they are likely to undergo additional dilution and possibly natural filtration before reaching a potential receptor.

Recommendations

No further action is recommended at SWMU 8, because current site conditions have greatly diminished the potential for excess human or ecological risk.

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1.0 INTRODUCTION

As part of the U.S. Navy Installation Restoration Program, the following Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) report has been prepared for Solid Waste Management Unit (SWMU) 8, the Cemetery Disposal Area, at Naval Support Activity Mid-South (NAVSUPPACT Mid-South or NSA Mid-South), in Millington, Tennessee.

As a result of the Base Closure and Realignment Act (BRAC) of 1990, a portion of NSA Mid-South, including SWMU 8, is being closed and transferred to the City of Millington for reuse. SWMU 8 is one of 15 SWMUs at NSA Mid-South requiring a full RFI because of known or suspected contamination; 35 other SWMUs are undergoing or have undergone confirmatory sampling investigations (CSI). The SWMUs requiring RFIs have been categorized into three assemblies (A, B, and E) according to their BRAC status (i.e., closing or realigning). The Cemetery Disposal Area is one of six Assembly A SWMUs.

The investigation, undertaken by EnSafe/Allen & Hoshall (E/A&H) and the U.S. Geological Survey (USGS), adhered to the requirements of the Hazardous and Solid Waste Amendments (HSWA) permit (No. HSWA TN-002) and applicable regulations. This report summarizes activities conducted during the RFI, the resultant findings and conclusions, and additional site-altering work. Site and vicinity maps of SWMU 8 are provided in Figure 1-1.

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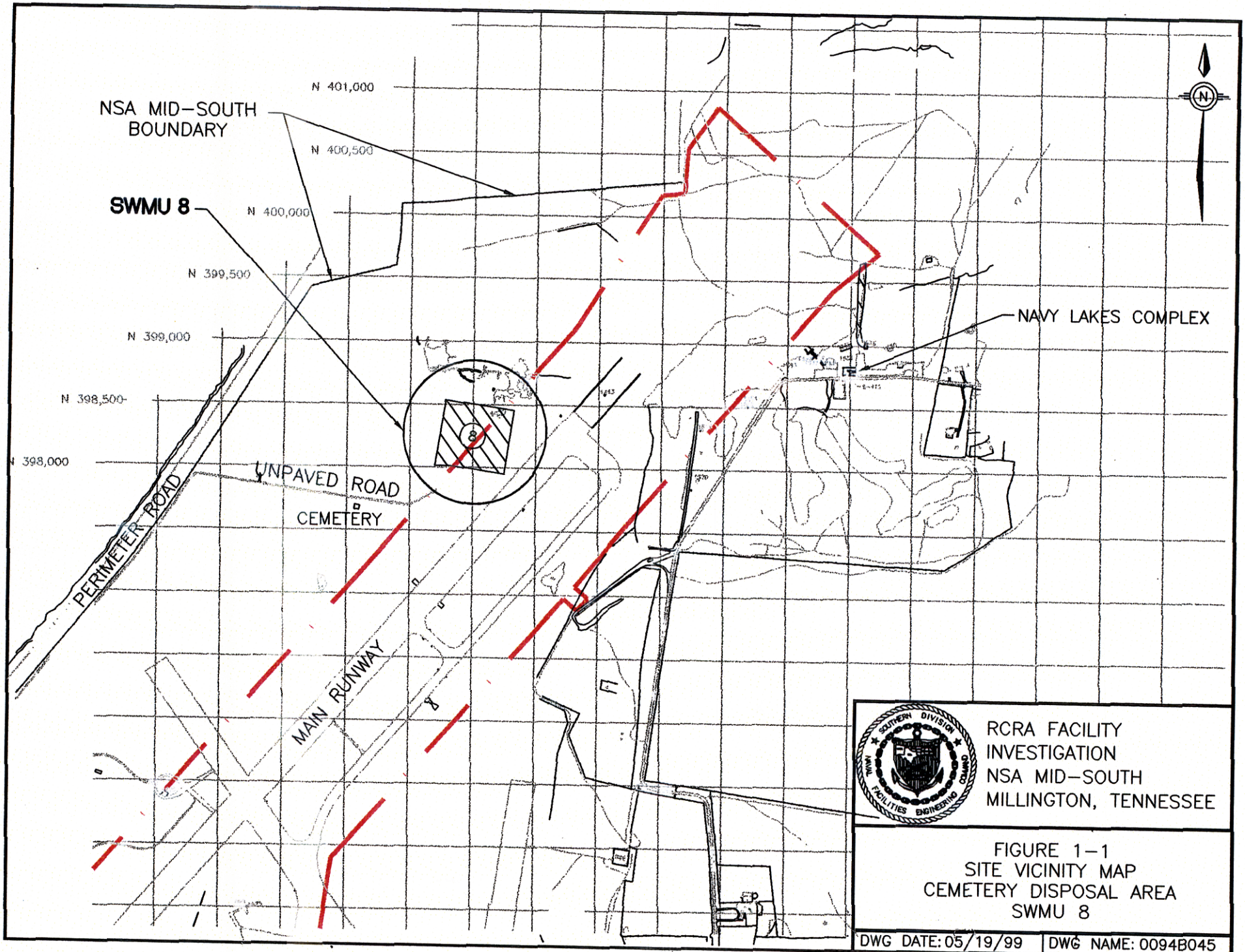
NSA MID-SOUTH BOUNDARY
SWMU 8
N 401,000
N 400,500
N 400,000
N 399,500
N 399,000
N 398,500
N 398,000
PERIMETER ROAD
UNPAVED ROAD
CEMETERY
MAIN RUNWAY
NAVY LAKES COMPLEX
N
SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
RCRA FACILITY INVESTIGATION
NSA MID-SOUTH
MILLINGTON, TENNESSEE
FIGURE 1-1
SITE VICINITY MAP
CEMETERY DISPOSAL AREA
SWMU 8
DWG DATE: 05/19/99
DWG NAME: 0094B045

00616F01Y

2.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

2.1 Site Description

The Cemetery Disposal Area (SWMU 8) comprised approximately five to eight acres in the northwest quadrant of the NSA Mid-South Northside. SWMU 8 was immediately west of the north end of the main runway and was accessible by an unpaved road on the perimeter of NSA Mid-South (Figure 1-1). The SWMU was covered with tall grasses, shrubs, and small trees before being cleared during the RFI. SWMU 8 was bounded to the north by a wetlands area, to the east by a northerly flowing drainage ditch, to the southeast by the main runway, and to the west-northwest by a stand of pine trees. The Chamberlayne Cemetery, dating from the early 1800s, is approximately 800 feet southwest of SWMU 8 (Figure 1-1).

Surface drainage across the site was northerly toward the wetlands area which is drained by a westward-trending drainage ditch leading to the west NSA Mid-South perimeter. This drainage ditch intersects a southerly flowing tributary of North Fork Creek just west of the NSA Mid-South boundary. In January 1998, grading and leveling of the SWMU 8 area began as part of the effort to bring all land within 500 feet of the centerline of the runway to the same elevation as the runway. Currently, the site is a level field and will be maintained by mowing.

2.2 Site History

SWMU 8 reportedly was used for solid and hazardous waste disposal from 1965 to 1980. According to the RCRA Facility Assessment (ERC/EDGe, 1990), wastes reportedly disposed of included three 25-pound canisters of ethylene oxide, metallic scrap, waste chemicals, waste oil, cleaning solutions, transformers, and capacitors. The wastes were reportedly buried eight feet below the original ground surface. Additionally, several stockpiles of soil, either from random dumping or prior bulldozer operations, were visible in one area of SWMU 8.

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3.0 INVESTIGATION SUMMARY

In the years leading up to the RFI, several investigations were conducted to examine the suspected contamination of SWMU 8. These included:

- Initial Assessment Study (IAS, 1983).
- Confirmation Study/Verification Phase (CS/VP, 1985).
- Electromagnetic (EM) Geophysical Survey (1991).
- Soil-Gas Survey (1991).

Also preceding, but included as part of, the official RFI, an additional EM survey and Direct Push Technology (DPT) soil and groundwater screening were conducted to narrow the study area and assess whether volatile organic compounds (VOCs) such as solvents were present onsite. Section 3.1 summarizes the investigations conducted prior to the RFI. Section 3.2 discusses the EM survey and DPT soil and groundwater screening that initiated the RFI. Table 3-1 presents the chronology of events surrounding the investigation of SWMU 8.

Table 3-1
SWMU 8 — Historical Outline

Date	Event	Responsible Party	Section Discussed
1965 to 1980	Reported solid and hazardous waste disposal	Navy	2.2
1983	Initial Assessment Study	Harmon Eng. and Testing	3.1
1985	Confirmation Study/Verification Phase	Geraghty & Miller, Inc.	3.1
1990	RCRA Facility Assessment (RFA)	ERC/EDGe	2.2
May 1991	Electromagnetic (EM) Geophysical Study/Soil-Gas Survey	U.S. Geological Survey (USGS)	3.1
November 1994	EM Geophysical Study	EnSafe/Allen&Hoshall (E/A&H)	3.2

Table 3-1
SWMU 8 — Historical Outline

Date	Event	Responsible Party	Section Discussed
November-December 1994	Direct Push Technology (DPT) Study	E/A&H/USGS	3.2
January-February 1995	RCRA Facility Investigation (RFI) begins with a soil investigation at 12 locations/installation of monitoring wells (3-loess, 4-fluvial deposits)	E/A&H/USGS	4.1, 4.3, 6.2
March 1995	Groundwater monitoring well sampling event	E/A&H	4.3, 6.4
November 1995	Groundwater monitoring well sampling event/monitoring well abandonment (GM-10 and GM-12)	E/A&H	4.3, 6.4
January 1996	Polychlorinated biphenyl (PCB) soil sampling at 10 locations	E/A&H	4.1, 6.3
April 1996	Groundwater monitoring well sampling event	E/A&H	4.3, 6.4
May 1996	Stockpile soil investigation (four locations)	E/A&H	4.2, 7.1.1
August 1996	Groundwater monitoring well sampling event	E/A&H	4.3, 6.4
November 1996	Revision 0, RFI Report	E/A&H	Throughout
March 1997	Stockpile soil first removal	E/A&H	4.2, 7.1.2
April 3, 1997	Four confirmation samples taken from stockpiled soil removal site	E/A&H	4.2, 7.1.2
April 30, 1997	Technical Memorandum (TM) on sampling plan for soil piles	E/A&H	4.2, 7.1.3
Late April to May 1, 1997	Stockpiled soil second removal and 16 confirmation samples	E/A&H	4.2, 7.1.3
May 14, 1997	TM gives results from May 1, 1997 confirmation samples and human health risk estimates	E/A&H	4.2, 7.1.3

Table 3-1
SWMU 8 — Historical Outline

Date	Event	Responsible Party	Section Discussed
June 1997	Downslope and sediment samples collected	E/A&H	4.2, 7.1.3
November 1997	Abandonment of monitoring wells in anticipation of grading project	EnSafe Inc.	7.2
January 1998	Grading work begins	Millington Airport Authority	7.2
February 1998	Identify ethylene oxide cylinders/begin removal of cylinders	Millington Airport Authority/EnSafe Inc.	7.2
May 1998	Grading and cylinder removal complete	Millington Airport Authority/EnSafe Inc.	7.2

3.1 Preliminary Investigations

Initial Assessment Study (1983)

The IAS was completed to identify threats to human health and the environment from previous site waste-handling and disposal practices. The IAS stated that hazardous materials reportedly were disposed of at SWMU 8. A confirmation study was recommended because of the potential impact to groundwater (Harmon Engineering and Testing/NEESA, 1983).

Confirmation Study/Verification Phase (1985)

Geraghty and Miller, Inc., of Tampa, Florida, conducted a CS/VP in 1985 to investigate whether groundwater was contaminated at SWMU 8. Three monitoring wells (GM-10, GM-11, and GM-12) were installed in the fluvial deposits around the presumed perimeter of SWMU 8 at depths ranging from 25 to 30 feet. Reported groundwater elevations indicated a northeastward groundwater flow in this unit. Groundwater samples were collected and analyzed for VOCs, cyanide, and metals. Analyses detected no VOCs or cyanide, while detected metal concentrations

were less than the U.S. Environmental Protection Agency (USEPA) Interim Primary Drinking Water Standards.

Electromagnetic Geophysical Survey (1991)

An EM survey was conducted by the USGS in May 1991, but dense vegetation covering the site prevented a gridded survey, producing inconclusive results. Additional information from the EM survey is available in the *RFI Work Plan, Assembly A Site Investigation Plans — Volume II* (E/A&H, 1994a).

Soil-Gas Survey (1991)

A soil-gas survey was conducted by the USGS in May 1991 at SWMU 8. Fourteen soil-gas samples were collected and analyzed from the area reportedly used for waste disposal. Due to adverse field conditions (i.e., humidity) that affected the field instrument, the data generated were inconclusive. The data are summarized in the *RFI Work Plan, Assembly A Site Investigation Plans — Volume II* (E/A&H, 1994a).

3.2 RFI Investigations

Electromagnetic Geophysical Survey (1994)

E/A&H conducted an EM survey at SWMU 8 in November 1994 to search for disposal area boundaries and assist in selecting DPT sample locations. While clearing brush in preparation for the EM survey, a flat, bermed area was identified. This was the first evidence of a possible disposal-area boundary. No soil disturbance or buried metal was indicated by the EM survey, even within the bermed area. A technical memorandum summarizing the findings of the 1994 EM survey and a geophysical survey map of SWMU 8 are included in Appendix A.

Direct Push Technology — Soil and Groundwater Screening (1994)

E/A&H and the USGS conducted a DPT screening of SWMU 8 in November and December 1994 to evaluate the stratigraphy and potential VOC contamination in soil and/or groundwater. The DPT subcontractor, Subsurface Technology, Inc., of Orlando, Florida, initially pushed a piezocone tool to refusal at selected locations to indicate the lithologic profile. The lithologic information was then evaluated in the field to select depth intervals for soil and groundwater sampling. Soil samples were collected from the loess, between 11 and 15 feet below land surface (bls), at 10 locations and at one additional location from 22 feet bls. Groundwater samples were collected from the fluvial deposits at 10 locations, at depths ranging from 26 to 33 feet. One groundwater sample was collected from the Cockfield Formation at 55 feet bls and another from monitoring well GM-11. Monitoring well GM-10 was dry due to sand-pack invasion suspected to be the result of a collapsed screen, and well GM-12 had a broken riser pipe; therefore, these wells were not sampled.

DPT soil and groundwater samples were analyzed for VOCs at an onsite laboratory using USEPA Method 8021 (halogenated and aromatic VOCs). A gas chromatograph with an electrolytic conductivity or Hall detector and a photoionization detector (PID) were used to perform the analyses. Level II-equivalent Data Quality Objectives (DQOs) were provided by the onsite laboratory. At least 25% of the samples were split and sent to an offsite laboratory, National Environmental Testing, Inc. (NET), of Bedford, Massachusetts, for confirmatory VOC analysis using USEPA Method 8240. Field analytical results indicated no detectable VOCs in the soil and groundwater samples. Offsite laboratory analytical results of the DPT split soil samples exhibited low concentrations (<0.1 milligram per kilogram [mg/kg]) of acetone, a common laboratory artifact. Sample locations, DPT screening results, and offsite laboratory split sample results are presented in Appendix B.

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4.0 FIELD INVESTIGATIONS AND METHODOLOGY

The RFI sampling program was intended to confirm whether contaminants were present in the soil and groundwater as a result of reported disposal activities at SWMU 8.

Specifically, the RFI objectives were to:

- Address the potential for groundwater contamination in the surficial aquifer (fluvial deposits)
- Determine the nature and extent of potential soil contamination
- Characterize the surficial aquifer and the preferred contaminant migration pathways
- Determine the health risks associated with any identified contamination.

This section summarizes the drilling, analytical, and field sampling protocols employed during the RFI, which were based on the USEPA and the Tennessee Department of Environment and Conservation (TDEC)-approved *Comprehensive RFI Work Plan* (E/A&H, 1994b) and the *Assembly A Site Investigation Plan* (E/A&H, 1994a). Soil and groundwater were sampled following procedures outlined in the work plans.

Sampling locations were chosen to provide adequate coverage around the suspected site and to supplement the one remaining previously installed monitoring well (GM-11) that was capable of being sampled. General sampling protocols and rationale for the soil, stockpiled soil, and groundwater investigation are organized and presented in Sections 4.1, 4.2, and 4.3, respectively. Specific sampling protocols (sample handling, field quality assurance/quality control [QA/QC], and decontamination) are presented in Section 4.4. Section 4.5 discusses data validation, and

Section 4.6 discusses decontamination and investigation-derived wastes (IDW). Section 4.7 provides an overview of the ancillary data collection associated with the RFI, specifically the borehole geophysics and aquifer characterization.

Analytical Methods

Soil and groundwater samples were collected to assess the nature and extent of any contaminants and to characterize soil and groundwater properties for use in later remedial design, modeling, and/or migration studies, if needed. Samples were collected as part of the contamination assessment and submitted to NET laboratory for analysis in accordance with Solid Waste (SW) 846 methods. Reporting requirements were based on the Contract Laboratory Program Target Compound List (TCL) and Target Analyte List (TAL). Table 4-1 summarizes the chemical analytical parameters and methods. Soil and groundwater samples were analyzed using Level III-equivalent DQOs. Samples analyzed for design parameters were submitted to Tri-State Testing Services, Inc., of Memphis, Tennessee, for physical parameters and to NET laboratory for chemical parameters. Design parameters and methods are listed in Table 4-2.

Table 4-1
Analytical Parameters and Methods

Media	Analytes	SW-846 Method
Soil	TCL Volatile Organic Compounds	8240
	TCL Semivolatile Organic Compounds	8270
	TCL Chlorinated Pesticides/PCBs	8080
	Organophosphorus Pesticides	8140
	Chlorinated Herbicides	8150
	Metals (Appendix IX) and Cyanide	6010, 7080, 7421, 7841, 9012
	TPH	418.1
Groundwater	TCL Volatile Organic Compounds	8240
	TCL Semivolatile Organic Compounds	8270
	TCL Chlorinated Pesticides/PCBs	8080
	Organophosphorus Pesticides	8140
	Chlorinated Herbicides	8150
	Metals (Appendix IX) and Cyanide	6010, 7080, 7421, 7841, 9012
	TPH	418.1

Notes:
PCB — Polychlorinated biphenyl
TPH — Total Petroleum Hydrocarbons

Table 4-2
Design Parameters and Methods

Media	Parameter	Method
Soil	**Physical:**	
	Permeability	ASTM 5084
	Porosity	ASTM 5084
	Particle Size	ASTM D422
	Bulk Density	ASTM 4253
	Specific Gravity	ASTM D854
	Moisture Content	ASTM 2216
	Chemical:	
	Total Phosphorus	USEPA 365.4
	Nitrate-N	USEPA 352.1
	Total Kjeldahl Nitrogen	USEPA 351.2
	Heterotrophic Plate Count	SM 9215B
	Total Organic Carbon	USEPA 415.1/9060
	Cation Exchange Capacity	USEPA 9081
Groundwater	**Chemical:**	
	5-day Biochemical Oxygen Demand	USEPA 405.1
	Chemical Oxygen Demand	USEPA 410 (.1 to .3)
	Hardness	USEPA 200.7
	Total Suspended Solids	USEPA 160.2
	Alkalinity	USEPA 310.1
	Total Phosphorus	USEPA 365.3
	Nitrate-N	USEPA 352.1
	Total Kjeldahl Nitrogen	USEPA 351.4
	Heterotrophic Plate Count	SM 9215B
	Iron	USEPA 6010
	Turbidity	USEPA 180.1
	Manganese	USEPA 6010

Notes:
ASTM — American Society for Testing and Materials
SM — Standard Methods

Drilling Methods — Resonant Sonic Drilling

Soil borings were advanced and monitoring wells installed using resonant sonic (Rotasonic) drilling techniques, an innovative and relatively new method of environmental drilling. This

method was selected over conventional drilling techniques based on its speed, the minimal amount of soil waste generated, and the quality of well installation and lithologic information recovered.

Overview of Sonic Theory

The Rotasonic drilling method consists of mechanically induced vibrations generated through a sonic drill head containing two steel rollers, which rotate in opposing eccentric orbits within a housing, creating equal but opposite centrifugal forces. The combined centrifugal forces create a vertical force that is transmitted into the steel drill pipe and effectively transferred through the pipe to its bottom cutting edge. A series of high-frequency, sinusoidal wave vibrations are induced in the steel drill pipe at its resonant frequency, a rate proportional to its ability to accept and reflect each induced wave. With the pipe in resonance, the energy stored in the pipe greatly exceeds the energy being dissipated on the medium being drilled, and the maximum strain is imparted to the ends of the steel pipe and, in turn, to the underlying soil. The steel drill pipe behaves like a spring, expanding and contracting as the vibrations are imparted through the sonic head, creating a cutting action at the bit face and allowing a continuous core of the formation to move into the core barrel. A detailed discussion of Rotosonic drilling is provided in *The Resonant Sonic Drilling Method: An Innovative Technology for Environmental Restoration Programs* by Jeffrey Barrow (Ground Water Monitoring and Remediation, Spring 1994).

Sample Collection with Rotasonic

Rotasonic drilling consists of advancing two drill casings, an inner 4-inch diameter core or sample barrel with a studded drill bit attached to its base, and an outer 6-inch diameter casing. The inner core barrel first is vibrated to the desired sample depth, capturing sample material inside the barrel. The outer 6-inch casing is then vibrated around the inner barrel to the sample depth, displacing into the formation the 1-inch soil annulus between the core barrel and casing. The outer casing serves two purposes: it ensures that the borehole remains open during sampling, eliminating borehole "slough," and it prevents potential communication between shallower and

deeper zones by continuously casing the borehole as it is advanced. After advancing the outer casing, the inner core barrel is retrieved to the surface, leaving the outer casing in place, and the sample is vibrated out of the inner core barrel into a plastic sleeve. A decontaminated core barrel replaces the used one and the process is repeated until the desired sample depth is reached. Typically, 10-foot sections of core were collected at a time for the SWMU 8 RFI and samples were extruded in 3- to 4-foot lengths.

Potable water was used to drill below the saturated zone. After the inner barrel was advanced to the desired sample depth, water was pumped between the inner barrel and outer casing while the outer casing was vibrated down to assist in flushing out soil in the annular space. Soil in the annular space was either circulated to the surface with the water and emptied into a tub, or displaced into the borehole wall.

4.1 Soil Investigation

Soil above the water table was assessed on January 31 and February 1, 1995, by collecting 12 soil samples during installation of four groundwater monitoring wells, three along the bermed area and one northeast of the site. Boring locations are shown on Figure 4-1.

Sample Collection

A sampling team consisting of two field scientists was responsible for logging and processing the necessary samples for field screening and submittal to the laboratory. Soil samples were collected continuously using the previously described Rotasonic methods. Three soil samples were collected from each boring at the following depth intervals: 0-12 inches, the soil-water interface, and an intermediate interval between land surface and the first encountered groundwater. Additional soil samples were collected from a boring if headspace readings or visible signs of contamination warranted. Soil samples were screened for VOCs using an HNu (model GP 101, with 11.7 electron volts lamp) PID. A portion of each 10-foot core section, at 2-foot intervals, was

composited in 1-quart resealable plastic bags and allowed to equilibrate for several minutes. Field screening consisted of placing the HNu probe into the headspace of the plastic bag and measuring any organic vapor concentrations from the soil.

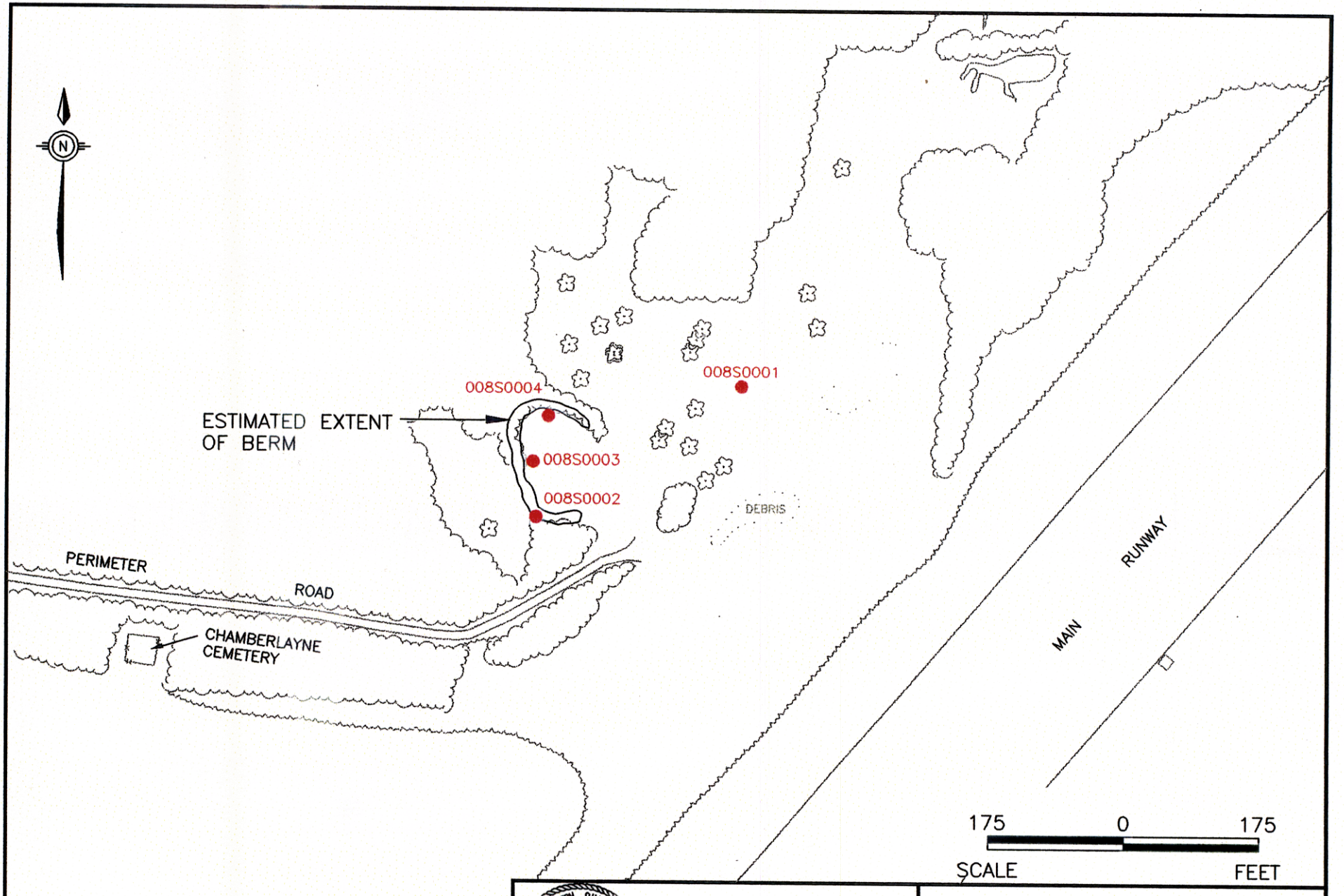
Soil samples submitted for laboratory analysis were collected and processed as described in Section 4.4. Soil samples were classified in the field by an E/A&H or USGS geologist. The classifications were recorded on individual boring logs, along with data such as measured PID concentrations, soil types, depth interval of samples submitted for analytical purposes, and other relevant field information. Boring logs are provided in Appendix C.

Design Parameters

Soil samples were collected during this investigation to obtain data for possible remedial design, modeling, and/or migration studies. One Shelby tube was collected from the 18- to 20-foot depth interval at boring 008S0002 to determine selected soil properties and the potential for contaminant migration through the loess. The Shelby tube was retrieved, capped, labeled, and submitted to Tri-State Testing Services for analysis of the physical design parameters listed in Table 4-2. A composite soil sample from the 12- to 14-foot depth interval in boring 008S0004 was submitted to NET laboratory for analysis of the chemical design parameters listed in Table 4-2.

Stratigraphic Profiling — Geophysical Logging

The stratigraphy at SWMU 8 was characterized through physical description of soil cores recovered while completing soil borings 008S0001 through 008S0004. Supplemental lithologic information was gathered through geophysical logs of existing monitoring well GM-11 and newly installed well 008G01FL. Natural gamma-ray and resistivity tools were used to generate logs of the subsurface (Appendix D), which in turn were used with the lithologic descriptions to determine subsurface contacts and to corroborate the conceptual geologic/hydrogeologic model for NSA Mid-South (Section 2.12 of the *Comprehensive RFI Work Plan* [E/A&H, 1994b]).



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MILLINGTON, TN

FIGURE 4-1
SOIL BORING LOCATIONS
CEMETERY DISPOSAL AREA
SWMU 8

DWG DATE: 05/27/99 | DWG NAME: 0094G023

00616F02Y

Polychlorinated Biphenyl Soil Investigation

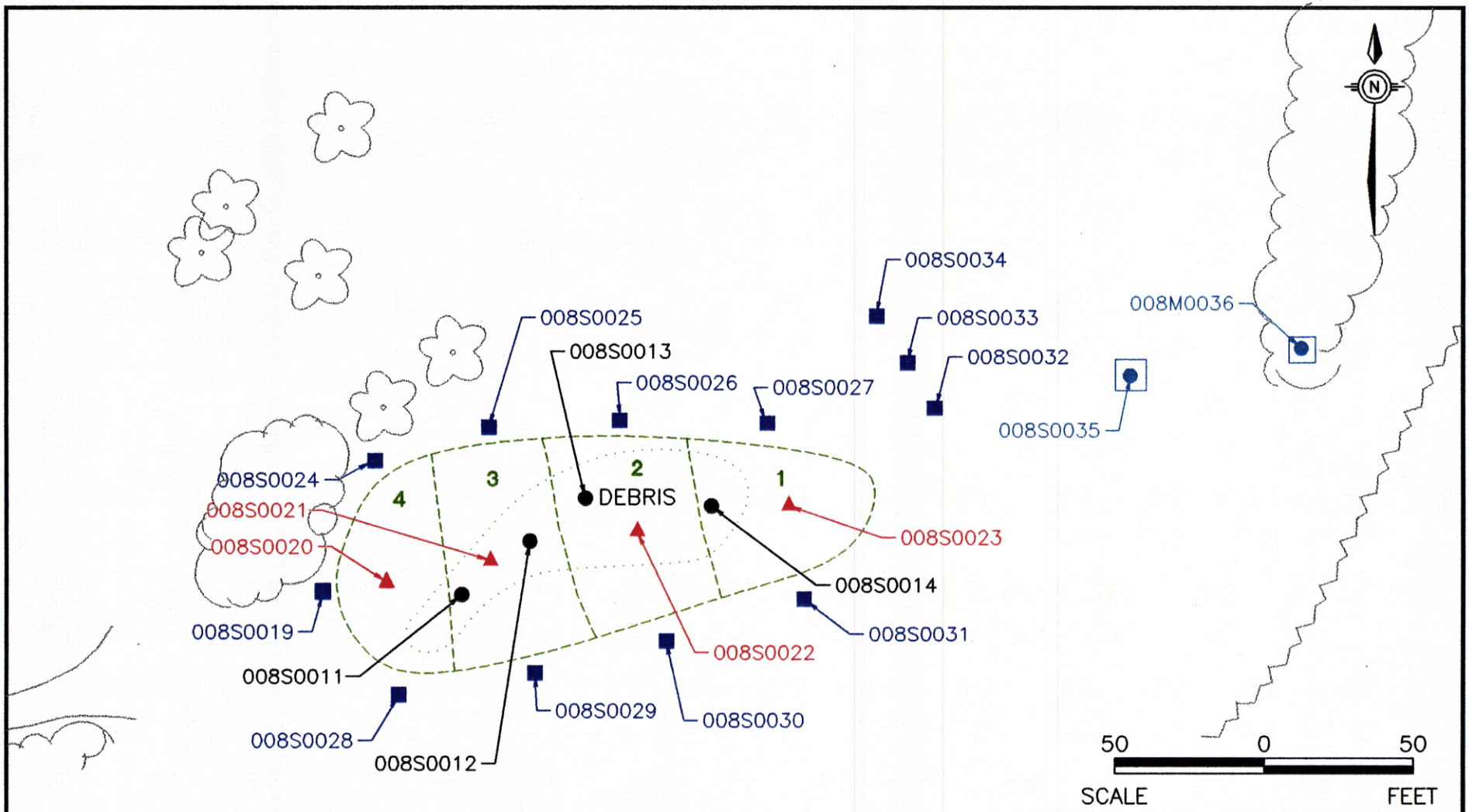
A separate soil sampling event was conducted at SWMU 8 in January 1996 as part of a larger investigation of areas throughout NSA Mid-South suspected of having received soil containing polychlorinated biphenyls (PCBs). Within SWMU 8, six sample locations were selected on the edge of the western side of the berm (labeled 008PCB01 through 008PCB06) and four locations from piles of stockpiled soil on the east side of the suspected disposal area (labeled 008PCB07 through 008PCB10) as shown on Figure 4-2. Two discrete soil samples were collected at each of the 10 sample locations, from the surface (0- to 1-foot) and the subsurface (2- to 3-feet bls). Samples were analyzed in the field for PCBs with the EnSys RIS^{e}® Test System, an immunoassay kit with a 1 part per million (ppm) detection level. Analysis consisted of adding standards, samples, and color-change reagents to test tubes coated with a PCB-specific biochemical reagent. The concentration of PCBs in each sample was determined by comparing its color intensity with that of the standard. PCBs were not detected in any of the SWMU 8 samples analyzed with the immunoassay kit. The 10 SWMU 8 PCB soil investigation sample locations are shown in Figure 4-2, and Appendix E contains a copy of the PCB soil investigation summary.

Also during the PCB investigation, soil was collected and processed, as described in Section 4.4, from six of the 10 sample locations for offsite laboratory analysis of VOCs, semivolatile organic compounds (SVOCs), chlorinated pesticides/PCBs, and metals, according to the methods listed in Table 4-1. Of the six sample locations selected for offsite laboratory analysis, five were from the western side of the berm (008PCB01 and 008PCB03 through 008PCB06) and one was from the stockpiled soil (008PCB08). The offsite analytical results for the five sample locations from the western side of the berm are included in Section 6.2, Soil Analytical Results. The offsite analytical results for the one stockpiled soil sample, collected for disposal characterization, are included in Section 6.3, Stockpiled Soil Analytical Results.

4.2 Stockpiled Soil Investigation and Removal

The analyses performed on the stockpiled soil sample (008PCB08) collected during the PCB soil investigation at SWMU 8 indicated detectable concentrations of several pesticides and SVOCs, so the approximately 40 cubic yards of stockpiled soil were investigated further. Four locations throughout the stockpiled soil, labeled 008S0011 through 008S0014 and shown on Figure 4-3, were selected to collect 0- to 1-foot and 3- to 4-foot depth interval samples for full scan analyses (FSA; VOCs, SVOCs, pesticides, organophosphorus pesticide/PCBs, herbicides, Appendix IX metals, cyanide, total petroleum hydrocarbon-diesel range organics [TPH-DRO], and TPH-gasoline range organics [TPH-GRO]). The pesticide dieldrin was detected in seven of the eight samples exceeding its residential risk based concentration (RBC, 40 μg/kg), therefore the BRAC Cleanup Team (BCT) decided that a soil removal would be performed. A summary of the results is provided in Section 7.1.

After removal of the stockpiled soil was completed in March 1997, four composite confirmation samples (008S0015 through 008S0018) were collected from the 0- to 1-foot depth interval into the remaining soil and analyzed for SVOCs, pesticides, and TPH, since these were the primary contaminants detected in previous investigations. A second removal occurred in late April 1997 based on the first round confirmation results, followed by the collection of 16 confirmation samples (008S0019 through 008S0034) from the removal area at the 0- to 2-inch or 6- to 8-inch interval as stated in the *Technical Memorandum — SWMU 8 Dieldrin Sampling Approach* (E/A&H, 1997a). These samples were analyzed for pesticides only and results and human health implications are discussed in the *Technical Memorandum — SWMU 8 Post-Excavation Dieldrin Sample Results and Risk Summary* (E/A&H, 1997b). Two additional samples (008S0035 and 008M0036) were collected in June 1997 to determine if runoff from the site would have impacted the surrounding areas. These were analyzed for pesticides only. Figure 4-3 shows sample locations 008S0015 through 008S0035 and 008M0036. A summary of the results is presented in Section 7.1.



LEGEND

COMPOSITE CONFIRMATION SAMPLES FROM MARCH 1997 REMOVAL

1 – 008S0015
2 – 008S0016
3 – 008S0017
4 – 008S0018

● – STOCKPILE SOIL SAMPLE LOCATIONS (MAY 1996) (008S0011–008S0014)

▲ – CONFIRMATION SAMPLES FROM 6–8" BELOW SURFACE (MAY 1, 1997) (008S0020–008S0023)

■ – CONFIRMATION SAMPLES FROM 0–2" BELOW SURFACE (MAY 1, 1997) (008S0019 & 008S0024–008S0034)

◉ – DOWNSLOPE RUNOFF IMPACT AREA (JUNE 1997) (008S0035 & 008M0036)

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FIGURE 4–3
CONFIRMATION SOIL SAMPLE LOCATIONS
CEMETERY DISPOSAL AREA
SWMU 8

DWG DATE: 05/27/99 | DWG NAME: 0094S017

00616F03Y

4.3 Groundwater Investigation

The SWMU 8 groundwater investigation initially focused on two water-bearing zones: the loess and the underlying fluvial deposits. At NSA Mid-South, groundwater in the loess may contain potential site contaminants because of its shallow depth (between 10 and 15 feet bls). No groundwater was observed in the loess at SWMU 8; therefore, the investigation focused on the underlying fluvial deposits, which are unconfined in the vicinity of this site.

As part of the RFI, three shallow monitoring wells (008G0001LS, 008S0003LS, and 008S0004LS) were installed in the loess from 18 and 20 feet bls. These wells never produced water and were subsequently abandoned in February 1995 in accordance with Memphis-Shelby County Health Department requirements. Groundwater in the fluvial deposits was characterized by four new monitoring wells (designated as 008G01FL through 008G04FL) installed in February 1995 along the berm and northeast of the bermed area, combined with sampling of existing well GM-11 (Figure 4-4). As mentioned previously, wells GM-10 and GM-12 were not sampled because GM-10 was dry and GM-12 had a broken riser pipe. Monitoring wells screened in the fluvial deposits ranged between about 30 and 38 feet bls (Table 4-3).

Table 4-3
Well Completion Data
SWMU 8 — Cemetery Disposal Area

Monitoring Well Identification	Construction Date	Total Depth (ft btoc)	Screened Interval (ft btoc)	Ground Surface Elevation (msl)	Top of Casing Elevation (msl)
Fluvial Deposits Wells					
008G01FL	2-10-95	38.18	32.68 - 37.68	322.14	324.83
008G02FL	2-10-95	36.28	30.78 - 35.78	325.21	327.56
008G03FL	2-09-95	32.47	26.97 - 31.97	325.32	327.46
008G04FL	2-09-95	32.26	26.73 - 31.76	324.66	327.37
Abandoned Loess Wells					
008G01LS	2-10-95	20.28	9.78 - 19.78	(CLOSED, 2-28-95)	
008G02LS	2-10-95	23.00	12.50 - 22.50	(CLOSED, 2-28-95)	
008G03LS	2-09-95	22.65	12.15 - 22.65	(CLOSED, 2-28-95)	

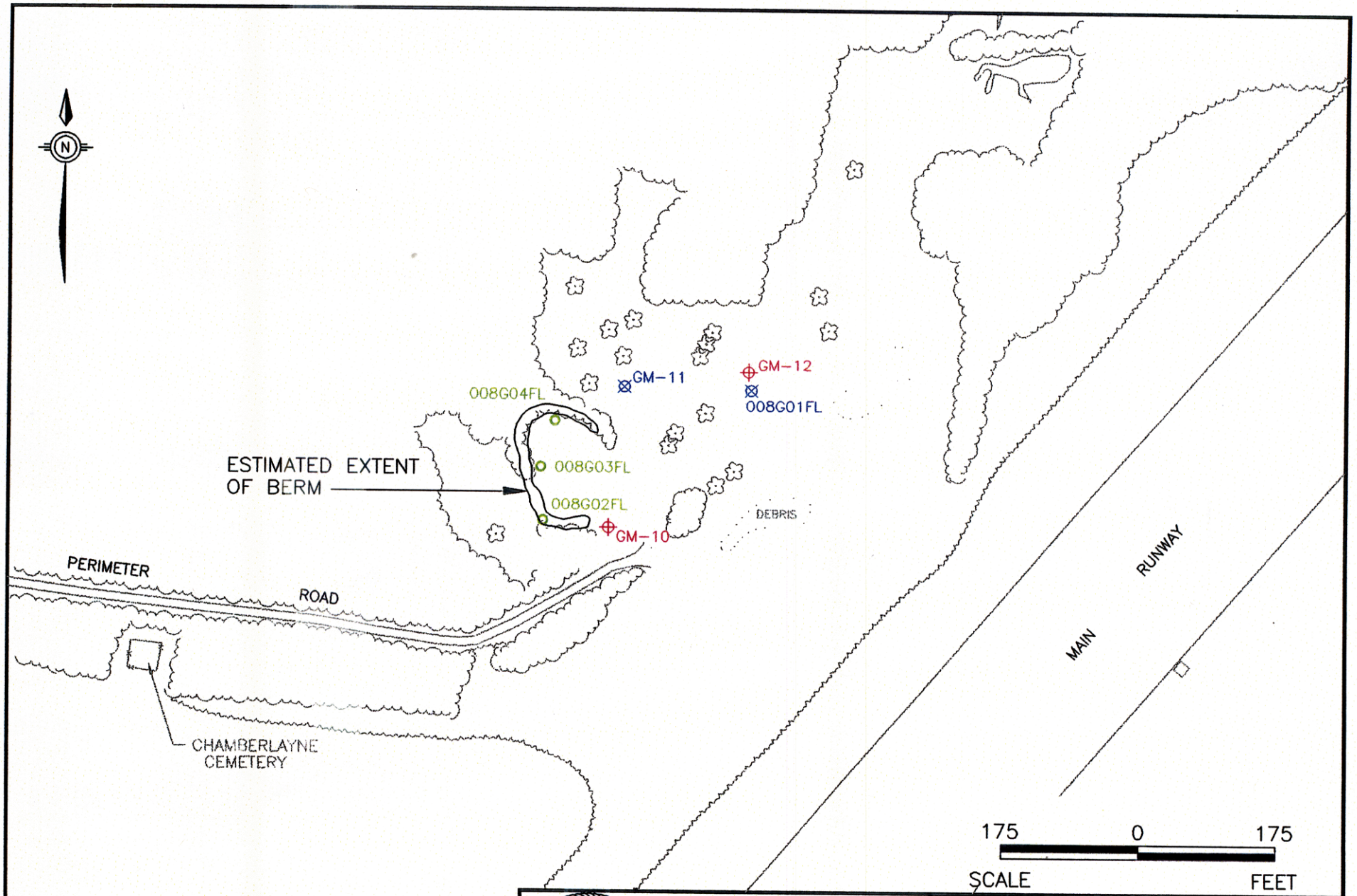
Table 4-3
Well Completion Data
SWMU 8 — Cemetery Disposal Area

Monitoring Well Identification	Construction Date	Total Depth (ft btoc)	Screened Interval (ft btoc)	Ground Surface Elevation (msl)	Top of Casing Elevation (msl)
Existing Monitoring Wells (installed by Geraghty and Miller)					
GM-10	6-13-85	30	25-30	327.13	329.56
GM-11	6-14-85	30	25-30	319.32	322.06
GM-12	6-13-85	25	20-25	322.14	324.88

Notes:
All monitoring wells were constructed of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 0.010 slot PVC screens.
ft btoc — feet below top of casing
msl — relative to mean sea level

Monitoring Well Construction

Monitoring wells installed in the fluvial deposits during the RFI were double-cased to prevent potentially contaminated soil or groundwater at shallower depths from communicating with deeper groundwater. Initially, a pilot boring was completed with a Rotasonic rig at each proposed fluvial deposits well location to determine the thickness of the loess and the depth to the top of the fluvial deposits. Soil samples were collected and logged as described in Section 4.1. The pilot boring was then reamed using a hydraulic rotary rig with a 12-inch tri-cone bit and potable water as drilling fluid to within a few feet of the top of the fluvial deposits. Mixing potable water with natural silt and clay in the formation resulted in mud being circulated during the reaming process. After reaching the target depth, which typically was in a transitional zone between the loess and fluvial deposits, the drill bit and string were removed from the borehole and 8-inch diameter steel surface casing was lowered into the hole. Before installation, centralizers were welded on the outside of the surface casing to maintain proper alignment, and a polyvinyl chloride (PVC) endcap was hammered onto the bottom of the casing to prevent borehole fluid from entering. Then the casing was grouted in place using a tremie pipe with a 95/5 percent mixture of Portland cement and bentonite powder in the annular space.



LEGEND

008G02FL	–	WELL IDENTIFICATION
○	–	ABANDONED IN 1998
⊠	–	ABANDONED IN 1997
⊕	–	ABANDONED IN 1995

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FIGURE 4-4
GROUNDWATER MONITORING
WELL LOCATIONS
CEMETERY DISPOSAL AREA
SWMU 8

DWG DATE: 05/27/99 | DWG NAME: 0094G024

00616F04Y

After allowing at least 24 hours for the grout to cure, Rotasonic drilling resumed through the inside of the surface casing to the base of the fluvial deposits. The contact between the fluvial deposits and the underlying Cockfield Formation was characterized as a change from a coarse gravelly sand to a very fine silty sand with clay. When the borehole depth was completed, stainless-steel centralizers were installed around the bottom of the PVC well screen, and the casing and screen were lowered inside the 6-inch outer Rotasonic casing. Fluvial deposits monitoring wells were constructed using a 5-foot section of 0.01-slotted, 2-inch diameter, flush joint, Schedule 40 PVC screen, attached to 5- and 10-foot sections of 2-inch diameter, flush joint, Schedule 40 PVC riser pipe. Loess wells were constructed using 10-foot sections of 2-inch diameter, flush joint, Schedule 40 PVC well screen and 2-inch diameter, flush joint, Schedule 40 PVC riser pipe. Five-foot well screens were selected over the 10-foot lengths used at other Assembly A SWMUs because the fluvial deposits were thinner at SWMU 8 (discussed in Section 5.1) and for consistency with the Geraghty and Miller wells. Well construction proceeded through the inside of the temporary 6-inch Rotasonic casing by pouring a 10/20-frac, washed silica sand between the casing and the well screen. Then the 6-inch outer casing was vibrated out from around the well screen. The sand pack was installed to 2 to 3 feet above the top of the well screen, followed by enough bentonite chips to form a seal 3 to 4 feet thick. The remaining annular space was pressure-grouted to the surface with a high-solids bentonite slurry.

The surface casings were left extending above ground to serve as a protective casing for the monitoring wells. Well pads were completed with four outer protective bollards set adjacent to a 4-foot x 4-foot x 6-inch concrete pad. All monitoring wells were tagged with the designated well identifier, completion date, and screened interval. Monitoring well completion data are provided in Table 4-3 and monitoring well logs are provided in Appendix C.

Well Development

Fluvial deposits monitoring wells were developed using Grundfos submersible electric pumps as described in the *Comprehensive RFI Work Plan* (E/A&H, 1994b). Well development was considered complete after specific conductance, temperature, and pH stabilized; turbidity was reduced as much as practical, typically after removal of a minimum of three well volumes of water. Water quality parameters were recorded in the field logbook or on well development forms.

Low-Flow Micropurging

Fluvial deposits monitoring wells were purged and sampled using low-flow micropurging, as applicable. Micropurging is based on the premise that stagnant water in the well casing does not completely mix with groundwater flowing through the screen when pumping at relatively low flow rates. Studies have suggested that flow in the well screen is horizontal and laminar, and that groundwater moving through the screened portion of a well interacts minimally with stagnant water in the overlying well casing (Robin and Gilham, 1987). Purging several well volumes prior to sample collection has been shown to be unnecessary and recent studies have demonstrated that water-chemistry results from micropurging methods are comparable to traditional sampling methods (Kearl et al., 1994). Micropurging also reduces purge-water volume and decreases sampling time compared to conventional sampling.

4.3.1 Groundwater Sampling

Groundwater samples were collected from the four fluvial deposits monitoring wells installed during the RFI and monitoring well GM-11 in March 1995. After a minimum post-development equilibration period of 48 hours, each well was purged and sampled using a Grundfos pump and dedicated Teflon tubing. Micropurging was the preferential purging technique, but if this was not possible due to low yields, then at least three well volumes were removed from each well before sampling; selected water quality parameters also were measured during well purging. The wells

were considered ready for sampling following three consecutive pH, conductivity, and temperature readings within ± 0.5 units, ± 10 %, ± 1° C, respectively, and when turbidity was reduced as much as practical.

During the March 1995 sampling event, the Grundfos pumps were lowered to the bottom of the wells. It was determined that this created turbid samples, and in subsequent sampling events the pump was lowered to the approximate middle of the screened interval. Final water quality readings and the volume purged from each well are listed in Table 4-4.

Table 4-4
Summary of Well Purging Data — March 1995
SWMU 8 — Cemetery Disposal Area

Well I.D.	pH (S.U.)	Conductivity (mS/cm @ 25°C)	Temperature (°C)	Turbidity (NTU)	Gallons Purged
008G01FL	6.26	0.234	16.5	225	8.3
008G02FL	6.46	0.355	17.6	28	6.8
008G03FL	6.49	0.342	17.2	26	3.2
008G04FL	5.90	0.354	17.4	170	4.8
GM-11	5.75	0.091	17.3	9	4.7

Notes:
All wells were purged and sampled using dedicated Teflon tubing and a Grundfos pump. Wells 008G03FL and 008G04FL were purged using micropurging techniques; other wells could not be micropurged due to low yields.

S.U. — standard units
mS/cm — milliSiemens per centimeter
NTU — nephelometric turbidity units
pH — negative logarithm of the effective hydrogen-ion concentration
°C — degrees Celsius

Each well was sampled immediately following purging. All groundwater samples were analyzed for the parameters listed in Table 4-1. Also, a sample from monitoring well 008G01FL was analyzed for the chemical design parameters listed in Table 4-2.

4.3.2 Long-Term Groundwater Monitoring Program Sampling

As part of the NSA Mid-South long-term groundwater monitoring program, the wells at SWMU 8 were sampled three times since the initial sampling event in March 1995. In November 1995, three of the four RFI fluvial deposits monitoring wells and well GM-11 were sampled and analyzed for VOCs. (Note: during the November 1995 event, well 008G02FL was not sampled due to field oversight.) In April 1996, the four RFI fluvial deposits monitoring wells and well GM-11 were sampled and analyzed for VOCs. In August 1996, the four RFI fluvial deposits monitoring wells and well GM-11 were sampled and analyzed for the parameters listed in Table 4-1. All well purging and sampling procedures followed those previously outlined for the initial well sampling event. The November 1995 and April 1996 sampling events were performed to document the presence or absence of VOCs (i.e., chlorinated solvents), which are the most likely contaminant type to migrate to deeper groundwater. The August 1996 sampling event was performed to document the groundwater conditions in SWMU 8 monitoring wells prior to the recommendation to remove some of the wells.

4.4 Sampling Protocols

All sampling activities were conducted in accordance with the *Comprehensive RFI Work Plan* (E/A&H, 1994b) and the *Assembly A Site Investigation Plans* (E/A&H, 1994a). Where warranted by field conditions, deviations from the approved procedures were conducted and appropriately documented in the field logbook.

Sample handling was minimized and material was transferred expediently from the sampling device to containers, in as clean an environment as possible. Plastic sheeting was placed over the sample table or around the well and new gloves were donned before each sample was collected. Empty containers were kept packaged until use, at which time they were immediately chilled and isolated in a cooler. Soil samples collected for VOC analysis were containerized first from unhomogenized material to lessen the loss of volatile constituents.

QA/QC Samples

QA/QC samples were collected to test the level of reproducibility attainable in the sampling and analytical process, quality of equipment decontamination, quality of source waters and materials, sample exposure to ambient contamination during handling, and the level of laboratory precision and accuracy. QA/QC samples were analyzed for the same contaminant-assessment constituents as the associated environmental samples. All field QA/QC samples, which were collected in accordance with the *Comprehensive RFI Work Plan* and the *Assembly A Site Investigation Plans,* consisted of the following types and frequencies:

- *Duplicates:* 10% of total samples collected per media
- *Equipment rinsates:* One per week during sampling
- *Material blanks:* One for each well construction material used
- *Field blanks:* One per sampling event (week) per source of water
- *Matrix spikes/matrix spike duplicates:* 5% of the total samples collected per medium
- *Trip blanks:* Submitted with each cooler containing VOC samples.

QA/QC samples collected during the DPT survey were not collected from SWMU 8, but were collected at other SWMUs being investigated concurrently. Three field blanks of deionized/organic-free water and four rinsate blanks were collected during the DPT survey. No VOCs were detected in any blank samples. These results will be discussed further in a data validation report. At least 25% of the samples collected during the DPT survey were split and submitted to an offsite laboratory for VOC analysis to confirm the onsite laboratory results. Split analytical results are included in Appendix B with the DPT screening summary.

Samples requiring chemical preservation were preserved in the field in accordance with the USEPA, Environmental Compliance Branch, *Standard Operating Procedures/Quality Assurance Manual* (USEPA, 1991). As soon as samples were collected, sample containers were labeled and

a custody seal was placed over each lid with the sample identification, date, and sampler's name. Then the containers were placed on ice in a cooler.

Sample Processing and Chain of Custody

Samples were individually bubble-wrapped, bagged in resealable plastic bags, packed on ice, and sealed inside sturdy coolers. Samples were typically submitted to the laboratory the day of collection and arranged in coolers with sufficient volume to maintain uniform and appropriate preservation temperatures during shipment. Temperature blanks were placed in all coolers for laboratory verification of the cooler temperature upon arrival. Trip blanks were placed in coolers containing samples for VOC analysis. Cooler lids were secured with packing tape and signed custody seals. Packaged samples were shipped overnight via FedEx priority service for delivery the next morning. The laboratory was notified the day of shipment of the number of samples being submitted. E/A&H personnel were contacted by the laboratory the following day to verify receipt and condition of the samples. All sample shipments were reported to have arrived at the laboratory in good condition and at appropriate temperatures.

To ensure the integrity of the sample transfer process, a strict chain-of-custody procedure was implemented for all samples collected. This procedure was initiated in the field for each sampling event and followed through custody transfer to the contract laboratory. A chain-of-custody form was completed for each sample batch, itemizing sample numbers, types of containers, preservatives, analyses requested, date and time of sampling, and FedEx shipment number. Custody transfers were recorded with signature, date, and time of relinquishment, and receipt of custody by the parties involved.

Sample Labeling

Each sample collected in the field was labeled with a 10-digit alphanumeric code that identified the site, sample type, sample location, sample depth, and QA/QC sample type (as appropriate).

The first three characters identify the site location (SWMU 8 = 008). The fourth character identifies the sample type (S = soil, C = soil duplicate, G = groundwater, H = groundwater duplicate). The matrix codes are listed with the analytical data in Appendix H of this report. The fifth through eighth characters represent the station location (boring location 12 = 0012). The final two characters represent the deepest point of the sample interval (18-20 feet = 20).

Examples:

008S000120	=	SWMU 8/soil/boring location 1/18-20 foot depth
008G01FL01	=	SWMU 8/groundwater/monitoring well 1 screened in the fluvial deposits/ first event

4.5 Data Validation

Data were validated for NSA Mid-South Assembly A in accordance with USEPA *Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Data Review* (USEPA, 1994a). Data validation was performed by E/A&H and/or one of the following subcontractors: CKY Environmental Services, Inc., of Torrance, California, or Validata Chemical Services of Norcross, Georgia. The data validation findings for Assembly A SWMUs are presented under separate cover within *Data Validation Report — NAS Memphis Assembly A* (E/A&H, 1995) or *Data Validation Report — NSA Memphis Assembly A* (E/A&H, 1996a).

4.6 Decontamination and Investigation-Derived Waste

Decontamination

Field equipment was decontaminated in accordance with the *Comprehensive RFI Work Plan*. All downhole equipment was cleaned at the decontamination pad at the N-7 Aircraft Wash Rack before each use. Decontamination procedures were as follows:

- High-pressure, hot soap and water wash
- Rinse with potable water
- Rinse with deionized water
- Rinse twice with pesticide-grade isopropyl alcohol
- Wrap with aluminum foil or plastic.

New disposable nitrile gloves were donned before handling decontaminated sampling equipment. Rinse water from decontamination activities was stored in a 2,000-gallon holding tank at the decontamination pad. This holding tank was discharged to the sanitary sewer only after receiving satisfactory sample results from VOC analysis of its contents. The release criteria were determined by agreement with the Navy and Fisher & Arnold, Inc., the wastewater consultant to the City of Millington.

Investigation-Derived Waste

Drilling mud, soil, and groundwater derived from the investigation were stored in labeled 55-gallon drums. The following information was recorded on a drum-tracking form: contents of the drums, date filled, the boring/well identification, and a unique tracking code. Soil and mud drums were loaded on pallets and staged in a fenced, paved area near Building N-1694, the permitted hazardous waste storage area. The drilling mud and soil were characterized as nonhazardous and were used as fill material on the NSA Mid-South Southside near the Defense Reutilization and Marketing Office (DRMO) facility. Purge and development water were staged at the decontamination pad pending the receipt of analytical data and discharged into an oil-water separator connected to the sanitary sewer following approval from the City of Millington's wastewater consultant, Fisher & Arnold, Inc.

4.7 Ancillary Data Collection

Aquifer Characterization

The rate of water transmission and, thus, possible contaminant migration in the fluvial deposits were evaluated through a limited aquifer characterization of one of the site monitoring wells. The evaluation consisted of a specific-capacity test conducted on fluvial deposits monitoring well 008G01FL and construction of maps showing the potentiometric surface in the fluvial deposits in the SWMU 8 area.

The specific capacity of a well is the ratio of yield per foot of drawdown, usually expressed in terms of gallons per minute per foot of drawdown (gpm/ft). During the specific capacity test, water is withdrawn from the well at a known discharge rate for a designated period of time. Drawdowns are measured until relative stabilization occurs at that pumping rate. This test may be continued at a higher pumping rate following stabilization (step-drawdown test). Specific capacity is a function of the following variables:

- Well efficiency
- Transmissivity of the zone supplying water to the well, which may be less than the transmissivity of the aquifer depending on the length of the screen (partial penetration effects)
- Storage coefficient of the aquifer
- Length of the pumping period
- Effective radius of the well
- Pumping rate.

The relationship between specific capacity and transmissivity is based on the Theis equation (Bradbury and Rothschild, 1985):

$$T = \frac{W(u)}{4\pi} \frac{Q}{s}$$

where:

T	=	the transmissivity
Q/s	=	the specific capacity
Q	=	the pumping rate
s	=	the drawdown
$W(u)$	=	the well function of u.

This equation requires the use of consistent units. The $W(u)$ is defined as

$$u = \frac{r^2 S}{4Tt}$$

where:

T	=	defined as above
r	=	the effective radius of the well
S	=	the storage coefficient
t	=	the duration of pumping preceding the specific-capacity test measurment.

Aquifer parameters were calculated from the specific-capacity test data using a computer program developed by Bradbury and Rothschild (1985) that is based on equations presented in Lohman (1972). Two assumed variables considered in the specific-capacity program are the storage coefficient and well-loss coefficient. A storage coefficient of 0.25 was estimated for a

confined, fine- to medium-grained sand aquifer (Todd, 1980) and a well-loss coefficient of 0.75 was used to approximate the well efficiency (well efficiency of 25%). The specific-capacity data were used to derive T and the hydraulic conductivity (K), which are presented in Section 5.

Borehole Geophysics

A combination probe consisting of natural-gamma ray and electrical induction sections was used to measure the natural gamma-ray emission and induced electrical conductivity of strata penetrated by monitoring wells GM-11 and 008G01FL. GM-11 was selected because of the absence of a steel surface casing, which allowed a continuous profile through the loess. Well 008G01FL was selected because it was the deepest monitoring well installed onsite.

The logging probe was approximately 5.5 feet long and designed to fit inside 2-inch PVC-cased holes in or out of the water column. The probe was lowered and raised at a set speed by a cable attached to a winch. The cable contained electronic wiring connecting the probe to a computer inside the logging truck.

Once the monitoring well to be logged was identified, an operator positioned the logging truck close to the hole and began entering well information into the computer, while a second operator attached the decontaminated probe to the cable and positioned the probe in the monitoring well for temperature equilibration. The probe was zeroed to ground surface by subtracting the riser height before being lowered to the bottom of the well. At the bottom, the temperature of the probe was again allowed to equilibrate. As the probe was ascending, data were recorded at 0.1-foot intervals by digital computer. When the probe reached the surface, it was detached from the cable and stored for transport to the decontamination pad. Before the logging unit left the monitoring well, a paper copy of the data (Appendix D) was generated to check instrument function. QC was obtained daily by repeating 20-foot sections of various monitoring wells.

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5.0 GEOLOGY AND HYDROGEOLOGY

5.1 Regional Geology and Hydrogeology

The general hydrogeology of the Memphis area is discussed in detail in Section 2.11, and a conceptual model of the hydrogeology at NSA Mid-South is presented in Section 2.12 of the *Comprehensive RFI Work Plan*. Updated information is available in the *Hydrogeology of Post-Wilcox Group Stratigraphic Units in the Area of the Naval Air Station Memphis, near Millington, Tennessee* (Kingsbury and Carmichael, 1995) and in the *Hydrogeology and Groundwater Quality at Naval Support Activity Memphis, Millington, Tennessee* (Carmichael et al., 1997). The following summary of the hydrogeology of NSA Mid-South is based on this updated information.

The two stratigraphic units investigated during the SWMU 8 RFI are the loess/alluvial deposits of Pleistocene and Holocene age and the underlying fluvial deposits of Pleistocene/Pliocene age. The loess — eolian deposits consisting of silt, silty clay, clay, and minor amounts of sand — is the principal unit occurring at land surface throughout the NSA Mid-South Northside. Alluvium, which is restricted to stream valleys, includes alluviated or reworked loess. The loess is typically 0- to 65-feet thick in the Memphis area; at NSA Mid-South it ranges from 15 to 45 feet in thickness.

Water-bearing zones are present in the loess primarily in the upper part of this unit; however, yields are low and water quality analyses performed during the water use survey portion of previous underground storage tank investigations at NSA Mid-South indicate that loess groundwater does not meet many primary or secondary drinking water standards, including those for turbidity, iron, and manganese. Previous investigations at NSA Mid-South have found depth to water in the loess varying between 5 and 15 feet bls and vertical hydraulic conductivities to range from 10^{-6} to 10^{-8} centimeters per second (cm/sec). Although the loess may be considered an aquitard on the basis of the relatively low hydraulic conductivities, this shallowest

water-bearing zone is present within this unit. Groundwater flow in the loess is primarily downward, although locally some groundwater in the loess may discharge to nearby streams, drainage ditches, and other surface water bodies.

The fluvial deposits, which underlie the loess in upland areas, consist of sand, gravel, and some clay, with thin layers of ferruginous sandstone and conglomerate at the base. This unit ranges from 0 to 100 feet thick in the Memphis area; on the Northside of NSA Mid-South it ranges from 10 to 70 feet thick and represents the most significant component of the surficial aquifer. The upper portion typically consists of a mixture of very fine sand with varying degrees of silt and clay and becomes increasingly less silty with depth, grading into a fine-to-medium sand near the middle of the unit. Grain sizes typically coarsen below this interval, grading into a gravelly sand near the fluvial deposits basal section.

Many shallow domestic wells in Memphis rural areas are completed in the fluvial deposits. Relative groundwater elevations between wells completed in the loess/alluvium and fluvial deposits indicate semiconfined-to-confined conditions in the fluvial deposits. Typically, a downward vertical gradient exists between water in the loess and the fluvial deposits. Sediments in the fluvial deposits generally coarsen with depth.

The fluvial deposits are underlaid by the Cockfield Formation, a part of the Jackson-upper Claiborne confining unit, which is a heterogeneous formation consisting of very fine silty sand interbedded with clay and silt lenses or clay with interbedded fine sand lenses. The more permeable characteristics of the fluvial deposits, compared to the relatively impermeable properties of the overlying loess/alluvium and the underlying Cockfield Formation, result in the fluvial deposits being the preferential zone of shallow groundwater flow and the route for contaminant transport in the NSA Mid-South subsurface.

5.2 Site-Specific Geology

A stratigraphic profile was assembled from the lithologic information gathered from the borehole data and geophysical logging activities at SWMU 8. The profile shows the local geology to 41 feet bls, which is the approximate depth to the top of the Cockfield Formation. Boring logs are provided in Appendix C. Geologic cross sections of the site constructed from the lithologic information are shown in Figure 5-1. The geophysical logs in Appendix D show the representative gamma-ray geophysical data at monitoring wells 008G01FL and GM-11. The contact between the loess and fluvial deposits (approximately 305 feet above mean sea level) is apparent in the gamma-ray log as seen by the decrease in signal at approximately 19 to 20 feet bls (Appendix D). Below are descriptions of the loess and fluvial deposits derived from soil boring information.

Loess/Alluvium

Silt and clay soil types were encountered from land surface to the top of the fluvial deposits, which ranged from 18 to 22 feet bls at SWMU 8. The loess consists of a moist yellowish-brown silt mottled with yellowish-gray silt from the surface to the top of the fluvial deposits. The observed thickness of the loess at SWMU 8 is approximately 20 feet compared to the typical thickness of between 39 to 45 feet in lower altitude areas of the NSA Mid-South Northside (Kingsbury and Carmichael, 1995).

A Shelby tube sample collected from boring 008S0002 at the 18- to 20-foot depth interval was analyzed for vertical coefficient of permeability per American Society of Testing and Materials (ASTM) Method D-5084-90 using a flexiwall permeameter. The results indicated a vertical permeability coefficient of 3.0×10^{-8} cm/sec. Sieve analysis indicated a silty clay soil type. The soil laboratory report is included in Appendix F.

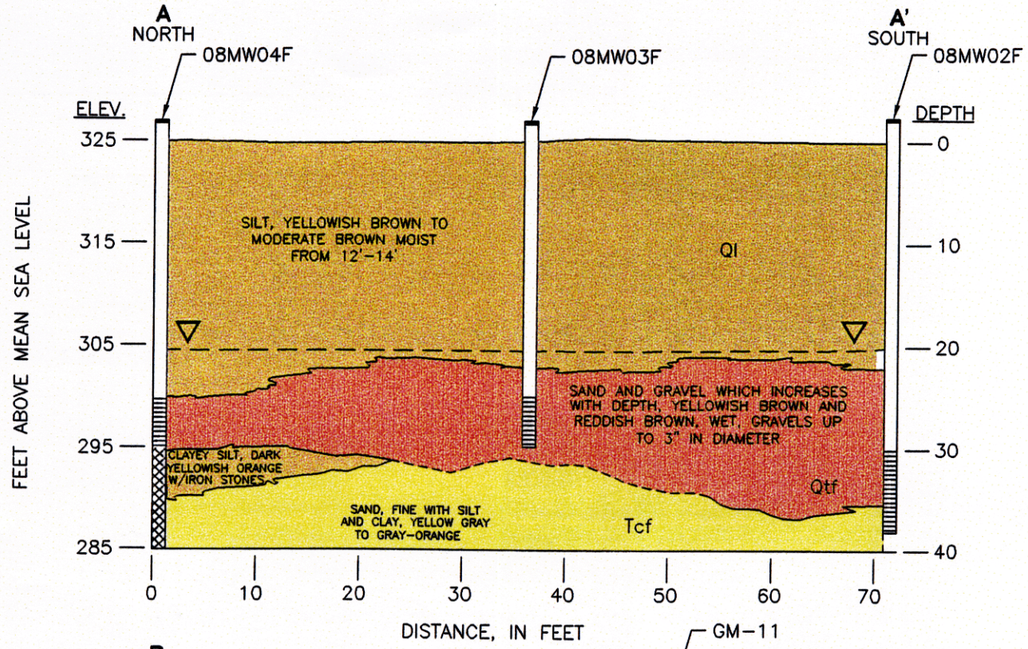
Fluvial Deposits

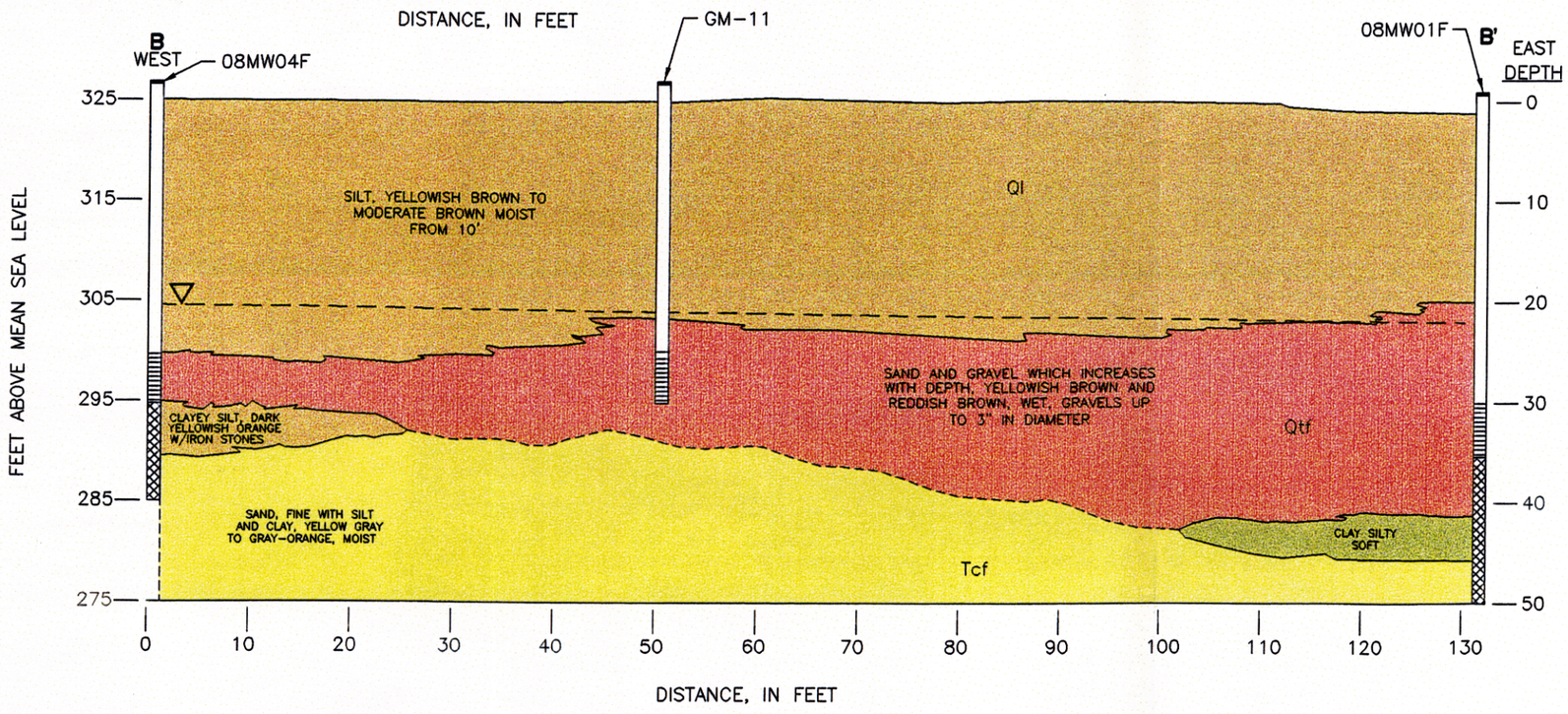
The upper portion of the fluvial deposits consists of silty sand and sand with some scattered gravel at SWMU 8. The amount of gravel increases with depth, and sand grain-size distribution shifts from fine-grained in the upper part of the fluvial deposits to coarse-grained in the lower part. The base of the fluvial deposits consists of a silty sand with clay and a cemented layer of ironstone at around 32- to 37-feet bls. Gravel content varied from one boring location to the next and was noted to increase (based on thickness) from the west (4 feet at 008S0004) to the east (21 feet at 008S0001). A soft, pale orange, silty clay was identified in boring 008S0001 from 41 to 45 feet, grading into a pale-to-reddish orange, fine-grained sand with silt, which is somewhat characteristic of the Cockfield Formation found at other Assembly A SWMUs. The fluvial deposits at SWMU 8, compared to other SWMUs, were thinner and contained a greater degree of silt and clay. Two geologic cross sections in Figure 5-1 show the lithologic profile at the site.

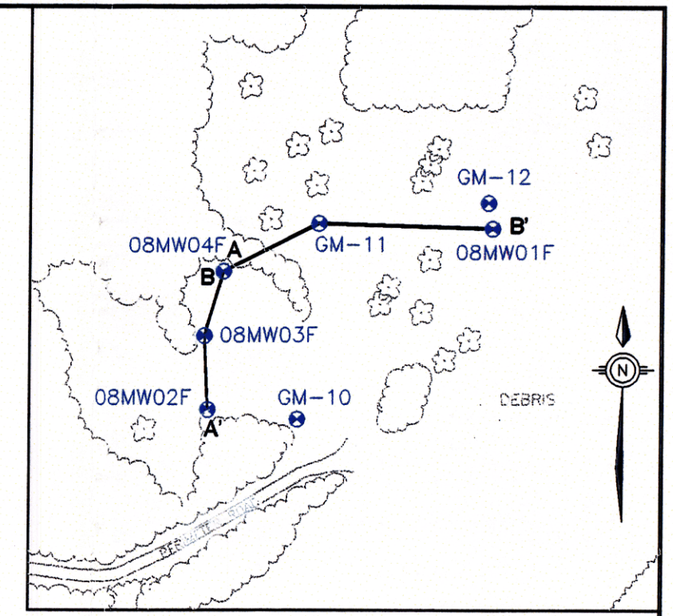
5.3 Site-Specific Hydrogeology

A specific capacity of 0.47 gpm/ft was calculated for well 008G01FL based on pumping data collected during well sampling. Using this specific capacity value and an aquifer thickness of 21 feet for this location, a K of 8 feet per day (ft/day) was calculated using the computer program discussed in Section 4.7. The aquifer thickness was based on the assumption that water in the fluvial deposits aquifer is confined at the bottom by the Cockfield Formation and at the top by the loess (in reality, only a few feet of saturated thickness is present in the fluvial deposits at SWMU 8). Other variables used as input for estimating K are given in Appendix G.

Groundwater levels measured on March 31 and September 27, 1995, and April 8, 1996, were used to construct maps of the potentiometric surface in the fluvial deposits. Based on these maps, a value for the hydraulic gradient was estimated. The potentiometric surface map for the March 31, 1995 data (Figure 5-2) suggests groundwater moves to the northeast. The hydraulic gradient based on this data is 0.0052 (Table 5-1 shows the hydraulic gradient calculations).







LEGEND

- POTENTIOMETRIC SURFACE FLUVIAL DEPOSITS
- WELL SCREEN
- SILT (LOESS)-Ql=LOESS
- SAND AND GRAVEL-Qtf=FLUVIAL DEPOSITS
- SAND-Tcf=COCKFIELD FORMATION
- CLAY

NOTE: WATER LEVEL DATA MEASURED ON 3-31-95

VERTICAL SCALE

15 0 15

SCALE FEET

HORIZONTAL SCALE

10 0 10

SCALE FEET

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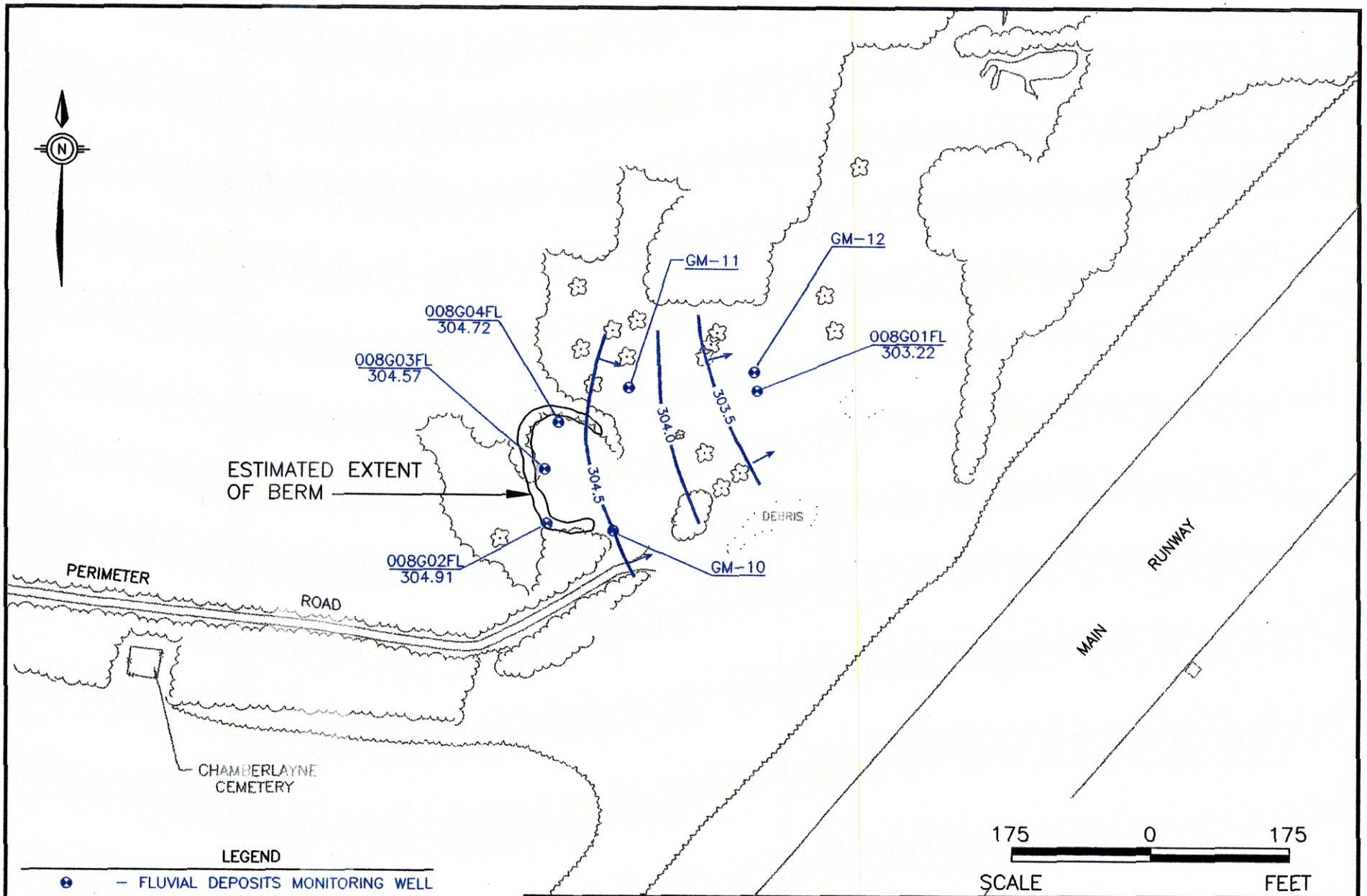
MILLINGTON, TN

FIGURE 5-1
GEOLOGIC CROSS SECTIONS
A-A' & B-B'
CEMETERY DISPOSAL AREA
SWMU 8

DWG DATE: 11/03/98 | DWG NAME: 94CDACS5

00616FB1Y



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NSA MID-SOUTH
MILLINGTON, TN

FIGURE 5-2
POTENTIOMETRIC MAP OF
FLUVIAL DEPOSITS GROUNDWATER, 3-31-95
CEMETERY DISPOSAL AREA
SWMU 8

DWG DATE: 05/27/99 | DWG NAME: 94PFCD01

Table 5-1
Hydraulic Gradient Calculations

March 31, 1995 Data
Δ (008G02FL, 008G01FL) = $\frac{304.91 \text{ ft} - 303.22 \text{ ft}}{323.75 \text{ ft}}$ = 0.0052
September 27, 1995 Data
Δ (008G01FL, GM-11) = $\frac{301.24 \text{ ft} - 300.51 \text{ ft}}{166.5 \text{ ft}}$ = 0.0044

Figure 5-3 shows the potentiometric surface map for the September 27, 1995 data. The groundwater flow direction is indicated to the west-northwest, a significant change from the March data. The hydraulic gradient based on September data is 0.0044. The potentiometric surface map for the April 8, 1996, data (Figure 5-4) indicates groundwater again moving to the northeast. The seasonal change in groundwater flow directions is likely a result of recharge and discharge of groundwater into and out of the fluvial deposits during the high and low water-level periods of the year.

Horizontal groundwater velocities in the fluvial deposits were estimated using the K and estimated gradients. Calculations are shown in Table 5-2. Velocity for the March data was estimated at 0.149 ft/day, and velocity from the September data was estimated at 0.126 ft/day.

Table 5-2
Groundwater Velocities

March 31, 1995 Data
$\frac{8 \text{ ft/day } (0.0052)}{0.28}$ = 0.149 ft/day
September 27, 1995 Data
$\frac{8 \text{ ft/day } (0.0044)}{0.28}$ = 0.126 ft/day

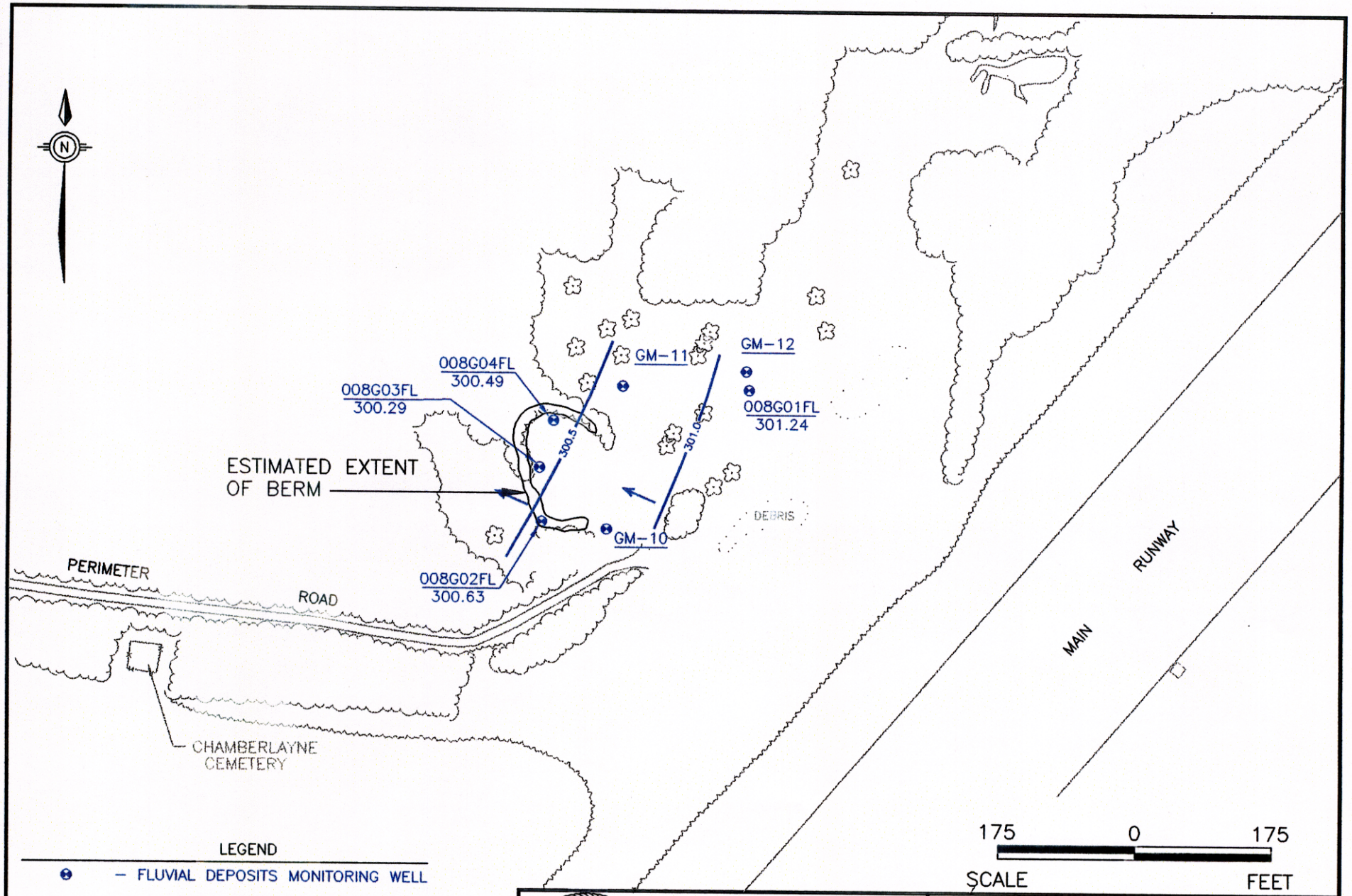
Horizontal groundwater velocities were calculated using the following derivation of Darcy's law:

$$V = Ki/n$$

where:

K = hydraulic conductivity from specific-capacity test
i = groundwater gradient
n = effective porosity of aquifer matrix

An effective porosity of 28% was assumed for the fluvial deposits sand and gravel (Heath, 1989).



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MILLINGTON, TN

FIGURE 5-3
POTENTIOMETRIC MAP OF
FLUVIAL DEPOSITS GROUNDWATER, 9-27-95
CEMETERY DISPOSAL AREA
SWMU 8

DWG DATE: 05/27/99 | DWG NAME: 94PFCD02

00616F05Y

6.0 NATURE AND EXTENT OF CONTAMINATION

Contaminant risk-based concentrations (RBCs) and soil screening levels (SSLs) were used to assess concentrations of organic and inorganic constituents detected in soil samples. RBC criteria are outlined in the *Risk-Based Concentration Table* (USEPA, 1998) and in the USEPA, Office of Solid Waste and Emergency Response (OSWER) guidance for lead concentrations in soil (USEPA, 1994b). SSL criteria are outlined in the USEPA *Soil Screening Guidance: Technical Background Document* (USEPA, 1996a).

Surface soil sample results are compared to residential and industrial RBCs. SSLs, which evaluate the potential transfer from soil to groundwater, should be compared to the contaminant average in each borehole, beginning at 6 inches bls and ending at the termination of the borehole. To simplify the comparison of SSLs to contaminants, and since most data collected did not begin at 6 inches bls, the maximum concentration of each contaminant is compared to the SSL value rather than to the borehole average, offering a more conservative comparison. The SSLs used for comparison in this report use a dilution-attenuation factor of one, which is the most conservative approach since it assumes no dilution or attenuation between the source and the groundwater.

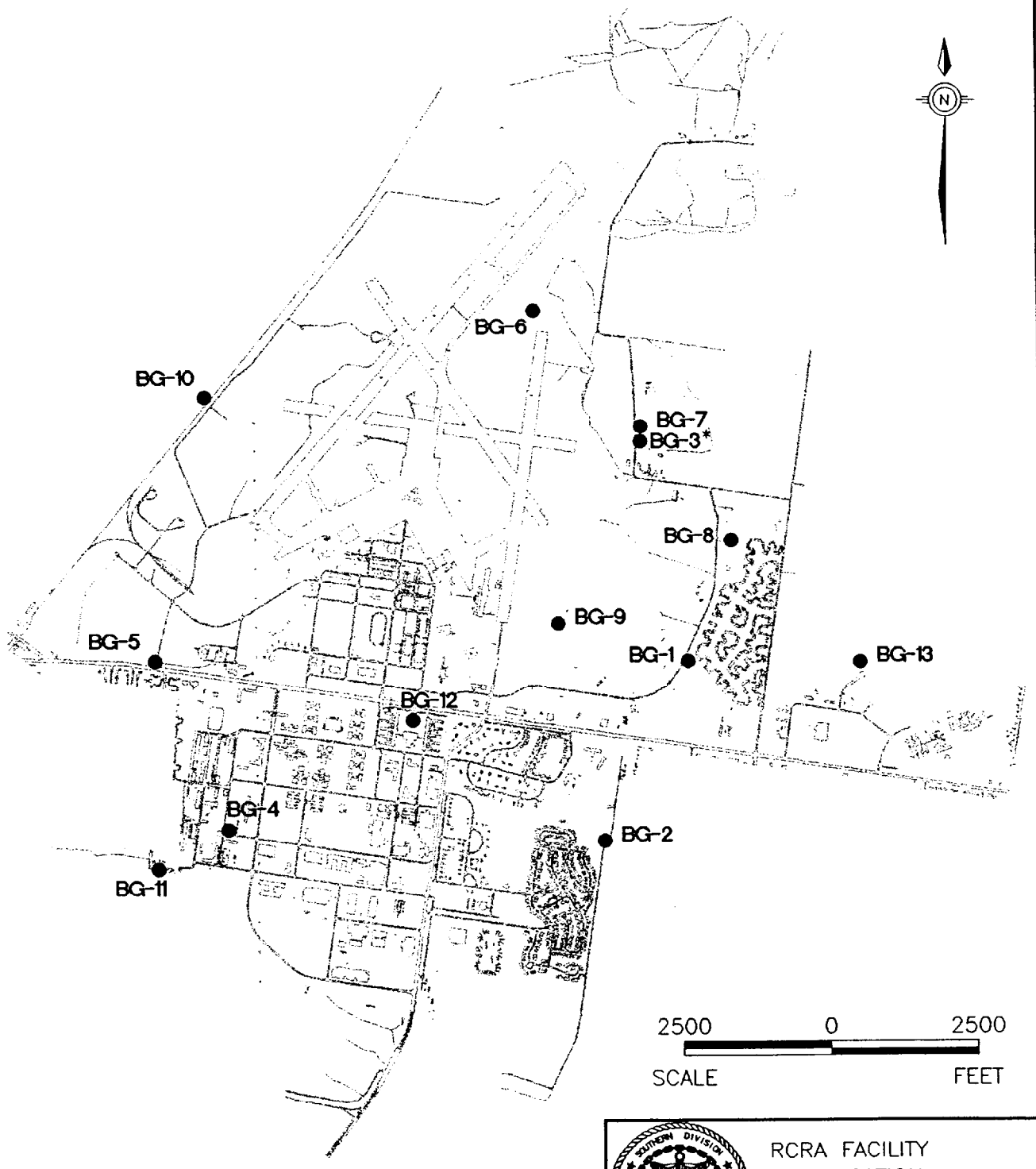
RBCs for tap water and Maximum Contaminant Levels (MCLs) for drinking water are used to evaluate concentrations of organics and inorganics in groundwater samples. Tap water RBCs are from the *Risk-Based Concentration Table* (USEPA, 1998); MCLs for drinking water are from the *Drinking Water Regulations and Health Advisories* (USEPA, 1996b).

Inorganics were also compared to established background reference concentrations (RCs) or two times the mean background concentration to determine if detected concentrations of inorganics exceed naturally occurring concentrations in surface soil, subsurface soil, and groundwater. Background RC calculations were provided in the *Technical Memorandum: Reference Concentrations* (E/A&H, 1996b).

Section 6.1 briefly discusses the background and reference criteria. Section 6.2 summarizes the contaminants detected in the initial soil investigation at SWMU 8 and their respective RBC and/or SSL values. Section 6.3 provides a similar discussion for the PCB investigation of soil at SWMU 8. Section 6.4 summarizes the further investigation of contaminants detected in stockpiled soil and Section 6.5 summarizes the contaminants detected in groundwater. All contaminants detected at SWMU 8 that exceeded their screening values are summarized in Section 6.5, including: concentrations in soil exceeding RBCs or SSLs (where applicable) and, where applicable, background RCs; and concentrations in groundwater exceeding tap water RBCs or MCLs and, where applicable, background RCs. Contaminants identified in groundwater are further evaluated in the human health and ecological risk assessments and fate and transport discussions (Sections 8, 9, and 10, respectively).

6.1 Background Criteria

Background locations were established at 13 locations at NSA Mid-South (Figure 6-1) to determine ambient soil and groundwater quality conditions. Background data for soil consist of 13 surface samples and five subsurface soil samples, while groundwater data are from monitoring well clusters at four of the 13 locations (BG-1, 2, 4, and 5) and single wells at eight of the 13 locations (BG-6 through 13). Background monitoring wells were not installed at location BG-3, near the horse stables on the NSA Mid-South Northside, because of the absence of groundwater in the loess and the thinness of the fluvial deposits in this area. At the well cluster locations, three monitoring wells screened at three depth intervals were installed — one in the uppermost part of the loess, one in the uppermost part of the fluvial deposits, and one in the basal section of the fluvial deposits. At the single monitoring well locations, one well was screened in the upper part of the fluvial deposits (BG-8 through 13) or in the upper part of the Cockfield Formation (BG-6 and 7). See the *Technical Memorandum: Reference Concentrations* (E/A&H, 1996b) for the method used to calculate reference concentrations for the background locations.



LEGEND

* SOIL BACKGROUND DATA ONLY

BG-2 BACKGROUND LOCATION 2

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NSA MID-SOUTH
MILLINGTON, TENNESSEE

FIGURE 6-1
SOIL AND GROUNDWATER
BACKGROUND SAMPLING LOCATIONS

DWG DATE: 05/19/99 | DWG NAME: 94TVG60P

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The background RC for metals in each medium was calculated by doubling the mean concentration detected in each medium (2X mean background). Two background RCs were established for soil: one for the surface soil interval (0- to 1-foot) for use in risk evaluation and one for the remaining subsurface soil samples. Four background RCs were established for groundwater in the screened-depth intervals of the loess, the fluvial deposits, the alluvial, and the upper Cockfield, but only background RCs from the fluvial deposits were compared to the SWMU 8 groundwater samples because the loess wells did not produce water. Any metals with an undetectable (less than the reporting level) background RC were treated as zero throughout this section for presentation purposes. The actual background concentration probably is not zero, because diminutive amounts of a constituent are present in concentrations less than the detection limit.

6.2 RFI Soil Sampling (Initial Event, January 1995)

SWMU 8 soil analytical results were obtained from 12 soil samples collected from two intervals from the four monitoring well soil borings (008S0001 to 008S0004). Four of the 12 samples were collected from the surface (0 to 1 foot) and eight were from the subsurface (from 10 to 24 feet). Analytical results indicated the presence of VOCs, pesticides, herbicides, and metals in soil at SWMU 8. Each contaminant group is discussed below with supporting tables. Figure 4-1 shows the location of the initial event soil samples. Analytical data for the samples are included as Appendix H.

Volatile Organic Compounds

VOCs were detected in seven of the 12 soil samples collected at SWMU 8. All VOC contaminant concentrations in surface soil samples were less than their respective residential RBCs. Methylene chloride exceeded its SSL (1 μg/kg) in one surface soil sample (008S000101, 2.0 micrograms per kilogram [μg/kg]). Acetone was also detected in SWMU 8 soil, but the detections were less than its RBC and SSL values. VOCs detected in soil are listed in Table 6-1.

Semivolatile Organic Compounds

No SVOCs were detected in SWMU 8 soil.

Table 6-1
SWMU 8 Organics Detected in Initial Soil Sampling Event (μg/kg)

Compound	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
Acetone	surface	2/4	19-36	28	7,800,000	0	200,000,000	0	800	No
	subsurface	4/8	10-27	18	NA	NA	NA	NA	800	No
2,4-D	surface	0/4	Nondetect	NA	780,000	NA	20,000,000	0	NA	NA
	subsurface	1/8	12	12	NA	NA	NA	NA	NA	NA
Dieldrin	surface	4/4	5.1-471	129	40	2	360	1	0.2	Yes
	subsurface	0/8	Nondetect	NA	NA	NA	NA	NA	0.2	NA
MCPP	surface	2/4	3,400-6,800	5,100	78,000	0	2,000,000	0	NA	NA
	subsurface	3/8	3,200-8,200	5,333	NA	NA	NA	NA	NA	NA
Methylene chloride	surface	1/4	2	2	85,000	0	760,000	0	1	Yes
	subsurface	0/8	Nondetect	NA	NA	NA	NA	NA	1	NA

Notes:

a — Range lower limit is the lowest detected parameter concentration.

b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0 to 1-foot interval (surface samples).

c — Soil Screening Level (SSL) considered protective of contaminant transfer from soil to groundwater (USEPA, 1996a). The maximum concentration detected within each respective interval was compared to the SSL.

NA — Not Applicable.

Pesticides/PCBs

No PCBs were detected in the SWMU 8 soil samples and the only pesticide detected was dieldrin. Dieldrin was detected in all four surface soil samples, but not in any subsurface soil samples. The dieldrin concentration in the surface soil sample from location 008S0001 (65 μg/kg) exceeded its residential RBC (40 μg/kg), while the concentration in the surface soil sample from location 008S0003 (471 μg/kg) exceeded its residential and industrial RBC (360 μg/kg). All dieldrin concentrations detected in the four surface samples exceeded its SSL (0.2 μg/kg). Pesticides detected in soil are presented in Table 6-1.

Although the SSL for dieldrin was exceeded in all surface soil samples, the only concentration that exceeded the established RC for NSA Mid-South of 262 μg/kg (2X mean background) calculated in the *Technical Memorandum — Surface Soil (0 to 1 foot) Background Dieldrin Concentrations at NSA Memphis* (E/A&H, 1997c) was in the surface soil sample collected from location 008S0003 (471 μg/kg). As stated in the memorandum, dieldrin is ubiquitous at NSA Mid-South because of aerial applications during a U.S. Department of Agriculture quarantine on the white-fringed beetle during the 1950s and 1960s. Risk estimates based on the soil dieldrin concentrations at NSA Mid-South do not exceed 1E-4 Incremental Lifetime Excess Cancer Risk.

Organophosphorus Pesticides

No organophosphorus pesticides were detected in the SWMU 8 soil samples.

Herbicides

Two herbicide compounds were detected in soil: 2-(2-methyl-4-chlorophenoxy) propionic acid (MCPP) was detected in two surface (008S000301 and 008S000401) and three subsurface soil samples (008S00220, 008S000322, and 008S00410); and 2,4-dichlorophenoxyacetic acid (2,4-D) was detected in one subsurface sample (008S000119). MCPP concentrations in surface soil were

less than its residential RBC (78,000 μg/kg). MCPP and 2,4-D do not have established SSLs. Herbicides detected in soil are presented in Table 6-1.

Total Petroleum Hydrocarbons

During the initial sampling event, 12 soil samples were analyzed for TPH by USEPA Method 418.1 and all results were less than the method detection limit. TPH has neither an established RBC nor SSL; however, the TDEC Division of Solid Waste has established a remediation goal for total TPH in soil from 100 to 1,000 mg/kg, depending on soil permeability. Soil at SWMU 8 has a vertical permeability coefficient of 3.0×10^{-8} cm/sec, which allows its remediation goal to be 1,000 mg/kg (see also Section 7.1.1).

Inorganics

As previously described, inorganic concentrations were compared to background RCs and RBCs or SSLs. No metal concentration in surface soil exceeded both its respective background RC and residential RBC. Cadmium in all four surface soil samples exceeded both its background RC (1.54 mg/kg) and SSL (0.4 mg/kg). Nickel in all eight subsurface soil samples exceeded both its background RC (nondetect) and SSL (7 mg/kg). Selenium in two surface soil samples exceeded both its background RC (nondetect) and SSL (0.3 mg/kg). Inorganics detected in soil are presented in Table 6-2.

6.3 PCB Soil Investigation (January 1996)

In early January 1996, 10 sample locations at SWMU 8 were field-screened for PCBs using the EnSys Immunoassay PCB test kit. Of these, six locations (008PCB01, 008PCB03, 008PCB04, 008PCB05, 008PCB06, and 008PCB08) were sampled for offsite laboratory analysis in conjunction with an ongoing, base-wide PCB investigation. Samples were collected from field-selected locations from 0- to 1-foot and 2- to 3-feet into the bermed and/or stockpiled soil, and were analyzed for PCBs, pesticides, VOCs, SVOCs, and Appendix IX metals. Upon receipt of these analytical results, four additional sample locations were added in the stockpiled soil area (Section 7.1) because elevated levels of pesticides and multiple SVOCs were detected at location 008PCB08. Section 4.1 details the sampling methods used during this investigation.

Table 6-2
SWMU 8 Inorganics Detected in the Initial Soil Sampling Event (mg/kg)

Analyte	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Background RC	Background RC Exceedances	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
Arsenic	surface	4/4	7.5-13.4	10.9	14.58	0	0.43	4	3.8	4	1	Yes
	subsurface	8/8	2.6-8.7	5.7	20.32	0	NA	NA	NA	NA	1	Yes
Barium	surface	4/4	74.8-117	98.7	223.46	0	5,500	0	140,000	0	82	Yes
	subsurface	8/8	59.3-152	96	265.12	0	NA	NA	NA	NA	82	Yes
Beryllium	surface	4/4	0.44-0.61	0.53	1	0	160	0	4,100	0	3	No
	subsurface	8/8	0.33-0.64	0.49	1.004	0	NA	NA	NA	NA	3	No
Cadmium	surface	4/4	1.8-3.1	2.5	1.54	4	39	0	1,000	0	0.4	Yes
	subsurface	8/8	1.3-2.6	2.1	3.24	0	NA	NA	NA	NA	0.4	Yes
Chromium	surface	4/4	10.3-17.2	13.8	23.89	0	390	0	10,000	0	2	Yes
	subsurface	8/8	9.6-18.7	13.0	28.28	0	NA	NA	NA	NA	2	Yes
Cobalt	surface	4/4	7.8-9.0	8.4	15.98	0	4,700	0	120,000	0	NA	NA
	subsurface	8/8	6.1-8.6	7.3	14.36	0	NA	NA	NA	NA	NA	NA
Copper	surface	4/4	11.4-18.9	15.9	24.19	0	3,100	0	82,000	0	NA	NA
	subsurface	8/8	10.2-17.0	13.2	32.52	0	NA	NA	NA	NA	NA	NA
Lead[d]	surface	4/4	14.9-19.6	16.4	26.03	0	400	0	1,300	0	NA	NA
	subsurface	8/8	7.1-13.3	9.8	19.8	0	NA	NA	NA	NA	NA	NA
Mercury	surface	1/4	0.13	0.13	0.46	0	NA	NA	NA	NA	NA	NA
	subsurface	0/8	Nondetect	NA	0.176	0	NA	NA	NA	NA	NA	NA

Table 6-2
SWMU 8 Inorganics Detected in the Initial Soil Sampling Event (mg/kg)

Analyte	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Background RC	Background RC Exceedances	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
Nickel[e]	surface	4/4	13.5-18.9	16.1	20.62	0	1,600	0	41,000	0	7	Yes
	subsurface	8/8	12.2-22.3	16.2	Nondetect	8	NA	NA	NA	NA	7	Yes
Selenium[e]	surface	2/4	0.76-0.83	0.80	Nondetect	2	390	0	10,000	0	0.3	Yes
	subsurface	0/8	Nondetect	NA	Nondetect	0	NA	NA	NA	NA	0.3	NA
Vanadium	surface	4/4	22.4-38.3	32.0	45.11	0	550	0	14,000	0	300	No
	subsurface	8/8	19.0-38.6	27.0	43.68	0	NA	NA	NA	NA	300	No
Zinc	surface	4/4	40.5-63.9	55.1	98	0	23,000	0	610,000	0	620	No
	subsurface	8/8	30.2-59.4	39.6	109	0	NA	NA	NA	NA	620	No

Notes:

a — Range lower limit is the lowest detected parameter concentration.
b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0- to 1-foot interval (surface samples).
c — Soil Screening Level (SSL), considered protective of contaminant transfer from soil to groundwater (USEPA, 1996a). The maximum concentration detected within each respective interval was compared to the SSL.
d — Lead has no established RBCs; USEPA OSWER Directive guidance cites 400 mg/kg as the residential and 1,300 mg/kg as the industrial soil cleanup concentration (USEPA, 1994b).
e — Nickel (subsurface) and selenium were not detected in the background samples and were considered zero for presentation purposes.
NA — Not Applicable.

Analytical results indicated the presence of VOCs, SVOCs, pesticides, and inorganics in the bermed and stockpiled soil areas at SWMU 8. Each contaminant was compared to its respective RBCs and SSL in order to evaluate the risk associated with soil at the site. Inorganics detected in the soil samples were also compared to surface soil background RCs. Table 6-3 summarizes the organic detections in soil from the PCB investigation at SWMU 8. Analytical data for these samples are included as Appendix I.

Volatile Organic Compounds

VOCs were detected in five of the initial six soil samples collected at SWMU 8 during the PCB investigation. Toluene and methylene chloride were detected in surface samples, while acetone, carbon disulfide, methylene chloride, and toluene were detected in subsurface samples. All of the VOCs detected were less than their respective residential RBCs; however, methylene chloride exceeded its SSL in one surface sample and one subsurface sample.

Semivolatile Organic Compounds

SVOCs were detected in four of the six soil samples collected at SWMU 8 during the PCB investigation. Bis(2-ethylhexyl)phathalate (BEHP) was detected in two surface soil samples. BEHP, benzo(a)pyrene equivalents (BEQ), acenaphthene, dibenzofuran, naphthalene, fluorene, phenanthrene, anthracene carbazole, fluoranthene, pyrene, and benzo(g,h,i)perylene were detected in subsurface soil sample at 008PCB08. BEHP detected in surface soil samples did not exceed its RBCs. SSL exceedances in subsurface soil consisted of BEQ and carbazole.

Pesticides/PCBs

PCBs were screened in the field and no significant concentrations were detected. Eight different pesticides (alpha-chlordane, gamma-chlordane, 4,4-DDT, dieldrin, endrin, endrin aldehyde, endrin ketone, and heptachlor epoxide) were detected in the offsite laboratory sample from location 008PCB08. Of these,

Table 6-3
SWMU 8 Organics Detected in the PCB Soil Investigation (µg/kg)

Compound	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
Acenaphthene	surface	0/6	Nondetect	NA	4,700,000	0	120,000,000	0	29,000	NA
	subsurface	1/6	5,300	5,300	NA	NA	NA	NA	29,000	No
Acetone	surface	0/6	Nondetect	NA	7,800,000	0	200,000,000	0	800	NA
	subsurface	2/6	290-350	320	NA	NA	NA	NA	800	No
Anthracene	surface	0/6	Nondetect	NA	23,000,000	0	610,000,000	0	590,000	NA
	subsurface	1/6	9,900	9,900	NA	NA	NA	NA	590,000	No
BEQ[d]	surface	0/6	Nondetect	NA	87	0	780	0	400	NA
	subsurface	1/6	19,244	19,244	NA	NA	NA	NA	400	Yes
Benzo(a)anthracene	surface	0/6	Nondetect	NA	870	0	7,800	0	80	NA
	subsurface	1/6	13,000	13,000	NA	NA	NA	NA	80	Yes
Benzo(b)fluoranthene	surface	0/6	Nondetect	NA	870	0	7,800	0	200	NA
	subsurface	1/6	12,000	12,000	NA	NA	NA	NA	200	Yes
Benzo(k)fluoranthene	surface	0/6	Nondetect	NA	8,700	0	78,000	0	2,000	NA
	subsurface	1/6	11,000	11,000	NA	NA	NA	NA	2,000	Yes
Benzo(g,h,i)perylene[e]	surface	0/6	Nondetect	NA	2,300,000	0	61,000,000	0	NA	NA
	subsurface	1/6	6,600	6,600	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	surface	0/6	Nondetect	NA	87	0	780	0	400	NA
	subsurface	1/6	14,000	14,000	NA	NA	NA	NA	400	Yes

Table 6-3
SWMU 8 Organics Detected in the PCB Soil Investigation (μg/kg)

Compound	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
bis(2-ethylhexyl)-phthalate (BEHP)	surface	2/6	65-110	88	46,000	0	410,000	0	180,000	No
	subsurface	3/6	48-1,300	506	NA	NA	NA	NA	180,000	No
Carbazole	surface	0/6	Nondetect	NA	32,000	0	290,000	0	30	NA
	subsurface	1/6	3,300	3,300	NA	NA	NA	NA	30	Yes
Carbon disulfide	surface	0/6	Nondetect	NA	7,800,000	0	200,000,000	0	2,000	NA
	subsurface	1/6	4	4	NA	NA	NA	NA	2,000	No
alpha-chlordane	surface	1/6	27	27	1,800	0	16,000	0	500	No
	subsurface	1/6	14	14	NA	NA	NA	NA	500	No
gamma-chlordane	surface	1/6	23	23	1,800	0	16,000	0	500	No
	subsurface	1/6	15	15	NA	NA	NA	NA	500	No
Chrysene	surface	0/6	Nondetect	NA	87,000	0	780,000	0	8,000	NA
	subsurface	1/6	14,000	14,000	NA	NA	NA	NA	8,000	Yes
4,4-DDT	surface	1/6	190	190	1,900	0	17,000	0	2,000	No
	subsurface	1/6	170	170	NA	NA	NA	NA	2,000	No
Dibenz(a,h)anthracene	surface	0/6	Nondetect	NA	87	0	780	0	80	NA
	subsurface	1/6	2,000	2,000	NA	NA	NA	NA	80	Yes
Dibenzofuran	surface	0/6	Nondetect	NA	310,000	0	8,200,000	0	NA	NA
	subsurface	1/6	2,400	2,400	NA	NA	NA	NA	NA	NA

Table 6-3
SWMU 8 Organics Detected in the PCB Soil Investigation (μg/kg)

Compound	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
Dieldrin	surface	3/6	14-9,400	3,144	40	1	360	1	0.2	Yes
	subsurface	2/6	4.4-3,600	1,802	NA	NA	NA	NA	0.2	Yes
Endrin	surface	1/6	56	56	23,000	0	610,000	0	50	Yes
	subsurface	1/6	18	18	NA	NA	NA	NA	50	No
Endrin ketone	surface	1/6	58	58	23,000	0	610,000	0	50	Yes
	subsurface	1/6	38	38	NA	NA	NA	NA	50	No
Endrin aldehyde	surface	1/6	17	17	23,000	0	610,000	0	50	No
	subsurface	0/6	Nondetect	NA	NA	NA	NA	NA	50	NA
Fluoranthene	surface	0/6	Nondetect	NA	3,100,000	0	82,000,000	0	210,000	NA
	subsurface	1/6	40,000	40,000	NA	NA	NA	NA	210,000	No
Fluorene	surface	0/6	Nondetect	NA	3,100,000	0	82,000,000	0	28,000	NA
	subsurface	1/6	3,900	3,900	NA	NA	NA	NA	28,000	No
Heptachlor epoxide	surface	1/6	5.3	5.3	70	0	630	0	30	No
	subsurface	0/6	Nondetect	NA	NA	NA	NA	NA	30	NA
Indeno(1,2,3-cd)pyrene	surface	0/6	Nondetect	NA	870	0	7,800	0	700	NA
	subsurface	1/6	6,200	6,200	NA	NA	NA	NA	700	Yes
Methylene chloride	surface	1/6	2	2	85,000	0	760,000	0	1	Yes
	subsurface	1/6	2	2	NA	NA	NA	NA	1	Yes

Table 6-3
SWMU 8 Organics Detected in the PCB Soil Investigation (μg/kg)

Compound	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
Naphthalene	surface	0/6	Nondetect	NA	3,100,000	0	82,000,000	0	4,000	NA
	subsurface	1/6	1,200	1,200	NA	NA	NA	NA	4,000	No
Phenanthrene[e]	surface	0/6	Nondetect	NA	2,300,000	0	61,000,000	0	210,000	NA
	subsurface	1/6	37,000	37,000	NA	NA	NA	NA	210,000	No
Pyrene	surface	0/6	Nondetect	NA	2,300,000	0	61,000,000	0	210,000	NA
	subsurface	1/6	34,000	34,000	NA	NA	NA	NA	210,000	No
Toluene	surface	3/6	2-6	4	16,000,000	0	410,000,000	0	600	No
	subsurface	2/6	3-5	4	NA	NA	NA	NA	600	No

Notes:

a — Range lower limit is the lowest detected parameter concentration.

b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0- to 1-foot interval (surface samples).

c — Soil Screening Level (SSL), considered protective of contaminant transfer from soil to groundwater (USEPA, 1996a). The maximum concentration detected within each respective interval was compared to the SSL.

d — Benzo(a)pyrene Equivalent (BEQ) comprises weighted values of the following: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

e — Pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.

NA — Not Applicable.

- Dieldrin was detected in surface (9,400 μg/kg) and subsurface (3,600 μg/kg) soil at concentrations exceeding its residential RBC (40 μg/kg), industrial RBC (360 μg/kg), and SSL (0.2 μg/kg) values.

- Endrin (56 μg/kg) and endrin ketone (58 μg/kg) were detected in surface soil at concentrations exceeding their SSL (50 μg/kg).

Dieldrin was also detected at two other surface soil locations (008PCB01 [14 μg/kg] and 008PCB03 [17 μg/kg]) and one other subsurface location (008PCB03 [4.4 μg/kg]). These detections exceeded the SSL (0.2 μg/kg) for dieldrin. Dieldrin concentrations detected in surface soil samples from the initial and PCB investigations are shown in Figure 6-2.

Because elevated levels of dieldrin were detected in surface and subsurface soil samples at stockpiled soil location 008PCB08, four additional sample locations (008S0011 to 008S0014) were proposed for the stockpiled soil at SWMU 8. Figure 4-3 shows sample locations 008S0011 to 008S0014. The sampling was conducted in May 1996 and the results are discussed in Section 7.1.

Inorganics

Table 6-4 summarizes the inorganic results from the PCB soil investigation at SWMU 8. Of the metal concentrations identified, none exceeded both its background RC and residential or industrial RBC. Cadmium exceeded both its RC (1.54 mg/kg, surface; 3.24 mg/kg, subsurface) and SSL (0.4 mg/kg) in all six surface soil samples and five of the six subsurface soil samples. Nickel exceeded both its subsurface RC (nondetect) and its SSL (7 mg/kg) in five of the six subsurface soil samples. Selenium exceeded both its surface RC (nondetect) and its SSL (0.3 mg/kg) in one of the six surface soil samples.

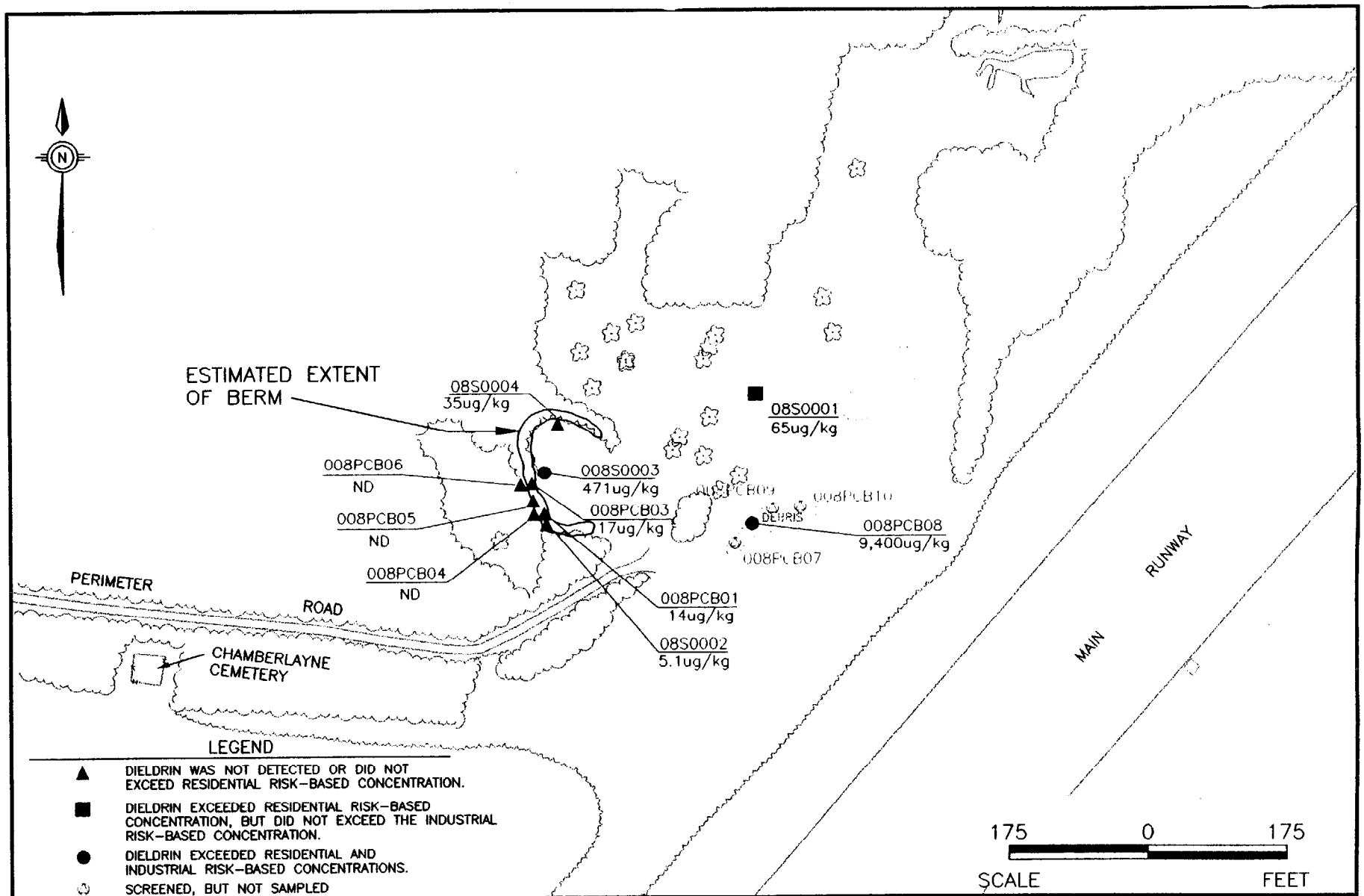

N
ESTIMATED EXTENT OF BERM
08S0004
35ug/kg
08S0001
65ug/kg
008PCB06
ND
008S0003
471ug/kg
008PCB05
ND
008PCB03
17ug/kg
008PCB04
ND
008PCB08
9,400ug/kg
DEBRIS
008PCB07
008PCB01
14ug/kg
08S0002
5.1ug/kg
PERIMETER
ROAD
CHAMBERLAYNE CEMETERY
MAIN
RUNWAY
175
0
175
SCALE
FEET
LEGEND
DIELDRIN WAS NOT DETECTED OR DID NOT EXCEED RESIDENTIAL RISK-BASED CONCENTRATION.
DIELDRIN EXCEEDED RESIDENTIAL RISK-BASED CONCENTRATION, BUT DID NOT EXCEED THE INDUSTRIAL RISK-BASED CONCENTRATION.
DIELDRIN EXCEEDED RESIDENTIAL AND INDUSTRIAL RISK-BASED CONCENTRATIONS.
SCREENED, BUT NOT SAMPLED
08S0002 / 5.1 ug/kg
SOIL BORING 2 CONTAINED A TOTAL DIELDRIN CONCENTRATION OF 5.1 ug/kg IN THE 0-1 FOOT DEPTH INTERVAL
ND
NOT DETECTED
RCRA FACILITY INVESTIGATION
NSA MEMPHIS
MILLINGTON, TN
FIGURE 6-2
DIELDRIN IN SURFACE SOIL
CEMETERY DISPOSAL AREA
SWMU 8
DWG DATE: 05/27/99
DWG NAME: 0094G025

Table 6-4
SWMU 8 Inorganics Detected in the PCB Soil Investigation (mg/kg)

Analyte	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Background RC	Background RC Exceedances	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
Arsenic[d]	surface	6/6	6.6-8.6	7.7	14.58	0	0.43	6	3.8	6	1	Yes
	subsurface	6/6	5.0-14.0	10.9	20.32	0	NA	NA	NA	NA	1	Yes
Barium	surface	6/6	62.9-93.1	81.5	223.46	0	5,500	0	140,000	0	82	Yes
	subsurface	6/6	62.1-108	89.2	265.12	0	NA	NA	NA	NA	82	Yes
Beryllium	surface	6/6	0.30-0.53	0.45	1	0	160	0	4,100	0	3	No
	subsurface	6/6	0.28-0.66	0.53	1.004	0	NA	NA	NA	NA	3	No
Cadmium	surface	6/6	1.8-3.0	2.7	1.54	6	39	0	1,000	0	0.4	Yes
	subsurface	6/6	2.1-4.0	3.5	3.24	5	NA	NA	NA	NA	0.4	Yes
Chromium	surface	6/6	8.7-14.9	11.5	23.89	0	390	0	10,000	0	2	Yes
	subsurface	6/6	10.7-13.4	12.4	28.28	0	NA	NA	NA	NA	2	Yes
Cobalt	surface	6/6	4.5-8.2	7.2	15.98	0	4,700	0	120,000	0	NA	NA
	subsurface	6/6	4.3-9.4	7.1	14.36	0	NA	NA	NA	NA	NA	NA
Copper	surface	6/6	13.2-20.6	14.9	24.19	0	3,100	0	82,000	0	NA	NA
	subsurface	6/6	17.6-22.2	20.4	32.52	0	NA	NA	NA	NA	NA	NA
Lead[e]	surface	6/6	10.5-98.9	27.0	26.03	1	400	0	1,300	0	NA	NA
	subsurface	6/6	13.1-105	29.5	19.8	1	NA	NA	NA	NA	NA	NA
Mercury	surface	1/6	0.23	0.23	0.46	0	NA	NA	NA	NA	NA	NA
	subsurface	1/6	0.27	0.27	0.176	1	NA	NA	NA	NA	NA	NA
Nickel[f]	surface	6/6	6.6-9.6	8.1	20.62	0	1,600	0	41,000	0	7	Yes
	subsurface	5/6	10.7-14.7	10.2	Nondetect	5	NA	NA	NA	NA	7	Yes

Table 6-4
***SWMU 8* Inorganics Detected in the PCB Soil Investigation (mg/kg)**

Analyte	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Background RC	Background RC Exceedances	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceeded
Selenium[f]	surface	1/6	0.71	0.71	Nondetect	1	390	0	10,000	0	0.3	Yes
	subsurface	0/6	Nondetect	NA	Nondetect	0	NA	NA	NA	NA	0.3	NA
Vanadium	surface	6/6	21.4-25.9	23.6	45.11	0	550	0	14,000	0	300	No
	subsurface	6/6	21.7-31.4	28.3	43.68	0	NA	NA	NA	NA	300	No
Zinc	surface	6/6	37.5-75.7	45.8	98	0	23,000	0	610,000	0	620	No
	subsurface	6/6	49.8-74.3	56.5	109	0	NA	NA	NA	NA	620	No

Notes:

a — Range lower limit is the lowest detected parameter concentration.
b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0- to 1-foot interval (surface samples).
c — Soil Screening Level (SSL) considered protective of contaminant transfer from soil to groundwater (USEPA, 1996a). The maximum concentration detected within each respective interval was compared to the SSL.
d — RBC values represent arsenic as a carcinogen.
e — Lead has no established RBCs; USEPA OSWER Directive guidance cites 400 mg/kg as the residential and 1,300 mg/kg as the industrial soil cleanup concentration (USEPA, 1994b).
f — Nickel (subsurface) and selenium were not detected in the background samples and were considered zero for presentation purposes.
NA — Not Applicable.

6.4 Groundwater Analytical Results

Groundwater samples were collected in March 1995 (initial event) from the four fluvial deposits wells installed as part of the RFI (wells 008G01FL through 008G04FL) and from GM-11, the fluvial deposits well previously installed by Geraghty and Miller (Figure 4-4). The wells were sampled three additional times in November 1995 (first event), April 1996 (second event), and August 1996 (third event). Groundwater samples collected during the first and second events were analyzed for VOCs, while samples from the third event underwent a FSA as did samples from the initial event. (Note: during the November 1995 event, well 008G02FL was not sampled because of field oversight.) Analytical results indicate the presence of VOCs, SVOCs, and metals in the groundwater samples from SWMU 8. Each contaminant/constituent group, along with supporting tables and/or figures, is discussed below. Lead, which has no established tap water RBC or MCL, was compared to the USEPA Treatment Technique Action Level (TTAL) (USEPA, 1996b). Analytical data for the groundwater samples are included as Appendix J.

Volatile Organic Compounds

No VOCs were detected in the initial sampling event of March 1995. During the November 1995 sampling event, 4-methyl-2-pentanone (MIBK) was detected in the groundwater sample from well 008G01FL (5 micrograms per liter [μg/L]) at a concentration considerably less than its tap water RBC (2,900 μg/L). MIBK was not detected during any other event. During the April 1996 sampling event, acetone was detected in groundwater samples from well 008G01FL (32 μg/L) and well 008G02FL (19,000 μg/L). The acetone detected in the sample from well 008G02FL exceeded its tap water RBC (3,700 μg/L). Acetone was not detected in samples from these wells during any other event. During the August 1996 sampling event, acetone was detected in the groundwater sample from well 008G03FL (42 μg/L). Acetone was not detected in samples from this well during any other event. Neither MIBK nor acetone has an MCL. VOCs detected in groundwater are presented in Table 6-5.

Semivolatile Organic Compounds

During the March 1995 sampling event, the only SVOC detected was BEHP, a contaminant often associated with sampling gloves and plastic materials. BEHP was detected in the groundwater samples from wells 008G01FL and GM-11 (8 and 11 μg/L, respectively). The tap water RBC for BEHP (4.8 μg/L) was exceeded in both samples. BEHP has no MCL. During the August 1996 sampling event, no SVOCs were detected in SWMU 8 groundwater. SVOCs detected in groundwater are presented in Table 6-5.

Table 6-5
SWMU 8 Organics Detected in Groundwater (μg/L)

Compound	Frequency of Detection	Range of Detection[a]	Mean of Detections	Tap Water RBC[b]	Tap Water RBC Exceedances	MCL[c]	MCL Exceedances
Acetone	3/19	32-19,000	6,358	3,700	1	NA	NA
BEHP	2/10	8-11	9.5	4.8	2	NA	NA
MIBK	1/19	5	5	2,900	0	NA	NA

Notes:
a — Range lower limit is the lowest detected parameter concentration.
b — *Risk-Based Concentration Table* (USEPA, 1998).
c — Maximum Contaminant Level from *Drinking Water Regulations and Health Advisories* (USEPA, 1996b).
NA — Not Applicable.

Pesticides

No pesticides were detected in groundwater at SWMU 8 during the March 1995 or August 1996 sampling events.

Organophosphorus Pesticides

No organophosphorus pesticides were detected in groundwater at SWMU 8 during the March 1995 or August 1996 sampling events.

Herbicides

No herbicides were detected in groundwater at SWMU 8 during the March 1995 or August 1996 sampling events.

Total Petroleum Hydrocarbons

No TPH concentrations were detected in groundwater at SWMU 8 during the March 1995 or August 1996 sampling events.

Metals and Cyanide

During the March 1995 sampling event, lead, which has no established tap water RBC or MCL, was detected in groundwater samples from wells 008G04FL (33.2 μg/L) and GM-11 (23.4 μg/L), exceeding both its TTAL (15 μg/L) and background RC (6.6 μg/L). During the August 1996 sampling event, vanadium, which has no MCL, was detected in the groundwater sample from well 008G02FL, exceeding its background RC (17.4 mg/L). Among the March 1995 and August 1996 groundwater samples, no metal concentration in groundwater exceeded both its background RC and tap water RBC or MCL. Cyanide was not detected in any of the groundwater samples during the March 1995 or August 1996 sampling events. Metals detected in groundwater are presented in Tables 6-6 and 6-7.

6.5 Nature and Extent Summary

Soil

Soil analytical results indicate contamination at SWMU 8 to be relatively minor. VOCs, SVOCs, and herbicides detected in soil were less than their respective RBCs. The only pesticide detected at SWMU 8 in concentrations exceeding its RBC was dieldrin; however, dieldrin is known to be ubiquitous in soil throughout NSA Mid-South. No metals detected in SWMU 8 soil exceeded both their background RCs and RBCs.

Table 6-6
SWMU 8 Inorganics Detected in Groundwater — March 1995 (μg/L)

Analyte	Frequency of Detection	Range of Detection[a]	Mean of Detections	Background RC	Background RC Exceedances	Tap Water RBC[b]	Tap Water RBC Exceedances	MCL[c]	MCL Exceedances
Barium	5/5	50.1-74.3	60.1	232	0	2,600	0	2,000	0
Chromium	2/5	5.7-8.2	7.0	39.8	0	180	0	100	0
Copper	3/5	5.2-9.7	6.9	5.6	2	1,500	0	1,300	0
Lead	5/5	2.7-33.2	13.3	6.6	2	NA	NA	15	2
Vanadium	1/5	11.4	11.4	17.4	0	260	0	NA	NA
Zinc	3/5	8.3-12.2	10.5	39.8	0	11,000	0	5,000	0

Notes:

a — Range lower limit is the lowest detected parameter concentration.

b — *Risk-Based Concentration Table* (USEPA, 1998).

c — Maximum Contaminant Level from *Drinking Water Regulations and Health Advisories* (USEPA, 1996b). Copper and lead do not have established MCLs, so the USEPA treatment technique action level for each is listed under the MCL column. Zinc has no primary MCL, so the secondary MCL is listed under the MCL column.

NA — Not Applicable.

Table 6-7
SWMU 8 Inorganics Detected in Groundwater — August 1996 (μg/L)

Analyte	Frequency of Detection	Range of Detection[a]	Mean of Detections	Background RC	Background RC Exceedances	Tap Water RBC[b]	Tap Water RBC Exceedances	MCL[c]	MCL Exceedances
Arsenic	1/5	1.5	1.5	3.5	0	0.045	1	50	0
Barium	5/5	38.9-102	61.0	232	0	2,600	0	2,000	0
Beryllium	4/5	0.07-0.67	0.25	NA	NA	73	0	4	0
Chromium	4/5	7.3-23.3	15.0	39.8	0	180	0	100	0
Cobalt	4/5	2.5-8.2	4.1	16.2	0	2,200	0	NA	NA
Nickel	4/5	9.6-26.3	19.5	33.4	0	730	0	100	0
Vanadium	4/5	2.2-25	10.2	17.4	1	260	0	NA	NA

Notes:
a — Range lower limit is the lowest detected parameter concentration.
b — *Risk-Based Concentration Table* (USEPA, 1998).
c — Maximum Contaminant Level from *Drinking Water Regulations and Health Advisories* (USEPA, 1996b).
NA — Not Applicable.

Soil-to-Groundwater Cross-Media Transfer

Soil-to-groundwater SSLs were compared to results from the initial soil event and the PCB investigation. Comparison of the maximum concentration of each contaminant detected in soil samples to the respective SSLs indicated BEQ, carbazole, dieldrin, endrin, endrin ketone, methylene chloride, arsenic, barium, cadmium, chromium, nickel, and selenium were the SSL exceedances. None of the inorganics that exceeded their SSLs also exceeded their background RCs. Dieldrin was discussed previously as being applied in aerial applications during the 1950s and 1960s and being ubiquitous across NSA Mid-South.

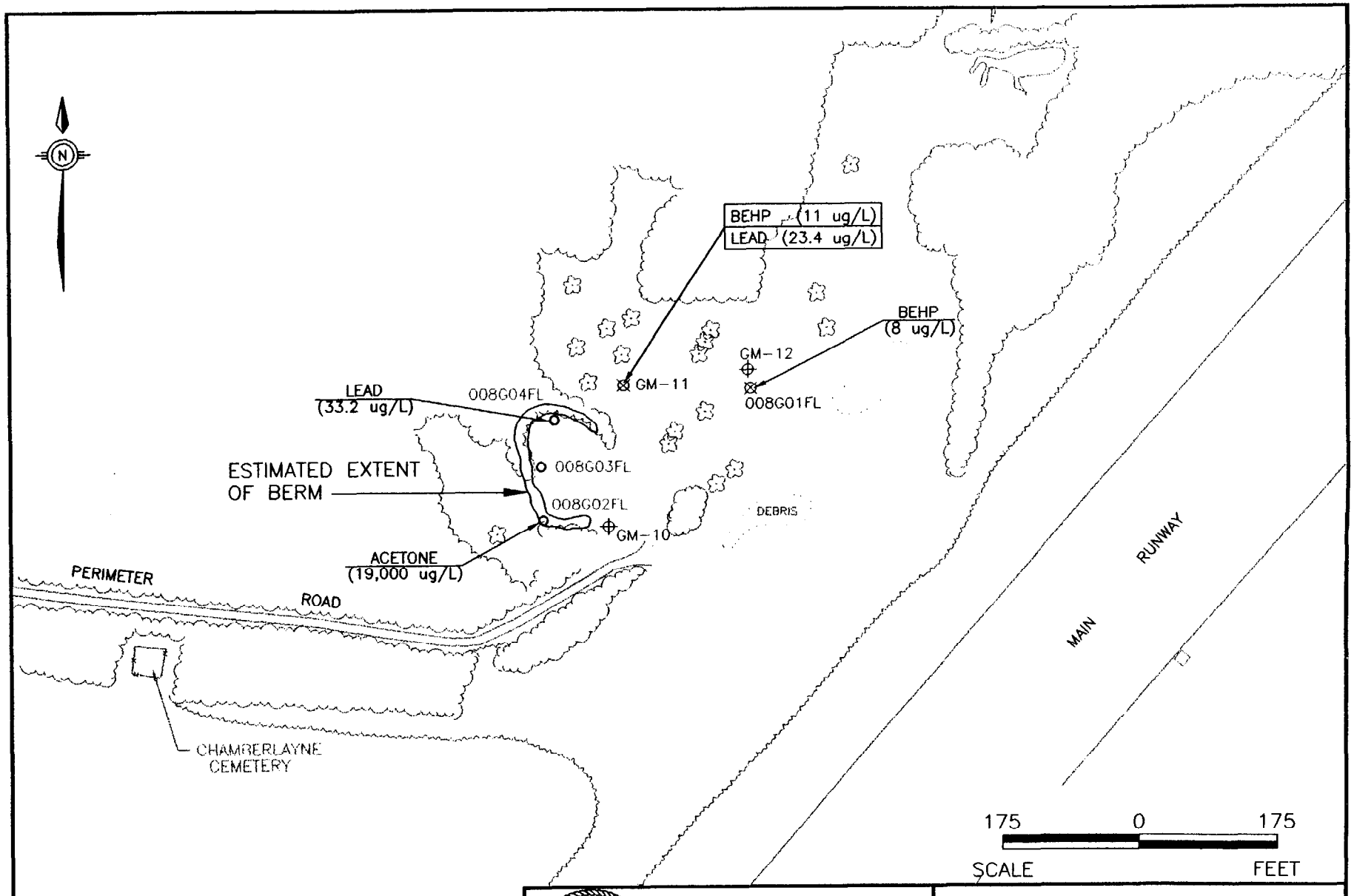
Groundwater

VOCs, SVOCs, and metals were the only contaminant/constituent groups detected at concentrations exceeding screening values in groundwater. Acetone was detected during the April 1996 sampling event in the groundwater sample from well 008G02FL at 19,000 μg/L, exceeding the tap water RBC; however, acetone was not detected in this well during any other sampling event. BEHP was detected in groundwater samples from wells 008G01FL and GM-11 at concentrations exceeding the tap water RBC. BEHP is a common field sampling and/or laboratory contaminant; BEHP is not suspected of being a potential problem in the groundwater at SWMU 8. Concentrations of lead exceeded its background RC and TTAL in samples from wells 008G04FL and GM-11. Contaminant concentrations exceeding the tap water RBC or MCL are listed in Table 6-8. Figure 6-3 lists the RBC or MCL exceedances by location.

Table 6-8
Summary of Groundwater Exceeding RBCs

Monitoring Well Identification	Contaminant/ Constituent	Type	C/N	Event Detected	Concentration (μg/L)	Tap Water RBC (μg/L)	MCL (μg/L)
008G01FL	BEHP	SVOC	C	March 1995	8	4.8	NA
008G02FL	Acetone	VOC	N	April 1996	19,000	3,700	NA
008G04FL	Lead	Metal	N	March 1995	33.2	NA	15[a]
GM-11	BEHP	SVOC	C	March 1995	11	4.8	NA
	Lead	Metal	N	March 1995	23.4	NA	15[a]

Notes:
a — MCL is treatment technique action level.
C — Carcinogen
MCL — Maximum Contaminant Level from *Drinking Water Regulations and Health Advisories* (USEPA, 1996b). Lead has no MCL, so the USEPA treatment technique action level for lead is listed under the MCL column.
N — Noncarcinogen
NA — Not Applicable
RBC — *Risk-Based Concentration Table* (USEPA, 1998)



LEGEND

008G02FL	–	WELL IDENTIFICATION
o	–	ABANDONED IN 1998
⊠	–	ABANDONED IN 1997
⊕	–	ABANDONED IN 1995

RCRA FACILITY INVESTIGATION
NSA MID-SOUTH
MILLINGTON, TN

FIGURE 6-3
DETECTIONS IN GROUNDWATER EXCEEDING RBCs OR MCLs
CEMETERY DISPOSAL AREA
SWMU 8

DWG DATE: 05/27/99 | DWG NAME: 0094G026

7.0 VOLUNTARY CORRECTIVE ACTION (VCA)

7.1 Soil Pile Removal

In response to the detected concentrations of SVOCs and the pesticide dieldrin at location 008PCB08 during the January 1996 PCB investigation, the NSA Mid-South BCT decided that the stockpiled soil would be removed for disposal. Measures were taken to characterize the soil piles before removal by adding four sample locations in the stockpiled soil. An initial removal was conducted in March 1997, followed by four composite confirmation samples. Because elevated levels of dieldrin were detected in the remaining soil, a second removal was undertaken in late April 1997, followed by 16 confirmation samples. In addition, a downslope location and the closest water-bearing ravine were sampled for pesticides to assess the potential for contaminant migration to the wetland to the north.

7.1.1 Pre-removal Stockpiled Soil Sampling

In May 1996, in response to questions raised by elevated levels of pesticides in PCB sample 008PCB08, eight additional samples from four locations 008S0011 through 008S0014 (Figure 4-2) were collected from 0 to 1 foot and 3 to 4 feet into the stockpiles. These samples underwent FSA (VOCs, SVOCs, pesticides, organophosphorus pesticides/PCBs, herbicides, Appendix IX metals, cyanide, TPH-DRO, and TPH-GRO). Each contaminant detected was compared to its respective RBCs to evaluate the risk associated with the stockpiled soil. SSLs were not compared to contaminants detected in the stockpiled soil since the NSA Mid-South BCT decided the stockpiled soil would be removed for disposal and the SWMU 8 groundwater results indicated minimal, if any, contaminant impact (Section 6.4). Inorganics detected in the stockpiled soil samples were also compared to surface soil background RCs. Analytical data are included as Appendix K. Table 7-1 summarizes the organics detected in the stockpiled soil at SWMU 8.

Table 7-1
SWMU 8 Organics Detected in the May 1996 Stockpiled Soil Investigation (μg/kg)

Compound	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances
Acetone	surface	1/4	23	23	7,800,000	0	200,000,000	0
	subsurface	0/4	Nondetect	NA	NA	NA	NA	NA
Aldrin	surface	1/4	2.4	2.4	38	0	340	0
	subsurface	1/4	11	11	NA	NA	NA	NA
Anthracene	surface	0/4	Nondetect	NA	23,000,000	0	610,000,000	0
	subsurface	1/4	41	41	NA	NA	NA	NA
Benzo(b)fluoranthene	surface	1/4	54	54	870	0	7,800	0
	subsurface	1/4	56	56	NA	NA	NA	NA
Benzo(k)fluoranthene	surface	1/4	48	48	8,700	0	78,000	0
	subsurface	1/4	54	54	NA	NA	NA	NA
Benzo(a)pyrene	surface	0/4	Nondetect	NA	87	0	780	0
	subsurface	1/4	40	40	NA	NA	NA	NA
bis(2-ethylhexyl)- phthalate (BEHP)	surface	1/4	84	84	46,000	0	410,000	0
	subsurface	0/4	Nondetect	NA	NA	NA	NA	NA
alpha-chlordane	surface	3/4	14-29	21	1,800	0	16,000	0
	subsurface	2/4	24-83	54	NA	NA	NA	NA
gamma-chlordane	surface	3/4	12-32	19	1,800	0	16,000	0
	subsurface	2/4	20-60	40	NA	NA	NA	NA
Chrysene	surface	1/4	46	46	87,000	0	780,000	0
	subsurface	1/4	41	41	NA	NA	NA	NA

Table 7-1
SWMU 8 Organics Detected in the May 1996 Stockpiled Soil Investigation (μg/kg)

Compound	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances
2,4-D	surface	2/4	9.4-10	9.7	780,000	0	20,000,000	0
	subsurface	3/4	10-20	14	NA	NA	NA	NA
4,4-DDE	surface	1/4	160	160	1,900	0	17,000	0
	subsurface	2/4	4.7-1,300	652	NA	NA	NA	NA
4,4-DDD	surface	0/4	Nondetect	NA	2,700	0	24,000	0
	subsurface	1/4	510	510	NA	NA	NA	NA
4,4-DDT	surface	4/4	2.4-680	346	1,900	0	17,000	0
	subsurface	4/4	14-6,100	1,640	NA	NA	NA	NA
Dichlorprop	surface	1/4	20	20	NA	NA	NA	NA
	subsurface	1/4	7.6	8	NA	NA	NA	NA
Di-n-butylphthalate	surface	1/4	62	62	7,800,000	0	200,000,000	0
	subsurface	0/4	Nondetect	NA	NA	NA	NA	NA
Dieldrin	surface	4/4	230-11,000	5,558	40	4	360	3
	subsurface	4/4	35-5,600	2,541	NA	NA	NA	NA
Endrin	surface	3/4	8.6-64	36	23,000	0	610,000	0
	subsurface	2/4	34-34	34	NA	NA	NA	NA
Endrin ketone	surface	3/4	4.3-70	40	23,000	0	610,000	0
	subsurface	3/4	2.8-28	19	NA	NA	NA	NA
Fluoranthene	surface	1/4	70	70	3,100,000	0	82,000,000	0
	subsurface	1/4	59	59	NA	NA	NA	NA

Table 7-1
SWMU 8 Organics Detected in the May 1996 Stockpiled Soil Investigation (μg/kg)

Compound	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances
Heptachlor epoxide	surface	1/4	2.2	2.2	70	0	630	0
	subsurface	1/4	12	12	NA	NA	NA	NA
MCPP	surface	1/4	1,400	1,400	78,000	0	2,000,000	0
	subsurface	0/4	Nondetect	NA	NA	NA	NA	NA
2-Methylnaphthalene	surface	1/4	52	52	3,100,000	0	82,000,000	0
	subsurface	0/4	Nondetect	NA	NA	NA	NA	NA
Phenanthrene[c]	surface	1/4	99	99	2,300,000	0	61,000,000	0
	subsurface	1/4	63	63	NA	NA	NA	NA
Pyrene	surface	1/4	48	48	2,300,000	0	61,000,000	0
	subsurface	1/4	44	44	NA	NA	NA	NA
Styrene	surface	0/4	Nondetect	NA	16,000,000	0	410,000,000	0
	subsurface	1/4	2	2	NA	NA	NA	NA
2,4,5-TP (Silvex)	surface	1/4	0.98	0.98	630,000	0	16,000,000	0
	subsurface	1/4	0.67	0.67	NA	NA	NA	NA
Toluene	surface	4/4	9-44	25	16,000,000	0	410,000,000	0
	subsurface	4/4	3-23	13	NA	NA	NA	NA

Notes:

a — Range lower limit is the lowest detected parameter concentration.
b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0 to 1-foot interval (surface samples).
c — Pyrene is used as a surrogate for phenanthrene.
NA — Not Applicable

Volatile Organic Compounds

VOCs were detected in all eight soil samples collected from the stockpiled soil. All surface and subsurface samples showed various concentrations of toluene. One surface soil sample (008S001101) also had detectable concentrations of acetone and one subsurface soil sample (008S001404) had a detection of styrene. All of the VOCs detected in surface soil samples were less than their respective residential RBC.

Semivolatile Organic Compounds

SVOCs were detected in three of the eight soil samples collected from the stockpiled soil at SWMU 8. Two of the samples (008S001301 and 008S001304) contained a variety of 10 different SVOCs, while one sample (008S001401) contained only BEHP. None of the SVOCs detected in the two surface soil samples exceeded their respective RBCs.

Pesticides/PCBs

No PCBs were detected in the soil samples collected from the stockpiled soil at SWMU 8, while 10 pesticide compounds were detected among the eight samples. Dieldrin was detected in all eight samples at concentrations ranging from 35 to 11,000 μg/kg; all four surface soil samples exceeded the residential RBC for dieldrin (40 μg/kg), and three surface soil samples exceeded the industrial RBC for dieldrin (360 μg/kg). No other pesticides detected among the four surface soil samples exceeded their respective RBCs.

Organophosphorus Pesticides

No organophosphorus pesticides were detected in the soil samples collected at SWMU 8.

Herbicides

Five herbicide compounds were detected in the soil samples collected from the stockpiled soil at SWMU 8. None of the herbicides detected exceeded their respective residential RBC. Dichlorprop, detected in two samples (008S001304 and 008S001401), has no RBC.

Total Petroleum Hydrocarbons

The eight soil samples were submitted for analysis of TPH-DRO and TPH-GRO. Results are listed in Table 7-2.

Table 7-2
Total Petroleum Hydrocarbon Detections in Stockpiled Soil

0 to 1-Foot Interval	Result (mg/kg)	3- to 4-Foot Interval	Result (mg/kg)
TPH-DRO			
008S0011	26	008S0011	11
008S0012	150	008S0012	14
008S0013	71	008S0013	100
008S0014	23	008S0014	130
TPH-GRO			
008S0011	0.079	008S0011	nondetect
008S0012	nondetect	008S0012	nondetect
008S0013	nondetect	008S0013	nondetect
008S0014	nondetect	008S0014	0.112

TPH does not have an RBC; however, the TDEC Division of Solid Waste has established a remediation goal of 1,000 mg/kg for total TPH in soil having a permeability of 10^{-7} or less (TDEC, 1996); a soil sample collected from the SWMU 8 area had a vertical permeability coefficient of 3.0×10^{-8} cm/sec. The TPH-DRO and TPH-GRO results for a sample were added to approximate the total TPH value for each sample. None of the samples exceeded the applicable TDEC cleanup level of 1,000 mg/kg.

Inorganics

None of the metals identified in soil samples from the stockpiled soil exceeded both their background RC and residential RBC. Cyanide was detected in the 0- to 1-foot interval soil sample from location 008S0011 (0.5 mg/kg), which was less than its residential RBC (1,600 mg/kg). Table 7-3 summarizes the inorganics detected in stockpiled soil samples at SWMU 8.

7.1.2 March 1997 Soil Removal

The stockpiled soil was removed by DynCorp in March 1997, and four composite, confirmation soil samples were collected on April 3, 1997 (locations shown on Figure 4-3). Samples 008S0015 through 008S0018 were collected from 0- to 1-foot into the remaining soil after the stockpiled soil removal and analyzed for SVOCs, pesticides, and TPH. Table 7-4 summarizes the contaminants detected in the confirmation samples from this first removal. Analytical data are included as Appendix L.

Semivolatile Organic Compounds

SVOCs were detected in all four samples collected from the remaining soil at SWMU 8. Of the four different SVOCs detected, none exceeded its respective RBC.

Pesticides

Pesticides were detected in all four samples collected from the soil at SWMU 8. Nine different pesticides were detected; however, only dieldrin exceeded its residential (40 μg/kg) and industrial (360 μg/kg) RBCs. Analytical results indicate dieldrin was present in the four samples at concentrations ranging from 730 to 1,800 μg/kg.

TPH

TPH was also detected in all four samples, with concentrations ranging from 240 to 480 mg/kg. All were less than the applicable TDEC cleanup level of 1,000 mg/kg.

Table 7-3
SWMU 8 Inorganics Detected in the May 1996 Stockpiled Soil Investigation (mg/kg)

Analyte	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Background RC	Background RC Exceedances	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances
Arsenic[c]	surface	4/4	4.2-11.8	8.6	14.58	0	0.43	4	3.8	4
	subsurface	4/4	7.4-12.8	10.9	20.32	0	NA	NA	NA	NA
Barium	surface	4/4	53.3-125	91.4	223.46	0	5,500	0	140,000	0
	subsurface	4/4	84.7-128	101	265.12	0	NA	NA	NA	NA
Beryllium	surface	3/4	0.37-0.46	0.42	1	0	160	0	4,100	0
	subsurface	4/4	0.37-0.56	0.46	1.004	0	NA	NA	NA	NA
Cadmium	surface	2/4	0.9-1.0	0.95	1.54	0	39	0	1,000	0
	subsurface	4/4	0.74-1.1	0.99	3.24	0	NA	NA	NA	NA
Chromium	surface	4/4	9.8-15.9	12	23.89	0	390	0	10,000	0
	subsurface	4/4	10.6-14	12	28.28	0	NA	NA	NA	NA
Cobalt	surface	4/4	3.4-9.3	6.7	15.98	0	4,700	0	120,000	0
	subsurface	4/4	6.3-9.3	7.6	14.36	0	NA	NA	NA	NA
Copper	surface	4/4	15.9-18	17	24.19	0	3,100	0	82,000	0
	subsurface	4/4	17-18.5	18	32.52	0	NA	NA	NA	NA
Lead[d]	surface	4/4	9.2-127	62	26.03	3	400	0	1,300	0
	subsurface	4/4	15.6-69.5	37.9	19.8	2	NA	NA	NA	NA
Mercury	surface	3/4	0.17-0.21	0.18	0.46	0	NA	NA	NA	NA
	subsurface	2/4	0.3-1.0	0.65	0.176	2	NA	NA	NA	NA
Nickel[e]	surface	4/4	7.7-17.1	13	20.62	0	1,600	0	41,000	0
	subsurface	4/4	12.2-17	14	Nondetect	4	NA	NA	NA	NA
Tin[e]	surface	4/4	17.1-29.1	25.2	33.56	0	47,000	0	1,200,000	0
	subsurface	4/4	16.6-40	28	Nondetect	4	NA	NA	NA	NA

Table 7-3
SWMU 8 Inorganics Detected in the May 1996 Stockpiled Soil Investigation (mg/kg)

Analyte	Interval	Frequency of Detection	Range of Detection[a]	Mean of Detections	Background RC	Background RC Exceedances	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances
Vanadium	surface	4/4	21.3-24	23	45.11	0	550	0	14,000	0
	subsurface	4/4	23-26.6	25	43.68	0	NA	NA	NA	NA
Zinc	surface	4/4	57.6-86.1	56.4	98	0	23,000	0	610,000	0
	subsurface	4/4	60.7-105	77.9	109	0	NA	NA	NA	NA

Notes:
a — Range lower limit is the lowest detected parameter concentration.
b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0- to 1-foot interval (surface samples).
c — RBC values represent arsenic as a carcinogen.
d — Lead has no RBCs; USEPA OSWER Directive guidance cites 400 mg/kg as the residential and 1,300 mg/kg as the industrial soil cleanup concentration (USEPA, 1994b).
e — Nickel (subsurface) and tin were not detected in the background samples and were considered zero for presentation purposes.
NA — Not Applicable.

Table 7-4
SWMU 8 — Organics Detected in April 3, 1997 Stockpiled Soil Removal Confirmation Samples (µg/kg)

Compound	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances
Aldrin	2/4	0.99-1.4	1	38	0	340	0
bis(2-ethylhexyl) phthalate (BEHP)	3/4	66-270	145	46,000	0	410,000	0
alpha-chlordane	4/4	2.7-21	11	1,800	0	16,000	0
gamma-chlordane	4/4	2.9-19	10	1,800	0	16,000	0
4,4'-DDE	4/4	27-330	151	1,900	0	17,000	0
4,4'-DDD	4/4	20-280	109	2,700	0	24,000	0
4,4'-DDT	4/4	76-1,000	392	1,900	0	17,000	0
Dieldrin	4/4	730-1,800	1,303	40	4	360	4
Endosulfan I	4/4	2.8-21	11	470,000	0	12,000,000	0
Endrin ketone	3/4	2.7-12	6	NA	NA	NA	NA
Phenanthrene[c]	1/4	15	NA	2,300,000	0	61,000,000	0
Fluoranthene	3/4	21-30	25	3,100,000	0	82,000,000	0
Pyrene	3/4	19-37	29	2,300,000	0	61,000,000	0

Notes:
a — Range lower limit is the lowest detected parameter concentration.
b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0 to 1-foot interval (surface samples).
c — Pyrene is used as a surrogate.
NA — Not Applicable.

7.1.3 Late April 1997 Follow-Up Removal

In response to the dieldrin detections exceeding the RBC in the confirmation samples, a second removal occurred in late April 1997. Sixteen confirmation soil samples, 008S001901 through 008S003401 (locations shown on Figure 4-3), were collected on May 1, 1997, from soil at the 0-to 1-foot interval beneath where the removal was conducted, as stated in *Technical Memorandum — SWMU 8 Dieldrin Sampling Approach* (E/A&H, 1997a). These samples were analyzed for pesticides only, based on analytical results of soil samples collected on April 3, 1997.

Pesticides were detected in all 16 of the confirmation soil samples (Table 7-5) collected from soil in the removal area. All pesticides in confirmation samples were less than their respective RBCs, with the exception of dieldrin, which exceeded its residential RBC (40 μg/kg) in all 16 samples and its industrial RBC (360 μg/kg) in nine samples. Eleven samples had dieldrin detections that exceeded its RC of 262 μg/kg (E/A&H, 1997). The SSL (0.2 μg/kg) for dieldrin was also exceeded in all 16 samples. Analytical data for confirmation samples are included in Appendix L.

In response to these findings, a technical memorandum examining the May 1, 1997, confirmation sample results and addressing human health risks was prepared on May 14, 1997 (E/A&H, 1997b). It was determined that the remaining concentrations of dieldrin did not exceed the USEPA's risk threshold of 1E-4. In addition, two samples were collected on June 10, 1997 to assess whether runoff from the site had caused the contaminants to migrate offsite to the nearby wetland. One soil sample (008S0003501) was collected from the area north of and downslope from the removal site and one sediment sample (008M003601) was collected from the closest water-bearing ravine northeast of the site (Figure 4-3). Dieldrin was detected in both samples exceeding its residential RBC (40 μg/kg); however, it did not exceed its RC (262 μg/kg) in either sample. Table 7-6 summarizes the detections from these additional samples. Analytical data for these samples are included in Appendix L.

7.2 Ethylene Oxide Cylinder Removal

In order to bring the main runway at NSA Mid-South into compliance with the Federal Aviation Administration (FAA) requirements for commercial airports, a grading project was begun in January 1998 to bring all land within 500 feet of the centerline of the runway to the same elevation as the runway. Prior to grading, monitoring wells GM-11 and 008G01FL were abandoned, leaving only monitoring wells 008G02FL, 008G03FL, and 008G04FL (Figure 4-4), which were subsequently abandoned in November 1998. This grading project encompassed nearly all of SWMU 8 and required removing a large portion of the hilly area where SWMU 8 is located. On February 2, 1998, the grading contractor uncovered several cylinders in the SWMU 8 area.

Pesticides were detected in all 16 of the confirmation soil samples (Table 7-5) collected from soil in the removal area. All pesticides in confirmation samples were less than their respective RBCs, with the exception of dieldrin, which exceeded its residential RBC (40 μg/kg) in all 16 samples and its industrial RBC (360 μg/kg) in nine samples. Eleven samples had dieldrin detections that exceeded its RC of 262 μg/kg (E/A&H, 1997). The SSL (0.2 μg/kg) for dieldrin was also exceeded in all 16 samples. Analytical data for confirmation samples are included in Appendix L.

In response to these findings, a technical memorandum examining the May 1, 1997, confirmation sample results and addressing human health risks was prepared on May 14, 1997 (E/A&H, 1997b). It was determined that the remaining concentrations of dieldrin did not exceed the USEPA's risk threshold of 1E-4. In addition, two samples were collected on June 10, 1997 to assess whether runoff from the site had caused the contaminants to migrate offsite to the nearby wetland. One soil sample (008S0003501) was collected from the area north of and downslope from the removal site and one sediment sample (008M003601) was collected from the closest water-bearing ravine northeast of the site (Figure 4-3). Dieldrin was detected in both samples exceeding its residential RBC (40 μg/kg); however, it did not exceed its RC (262 μg/kg) in either sample. Table 7-6 summarizes the detections from these additional samples. Analytical data for these samples are included in Appendix L.

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Table 7-5
SWMU 8 — Pesticides Detected in Follow-Up Soil Removal Confirmation Samples (µg/kg)

Compound	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceedances
Aldrin	12/16	0.59-2.1	1.8	38	0	940	0	20	No
Dieldrin	16/16	84-2,500	688	40	16	360	9	0.2	Yes
4,4'-DDE	15/16	0.86-300	46	1,900	0	17,000	0	3,000	No
4,4'-DDD	6/16	1.6-80	35	2,700	0	24,000	0	800	No
4,4'-DDT	14/16	3.4-780	112	1,900	0	17,000	0	2,000	No
Heptachlor epoxide	7/16	0.51-70	12	70	0	630	0	30	Yes
beta-BHC	3/16	0.20-56	0.32	350	0	3,200	0	0.1	Yes
delta-BHC	1/16	0.06	0.06	NA	NA	NA	NA	NA	NA
Chlordane	4/16	16-200	89	1,800	0	16,000	0	500	No
Heptachlor	2/16	0.53-20	10	140	0	1,300	0	1,000	No

Notes:

a — Range lower limit is the lowest detected parameter concentration.

b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0- to 1-foot interval (surface samples).

c — Soil Screening Level (SSL), considered protective of contaminant transfer from soil to groundwater (USEPA, 1996a). The maximum concentration detected within each respective interval was compared to the SSL.

NA — Not Applicable.

Table 7-6
SWMU 8 — Pesticides Detected in the Topographically Downgradient Soil and Sediment Samples (µg/kg)

Compound	Frequency of Detection	Range of Detection[a]	Mean of Detections	Residential RBC[b]	Res. RBC Exceedances	Industrial RBC[b]	Ind. RBC Exceedances	SSL[c]	SSL Exceedances
Aldrin	¼	3.6	3.6	38	0	340	0	20	No
4,4'-DDE	2/2	0.9-3.2	2	1,900	0	17,000	0	3,000	No
4,4'-DDT	2/2	0.67-11	5.8	1,900	0	17,000	0	2,000	No
Dieldrin	2/2	45-150	98	40	2	360	0	0.2	Yes
Endosulfan I	2/2	0.71-11	5.9	470,000	0	12,000,000	0	900	No

Notes:
a — Range lower limit is the lowest detected parameter concentration.
b — *Risk-Based Concentration Table* (USEPA, 1998). RBCs are for comparison to data from the 0- to 1-foot interval (surface samples).
c — Soil Screening Level (SSL), considered protective of contaminant transfer from soil to groundwater (USEPA, 1996a). The maximum concentration detected within each respective interval was compared to the SSL.
NA — Not Applicable.

The grading project was halted and the Navy contacted. Initial inspection of the graded areas identified cylinders scattered across a large part of the SWMU 8 area. Labels on several of the cylinders read "ethylene oxide." The Navy instructed the grading contractor to cease all operations in the SWMU 8 area until EnSafe could locate and remove the cylinders. The grading contractor had uncovered at least 40 cylinders randomly distributed throughout the graded soil, including a few that had been breached, either by the grading operation or prior to burial. CET Environmental Services Inc. of Jackson, Mississippi, was subcontracted by EnSafe to remove, contain, and stage the cylinders.

Initial removal operations involved walking the entire disturbed area of SWMU 8 and flagging visible cylinders. Ethylene oxide cylinders are "low pressure" and contain a highly volatile liquid product that vaporizes almost instantly upon exposure to the atmosphere. Many of the cylinders were in poor condition, including bent, dented, or breached cylinders, which was assumed to have been caused by the extended length of time they had been buried or the heavy equipment used during the grading operations. Nearly all of the cylinders still had intact cylinder valves, but all the valves were totally encased with soil. Closer inspection indicated all of the cylinders were of the same size, approximately 15 pounds. Of the cylinders that had identifiable markings, all indicated the contents to be ethylene oxide and most had the year "1957" stenciled on the cylinder. The 1957 stencil was assumed to be the fill date of the bottle. Following removal of the cylinders visible at the surface, the disturbed area was scanned by EnSafe with a metal detector and anomalies were flagged for subsurface investigation and excavation. Several areas were excavated which revealed multiple cylinders stacked side by side. Between February 5 and 13, 1998, 130 cylinders were identified, removed, and containerized. The exterior of the cylinders were cleaned with a low-pressure wash to remove any soil on the cylinder or in the valve assembly. Then the cylinders were placed in 55-gallon drums, three cylinders to a drum, and all void space was filled with vermiculite. Finally, the drums were moved to a temporary, less than 90-day

hazardous waste storage area on the west side of the runway at Building 377 (transmitter facility), which was enclosed with a fence.

Following removal of the visible cylinders and those identified with the metal detector, EnSafe performed an EM survey of the area in an attempt to identify any remaining cylinders. The EM survey identified numerous anomalies across the SWMU 8 area (Figure 7-1, anomalies displayed as red). From March 9 to April 1, 1998, all the anomalies were excavated and an additional eight cylinders were discovered. The majority of the anomalies were buried sections of fence post that were approximately the same length as the cylinders. The eight additional cylinders were pressure washed, containerized, and moved to the temporary staging area for storage along with the original 130 cylinders.

Because of the poor condition of the cylinders, most were unsuitable for shipment, so the contents were transferred to bulk cylinders and the resulting material transported offsite for proper disposal. Laidlaw Environmental Services Inc. of Clarence, New York, was subcontracted to transfer the contents of the 138 cylinders and to transport the material to their Clarence facility for recycling and disposal. By April 16, 1998, Laidlaw performed the transfer of ethylene oxide from the 15 pound cylinders to new, larger cylinders. The entire transfer operation was within a controlled environment and no spills or releases occurred during transfer procedures. Of the 138 cylinders handled, six were empty (several had been breached during the grading or excavation activities), 125 were transferred to new cylinders, and seven were deemed by Laidlaw to be legal for shipment per U.S. Department of Transportation (USDOT) standards. The empty 15 pound cylinders were shipped offsite by Laidlaw for metal recycling. All cylinders had been shipped offsite by April 24, 1998, and all cylinders were received in good condition at the Clarence facility. Grading was completed in May 1998.

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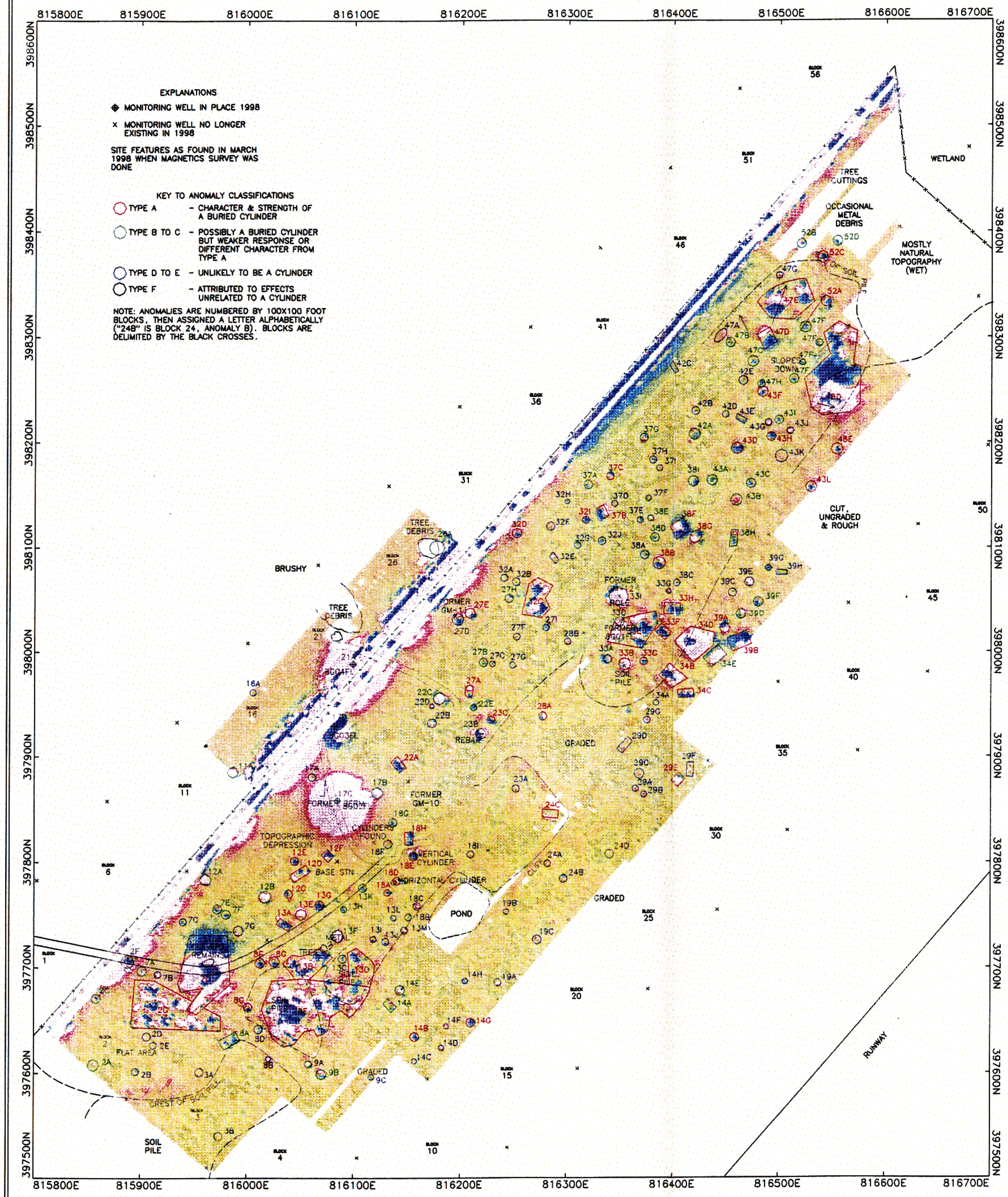

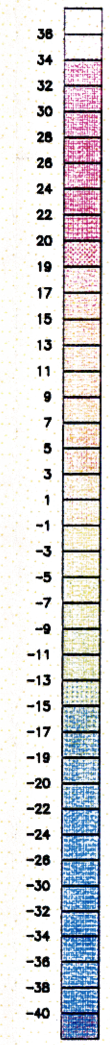

Gradient (nT/m)

Scale 1:800

50 0 50 100 150 200 (feet)

PLOT SUMMARY
- Data obtained with Geometrics G858G gradiometer
- Data from two sensors 0.774 m apart
- Data QC March 1998
- Leveling correction applied
- Transform to state plane coordinates
- CAD drawings SWMU8NEW.DXF & SWMU8ANO.DXF
- Plot file 5.P01 generated 11-03-98 via Geosoft

Figure 7-1

VERTICAL MAGNETIC GRADIENT (CORRECTED)
1998 Magnetics Survey for Buried Cylinders
SWMU 8, NSA Mid-South

Note: site features as they appeared in Feb. 1998

EnSafe Inc.

00616F06Y

8.0 HUMAN HEALTH RISK ASSESSMENT

8.1 Introduction

The purpose of this human health risk assessment (HHRA) is to assess the current or potential future excess risk to human receptors from contamination at SWMU 8, the Cemetery Disposal Area, which was estimated to cover 5 to 8 acres on the northwest quadrant of NSA Mid-South Northside. In order to bring the main runway at NSA Mid-South into compliance with the FAA's requirements for commercial airports, a grading project was begun in January 1998 to bring all land within 500 feet of the centerline of the runway to the same elevation as the runway. This grading project encompassed nearly all of SWMU 8 (total area affected was approximately 8 acres) and required removing a large portion of the hilly area where SWMU 8 was located. The SWMU has been altered by grading, and the topography has been changed. The soil from SWMU 8 was excavated and redistributed across the site. The SWMU 8 area has been seeded with grass and is maintained by mowing.

8.2 Risk Evaluation

SWMU 8 site conditions have changed as described in Section 7.2. Consequently, the information presented below is provided to document the results of the SWMU 8 RFI and other information that has been and will be used to make risk management decisions regarding SWMU 8.

Dieldrin was the only chemical of potential concern (COPC) identified in soil, while acetone, lead and BEHP were identified as COPCs in groundwater in the November 1996 *Draft RCRA Facility Investigation Report for NSA Memphis Assembly A, SWMU 8 — Cemetery Disposal Area, Revision: 0* (E/A&H, 1996c). Soil is evaluated semi-quantitatively below, and groundwater is evaluated using a preliminary risk evaluation (PRE). Lead is evaluated separately because it is compared to the TTAL instead of RBCs.

8.2.1 Soil

As described in Section 7, a 1997 removal action removed the stockpiled soil at SWMU 8. After the removal action, risk estimates were calculated to be within the USEPA's acceptable risk range of 1 in 10,000 to 1 in 1,000,000 excess cancer risk. Furthermore, the entire site, including the area of highest soil contamination, was then excavated and graded in 1998 as described in Section 7.2, presumably lowering the risk range further.

Including the soil sample data collected prior to the removal action, dieldrin concentrations ranged from 0.0051 mg/kg to 9.4 mg/kg. The residential land use risk-based concentration for dieldrin is 0.04 mg/kg, based on 1 in 1,000,000 excess cancer risk (USEPA, 1998). Therefore, 4 mg/kg would result in 1 in 10,000 excess cancer risk. The maximum dieldrin concentration reported in soil (9.4 mg/kg) would result in a risk estimate of approximately 2 in 10,000. No chemicals of concern (COCs) were identified based on the land use scenarios and exposure pathways addressed in the HHRA because the exposure point concentration was calculated using the 95th percentile upper confidence level mean (UCL) in accordance with USEPA Region IV *Supplemental Guidance to RAGS, Exposure Assessment* (USEPA, 1995). The site-wide risk estimate was less than 1 in 10,000 excess cancer risk, and the risk estimate based on the remaining maximum reported concentration was also less than 1 in 10,000 excess cancer risk after removal of the stockpiled soil.

As described in Section 7.2, the remaining dieldrin concentrations were altered by the runway excavation, so risk estimates in the paragraph above would not reflect the current baseline conditions. Dieldrin in SWMU 8 soil was excavated to a depth of approximately 15 feet in some areas and redistributed across a wider area (approximately 8 acres), so dieldrin concentrations would be diluted and corresponding risk estimates diminished. As described in Section 7, the contaminated area at SWMU 8 was approximately 0.276 acres, which was distributed across the approximate 8 acres. Assuming the top foot of soil was excavated and observed concentrations were observed across the entire surface soil interval, the dilution factor would be approximately

29. However, subsurface soil was also excavated, resulting in additional dilution, but the amount of additional dilution from subsurface soil is uncertain. Regardless, concentrations would be diluted more than an order of magnitude, so diluted risk estimates would be even more within the USEPA's acceptable risk range.

8.2.2 Groundwater

In accordance with *Guidance on Preliminary Risk Evaluations (PREs) for the Purpose of Reaching a Finding of Suitability to Lease (FOSL)* (USEPA, 1994c), a PRE was conducted using data from samples collected from groundwater monitoring wells during the SWMU 8 RFI. A PRE is conducted by calculating the risk/hazard ratio for the maximum detected concentration of each COPC, summing the risk ratios to obtain an overall risk/hazard sum, and interpreting those results. COPCs in groundwater were identified as those:

- organics exceeding their tap water RBC, and
- inorganics exceeding both their tap water RBC and their RC.

Proportional risk is calculated for each COPC using the ratio between the maximum reported concentration and the corresponding RBC value. RBC values were calculated by USEPA based on a risk threshold of 10^{-6} for carcinogens or a hazard quotient threshold of 1.0 for noncarcinogens. Therefore, a risk ratio is calculated for each contaminant by one of the following two equations:

Carcinogenic Risk Ratio:

$$RR = \frac{\textit{media concentration}}{\textit{screening value}} * TR$$

Noncarcinogenic Risk Ratio:

$$RR = \frac{\textit{media concentration}}{\textit{screening value}} * THQ$$

where:

RR	=	the risk ratio
Media Concentration	=	the maximum concentration of a site chemical
Screening Value	=	the RBC value for that particular chemical
TR	=	target risk used to calculate RBCs for carcinogens (10^{-6})

THQ = target hazard quotient used by USEPA to calculate RBCs for noncarcinogens of 1.0, subsequently converted to 0.1 in accordance with USEPA Region IV's *Supplemental Guidance to RAGS, Data Collection and Evaluation* (USEPA, 1995).

The risk ratios are compared to the corresponding cumulative threshold in accordance with the USEPA Region IV November 1994 Memorandum (USEPA, 1994c). If the Incremental Lifetime Excess Cancer Risk (ILCR) is greater than 1 in 10,000 (USEPA's cumulative upper-bound acceptable risk threshold) or the HI is greater than 1 (USEPA's cumulative HI threshold), the site may require additional investigation for the corresponding land use scenario (USEPA, 1994c). In accordance with the USEPA Region IV memorandum, no further action is recommended and the property is considered suitable to lease for the specified land use scenario if neither threshold is exceeded. Table 8-1 shows the risk estimates for SWMU 8 groundwater.

VOCs

No VOCs were detected in the initial sampling event during March 1995. During the November 1995 sampling event, 4-methyl-2-pentanone (MIBK) was detected in the groundwater sample from well 008G01FL (5 μg/L) at a concentration less than its tap water RBC (2,900 μg/L). During the April 1996 sampling event, acetone was detected in groundwater samples from well 008G01FL (32 μg/L) and well 008G02FL (19,000 μg/L). The acetone detected in the sample from well 008G02FL exceeded its tap water RBC (3,700 μg/L).

SVOCs

During the March 1995 sampling event, the only SVOC detected was BEHP, a contaminant often associated with sampling gloves and plastic materials, in the groundwater samples from wells 008G01FL and GM-11 (8 and 11 μg/L, respectively). The tap water RBC for BEHP (4.8 μg/L) was exceeded in both samples. BEHP has no established MCL value. During August 1996, no SVOCs were detected in SWMU 8 groundwater.

Metals

During the March 1995 sampling event, lead, which has no established tap water RBC or MCL, was detected in groundwater samples from wells 008G04FL (33.2 μg/L) and GM-11 (23.4 μg/L) exceeding both its TTAL (15 μg/L) and background RC (6.6 μg/L).

Metals concentrations are believed to be the result of turbidity, because silt present at the bottom of the monitoring well screens could have been disturbed by the pump tubing during sampling. The sampling method was changed to prevent this from occurring as described in Section 4, and metals were resampled using the new method in August 1996. No metals in groundwater exceeded both their background RC and tap water RBC or MCL in the August 1996 data, indicating the elevated metals reported in the March 1995 data probably were a result of turbidity. Turbidity data are included in Appendix J. However, correlations between sample turbidity and metals concentrations were not calculated for this RFI report.

Table 8-1
Preliminary Risk Evaluation

	Maximum Detected Concentration	Units	Tap Water RBC		ILCR	HI
Acetone	19,000	μg/L	3,700	N	NA	5.1
BEHP	11	μg/L	4.8	C	2.3E-6	NA
Sum:					2.3E-6	5.1

Notes:

RBC — From the Risk-Based Concentration Table (USEPA, 1998); in accordance with USEPA Region IV's Supplemental Guidance to RAGS Bulletin 1, Data Collection and Evaluation (USEPA, 1995).
ILCR — Incremental lifetime (excess) cancer risk
HI — Hazard index
N — Noncarcinogen
C — Carcinogen

Acetone

The HI for acetone was estimated to exceed the USEPA's threshold of 1.0 at one sample location. Acetone was detected in only one of the four groundwater sampling events (April 1996). Although it was not eliminated during data validation as discussed in Section 4, its presence is suspect and it is uncertain whether this concentration is representative of the groundwater at SWMU 8.

8.2.3 Lead

Groundwater

Reported lead concentrations in SWMU 8 groundwater range from 0.0027 to 0.0332 mg/L, as shown in Table 8-2 below. In March 1995, lead was reported in all five samples collected of SWMU 8 groundwater. Two of these concentrations exceeded the TTAL of 0.015 mg/L. After changing the sampling method to reduce turbidity as described in Section 4, lead was not detected in samples from any of the monitoring wells in August 1996 (see the analytical data in Appendix J). Although the lead concentrations probably are the results of turbid samples, they were assessed below.

Table 8-2
SWMU 8 Groundwater Lead Statistics

Sample	Reported Concentrations[a]	LN TransformedConcentrations[a]
008G01FL	0.0036	-5.6268
008G02FL	0.0038	-5.5728
008G03FL	0.0027	-5.9145
008G04FL	0.0332	-3.4052
0GMG11FL	0.0234	-3.7550
Standard Deviation	0.0141	1.1774
Number of Samples	5	5
Mean	0.01334	-4.8549
Geometric Mean	Not Applicable	0.0078
H-statistic	Not Applicable	5.683 (unitless)
UCL	Not Applicable	0.442

Note:
a — All units are mg/L.

Groundwater Exposure Point Concentrations

The 95th percentile UCL of the mean was calculated in accordance with USEPA Risk Assessment Guidance for Superfund (RAGS) based on a lognormal distribution (USEPA, 1989), and the method was described in the Technical Memorandum — *General Human Health Risk Assessment Approach for NSA Memphis, Revision 1* (E/A&H, 1996b). As shown in Table 8-2, lead data were log transformed. The calculated UCL exceeded the maximum reported concentration, which is typical of small data sets. In accordance with RAGS, the exposure point concentration that would be used to estimate exposure would be the maximum reported lead concentration, because the UCL is greater than the maximum concentration (USEPA, 1989). The maximum lead concentration, 0.0332 mg/L, exceeds the USEPA's TTAL.

USEPA Region IV departs from the RAGS approach when calculating the groundwater exposure point concentrations. The arithmetic mean of the highest concentrations is the recommended value, which would be the average between 0.0234 mg/L and 0.0332 mg/L (USEPA, 1995). The average of these two values is 0.0283 mg/L, which exceeds the USEPA TTAL.

Soil

Lead concentrations in surface soil at SWMU 8 ranged from 10.5 mg/kg to 98.9 mg/kg. The arithmetic and geometric mean concentrations were 22.8 and 15.4, respectively, and the UCL was 17.1 mg/kg. The UCL was calculated using the surface soil lead data in Table 8-3 in accordance with RAGS based on a lognormal distribution, and the method was described in detail in the Technical Memorandum — *General Human Health Risk Assessment Approach for NSA Memphis, Revision 1* (E/A&H, 1996b).

Table 8-3
SWMU 8 Surface Soil Lead Statistics

Sample	Reported Concentrations[a]	LN Transformed Concentrations[a]
008PCB01	13.1	2.5726
008PCB03	14.6	2.6810
008PCB04	12.8	--
008PCB05	10.5	--
008PCB06	12.1	--
008PCB08	98.9	--
008S0001	15.5	--
008S0002	19.6	2.9755
008S0003	15.7	2.7537
008S0004	14.9	2.7014
Standard Deviation	26.86	0.1488
Number of Samples	10	10
Mean	22.77	2.7368
Geometric Mean	NA	15.44
H-stat	NA	1.841 *(unitless)*
UCL	NA	17.1

Note:
a — All units are mg/kg.

USEPA Lead Model Results

Version 0.99d of the USEPA IEUBK lead exposure model was used to estimate the probability that a blood lead level of 10 μg/dL would be reached based on soil and groundwater lead concentrations. The exposure point concentrations used were as follows:

- the soil lead UCL of 17.1 mg/kg was used as the soil and dust exposure point concentrations

- the arithmetic mean of the highest concentrations, 0.0283 mg/L, was used as the groundwater exposure point concentration

The USEPA model predicts a 1.31% probability that a blood lead level of 10 μg/dL would be reached, and the predicted geometric mean concentration is 3.6 μg/dL. The USEPA threshold probability is 5%, so SWMU 8 lead concentrations reported in groundwater and soil would not be expected to result in unacceptable blood lead levels based on the USEPA lead model.

Although lead identified in groundwater at SWMU 8 is probably the result of turbidity in the samples, even if it were present in the groundwater it is unlikely that lead would pose a risk at SWMU 8 for several reasons:

- groundwater use and residential land use will most likely be deed restricted
- the USEPA lead model predicts acceptable blood lead levels
- the arithmetic mean for reported lead concentrations is less than the TTAL
- the geometric mean for reported lead concentrations is less than the TTAL
- drinking water is obtained from the public water supply

Uncertainty

The risk assessment for SWMU 8 is based on the reported soil concentrations that are not representative of the site as it currently exists and on the use of fluvial deposits groundwater as a potable water source; therefore, the following uncertainties exist for potential site exposures.

- Because the SWMU 8 site surface soils have been altered by the runway excavation, concentrations of dieldrin in surface soil have most likely been diluted because the excavated soil was redistributed over an 8-acre area and mixed with presumably uncontaminated soil. Because the final diluted concentration is unknown, this presents a data gap. However, the current dieldrin soil concentration is not expected to exceed the maximum detected concentration of dieldrin.

- The PRE was based on a minimum number of samples resulting in the selection of the maximum concentration as the EPC for estimating risk for both acetone and BEHP. Use of the maximum concentration potentially overestimates exposure, especially since the maximum concentration represents a "hot spot" versus the mean. Likewise, exposure could be underestimated if a "hot spot" were missed during sampling.

- It is uncertain whether the detections of BEHP and acetone are representative of past site activities. Phthalate esters (BEHP) and acetone are generally considered common laboratory contaminants that are introduced during sample collection, preparation, and analysis. BEHP is a component of many of the materials used during sampling activities (especially gloves and well casings) and acetone is a breakdown product of and sometimes a contaminant in isopropyl alcohol which could have been used to decontaminate sampling equipment. Because the compounds were detected during one sampling event, the detections of these contaminants and the assumption that each is related to site activities cannot be determined based on the limited number of samples collected for the site. The lack of data that confirms the presence or absence of these two COPCs represents a potential data gap.

- For this risk assessment, it is assumed that deed restrictions would not be in place for SWMU 8 and fluvial deposits groundwater will be used for potable purposes. Although, fluvial deposits groundwater is not currently used as a potable water source, it is uncertain if deed restrictions will be in place to prevent use of this groundwater in the future.

Conclusion

The 1997 removal action at SWMU 8 reduced the identified contamination in soil and the SWMU 8 site conditions have changed in ways that would be expected to essentially remove the potential for exposure and thus reduce corresponding risks.

9.0 ECOLOGICAL RISK ASSESSMENT

9.1 Introduction

The purpose of this ecological risk assessment is to assess the actual or potential effects on ecological receptors resulting from contamination at SWMU 8 on the NSA Mid-South Northside. This assessment considers surface-soil contaminant concentrations and distributions, media-specific physicochemical conditions, and exposure pathways that could result in unacceptable levels of exposure to ecological receptors now or in the future. The approach to this assessment is based on the *Risk Assessment Guidance for Superfund Volume II — Environmental Evaluation Manual* (USEPA, 1989b) and Interim Final *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (USEPA, 1997).

9.2 Problem Formulation

Site Description

SWMU 8, the Cemetery Disposal Area, covers approximately 5 to 8 acres on the northwest quadrant of NSA Mid-South Northside. Topographically, the area had moderate relief with a significant slope from east to west before the grading and excavation work began in 1998. To make the main runway comply with the FAA requirements for commercial airports, a grading project was begun in January 1998 to bring all land within 500 feet of the centerline of the runway to the same elevation as the runway. This grading project, which encompassed nearly all of the estimated area covered by SWMU 8, required removing a large portion of the hilly area where the SWMU was located. The habitat that once was available to support terrestrial wildlife has been removed by grading, and the soil from the area where contaminated soil was stockpiled was excavated, spread, and leveled.

Ecosystem at Risk

Since the excavation and grading project was completed, the former SWMU 8 area has been seeded and will be maintained by mowing; thus, no quality habitat is available and there are no

exposure pathways to assess. Approximately 800 feet northeast and topographically down gradient of the site is a wetland area. No distinct surface water drainage channels connecting the site to the wetland area were noted, but overland flow of stormwater runoff is possible during rain events.

Threatened and Endangered Species

According to the 1997 U.S. Fish and Wildlife Service threatened and endangered species survey, no federally listed species occur at NSA Mid-South. One state-listed species found at NSA Mid-South was a walnut tree better know as the Butternut (*Juglans cinerea*). This tree was found at the northwest end of the clear zone of the main runway and is not associated with SWMU 8.

Assessment Endpoint Recommendations

No further action is recommended based on the current and future use plans. Grading has completely altered the former conditions found at SWMU 8 and the area will be mowed on a regular basis; therefore, no quality habitat is available and no complete exposure pathway exists.

10.0 CONTAMINANT FATE AND TRANSPORT

Physical characteristics of SWMU 8 and distributions of contaminants in each environmental medium were discussed in previous sections. In this section, that information is used to discuss the fate and transport of contaminants in each medium in four parts:

- Source definition, specifically the contaminants detected during the investigation and the COCs for each medium, are discussed in Section 10.1.

- Potential routes of migration are discussed for each medium in Section 10.2.

- Contaminant persistence in soil, surface water, sediment, and groundwater is considered in Section 10.3. For each class of compounds, the general fate and transport characteristics of the relevant contaminants are summarized because their chemical and physical properties affect their potential migration and fate.

- Contaminant migration is presented in Section 10.4 with an overview of factors affecting movement.

10.1 Source Definition

SWMU 8 comprises approximately 5 to 8 acres on the northwest quadrant of the NSA Mid-South Northside and the area was reportedly used for solid and hazardous-waste disposal from 1965 to 1980.

Sections 6 and 7 described the nature and extent of contamination for all compounds detected at SWMU 8, with the focus on the primary contaminants detected in various media onsite. A primary contaminant is defined as a compound in soil whose maximum concentration exceeds its SSL, or a contaminant in groundwater whose concentration exceeds its RBC and/or MCL.

During the original RFI, pesticides and metals were the principal soil contaminants/constituents identified onsite. Low concentrations of acetone, carbon disulfide, methylene chloride, and toluene were the only VOCs detected in soil, and their concentrations did not exceed residential RBCs. Dieldrin was the only pesticide detected in soil. Concentrations of dieldrin in soil have been attributed to aerial applications during the 1950s and 1960s. Low concentrations of the herbicides MCPP and 2,4-D were detected in surface soil; however, concentrations were less than their residential RBC. Metals detected exceeding their RC in surface soil consisted of arsenic, cadmium, nickel, and selenium. Low concentrations of the plasticizer BEHP were detected in groundwater, but the presence of this SVOC could be a result of a laboratory/sampling artifact (gloves) because it was not detected during a follow-up sampling event.

As discussed in previous sections, the area 500 feet beyond both sides of the main runway centerline has been cut and graded to the same elevation as the runway to comply with FAA regulations for commercial airports. This zone included the SWMU 8 area, which will be maintained by mowing. As a result of these activities, only dieldrin remains as a potential COC in soil.

The risks posed by contaminants at SWMU 8 were assessed in the HHRA using ingestion and dermal-contact pathways (soil contaminants) and ingestion and inhalation pathways (groundwater contaminants), assuming the fluvial deposits groundwater is used as a potable-water source. Table 10-1 lists the COCs for SWMU 8, for which fate and transport mechanisms will be discussed, based on results of the HHRA and exceedance of RBCs and SSLs.

Table 10-1
COCs for SWMU 8

Environmental Medium	COCs
Subsurface Soil	Dieldrin, Nickel
Fluvial Deposits Groundwater	Lead, BEHP

10.2 Potential Routes of Migration

This section delineates the potential routes of migration for contaminants both within and from SWMU 8. Potential migration pathways in the former SWMU 8 area are considered for each of the four available media:

- Air emissions, specifically the dispersion of contaminants from soil and surface water bodies (Section 10.2.1).

- Soil, primarily the potential leaching of contaminants from soil to underlying groundwater and nearby surface water, and the potential erosion of surface soil into adjacent surface water (Section 10.2.2).

- Surface water and sediment, including transport of surface water and sediment downstream, and the potential transport of contaminants to groundwater via infiltration from any onsite water bodies (Section 10.2.3).

- Groundwater, including potential migration to NSA Mid-South potable supply wells, and potential transport of contaminants to surface water via discharge of groundwater to lakes or streams (Section 10.2.4).

10.2.1 Air Emissions

Volatile contaminants in near-surface soil and surface water have the potential to migrate to the air by volatilization. The only VOCs detected in surface soil at SWMU 8 were acetone, carbon disulfide, methylene chloride, and toluene. These VOCs were detected prior to the VCA stockpiled soil removal activities. Because of the stockpiled soil removal activities, air emissions are not a route of migration.

10.2.2 Soil

As discussed in Section 2, SWMU 8 reportedly was used for solid and hazardous waste disposal from 1965 to 1980. The wastes were reportedly buried up to 8 feet below the original ground surface. This disposal area was a potential source within the unsaturated zone. Contaminants in soil at SWMU 8 could be released to the environment by one of the following mechanisms:

Volatilization: As indicated in Section 10.2.1, volatilization of contaminants from soils is not considered a migration pathway.

Erosion and Surface Runoff: Contaminants could be transported by erosion of surficial materials during precipitation. Surface drainage across SWMU 8 is northerly toward a wetland that drains to a westward-trending drainage ditch that leads to the west NSA Mid-South perimeter. This drainage ditch intersects a southerly flowing tributary of North Fork Creek. However, the recent grading project in the SWMU 8 area has eliminated erosion as a migration pathway because surface soil was removed, and the area was seeded and will be maintained by mowing. The wetland area is located downgradient, approximately 800 feet northeast of the site. No distinct surface water drainage channels connecting the former site to the wetlands have been noted, but overland flow of stormwater runoff is possible during rain events.

Leaching: The principal processes controlling contaminant migration by leaching are sorption and solubility. Soil contaminants can leach into groundwater from any depth in the unsaturated zone. SSLs (dilution attenuation factor = 1) were exceeded for the following contaminants/constituents during the initial soil investigation:

- Dieldrin in surface and subsurface soil
- Arsenic in surface and subsurface soil
- Barium in surface and subsurface soil

- Cadmium in surface and subsurface soil
- Chromium in surface and subsurface soil
- Nickel in surface and subsurface soil

Contaminants/constituents that were found in surface soil are no longer considered a concern because of the recent grading project. Also, only nickel exceeded its background RC in addition to its SSL. Inorganics that did not exceed both their SSL and background RC are considered to be naturally occurring and are not discussed further.

Summary: The potential fate and migration of the noted contaminants via the identified pathways are discussed in detail in Section 10.4.

10.2.3 Surface Water and Sediment

No surface water has been identified within the estimated boundary of SWMU 8. However, a wetland area has been identified approximately 800 feet to the north of the site. Vegetation coverage and silty soil in the SWMU 8 area most likely will restrict offsite contaminant transfer. Also, a lack of erosional channels at the site suggests surface runoff will not be a factor; therefore, minimal risk is expected at the nearby wetland area. The physical adsorption of potential contaminants (primarily metals) to soil particles and organic material should also limit horizontal migration.

10.2.4 Groundwater

SVOCs and metals were detected in fluvial deposits groundwater. The spatial distribution of these contaminants includes:

- BEHP concentrations of 11 and 8 μg/L were detected in the March 1995 sampling event in monitoring wells GM-11 and 08MW01F, respectively.

- Lead was detected in groundwater samples from all SWMU 8 wells during the March 1995 sampling event ranging from 2.7 to 33.2 μg/L, two of which concentrations exceeded the RC for fluvial deposits groundwater. Other metals detected in groundwater exceeding their RC included copper and vanadium.

Potential pathways for migration of contaminants in groundwater are:

- Advective transport to nearby downgradient shallow (fluvial deposits) domestic supply wells, if any exist or should any be installed.

- Advective transport to the underlying Memphis aquifer.

The potential fate and migration of contaminants by these potential pathways are discussed in detail in Section 10.4.

10.3 Contaminant Persistence

Persistence measures how long a given chemical will exist in a specific medium. Contaminant persistence in environmental media is a function of physical and chemical properties of a given class of compounds, the specific chemicals within each class found in the environment, and properties of the media of concern.

Persistence of primary contaminants detected in SWMU 8 soil and groundwater is discussed below.

10.3.1 Chemical and Physical Properties

The following briefly describes physical and chemical properties used in discussing contaminant persistence, along with the significance of each property in terms of volatilization, sorption,

diffusion, dispersion, biodegradation, and other attenuation processes. Chemical and physical properties relevant to evaluation of fate and transport of organic contaminants include water solubility, vapor pressure, Henry's Law constant, specific gravity, organic carbon partition coefficient, and half-life. Water solubility, adsorption coefficient, and oxidation-reduction processes are properties of interest for inorganic contaminants.

Water Solubility: The solubility of a chemical in water is the maximum amount that will dissolve at a specified temperature. Chemicals with high solubility are generally relatively mobile in water and are more likely to leach from soil. These chemicals tend to have low volatilization potential but may be biodegradable. Chemicals with low water-solubility are more apt to adsorb on soil and are not readily biodegradable.

Vapor Pressure: The vapor pressure of a liquid or solid is the pressure of the gas in equilibrium with respect to the liquid or solid at a given temperature. It represents the tendency of a compound to evaporate. From soil, the vapor pressure determines the volatilization of a chemical to the atmosphere. A chemical with a vapor pressure less than 10^{-6} millimeters of mercury (mm Hg) will tend to associate with particulate matter, whereas those with a higher vapor pressure tend to associate with the vapor phase. Compounds with high water-solubilities show little volatilization from water or moist soil unless they have a high vapor pressure.

Henry's Law Constant: Henry's Law states that the amount (i.e., the mole fraction) of a slightly soluble gas dissolved in a liquid is proportional to the partial pressure of the gas. The Henry's Law constant, with units of atmospheres-cubic meter per mole (atm-m^3/mole), describes a linear relationship between vapor pressure and water solubility, providing a measure of the ability of a chemical to move from water or soil to air. The following describes the relative volatilization that can be expected from a chemical based on the Henry's Law constant:

- greater than 10^{-3} will readily volatilize
- 10^{-3} to 10^{-5} moderate volatilization
- less than 10^{-5} limited volatilization

Specific Gravity: Specific gravity is the ratio the density of a fluid to a standard reference density. For liquids and solids, the reference is the density of pure water. Specific gravity can be used to predict the vertical extent of the immiscible portion of a chemical in water.

Organic Carbon Partition Coefficient: The organic carbon partition coefficient (K_{oc}) is a measure of the degree to which an organic substance will preferentially dissolve in water or in an organic solvent. The typical range of K_{oc} values is 1 to 10^7 milliliters per gram (ml/g), with higher values indicating a greater tendency to remain sorbed. A chemical moving through the subsurface will alternately sorb or desorb from available organic matter in the soil matrix; therefore, the organic content of the soil is critical to predicting the state of contaminants in a soil matrix. The higher the K_{oc} values, the lower the mobility in the subsurface because of the tendency of a chemical to sorb to the fraction of organic carbon (f_{oc}) in the soil.

Distribution Coefficient: The mobilization, volatilization, and transformation reactions of a contaminant in the unsaturated zone are the result of the partitioning (adsorption-desorption) of the contaminant to the phases in the zone. Soil physical and chemical properties affect the ability of a chemical to be adsorbed to soil surfaces. Important in governing the extent to which an organic contaminant will be adsorbed are specific aspects of its chemical structure including molecular size, hydrophobicity, molecular charge, organic molecular fragments that undergo hydrogen bonding, the three-dimensional arrangement, and molecular fragments that undergo coordination bonding. The partition coefficient (or distribution coefficient) mathematically expresses this partitioning. The distribution coefficient (K_d) is a valid representation of the partitioning between liquid and solids, or the ratio of the mass of contaminant in soil to the mass

of contaminant dissolved in the groundwater, and is used in modeling contaminant movement through the subsurface. The larger the K_d value, the greater the sorption to the solid phase. The simplest method for acquiring a K_d value for a specific contaminant is to obtain it from a K_{oc} value listed in literature sources. K_{oc} is analogous to K_d, except that the adsorbing material is considered to be the organic carbon in the soil as opposed to the entire soil matrix. By normalizing K_d on the basis of the organic carbon content of a soil (typically 0.2% to about 3%), a great deal of the variation observed among K_d over different soils can be eliminated; thus, K_d can be estimated from the K_{oc} of the chemical and the amount of f_{oc} in the soil:

$$K_d = K_{oc} f_{oc}$$

K_{oc} values can be used directly as the K_d value for a specific contaminant if the necessary soil data are not available; however, a more accurate estimation can be obtained when adjusting the values with f_{oc} as described above.

Retardation Factor: During transport processes, some degree of contaminant mass transfer by adsorption from the pore water to the solid part of the porous medium while flow occurs will retard the advance rate of the contaminant front. The retardation of the contaminant front relative to the bulk mass density of the porous medium is described by the following equation:

$$R = 1 + \frac{p_b}{n} K_d$$

where:

R	=	retardation factor, dimensionless
p_b	=	bulk mass density of the porous medium, g/cm^3
n	=	porosity, fraction
K_d	=	solid-liquid partition coefficient, ml/g

A retardation factor of 10 would imply that the contaminant plume moves 10 times slower than the local groundwater velocity.

Half-Life: A half-life is the time required for the concentration of a substance to decrease by one-half its initial concentration. The decrease may be caused by various processes, including biodegradation. The half-life values listed for contaminants at SWMU 8 may not be representative of conditions there, but give a relative indication of the persistence of a chemical in the subsurface.

Oxidation and Reduction Processes: Oxidation-reduction (redox) reactions involve the transfer of electrons from one compound to another. Specifically, one reactant is oxidized, and the other reactant is reduced. The terms *pe* and E_H are used to characterize redox conditions. Graphs that show the equilibrium occurrence of ions or minerals as domains relative to *pe* or E_H are known as *pe*-E_H diagrams. These diagrams help describe the state of inorganics in the subsurface, i.e., whether they remain in a solid state (immobile) or an aqueous state (mobile).

10.3.2 Volatile Organic Compounds

There are no volatile organic compounds considered COCs in SWMU 8 soil or groundwater.

10.3.3 Semivolatile Organic Compounds

SVOCs generally have higher molecular weights and lower solubilities, vapor pressures, and Henry's Law constants than VOCs. Because of a higher K_{oc}, SVOCs tend to sorb to solids and are relatively immobile in the environment, leading to a likelihood of greater persistence (thus lower mobility) than VOCs.

SVOCs in Soil: Since no SVOCs are designated as COCs in soil at SWMU 8, persistence of SVOCs in soil will not be discussed.

SVOCs in Surface Water and Sediment: There is no surface water within the SWMU 8 area, so the persistence of SVOCs in this medium is not discussed.

SVOCs in Groundwater: The only SVOC designated as a COC in groundwater is BEHP, which was detected in monitoring wells GM-11 and 08MW01F. BEHP was the only SVOC detected in groundwater at SWMU 8.

BEHP is a man-made chemical used in plastics production to improve flexibility. Also used as a solvent and as an inert ingredient in pesticides, it is a colorless liquid with a slight organic odor, low solubility in water, high tendency to sorb to soil and sediment, and little tendency to volatilize. BEHP is biodegradable under aerobic conditions; however, its persistence in the environment can impede biodegradation. Degradation under anaerobic conditions is much slower than under aerobic conditions. Chemical and physical properties of BEHP are summarized in Table 10-2.

Table 10-2
Chemical/Physical Properties
of BEHP

Molecular Weight	390.57
Vapor Pressure (mm Hg @ T°C)	6.45×10^{-6} @ 25
Solubility in Water (mg/L @ T°C)	0.3 @ 20
Specific Gravity	0.986
K_{oc} (ml/g)	1.0×10^{4} to 1×10^{5}
Henry's Law Constant (atm-m^3/mole)	3.0×10^{-7}
Half-Life — Soil (hours)	high = 550 low = 120
Half-Life — Groundwater (hours)	high = 9,336 low = 240
Soil Screening Level (SSL)Transfers from Soil to Groundwater (mg/kg)	180

10.3.4 Pesticides

Scientific literature on pesticides suggests several important soil-related variables that are critical to their mobility and persistence in soil. Generally, pesticides are relatively immobile. However, these compounds may move by diffusion and mass transport.

The presence of an electrical charge in the soil matrix, the soil pH, and the organic-matter content all affect the adsorbent efficiency of pesticides. Nearly all pesticides, and many other organic substances released to the land surface and into the soil zone, undergo biochemical degradation.

Dieldrin is the only pesticide designated as a COC at SWMU 8. Relevant physical and chemical properties of dieldrin and its persistence in each media are discussed below.

Pesticides in Soil: Dieldrin in surface soil samples indicated a maximum concentration of 9,400 μg/kg and in subsurface soil samples a maximum concentration of 3,600 μg/kg. However, grading in the SWMU 8 area and removal of the stockpiled soil have reduced the presence of dieldrin in surface and subsurface soil.

Dieldrin was formerly used as an insecticide. The presence of dieldrin at NSA Mid-South has been attributed to aerial applications during the 1950s and 1960s. Based on a range of literature values for K_{oc} and f_{oc} in soil, the K_d range for dieldrin is 24 to 71 mg/L. This range is high enough to indicate that adsorption will be a major factor in limiting dieldrin movement. Chemical and physical properties of dieldrin are summarized in Table 10-3.

Table 10-3
Chemical/Physical Properties of Dieldrin

Molecular Weight	380.93
Vapor Pressure (mm Hg @ T°C)	$1.87 \times 10_{-7}$ @ 25
Solubility in Water (mg/L @ T°C)	0.186 @ 20
Specific Gravity	1.75
K_{oc} (ml/g)	1.2×10^4 to 3.55×10^4
Henry's Law Constant (atm-m^3/mole)	5.84×10^{-5}
Half-Life — Soil (hours)	high = 25,920 low = 4,200
Half-Life — Groundwater (hours)	high = 51,840 low = 24
Soil Screening Level (SSL) Transfers from Soil to Groundwater (mg/kg)	0.0002

Pesticides in Surface Water and Sediment: There is no surface water within the SWMU 8 area; therefore, the persistence of SVOCs in this medium is not discussed.

Pesticides in Groundwater: No pesticides were detected in SWMU 8 groundwater.

10.3.5 Inorganics

Unlike organic compounds, inorganics do not degrade in the environment; however, they may change chemical form. They are generally considered to be indefinitely persistent. Metals may interact with soil or other solids by ion exchange, adsorption, precipitation, or complexation. These processes are affected by pH; composition, leachate, groundwater redox processes; and the type and amount of organic matter, minerals, and clay present. Extreme pH and eH (oxidation-reduction) conditions can significantly increase the solubility and mobility of metals. Therefore, the availability of the metal in the medium, the composition of groundwater, and the adsorption capacity of the soil determine its fate and transport in the environment.

Inorganics in Soil: Only nickel exceeded both its SSL and background RC in subsurface soil at SWMU 8. Other inorganics were detected in surface soil, but their concentrations were reduced through mixing and dilution during the recent grading activities. Chemical and physical properties of nickel are shown in Table 10-4.

Table 10-4
Chemical/Physical Properties of Nickel

Molecular Weight	58.69
Vapor Pressure (mm Hg @ T°C)	1 @ 1800
Solubility in H_2O (mg/L)	insoluble
Specific Gravity	8.9
Soil Screening Level (SSL) Transfers from Soil to Groundwater (mg/kg)	7

Inorganics in Surface Water and Sediment: There is no surface water within the SWMU 8 area; therefore, the persistence of inorganics in this medium is not discussed.

Inorganics in Groundwater: Metals have fairly limited mobility in groundwater because of cation exchange or sorption on the surface of soil mineral grains. They can also form precipitates of varying solubility under specific E_H-pH conditions. Metals are mobile in groundwater if soluble ions exist and the soil has a low cation-exchange capacity. They can also be mobile if they are chelated or attached to a mobile colloid. Conditions that promote mobility include an acidic, sandy soil with low organic and clay content.

Although relatively low turbidity was observed during the groundwater sampling events at SWMU 8, the sorption of metals onto mobile sediments may be a transport mechanism for metals in groundwater. The primary inorganic contaminant designated as a COC in groundwater at SWMU 8 was lead, which was detected in five wells at concentrations of 3.8 μg/L (08MW02F),

23.4 μg/L (GM-11), 33.2 μg/L (08MW04F), 3.6 μg/L (08MW01F), and 2.7 μg/L (08MW03F). The aqueous speciation of lead is mainly as Pb^{+2}, which is readily adsorbed by clay minerals. Based on the solubility of lead carbonate ($PbCO_3$) and adsorption affinity of lead, lead mobility is predicted to be very low in the groundwater environment. Under reducing conditions, lead will become even less mobile as insoluble lead sulfide forms.

Lead is a naturally occurring element that is widely dispersed in soil or appears as a discrete mineral. Commercial uses of lead include solder, vehicle batteries, gasoline additive, and alloys. In the environment, lead is adsorbed to soil particles and found as a sulfate ($PbSO_4$), carbonate ($PbCO_3$), or sulfide (PbS), with oxides becoming important when pH exceeds 11. In oxidizing to transitional environments containing carbonate, aqueous lead concentrations are controlled by the solubility of $PbCO_3$, which results in low mobility. Likewise, under reducing conditions in the presence of sulfur, PbS is nearly insoluble and lead mobility is very low. The moderate solubility of $PbSO_4$ results in significant aqueous lead concentrations when carbonate-ion concentrations are low. However, the mobility of lead will be kept quite low because of its high affinity for adsorption sites on organic and inorganic surfaces. Chemical and physical properties of lead are summarized in Table 10-5.

Table 10-5
Chemical/Physical Properties of Lead

Molecular Weight	207.20
Vapor Pressure (mm Hg @ T°C)	1 @ 970
Solubility in H_2O (mg/L)	insoluble
Specific Gravity	11.34
Soil Screening Level (SSL) Transfers from Soil to Groundwater (mg/kg)	NA

10.4 Contaminant Migration

The transport of dissolved contaminants in the environment is controlled by advection, diffusion, and dispersion. Other parameters controlling transport include solubility and sorption, both of which were described earlier. The principal component of contaminant migration in groundwater is advection, the movement of dissolved contaminants with groundwater flow. The remaining two processes, diffusion and dispersion, are both physical and chemical processes affected by site-specific factors. These factors are groundwater velocity, formation heterogeneity, and the retardation factor of a chemical.

This section discusses the processes affecting transport of contaminants in soil, surface water and sediment, and groundwater. The discussion will focus on transport of contaminants in soil and groundwater, since no surface water existed within the boundary of SWMU 8.

10.4.1 Factors Affecting Contaminant Migration

Advective transport in groundwater is the movement of contaminants along with flowing groundwater in porous media. Diffusion is a molecular mass-transport process in which solutes move from areas of higher concentration to areas of lower concentration. The diffusion process is independent of groundwater flow. Dispersion is a mixing process caused by velocity variations in the porous media. Dispersion causes sharp fronts of contaminants to spread, diluting the solute at the advancing edge of the front. In most environmental settings, including SWMU 8, advection is the process that drives contaminant migration in groundwater. Contaminant migration in soil is shown to be minimal, and probably not significant given the concentrations of contaminants measured in groundwater and the permeability of soil at SWMU 8.

10.4.2 Contaminant Migration in Soil

As detailed in Section 10.3, soil contamination at SWMU 8 is limited to localized and generally low concentrations of pesticides and possibly metals, although metals identified at SWMU 8 are

probably naturally occurring. Because most organic and inorganic contaminants tend to sorb to soil, these contaminants are generally expected to persist in soil over time. Migration within the soil medium is essentially negligible after gravity drainage of liquids and leachable fractions of contaminants have been removed.

Three potential contaminant migration pathways are recognized from soil to other media: 1) volatilization of VOCs, 2) erosion and transport of surface soil in runoff, and 3) leaching to groundwater via infiltration of precipitation.

As discussed in Section 10.2, contaminant transport by volatilization and air movement is not an important migration pathway at SWMU 8. The potential exists for contaminant migration in surface soil by surface-water transport or erosion, however, during the recent removal and grading at SWMU 8, surface soil contaminants were removed. Leaching to groundwater is discussed below (see *Infiltration*).

10.4.3 Contaminant Migration in Surface Water and Sediment

No surface water (bodies of water, active streams, etc.) exists at SWMU 8. Therefore, contaminant migration to surface waters and/or sediment is not discussed.

10.4.4 Contaminant Migration in Groundwater

Previous sections have described the geology and hydrogeology associated with SWMU 8 and discussed the nature and extent of contaminants/constituents identified in groundwater during the investigation. Groundwater, the most complex environmental medium investigated during the RFI, was the transport medium in which most contaminants could migrate. As detailed in Sections 10.3.2, 10.3.3, and 10.3.4, groundwater contaminants included SVOCs and possibly metals. The primary metal identified was lead. The primary SVOC contaminant was BEHP. The migration pathway for these substances in groundwater is advective flow from loess groundwater

to groundwater in the fluvial deposits. Because no significant groundwater was observed in the loess and SWMU 8 is on a local topographic high, groundwater transport downward from the loess is believed to be low.

The transport of SVOCs in groundwater depends primarily on the chemical solubility and the organic content of the soil. The transport of inorganics in groundwater depends primarily on the adsorption of inorganics onto soil pore water. BEHP has a low solubility and is, therefore, relatively immobile in groundwater.

Infiltration: Precipitation falling at the SWMU 8 area can move vertically through subsurface materials, form leachate, and migrate through the unsaturated zone to groundwater. SVOCs were detected in monitoring wells, along with metals, in excess of the background RC for fluvial deposits groundwater. These data indicate that precipitation percolating through SWMU 8 subsurface materials may have served as a source for organic and inorganic contaminants in groundwater. However, the SVOC and metals identified in soil at SWMU 8 have been removed.

Advective Flow: Migration of dissolved substances is the most probable pathway for contaminant movement in fluvial deposits groundwater. SVOC contaminants are discussed below in terms of geographic source areas. Inorganics are not discussed because of their lack of solubility; thus, transport of inorganics via groundwater is negligible.

SVOCs in Groundwater: BEHP is the only SVOC considered a primary contaminant in groundwater at SWMU 8, specifically in fluvial deposits groundwater. Geographic occurrences in groundwater do not indicate a likely migration pathway, with detections noted in only two monitoring wells. BEHP was detected at GM-11 and 08MW01F at concentrations of 11.0 μg/L and 8.0 μg/L, respectively. These concentrations are greater than the 4.8 μg/L tap water RBC. The absence of BEHP in other monitoring wells suggests that BEHP, if present in

the soil, may be strongly sorbed to soil material and may move much slower than local groundwater velocity, as discussed below. Because a source of BEHP is unknown at SWMU 8, and BEHP was detected only in the two monitoring wells, it is assumed that migration of BEHP in the aquifer would be minimal. Furthermore, detections of BEHP likely are attributable to the use of latex gloves during sampling activities or to the plastic (PVC) monitoring well casing.

Inorganics in Groundwater: Most substances detected in SWMU 8 groundwater were inorganics, and most of the inorganics were detected in GM-11. Only lead was designated as a COC per the HHRA. The geographic locations of monitoring wells at SWMU 8 and the direction of groundwater flow on September 27, 1995, may indicate a migration pathway to the west-northwest. However, March 1995 data indicate the groundwater flow direction was to the northeast. These changes in groundwater flow direction may be attributed to seasonal shifts in recharge to the fluvial deposits. Despite the presence of inorganics in groundwater at SWMU 8, it is expected that these substances are not capable of significant mobility in the aquifer.

10.4.5 Potential Receptors

The primary receptor impacted at SWMU 8 is fluvial deposits groundwater, which is not a source of drinking water in the NSA Mid-South area. The relatively low concentrations of the contaminants/constituents and the amount of dilution (specifically the organic compounds) minimize the impact to any potential receptors.

Based on the chemical properties of the inorganics and the pesticide dieldrin, physical properties of the soil, and the depths at which these contaminants were detected at SWMU 8, they are not expected to leach in appreciable quantities (if at all) into underlying groundwater. The physical adsorption of the contaminants to soil particles and organic material greatly limits horizontal migration. If the metals detected in SWMU 8 groundwater are not naturally occurring, they are still likely to undergo dilution and possibly natural filtration before reaching a potential receptor.

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11.0 CONCLUSIONS AND RECOMMENDATIONS

The objective of the SWMU 8 RFI was to assess the nature and extent of contaminants, if any, in soil and groundwater by completing a soil and groundwater investigation, a human health risk assessment, an ecological risk assessment, and a fate and transport assessment. Since the original RFI, the VCA removal of the stockpiled soil has occurred along with the completion of the runway grading project and the removal of 138 ethylene oxide cylinders. The following conclusions and recommendations are based on the present site condition.

Conclusions

Human Health Risk

Prior to grading, dieldrin was the only chemical of potential concern (COPC) identified in soil, while lead and BEHP were identified as COPCs in groundwater. As discussed in Section 8, site-wide risk estimates for these substances were within the USEPA acceptable risk range of 1 in 10,000 to 1 in 1,000,000 excess cancer risk, except for one dieldrin concentration in soil which resulted in a risk estimate of 2 in 10,000. The hazard index (HI) for acetone exceeded the USEPA threshold of 1 at one sample location.

After removing the SWMU 8 hillside, the site was graded and seeded, and will be maintained by mowing. The most likely exposure pathway for potential soil contaminants would be maintenance workers who mow the grass and incidentally ingest soil and dust. These workers would be exposed less frequently than default site workers, and exposure would occur only during the mowing season. Maintenance workers would also be exposed to soil concentrations which have been diluted because of the past removal actions and the spreading of soil throughout the SWMU 8 area, which would further reduce any estimated risk.

The excavation of SWMU 8 soil and the associated dilution of contaminant concentrations with clean soil during the grading project would be expected to reduce the concentrations reported in Sections 6 and 7, thereby reducing corresponding risk estimates (Section 8). The dilution amount

is unknown, so current risk could not be estimated, and risk estimates based on pre-existing conditions would not represent current or future conditions. SWMU 8 site conditions have changed in ways that would be expected to limit exposure and reduce corresponding risks.

Ecological Risk

The habitat that once supported terrestrial wildlife has been eliminated by the removal of stockpiled soil (containing most of the contamination) and grading. SWMU 8 has been seeded and will be maintained as a mowed lawn; therefore, no quality habitat is available and there are no exposure pathways to assess.

Contaminant Transport

The primary receptor impacted at SWMU 8 is fluvial deposits groundwater, which is not a source of drinking water in the NSA Mid-South area. The relatively low concentrations of potential contaminants and the amount of dilution (specifically the organic compounds) minimize the impact to any potential receptors.

Based on the chemical properties of the inorganics and the pesticide dieldrin, physical properties of the soil, and the depths at which these contaminants were detected at SWMU 8, contaminants are not expected to leach in appreciable quantities (if at all) into underlying groundwater. The physical adsorption of the contaminants to soil particles and organic material greatly limits horizontal migration. If the metals detected in SWMU 8 groundwater are not naturally occurring, they are still likely to undergo additional dilution and possibly natural filtration before reaching a potential receptor.

Recommendations

No further action is recommended at SWMU 8, because current site conditions have greatly diminished the potential for excess human or ecological risk.

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Appendix A

1994 EM Survery

TECHNICAL MEMORANDUM

Geophysics Investigations at SWMU 8 (Cemetery Landfill) Naval Support Activity Memphis, Millington, Tennessee

In support of a RCRA Facility Investigation
CTO-094, contract No. N62467-89-D-0318

for
The Department of the Navy
Southern Division Naval Facilities Engineering Command
North Charleston, South Carolina

by
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Figure 5 FDEM Detail Data 19

EXECUTIVE SUMMARY

In support of future transfer of property at Naval Support Activity (NSA) Memphis, EnSafe/Allen & Hoshall conducted a geophysics study at SWMU 8, the Cemetery Disposal Area, on the northside of the base. The purpose of the work was to identify and map the disposal area, whose location and contents were poorly known, and thus to provide more focus to follow-up drilling and sampling.

Brush-clearing for the geophysics work identified a previously unknown bermed area which appears to be the disposal area. However, the geophysics investigation in the bermed area and in large surrounding areas shows no evidence of significant disposal. In particular, little metal seems to be buried at the site. These findings and supplementary evidence collected during this investigation suggest that waste disposal is minimal at this site. Follow-up sampling confirms this finding.

1.0 INTRODUCTION

The northside of Naval Support Activity (NSA) Memphis will be transferred to civilian control after a RCRA facility investigation (RFI) of 28 potentially contaminated sites, known as solid waste management units (SWMUs). The goal of the RFI is to characterize the nature and extent of any contamination found, and to recommend any necessary remedial actions. EnSafe/Allen & Hoshall (E/A&H) has been retained under the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract to perform RFI drilling and sampling of soil and groundwater.

Geophysical studies have been conducted at 11 sites across the base, and a large-scale geophysical investigation of geology is being completed. This technical memorandum details the results of a geophysical investigation at SWMU 8, the Cemetery Disposal Area.

Geophysics was employed at SWMU 8 to:

- Map the extent of the disposal area in plan view to help optimize soil and groundwater sampling locations.

- Characterize the types of buried materials, such as metals versus rubbish.

The frequency domain electromagnetics (FDEM) technique was selected for this site because it can be used to detect disturbed soil as well as metal debris.

2.0 SITE DESCRIPTION

2.1 Site Setting

NSA Memphis is a Navy training facility 30 kilometers north of Memphis, Tennessee, near the City of Millington. Over the years, wastes generated at the facility have been landfilled at several locations. Wastes generated on the relatively less developed northside of NSA Memphis went either to the Northside Landfill (SWMU 60) or reportedly to the Cemetery Disposal Area

(SWMU 8), which lies atop a ridge-like bluff on the far north side of NSA Memphis. It is just northeast of the tiny, historic Chamberlayne Cemetery, from which the site derives its name. The terrain is hilly and has been altered by extension of the nearby jet runway, installation of roads, and disposal of debris. The ground is hummocky where bulldozers and other large vehicles have operated. Much of the area has been cleared in the past or in preparation for this study.

2.2 Site History

The Cemetery Disposal Area was allegedly active from 1965 to 1980, a period during which it is reported to have received scrap metal, waste chemicals, waste oil, cleaning solutions, transformers, capacitors, and three 25-pound canisters of ethylene oxide. Waste was reportedly buried as deeply as 8 feet below the surface.

The area has been overgrown by vegetation and the location of the reported disposal area has been obscured. Previous environmental documents (Harmon, 1983; Geraghty & Miller, 1985) show a 5- to 8-acre disposal area on the north side of a road ending at the site, but the information source is not known and the maps are not detailed enough to locate the disposal site. Air photos available in 1994 were of minimal help. The uncertainty of the location and size of the dump warranted the use of geophysics before any drilling and sampling.

While clearing brush for the geophysics work, a distinct semi-circular berm was discovered north of the end of the access road leading to the site. The berm is clearly artificial, and encloses an area measuring about 140x180 feet. Inside the berm the land is fairly flat; outside, the topography slopes away at a moderate angle. No partially buried debris is visible at the surface in the area, and none was encountered in post-geophysical drilling. Re-examination of a January 1976 air photo showed the berm and surrounding trees; a 1971 photo shows hints of the berm, although the small scale of the print makes it difficult to outline precisely.

The engineered nature of the berm suggests that it could have been the reputed disposal area. George Robinson, the former director of the base's Environmental Division, identified this area as being the disposal area during a field trip to the site (Phil Coop, personal communication, 1994).

Outside the bermed area, the soil has been disturbed in some areas and some steel cables are observed partially buried.

Three monitoring wells were installed in the fluvial deposits during the Confirmation/Verification Study in 1985. No volatile organic compounds or cyanide were identified in sediment samples, and no metals exceeded U.S. Environmental Protection Agency (USEPA) standards for drinking water except chromium, identified at 0.077 milligrams per kilogram (mg/kg) in monitoring well GM-11 (G&M, 1985). No soil was tested. In addition, no landfill-like waste was reported during drilling, and none has been reported at the surface.

2.3 Site Geology

NSA Memphis is east of the axis of the Mississippi embayment, which locally has a gentle southwesterly dip. The stratigraphy includes roughly 1,000 meters of unconsolidated and semi-consolidated sediments overlying Paleozoic bedrock (Parks, 1990). The surface unit at SWMU 8 is loess, underlain sequentially by fluvial deposits, a silt and clay unit known as the Cockfield Formation, and a tight clay known as the Cook Mountain Formation. The Cook Mountain, and to a lesser degree the Cockfield, form an aquitard which regionally protects the primary drinking water aquifer in the underlying Memphis Sand.

Shallow water-bearing zones are found in the loess and fluvial deposits. Groundwater flow in these surficial units is strongly controlled by local topography. Because SWMU 8 sits atop a ridge, near-surface groundwater flows radially away from the site.

3.0 FREQUENCY DOMAIN ELECTROMAGNETICS

3.1 Description of FDEM

FDEM was used to map buried drums, tanks, utility lines, old trenches, construction rubble, extent of landfills, etc. Many FDEM studies, including the present one, use the EM-31 instrument manufactured by Geonics, Ltd., which consists of a 2-meter long boom with a transmitting antenna at one end and a receiving antenna at the other. The transmitting antenna is energized by a current pulse, which propagates an electromagnetic field into the ground. As the field encounters electrically responsive materials in the ground, the signal received by the receiving antenna at the surface is distorted. These distortions can then be interpreted to develop a graphical image of the subsurface.

The EM-31 can penetrate to 6 meters below ground surface. It is primarily a profiling device and does not yield detailed vertical resolution, although it can perform limited sounding by varying the instrument height and dipole orientation. Resolution in plan view is often to within a meter or so. Signals sensed by the instrument's electronics are sent to a field data recorder, then downloaded to a separate computer for processing and plotting.

Two parameters are measured: conductivity and in-phase. Conductivity is a measurement of how well the earth conducts electrical current. Dry materials yield low conductivities, while wet materials yield high conductivities. Saturated clays are particularly conductive. When present, buried metals may also increase the effective conductivity. Conductivity data have units of milliSiemens per meter (mS/m).

The in-phase component is a ratio of the secondary to primary field strengths. The in-phase component is primarily sensitive to metals, not soil moisture. Nominally it is nearly zero in the absence of metals. It can be negative or positive over metallic objects, depending on the relative geometries of the conductor and instrument. In-phase has units of parts per thousand (ppt) of the secondary field strength.

3.2 Quality Assurance Procedures

Various effects from instrument electronics and logistical practices can be observed in FDEM data. Field tests at carefully selected base stations are routinely made for each of these effects to determine their impact on the interpretation.

Instrument Calibration — Equipment was calibrated at the base station according to the manufacturer's instructions every morning before data acquisition. Although an absolute calibration is done at the factory, the field calibrations ensure that the instrument is functioning at the expected level of accuracy and precision.

Short-Term Data Precision — Data are repeated frequently at the base station to monitor data precision. Periodically during data acquisition, the instrument is returned to the base station for a burst of 10 successive measurements, or, alternatively, for a remeasurement of 10 consecutive stations along a predetermined line. The short-term precision, due primarily to instrument noise, is estimated from a statistical analysis of the base station burst measurements. This determines the best precision one can expect from the instrument, and can be compared to the precision needed to detect the target.

Long-Term Precision — This is primarily controlled by instrument drift, which occurs because of slight response changes over time in the instrument's electronics. Drift is always much greater than the short-term precision. However, since it occurs slowly with respect to data collection, recognition of small anomalies is not compromised. Instead, drift contributes a subtle regional gradient to the data set which can be readily recognized.

Drift is monitored by returning frequently to the base station for repeat measurements. Drift curves presented in this report have their minimum and maximum vertical scales set to represent $\pm 10\%$ of the conductivity value and ± 1 ppt of in-phase, considered to "high drift" bounds with respect to the types of targets sought at a landfill. While it is possible to do a first-order

correction for drift, this time-consuming process is seldom beneficial to the interpretation, and thus is not done except in extreme cases.

Spatial Aliasing — Aliasing is an undersampling effect when the data density is too sparse to reliably detect small targets in the presence of noise. To avoid aliasing, the targets for each site were carefully identified and a minimum practical target size was determined. The grid spacing was then chosen to resolve the minimum target size. At SWMU 8, a 10x10-foot grid was considered adequate for the various targets.

Instrument Response Time/Nonreciprocity Effects — On large-scale surveys, the instrument is usually advanced at a rapid rate along predetermined lines, and in many cases the work will proceed up one line and down the next, reversing the relative antenna directions. This procedure causes slight distortions in the plan-view data plots for two reasons. First, the instrument has a short time delay, so that there is a small shift between the point where the data are recorded and where a true value is recorded. Second, there is also a shift in plot position depending on whether the antenna is pointed one way or the other (a nonreciprocity effect). These two factors tend to artificially shift an anomaly in the direction of travel. The problem can be recognized as a wavy pattern in a linear anomaly due to a pipe or similar feature. Such effects do not significantly impact the interpretation, but must be recognized when viewing the plan plots.

4.0 SWMU 8 GEOPHYSICAL SURVEY

4.1 FDEM Implementation

To prepare for the geophysics work, the site was cleared of brush and a 100x100-foot grid was surveyed, using monitoring well GM-12 as a reference. The grid node coordinates were not available during the geophysics work, so the nodes were assigned an arbitrarily selected coordinate system. The arbitrary coordinates have been preserved throughout this report, but may be converted to true state plane coordinates by a simple translation: add +815,225 in

easting and +396,569 in northing. This translation is only approximate but is sufficiently accurate to locate the FDEM grid on the present NSA Memphis base map.

Work was done in three phases. *Phase 1* involved a 10x10-foot data grid, obtaining conductivity and in-phase data with a vertical dipole configuration. Phase 1 covered a large area surrounding the berm and extending to bounding treelines, the runway easement, and farmed fields. The work started with detail gridding in the central part of the site. When no large anomalies were encountered, a coarse 50x100-foot screening grid was run over the whole site to try to focus additional detail work. East-west and north-south lines were involved in this procedure; antenna orientation was determined by line orientation. When this also showed no anomalies, the coarsely gridded area was detailed with the 10x10-foot spacing to ensure smaller features had not been missed. This, too, did not produce an anomaly that could be attributed to buried material.

The decision was then made to confirm the results with a high-precision test over the bermed area, referred to in this report as *Phase 2*. Data were obtained in a 50x200-foot zone over the suspected fill area and off its east and west edges. A 10x10-foot grid was run using the vertical-dipole configuration with both east and north orientations. Several stringent quality control measures were employed to increase the sensitivity of this test, as outlined below.

Finally, in *Phase 3*, areas selected for direct-push investigation were detailed with geophysics to help focus sampling outside the landfilled area. Data were obtained at 5-foot intervals surrounding each push point, using vertical dipoles and a single orientation.

4.2 Quality Control

Two quality control methods were employed at SWMU 8. For all three phases of work, a baseline (line 1000E, stations 1000 to 1100) was occupied at the start and end of data acquisition, and periodically during the day. During Phase 2 work, a secondary base station was

established at station 900E/1300N. A burst of 10 rapid measurements was made before each line and at the end of Phase 2 acquisition.

Short-Term Precision was evaluated during Phase 2 acquisition by averaging the standard deviations for each of the six secondary base ties and adding the standard deviation of the standard deviation. This gives the short-term precision envelope within which most individual measurements will fall. The results are ± 0.081 mS/m for conductivity, and ± 0.016 ppt for in-phase. These are relatively good numbers for EM-31 production work and are far smaller than the typical anomalies expected over a landfill.

Long-Term Precision is primarily controlled by instrument drift. Drift curves for Phase 1 and Phase 2 acquisition are shown in Figure 1. Erratic changes are observed, probably because of instrument jostling over the rough terrain, but all data fall well within the acceptable bounds. Note that the starting levels for conductivity and in-phase change from day to day, despite careful calibration and zero-leveling procedures. The magnitude of drift is certainly large enough to be noticed in plan-view plots, as will be observed subsequently. However, the largest daily drifts are 1.09 mS/m, or 6.5 percent of the measured value (taken to be 16.7 mS/m) for conductivity and 0.6 ppt in-phase. In contrast, disturbed soil typically gives an anomaly of 20 percent or more in the conductivity parameter; buried metals produce significantly larger responses in conductivity as well as in-phase responses often exceeding 10 ppt. Hence, instrument drift is far less than the expected anomaly from landfilling, and does not degrade the interpretability of the data. Consequently, no drift correction has been applied to the data.

Spatial Aliasing — Moderate aliasing effects in a 10x10-foot grid are expected to be present in searching for small, individual pieces of buried debris but not for identifying a large disposal area.

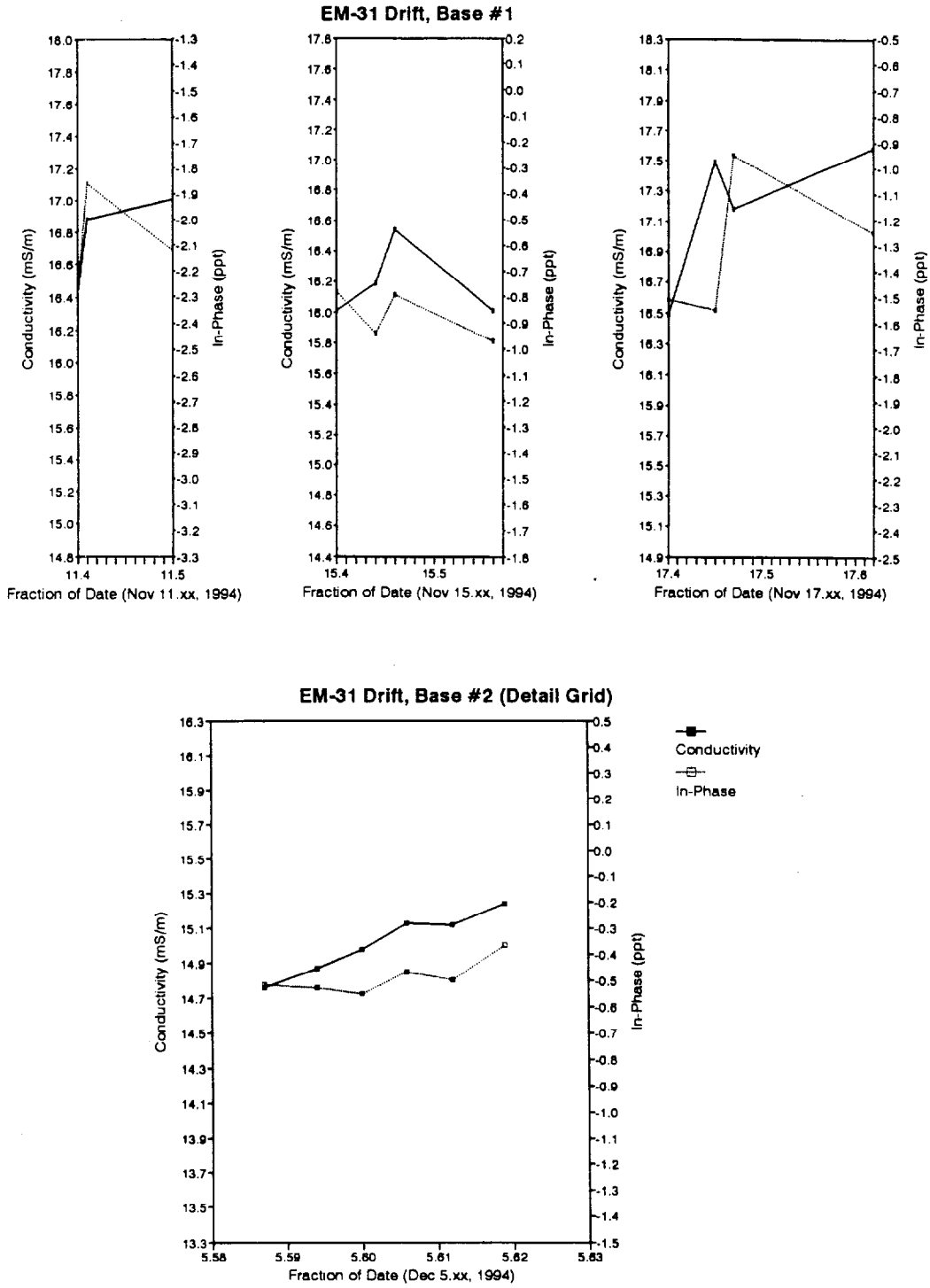

Fig. 1. EM-31 drift plots during data acquisition at SWMU 8. Data using Base Station #1 (top three plots) correspond to the Phase 1 data as described in the text; those using Base #2 (lower plot) correspond to the detail gridding of Phase 2. Note the x-axis scale change between upper and lower plots.

Summary — The SWMU 8 data have a sufficient degree of precision to identify the disposal area, if it has an electrical signature.

4.3 Data Presentation

Phase 1 (Main Gridding) — Figures 2 and 3 show the FDEM conductivity and in-phase data, respectively. Positive anomalies are warm in color, and negative ones cool, as indicated by the color scale bar to the right of each plot.

Before proceeding to the interpretation, several features in the plots must be explained. As noted in Section 4.1, the data were obtained on widely separated lines and then key areas were infilled, resulting in a spidery appearance to the plots. In addition, the in-filling work was done in widely separated time periods, during which drift occurred. This creates sudden drift jumps between some lines, producing a waffle-like pattern to the plots. For example, the vertical strip of darker green on line 1050E in the conductivity plot is not a real feature but a drift artifact. The small amplitude of these artifacts scarcely affects the interpretation, but is something to bear in mind when looking at the data.

Figure 2 shows that conductive features are strongly associated with low-lying, wet areas (the clear overlay shows the topography). Both high- and low-conductivity anomalies, together with in-phase anomalies, are associated with occasional culture observed at the surface, indicated as black rectangles or open circles labeled "junk." The observed culture includes steel cables, a metal sign, a culvert, and a few pieces of metal debris — none of which suggests a disposal area.

No clearly defined conductivity or in-phase anomaly delineates the bermed area. Conductivities increase to the west, but this increase is attributed to the lower elevations in that direction. In any case, higher conductivities outside a fill area is the opposite of what one expects, based on experience. Increased conductivities also persist along an irregular southeast-trending line south

of the bermed area, for which there is no topographic explanation. However, its general appearance and amplitude are not inconsistent with other local anomalies in the area. A walkover of this area identified no culture or other sign of disturbance. The anomalies are strongly emphasized in the colors selected for the plot, but in fact represent a 15 percent change from background — hardly an overwhelming effect.

The only clearly defined local anomalies are associated with known metal culture.

Figure 3 shows the in-phase data. Vertical color banding due to instrument drift is clearer in these data due to the choice of color scaling. The only significant anomalies are those associated with known metal culture. In particular, note the absence of any anomalies not attributable to culture around the bermed area or in the conductive area south of it. Nowhere in the data might one interpret a broad zone of significant buried metal.

Phase 2: Detail Gridding of Bermed Area — The Phase 1 work showed that any electrical signature over the bermed area is, at best, subtle. To confirm the Phase 1 results, high-precision data were collected in the Phase 2 grid (Figure 4).

Figure 5 shows six sets of data: conductivity and in-phase for the two dipole orientations, and anisotropy of conductivity and in-phase. Anisotropy is defined as the difference between data obtained with the east-facing antenna boom and a north-facing boom. Local, linear buried features will show nonzero anisotropy, while broader features will show zeros (except at their edges). The anisotropy plots are drift-free since the drift common to each set of orthogonal measurements is removed by taking the difference.

Conductivity shows a change at the berm (roughly at 840E) which is more clearly seen here than in Phase 1 data because of the color enhancement in this particular plot. More conductive values found outside the berm are attributed to topographic effects (downslope data being closer

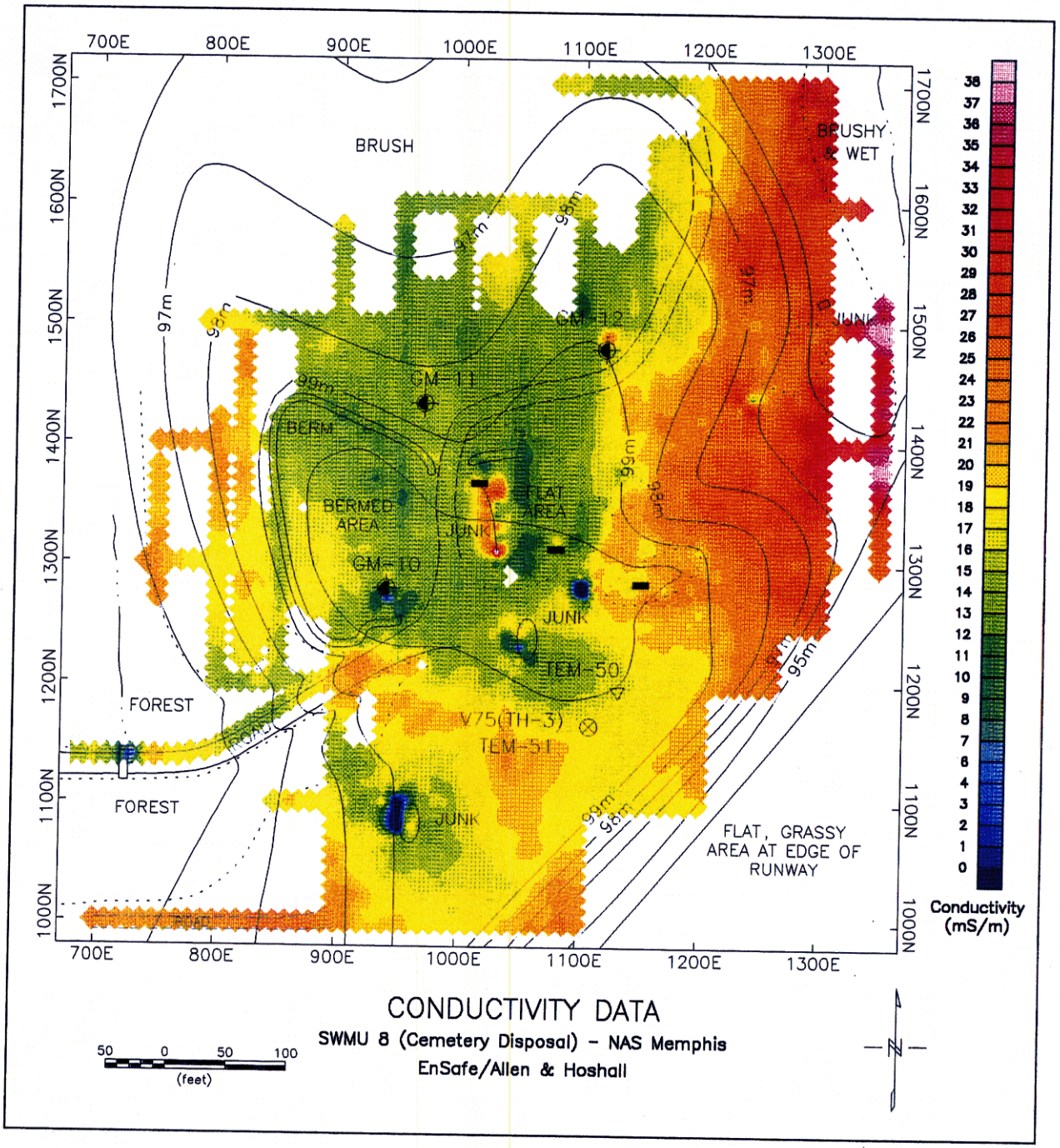

Fig. 2. Conductivity data. Warm colors indicate more conductive areas. Note the absence of a conductive anomaly over the bermed area, which would be typical of a major disposal area. Small, strong anomalies are associated with culture. The white gaps in the data are explained in the text.

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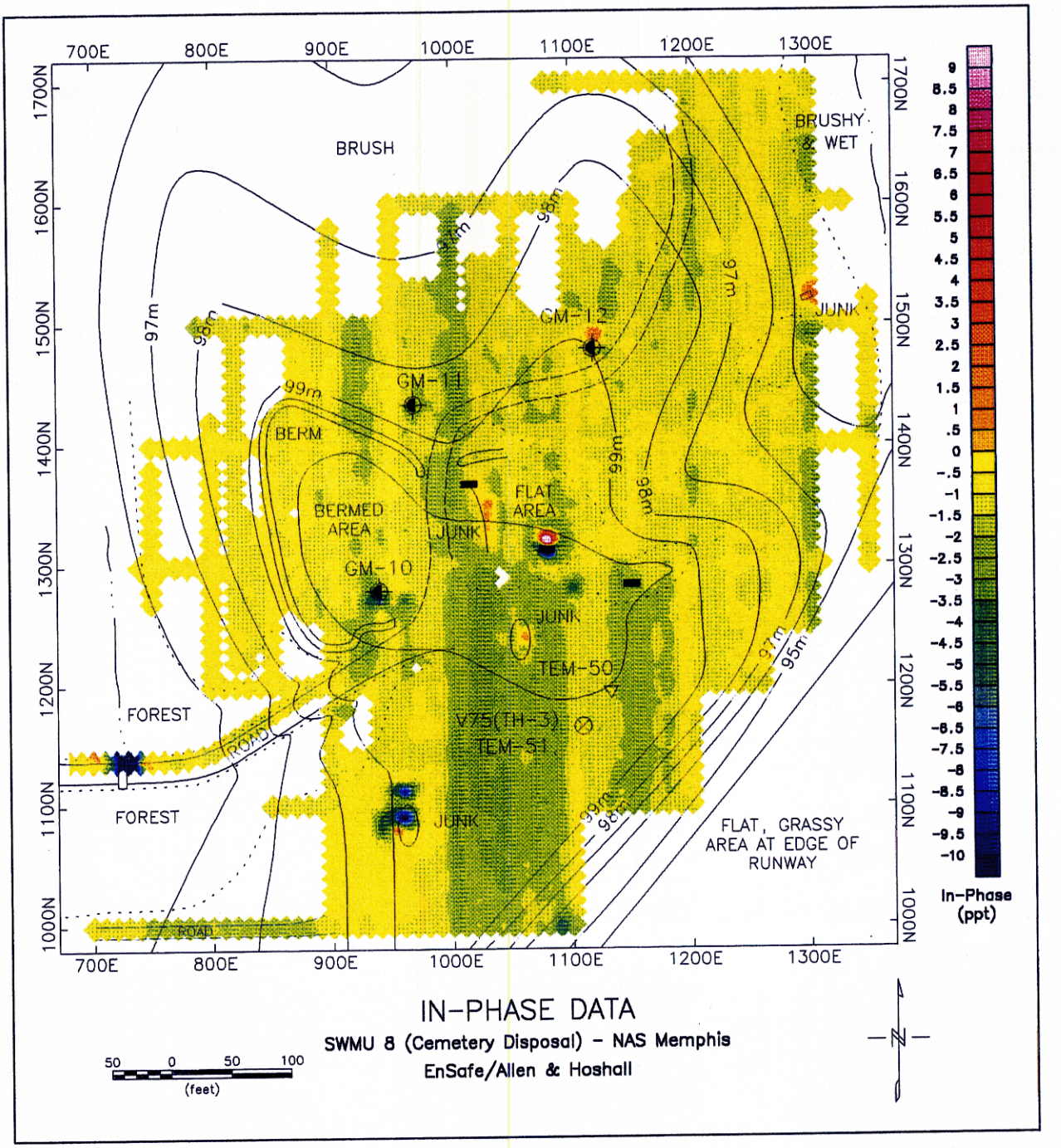

Fig. 3. In-Phase data. Strong metal responses could be negative (deep blue) or positive (red to purple). Note the absence of a metal response over the bermed area. Small anomalies are associated with surface culture.

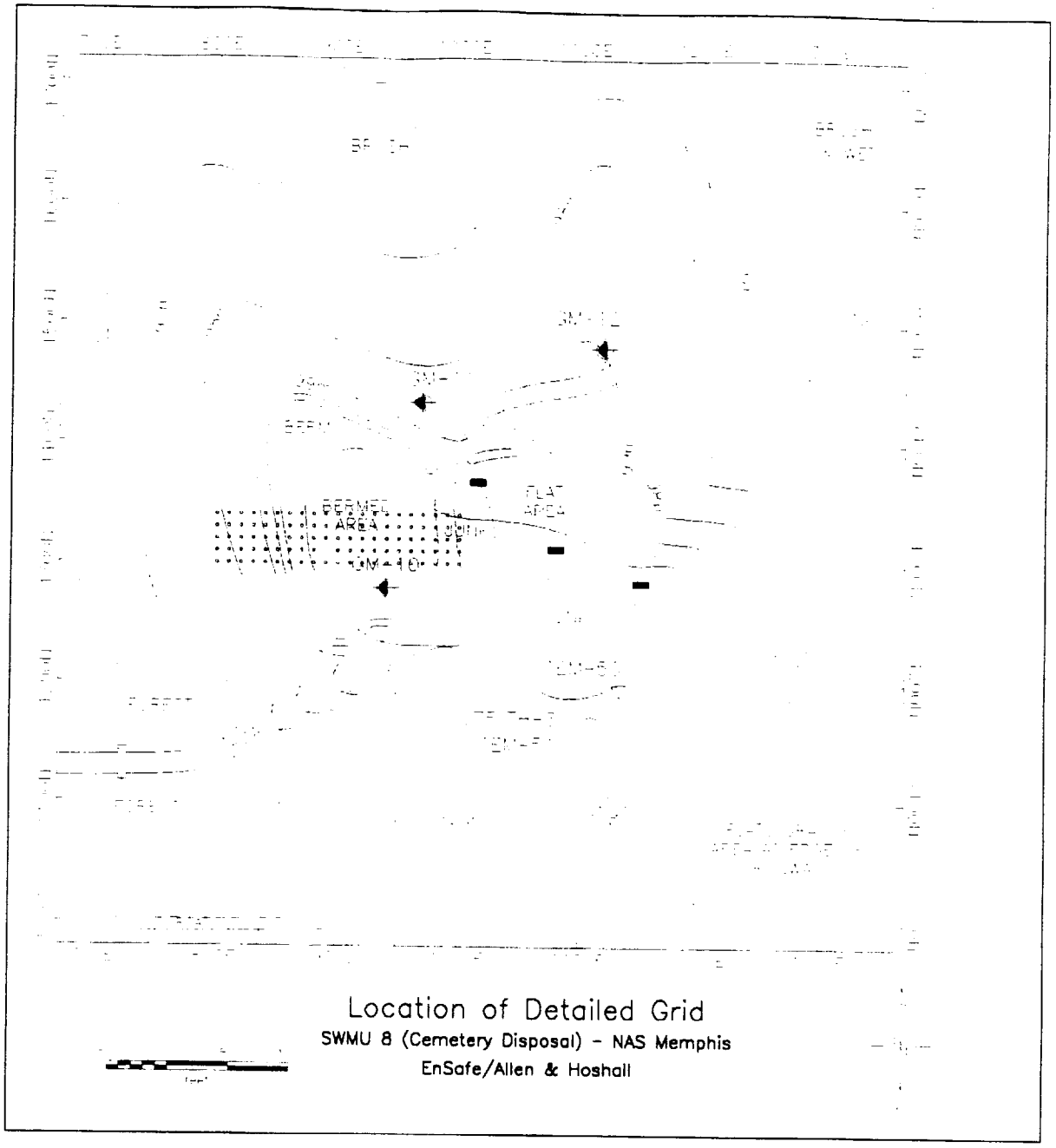

Fig. 4. Location of the Phase 2 detail grid (gray).

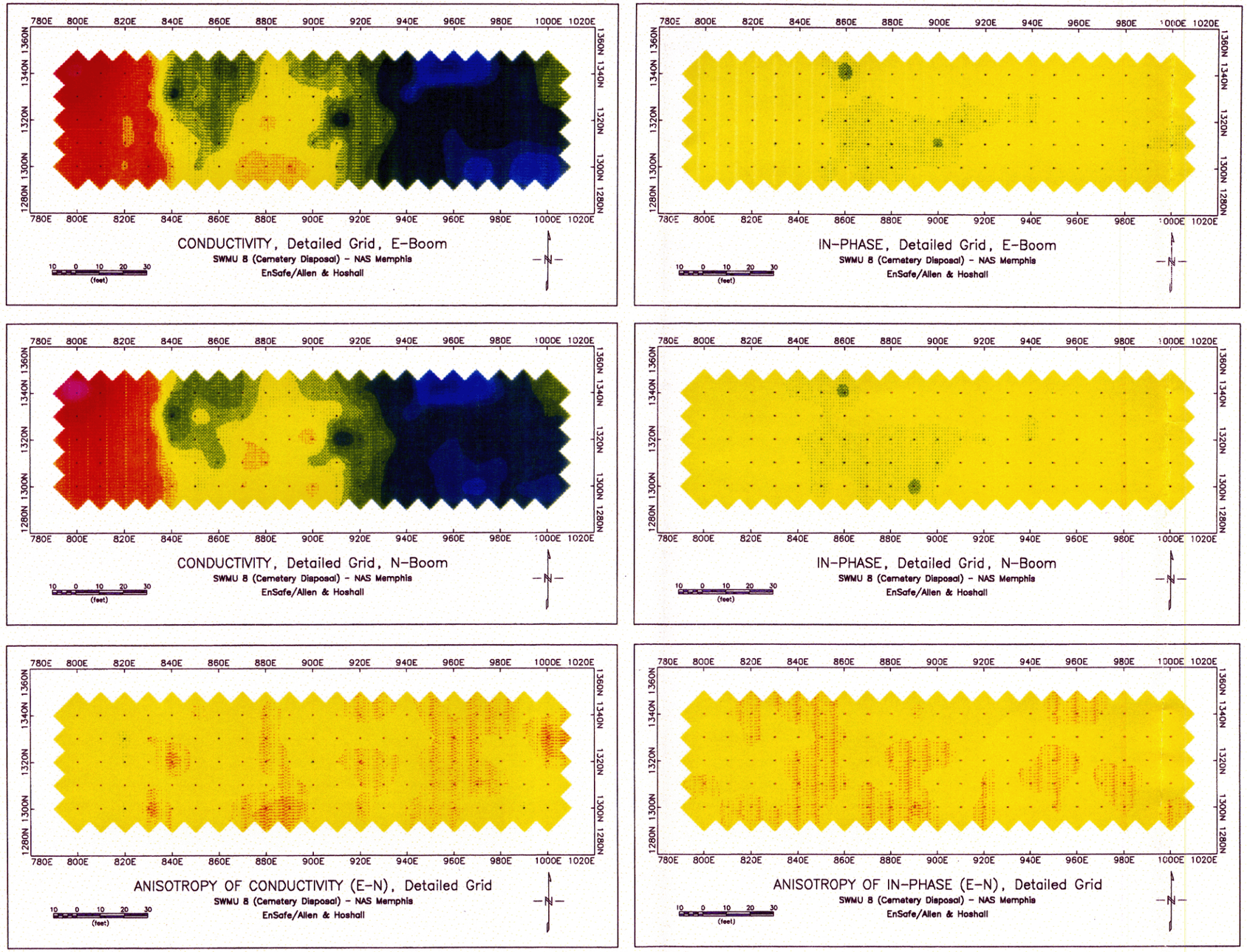

Fig. 5. Phase 2 detail grid data. Conductivity data have a color scale ranging from 10 mS/m (blue) to 20 mS/m (purple); phase has a scale from -5 ppt (blue) to +5 ppt (purple). Anisotropy data, which are the difference in measurements at the two orientations, have color scales of -5 to +5 for both parameters. The berm is at about 850 E.

00616E07Y

to the water table). Just east of the berm a subtle zone of lower conductivity might be aligned with the berm. However, this and other features within the bermed area are very subtle. Certainly the eastern edge of the bermed area is not at all defined by the conductivity data.

As in Phase 1, the Phase 2 in-phase data show no significant change corresponding to the bermed area. At this level of data precision and color display, even relatively minor metal content (say, small pieces of rebar, scrap aluminum, etc.) should have shown up in these data.

The anisotropy plots have a very narrow color range which near the level of inherent instrument noise. Semicoherent patterns in these plots bear little relation to the bermed area. No linear features of the type expected over buried two-dimensional objects are observed, although there are hints of a north-south grain to the patterns. Instead, the random anomaly patterns are probably the result of subtle, very local, and probably near-surface variations in soil electrical properties, possibly related to the methods of leveling the bermed area.

Phase 3: Detail Grids — All nine detail grids showed low-amplitude responses consistent with minimally disturbed areas, and consistent with the larger grid of Phase 1.

4.4 Interpretation

The data suggest minimal to nonexistent soil disturbance and virtually no metal content within the bermed area or anywhere within the area of data coverage. A narrow zone of possible soil disturbance but no metal content is suggested south of the bermed area, but this could be related to natural conductivity variations at the surface.

The lack of a geophysical response has three possible explanations. First, it is possible that the area was not used for significant landfilling or dumping. This is supported by several findings:

- no buried waste has been encountered in drilling 9 monitoring wells and 11 direct push borings done at the site to date.

- no significant contaminants have been found in soil or groundwater at the site.

- no landfill waste has ever been noted in extensive site walkovers or brush clearing.

The second possibility is that non-metallic waste is present but subsequent compaction has equalized any soil-moisture contrast between fill and indigenous sediments, resulting in no conductivity contrast. The findings just noted tend to reduce the likelihood of this possibility.

Third, it is possible that the landfill is somewhere else, outside the studied area. This is unlikely because of direct air-photo information and the testimony of eyewitnesses.

Based on the available data, it is likely that SWMU 8 is not a significant disposal area and does not present an environmental hazard.

In addition, no small, local anomalies attributable to buried objects were identified in the data. If any cylinders were buried at the site as suggested, they were not observed with the geophysics. Such objects could have been overlooked if they are small and deeply buried, but large surficial objects should have been detected.

5.0 REFERENCES

Coop, P. (1994) personal communication.

Geraghty & Miller (G&M) (1985). NACIP Program Confirmation Study, Verification Phase, NAS-Memphis. Tampa, FL.

Harmon Engineering and Testing (1983) Initial Assessment Study, Naval Air Station Memphis, Millington, Tennessee.

Parks, W.S. (1990): Hydrogeology and Preliminary Assessment of the Potential for Contamination of the Memphis Aquifer in the Memphis Area, Tennessee. U.S. Geological Survey Water-Resources Investigations Report 90-4092, 1-39.

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Appendix B

DPT Screening and Geophysical Survey Summaries

ASSEMBLY A
DPT SURVEY SUMMARY

The Direct Push Technology (DPT) survey for Assembly A solid waste management units (SWMUs) was conducted between Monday, November 14, and Wednesday, December 21, 1995. Soil and groundwater samples collected at each SWMU were analyzed at a mobile laboratory set up by the DPT subcontractor. The samples were analyzed according to U.S. Environmental Protection Agency (USEPA) Method 8021 (halogenated and aromatic volatile organic compounds [VOCs]) using a gas chromatograph with an electrolytic conductivity detector and a photoionization detector (GC/ELCD/PID). The ELCD, also known as a Hall detector, was selected to improve our ability to detect halogenated volatile compounds (e.g., chlorinated solvents such as trichloroethene), while the PID was selected because of its ability to identify volatile petroleum constituents (e.g., the aromatic compounds benzene, toluene, ethylbenzene, and xylene).

At least 25% of the samples collected were split and sent to an offsite laboratory for confirmatory VOC analysis using EPA Method 8240. This method requires the use of a GC with mass spectrometer (MS). GC/MS methods are generally more accurate for compound identification, but less accurate (than GC with a detector other than an MS) for determining the concentrations of the identified compounds.

Reasons for selecting VOC analysis as the field screening analytical method include:

- It is a good "indicator" method. Many wastes that require other methods for detection (e.g., metals or PCBs) are often contained in petroleum products that have volatile constituents. Thus, detection of VOCs indicates that a waste release has possibly occurred, and further investigation may be necessary.

- Though the required laboratory equipment is sophisticated, the amount of equipment needed and sample preparation are fairly minimal.

- Test results can be obtained within hours, which facilitates quick decision-making and sampling strategy development.

- Chlorinated solvents can be detected. These are primary contaminants of concern because they are often "sinkers" that can threaten groundwater supplies and many of them are carcinogens.

The sampling strategy was essentially the same for all SWMUs, but was often modified based on site-specific conditions. An attempt was made at each SWMU to collect the following samples:

- Shallow soil from the unsaturated zone in the loess (usually less than 13 feet below land surface [bls]).

- Shallow groundwater from the loess (typically at 13 feet bls or a little deeper). If the formation was too tight to yield water, a soil sample was usually collected.

- Intermediate groundwater from the loess (typically about 25 feet bls). If groundwater could not be obtained, soil samples were usually collected.

- Deeper groundwater from the top of the fluvial deposits (typically around 40 feet bls). The fluvial deposits are much more permeable than the loess. Therefore, they yield more water than the loess and also provide less resistance to lateral migration of contaminants. The top of the fluvial deposits was also the maximum depth of penetration for the DPT rig due to the type of material (sand and gravel) that makes up the formation.

All samples at SWMUs 1 (Fire Department Drill Area), 8 (Cemetery Disposal Area), and 60 (Northside Landfill) were below detection limits (BDL). At SWMU 3, all samples were BDL except one shallow (17 feet bls) methylene chloride hit in groundwater that was resampled and reported as BDL the second time.

At SWMU 5 (Aircraft Fire Fighting Training Facility), no solvents were detected. As expected, petroleum constituents were detected in shallow soil and groundwater in areas of known contamination (from previous investigations). Shallow soil near the old fire extinguisher pits was heavily contaminated.

At SWMU 7 (N-126 Plating Shop Dry Well), groundwater contamination by chlorinated solvents was detected by field analyses in the mobile laboratory and confirmed by GC/MS analyses performed in an offsite laboratory. The contamination was detected at depths of 36 to 42 feet and ranged from 5.4 parts per billion (ppb) cis-1,2-dichloroethene to 320 ppb 1,1-dichloroethane. The source of the contamination is believed to be a grassy area south of the dry well where used solvents were reportedly poured directly onto the ground. Groundwater contamination (6 ppb 1,1-dichloroethane and 2.6 ppb trichloroethene) was detected adjacent to Production Well No. 1 at 43 feet; however, water samples collected from the production well, which is screened at 523 feet, were not contaminated.

SWMU 8 — Cemetery Disposal Area

Background

SWMU 8 is an inactive waste disposal area in the northern portion of NAS Memphis, immediately west of the departure end of Runway 04. This 5 to 8-acre area was reportedly used for solid and hazardous waste disposal from 1965 to 1980. According to Navy personnel, wastes disposed of included several canisters of ethylene oxide, metallic scrap, waste chemicals, waste oil, cleaning solutions, transformers, and capacitors. The wastes were reportedly buried 8 feet below the original ground surface.

An EM-31 geophysical survey was conducted at SWMU 8 in November to search for disposal area boundaries and assist in planning DPT sampling locations. Brush cleared in preparation for the geophysics survey identified a bermed, flat area which may be the first evidence of the exact location of the disposal area. The geophysical data showed no indication of major soil disturbance or of buried metals throughout the SWMU 8 area, including the bermed area. Based on the geophysics data, it does not appear that the area was a major disposal site.

Summary

Soil and groundwater samples were collected at the 11 locations shown in Figure 5 and also from monitoring well GM-11. Monitoring wells GM-10 and GM-12 were dry and could not be sampled. The attached table provides the sample depths and types (i.e., soil or water) for SWMU 8. All sample results were BDL. The depths for the groundwater samples listed in the attached table are shallower than those at the other Assembly A SWMUs. This is because the loess is thinner (less than 20 feet thick) at SWMU 8 than at locations farther south on NAS Memphis.

NAS Memphis RFI DPT Survey Results SWMU 8				
Sample Location	Sample ID	Soil or Water	Depth (ft. bls)	Compound Detected/Concentration
MW	GM-11	W	30	NONE
1	8SG0111	S	11	NONE
1	8GH0129	W	29	NONE
2	8SG0213	S	13	NONE
2	8GH0226	W	26	NONE
3	8GH0330	W	30	NONE
3	8SG0315	S	15	NONE
4	8SG0415	S	15	NONE
4	8GH0426	W	26	NONE
5	8SG0511	S	11	NONE
5	8SG0522	S	22	NONE
5	8GH0527	W	27	NONE
6	8SG0612	S	12	NONE
6	8GH0632	W	32	NONE
7	8SG0711	S	11	NONE
7	8GH0733	W	33	NONE
8	8SG0811	S	11	NONE
8	8GH0827	W	27	NONE
9	8SG0911	S	11	NONE
9	8GH0955	W	55	NONE
10	8SG1011	S	11	NONE
10	8GH1027	W	27	NONE
11	8SG1112	S	12	NONE
11	8GH1126	W	26	NONE

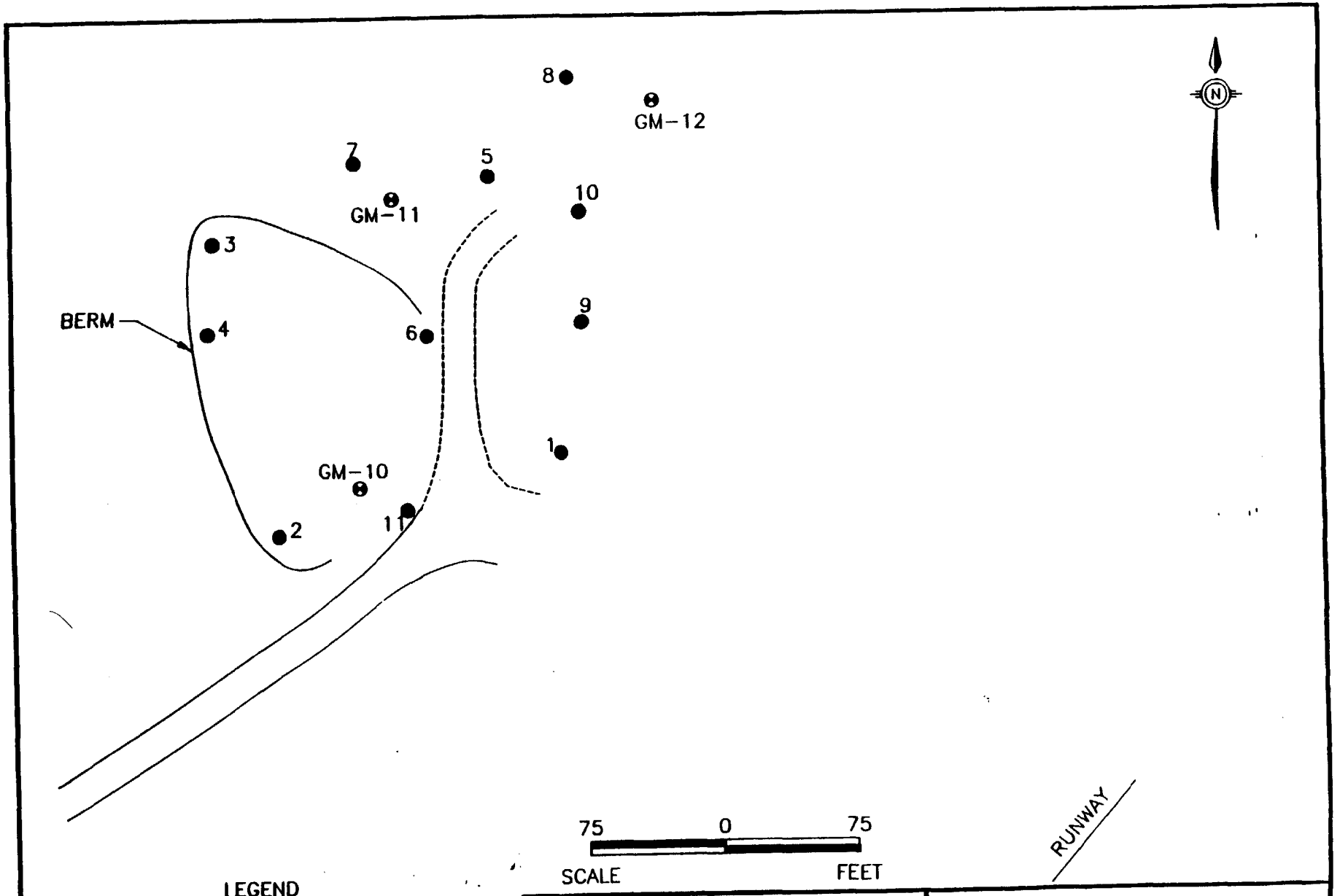
NAS Memphis RFI DPT Survey Results Production Wells				
Sample Location	Sample ID	Soil or Water	Depth (ft. bls)	Compound Detected/Concentration
Production Well No. 1	MSPW1	W	**	NONE
Production Well No. 2	MSPW2	W	**	NONE

NAS Memphis RFI DPT Survey Results Quality Control Samples			
Sample Location	Sample ID	Sample Type	Compound Detected/Concentration
1	3F0100	Field blank of deionized/organic free water	NONE
1	5EO100	Equipment rinsate blank	NONE
1	7EO100	Equipment rinsate blank	NONE
2	7E0200	Equipment rinsate blank	NONE
1	7F0100	Field blank of deionized/organic free water	NONE
1	8EO100	Equipment rinsate blank	NONE
1	8FO100	Field blank of deionized/organic free water	NONE

NSA MEMPHIS RFI
SWMU 8 Cemetery Disposal Area
DPT Split Samples

VOA													
	SAMPLE ID ------->	008-S-0G02-13		008-S-0G05-22		008-S-0G09-11		008-G-0H09-55		008-G-H001-29		008-G-H003-30	
	ORIGINAL ID ----->	008S0G0213		008S0G0522		008S0G0911		008G0H0955		008GM00109		008GM00330	
	LAB SAMPLE ID --->	113951		113952		114053		114054		113953		113954	
	ID FROM REPORT -->	8SG0213		8SG0522		8SG0911		8GH0955		8GM0129		8GM0330	
	SAMPLE DATE ----->	12/06/94		12/07/94		12/08/94		12/08/94		12/06/94		12/06/94	
	DATE ANALYZED --->	12/09/94		12/09/94		12/13/94		12/13/94		12/14/94		12/12/94	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1271	VAL	FD1271	VAL	1283	VAL	1283	VAL	FD1271	VAL	FD1271	VAL
74-87-3	Chloromethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
74-83-9	Bromomethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
75-01-4	Vinyl chloride	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
75-00-3	Chloroethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
75-09-2	Methylene chloride	13.	U	12.	U	12.	U	10.	U	1.	J	10.	U
67-64-1	Acetone	13.	U	12.	U	12.	U	23.		38.		23.	
75-15-0	Carbon disulfide	13.	U	12.	U	12.	U	10.	U	1.	J	10.	U
75-35-4	1,1-Dichloroethene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
75-34-3	1,1-Dichloroethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
540-59-0	1,2-Dichloroethene (total)	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
67-66-3	Chloroform	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
107-06-2	1,2-Dichloroethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
78-93-3	2-Butanone (MEK)	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
71-55-6	1,1,1-Trichloroethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
56-23-5	Carbon tetrachloride	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
75-27-4	Bromodichloromethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
78-87-5	1,2-Dichloropropane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
10061-01-5	cis-1,3-Dichloropropene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
79-01-6	Trichloroethene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
124-48-1	Dibromochloromethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
79-00-5	1,1,2-Trichloroethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
71-43-2	Benzene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
10061-02-6	trans-1,3-Dichloropropene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
75-25-2	Bromoform	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
591-78-6	2-Hexanone	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
127-18-4	Tetrachloroethene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
108-88-3	Toluene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
108-90-7	Chlorobenzene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
100-41-4	Ethylbenzene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
100-42-5	Styrene	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U
1330-20-7	Xylene (Total)	13.	U	12.	U	12.	U	10.	U	10.	U	10.	U

*** Validation Complete ***



LEGEND

● – DPT SAMPLING LOCATION
⊗ – EXISTING MONITORING WELL

SAMPLE LOCATIONS ARE APPROXIMATE

RFI WORK PLAN
NAS MEMPHIS
MILLINGTON, TENNESSEE

FIGURE 5
DPT SAMPLE LOCATIONS
CEMETERY DISPOSAL AREA
SWMU 8

DWG DATE: 01/18/95 | DWG NAME: 16DPTLO

Appendix C
Boring Logs

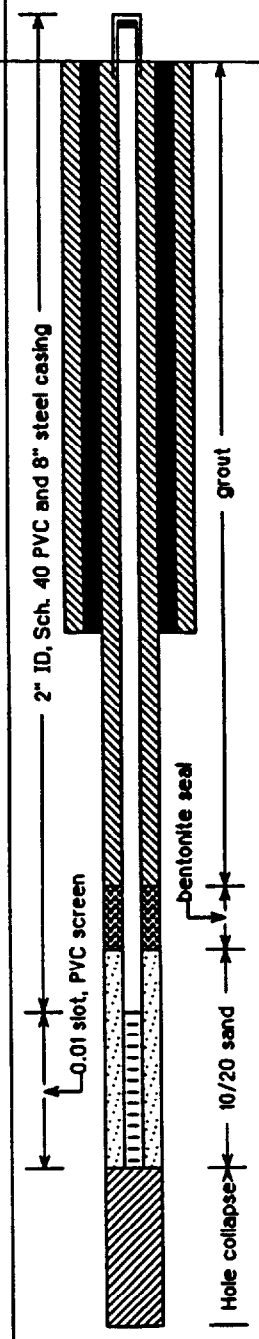
EnSafe/Allen & Hoshall

Log of Monitoring Well 08MW01F

Project: *NAS Memphis*	Location: *Millington, TN. SWMU#8–Cemetery Disposal Area*
Project No.: *N0094*	Surface Elevation: *322.14 feet msl*
Started at *1415 on 1-31-95*	TOC Elevation: *324.828 feet msl*
Completed at *1515 on 1-31-95*	Depth to Groundwater: *21.61 feet* Measured: *3/31/95*
Drilling Method: *Rotasonic*	Groundwater Elevation: *303.22 feet msl*
Drilling Company: *North Star Drilling*	Total Depth: *50.0 feet*
Geologist: *William Parks and Jack Carmichael*	Well Screen: *30 to 35 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
								Silt, yellowish brown, mottled yellowish gray; contains small iron- manganese nodules, moist from 12'–15'.	
5			1	50	BG				
10			2	110	BG		ML		
15			3	70	BG			Silt, moderate yellowish brown; contains some gravels from 19'–20'.	
20			4	140	BG			Sand, silty with gravel; moderate reddish brown to dark yellowish orange, wet.	302.1
25			5	22	BG				
30			6	150	BG		GM	Same as above with gravels increasing in size and slightly less silt and clay.	
35			7	100	BG				
40			8	110	BG				

WELL DIAGRAM



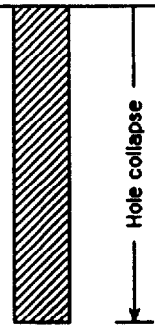
EnSafe/Allen & Hoshall

Log of Monitoring Well 08MW01F

Project: *NAS Memphis*	Location: *Millington, TN. SWMU#8–Cemetery Disposal Area*
Project No.: *N0094*	Surface Elevation: *322.14 feet msl*
Started at *1415 on 1-31-95*	TOC Elevation: *324.828 feet msl*
Completed at *1515 on 1-31-95*	Depth to Groundwater: *216.1 feet* Measured: *3/31/95*
Drilling Method: *Rotasonic*	Groundwater Elevation: *303.22 feet msl*
Drilling Company: *North Star Drilling*	Total Depth: *50.0 feet*
Geologist: *William Parks and Jack Carmichael*	Well Screen: *30 to 35 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							GM		281.1
							CL	Clay, silty, soft, mottled very pale orange to pale yellowish orange.	278.1
45							GM	Sand, laminated, mottled very pale orange to medium reddish orange. At 48.5', change to dusky yellowish orange fine sand with silt.	
50			9	100	BG				272.1
								End of boring at 50'.	
								BG = Background (1.1 ppm)	
55									
60									
65									
70									
75									
80									

WELL DIAGRAM



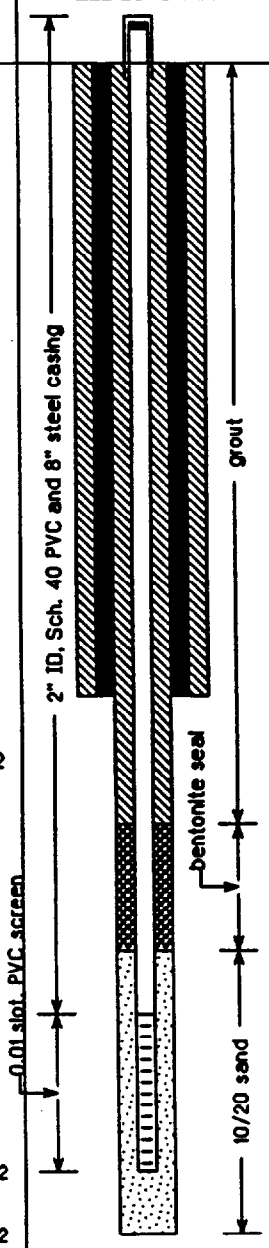
EnSafe/Allen & Hoshall

Log of Monitoring Well 08MW02F

Project: *NAS Memphis*	Location: *Millington, TN. SWMU#8–Cemetery Disposal Area*
Project No.: *N0094*	Surface Elevation: *325.21 feet msl*
Started at *0845 on 2-01-95*	TOC Elevation: *327.58 feet msl*
Completed at *0930 on 2-01-95*	Depth to Groundwater: *22.65 feet* Measured: *3/31/95*
Drilling Method: *Rotasonic*	Groundwater Elevation: *304.91 feet msl*
Drilling Company: *North Star Drilling*	Total Depth: *37.0 feet*
Geologist: *William Parks and Jack Carmichael*	Well Screen: *30 to 35 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
			1	75	BG		ML	Silt, yellowish brown streaked w/ yellowish gray, moist at 14'.	
5									
10			2	100	BG				
15			3	100	BG			Silt, yellowish brown to moderate brown. (17'–22')	
20			4	100	BG				
									303.2
25			5	87.5	BG		GM	Sand, silty with gravel; reddish brown to reddish orange, fine to coarse grained, chert and quartz gravels. (22'–35')	
30			6	100	BG				
35									290.2
			7	110	BG		SP	Sand, fine, silty with clay and ferruginous nodules or chips, laminated yellowish gray, olive gray, and dark yellowish orange.	288.2
40								End of boring at 37'. BG = Background (1.1 ppm)	

WELL DIAGRAM



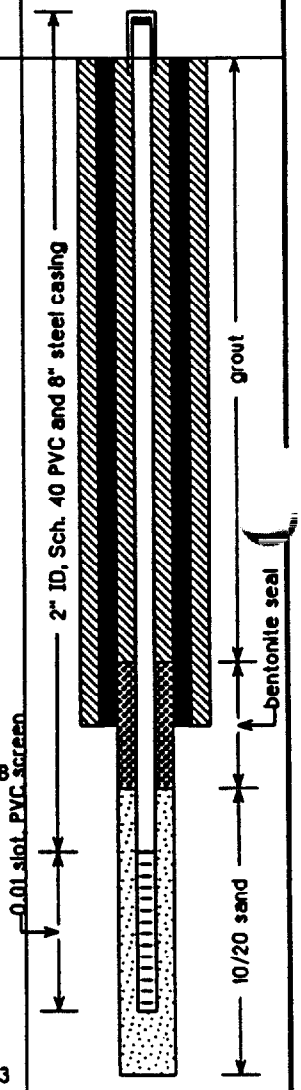
EnSafe/Allen & Hoshall

Log of Monitoring Well 08MW03F

Project: *NAS Memphis*	Location: *Millington, TN. SWMU#8 - Cemetery Disposal Area*
Project No.: *N0094*	Surface Elevation: *325.32 feet msl*
Started at *1015 on 2-01-95*	TOC Elevation: *327.46 feet msl*
Completed at *1120 on 2-01-95*	Depth to Groundwater: *22.89 feet* Measured: *3/31/95*
Drilling Method: *Rotasonic*	Groundwater Elevation: *304.57 feet msl*
Drilling Company: *North Star Drilling*	Total Depth: *32.0 feet*
Geologist: *William Parks and Jack Carmichael*	Well Screen: *25 to 30 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
			1	100	BG			Silt, yellowish brown streaked w/ yellowish gray. Moist at 12'.	
5			2	125	BG				
			3	62.5	BG				
10			4	100	BG		ML		
15			5	100	BG			Silt, yellowish brown to moderate brown. (16'-22')	
20			6	100	BG				
									302.8
25			7	100	BG		GM	Sand, silty with gravels at 24'; yellowish brown, very silty. Sand, fine to coarse, silty with clay, fine, gravel increasing towards the bottom, dark yellowish orange, wet. (25'-30')	
30			8	100	BG			Same as above except there is an increase in clay content with partial cementation. (30'-32')	
			9	100	BG				293.3
35								End of boring at 32'.	
40								BG = Background (1.1 ppm)	

WELL DIAGRAM



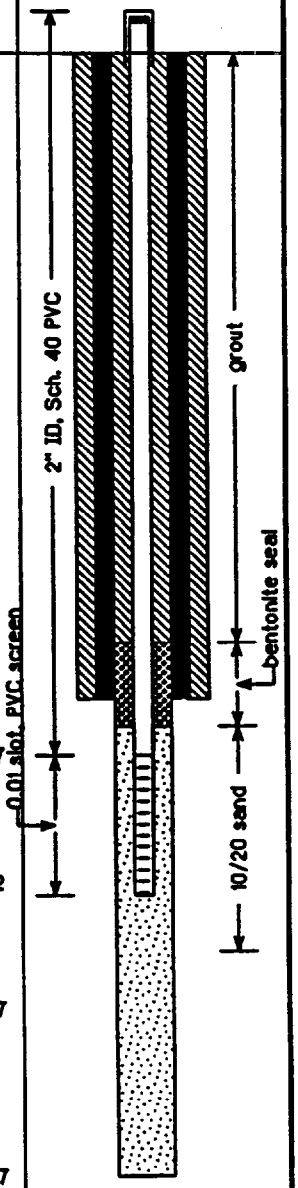
EnSafe/Allen & Hoshall

Log of Monitoring Well 08MW04F

Project: *NAS Memphis*	Location: *Millington, TN. SWMU#8 - Cemetery Disposal Area*
Project No.: *N0094*	Surface Elevation: *324.66 feet msl*
Started at *1315 on 2-01-95*	TOC Elevation: *327.37 feet msl*
Completed at *1430 on 2-01-95*	Depth to Groundwater: *22.65 feet* Measured: *3/31/95*
Drilling Method: *Rotasonic*	Groundwater Elevation: *304.72 feet msl*
Drilling Company: *North Star Drilling*	Total Depth: *40.0 feet*
Geologist: *William Parks and Jack Carmichael*	Well Screen: *25 to 30 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
			1	100	BG			Silt, yellowish brown streaked w/ yellowish gray. Moist at 12'.	
			2	100	BG				
5			3	100	BG				
			4	100	BG				
10			5	125	BG				
							ML		
15			6	100	BG			Silt, yellowish brown to yellowish gray, mottled.	
20			7	100	4.5			Silt, moderate brown.	
			8	125	BG				
25								Sand, moderate brown to reddish brown, very silty, contains scattered gravel.	299.7
			9	100	2.5		GM	Sand and gravel, reddish brown to yellowish brown, chert and quartz gravels up to 3" in longest dimension. (27'-29.5')	
30			10	100	BG				295.2
							ML	Silt, clayey, with iron stones (flat, not gravel), dark yellowish orange, moist. (29.5'-34')	
									290.7
35			11	100	BG		SP	Sand, very fine with silt and clay, mottled yellowish gray to dark yellowish orange, moist. (34'-40')	
40			12	90	BG				284.7
								End of boring at 40'.	
45									

WELL DIAGRAM



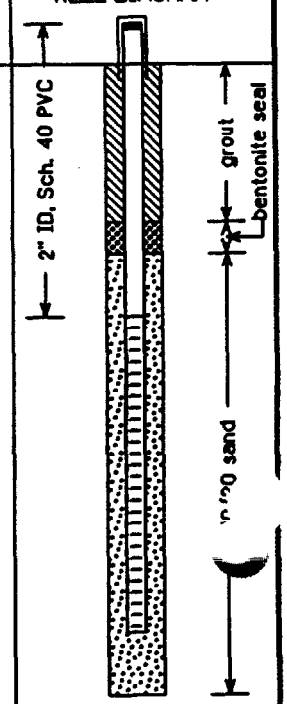
EnSafe/Allen & Hoshall

Log of Monitoring Well 08MW01S

Project: *NAS Memphis*	Location: *Millington, TN. SWMU#8 - Cemetery Disposal Area*
Project No.: *N0094*	Surface Elevation: *feet msl*
Started at *on 2-10-95*	TOC Elevation: *feet msl*
Completed at *on 2-10-95*	Depth to Groundwater: *feet* Measured:
Drilling Method: *Rotasonic*	Groundwater Elevation: *feet msl*
Drilling Company: *North Star Drilling*	Total Depth: *18.0 (below grade) feet*
Geologist: *William Parks*	Well Screen: *8 to 18 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
5	X		1	50	BG		ML	Silt, yellowish brown, mottled yellowish gray; contains small iron- manganese nodules, moist from 12'-15'.	
10	X		2	110	BG				
15	X		3	70	BG			Silt, moderate yellowish brown; contains some gravels from 19'-20'.	
20	X		4	140	BG		GM	End of boring at 20'. Monitoring well closed in place on 3/07/95 due to the absence of groundwater. Well was closed by drilling out the well and grouting up the remaining borehole.	
25									
30									
35									
40									

WELL DIAGRAM



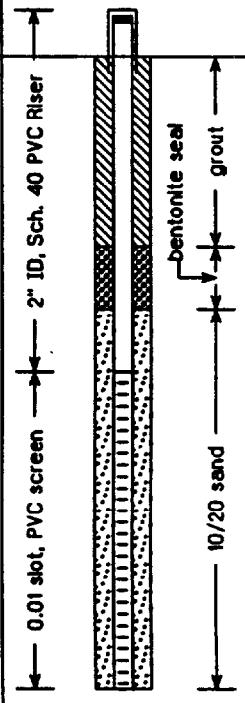
EnSafe/Allen & Hoshall

Log of Monitoring Well 08MW02S

Project: *NAS Memphis*	Location: *Millington, TN. SWMU#8-Cemetery Disposal Area*
Project No.: *N0094*	Surface Elevation: *feet msl*
Started at *on 2-01-95*	TOC Elevation: *feet msl*
Completed at *on 2-01-95*	Depth to Groundwater: *feet* Measured:
Drilling Method: *Rotasonic*	Groundwater Elevation: *feet msl*
Drilling Company: *North Star Drilling*	Total Depth: *20.0 feet*
Geologist: *William Parks and Jack Carmichael*	Well Screen: *10 to 20 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
			1	75	BG		ML	Silt, yellowish brown streaked w/ yellowish gray, moist at 14'.	
5									
10			2	100	BG				
15			3	100	BG			Silt, yellowish brown to moderate brown. (17'-22')	
20			4	100	BG			End of boring at 20'.	
25									
30									
35									
40									

WELL DIAGRAM



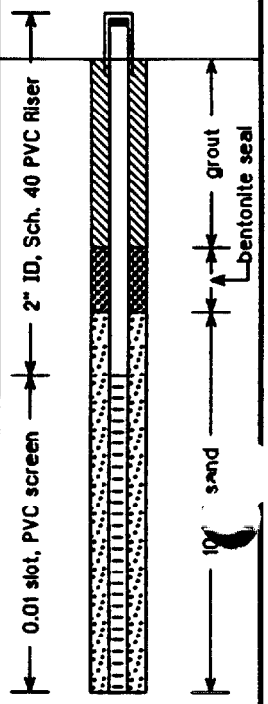
EnSafe/Allen & Hoshall

Log of Monitoring Well 08MW03S

Project: *NAS Memphis*	Location: *Millington, TN. SWMU#8 - Cemetery Disposal Area*
Project No.: *N0094*	Surface Elevation: *feet msl*
Started at *on 2-01-95*	TOC Elevation: *feet msl*
Completed at *on 2-01-95*	Depth to Groundwater: *feet* Measured:
Drilling Method: *Rotasonic*	Groundwater Elevation: *feet msl*
Drilling Company: *North Star Drilling*	Total Depth: *20.0 feet*
Geologist: *William Parks and Jack Carmichael*	Well Screen: *10 to 20 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
	X		1	100	BG			Silt, yellowish brown streaked w/ yellowish gray. Moist at 12'.	
	X		2	125	BG				
5	X								
	X		3	62.5	BG				
10	X						ML		
	X		4	100	BG				
15	X								
	X		5	100	BG			Silt, yellowish brown to moderate brown. (16'-22')	
20	X		6	100	BG				
								End of boring at 20'.	
25									
30									
35									
40									

WELL DIAGRAM



GERAGHTY & MILLER, INC.

WELL LOG

PROJECT: Navy - Memphis DATE: 6-13-85 SHEET: 1 OF ____

LOCATION: Millington cemetery site DRILLING CONTRACTOR: Amer. Drill. Corp

WELL NUMBER: ~~GM-10~~ (boring) DRILLING METHOD: solid-stem auger

SAMPLE DESCRIBED BY: BSS/DG SAMPLING METHOD: sample & 22 lights

SAMPLE DESCRIPTION	Blow/ft	DEPTH INTERVAL (FEET)	THICK (FE
Clay, pliable, medium pack, brown		0 - 10	
SAME AS ABOVE, BUT LOOSE AND WET AT 15 FT.		10 - 15	
"		15 - 20	
" . BUT W/ LARGE GRAVEL. [WATER-BEARING FORMATION.]		20 - 25	
Sand, clayey, medium-grained, orange; gravel. Very wet		25 - 30	
Sand, medium-grained, ~~orange~~ clayey, orange.		30 - ~~35~~ 33	
~~[illegible]~~			
Clay, firm, dense pack, orange-yellow.		33 - 40'	
Clay, firm grained, gravel, dense, light gray		40 - 43	
~~Sand~~, Clay, sandy, fine-sand, dense, dark gray		43 - 45	
Same as above		45 - ~~[illegible]~~ 52	
Clay, gravelly, medium pack, gray		52 - 53	

GM-16

	Theog	Echvel
TD	30'	
Screen	25-30	
~~Sand~~	22-30	
pellets	21-22	
gravel	0-21	

GERAGHTY & MILLER, INC.

WELL LOG

PROJECT: NAS - Memphis DATE: 6-14-85 SHEET: 1 OF

LOCATION: Millington, TN - cemetery site DRILLING CONTRACTOR: Amer. Drill. (Crawford

WELL NUMBER: GM-11 DRILLING METHOD: solid-stem auger

SAMPLE DESCRIBED BY: BJS SAMPLING METHOD: sample off flights

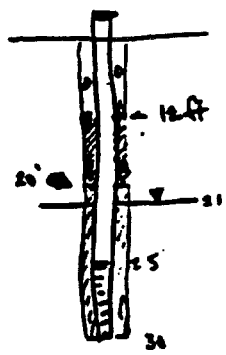
SAMPLE DESCRIPTION	BOW/H	DEPTH INTERVAL (FEET)	THICKNES (FEET)
Clay, pliable, medium pack, brown		0-~~7~~ 12	
SAME AS ABOVE, BUT MOIST AND WET @ 10 FT		12-17	
" W.L @ 21.5 FT		17-22	
"		22-27.5	
319.32.5 " 322.05 " "		27.5-30'	

Theoretical

Screen 25'-30'
Sand 30'-20'
Bentonite 20'-19'
grout 19'-0'

Actual

Screen 25'-30
Sand 30'-12'
Bentonite 12'-11'
grout 11'-0'



GERAGHTY & MILLER, INC.

WELL LOG

PROJECT: NAS - Memphis DATE: 6-13-85 SHEET: 1 OF ____

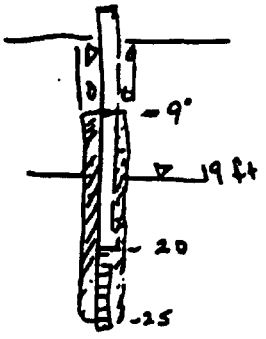
LOCATION: cemetery site DRILLING CONTRACTOR: Amer. Testing (Co

WELL NUMBER: GM - 12 DRILLING METHOD: solid stem auger

SAMPLE DESCRIBED BY: BJS/WDG SAMPLING METHOD: sample off flights

SAMPLE DESCRIPTION SHELBY TUBE	blow/ft	DEPTH INTERVAL (FEET)	THICKN (FE
Clay, pliable, medium packed, brown (Moist @ 7 ft)		0 - 7	
SAME AS ABOVE		7 - 12	
		12 - 17	
" ; gravel, very wet		17 - 22	
" ; lot of gravel, large stones.		22 - 24	
(Two shelby tubes; no recovery)			
~~Clay~~, Sandy, med. gravel / clayey; gravel		24 - 28	
w/ sand at 19 ft.		T.D. = 28 ft	

Theoretical		Actual
Screen	—	25'-20
sand	—	25'-9'
bentonite	—	9'-7'
grout	—	grout 7'-0'



LITHOLOGIC LOG FOR MONITOR WELL GM-9

Description	Depth (ft)	Thickness (ft)
No Sample.....	0 - 14.0	14.0
Clay, pliable, green.....	14.0 - 17.0	3.0
Clay, dense, hard, green-brown.....	17.0 - 18.0	1.0
Clay, dense, hard, amber.....	18.0 - 19.0	1.0
Clay, dense, hard, marbled green and amber.....	19.0 - 24.0	5.0
Clay, medium pack, slightly sandy, amber..	24.0 - 34.0	10.0
Sand, medium grain, clayey, orange.....	34.0 - 39.0	5.0
Sand, medium to fine-grain, slightly clayey, orange-yellow.....	39.0 - 44.0	5.0
Sand, medium to fine-grain, tan to orange.....	44.0 - 49.0	5.0

LITHOLOGIC LOG FOR MONITOR WELL GM-10

Description	Depth (ft)	Thickness (ft)
Clay, pliable, medium pack, brown.....	0 - 10.0	10.0
Clay, pliable, loose pack, brown.....	10.0 - 20.0	10.0
Clay, pliable, loose pack, gravelly, brown.....	20.0 - 25.0	5.0
Sand, medium grain, clayey, gravelly, orange.....	25.0 - 30.0	5.0
Sand, medium grain, clayey, orange.....	30.0 - 33.0	3.0
Clay, firm, dense pack, orange-yellow.....	33.0 - 40.0	7.0
Clay, firm, dense pack, slightly gravelly, gray.....	40.0 - 43.0	3.0
Clay, sandy, fine-grain, dense pack, gray.	43.0 - 52.0	9.0
Clay, gravelly, medium pack, gray.....	52.0 - 53.0	1.0

LITHOLOGIC LOG FOR MONITOR WELL GM-11

Description	Depth (ft)	Thickness (ft)
Clay, pliable, medium pack, brown.....	0 - 12.0	12.0
Clay, pliable, loose pack, brown.....	12.0 - 30.0	18.0

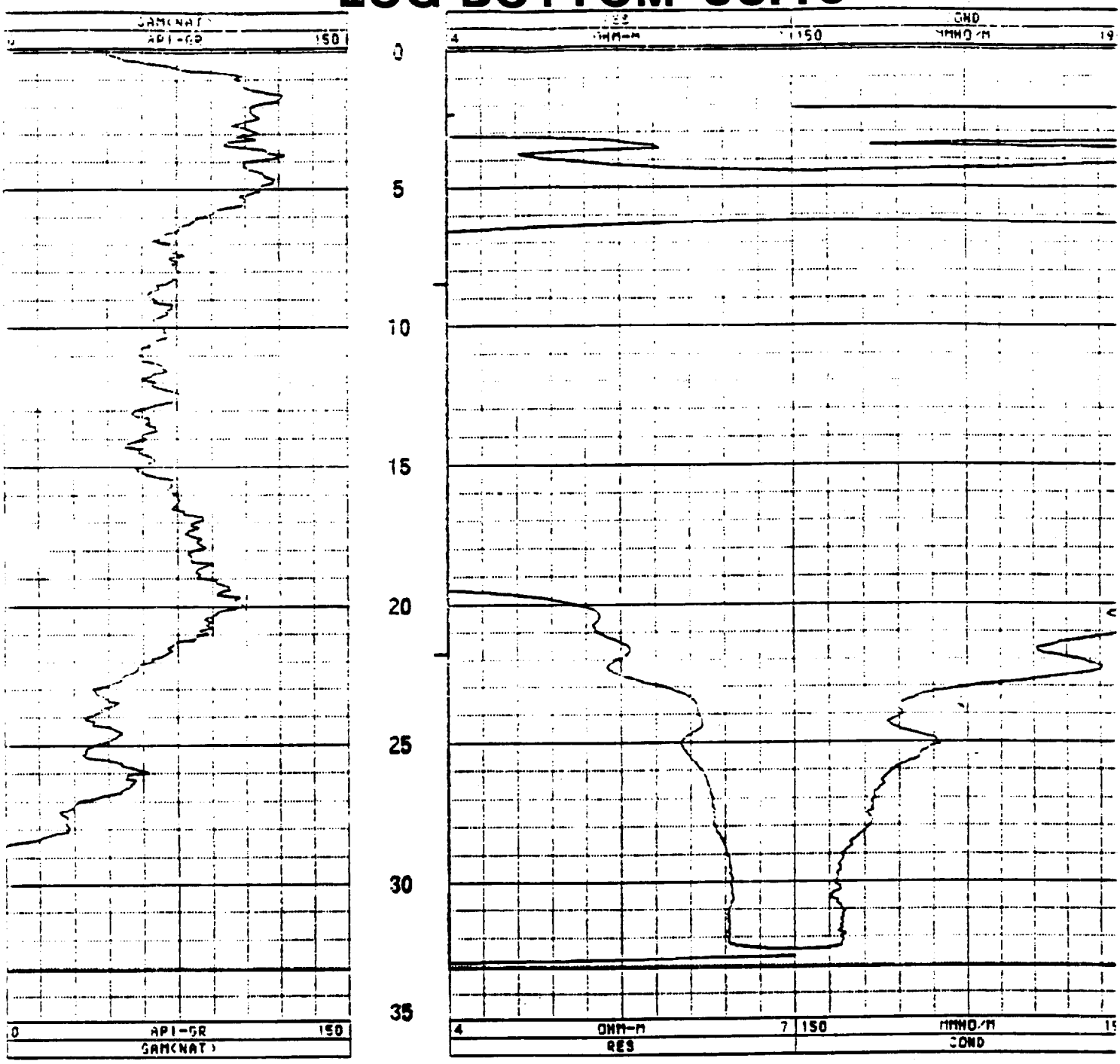
LITHOLOGIC LOG FOR MONITOR WELL GM-12

Description	Depth (ft)	Thickness (ft)
Clay, pliable, medium pack, brown.....	0 - 17.0	17.0
Cl[illegible] pack, slightly [illegible]	[illegible]	5.0
Clay, pliable, medium pack, very gravelly.	22.0 - 24.0	2.0
Clay, sandy, medium grain, gravelly, orange.....	24.0 - 28.0	4.0

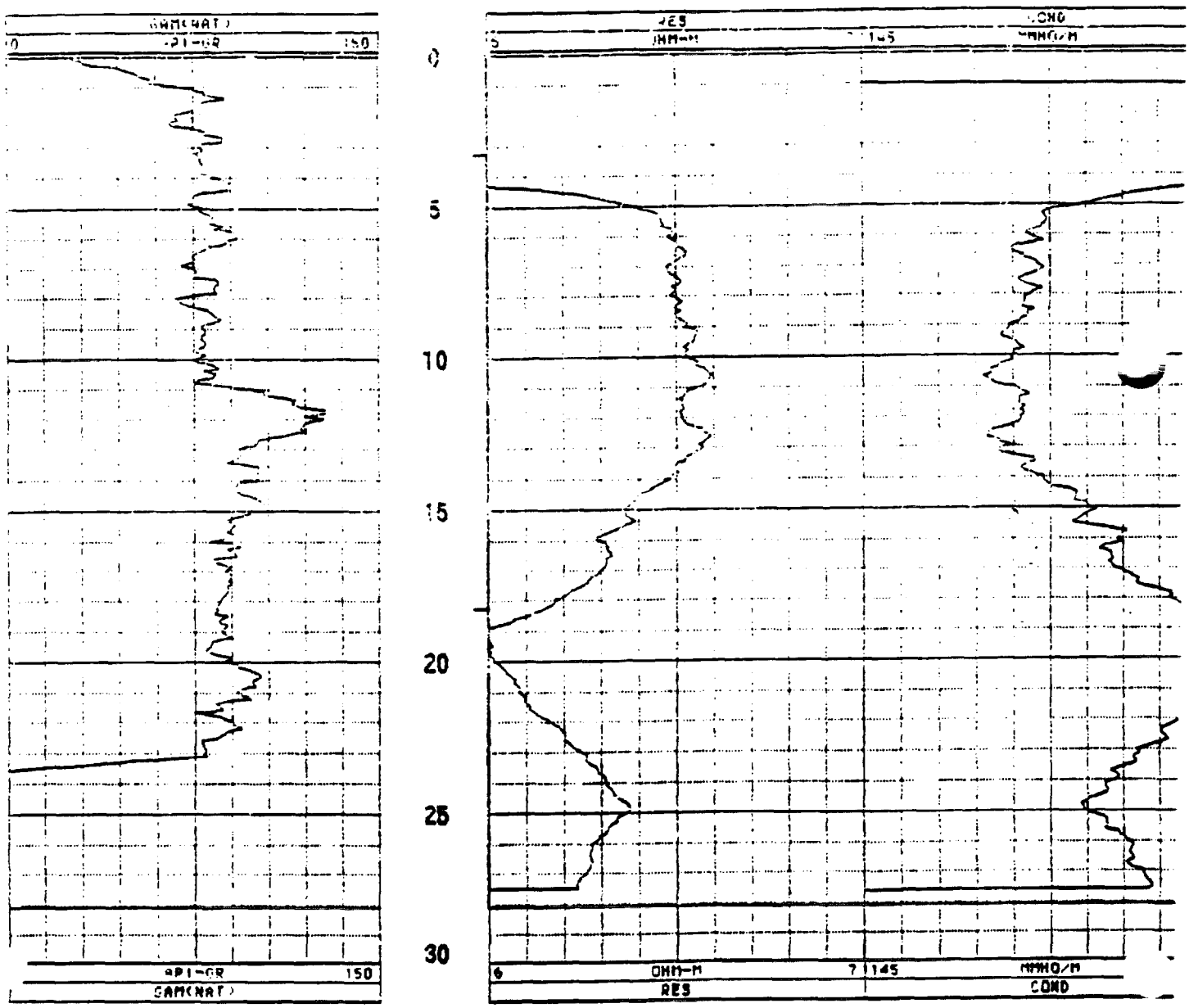
Appendix D

Geophysical Logs

08MW01F
04/25/95
LOG TOP--2.30
LOG BOTTOM-33.10



SWMU 8 - GM-11
4/24/95
LOG TOP--3.20
LOG BOTTOM-28.10



Appendix E

PCB Soil Investigation Summary

NSA MEMPHIS
PCB SOIL INVESTIGATION SUMMARY

In response to a Base Realignment and Closure (BRAC) Cleanup Team (BCT) request, seven areas suspected of having received polychlorinated biphenyl (PCB)-contaminated soil were investigated to confirm whether PCBs were present above 1 part per million (ppm). Disposal records indicated contaminated soil excavated during the cleanup of a former transformer storage area contained elevated concentrations. However, the reported excavation should have yielded significantly more soil than that accounted for in associated hazardous waste manifests. The excavated soil that is unaccounted for was anonymously reported as having been disposed of at various locations across the base. Based on oral descriptions and reconnaissance of the potential disposal locations by the BCT, seven areas were identified and sampled. Figures 1 through 5 identify the areas sampled.

All areas sampled indicated the presence of soil disturbance and potential dumping of nonnative soil in the form of depressions, pits, and/or piles of soil. All piles of soil sampled during the investigation included construction debris in the form of concrete, asphalt, brick, and/or rebar. Additionally, all piles were close to roads accessible by vehicles. The samples are identified by a three-character prefix respective to the sample collection area. The following sample prefixes correspond to the seven suspected disposal areas:

- 008 SWMU 8, Cemetery Disposal Area.
- 002 Area 2, trash pile near former location of radio/receiver facility south of the northwest tip of secondary runway 14.
- TP1 Trash pile 1, south of SWMU 60.
- TP2 Trash pile 2, south of SWMU 60.

- DAK Ditch on the south side of Dakar Street Extended south of SWMU 60.

- CBT Trash pile on the north side of the dirt road that runs west out of the SeaBees complex.

- STP Area south of SWMU 36, former sewage treatment plant incinerator.

All samples were collected across the zero to 12-inch interval, except for samples 008PCB0702 through 008PCB1002, 002PCB1102, and 002PCB1202, which were collected across the 12-inch to 24-inch interval. All samples were collected with a decontaminated stainless-steel hand auger, homogenized in a stainless-steel bowl, and placed in a clean, labeled sample container. The sample was then analyzed in the field for PCBs with the EnSys RISc® Test System, an immunoassay kit with a 1 ppm detection level. Analysis consists of adding standards, samples, and color-change reagents to test tubes coated with a PCB-specific chemical. The concentration of PCBs in the sample is determined by comparing its color intensity with that of a standard.

The PCB concentration is inversely proportional to color intensity; the lighter the color development of the sample, the higher the concentration of PCBs. The colorimetric measurement was made by comparing samples against a standard using a differential photometer. A sample color lighter than the standard would yield a negative photometer result, indicating the presence of PCBs; and, a sample color darker than the standard would yield a positive photometer result, indicating the absence of PCBs. To ensure proper operation of the kit, 1 ppm, 5 ppm, and 10 ppm PCB standards in solution obtained from National Environmental Testing analytical laboratory in Bedford, Massachusetts, were analyzed according to the standard procedure. Each standard indicated the presence of PCBs commensurate with its concentration, indicating proper operation.

None of the samples collected from the suspected PCB-contaminated soil disposal areas indicated a PCB concentration above 1 ppm. Table 1 summarizes the immunoassay results of soil collected from the seven suspected disposal areas.

Table 1
Immunoassay Soil Screening Results

Sample Identification	Collected/ Analyzed	ΔOD[a] Standards	OD Sample 1 ppm	Interpretation
Standard[b]	1/10/96	-0.24		New Standard
1 ppm standard	1/10/96		-0.42	> 1 ppm
5 ppm standard	1/10/96		-0.70	> 1 ppm
5 ppm standard (dup)	1/10/96		-0.68	> 1 ppm
10 ppm standard	1/10/96		-0.72	> 1 ppm
Standard	1/10/96	-0.13		
008PCB0101	1/10/96		+0.27	< 1 ppm
008PCB0201	1/10/96		+0.35	< 1 ppm
008PCB0301	1/10/96		+0.46	< 1 ppm
008PCB0401	1/10/96		+0.59	< 1 ppm
Standard	1/10/96	0.0		New Standard
008PCB0501	1/10/96		+0.64	< 1 ppm
008PCB0601	1/10/96		+0.64	< 1 ppm
008PCB0702	1/10/96		+0.15	< 1 ppm
008PCB0802	1/10/96		+0.51	< 1 ppm
Standard	1/10/96	-0.01		
008PCB0902	1/10/96		+0.46	< 1 ppm
008PCB1002	1/10/96		+0.52	< 1 ppm
002PCB1102	1/10/96		+0.71	< 1 ppm
002PCB1202	1/10/96		+0.47	< 1 ppm
Standard	1/11/96	-0.18		New Standard
TP1PCB0101	1/11/96		+0.59	< 1 ppm
TP1PCB0201	1/11/96		+0.38	< 1 ppm
TP1PCB0301	1/11/96		+0.56	< 1 ppm
DAKPCB0101	1/11/96		+0.16	< 1 ppm

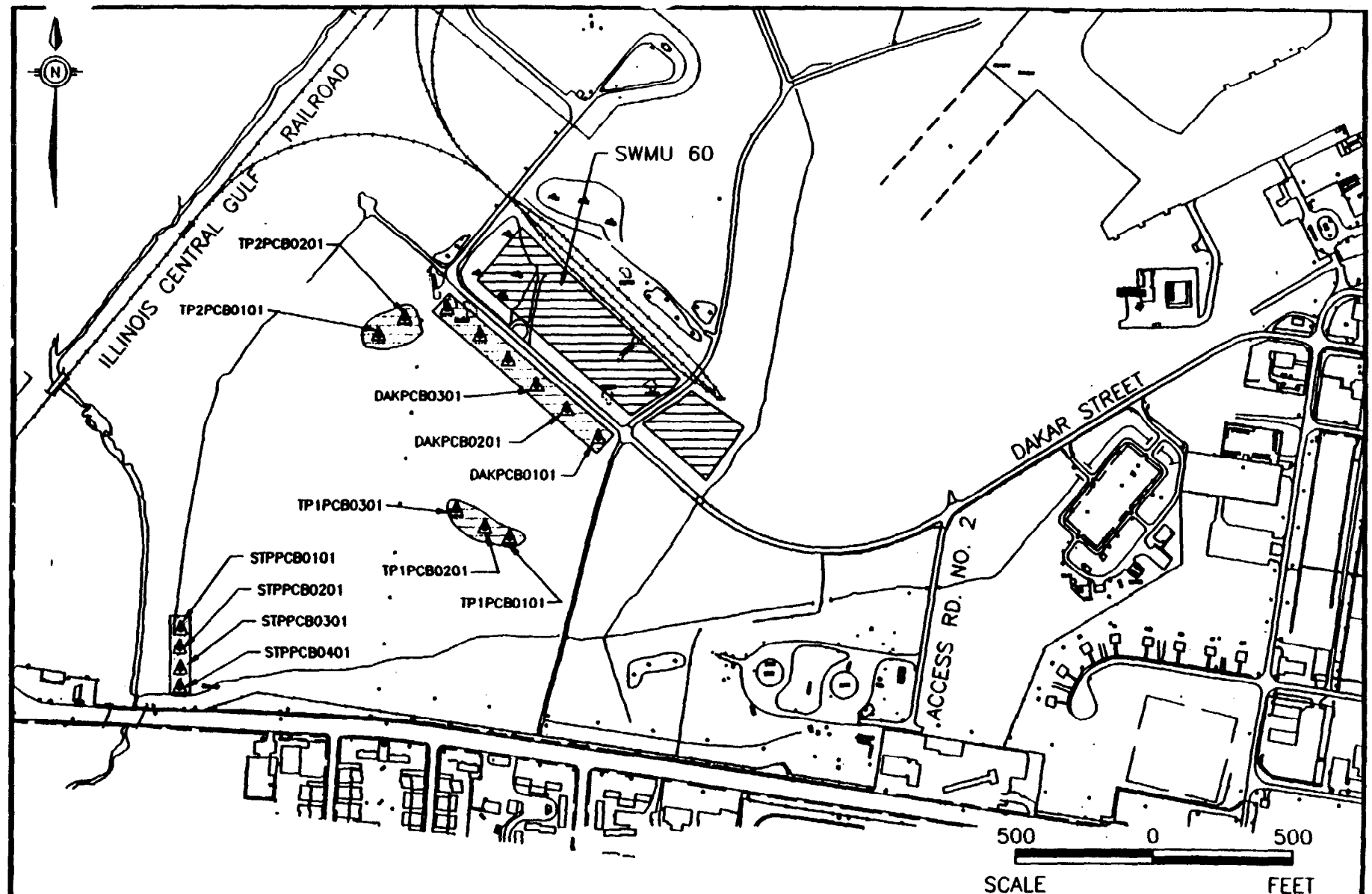
Table 1
Immunoassay Soil Screening Results

Sample Identification	Collected/ Analyzed	ΔOD[a] Standards	OD Sample 1 ppm	Interpretation
Standard	1/11/96		+0.27	< 1 ppm
DAKPCB0401	1/11/96		+0.26	< 1 ppm
DAKPCB0601	1/11/96		+0.55	< 1 ppm
TP2PCB0101	1/11/96		+0.55	< 1 ppm
TP2PCB0201	1/11/96		+0.46	< 1 ppm
Standard	1/11/96	-0.02		New Standard
DAKPCB0201	1/11/96		+0.15	< 1 ppm
DAKPCB0301	1/11/96		+0.50	< 1 ppm
DAKPCB0501	1/11/96		+0.46	< 1 ppm
Standard	1/12/96	-0.14		
STPPCB0101	1/12/96		+0.40	< 1 ppm
STPPCB0201	1/12/96		+0.48	< 1 ppm
STPPCB0301	1/12/96		+0.52	< 1 ppm
STPPCB0401	1/12/96		+0.29	< 1 ppm
Standard	1/12/96	-0.10		New Standard
CBTPCB0101	1/12/96		+0.14	< 1 ppm
CBTPCB0201	1/12/96		+0.20	< 1 ppm
CBTPCB0301	1/12/96		+0.27	< 1 ppm
CBTPCB0401	1/12/96		+0.48	< 1 ppm
Standard	1/12/96	-0.06		
CBTPCB0501	1/12/96		+0.47	< 1 ppm
CBTPCB0601	1/12/96		+0.58	< 1 ppm

Notes:

a — Optical density

b — A set of standards was analyzed with each sample batch; a new set of standards was prepared every eight samples



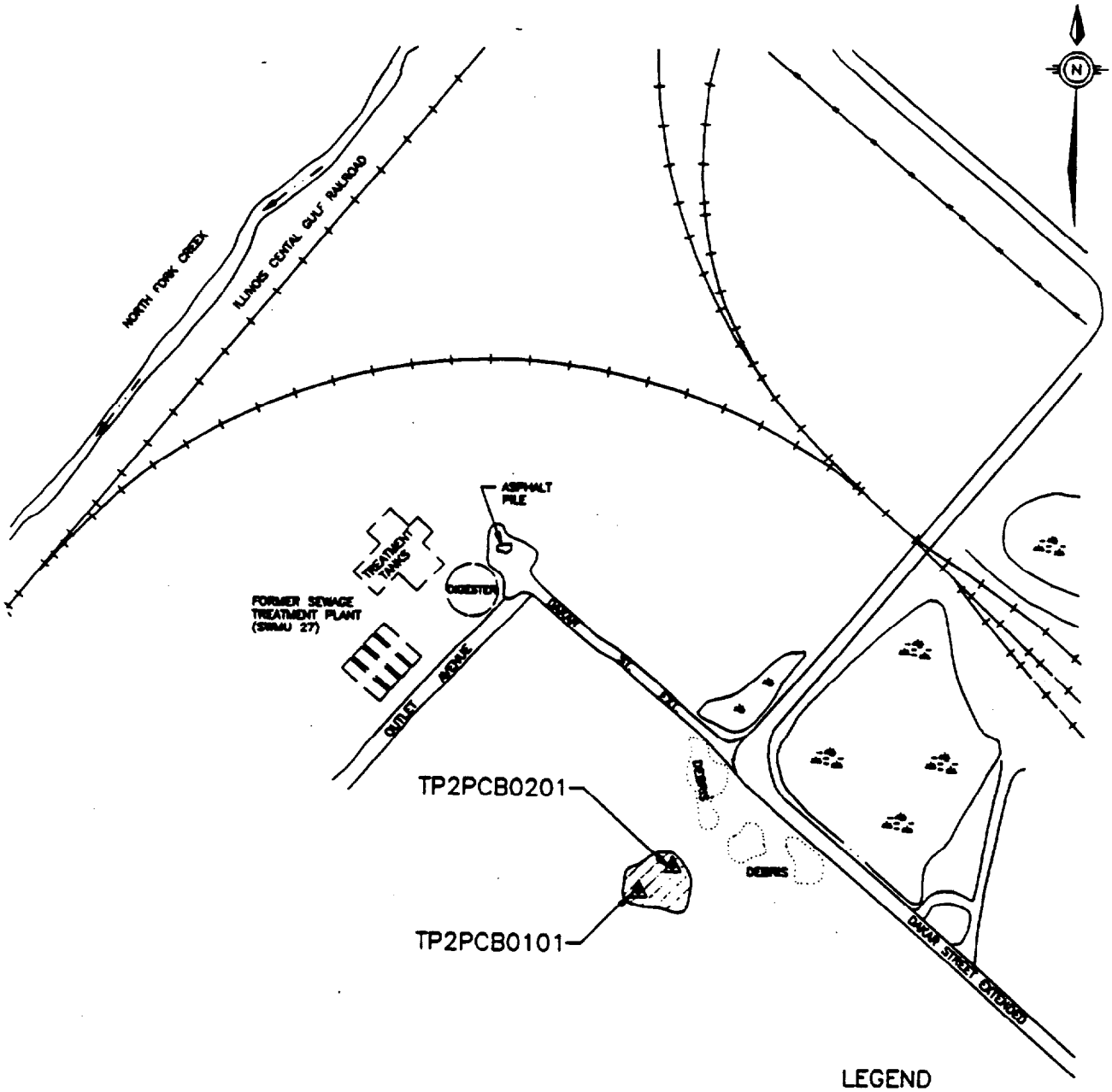
LEGEND

- APPROXIMATE LOCATION OF SUSPECTED PCB DISPOSAL
- ▲ – SAMPLE COLLECTION LOCATION

NSA MEMPHIS
MILLINGTON, TENNESSEE

FIGURE 1
PCB SAMPLING LOCATIONS NEAR SWMU 60 AND OLD SEWAGE TREATMENT PLANT

DWG DATE: 01/19/98 | DWG NAME: 094PCB01



LEGEND

- APPROXIMATE LOCATION OF SUSPECTED PCB DISPOSAL
- ▲ – SAMPLE COLLECTION LOCATION

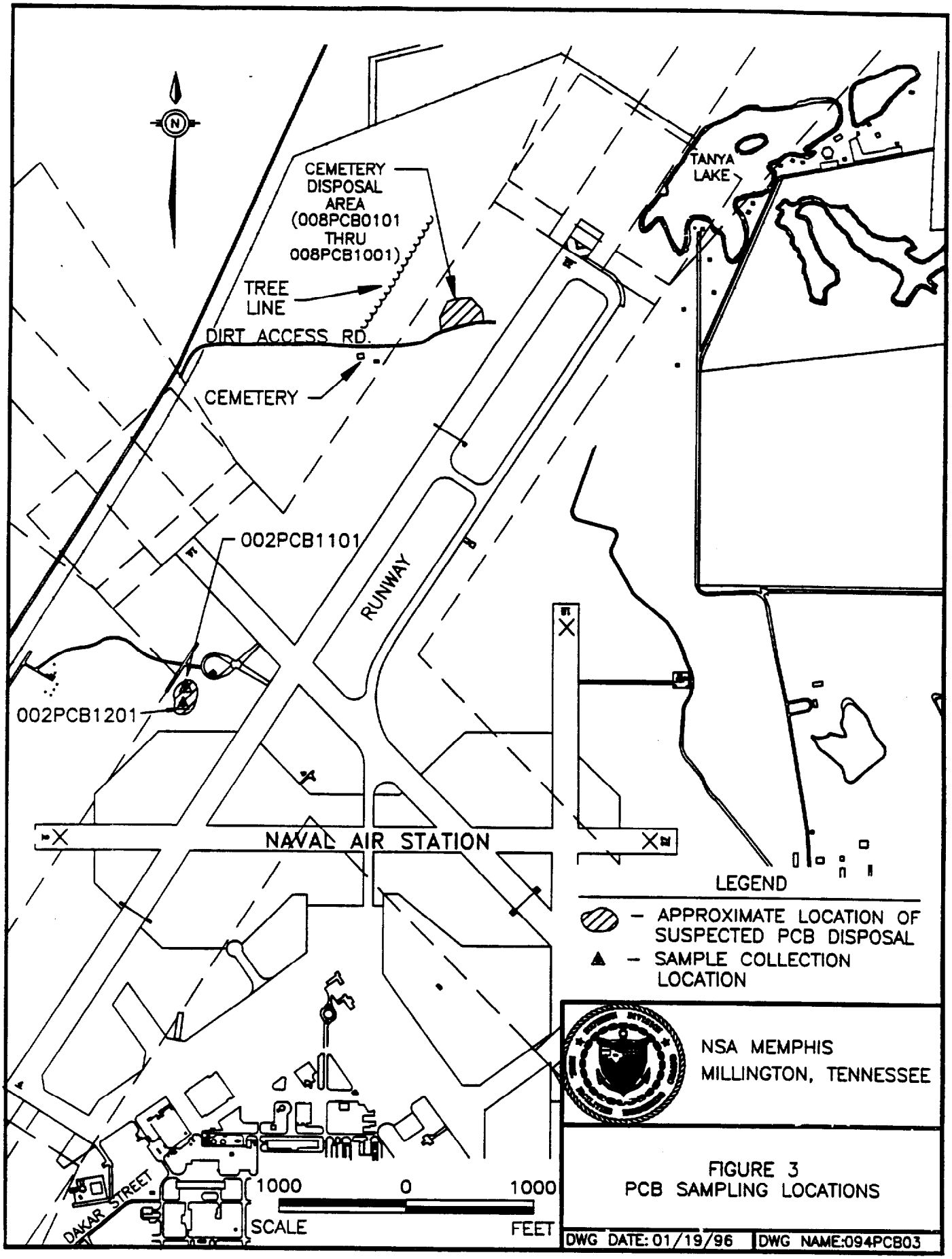
200 0 200

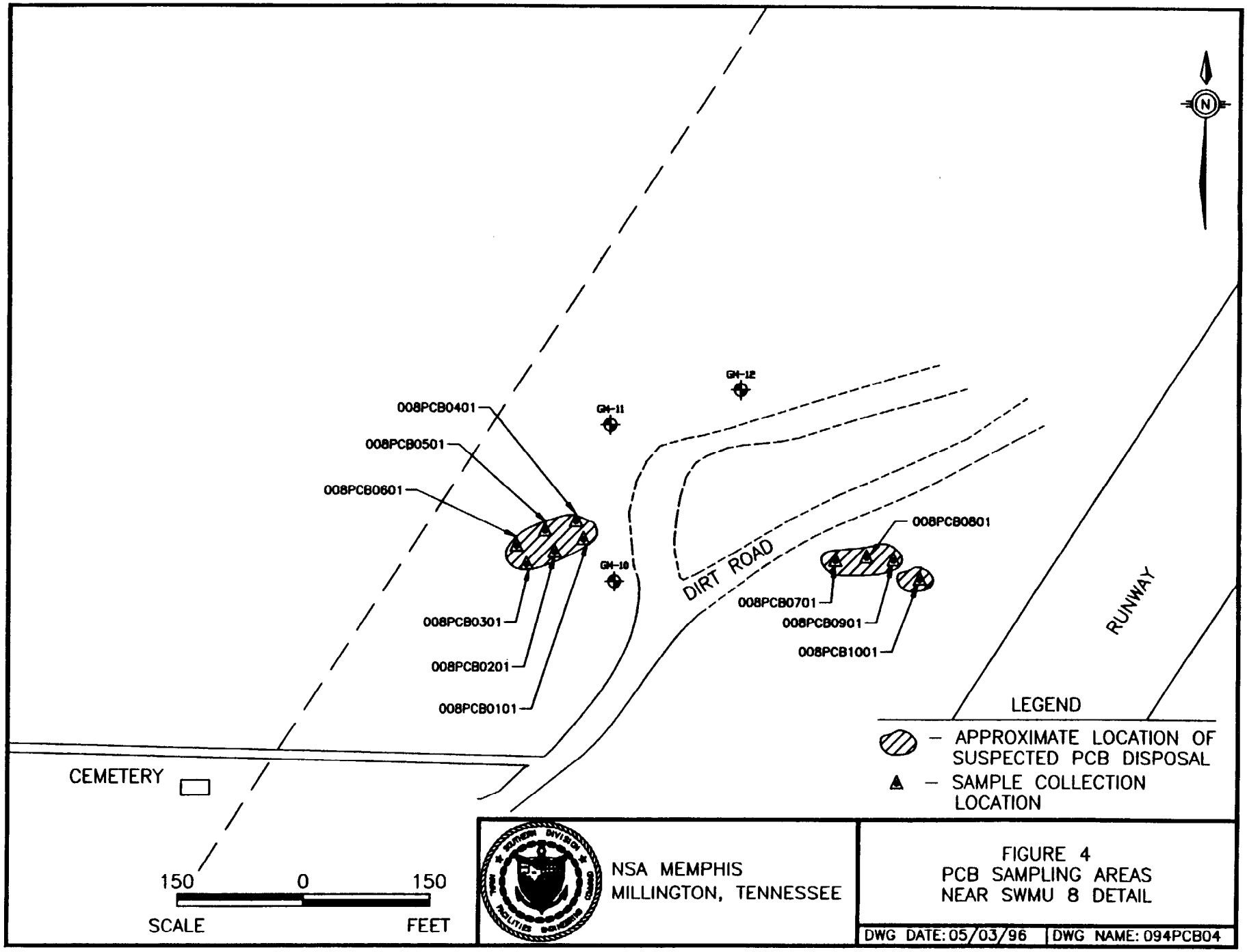
SCALE FEET

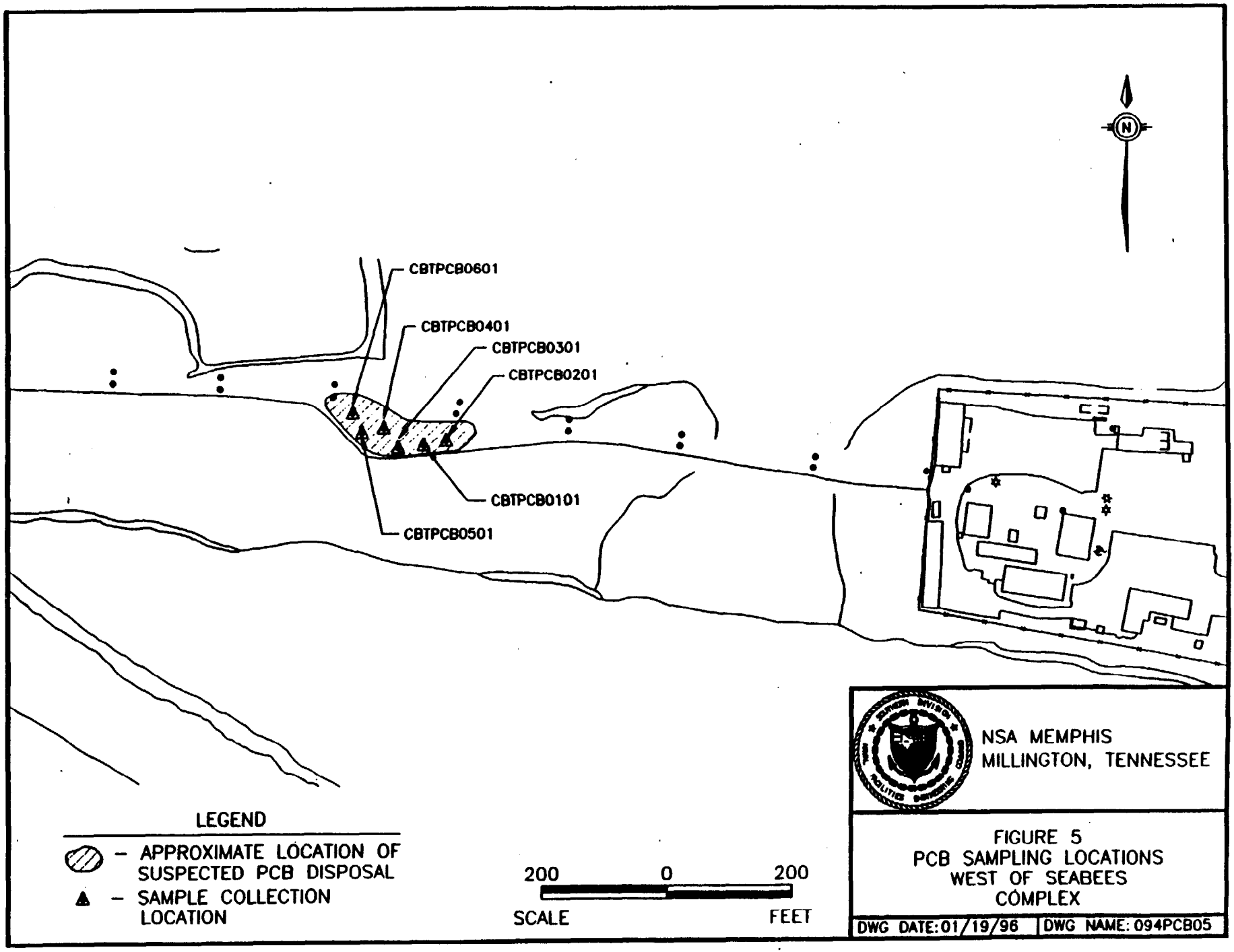
NSA MEMPHIS
MILLINGTON, TENNESSEE

FIGURE 2
PCB SAMPLING LOCATION
TRASH PILE 2 NEAR
SWMU 60

DWG DATE: 01/19/96 | DWG NAME: 094PCB02


N
CEMETERY DISPOSAL AREA (008PCB0101 THRU 008PCB1001)
TREE LINE
DIRT ACCESS RD.
CEMETERY
TANYA LAKE
002PCB1101
RUNWAY
002PCB1201
NAVAL AIR STATION
DAKAR STREET
1000 0 1000
SCALE FEET
LEGEND
– APPROXIMATE LOCATION OF SUSPECTED PCB DISPOSAL
– SAMPLE COLLECTION LOCATION
NSA MEMPHIS
MILLINGTON, TENNESSEE
FIGURE 3
PCB SAMPLING LOCATIONS
DWG DATE: 01/19/96
DWG NAME:094PCB03


008PCB0401
008PCB0501
008PCB0601
008PCB0301
008PCB0201
008PCB0101
GM-11
GM-12
GM-10
DIRT ROAD
008PCB0801
008PCB0701
008PCB0901
008PCB1001
RUNWAY
CEMETERY
LEGEND
– APPROXIMATE LOCATION OF SUSPECTED PCB DISPOSAL
– SAMPLE COLLECTION LOCATION
150 0 150
SCALE FEET
NSA MEMPHIS
MILLINGTON, TENNESSEE
FIGURE 4
PCB SAMPLING AREAS
NEAR SWMU 8 DETAIL
DWG DATE: 05/03/96
DWG NAME: 094PCB04


CBTPCB0601
CBTPCB0401
CBTPCB0301
CBTPCB0201
CBTPCB0101
CBTPCB0501
N
LEGEND
– APPROXIMATE LOCATION OF SUSPECTED PCB DISPOSAL
– SAMPLE COLLECTION LOCATION
200
0
200
SCALE
FEET
NSA MEMPHIS
MILLINGTON, TENNESSEE
FIGURE 5
PCB SAMPLING LOCATIONS
WEST OF SEABEES
COMPLEX
DWG DATE: 01/19/96
DWG NAME: 094PCB05

Appendix F

Soil Physical Parameters

TRI STATE
TESTING SERVICES, INC.

Measurement of Hydraulic Conductivity

Client: EnSafe/Allen & Hoshall

Date of Report: 03/13/95 Project No.: E-2-837

Project Name: NAS Memphis, Tennessee

Sample I.D.: 008MW025

Soil Description: Dark Brown Silty Clay

	Pre-Test	Post Test
Wet Density (Lbs/ft^3)	126.0	128.4
Dry Density (Lbs/ft^3)	100.1	101.8
Moisture (% Dry Wt)	25.9	26.1
Porosity (n)	.396	.384
Degree of Saturation (%)	1.0	1.0

Permeability

Temperature Correction, R_t = 1.086

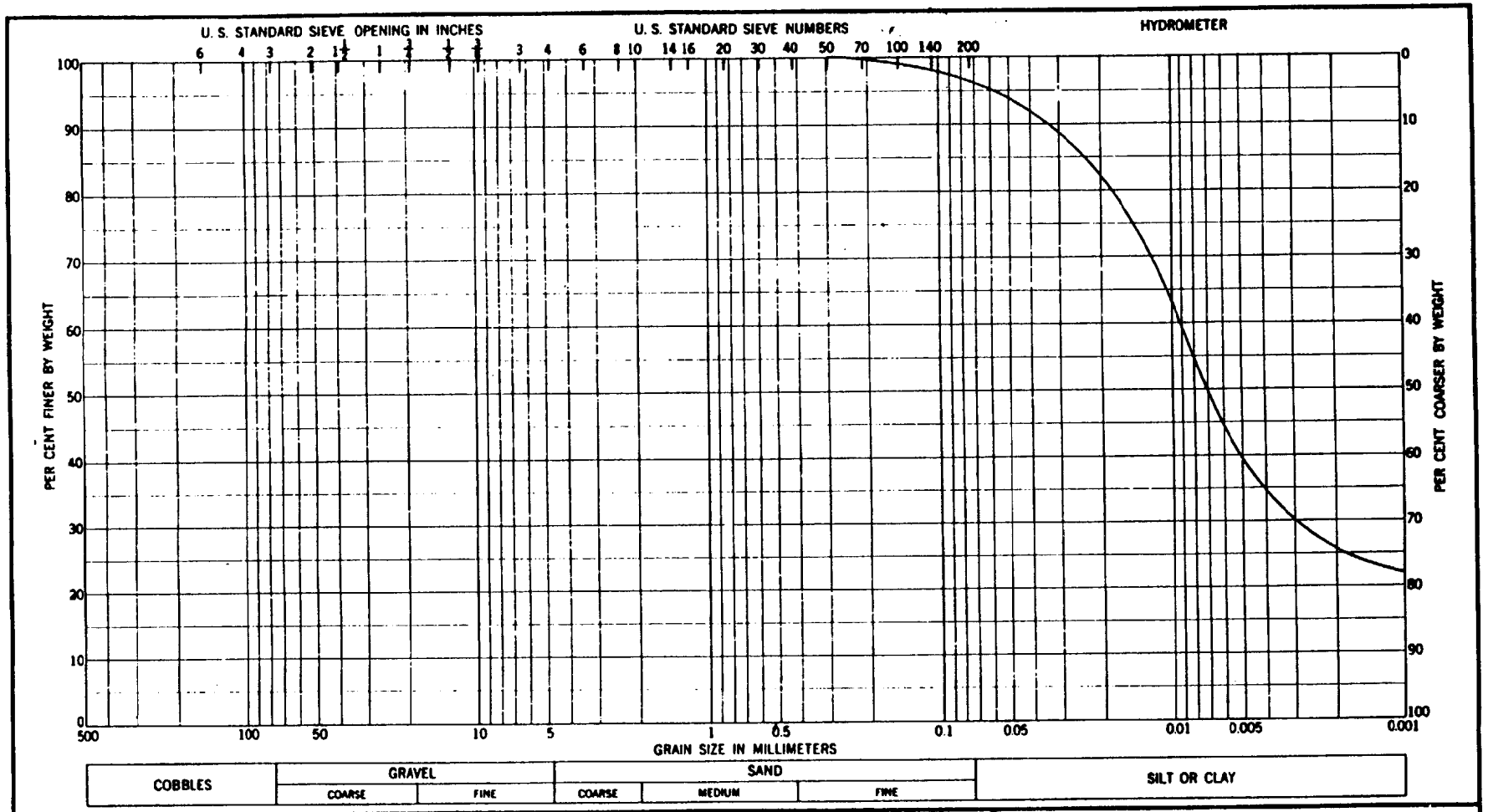
$K_1 = 5.9 \times 10^{-7}$ cm/sec
$K_2 = 1.6 \times 10^{-7}$ cm/sec
$K_3 = 1.6 \times 10^{-7}$ cm/sec
$K_4 = 2.0 \times 10^{-7}$ cm/sec

Coefficient of Permeability, $K_{20} = 3.0 \times 10^{-8}$ cm/sec

Tested in accordance with Method 9100 of Test Methods for evaluation Solid Waste, Third Addition (SW-846) and in general accordance with ASTM D-5084-90.

Lab No. P-95-0015 Reviewed By: David D. McCray

6756 Buckles Cove Memphis, TN 38133 901-385-1199 Fax 901-386-6614



Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
--	--		--	--	--	--

Project Naval Air Station Memphis, Tennessee

Area

Boring No. Sample ID 008MW025

Date 03/06/95

GRADATION CURVES

TRI-STATE TESTING SE CES, INC.

Appendix G

Specific Capacity Data

```
*****************************************************************
DETERMINATION OF AQUIFER PROPERTIES BASED ON ANALYSIS OF
                 SPECIFIC CAPACITY TESTS
*****************************************************************
```

Copied from: Bradbury, K. R. and Rothschild, E. R., 1985. A computerized technique for estimating the hydraulic conductivity of aquifers from specific capacity data, Ground Water, 23(2), pp. 240-246.

WELL NUMBER 08MW01 F

```
WELL DIAMETER (IN) =          2
STATIC WATER LEVEL (FT) =     21.57
DEPTH TO WATER DURING TEST (FT) =          26.87
THE LENGTH OF THE TEST (HR) =              .083
PUMPING RATE (GPM) =          2.5
THICKNESS OF AQUIFER (FT) =                21
OPEN INTERVAL (FT) =          10
STORAGE COEFFICIENT =         .0001
WELL-LOSS COEFFICIENT =       .75


   CIFIC CAPACITY (GPM/FT) =  .4717001

TRANSMISSIVITY:  (FT*FT/SEC) =  1.942906E-03
                 (FT*FT/DAY) =  167.8671
                 (GAL/DAY/FT) =  1255.73
           USING A STORAGE COEFFICIENT =  .0001
           NUMBER OF ITERATIONS =  3

HYDRAULIC CONDUCTIVITY:  (FT/SEC) =  9.251935E-05
                         (FT/DAY) =  7.993672
                         (GAL/DAY/FT*FT) =  53.10611

THE NUMBER OF WELLS IN THIS RECORD IS  1
```

SPEC. CAP			
DATE 3-22-95		1	
SWMU 8		WELL NO. 008GW01F	
TIME	WATER LEVEL		
0 sec	~~25.~~ 21.57		
15 sec	23.95		
30 sec	25.05		
45 sec	25.70		
1 min.	26 ~~.04~~ .04 ≠ 26.04		
1.5	26.37		
2	26.57		
3	26.74		
5	26.87		
5:15	24.85		
5:30	23.85		
5:45	23.14		
6	22.72		
6:30	22.27		
7	22.00		
8	~~22~~ 21.82		
10	21.69		
11	21.67		
12	21.65		

Flow Rate
~2.5 gpm

Appendix H

Analytical Data for Soil Samples

Matrix/QC Code (4th character of sample ID). The following character codes were used to identify the matrix and QC samples collected during the RFI, except for the samples collected as part of the PCB-contaminated soil investigation.

Matrix Codes		QC Codes	
S	Soil (surface, borings, and trenches)	T	Trip blank
C	Soil duplicate sample	E	Equipment rinsate blank
M	Sediment (settled, fluid-borne solid)	D	DI system blank
N	Sediment duplicate sample	P	Potable water blank
G	Groundwater	F	Field blank
H	Groundwater duplicate sample	L	Filter blank
W	Surface water	B	USEPA blind spike sample
R	Surface water duplicate sample	2	Cement blank
U	Sludge	3	Drilling mud
Y	Sludge duplicate sample	4	Grout blank
Z	Liquid waste (including IDW drums)	5	Bentonite blank
V	Solid waste (including IDW drums)	6	Sand blank

DATALCP3
08/13/96

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

APX9-METAL																		
	SAMPLE ID ------->	008-S-0001-01		008-S-0001-12		008-S-0001-19		008-S-0002-01		008-S-0002-14		008-C-0002-14	
	ORIGINAL ID ----->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	LAB SAMPLE ID --->	7-116238S		7-116239S		7-116240S		7-116241S		7-116242S		7-116243S	
	ID FROM REPORT -->	08S101		008S112		008S119		008S201		008S214		008C214	
	SAMPLE DATE ----->	01/31/95		01/31/95		01/31/95		02/01/95		02/01/95		02/01/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
7440-36-0	Antimony (Sb)	10.3	UJ	10.5	UJ	9.9	UJ	10.6	UJ	10.3	UJ	10.2	UJ
7440-38-2	Arsenic (As)	13.4		6.4		4.4		13.1		7.5		8.1	
7440-39-3	Barium (Ba)	99.8		59.3		101.		103.		62.8		62.3	
7440-41-7	Beryllium (Be)	0.51	J	0.33	J	0.57	J	0.61	J	0.36	J	0.35	J
7440-43-9	Cadmium (Cd)	3.		1.3		2.3		3.1		1.9		1.9	
7440-47-3	Chromium (Cr)	13.1		9.6		13.9		17.2		12.		9.5	
7440-48-4	Cobalt (Co)	7.8	J	6.5	J	7.	J	9.	J	6.1	J	6.6	J
7440-50-8	Copper (Cu)	18.9		12.9		11.2		18.6		14.3		14.8	
7439-92-1	Lead (Pb)	15.5	J	7.2	J	7.1	J	19.6	J	10.5	J	11.2	J
7439-97-6	Mercury (Hg)	0.13		0.13	U	0.12	U	0.13	U	0.12	U	0.12	U
7440-02-0	Nickel (Ni)	16.6		15.4		13.8		15.4		15.8		17.9	
7782-49-2	Selenium (Se)	0.76	J	0.53	UJ	0.49	U	0.54	UJ	0.51	UJ	0.51	UJ
7440-22-4	Silver (Ag)	1.1	UJ	0.89	UJ	0.91	UJ	0.87	UJ	1.4	UJ	1.2	UJ
7440-28-0	Thallium (Tl)	0.52	U	0.53	U	0.49	U	0.53	U	0.51	U	0.51	U
7440-62-2	Vanadium (V)	32.5		19.		30.3		38.3		22.5		18.9	
7440-66-6	Zinc (Zn)	63.9		34.2		34.3		62.6		41.1		42.5	
7440-31-5	Tin (Sn)	14.1	U	15.3	U	5.3	U	10.8	U	8.4	U	10.9	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

APX9-METAL													
	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ----->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	7-116244S		7-116245S		7-116246S		7-116247S		7-116248S		7-116249S	
	ID FROM REPORT -->	008S220		008S301		008S312		008S322		008S401		008S410	
	SAMPLE DATE ----->	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
7440-36-0	Antimony (Sb)	9.8	UJ	10.3	UJ	9.8	UJ	9.9	UJ	10.1	UJ	10.	UJ
7440-38-2	Arsenic (As)	4.6		7.5		7.3		2.6		9.6		8.7	
7440-39-3	Barium (Ba)	92.6		74.8		92.3		108.		117.		152.	
7440-41-7	Beryllium (Be)	0.51	J	0.44	J	0.48	J	0.64	J	0.55	J	0.51	J
7440-43-9	Cadmium (Cd)	2.3		1.8		2.6		2.6		2.1		2.2	
7440-47-3	Chromium (Cr)	13.2		10.3		12.6		18.7		14.5		11.9	
7440-48-4	Cobalt (Co)	6.7	J	8.6	J	8.3	J	8.6	J	8.3	J	8.1	J
7440-50-8	Copper (Cu)	10.2		11.4		16.5		12.5		14.8		17.	
7439-92-1	Lead (Pb)	11.2	J	15.7	J	11.9	J	8.7	J	14.9	J	13.3	J
7439-97-6	Mercury (Hg)	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U
7440-02-0	Nickel (Ni)	13.4		13.5		20.		16.4		18.9		22.3	
7782-49-2	Selenium (Se)	0.49	U	0.52	U	0.49	UJ	0.5	U	0.83	J	0.5	U
7440-22-4	Silver (Ag)	1.	UJ	2.1	UJ	0.74	UJ	1.1	UJ	1.6	UJ	1.7	UJ
7440-28-0	Thallium (Tl)	0.49	U	0.52	U	0.49	U	0.5	U	0.5	U	0.5	U
7440-62-2	Vanadium (V)	27.9		22.4		26.4		38.6		34.7		25.5	
7440-66-6	Zinc (Zn)	30.5		40.5		51.6		35.5		53.5		59.4	
7440-31-5	Tin (Sn)	7.3	U	13.9	U	8.9	U	13.1	U	19.	U	19.5	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

APX9-METAL																		
	SAMPLE ID ------->	008-S-0004-24		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03		008-P-CB04-01		008-P-CB04-03	
	ORIGINAL ID ----->	008S000424		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
	LAB SAMPLE ID --->	7-116250S		141170S		141171S		141172S		141173S		141174S	
	ID FROM REPORT -->	008S424		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
	SAMPLE DATE ----->	02/01/95		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A
CAS #	Parameter	FD1318	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
7440-36-0	Antimony (Sb)	9.7	UJ	7.6	UJ	8.	UJ	7.6	UJ	8.1	UJ	7.7	UJ
7440-38-2	Arsenic (As)	4.		10.9		7.6		8.9		6.6		12.4	
7440-39-3	Barium (Ba)	100.		92.6		90.1		101.		82.6		108.	
7440-41-7	Beryllium (Be)	0.52	J	0.56	J	0.41	J	0.54	J	0.46	J	0.66	J
7440-43-9	Cadmium (Cd)	1.7		3.5		3.		3.4		2.7		3.9	
7440-47-3	Chromium (Cr)	12.4		12.1		8.7		13.2		11.6		13.1	
7440-48-4	Cobalt (Co)	6.8	J	9.	J	7.2	J	7.3	J	8.1	J	9.4	J
7440-50-8	Copper (Cu)	10.6		18.5		13.2		17.6		13.5		22.2	
7439-92-1	Lead (Pb)	8.6	J	13.1	J	14.6	J	13.4	J	12.8	J	17.2	J
7439-97-6	Mercury (Hg)	0.12	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
7440-02-0	Nickel (Ni)	12.2		10.8		7.2	J	12.5		8.1	J	14.7	
7782-49-2	Selenium (Se)	0.49	U	0.51	U	0.53	U	0.51	U	0.54	U	0.51	U
7440-22-4	Silver (Ag)	1.	UJ	0.76	U	0.8	U	0.76	U	0.81	U	0.77	U
7440-28-0	Thallium (Tl)	0.49	U	0.76	U	0.8	U	0.76	U	0.81	U	0.77	U
7440-62-2	Vanadium (V)	25.8		28.8		21.4		30.9		24.8		31.4	
7440-66-6	Zinc (Zn)	30.2		49.8		38.4		51.5		39.1		59.7	
7440-31-5	Tin (Sn)	12.4	U	12.7	U	13.5	U	10.	U	11.1	U	14.7	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

APK9-METAL													
	SAMPLE ID ------->	008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03					
	ORIGINAL ID ----->	008PCB0501		008PCB0503		008PCB0601		008PCB0603					
	LAB SAMPLE ID --->	141309S		141310S		141311S		141312S					
	ID FROM REPORT -->	008PCB0501		008PCB0503		008PCB0601		008PCB0603					
	SAMPLE DATE ----->	01/17/96		01/17/96		01/17/96		01/17/96					
	MATRIX ---------->	Soil		Soil		Soil		Soil					
	UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A				
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL				
7440-36-0	Antimony (Sb)	7.5	UJ	7.7	UJ	7.6	UJ	7.6	UJ				
7440-38-2	Arsenic (As)	8.6		14.		7.9		13.9					
7440-39-3	Barium (Ba)	78.4		82.		82.1		89.6					
7440-41-7	Beryllium (Be)	0.53	J	0.53	J	0.47	J	0.61	J				
7440-43-9	Cadmium (Cd)	2.9		4.		2.7		4.					
7440-47-3	Chromium (Cr)	12.1		10.7		9.8		12.1					
7440-48-4	Cobalt (Co)	8.2	J	5.9	J	7.2	J	6.4	J				
7440-50-8	Copper (Cu)	14.9		20.9		14.		21.5					
7439-92-1	Lead (Pb)	10.5	J	14.6	J	12.1	J	13.7	J				
7439-97-6	Mercury (Hg)	0.13	U	0.13	U	0.13	U	0.13	U				
7440-02-0	Nickel (Ni)	9.6	J	10.7		8.5	J	12.3					
7782-49-2	Selenium (Se)	0.5	U	0.51	U	0.5	U	0.51	U				
7440-22-4	Silver (Ag)	0.75	U	0.77	U	0.76	U	0.76	U				
7440-28-0	Thallium (Tl)	0.75	U	0.77	U	0.76	U	0.76	U				
7440-62-2	Vanadium (V)	25.9		27.5		21.9		29.4					
7440-66-6	Zinc (Zn)	41.5		50.9		37.5		52.6					
7440-31-5	Tin (Sn)	17.	U	17.6	U	17.5	U	20.5	U				

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

KJELDAHL							
	SAMPLE ID ------->	008-S-DESI-GN					
	ORIGINAL ID ----->	008SDESIGN					
	LAB SAMPLE ID --->	116323					
	ID FROM REPORT -->	008SDESIGN					
	SAMPLE DATE ----->	02/01/95					
	DATE ANALYZED --->	02/07/95					
	MATRIX ---------->	Soil					
	UNITS ---------->	MG/KG A					
CAS #	Parameter	FD1318 VAL					
9999000-72-6	KJELDAHL NITROGEN, TOTAL	150.					

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

METAL-CN													
	SAMPLE ID ------->	008-S-0001-01		008-S-0001-12		008-S-0001-19		008-S-0002-01		008-S-0002-14		008-C-0002-14	
	ORIGINAL ID ----->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	LAB SAMPLE ID --->	116238		116239		116240		116241		116242		116243	
	ID FROM REPORT -->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	SAMPLE DATE ----->	01/31/95		01/31/95		01/31/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/06/95		02/06/95		02/06/95		02/06/95		02/06/95		02/06/95	
	DATE ANALYZED --->	02/13/95		02/13/95		02/13/95		02/13/95		02/13/95		02/13/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
57-12-5	Cyanide (CN)	0.64	U	0.65	U	0.61	U	0.65	U	0.64	U	0.63	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

METAL-CN	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ----->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	116244		116245		116246		116247		116248		116249	
	ID FROM REPORT -->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	SAMPLE DATE ----->	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/06/95		02/06/95		02/06/95		02/06/95		02/06/95		02/06/95	
	DATE ANALYZED --->	02/13/95		02/13/95		02/13/95		02/13/95		02/13/95		02/13/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
57-12-5	Cyanide (CN)	0.61	U	0.64	U	0.61	U	0.61	U	0.62	U	0.63	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

METAL-CN

SAMPLE ID ------->	008-S-0004-24
ORIGINAL ID ----->	008S000424
LAB SAMPLE ID --->	116250
ID FROM REPORT -->	008S000424
SAMPLE DATE ----->	02/01/95
DATE EXTRACTED -->	02/06/95
DATE ANALYZED --->	02/13/95
MATRIX ---------->	Soil
UNITS ---------->	MG/KG A

CAS #	Parameter	FD1318	VAL
57-12-5	Cyanide (CN)	0.61	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

NITRATE							
	SAMPLE ID ------->	008-S-DESI-GN					
	ORIGINAL ID ----->	008SDESIGN					
	LAB SAMPLE ID --->	116323					
	ID FROM REPORT -->	008SDESIGN					
	SAMPLE DATE ----->	02/01/95					
	DATE EXTRACTED -->	02/07/95					
	DATE ANALYZED --->	02/09/95					
	MATRIX ---------->	Soil					
	UNITS ---------->	MG/KG A					
CAS #	Parameter	FD1318 VAL					
14797-55-8	Nitrate (as N)	26.					

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-HERB													
	SAMPLE ID ------->	008-S-0001-01		008-S-0001-12		008-S-0001-19		008-S-0002-01		008-S-0002-14		008-C-0002-14	
	ORIGINAL ID ----->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	LAB SAMPLE ID --->	116218		116219		116220		116221		116222		116223	
	ID FROM REPORT -->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	SAMPLE DATE ----->	01/31/95		01/31/95		01/31/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/15/95		02/15/95		02/15/95		02/15/95		02/15/95		02/15/95	
	DATE ANALYZED --->	02/26/95		02/26/95		02/26/95		02/26/95		02/26/95		02/26/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
94-82-6	2,4-DB	9.5	UJ	9.5	UJ	9.5	UJ	9.4	UJ	9.5	UJ	9.5	UJ
88-85-7	Dinoseb	4.7	UR	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U
93-76-5	2,4,5-T	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ
93-72-1	2,4,5-TP (Silvex)	0.95	UJ	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U
75-99-0	Dalapon	23.	UR	23.	U	23.	U	23.	U	23.	U	23.	U
1918-00-9	Dicamba	0.94	U	0.94	UJ	0.94	UJ	0.94	UJ	0.94	UJ	0.94	UJ
120-36-5	Dichlorprop	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U
94-74-6	MCPA	940.	UJ	940.	UJ	940.	UJ	940.	UJ	940.	UJ	940.	UJ
93-65-2	MCPP	14000.	UR	940.	UJ	940.	UJ	940.	UJ	940.	UJ	2200.	J
94-75-7	2,4-D	9.4	U	9.4	UJ	12.	J	9.4	UJ	9.4	UJ	9.4	UJ

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-HERB													
	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ----->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	116224		116225		116226		116227		116228		116229	
	ID FROM REPORT -->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	SAMPLE DATE ----->	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/15/95		02/15/95		02/15/95		02/15/95		02/15/95		02/15/95	
	DATE ANALYZED --->	02/26/95		02/27/95		02/27/95		02/27/95		02/27/95		02/27/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
94-82-6	2,4-DB	9.5	UJ	9.5	UJ	9.5	UJ	9.5	UJ	12.	UJ	11.	UJ
88-85-7	Dinoseb	4.7	U	4.7	U	4.7	U	4.7	U	6.	U	5.7	UJ
93-76-5	2,4,5-T	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	1.2	UJ	1.1	UJ
93-72-1	2,4,5-TP (Silvex)	0.95	U	0.95	U	0.95	U	0.95	U	1.2	U	1.1	U
75-99-0	Dalapon	23.	U	23.	U	23.	U	23.	U	29.	U	27.	U
1918-00-9	Dicamba	0.94	U	0.94	U	0.94	U	0.94	U	1.2	U	1.1	UJ
120-36-5	Dichlorprop	9.4	U	9.4	U	9.4	U	9.4	U	12.	U	11.	UJ
94-74-6	MCPA	940.	UJ	940.	UJ	940.	UJ	940.	UJ	1200.	UJ	1100.	UJ
93-65-2	MCPP	8200.	J	6800.	J	940.	UJ	3200.	J	3400.	J	4600.	J
94-75-7	2,4-D	9.4	UJ	9.4	UJ	9.4	UJ	9.4	UJ	12.	UJ	11.	UJ

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-HERB

SAMPLE ID ------->	008-S-0004-24
ORIGINAL ID ----->	008S000424
LAB SAMPLE ID --->	116230
ID FROM REPORT -->	008S000424
SAMPLE DATE ----->	02/01/95
DATE EXTRACTED -->	02/15/95
DATE ANALYZED --->	02/27/95
MATRIX ---------->	Soil
UNITS ---------->	UG/KG A

CAS #	Parameter	FD1318	VAL
94-82-6	2,4-DB	10.	UJ
88-85-7	Dinoseb	5.1	UJ
93-76-5	2,4,5-T	1.	UJ
93-72-1	2,4,5-TP (Silvex)	1.	U
75-99-0	Dalapon	25.	U
1918-00-9	Dicamba	1.	UJ
120-36-5	Dichlorprop	10.	UJ
94-74-6	MCPA	1000.	UJ
93-65-2	MCPP	1000.	UJ
94-75-7	2,4-D	10.	UJ

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-OP P

SAMPLE ID ------->	008-S-0001-01		008-S-0001-12		008-S-0001-19		008-S-0002-01		008-S-0002-14		008-C-0002-14	
ORIGINAL ID ----->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
LAB SAMPLE ID --->	116218		116219		116220		116221		116222		116223	
ID FROM REPORT -->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
SAMPLE DATE ----->	01/31/95		01/31/95		01/31/95		02/01/95		02/01/95		02/01/95	
DATE EXTRACTED -->	02/15/95		02/15/95		02/15/95		02/15/95		02/15/95		02/15/95	
DATE ANALYZED --->	02/26/95		02/26/95		02/26/95		02/26/95		02/26/95		02/26/95	
MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS # Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
86-50-0 Guthion	210.	UJ	220.	UJ	210.	UJ	220.	UJ	210.	UJ	200.	UJ
35400-43-2 Sulprofos	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
2921-88-2 Chloropyrifos	110.	UJ	110.	U	100.	U	110.	U	100.	U	100.	U
56-72-4 Coumaphos	110.	UJ	110.	UJ	100.	UJ	110.	UJ	100.	UJ	100.	UJ
8065-48-3 Demeton,O	110.	UJ	110.	UJ	100.	UJ	110.	UJ	100.	UJ	100.	UJ
333-41-5 Diazinon	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
62-73-7 Dichlorvos	110.	UJ	110.	UJ	100.	UJ	110.	UJ	100.	UJ	100.	UJ
298-04-4 Disulfoton	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
13194-48-4 Ethoprop	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
115-90-2 Fensulfothion	110.	UJ	110.	UJ	100.	UJ	110.	UJ	100.	UJ	100.	UJ
55-38-9 Fenthion	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
150-50-5 Merphos	110.	UR	110.	UR	100.	UR	110.	UR	100.	UR	100.	UJ
7786-34-7 Mevinphos, Alpha	110.	UJ	110.	UJ	100.	UJ	110.	UJ	100.	UJ	100.	UJ
300-76-5 Naled	110.	UJ	110.	UJ	100.	UJ	110.	UJ	100.	UJ	100.	UJ
298-00-0 Methyl parathion	110.	UJ	110.	U	100.	U	110.	U	100.	U	100.	U
298-02-2 Phorate	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
299-84-3 Ronnel	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
22248-79-9 Stirophos (Tetrachlorovinphos)	110.	U	110.	UJ	100.	UJ	110.	UJ	100.	UJ	100.	UJ
34643-46-4 Tokuthion	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
327-98-0 Trichloronate	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U
126-75-0 Demeton,S	110.	U	110.	U	100.	U	110.	U	100.	U	100.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-OP P													
	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ------>	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	116224		116225		116226		116227		116228		116229	
	ID FROM REPORT -->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	SAMPLE DATE ------>	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/15/95		02/15/95		02/15/95		02/15/95		02/15/95		02/15/95	
	DATE ANALYZED ---->	02/26/95		02/27/95		02/27/95		02/27/95		02/27/95		02/27/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
86-50-0	Guthion	200.	UJ	210.	UJ	210.	UJ	210.	UJ	210.	UJ	210.	UJ
35400-43-2	Sulprofos	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
2921-88-2	Chloropyrifos	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
56-72-4	Coumaphos	98.	UJ	100.	UJ	100.	UJ	100.	UJ	110.	UJ	100.	UJ
8065-48-3	Demeton,O	98.	UJ	100.	UJ	100.	UJ	100.	UJ	110.	UJ	100.	UJ
333-41-5	Diazinon	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
62-73-7	Dichlorvos	98.	UJ	100.	UJ	100.	UJ	100.	UJ	110.	UJ	100.	UJ
298-04-4	Disulfoton	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
13194-48-4	Ethoprop	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
115-90-2	Fensulfothion	98.	UJ	100.	UJ	100.	UJ	100.	UJ	110.	UJ	100.	UJ
55-38-9	Fenthion	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
150-50-5	Merphos	98.	UJ	100.	UJ	100.	UJ	100.	UJ	110.	UJ	100.	UJ
7786-34-7	Mevinphos, Alpha	98.	UJ	100.	UJ	100.	UJ	100.	UJ	110.	UJ	100.	UJ
300-76-5	Naled	98.	UJ	100.	UJ	100.	UJ	100.	UJ	110.	UJ	100.	UJ
298-00-0	Methyl parathion	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
298-02-2	Phorate	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
299-84-3	Ronnel	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
22248-79-9	Stirophos (Tetrachlorovinphos)	98.	UJ	100.	UJ	100.	UJ	100.	UJ	110.	UJ	100.	UJ
34643-46-4	Tokuthion	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
327-98-0	Trichloronate	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U
126-75-0	Demeton,S	98.	U	100.	U	100.	U	100.	U	110.	U	100.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-OP P

SAMPLE ID ------->	008-S-0004-24
ORIGINAL ID ----->	008S000424
LAB SAMPLE ID --->	116230
ID FROM REPORT -->	008S000424
SAMPLE DATE ----->	02/01/95
DATE EXTRACTED -->	02/15/95
DATE ANALYZED --->	02/27/95
MATRIX ---------->	Soil
UNITS ---------->	UG/KG A

CAS #	Parameter	FD1318	VAL
86-50-0	Guthion	200.	UJ
35400-43-2	Sulprofos	100.	U
2921-88-2	Chloropyrifos	100.	U
56-72-4	Coumaphos	100.	UJ
8065-48-3	Demeton,O	100.	UJ
333-41-5	Diazinon	100.	U
62-73-7	Dichlorvos	100.	UJ
298-04-4	Disulfoton	100.	U
13194-48-4	Ethoprop	100.	U
115-90-2	Fensulfothion	100.	UJ
55-38-9	Fenthion	100.	U
150-50-5	Merphos	100.	UJ
7786-34-7	Mevinphos, Alpha	100.	UJ
300-76-5	Naled	100.	UJ
298-00-0	Methyl parathion	100.	U
298-02-2	Phorate	100.	U
299-84-3	Ronnel	100.	U
22248-79-9	Stirophos (Tetrachlorovinphos)	100.	UJ
34643-46-4	Tokuthion	100.	U
327-98-0	Trichloronate	100.	U
126-75-0	Demeton,S	100.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-PEST													
	SAMPLE ID ------->	008-S-0001-01		008-S-0001-12		008-S-0001-19		008-S-0002-01		008-S-0002-14		008-C-0002-14	
	ORIGINAL ID ----->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	LAB SAMPLE ID --->	116238		116239		116240		116241		116242		116243	
	ID FROM REPORT -->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	SAMPLE DATE ----->	01/31/95		01/31/95		01/31/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->			02/14/95		02/14/95		02/14/95		02/14/95		02/14/95	
	DATE ANALYZED --->			02/23/95		02/23/95		02/23/95		02/23/95		02/23/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->		A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
319-84-6	alpha-BHC	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
319-85-7	beta-BHC	2.3	UJ	2.2	UJ	2.1	UJ	2.2	UJ	2.3	UJ	2.3	UJ
319-86-8	delta-BHC	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
58-89-9	gamma-BHC (Lindane)	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
76-44-8	Heptachlor	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
309-00-2	Aldrin	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
959-98-8	Endosulfan I	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
60-57-1	Dieldrin	65.	J	4.3	U	4.	U	5.1	J	4.4	U	4.4	U
72-55-9	4,4'-DDE	4.5	UJ	4.3	UJ	4.	UJ	4.3	UJ	4.4	UJ	4.4	UJ
72-20-8	Endrin	4.5	U	4.3	U	4.	U	4.3	U	4.4	U	4.4	U
33213-65-9	Endosulfan II	4.5	U	4.3	U	4.	U	4.3	U	4.4	U	4.4	U
72-54-8	4,4'-DDD	4.5	U	4.3	U	4.	U	4.3	U	4.4	U	4.4	U
1031-07-8	Endosulfan sulfate	4.5	U	4.3	U	4.	U	4.3	U	4.4	U	4.4	U
50-29-3	4,4'-DDT	4.5	U	4.3	U	4.	U	4.3	U	4.4	U	4.4	U
72-43-5	Methoxychlor	23.	U	22.	U	21.	U	22.	U	23.	U	23.	U
53494-70-5	Endrin ketone	4.5	U	4.3	U	4.	U	4.3	U	4.4	U	4.4	U
7421-93-4	Endrin aldehyde	4.5	U	4.3	U	4.	U	4.3	U	4.4	U	4.4	U
5103-71-9	alpha-Chlordane	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
5103-74-2	gamma-Chlordane	2.3	U	2.2	U	2.1	U	2.2	U	2.3	U	2.3	U
8001-35-2	Toxaphene	45.	U	43.	U	40.	U	43.	U	44.	U	44.	U
12674-11-2	Aroclor-1016	45.	U	43.	U	40.	U	43.	U	44.	U	44.	U
11104-28-2	Aroclor-1221	45.	U	43.	U	40.	U	43.	U	44.	U	44.	U
53469-21-9	Aroclor-1242	45.	U	43.	U	40.	U	43.	U	44.	U	44.	U
12672-29-6	Aroclor-1248	45.	U	43.	U	40.	U	43.	U	44.	U	44.	U
11097-69-1	Aroclor-1254	45.	U	43.	U	40.	U	43.	U	44.	U	44.	U
11096-82-5	Aroclor-1260	45.	U	43.	U	40.	U	43.	U	44.	U	44.	U
11141-16-5	Aroclor-1232	45.	U	43.	U	40.	U	43.	U	44.	U	44.	U
12789-03-6	Technical Chlordane	??????????		??????????		??????????		??????????		??????????		??????????	

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-PEST	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ----->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	116244		116245		116246		116247		116248		116249	
	ID FROM REPORT -->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	SAMPLE DATE ----->	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/14/95		02/14/95		02/14/95		02/14/95		02/14/95		02/14/95	
	DATE ANALYZED --->	02/23/95		02/24/95		02/24/95		02/24/95		02/24/95		02/24/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
319-84-6	alpha-BHC	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
319-85-7	beta-BHC	2.1	UJ	2.1	UJ	2.	UJ	2.1	UJ	2.	UJ	2.2	UJ
319-86-8	delta-BHC	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
58-89-9	gamma-BHC (Lindane)	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
76-44-8	Heptachlor	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
309-00-2	Aldrin	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
1024-57-3	Heptachlor epoxide	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
959-98-8	Endosulfan I	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
60-57-1	Dieldrin	4.1	U	471.	JD	3.9	U	4.1	U	35.	J	4.2	U
72-55-9	4,4'-DDE	4.1	UJ	4.1	UJ	3.9	UJ	4.1	UJ	3.9	UJ	4.2	UJ
72-20-8	Endrin	4.1	U	4.1	U	3.9	U	4.1	U	3.9	U	4.2	U
33213-65-9	Endosulfan II	4.1	U	4.1	UJ	3.9	UJ	4.1	UJ	3.9	UJ	4.2	UJ
72-54-8	4,4'-DDD	4.1	U	4.1	UJ	3.9	UJ	4.1	UJ	3.9	UJ	4.2	UJ
1031-07-8	Endosulfan sulfate	4.1	U	4.1	U	3.9	U	4.1	U	3.9	U	4.2	U
50-29-3	4,4'-DDT	4.1	U	4.1	UJ	3.9	UJ	4.1	UJ	3.9	UJ	4.2	UJ
72-43-5	Methoxychlor	21.	U	21.	UJ	20.	UJ	21.	UJ	20.	UJ	22.	UJ
53494-70-5	Endrin ketone	4.1	U	4.1	U	3.9	U	4.1	U	3.9	U	4.2	U
7421-93-4	Endrin aldehyde	4.1	U	4.1	U	3.9	U	4.1	U	3.9	U	4.2	U
5103-71-9	alpha-Chlordane	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
5103-74-2	gamma-Chlordane	2.1	U	2.1	U	2.	U	2.1	U	2.	U	2.2	U
8001-35-2	Toxaphene	41.	U	41.	U	39.	U	41.	U	39.	U	42.	U
12674-11-2	Aroclor-1016	41.	U	41.	U	39.	U	41.	U	39.	U	42.	U
11104-28-2	Aroclor-1221	41.	U	41.	U	39.	U	41.	U	39.	U	42.	U
53469-21-9	Aroclor-1242	41.	U	41.	U	39.	U	41.	U	39.	U	42.	U
12672-29-6	Aroclor-1248	41.	U	41.	U	39.	U	41.	U	39.	U	42.	U
11097-69-1	Aroclor-1254	41.	U	41.	U	39.	U	41.	U	39.	U	42.	U
11096-82-5	Aroclor-1260	41.	U	41.	U	39.	U	41.	U	39.	U	42.	U
11141-16-5	Aroclor-1232	41.	U	41.	U	39.	U	41.	U	39.	U	42.	U
12789-03-6	Technical Chlordane	??????????		??????????		??????????		??????????		??????????		??????????	

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-PEST																	
	SAMPLE ID ------->	008-S-0004-24		008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03		008-P-CB04-01	
	ORIGINAL ID ----->	008S000424		008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401	
	LAB SAMPLE ID --->	116250		141169		141170		141171		141172		141173	
	ID FROM REPORT -->	008S000424		008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401	
	SAMPLE DATE ----->	02/01/95		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE EXTRACTED -->	02/14/95		01/16/96		01/16/96		01/16/96		01/16/96		01/16/96	
	DATE ANALYZED --->	02/24/95		01/21/96		01/21/96		01/21/96		01/21/96		01/21/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
319-84-6	alpha-BHC	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
319-85-7	beta-BHC	2.1	UJ	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
319-86-8	delta-BHC	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
58-89-9	gamma-BHC (Lindane)	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
76-44-8	Heptachlor	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
309-00-2	Aldrin	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
1024-57-3	Heptachlor epoxide	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
959-98-8	Endosulfan I	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
60-57-1	Dieldrin	4.1	U	14.		4.2	U	17.		4.4		4.4	U
72-55-9	4,4'-DDE	4.1	UJ	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U
72-20-8	Endrin	4.1	U	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U
33213-65-9	Endosulfan II	4.1	UJ	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U
72-54-8	4,4'-DDD	4.1	UJ	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U
1031-07-8	Endosulfan sulfate	4.1	U	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U
50-29-3	4,4'-DDT	4.1	UJ	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U
72-43-5	Methoxychlor	21.	UJ	23.	U	21.	U	22.	U	21.	U	22.	U
53494-70-5	Endrin ketone	4.1	U	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U
7421-93-4	Endrin aldehyde	4.1	U	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U
5103-71-9	alpha-Chlordane	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
5103-74-2	gamma-Chlordane	2.1	U	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U
8001-35-2	Toxaphene	41.	U	46.	U	42.	U	45.	U	43.	U	44.	U
12674-11-2	Aroclor-1016	41.	U	46.	U	42.	U	45.	U	43.	U	44.	U
11104-28-2	Aroclor-1221	41.	U	46.	U	42.	U	45.	U	43.	U	44.	U
53469-21-9	Aroclor-1242	41.	U	46.	U	42.	U	45.	U	43.	U	44.	U
12672-29-6	Aroclor-1248	41.	U	46.	U	42.	U	45.	U	43.	U	44.	U
11097-69-1	Aroclor-1254	41.	U	46.	U	42.	U	45.	U	43.	U	44.	U
11096-82-5	Aroclor-1260	41.	U	46.	U	42.	U	45.	U	43.	U	44.	U
11141-16-5	Aroclor-1232	41.	U	46.	U	42.	U	45.	U	43.	U	44.	U
12789-03-6	Technical Chlordane	??????????		46.	U	42.	U	45.	U	43.	U	44.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-PEST																	
	SAMPLE ID ------->	008-P-CB04-03		008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03	
	ORIGINAL ID ----->	008PCB0403		008PCB0501		008PCB0503		008PCB0601		008PCB0603	
	LAB SAMPLE ID --->	141174		141309		141310		141311		141312	
	ID FROM REPORT -->	008PCB0403		008PCB0501		008PCB0503		008PCB0601		008PCB0603	
	SAMPLE DATE ----->	01/11/96		01/17/96		01/17/96		01/17/96		01/17/96	
	DATE EXTRACTED -->	01/16/96		01/18/96		01/18/96		01/18/96		01/18/96	
	DATE ANALYZED --->	01/21/96		01/23/96		01/23/96		01/23/96		01/23/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
319-84-6	alpha-BHC	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
319-85-7	beta-BHC	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
319-86-8	delta-BHC	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
58-89-9	gamma-BHC (Lindane)	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
76-44-8	Heptachlor	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
309-00-2	Aldrin	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
1024-57-3	Heptachlor epoxide	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
959-98-8	Endosulfan I	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
60-57-1	Dieldrin	4.3	U	4.2	U	4.2	U	4.2	U	4.2	U
72-55-9	4,4'-DDE	4.3	U	4.2	U	4.2	U	4.2	U	4.2	U
72-20-8	Endrin	4.3	U	4.2	U	4.2	U	4.2	U	4.2	U
33213-65-9	Endosulfan II	4.3	U	4.2	U	4.2	U	4.2	U	4.2	U
72-54-8	4,4'-DDD	4.3	U	4.2	U	4.2	U	4.2	U	4.2	U
1031-07-8	Endosulfan sulfate	4.3	U	4.2	U	4.2	U	4.2	U	4.2	U
50-29-3	4,4'-DDT	4.3	U	4.2	U	4.2	U	4.2	U	4.2	U
72-43-5	Methoxychlor	22.	U	21.	U	21.	U	21.	U	21.	U
53494-70-5	Endrin ketone	4.3	U	4.2	U	4.2	U	2.1	U	4.2	U
7421-93-4	Endrin aldehyde	4.3	U	4.2	U	4.2	U	4.2	U	4.2	U
5103-71-9	alpha-Chlordane	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
5103-74-2	gamma-Chlordane	2.2	U	2.1	U	2.1	U	2.1	U	2.1	U
8001-35-2	Toxaphene	43.	U	42.	U	42.	U	42.	U	42.	U
12674-11-2	Aroclor-1016	43.	U	42.	U	42.	U	42.	U	42.	U
11104-28-2	Aroclor-1221	43.	U	42.	U	42.	U	42.	U	42.	U
53469-21-9	Aroclor-1242	43.	U	42.	U	42.	U	42.	U	42.	U
12672-29-6	Aroclor-1248	43.	U	42.	U	42.	U	42.	U	42.	U
11097-69-1	Aroclor-1254	43.	U	42.	U	42.	U	42.	U	42.	U
11096-82-5	Aroclor-1260	43.	U	42.	U	42.	U	42.	U	42.	U
11141-16-5	Aroclor-1232	43.	U	42.	U	42.	U	42.	U	42.	U
12789-03-6	Technical Chlordane	43.	U	42.	U	42.	U	42.	U	42.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-SVOA													
	SAMPLE ID ------->	008-S-0001-01		008-S-0001-12		008-S-0001-19		008-S-0002-01		008-S-0002-14		008-C-0002-14	
	ORIGINAL ID ----->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	LAB SAMPLE ID --->	116238		116239		116240		116241		116242		116243	
	ID FROM REPORT -->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	SAMPLE DATE ----->	01/31/95		01/31/95		01/31/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/13/95		02/17/95		02/13/95		02/15/95		02/15/95		02/15/95	
	DATE ANALYZED --->	02/16/95		02/21/95		02/16/95		02/21/95		02/21/95		02/21/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
108-95-2	Phenol	430.	U	420.	UJ	410.	U	470.	UJ	350.	UJ	340.	UJ
111-44-4	bis(2-Chloroethyl)ether	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
95-57-8	2-Chlorophenol	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
541-73-1	1,3-Dichlorobenzene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
106-46-7	1,4-Dichlorobenzene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
95-50-1	1,2-Dichlorobenzene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
95-48-7	2-Methylphenol (o-Cresol)	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	430.	U	420.	UJ	410.	U	470.	UJ	350.	UJ	340.	UJ
106-44-5	4-Methylphenol (p-Cresol)	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
621-64-7	N-Nitroso-di-n-propylamine	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
67-72-1	Hexachloroethane	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
98-95-3	Nitrobenzene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
78-59-1	Isophorone	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
88-75-5	2-Nitrophenol	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
105-67-9	2,4-Dimethylphenol	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
120-83-2	2,4-Dichlorophenol	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
120-82-1	1,2,4-Trichlorobenzene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
91-20-3	Naphthalene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
106-47-8	4-Chloroaniline	430.	UJ	420.	UJ	410.	UJ	470.	UJ	350.	UJ	340.	UJ
87-68-3	Hexachlorobutadiene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
111-91-1	bis(2-Chloroethoxy)methane	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
59-50-7	4-Chloro-3-methylphenol	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
91-57-6	2-Methylnaphthalene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
77-47-4	Hexachlorocyclopentadiene	430.	UJ	420.	UJ	410.	UJ	470.	UJ	350.	UJ	340.	UJ
88-06-2	2,4,6-Trichlorophenol	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
95-95-4	2,4,5-Trichlorophenol	1100.	U	1000.	UJ	990.	U	1100.	U	860.	U	820.	U
91-58-7	2-Chloronaphthalene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
88-74-4	2-Nitroaniline	1100.	U	1000.	UJ	990.	U	1100.	U	860.	U	820.	U
131-11-3	Dimethyl phthalate	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
208-96-8	Acenaphthylene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
606-20-2	2,6-Dinitrotoluene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
99-09-2	3-Nitroaniline	1100.	U	1000.	UJ	990.	U	1100.	U	860.	U	820.	U
83-32-9	Acenaphthene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
51-28-5	2,4-Dinitrophenol	1100.	UJ	1000.	UJ	990.	UJ	1100.	UJ	860.	UJ	820.	UJ
100-02-7	4-Nitrophenol	1100.	U	1000.	UJ	990.	U	1100.	UJ	860.	UJ	820.	UJ
132-64-9	Dibenzofuran	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-SVOA													
	SAMPLE ID ------->	008-S-0001-01		008-S-0001-12		008-S-0001-19		008-S-0002-01		008-S-0002-14		008-C-0002-14	
	ORIGINAL ID ----->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	LAB SAMPLE ID --->	116238		116239		116240		116241		116242		116243	
	ID FROM REPORT -->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	SAMPLE DATE ----->	01/31/95		01/31/95		01/31/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/13/95		02/17/95		02/13/95		02/15/95		02/15/95		02/15/95	
	DATE ANALYZED --->	02/16/95		02/21/95		02/16/95		02/21/95		02/21/95		02/21/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
121-14-2	2,4-Dinitrotoluene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
84-66-2	Diethylphthalate	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
7005-72-3	4-Chlorophenylphenylether	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
86-73-7	Fluorene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
100-01-6	4-Nitroaniline	1100.	U	1000.	UJ	990.	U	1100.	U	860.	U	820.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	1100.	U	1000.	UJ	990.	U	1100.	UJ	860.	UJ	820.	UJ
86-30-6	N-Nitrosodiphenylamine	430.	UJ	420.	UJ	410.	UJ	470.	UJ	350.	UJ	340.	UJ
101-55-3	4-Bromophenyl-phenylether	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
118-74-1	Hexachlorobenzene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
87-86-5	Pentachlorophenol	1100.	U	1000.	UJ	990.	U	1100.	U	860.	U	820.	U
85-01-8	Phenanthrene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
120-12-7	Anthracene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
86-74-8	Carbazole	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
84-74-2	Di-n-butylphthalate	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
206-44-0	Fluoranthene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
129-00-0	Pyrene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
85-68-7	Butylbenzylphthalate	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
91-94-1	3,3'-Dichlorobenzidine	430.	UJ	420.	UJ	410.	UJ	470.	U	350.	U	340.	U
56-55-3	Benzo(a)anthracene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
218-01-9	Chrysene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	430.	UJ	420.	UJ	410.	UJ	470.	UJ	350.	UJ	340.	UJ
117-84-0	Di-n-octyl phthalate	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
205-99-2	Benzo(b)fluoranthene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
207-08-9	Benzo(k)fluoranthene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
50-32-8	Benzo(a)pyrene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
193-39-5	Indeno(1,2,3-cd)pyrene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
53-70-3	Dibenz(a,h)anthracene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U
191-24-2	Benzo(g,h,i)perylene	430.	U	420.	UJ	410.	U	470.	U	350.	U	340.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-SVOA													
	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ----->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	116244		116245		116246		116247		116248		116249	
	ID FROM REPORT -->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	SAMPLE DATE ----->	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/15/95		02/15/95		02/15/95		02/15/95		02/15/95		02/15/95	
	DATE ANALYZED --->	02/21/95		02/21/95		02/21/95		02/21/95		02/21/95		02/21/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
108-95-2	Phenol	350.	UJ	430.	UJ	340.	UJ	490.	UJ	330.	UJ	400.	UJ
111-44-4	bis(2-Chloroethyl)ether	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
95-57-8	2-Chlorophenol	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
541-73-1	1,3-Dichlorobenzene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
106-46-7	1,4-Dichlorobenzene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
95-50-1	1,2-Dichlorobenzene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
95-48-7	2-Methylphenol (o-Cresol)	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350.	UJ	430.	UJ	340.	UJ	490.	UJ	330.	UJ	400.	UJ
106-44-5	4-Methylphenol (p-Cresol)	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
621-64-7	N-Nitroso-di-n-propylamine	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
67-72-1	Hexachloroethane	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
98-95-3	Nitrobenzene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
78-59-1	Isophorone	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
88-75-5	2-Nitrophenol	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
105-67-9	2,4-Dimethylphenol	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
120-83-2	2,4-Dichlorophenol	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
120-82-1	1,2,4-Trichlorobenzene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
91-20-3	Naphthalene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
106-47-8	4-Chloroaniline	350.	UJ	430.	UJ	340.	UJ	490.	UJ	330.	UJ	400.	UJ
87-68-3	Hexachlorobutadiene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
111-91-1	bis(2-Chloroethoxy)methane	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
59-50-7	4-Chloro-3-methylphenol	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
91-57-6	2-Methylnaphthalene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
77-47-4	Hexachlorocyclopentadiene	350.	UJ	430.	UJ	340.	UJ	490.	UJ	330.	UJ	400.	UJ
88-06-2	2,4,6-Trichlorophenol	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
95-95-4	2,4,5-Trichlorophenol	850.	U	1100.	U	820.	U	1200.	U	800.	U	960.	U
91-58-7	2-Chloronaphthalene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
88-74-4	2-Nitroaniline	850.	U	1100.	U	820.	U	1200.	U	800.	U	960.	U
131-11-3	Dimethyl phthalate	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
208-96-8	Acenaphthylene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
606-20-2	2,6-Dinitrotoluene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
99-09-2	3-Nitroaniline	850.	U	1100.	U	820.	U	1200.	U	800.	U	960.	U
83-32-9	Acenaphthene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
51-28-5	2,4-Dinitrophenol	850.	UJ	1100.	UJ	820.	UJ	1200.	UJ	800.	UJ	960.	UJ
100-02-7	4-Nitrophenol	850.	UJ	1100.	UJ	820.	UJ	1200.	UJ	800.	UJ	960.	UJ
132-64-9	Dibenzofuran	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U

*** Validatic Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-SVOA													
	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ----->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	116244		116245		116246		116247		116248		116249	
	ID FROM REPORT -->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	SAMPLE DATE ----->	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/15/95		02/15/95		02/15/95		02/15/95		02/15/95		02/15/95	
	DATE ANALYZED --->	02/21/95		02/21/95		02/21/95		02/21/95		02/21/95		02/21/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
121-14-2	2,4-Dinitrotoluene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
84-66-2	Diethylphthalate	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
7005-72-3	4-Chlorophenylphenylether	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
86-73-7	Fluorene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
100-01-6	4-Nitroaniline	850.	U	1100.	U	820.	U	1200.	U	800.	U	960.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	850.	UJ	1100.	UJ	820.	UJ	1200.	UJ	800.	UJ	960.	UJ
86-30-6	N-Nitrosodiphenylamine	350.	UJ	430.	UJ	340.	UJ	490.	UJ	330.	UJ	400.	UJ
101-55-3	4-Bromophenyl-phenylether	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
118-74-1	Hexachlorobenzene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
87-86-5	Pentachlorophenol	850.	U	1100.	U	820.	U	1200.	U	800.	U	960.	U
85-01-8	Phenanthrene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
120-12-7	Anthracene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
86-74-8	Carbazole	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
84-74-2	Di-n-butylphthalate	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
206-44-0	Fluoranthene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
129-00-0	Pyrene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
85-68-7	Butylbenzylphthalate	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
91-94-1	3,3'-Dichlorobenzidine	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
56-55-3	Benzo(a)anthracene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
218-01-9	Chrysene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	350.	UJ	430.	UJ	340.	UJ	490.	UJ	330.	UJ	400.	UJ
117-84-0	Di-n-octyl phthalate	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
205-99-2	Benzo(b)fluoranthene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
207-08-9	Benzo(k)fluoranthene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
50-32-8	Benzo(a)pyrene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
193-39-5	Indeno(1,2,3-cd)pyrene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
53-70-3	Dibenz(a,h)anthracene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U
191-24-2	Benzo(g,h,i)perylene	350.	U	430.	U	340.	U	490.	U	330.	U	400.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-SVOA															
	SAMPLE ID ------->	008-S-0004-24		008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03 RE		008-P-CB04-01	
	ORIGINAL ID ----->	008S000424		008PCB0101		008PCB0103		008PCB0301		008PCB0303RE		008PCB0401	
	LAB SAMPLE ID --->	116250		141169		141170		141171		141172RE		141173	
	ID FROM REPORT -->	008S000424		008pcb0101		008pcb0103		008pcb0301		008pcb0303RE		008pcb0401	
	SAMPLE DATE ----->	02/01/95		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE EXTRACTED -->	02/15/95		01/16/96		01/16/96		01/16/96		01/23/96		01/16/96	
	DATE ANALYZED --->	02/21/95		01/20/96		01/20/96		01/20/96		01/25/96		01/22/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	ug/Kg	A	ug/Kg	A	ug/Kg	A	ug/Kg	A	ug/Kg	A
CAS #	Parameter	FD1318	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
108-95-2	Phenol	420.	UJ	460.	U	420.	U	450.	U	430.	U	440.	U
111-44-4	bis(2-Chloroethyl)ether	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
95-57-8	2-Chlorophenol	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
541-73-1	1,3-Dichlorobenzene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
106-46-7	1,4-Dichlorobenzene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
95-50-1	1,2-Dichlorobenzene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
95-48-7	2-Methylphenol (o-Cresol)	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420.	UJ	460.	U	420.	U	450.	U	430.	U	440.	U
106-44-5	4-Methylphenol (p-Cresol)	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
621-64-7	N-Nitroso-di-n-propylamine	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
67-72-1	Hexachloroethane	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
98-95-3	Nitrobenzene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
78-59-1	Isophorone	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
88-75-5	2-Nitrophenol	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
105-67-9	2,4-Dimethylphenol	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
120-83-2	2,4-Dichlorophenol	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
120-82-1	1,2,4-Trichlorobenzene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
91-20-3	Naphthalene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
106-47-8	4-Chloroaniline	420.	UJ	460.	U	420.	U	450.	U	430.	UJ	440.	UJ
87-68-3	Hexachlorobutadiene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
111-91-1	bis(2-Chloroethoxy)methane	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
59-50-7	4-Chloro-3-methylphenol	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
91-57-6	2-Methylnaphthalene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
77-47-4	Hexachlorocyclopentadiene	420.	UJ	460.	U	420.	U	450.	U	430.	U	440.	U
88-06-2	2,4,6-Trichlorophenol	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
95-95-4	2,4,5-Trichlorophenol	1000.	U	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U
91-58-7	2-Chloronaphthalene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
88-74-4	2-Nitroaniline	1000.	U	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U
131-11-3	Dimethyl phthalate	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
208-96-8	Acenaphthylene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
606-20-2	2,6-Dinitrotoluene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
99-09-2	3-Nitroaniline	1000.	U	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U
83-32-9	Acenaphthene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
51-28-5	2,4-Dinitrophenol	1000.	UJ	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U
100-02-7	4-Nitrophenol	1000.	UJ	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U
132-64-9	Dibenzofuran	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-SVOA															
	SAMPLE ID ------->	008-S-0004-24		008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03 RE		008-P-CB04-01	
	ORIGINAL ID ----->	008S000424		008PCB0101		008PCB0103		008PCB0301		008PCB0303RE		008PCB0401	
	LAB SAMPLE ID --->	116250		141169		141170		141171		141172RE		141173	
	ID FROM REPORT -->	008S000424		008pcb0101		008pcb0103		008pcb0301		008pcb0303RE		008pcb0401	
	SAMPLE DATE ----->	02/01/95		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE EXTRACTED -->	02/15/95		01/16/96		01/16/96		01/16/96		01/23/96		01/16/96	
	DATE ANALYZED --->	02/21/95		01/20/96		01/20/96		01/20/96		01/25/96		01/22/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	ug/Kg	A	ug/Kg	A	ug/Kg	A	ug/Kg	A	ug/Kg	A
CAS #	Parameter	FD1318	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
121-14-2	2,4-Dinitrotoluene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
84-66-2	Diethylphthalate	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
7005-72-3	4-Chlorophenylphenylether	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
86-73-7	Fluorene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
100-01-6	4-Nitroaniline	1000.	U	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	1000.	UJ	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U
86-30-6	N-Nitrosodiphenylamine	420.	UJ	460.	U	420.	U	450.	U	430.	UJ	440.	UJ
101-55-3	4-Bromophenyl-phenylether	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
118-74-1	Hexachlorobenzene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
87-86-5	Pentachlorophenol	1000.	U	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U
85-01-8	Phenanthrene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
120-12-7	Anthracene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
86-74-8	Carbazole	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
84-74-2	Di-n-butylphthalate	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
206-44-0	Fluoranthene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
129-00-0	Pyrene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
85-68-7	Butylbenzylphthalate	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
91-94-1	3,3'-Dichlorobenzidine	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
56-55-3	Benzo(a)anthracene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
218-01-9	Chrysene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	420.	UJ	110.	J	170.	J	65.	J	430.	U	440.	U
117-84-0	Di-n-octyl phthalate	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
205-99-2	Benzo(b)fluoranthene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
207-08-9	Benzo(k)fluoranthene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
50-32-8	Benzo(a)pyrene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
193-39-5	Indeno(1,2,3-cd)pyrene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
53-70-3	Dibenz(a,h)anthracene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U
191-24-2	Benzo(g,h,i)perylene	420.	U	460.	U	420.	U	450.	U	430.	U	440.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-SVOA													
	SAMPLE ID ------->	008-P-CB04-03		008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03			
	ORIGINAL ID ----->	008PCB0403		008PCB0501		008PCB0503		008PCB0601		008PCB0603			
	LAB SAMPLE ID --->	141174		141309		141310		141311		141312			
	ID FROM REPORT -->	008pcb0403		008pcb0501		008pcb0503		008pcb0601		008pcb0603			
	SAMPLE DATE ----->	01/11/96		01/17/96		01/17/96		01/17/96		01/17/96			
	DATE EXTRACTED -->	01/16/96		01/24/96		01/24/96		01/24/96		01/24/96			
	DATE ANALYZED --->	01/22/96		01/26/96		01/26/96		01/26/96		01/26/96			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil			
	UNITS ---------->	ug/Kg	A	ug/Kg	A	ug/Kg	A	ug/Kg	A	ug/Kg	A		
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL		
108-95-2	Phenol	430.	U	420.	U	420.	U	420.	U	420.	U		
111-44-4	bis(2-Chloroethyl)ether	430.	U	420.	U	420.	U	420.	U	420.	U		
95-57-8	2-Chlorophenol	430.	U	420.	U	420.	U	420.	U	420.	U		
541-73-1	1,3-Dichlorobenzene	430.	U	420.	U	420.	U	420.	U	420.	U		
106-46-7	1,4-Dichlorobenzene	430.	U	420.	U	420.	U	420.	U	420.	U		
95-50-1	1,2-Dichlorobenzene	430.	U	420.	U	420.	U	420.	U	420.	U		
95-48-7	2-Methylphenol (o-Cresol)	430.	U	420.	U	420.	U	420.	U	420.	U		
108-60-1	2,2'-oxybis(1-Chloropropane)	430.	U	420.	U	420.	U	420.	U	420.	U		
106-44-5	4-Methylphenol (p-Cresol)	430.	U	420.	U	420.	U	420.	U	420.	U		
621-64-7	N-Nitroso-di-n-propylamine	430.	U	420.	U	420.	U	420.	U	420.	U		
67-72-1	Hexachloroethane	430.	U	420.	U	420.	U	420.	U	420.	U		
98-95-3	Nitrobenzene	430.	U	420.	U	420.	U	420.	U	420.	U		
78-59-1	Isophorone	430.	U	420.	U	420.	U	420.	U	420.	U		
88-75-5	2-Nitrophenol	430.	U	420.	U	420.	U	420.	U	420.	U		
105-67-9	2,4-Dimethylphenol	430.	U	420.	U	420.	U	420.	U	420.	U		
120-83-2	2,4-Dichlorophenol	430.	U	420.	U	420.	U	420.	U	420.	U		
120-82-1	1,2,4-Trichlorobenzene	430.	U	420.	U	420.	U	420.	U	420.	U		
91-20-3	Naphthalene	430.	U	420.	U	420.	U	420.	U	420.	U		
106-47-8	4-Chloroaniline	430.	UJ	420.	UJ	420.	UJ	420.	UJ	420.	UJ		
87-68-3	Hexachlorobutadiene	430.	U	420.	U	420.	U	420.	U	420.	U		
111-91-1	bis(2-Chloroethoxy)methane	430.	U	420.	U	420.	U	420.	U	420.	U		
59-50-7	4-Chloro-3-methylphenol	430.	U	420.	U	420.	U	420.	U	420.	U		
91-57-6	2-Methylnaphthalene	430.	U	420.	U	420.	U	420.	U	420.	U		
77-47-4	Hexachlorocyclopentadiene	430.	U	420.	U	420.	U	420.	U	420.	U		
88-06-2	2,4,6-Trichlorophenol	430.	U	420.	U	420.	U	420.	U	420.	U		
95-95-4	2,4,5-Trichlorophenol	1100.	U	1000.	U	1000.	U	1000.	U	1000.	U		
91-58-7	2-Chloronaphthalene	430.	U	420.	U	420.	U	420.	U	420.	U		
88-74-4	2-Nitroaniline	1100.	U	1000.	U	1000.	U	1000.	U	1000.	U		
131-11-3	Dimethyl phthalate	430.	U	420.	U	420.	U	420.	U	420.	U		
208-96-8	Acenaphthylene	430.	U	420.	U	420.	U	420.	U	420.	U		
606-20-2	2,6-Dinitrotoluene	430.	U	420.	U	420.	U	420.	U	420.	U		
99-09-2	3-Nitroaniline	1100.	U	1000.	U	1000.	U	1000.	U	1000.	U		
83-32-9	Acenaphthene	430.	U	420.	U	420.	U	420.	U	420.	U		
51-28-5	2,4-Dinitrophenol	1100.	U	1000.	U	1000.	U	1000.	U	1000.	U		
100-02-7	4-Nitrophenol	1100.	U	1000.	U	1000.	U	1000.	U	1000.	U		
132-64-9	Dibenzofuran	430.	U	420.	U	420.	U	420.	U	420.	U		

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-SVOA											
	SAMPLE ID ------->	008-P-CB04-03		008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03	
	ORIGINAL ID ----->	008PCB0403		008PCB0501		008PCB0503		008PCB0601		008PCB0603	
	LAB SAMPLE ID --->	141174		141309		141310		141311		141312	
	ID FROM REPORT -->	008pcb0403		008pcb0501		008pcb0503		008pcb0601		008pcb0603	
	SAMPLE DATE ----->	01/11/96		01/17/96		01/17/96		01/17/96		01/17/96	
	DATE EXTRACTED -->	01/16/96		01/24/96		01/24/96		01/24/96		01/24/96	
	DATE ANALYZED --->	01/22/96		01/26/96		01/26/96		01/26/96		01/26/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg	A	ug/Kg	A	ug/Kg	A	ug/Kg	A	ug/Kg	A
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
121-14-2	2,4-Dinitrotoluene	430.	U	420.	U	420.	U	420.	U	420.	U
84-66-2	Diethylphthalate	430.	U	420.	U	420.	U	420.	U	420.	U
7005-72-3	4-Chlorophenylphenylether	430.	U	420.	U	420.	U	420.	U	420.	U
86-73-7	Fluorene	430.	U	420.	U	420.	U	420.	U	420.	U
100-01-6	4-Nitroaniline	1100.	U	1000.	U	1000.	U	1000.	U	1000.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	1100.	U	1000.	U	1000.	U	1000.	U	1000.	U
86-30-6	N-Nitrosodiphenylamine	430.	UJ	420.	UJ	420.	UJ	420.	UJ	420.	UJ
101-55-3	4-Bromophenyl-phenylether	430.	U	420.	U	420.	U	420.	U	420.	U
118-74-1	Hexachlorobenzene	430.	U	420.	U	420.	U	420.	U	420.	U
87-86-5	Pentachlorophenol	1100.	U	1000.	U	1000.	U	1000.	U	1000.	U
85-01-8	Phenanthrene	430.	U	420.	U	420.	U	420.	U	420.	U
120-12-7	Anthracene	430.	U	420.	U	420.	U	420.	U	420.	U
86-74-8	Carbazole	430.	U	420.	U	420.	U	420.	U	420.	U
84-74-2	Di-n-butylphthalate	430.	U	420.	U	420.	U	420.	U	420.	U
206-44-0	Fluoranthene	430.	U	420.	U	420.	U	420.	U	420.	U
129-00-0	Pyrene	430.	U	420.	U	420.	U	420.	U	420.	U
85-68-7	Butylbenzylphthalate	430.	U	420.	U	420.	U	420.	U	420.	U
91-94-1	3,3'-Dichlorobenzidine	430.	U	420.	U	420.	U	420.	U	420.	U
56-55-3	Benzo(a)anthracene	430.	U	420.	U	420.	U	420.	U	420.	U
218-01-9	Chrysene	430.	U	420.	U	420.	U	420.	U	420.	U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	48.	J	420.	U	420.	U	420.	U	420.	U
117-84-0	Di-n-octyl phthalate	430.	U	420.	U	420.	U	420.	U	420.	U
205-99-2	Benzo(b)fluoranthene	430.	U	420.	U	420.	U	420.	U	420.	U
207-08-9	Benzo(k)fluoranthene	430.	U	420.	U	420.	U	420.	U	420.	U
50-32-8	Benzo(a)pyrene	430.	U	420.	U	420.	U	420.	U	420.	U
193-39-5	Indeno(1,2,3-cd)pyrene	430.	U	420.	U	420.	U	420.	U	420.	U
53-70-3	Dibenz(a,h)anthracene	430.	U	420.	U	420.	U	420.	U	420.	U
191-24-2	Benzo(g,h,i)perylene	430.	U	420.	U	420.	U	420.	U	420.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-VOA													
	SAMPLE ID ------->	008-S-0001-01		008-S-0001-12		008-S-0001-19		008-S-0002-01		008-S-0002-14		008-C-0002-14	
	ORIGINAL ID ----->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	LAB SAMPLE ID --->	116238		116239		116240		116241		116242		116243	
	ID FROM REPORT -->	008S000101		008S000112		008S000119		008S000201		008S000214		008C000214	
	SAMPLE DATE ----->	01/31/95		01/31/95		01/31/95		02/01/95		02/01/95		02/01/95	
	DATE ANALYZED --->	02/04/95		02/07/95		02/07/95		02/07/95		02/07/95		02/08/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
74-87-3	Chloromethane	13.	U	13.	UJ	12.	UJ	13.	UJ	13.	UJ	13.	U
74-83-9	Bromomethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
75-01-4	Vinyl chloride	13.	U	13.	UJ	12.	UJ	13.	UJ	13.	UJ	13.	U
75-00-3	Chloroethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
75-09-2	Methylene chloride	2.	J	13.	UJ	12.	UJ	13.	UJ	13.	UJ	2.	J
67-64-1	Acetone	19.		18.	J	18.	J	13.	UJ	27.	J	110.	J
75-15-0	Carbon disulfide	13.	U	13.	UJ	12.	UJ	13.	UJ	13.	UJ	13.	U
75-35-4	1,1-Dichloroethene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
75-34-3	1,1-Dichloroethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
540-59-0	1,2-Dichloroethene (total)	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
67-66-3	Chloroform	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
107-06-2	1,2-Dichloroethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
78-93-3	2-Butanone (MEK)	13.	U	13.	UJ	12.	UJ	13.	UJ	13.	UJ	13.	U
71-55-6	1,1,1-Trichloroethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
56-23-5	Carbon tetrachloride	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
75-27-4	Bromodichloromethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
78-87-5	1,2-Dichloropropane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	UJ
10061-01-5	cis-1,3-Dichloropropene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	UJ
79-01-6	Trichloroethene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
124-48-1	Dibromochloromethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
79-00-5	1,1,2-Trichloroethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
71-43-2	Benzene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
10061-02-6	trans-1,3-Dichloropropene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
75-25-2	Bromoform	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
591-78-6	2-Hexanone	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
127-18-4	Tetrachloroethene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
79-34-5	1,1,2,2-Tetrachloroethane	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
108-88-3	Toluene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
108-90-7	Chlorobenzene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
100-41-4	Ethylbenzene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
100-42-5	Styrene	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U
1330-20-7	Xylene (Total)	13.	U	13.	U	12.	U	13.	U	13.	U	13.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-VOA													
	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ----->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	116244		116245		116246		116247		116248		116249	
	ID FROM REPORT -->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	SAMPLE DATE ----->	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	DATE ANALYZED --->	02/07/95		02/07/95		02/07/95		02/07/95		02/07/95		02/07/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
74-87-3	Chloromethane	13.	UJ	13.	UJ	12.	UJ	12.	UJ	12.	UJ	12.	UJ
74-83-9	Bromomethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
75-01-4	Vinyl chloride	13.	UJ	13.	UJ	12.	UJ	12.	UJ	12.	UJ	12.	UJ
75-00-3	Chloroethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
75-09-2	Methylene chloride	13.	UJ	13.	UJ	12.	UJ	12.	UJ	12.	UJ	12.	UJ
67-64-1	Acetone	10.	J	13.	UJ	12.	UJ	12.	UJ	36.	J	12.	UJ
75-15-0	Carbon disulfide	13.	UJ	13.	UJ	12.	UJ	12.	UJ	12.	UJ	12.	UJ
75-35-4	1,1-Dichloroethene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
75-34-3	1,1-Dichloroethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
540-59-0	1,2-Dichloroethene (total)	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
67-66-3	Chloroform	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
107-06-2	1,2-Dichloroethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
78-93-3	2-Butanone (MEK)	13.	UJ	13.	UJ	12.	UJ	12.	UJ	12.	UJ	12.	UJ
71-55-6	1,1,1-Trichloroethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
56-23-5	Carbon tetrachloride	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
75-27-4	Bromodichloromethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
78-87-5	1,2-Dichloropropane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
10061-01-5	cis-1,3-Dichloropropene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
79-01-6	Trichloroethene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
124-48-1	Dibromochloromethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
79-00-5	1,1,2-Trichloroethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
71-43-2	Benzene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
10061-02-6	trans-1,3-Dichloropropene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
75-25-2	Bromoform	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
591-78-6	2-Hexanone	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
127-18-4	Tetrachloroethene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
108-88-3	Toluene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
108-90-7	Chlorobenzene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
100-41-4	Ethylbenzene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
100-42-5	Styrene	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U
1330-20-7	Xylene (Total)	13.	U	13.	U	12.	U	12.	U	12.	U	12.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-VOA																			
	SAMPLE ID ------->	008-S-0004-24		008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03		008-P-CB04-01	
	ORIGINAL ID ----->	008S000424		008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401	
	LAB SAMPLE ID --->	116250		141169		141170		141171		141172		141173	
	ID FROM REPORT -->	008S000424		008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401	
	SAMPLE DATE ----->	02/01/95		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE ANALYZED --->	02/07/95		01/18/96		01/18/96		01/18/96		01/18/96		01/18/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	FD1318	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
74-87-3	Chloromethane	12.	UJ	14.	U	13.	U	14.	U	13.	U	13.	U
74-83-9	Bromomethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
75-01-4	Vinyl chloride	12.	UJ	14.	U	13.	U	14.	U	13.	U	13.	U
75-00-3	Chloroethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
75-09-2	Methylene chloride	12.	UJ	14.	U	13.	U	14.	U	13.	U	13.	U
67-64-1	Acetone	12.	UJ	14.	U	350.	D	18.	U	28.	U	13.	U
75-15-0	Carbon disulfide	12.	UJ	14.	U	13.	U	14.	U	13.	U	13.	U
75-35-4	1,1-Dichloroethene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
75-34-3	1,1-Dichloroethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
540-59-0	1,2-Dichloroethene (total)	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
67-66-3	Chloroform	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
107-06-2	1,2-Dichloroethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
78-93-3	2-Butanone (MEK)	12.	UJ	14.	U	13.	U	14.	U	13.	U	13.	U
71-55-6	1,1,1-Trichloroethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
56-23-5	Carbon tetrachloride	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
75-27-4	Bromodichloromethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
78-87-5	1,2-Dichloropropane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
79-01-6	Trichloroethene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
124-48-1	Dibromochloromethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
79-00-5	1,1,2-Trichloroethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
71-43-2	Benzene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
75-25-2	Bromoform	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
591-78-6	2-Hexanone	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
127-18-4	Tetrachloroethene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
108-88-3	Toluene	12.	U	2.	J	3.	J	6.	J	5.	J	3.	J
108-90-7	Chlorobenzene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
100-41-4	Ethylbenzene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
100-42-5	Styrene	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U
1330-20-7	Xylene (Total)	12.	U	14.	U	13.	U	14.	U	13.	U	13.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

SW846-VOA													
	SAMPLE ID ------->	008-P-CB04-03		008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03			
	ORIGINAL ID ----->	008PCB0403		008PCB0501		008PCB0503		008PCB0601		008PCB0603			
	LAB SAMPLE ID --->	141174		141309		141310		141311		141312			
	ID FROM REPORT -->	008PCB0403		008PCB0501		008PCB0503		008PCB0601		008PCB0603			
	SAMPLE DATE ----->	01/11/96		01/17/96		01/17/96		01/17/96		01/17/96			
	DATE ANALYZED --->	01/18/96		01/19/96		01/19/96		01/20/96		01/19/96			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil			
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A		
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL		
74-87-3	Chloromethane	13.	U	13.	U	13.	U	13.	U	13.	U		
74-83-9	Bromomethane	13.	U	13.	U	13.	U	13.	U	13.	U		
75-01-4	Vinyl chloride	13.	U	13.	U	13.	U	13.	U	13.	U		
75-00-3	Chloroethane	13.	U	13.	U	13.	U	13.	U	13.	U		
75-09-2	Methylene chloride	13.	U	13.	U	13.	U	2.	J	13.	U		
67-64-1	Acetone	290.	D	13.	UJ	13.	UJ	13.	UJ	13.	UJ		
75-15-0	Carbon disulfide	4.	J	13.	U	13.	U	13.	U	13.	U		
75-35-4	1,1-Dichloroethene	13.	U	13.	U	13.	U	13.	U	13.	U		
75-34-3	1,1-Dichloroethane	13.	U	13.	U	13.	U	13.	U	13.	U		
540-59-0	1,2-Dichloroethene (total)	13.	U	13.	U	13.	U	13.	U	13.	U		
67-66-3	Chloroform	13.	U	13.	U	13.	U	13.	U	13.	U		
107-06-2	1,2-Dichloroethane	13.	U	13.	U	13.	U	13.	U	13.	U		
78-93-3	2-Butanone (MEK)	13.	U	13.	U	13.	U	13.	U	13.	U		
71-55-6	1,1,1-Trichloroethane	13.	U	13.	U	13.	U	13.	U	13.	U		
56-23-5	Carbon tetrachloride	13.	U	13.	U	13.	U	13.	U	13.	U		
75-27-4	Bromodichloromethane	13.	U	13.	U	13.	U	13.	U	13.	U		
78-87-5	1,2-Dichloropropane	13.	U	13.	U	13.	U	13.	U	13.	U		
10061-01-5	cis-1,3-Dichloropropene	13.	U	13.	U	13.	U	13.	U	13.	U		
79-01-6	Trichloroethene	13.	U	13.	U	13.	U	13.	U	13.	U		
124-48-1	Dibromochloromethane	13.	U	13.	U	13.	U	13.	U	13.	U		
79-00-5	1,1,2-Trichloroethane	13.	U	13.	U	13.	U	13.	U	13.	U		
71-43-2	Benzene	13.	U	13.	U	13.	U	13.	U	13.	U		
10061-02-6	trans-1,3-Dichloropropene	13.	U	13.	U	13.	U	13.	U	13.	U		
75-25-2	Bromoform	13.	U	13.	U	13.	U	13.	U	13.	U		
108-10-1	4-Methyl-2-Pentanone (MIBK)	13.	U	13.	U	13.	U	13.	U	13.	U		
591-78-6	2-Hexanone	13.	U	13.	U	13.	U	13.	U	13.	U		
127-18-4	Tetrachloroethene	13.	U	13.	U	13.	U	13.	U	13.	U		
79-34-5	1,1,2,2-Tetrachloroethane	13.	U	13.	U	13.	U	13.	U	13.	U		
108-88-3	Toluene	13.	U	13.	U	13.	U	13.	U	13.	U		
108-90-7	Chlorobenzene	13.	U	13.	U	13.	U	13.	U	13.	U		
100-41-4	Ethylbenzene	13.	U	13.	U	13.	U	13.	U	13.	U		
100-42-5	Styrene	13.	U	13.	U	13.	U	13.	U	13.	U		
1330-20-7	Xylene (Total)	13.	U	13.	U	13.	U	13.	U	13.	U		

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

TOC							
	SAMPLE ID ------->	008-S-DESI-GN					
	ORIGINAL ID ----->	008SDESIGN					
	LAB SAMPLE ID --->	116323					
	ID FROM REPORT -->	008SDESIGN					
	SAMPLE DATE ----->	02/01/95					
	DATE ANALYZED --->	02/20/95					
	MATRIX ---------->	Soil					
	UNITS ---------->	MG/KG A					
CAS #	Parameter	FD1318 VAL					
9999900-01-4	Total Organic Carbon (TOC)	460.					

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

TOTAL PNOS							
	SAMPLE ID ------->	008-S-DESI-GN					
	ORIGINAL ID ----->	008SDESIGN					
	LAB SAMPLE ID --->	116323					
	ID FROM REPORT -->	008SDESIGN					
	SAMPLE DATE ----->	02/01/95					
	DATE ANALYZED --->	02/09/95					
	MATRIX ---------->	Soil					
	UNITS ---------->	MG/KG	A				
CAS #	Parameter	FD1318	VAL				
22569-71-7	Total phosphorus	7200.	J				

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

TPH						
SAMPLE ID ------->	008-S-0001-01	008-S-0001-12	008-S-0001-19	008-S-0002-01	008-S-0002-14	008-C-0002-14
ORIGINAL ID ----->	008S000101	008S000112	008S000119	008S000201	008S000214	008C000214
LAB SAMPLE ID --->	116218	116219	116220	116221	116222	116223
ID FROM REPORT -->	008S000101	008S000112	008S000119	008S000201	008S000214	008C000214
SAMPLE DATE ----->	01/31/95	01/31/95	01/31/95	02/01/95	02/01/95	02/01/95
DATE EXTRACTED -->	02/28/95	02/28/95	02/28/95	02/28/95	02/28/95	02/28/95
DATE ANALYZED --->	02/28/95	02/28/95	02/28/95	02/28/95	02/28/95	02/28/95
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	MG/KG A	MG/KG A	MG/KG A	MG/KG A	MG/KG A	MG/KG A

CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
9999900-02-4	Petroleum Hydrocarbons, TPH	87.	U	86.	U	79.	U	80.	U	86.	U	81.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

TPH																	
	SAMPLE ID ------->	008-S-0002-20		008-S-0003-01		008-S-0003-12		008-S-0003-22		008-S-0004-01		008-S-0004-10	
	ORIGINAL ID ----->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	LAB SAMPLE ID --->	116224		116225		116226		116227		116228		116229	
	ID FROM REPORT -->	008S000220		008S000301		008S000312		008S000322		008S000401		008S000410	
	SAMPLE DATE ----->	02/01/95		02/01/95		02/01/95		02/01/95		02/01/95		02/01/95	
	DATE EXTRACTED -->	02/28/95		02/28/95		02/28/95		02/28/95		02/28/95		02/28/95	
	DATE ANALYZED --->	02/28/95		02/28/95		02/28/95		02/28/95		02/28/95		02/28/95	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A
CAS #	Parameter	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL	FD1318	VAL
9999900-02-4	Petroleum Hydrocarbons, TPH	82.	U	83.	U	82.	U	83.	U	83.	U	79.	U

*** Validation Complete ***

NSA MEMPHIS
NSA MEMPHIS, RFI, ASSEMBLY A
SWMU 8 - Soil Samples

TPH							
	SAMPLE ID ------->	008-S-0004-24					
	ORIGINAL ID ------>	008S000424					
	LAB SAMPLE ID --->	116230					
	ID FROM REPORT -->	008S000424					
	SAMPLE DATE ------>	02/01/95					
	DATE EXTRACTED -->	02/28/95					
	DATE ANALYZED --->	02/28/95					
	MATRIX ---------->	Soil					
	UNITS ---------->	MG/KG	A				
CAS #	Parameter	FD1318	VAL				
9999900-02-4	Petroleum Hydrocarbons, TPH	81.	U				

*** Validation Complete ***

Appendix I

PCB Soil Investigation

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

APX9-METAL																		
		SAMPLE ID ------->	008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03		008-P-CB04-01		008-P-CB04-03	
		ORIGINAL ID ----->	008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
		LAB SAMPLE ID --->	141169S		141170S		141171S		141172S		141173S		141174S	
		ID FROM REPORT -->	008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
		SAMPLE DATE ----->	01/11/96		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
		MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
		UNITS ---------->	MG/KG		MG/KG		MG/KG		MG/KG		MG/KG		MG/KG	
CAS #	Parameter		1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
7440-36-0	Antimony		8.1	UJ	7.6	UJ	8.	UJ	7.6	UJ	8.1	UJ	7.7	UJ
7440-38-2	Arsenic		8.4		10.9		7.6		8.9		6.6		12.4	
7440-39-3	Barium		93.1		92.6		90.1		101.		82.6		108.	
7440-41-7	Beryllium		0.5	J	0.56	J	0.41	J	0.54	J	0.46	J	0.66	J
7440-43-9	Cadmium		2.8		3.5		3.		3.4		2.7		3.9	
7440-47-3	Chromium		11.7		12.1		8.7		13.2		11.6		13.1	
7440-48-4	Cobalt		8.2	J	9.	J	7.2	J	7.3	J	8.1	J	9.4	J
7440-50-8	Copper		13.2		18.5		13.2		17.6		13.5		22.2	
7439-92-1	Lead		13.1	J	13.1	J	14.6	J	13.4	J	12.8	J	17.2	J
7439-97-6	Mercury		0.14	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
7440-02-0	Nickel		8.3	J	10.8		7.2	J	12.5		8.1	J	14.7	
7782-49-2	Selenium		0.54	U	0.51	U	0.53	U	0.51	U	0.54	U	0.51	U
7440-22-4	Silver		0.81	U	0.76	U	0.8	U	0.76	U	0.81	U	0.77	U
7440-28-0	Thallium		0.81	U	0.76	U	0.8	U	0.76	U	0.81	U	0.77	U
7440-62-2	Vanadium		25.5		28.8		21.4		30.9		24.8		31.4	
7440-66-6	Zinc		42.3		49.8		38.4		51.5		39.1		59.7	
7440-31-5	Tin		12.5	U	12.7	U	13.5	U	10.	U	11.1	U	14.7	U

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

APK9-METAL	SAMPLE ID ------->	008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03		008-P-CB08-01		008-P-CB08-03	
	ORIGINAL ID ----->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803	
	LAB SAMPLE ID --->	141309S		141310S		141311S		141312S		141313S		141314S	
	ID FROM REPORT -->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803	
	SAMPLE DATE ----->	01/17/96		01/17/96		01/17/96		01/17/96		01/17/96		01/17/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	MG/KG		MG/KG		MG/KG		MG/KG		MG/KG		MG/KG	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
7440-36-0	Antimony	7.5	UJ	7.7	UJ	7.6	UJ	7.6	UJ	7.1	UJ	7.2	UJ
7440-38-2	Arsenic	8.6		14.		7.9		13.9		7.1		5.	
7440-39-3	Barium	78.4		82.		82.1		89.6		62.9		62.1	
7440-41-7	Beryllium	0.53	J	0.53	J	0.47	J	0.61	J	0.3	J	0.28	J
7440-43-9	Cadmium	2.9		4.		2.7		4.		1.8		2.1	
7440-47-3	Chromium	12.1		10.7		9.8		12.1		14.9		13.4	
7440-48-4	Cobalt	8.2	J	5.9	J	7.2	J	6.4	J	4.5	J	4.3	J
7440-50-8	Copper	14.9		20.9		14.		21.5		20.6		21.8	
7439-92-1	Lead	10.5	J	14.6	J	12.1	J	13.7	J	98.9	J	105.	J
7439-97-6	Mercury	0.13	U	0.13	U	0.13	U	0.13	U	0.23		0.27	
7440-02-0	Nickel	9.6	J	10.7		8.5	J	12.3		6.6	J	6.	U
7782-49-2	Selenium	0.5	U	0.51	U	0.5	U	0.51	U	0.71	J	0.48	U
7440-22-4	Silver	0.75	U	0.77	U	0.76	U	0.76	U	0.71	U	0.72	U
7440-28-0	Thallium	0.75	U	0.77	U	0.76	U	0.76	U	0.71	U	0.72	U
7440-62-2	Vanadium	25.9		27.5		21.9		29.4		22.		21.7	
7440-66-6	Zinc	41.5		50.9		37.5		52.6		75.7		74.3	
7440-31-5	Tin	17.	U	17.6	U	17.5	U	20.5	U	20.4	U	25.	U

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-PEST													
	SAMPLE ID ------->	008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03		008-P-CB04-01		008-P-CB04-03	
	ORIGINAL ID ----->	008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
	LAB SAMPLE ID --->	141169		141170		141171		141172		141173		141174	
	ID FROM REPORT -->	008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
	SAMPLE DATE ----->	01/11/96		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE EXTRACTED -->	01/16/96		01/16/96		01/16/96		01/16/96		01/16/96		01/16/96	
	DATE ANALYZED --->	01/21/96		01/21/96		01/21/96		01/21/96		01/21/96		01/21/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
319-84-6	alpha-BHC	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
319-85-7	beta-BHC	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
319-86-8	delta-BHC	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
58-89-9	gamma-BHC (Lindane)	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
76-44-8	Heptachlor	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
309-00-2	Aldrin	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
1024-57-3	Heptachlor epoxide	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
959-98-8	Endosulfan I	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
60-57-1	Dieldrin	14.		4.2	U	17.		4.4		4.4	U	4.3	U
72-55-9	4,4'-DDE	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U	4.3	U
72-20-8	Endrin	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U	4.3	U
33213-65-9	Endosulfan II	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U	4.3	U
72-54-8	4,4'-DDD	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U	4.3	U
1031-07-8	Endosulfan sulfate	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U	4.3	U
50-29-3	4,4'-DDT	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U	4.3	U
72-43-5	Methoxychlor	23.	U	21.	U	22.	U	21.	U	22.	U	22.	U
53494-70-5	Endrin ketone	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U	4.3	U
7421-93-4	Endrin aldehyde	4.6	U	4.2	U	4.5	U	4.3	U	4.4	U	4.3	U
5103-71-9	alpha-Chlordane	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
5103-74-2	gamma-Chlordane	2.3	U	2.1	U	2.2	U	2.1	U	2.2	U	2.2	U
8001-35-2	Toxaphene	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U
12674-11-2	Aroclor-1016	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U
11104-28-2	Aroclor-1221	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U
53469-21-9	Aroclor-1242	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U
12672-29-6	Aroclor-1248	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U
11097-69-1	Aroclor-1254	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U
11096-82-5	Aroclor-1260	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U
11141-16-5	Aroclor-1232	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U
12789-03-6	Technical Chlordane	46.	U	42.	U	45.	U	43.	U	44.	U	43.	U

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-PEST													
	SAMPLE ID ------->	008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03		008-P-CB08-01		008-P-CB08-03	
	ORIGINAL ID ----->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803	
	LAB SAMPLE ID --->	141309		141310		141311		141312		141313		141314	
	ID FROM REPORT -->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803	
	SAMPLE DATE ----->	01/17/96		01/17/96		01/17/96		01/17/96		01/17/96		01/17/96	
	DATE EXTRACTED -->	01/18/96		01/18/96		01/18/96		01/18/96		01/18/96		01/18/96	
	DATE ANALYZED --->	01/23/96		01/23/96		01/23/96		01/23/96		01/23/96		01/23/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
319-84-6	alpha-BHC	2.1	U	2.1	U	2.1	U	2.1	U	9.8	U	10.	U
319-85-7	beta-BHC	2.1	U	2.1	U	2.1	U	2.1	U	9.8	U	10.	U
319-86-8	delta-BHC	2.1	U	2.1	U	2.1	U	2.1	U	9.8	U	10.	U
58-89-9	gamma-BHC (Lindane)	2.1	U	2.1	U	2.1	U	2.1	U	9.8	U	10.	U
76-44-8	Heptachlor	2.1	U	2.1	U	2.1	U	2.1	U	9.8	U	10.	U
309-00-2	Aldrin	2.1	U	2.1	U	2.1	U	2.1	U	9.8	U	10.	U
1024-57-3	Heptachlor epoxide	2.1	U	2.1	U	2.1	U	2.1	U	5.3	JD	10.	U
959-98-8	Endosulfan I	2.1	U	2.1	U	2.1	U	2.1	U	9.8	U	10.	U
60-57-1	Dieldrin	4.2	U	4.2	U	4.2	U	4.2	U	9400.	D	3600.	D
72-55-9	4,4'-DDE	4.2	U	4.2	U	4.2	U	4.2	U	20.	U	20.	U
72-20-8	Endrin	4.2	U	4.2	U	4.2	U	4.2	U	56.	D	18.	JD
33213-65-9	Endosulfan II	4.2	U	4.2	U	4.2	U	4.2	U	20.	U	20.	U
72-54-8	4,4'-DDD	4.2	U	4.2	U	4.2	U	4.2	U	20.	U	20.	U
1031-07-8	Endosulfan sulfate	4.2	U	4.2	U	4.2	U	4.2	U	20.	U	20.	U
50-29-3	4,4'-DDT	4.2	U	4.2	U	4.2	U	4.2	U	190.	D	170.	D
72-43-5	Methoxychlor	21.	U	21.	U	21.	U	21.	U	98.	U	100.	U
53494-70-5	Endrin ketone	4.2	U	4.2	U	2.1	U	4.2	U	58.	D	38.	D
7421-93-4	Endrin aldehyde	4.2	U	4.2	U	4.2	U	4.2	U	17.	JD	20.	U
5103-71-9	alpha-Chlordane	2.1	U	2.1	U	2.1	U	2.1	U	27.	D	14.	D
5103-74-2	gamma-Chlordane	2.1	U	2.1	U	2.1	U	2.1	U	23.	JD	15.	JD
8001-35-2	Toxaphene	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U
12674-11-2	Aroclor-1016	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U
11104-28-2	Aroclor-1221	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U
53469-21-9	Aroclor-1242	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U
12672-29-6	Aroclor-1248	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U
11097-69-1	Aroclor-1254	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U
11096-82-5	Aroclor-1260	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U
11141-16-5	Aroclor-1232	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U
12789-03-6	Technical Chlordane	42.	U	42.	U	42.	U	42.	U	200.	U	200.	U

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-SVOA															
	SAMPLE ID ------->	008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03 RE		008-P-CB04-01		008-P-CB04-03	
	ORIGINAL ID ----->	008PCB0101		008PCB0103		008PCB0301		008PCB0303RE		008PCB0401		008PCB0403	
	LAB SAMPLE ID --->	141169		141170		141171		141172RE		141173		141174	
	ID FROM REPORT -->	008pcb0101		008pcb0103		008pcb0301		008pcb0303RE		008pcb0401		008pcb0403	
	SAMPLE DATE ----->	01/11/96		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE EXTRACTED -->	01/16/96		01/16/96		01/16/96		01/23/96		01/16/96		01/16/96	
	DATE ANALYZED --->	01/20/96		01/20/96		01/20/96		01/25/96		01/22/96		01/22/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
108-95-2	Phenol	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
111-44-4	bis(2-Chloroethyl)ether	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
95-57-8	2-Chlorophenol	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
541-73-1	1,3-Dichlorobenzene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
106-46-7	1,4-Dichlorobenzene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
95-50-1	1,2-Dichlorobenzene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
95-48-7	2-Methylphenol (o-Cresol)	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
106-44-5	4-Methylphenol (p-Cresol)	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
621-64-7	N-Nitroso-di-n-propylamine	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
67-72-1	Hexachloroethane	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
98-95-3	Nitrobenzene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
78-59-1	Isophorone	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
88-75-5	2-Nitrophenol	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
105-67-9	2,4-Dimethylphenol	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
120-83-2	2,4-Dichlorophenol	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
120-82-1	1,2,4-Trichlorobenzene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
91-20-3	Naphthalene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
106-47-8	4-Chloroaniline	460.	U	420.	U	450.	U	430.	UJ	440.	UJ	430.	UJ
87-68-3	Hexachlorobutadiene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
111-91-1	bis(2-Chloroethoxy)methane	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
59-50-7	4-Chloro-3-methylphenol	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
91-57-6	2-Methylnaphthalene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
77-47-4	Hexachlorocyclopentadiene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
88-06-2	2,4,6-Trichlorophenol	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
95-95-4	2,4,5-Trichlorophenol	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U	1100.	U
91-58-7	2-Chloronaphthalene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
88-74-4	2-Nitroaniline	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U	1100.	U
131-11-3	Dimethylphthalate	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
208-96-8	Acenaphthylene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
606-20-2	2,6-Dinitrotoluene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
99-09-2	3-Nitroaniline	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U	1100.	U
83-32-9	Acenaphthene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
51-28-5	2,4-Dinitrophenol	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U	1100.	U
100-02-7	4-Nitrophenol	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U	1100.	U
132-64-9	Dibenzofuran	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-SVOA													
	SAMPLE ID ------->	008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03 RE		008-P-CB04-01		008-P-CB04-03	
	ORIGINAL ID ----->	008PCB0101		008PCB0103		008PCB0301		008PCB0303RE		008PCB0401		008PCB0403	
	LAB SAMPLE ID --->	141169		141170		141171		141172RE		141173		141174	
	ID FROM REPORT -->	008pcb0101		008pcb0103		008pcb0301		008pcb0303RE		008pcb0401		008pcb0403	
	SAMPLE DATE ----->	01/11/96		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE EXTRACTED -->	01/16/96		01/16/96		01/16/96		01/23/96		01/16/96		01/16/96	
	DATE ANALYZED --->	01/20/96		01/20/96		01/20/96		01/25/96		01/22/96		01/22/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
121-14-2	2,4-Dinitrotoluene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
84-66-2	Diethylphthalate	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
7005-72-3	4-Chlorophenylphenyl ether	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
86-73-7	Fluorene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
100-01-6	4-Nitroaniline	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U	1100.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U	1100.	U
86-30-6	N-Nitrosodiphenylamine	460.	U	420.	U	450.	U	430.	UJ	440.	UJ	430.	UJ
101-55-3	4-Bromophenyl-phenylether	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
118-74-1	Hexachlorobenzene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
87-86-5	Pentachlorophenol	1100.	U	1000.	U	1100.	U	1100.	U	1100.	U	1100.	U
85-01-8	Phenanthrene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
120-12-7	Anthracene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
86-74-8	Carbazole	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
84-74-2	Di-n-butylphthalate	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
206-44-0	Fluoranthene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
129-00-0	Pyrene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
85-68-7	Butylbenzylphthalate	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
91-94-1	3,3'-Dichlorobenzidine	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
56-55-3	Benzo(a)anthracene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
218-01-9	Chrysene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	110.	J	170.	J	65.	J	430.	U	440.	U	48.	J
117-84-0	Di-n-octylphthalate	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
205-99-2	Benzo(b)fluoranthene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
207-08-9	Benzo(k)fluoranthene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
50-32-8	Benzo(a)pyrene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
193-39-5	Indeno(1,2,3-cd)pyrene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
53-70-3	Dibenz(a,h)anthracene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
191-24-2	Benzo(g,h,i)perylene	460.	U	420.	U	450.	U	430.	U	440.	U	430.	U
9999900-32-2	3-Methylphenol/4-Methylphenol	NR		NR		NR		NR		NR		NR	
122-39-4	Diphenylamine	NR		NR		NR		NR		NR		NR	

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-SVOA													
	SAMPLE ID ------->	008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03		008-P-CB08-01		008-P-CB08-03	
	ORIGINAL ID ----->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803	
	LAB SAMPLE ID --->	141309		141310		141311		141312		141313		141314	
	ID FROM REPORT -->	008pcb0501		008pcb0503		008pcb0601		008pcb0603		008pcb0801		008pcb0803	
	SAMPLE DATE ----->	01/17/96		01/17/96		01/17/96		01/17/96		01/17/96		01/17/96	
	DATE EXTRACTED -->	01/24/96		01/24/96		01/24/96		01/24/96		01/24/96		01/24/96	
	DATE ANALYZED --->	01/26/96		01/26/96		01/26/96		01/26/96		01/26/96		01/26/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
108-95-2	Phenol	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
111-44-4	bis(2-Chloroethyl)ether	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
95-57-8	2-Chlorophenol	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
541-73-1	1,3-Dichlorobenzene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
106-46-7	1,4-Dichlorobenzene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
95-50-1	1,2-Dichlorobenzene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
95-48-7	2-Methylphenol (o-Cresol)	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
106-44-5	4-Methylphenol (p-Cresol)	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
621-64-7	N-Nitroso-di-n-propylamine	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
67-72-1	Hexachloroethane	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
98-95-3	Nitrobenzene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
78-59-1	Isophorone	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
88-75-5	2-Nitrophenol	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
105-67-9	2,4-Dimethylphenol	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
120-83-2	2,4-Dichlorophenol	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
120-82-1	1,2,4-Trichlorobenzene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
91-20-3	Naphthalene	420.	U	420.	U	420.	U	420.	U	2000.	U	1200.	J
106-47-8	4-Chloroaniline	420.	UJ	420.	UJ	420.	UJ	420.	UJ	2000.	UJ	10000.	UJ
87-68-3	Hexachlorobutadiene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
111-91-1	bis(2-Chloroethoxy)methane	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
59-50-7	4-Chloro-3-methylphenol	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
91-57-6	2-Methylnaphthalene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
77-47-4	Hexachlorocyclopentadiene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
88-06-2	2,4,6-Trichlorophenol	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
95-95-4	2,4,5-Trichlorophenol	1000.	U	1000.	U	1000.	U	1000.	U	4900.	U	25000.	U
91-58-7	2-Chloronaphthalene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
88-74-4	2-Nitroaniline	1000.	U	1000.	U	1000.	U	1000.	U	4900.	U	25000.	U
131-11-3	Dimethylphthalate	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
208-96-8	Acenaphthylene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
606-20-2	2,6-Dinitrotoluene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
99-09-2	3-Nitroaniline	1000.	U	1000.	U	1000.	U	1000.	U	4900.	U	25000.	U
83-32-9	Acenaphthene	420.	U	420.	U	420.	U	420.	U	2000.	U	5300.	J
51-28-5	2,4-Dinitrophenol	1000.	U	1000.	U	1000.	U	1000.	U	4900.	U	25000.	U
100-02-7	4-Nitrophenol	1000.	U	1000.	U	1000.	U	1000.	U	4900.	U	25000.	U
132-64-9	Dibenzofuran	420.	U	420.	U	420.	U	420.	U	2000.	U	2400.	J

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-SVOA													
	SAMPLE ID ------->	008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03		008-P-CB08-01		008-P-CB08-03	
	ORIGINAL ID ----->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803	
	LAB SAMPLE ID --->	141309		141310		141311		141312		141313		141314	
	ID FROM REPORT -->	008pcb0501		008pcb0503		008pcb0601		008pcb0603		008pcb0801		008pcb0803	
	SAMPLE DATE ----->	01/17/96		01/17/96		01/17/96		01/17/96		01/17/96		01/17/96	
	DATE EXTRACTED -->	01/24/96		01/24/96		01/24/96		01/24/96		01/24/96		01/24/96	
	DATE ANALYZED --->	01/26/96		01/26/96		01/26/96		01/26/96		01/26/96		01/26/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
121-14-2	2,4-Dinitrotoluene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
84-66-2	Diethylphthalate	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
7005-72-3	4-Chlorophenylphenyl ether	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
86-73-7	Fluorene	420.	U	420.	U	420.	U	420.	U	2000.	U	3900.	J
100-01-6	4-Nitroaniline	1000.	U	1000.	U	1000.	U	1000.	U	4900.	U	25000.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	1000.	U	1000.	U	1000.	U	1000.	U	4900.	U	25000.	U
86-30-6	N-Nitrosodiphenylamine	420.	UJ	420.	UJ	420.	UJ	420.	UJ	2000.	UJ	10000.	UJ
101-55-3	4-Bromophenyl-phenylether	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
118-74-1	Hexachlorobenzene	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
87-86-5	Pentachlorophenol	1000.	U	1000.	U	1000.	U	1000.	U	4900.	U	25000.	U
85-01-8	Phenanthrene	420.	U	420.	U	420.	U	420.	U	2000.	U	37000.	
120-12-7	Anthracene	420.	U	420.	U	420.	U	420.	U	2000.	U	9900.	J
86-74-8	Carbazole	420.	U	420.	U	420.	U	420.	U	2000.	U	3300.	J
84-74-2	Di-n-butylphthalate	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
206-44-0	Fluoranthene	420.	U	420.	U	420.	U	420.	U	2000.	U	40000.	
129-00-0	Pyrene	420.	U	420.	U	420.	U	420.	U	2000.	U	34000.	
85-68-7	Butylbenzylphthalate	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
91-94-1	3,3'-Dichlorobenzidine	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
56-55-3	Benzo(a)anthracene	420.	U	420.	U	420.	U	420.	U	2000.	U	13000.	
218-01-9	Chrysene	420.	U	420.	U	420.	U	420.	U	2000.	U	14000.	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	420.	U	420.	U	420.	U	420.	U	2000.	U	1300.	J
117-84-0	Di-n-octylphthalate	420.	U	420.	U	420.	U	420.	U	2000.	U	10000.	U
205-99-2	Benzo(b)fluoranthene	420.	U	420.	U	420.	U	420.	U	2000.	U	12000.	
207-08-9	Benzo(k)fluoranthene	420.	U	420.	U	420.	U	420.	U	2000.	U	11000.	
50-32-8	Benzo(a)pyrene	420.	U	420.	U	420.	U	420.	U	2000.	U	14000.	
193-39-5	Indeno(1,2,3-cd)pyrene	420.	U	420.	U	420.	U	420.	U	2000.	U	6200.	J
53-70-3	Dibenz(a,h)anthracene	420.	U	420.	U	420.	U	420.	U	2000.	U	2200.	J
191-24-2	Benzo(g,h,i)perylene	420.	U	420.	U	420.	U	420.	U	2000.	U	6600.	J
9999900-32-2	3-Methylphenol/4-Methylphenol	NR		NR		NR		NR		NR		NR	
122-39-4	Diphenylamine	NR		NR		NR		NR		NR		NR	

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-VOA																	
	SAMPLE ID ------->	008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03		008-P-CB04-01		008-P-CB04-03	
	ORIGINAL ID ----->	008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
	LAB SAMPLE ID --->	141169		141170		141171		141172		141173		141174	
	ID FROM REPORT -->	008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
	SAMPLE DATE ----->	01/11/96		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE ANALYZED --->	01/18/96		01/18/96		01/18/96		01/18/96		01/18/96		01/18/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
74-87-3	Chloromethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
74-83-9	Bromomethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
75-01-4	Vinyl chloride	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
75-00-3	Chloroethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
75-09-2	Methylene chloride	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
67-64-1	Acetone	14.	U	350.	D	18.	U	28.	U	13.	U	290.	D
75-15-0	Carbon disulfide	14.	U	13.	U	14.	U	13.	U	13.	U	4.	J
75-35-4	1,1-Dichloroethene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
75-34-3	1,1-Dichloroethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
540-59-0	1,2-Dichloroethene (total)	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
67-66-3	Chloroform	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
107-06-2	1,2-Dichloroethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
78-93-3	2-Butanone (MEK)	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
71-55-6	1,1,1-Trichloroethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
56-23-5	Carbon tetrachloride	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
75-27-4	Bromodichloromethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
78-87-5	1,2-Dichloropropane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
10061-01-5	cis-1,3-Dichloropropene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
79-01-6	Trichloroethene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
124-48-1	Dibromochloromethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
79-00-5	1,1,2-Trichloroethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
71-43-2	Benzene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
10061-02-6	trans-1,3-Dichloropropene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
75-25-2	Bromoform	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
591-78-6	2-Hexanone	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
127-18-4	Tetrachloroethene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
79-34-5	1,1,2,2-Tetrachloroethane	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
108-88-3	Toluene	2.	J	3.	J	6.	J	5.	J	3.	J	13.	U
108-90-7	Chlorobenzene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
100-41-4	Ethylbenzene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
100-42-5	Styrene	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
1330-20-7	Xylene (Total)	14.	U	13.	U	14.	U	13.	U	13.	U	13.	U
110-75-8	2-Chloroethylvinylether	NR		NR		NR		NR		NR		NR	
95-50-1	1,2-Dichlorobenzene	NR		NR		NR		NR		NR		NR	
541-73-1	1,3-Dichlorobenzene	NR		NR		NR		NR		NR		NR	
106-46-7	1,4-Dichlorobenzene	NR		NR		NR		NR		NR		NR	

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-VOA													
	SAMPLE ID ------->	008-P-CB01-01		008-P-CB01-03		008-P-CB03-01		008-P-CB03-03		008-P-CB04-01		008-P-CB04-03	
	ORIGINAL ID ----->	008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
	LAB SAMPLE ID --->	141169		141170		141171		141172		141173		141174	
	ID FROM REPORT -->	008PCB0101		008PCB0103		008PCB0301		008PCB0303		008PCB0401		008PCB0403	
	SAMPLE DATE ----->	01/11/96		01/11/96		01/11/96		01/11/96		01/11/96		01/11/96	
	DATE ANALYZED --->	01/18/96		01/18/96		01/18/96		01/18/96		01/18/96		01/18/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
75-69-4	Trichlorofluoromethane	NR		NR		NR		NR		NR		NR	
108-05-4	Vinyl acetate	NR		NR		NR		NR		NR		NR	
108-38-3	m-Xylene	NR		NR		NR		NR		NR		NR	
95-47-6	o-Xylene	NR		NR		NR		NR		NR		NR	
106-42-3	p-Xylene	NR		NR		NR		NR		NR		NR	

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-VOA																	
		SAMPLE ID ------->	008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03		008-P-CB08-01		008-P-CB08-03				
		ORIGINAL ID ----->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803				
		LAB SAMPLE ID --->	141309		141310		141311		141312		141313		141314				
		ID FROM REPORT -->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803				
		SAMPLE DATE ----->	01/17/96		01/17/96		01/17/96		01/17/96		01/17/96		01/17/96				
		DATE ANALYZED --->	01/19/96		01/19/96		01/20/96		01/19/96		01/19/96		01/20/96				
		MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil				
		UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG				
CAS #	Parameter		1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL			
74-87-3	Chloromethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
74-83-9	Bromomethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
75-01-4	Vinyl chloride		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
75-00-3	Chloroethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
75-09-2	Methylene chloride		13.	U	13.	U	2.	J	13.	U	12.	U	2.	J			
67-64-1	Acetone		13.	UJ	13.	UJ	13.	UJ	13.	UJ	12.	UJ	12.	UJ			
75-15-0	Carbon disulfide		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
75-35-4	1,1-Dichloroethene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
75-34-3	1,1-Dichloroethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
540-59-0	1,2-Dichloroethene (total)		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
67-66-3	Chloroform		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
107-06-2	1,2-Dichloroethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
78-93-3	2-Butanone (MEK)		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
71-55-6	1,1,1-Trichloroethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
56-23-5	Carbon tetrachloride		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
75-27-4	Bromodichloromethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
78-87-5	1,2-Dichloropropane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
10061-01-5	cis-1,3-Dichloropropene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
79-01-6	Trichloroethene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
124-48-1	Dibromochloromethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
79-00-5	1,1,2-Trichloroethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
71-43-2	Benzene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
10061-02-6	trans-1,3-Dichloropropene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
75-25-2	Bromoform		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
108-10-1	4-Methyl-2-Pentanone (MIBK)		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
591-78-6	2-Hexanone		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
127-18-4	Tetrachloroethene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
79-34-5	1,1,2,2-Tetrachloroethane		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
108-88-3	Toluene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
108-90-7	Chlorobenzene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
100-41-4	Ethylbenzene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
100-42-5	Styrene		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
1330-20-7	Xylene (Total)		13.	U	13.	U	13.	U	13.	U	12.	U	12.	U			
110-75-8	2-Chloroethylvinylether		NR		NR		NR		NR		NR		NR				
95-50-1	1,2-Dichlorobenzene		NR		NR		NR		NR		NR		NR				
541-73-1	1,3-Dichlorobenzene		NR		NR		NR		NR		NR		NR				
106-46-7	1,4-Dichlorobenzene		NR		NR		NR		NR		NR		NR				

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 PCB SOIL INVESTIGATION

SW846-VOA													
	SAMPLE ID ------->	008-P-CB05-01		008-P-CB05-03		008-P-CB06-01		008-P-CB06-03		008-P-CB08-01		008-P-CB08-03	
	ORIGINAL ID ----->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803	
	LAB SAMPLE ID --->	141309		141310		141311		141312		141313		141314	
	ID FROM REPORT -->	008PCB0501		008PCB0503		008PCB0601		008PCB0603		008PCB0801		008PCB0803	
	SAMPLE DATE ----->	01/17/96		01/17/96		01/17/96		01/17/96		01/17/96		01/17/96	
	DATE ANALYZED --->	01/19/96		01/19/96		01/20/96		01/19/96		01/19/96		01/20/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL	1665	VAL
75-69-4	Trichlorofluoromethane	NR		NR		NR		NR		NR		NR	
108-05-4	Vinyl acetate	NR		NR		NR		NR		NR		NR	
108-38-3	m-Xylene	NR		NR		NR		NR		NR		NR	
95-47-6	o-Xylene	NR		NR		NR		NR		NR		NR	
106-42-3	p-Xylene	NR		NR		NR		NR		NR		NR	

*** Validation Complete ***

Appendix J

Groundwater Samples

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

ALKALINITY							
	SAMPLE ID ------->	008-G-01FL-00					
	ORIGINAL ID ----->	008GMW001F					
	LAB SAMPLE ID --->	120404					
	ID FROM REPORT -->	008GMW001F					
	SAMPLE DATE ----->	03/22/95					
	DATE ANALYZED --->	03/31/95					
	MATRIX ---------->	Water					
	UNITS ---------->	mg/L					
CAS #	Parameter	1347	VAL				
471-34-1	Alkalinity (as CaCO3)	90.					

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

APX9-METAL															
		SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00						
		ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F						
		LAB SAMPLE ID --->	8-120416S		8-120417S		9-120536S		9-120537S						
		ID FROM REPORT -->	008GMW001F		008GMW002F		008FMW003F		008GMW004F						
		SAMPLE DATE ----->	03/22/95		03/22/95		03/22/95		03/23/95						
		MATRIX ---------->	Water		Water		Water		Water						
		UNITS ---------->	UG/L		UG/L		UG/L		UG/L						
CAS #	Parameter		1347	VAL	1347	VAL	1353	VAL	1353	VAL					
7440-36-0	Antimony		40.	U	40.	U	40.	U	40.	U					
7440-38-2	Arsenic		2.	UJ	2.	UJ	2.	UJ	2.	UJ					
7440-39-3	Barium		65.6	J	74.3	J	57.4	J	53.3	J					
7440-41-7	Beryllium		1.	U	1.	U	1.	U	1.	U					
7440-43-9	Cadmium		3.	U	3.	U	3.	U	3.	U					
7440-47-3	Chromium		5.	U	5.	U	5.7	J	5.	U					
7440-48-4	Cobalt		5.	U	5.	U	5.	U	5.	U					
7440-50-8	Copper		5.	U	5.	U	5.8	J	5.2	J					
7439-92-1	Lead		3.6		3.8		2.7	J	33.2	J					
7439-97-6	Mercury		0.2	U	0.2	U	0.2	U	0.2	U					
7440-02-0	Nickel		15.	U	15.	U	15.	U	15.	U					
7782-49-2	Selenium		2.1	U	2.2	U	2.	U	2.	UJ					
7440-22-4	Silver		3.	U	3.	U	3.	UJ	3.	UJ					
7440-28-0	Thallium		2.	U	2.	U	2.	U	2.	U					
7440-62-2	Vanadium		4.	U	4.	U	4.	U	4.	U					
7440-66-6	Zinc		11.	J	8.3	J	6.	UJ	6.	UJ					
7440-31-5	Tin		15.	U	15.	U	15.	U	15.	U					

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

BOD5							
	SAMPLE ID ------->	008-G-01FL-00					
	ORIGINAL ID ----->	008GMW001F					
	LAB SAMPLE ID --->	120404					
	ID FROM REPORT -->	008GMW001F					
	SAMPLE DATE ----->	03/22/95					
	DATE ANALYZED --->	03/23/95					
	MATRIX ---------->	Water					
	UNITS ---------->	mg/L					
CAS #	Parameter	1347	VAL				
9999900-03-8	Biochemical Oxygen Demand (5-day)	2.	U				

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

CA & MG

SAMPLE ID ------->	008-G-01FL-00
ORIGINAL ID ----->	008GMW001F
LAB SAMPLE ID --->	120404
ID FROM REPORT -->	008GMW001F
SAMPLE DATE ----->	03/22/95
DATE EXTRACTED -->	04/04/95
DATE ANALYZED --->	04/04/95
MATRIX ---------->	Water
UNITS ---------->	UG/L

CAS #	Parameter	1347	VAL
7440-70-2	Calcium	16600.	
7439-95-4	Magnesium	8500.	

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

COD							
	SAMPLE ID ------->	008-G-01FL-00					
	ORIGINAL ID ----->	008GMW001F					
	LAB SAMPLE ID --->	120404					
	ID FROM REPORT -->	008GMW001F					
	SAMPLE DATE ----->	03/22/95					
	DATE ANALYZED --->	03/27/95					
	MATRIX ---------->	Water					
	UNITS ---------->	mg/L					
CAS #	Parameter	1347 VAL					
9999900-04-0	Chemical Oxygen Demand	26.					

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

FE & MN

SAMPLE ID ------->	008-G-01FL-00
ORIGINAL ID ----->	008GMW001F
LAB SAMPLE ID --->	120404
ID FROM REPORT -->	008GMW001F
SAMPLE DATE ----->	03/22/95
DATE EXTRACTED -->	04/04/95
DATE ANALYZED --->	04/04/95
MATRIX ---------->	Water
UNITS ---------->	UG/L

CAS #	Parameter	1347	VAL
7439-89-6	Iron	319.	J
7439-96-5	Manganese	228.	

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

HARDNESS							
	SAMPLE ID ------->	008-G-01FL-00					
	ORIGINAL ID ----->	008GMW001F					
	LAB SAMPLE ID --->	120404					
	ID FROM REPORT -->	008GMW001F					
	SAMPLE DATE ----->	03/22/95					
	DATE EXTRACTED -->	04/04/95					
	DATE ANALYZED --->	04/04/95					
	MATRIX ---------->	Water					
	UNITS ---------->	mg/L					
CAS #	Parameter	1347	VAL				
9999900-03-3	Hardness as CaCO3	76.					

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

KJELDAHL							
	SAMPLE ID ------->	008-G-01FL-00					
	ORIGINAL ID ----->	008GMW001F					
	LAB SAMPLE ID --->	120404					
	ID FROM REPORT -->	008GMW001F					
	SAMPLE DATE ----->	03/22/95					
	DATE EXTRACTED -->	03/24/95					
	DATE ANALYZED --->	03/31/95					
	MATRIX ---------->	Water					
	UNITS ---------->	mg/L					
CAS #	Parameter	1347	VAL				
9999000-72-6	Kjeldahl Nitrogen, Total	0.5	U				

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

METAL-CN											
	SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00 +			
	ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F			
	LAB SAMPLE ID --->	120404		120409		120521		120522			
	ID FROM REPORT -->	008GMW001F		008GMW002F		008GMW003F		008GMW004F			
	SAMPLE DATE ----->	03/22/95		03/22/95		03/23/95		03/23/95			
	DATE EXTRACTED -->	03/30/95		03/31/95		03/31/95		03/30/95			
	DATE ANALYZED --->	04/03/95		04/03/95		04/03/95		04/03/95			
	MATRIX ---------->	Water		Water		Water		Water			
	UNITS ---------->	mg/L		mg/L		mg/L		mg/L			
CAS #	Parameter	1347	VAL	1347	VAL	1353	VAL	1353	VAL		
57-12-5	Cyanide (CN)	0.01	U	0.01	U	0.01	U	0.01	U		

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

NITRATE

SAMPLE ID ------->	008-G-01FL-00
ORIGINAL ID ----->	008GMW001F
LAB SAMPLE ID --->	120404
ID FROM REPORT -->	008GMW001F
SAMPLE DATE ----->	03/22/95
DATE ANALYZED --->	03/23/95
MATRIX ---------->	Water
UNITS ---------->	mg/L

CAS #	Parameter	1347	VAL
14797-55-8	Nitrate (as N)	1.4	

*** Validati . Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

SW846-HERB

	SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00 +			
	ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F			
	LAB SAMPLE ID --->	120404		120409		120521		120522			
	ID FROM REPORT -->	008GMW001F		008GMW002F		008GMW003F		008GMW004F			
	SAMPLE DATE ----->	03/22/95		03/22/95		03/23/95		03/23/95			
	DATE EXTRACTED -->	04/03/95		04/03/95		04/06/95		04/06/95			
	DATE ANALYZED --->	04/04/95		04/04/95		04/06/95		04/07/95			
	MATRIX ---------->	Water		Water		Water		Water			
	UNITS ---------->	ug/L		ug/L		ug/L		ug/L			
CAS #	Parameter	1347	VAL	1347	VAL	1353	VAL	1353	VAL		
94-82-6	2,4-DB	0.47	U	0.47	U	0.47	U	0.72	U		
88-85-7	Dinoseb	0.24	U	0.24	U	0.24	U	0.63	UJ		
93-76-5	2,4,5-T	0.05	U	0.05	U	0.05	U	0.25	UJ		
93-72-1	2,4,5-TP (Silvex)	0.05	U	0.05	U	0.05	U	0.19	U		
75-99-0	Dalapon	1.1	U	1.1	U	1.1	U	1.1	UJ		
1918-00-9	Dicamba	0.05	U	0.05	U	0.05	U	0.21	U		
120-36-5	Dichlorprop	0.47	U	0.47	U	0.47	U	2.5	U		
94-74-6	MCPA	47.	U	47.	U	47.	U	220.	U		
93-65-2	MCPP	47.	U	47.	U	47.	U	190.	U		
94-75-7	2,4-D	0.47	U	0.47	U	0.47	U	2.5	U		

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

SW846-OP P

SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00 +				
ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F				
LAB SAMPLE ID --->	120404		120409		120521		120522				
ID FROM REPORT -->	008GMW001F		008GMW002F		008GMW003F		008GMW004F				
SAMPLE DATE ----->	03/22/95		03/22/95		03/23/95		03/23/95				
DATE EXTRACTED -->	04/03/95		04/03/95		04/08/95		04/08/95				
DATE ANALYZED --->	04/06/95		04/08/95		04/11/95		04/11/95				
MATRIX ---------->	Water		Water		Water		Water				
UNITS ---------->	ug/L		ug/L		ug/L		ug/L				
CAS # Parameter	1347	VAL	1347	VAL	1353	VAL	1353	VAL			
86-50-0 Azinphos methyl	5.	UJ	5.	UJ	5.	UJ	1.	UJ			
35400-43-2 Sulprofos (Bolstar)	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
2921-88-2 Chloropyrifos	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
56-72-4 Coumaphos	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
8065-48-3 Demeton,O	2.5	UJ	2.5	UJ	2.5	U	1.	UJ			
333-41-5 Diazinon	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
62-73-7 Dichlorvos	2.5	UJ	2.5	UJ	2.5	U	1.	U			
298-04-4 Disulfoton	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
13194-48-4 Ethoprop	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
115-90-2 Fensulfothion	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
55-38-9 Fenthion	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
150-50-5 Merphos	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
7786-34-7 Mevinphos, Alpha	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
300-76-5 Naled	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
298-00-0 Methyl parathion	2.5	UJ	2.5	UJ	2.5	U	1.	U			
298-02-2 Phorate	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
299-84-3 Ronnel	2.5	UJ	2.5	UJ	2.5	U	1.	U			
22248-79-9 Stirophos (Tetrachlorovinphos)	2.5	UJ	2.5	UJ	2.5	U	1.	UJ			
34643-46-4 Tokuthion	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
327-98-0 Trichloronate	2.5	UJ	2.5	UJ	2.5	UJ	1.	UJ			
126-75-0 Demeton,S	2.5	UJ	2.5	UJ	2.5	U	1.	U			

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

SW846-PEST													
	SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00					
	ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F					
	LAB SAMPLE ID --->	120416		120417		120536		120537					
	ID FROM REPORT -->	008GMW001F		008GMW002F		008GMW003F		008GMW004F					
	SAMPLE DATE ----->	03/22/95		03/22/95		03/22/95		03/23/95					
	DATE EXTRACTED -->	03/29/95		03/29/95		03/29/95		03/29/95					
	DATE ANALYZED --->	04/07/95		04/07/95		04/08/95		04/08/95					
	MATRIX ---------->	Water		Water		Water		Water					
	UNITS ---------->	UG/L		UG/L		UG/L		UG/L					
CAS #	Parameter	1347	VAL	1347	VAL	1353	VAL	1353	VAL				
319-84-6	alpha-BHC	0.05	U	0.05	U	0.05	U	0.05	U				
319-85-7	beta-BHC	0.05	U	0.05	U	0.05	U	0.05	U				
319-86-8	delta-BHC	0.05	U	0.05	U	0.05	U	0.05	U				
58-89-9	gamma-BHC (Lindane)	0.05	U	0.05	U	0.05	U	0.05	U				
76-44-8	Heptachlor	0.05	U	0.05	U	0.05	U	0.05	U				
309-00-2	Aldrin	0.05	U	0.05	U	0.05	U	0.05	U				
1024-57-3	Heptachlor epoxide	0.05	U	0.05	U	0.05	U	0.05	U				
959-98-8	Endosulfan I	0.05	U	0.05	U	0.05	U	0.05	U				
60-57-1	Dieldrin	0.1	U	0.1	U	0.1	U	0.1	U				
72-55-9	4,4'-DDE	0.1	U	0.1	U	0.1	U	0.1	U				
72-20-8	Endrin	0.1	U	0.1	U	0.1	U	0.1	U				
33213-65-9	Endosulfan II	0.1	U	0.1	U	0.1	U	0.1	U				
72-54-8	4,4'-DDD	0.1	U	0.1	U	0.1	U	0.1	U				
1031-07-8	Endosulfan sulfate	0.1	U	0.1	U	0.1	U	0.1	UJ				
50-29-3	4,4'-DDT	0.1	U	0.1	U	0.1	U	0.1	U				
72-43-5	Methoxychlor	0.5	U	0.5	U	0.5	U	0.5	U				
53494-70-5	Endrin ketone	0.1	U	0.1	U	0.1	U	0.1	U				
7421-93-4	Endrin aldehyde	0.1	U	0.1	U	0.1	U	0.1	U				
5103-71-9	alpha-Chlordane	0.05	U	0.05	U	0.05	U	0.05	U				
5103-74-2	gamma-Chlordane	0.05	U	0.05	U	0.05	U	0.05	U				
8001-35-2	Toxaphene	1.	U	1.	U	1.	U	1.	U				
12674-11-2	Aroclor-1016	1.	U	1.	U	1.	U	1.	U				
11104-28-2	Aroclor-1221	1.	U	1.	U	1.	U	1.	U				
53469-21-9	Aroclor-1242	1.	U	1.	U	1.	U	1.	U				
12672-29-6	Aroclor-1248	1.	U	1.	U	1.	U	1.	U				
11097-69-1	Aroclor-1254	1.	U	1.	U	1.	U	1.	U				
11096-82-5	Aroclor-1260	1.	U	1.	U	1.	U	1.	U				
11141-16-5	Aroclor-1232	1.	U	1.	U	1.	U	1.	U				
12789-03-6	Technical Chlordane	NR		NR		NR		NR					

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

SW846-SVOA

SAMPLE ID ------->		008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00	
ORIGINAL ID ----->		008GMW001F		008GMW002F		008GMW003F		008GMW004F	
LAB SAMPLE ID --->		120416		120417		120536		120537	
ID FROM REPORT -->		008GMW001F		008GMW002F		008GMW003F		008GMW004F	
SAMPLE DATE ----->		03/22/95		03/22/95		03/22/95		03/23/95	
DATE EXTRACTED -->		03/29/95		03/29/95		03/29/95		04/03/95	
DATE ANALYZED --->		04/11/95		04/12/95		04/13/95		04/13/95	
MATRIX ---------->		Water		Water		Water		Water	
UNITS ---------->		UG/L		UG/L		UG/L		UG/L	
CAS #	Parameter	1347	VAL	1347	VAL	1353	VAL	1353	VAL
108-95-2	Phenol	10.	U	10.	UR	10.	U	10.	U
111-44-4	bis(2-Chloroethyl)ether	10.	U	10.	U	10.	U	10.	U
95-57-8	2-Chlorophenol	10.	U	10.	UR	10.	U	10.	U
541-73-1	1,3-Dichlorobenzene	10.	U	10.	U	10.	U	10.	U
106-46-7	1,4-Dichlorobenzene	10.	U	10.	U	10.	U	10.	U
95-50-1	1,2-Dichlorobenzene	10.	U	10.	U	10.	U	10.	U
95-48-7	2-Methylphenol (o-Cresol)	10.	U	10.	UR	10.	U	10.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10.	UJ	10.	UJ	10.	UJ	10.	UJ
106-44-5	4-Methylphenol (p-Cresol)	10.	U	10.	UR	10.	U	10.	U
621-64-7	N-Nitroso-di-n-propylamine	10.	U	10.	UJ	10.	U	10.	U
67-72-1	Hexachloroethane	10.	U	10.	U	10.	U	10.	U
98-95-3	Nitrobenzene	10.	U	10.	U	10.	U	10.	U
78-59-1	Isophorone	10.	U	10.	U	10.	U	10.	U
88-75-5	2-Nitrophenol	10.	U	10.	UR	10.	U	10.	U
105-67-9	2,4-Dimethylphenol	10.	U	10.	UR	10.	U	10.	U
120-83-2	2,4-Dichlorophenol	10.	U	10.	UR	10.	U	10.	U
120-82-1	1,2,4-Trichlorobenzene	10.	U	10.	U	10.	U	10.	U
91-20-3	Naphthalene	10.	U	10.	U	10.	U	10.	U
106-47-8	4-Chloroaniline	10.	UJ	10.	UJ	10.	U	10.	U
87-68-3	Hexachlorobutadiene	10.	U	10.	U	10.	U	10.	U
111-91-1	bis(2-Chloroethoxy)methane	10.	U	10.	U	10.	U	10.	U
59-50-7	4-Chloro-3-methylphenol	10.	U	10.	UR	10.	U	10.	U
91-57-6	2-Methylnaphthalene	10.	UJ	10.	U	10.	U	10.	U
77-47-4	Hexachlorocyclopentadiene	10.	U	10.	U	10.	U	10.	U
88-06-2	2,4,6-Trichlorophenol	10.	U	10.	UR	10.	U	10.	U
95-95-4	2,4,5-Trichlorophenol	25.	U	25.	UR	25.	U	25.	U
91-58-7	2-Chloronaphthalene	10.	U	10.	U	10.	U	10.	U
88-74-4	2-Nitroaniline	25.	U	25.	UJ	25.	UJ	25.	UJ
131-11-3	Dimethylphthalate	10.	U	10.	U	10.	U	10.	U
208-96-8	Acenaphthylene	10.	U	10.	U	10.	U	10.	U
606-20-2	2,6-Dinitrotoluene	10.	U	10.	U	10.	U	10.	U
99-09-2	3-Nitroaniline	25.	U	25.	U	25.	U	25.	U
83-32-9	Acenaphthene	10.	U	10.	U	10.	U	10.	U
51-28-5	2,4-Dinitrophenol	25.	U	25.	UR	25.	UJ	25.	UJ
100-02-7	4-Nitrophenol	25.	UJ	25.	UR	25.	UJ	25.	UJ
132[illegible]-9	Dibenzofuran	10.	U	10.	U	10.	U	10.	U

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

SW846-SVOA									
	SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00	
	ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F	
	LAB SAMPLE ID --->	120416		120417		120536		120537	
	ID FROM REPORT -->	008GMW001F		008GMW002F		008GMW003F		008GMW004F	
	SAMPLE DATE ----->	03/22/95		03/22/95		03/22/95		03/23/95	
	DATE EXTRACTED -->	03/29/95		03/29/95		03/29/95		04/03/95	
	DATE ANALYZED --->	04/11/95		04/12/95		04/13/95		04/13/95	
	MATRIX ---------->	Water		Water		Water		Water	
	UNITS ---------->	UG/L		UG/L		UG/L		UG/L	
CAS #	Parameter	1347	VAL	1347	VAL	1353	VAL	1353	VAL
121-14-2	2,4-Dinitrotoluene	10.	U	10.	U	10.	U	10.	U
84-66-2	Diethylphthalate	10.	U	10.	U	10.	U	10.	U
7005-72-3	4-Chlorophenylphenyl ether	10.	U	10.	U	10.	U	10.	U
86-73-7	Fluorene	10.	U	10.	U	10.	U	10.	U
100-01-6	4-Nitroaniline	25.	U	25.	U	25.	U	25.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	25.	U	25.	UR	25.	U	25.	U
86-30-6	N-Nitrosodiphenylamine	10.	UJ	10.	UJ	10.	U	10.	U
101-55-3	4-Bromophenyl-phenylether	10.	U	10.	U	10.	U	10.	U
118-74-1	Hexachlorobenzene	10.	U	10.	U	10.	U	10.	U
87-86-5	Pentachlorophenol	25.	U	25.	UR	25.	UJ	25.	UJ
85-01-8	Phenanthrene	10.	U	10.	U	10.	U	10.	U
120-12-7	Anthracene	10.	U	10.	U	10.	U	10.	U
86-74-8	Carbazole	10.	U	10.	U	10.	U	10.	U
84-74-2	Di-n-butylphthalate	10.	U	10.	U	10.	U	10.	U
206-44-0	Fluoranthene	10.	U	10.	U	10.	U	10.	U
129-00-0	Pyrene	10.	U	10.	U	10.	U	10.	U
85-68-7	Butylbenzylphthalate	10.	U	10.	U	10.	U	10.	U
91-94-1	3,3'-Dichlorobenzidine	10.	U	10.	U	10.	U	10.	U
56-55-3	Benzo(a)anthracene	10.	U	10.	U	10.	U	10.	U
218-01-9	Chrysene	10.	U	10.	U	10.	U	10.	U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	8.	J	10.	U	10.	U	10.	U
117-84-0	Di-n-octylphthalate	10.	U	10.	U	10.	U	10.	U
205-99-2	Benzo(b)fluoranthene	10.	U	10.	U	10.	U	10.	U
207-08-9	Benzo(k)fluoranthene	10.	U	10.	U	10.	U	10.	U
50-32-8	Benzo(a)pyrene	10.	U	10.	U	10.	U	10.	U
193-39-5	Indeno(1,2,3-cd)pyrene	10.	U	10.	U	10.	U	10.	U
53-70-3	Dibenz(a,h)anthracene	10.	U	10.	U	10.	U	10.	U
191-24-2	Benzo(g,h,i)perylene	10.	U	10.	U	10.	U	10.	U
9999900-32-2	3-Methylphenol/4-Methylphenol	NR		NR		NR		NR	
122-39-4	Diphenylamine	NR		NR		NR		NR	

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

SW846-VOA	SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00			
	ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F			
	LAB SAMPLE ID --->	120416		120417		120536		120537			
	ID FROM REPORT -->	008GMW001F		008GMW002F		008GMW003F		008GMW004F			
	SAMPLE DATE ----->	03/22/95		03/22/95		03/22/95		03/23/95			
	DATE ANALYZED --->	03/26/95		03/26/95		04/03/95		04/04/95			
	MATRIX ---------->	Water		Water		Water		Water			
	UNITS ---------->	UG/L		UG/L		UG/L		UG/L			
CAS #	Parameter	1347	VAL	1347	VAL	1353	VAL	1353	VAL		
74-87-3	Chloromethane	10.	UJ	10.	UJ	10.	U	10.	UJ		
74-83-9	Bromomethane	10.	UJ	10.	UJ	10.	U	10.	UJ		
75-01-4	Vinyl chloride	10.	UJ	10.	UJ	10.	U	10.	U		
75-00-3	Chloroethane	10.	U	10.	U	10.	U	10.	U		
75-09-2	Methylene chloride	10.	U	10.	U	10.	U	10.	U		
67-64-1	Acetone	10.	U	10.	U	10.	U	12.	U		
75-15-0	Carbon disulfide	10.	U	10.	U	10.	U	10.	U		
75-35-4	1,1-Dichloroethene	10.	U	10.	U	10.	U	10.	U		
75-34-3	1,1-Dichloroethane	10.	U	10.	U	10.	U	10.	U		
540-59-0	1,2-Dichloroethene (total)	10.	U	10.	U	10.	U	10.	U		
67-66-3	Chloroform	10.	U	10.	U	10.	U	10.	U		
107-06-2	1,2-Dichloroethane	10.	U	10.	U	10.	U	10.	U		
78-93-3	2-Butanone (MEK)	10.	U	10.	U	10.	U	10.	U		
71-55-6	1,1,1-Trichloroethane	10.	U	10.	U	10.	U	10.	U		
56-23-5	Carbon tetrachloride	10.	U	10.	U	10.	U	10.	U		
75-27-4	Bromodichloromethane	10.	U	10.	U	10.	U	10.	U		
78-87-5	1,2-Dichloropropane	10.	U	10.	U	10.	U	10.	U		
10061-01-5	cis-1,3-Dichloropropene	10.	U	10.	U	10.	U	10.	U		
79-01-6	Trichloroethene	10.	U	10.	U	10.	U	10.	U		
124-48-1	Dibromochloromethane	10.	U	10.	U	10.	U	10.	U		
79-00-5	1,1,2-Trichloroethane	10.	U	10.	U	10.	U	10.	U		
71-43-2	Benzene	10.	U	10.	U	10.	U	10.	U		
10061-02-6	trans-1,3-Dichloropropene	10.	U	10.	U	10.	U	10.	U		
75-25-2	Bromoform	10.	U	10.	U	10.	U	10.	U		
108-10-1	4-Methyl-2-Pentanone (MIBK)	10.	U	10.	U	10.	U	10.	U		
591-78-6	2-Hexanone	10.	UJ	10.	UJ	10.	U	10.	U		
127-18-4	Tetrachloroethene	10.	U	10.	U	10.	U	10.	U		
79-34-5	1,1,2,2-Tetrachloroethane	10.	U	10.	U	10.	U	10.	U		
108-88-3	Toluene	10.	U	10.	U	10.	U	10.	U		
108-90-7	Chlorobenzene	10.	U	10.	U	10.	U	10.	U		
100-41-4	Ethylbenzene	10.	U	10.	U	10.	U	10.	U		
100-42-5	Styrene	10.	U	10.	U	10.	U	10.	U		
1330-20-7	Xylene (Total)	10.	U	10.	U	10.	U	10.	U		
110-75-8	2-Chloroethylvinylether	NR		NR		NR		NR			
95-50-1	1,2-Dichlorobenzene	NR		NR		NR		NR			
541-73-1	1,3-Dichlorobenzene	NR		NR		NR		NR			
106-46-7	1,4-Dichlorobenzene	NR		NR		NR		NR			

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

SW846-VOA													
		SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00				
		ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F				
		LAB SAMPLE ID --->	120416		120417		120536		120537				
		ID FROM REPORT -->	008GMW001F		008GMW002F		008GMW003F		008GMW004F				
		SAMPLE DATE ----->	03/22/95		03/22/95		03/22/95		03/23/95				
		DATE ANALYZED --->	03/26/95		03/26/95		04/03/95		04/04/95				
		MATRIX ---------->	Water		Water		Water		Water				
		UNITS ---------->	UG/L		UG/L		UG/L		UG/L				
CAS #	Parameter		1347	VAL	1347	VAL	1353	VAL	1353	VAL			
75-69-4	Trichlorofluoromethane		NR		NR		NR		NR				
108-05-4	Vinyl acetate		NR		NR		NR		NR				
108-38-3	m-Xylene		NR		NR		NR		NR				
95-47-6	o-Xylene		NR		NR		NR		NR				
106-42-3	p-Xylene		NR		NR		NR		NR				

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

TOTAL PHOS							
	SAMPLE ID ------->	008-G-01FL-00					
	ORIGINAL ID ----->	008GMW001F					
	LAB SAMPLE ID --->	120404					
	ID FROM REPORT -->	008GMW001F					
	SAMPLE DATE ----->	03/22/95					
	DATE EXTRACTED -->	04/17/95					
	DATE ANALYZED --->	04/17/95					
	MATRIX ---------->	Water					
	UNITS ---------->	mg/L					
CAS #	Parameter	1347 VAL					
9999000-80-6	PHOSPHATE,TOTAL	0.022					

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

TPH													
	SAMPLE ID ------->	008-G-01FL-00		008-G-02FL-00		008-G-03FL-00		008-G-04FL-00 +			
	ORIGINAL ID ----->	008GMW001F		008GMW002F		008GMW003F		008GMW004F			
	LAB SAMPLE ID --->	120404		120409		120521		120522			
	ID FROM REPORT -->	008GMW001F		008GMW002F		008GMW003F		008GMW004F			
	SAMPLE DATE ----->	03/22/95		03/22/95		03/23/95		03/23/95			
	DATE EXTRACTED -->	04/13/95		04/13/95		04/20/95		04/20/95			
	DATE ANALYZED --->	04/13/95		04/13/95		04/20/95		04/20/95			
	MATRIX ---------->	Water		Water		Water		Water			
	UNITS ---------->	mg/L		mg/L		mg/L		mg/L			
CAS #	Parameter	1347	VAL	1347	VAL	1353	VAL	1353	VAL		
9999900-02-4	Petroleum Hydrocarbons, TPH	2.	U	2.	U	2.	U	2.	U		

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

TSS							
	SAMPLE ID ------->	008-G-01FL-00					
	ORIGINAL ID ----->	008GMW001F					
	LAB SAMPLE ID --->	120404					
	ID FROM REPORT -->	008GMW001F					
	SAMPLE DATE ----->	03/22/95					
	DATE ANALYZED --->	03/24/95					
	MATRIX ---------->	Water					
	UNITS ---------->	mg/L					
CAS #	Parameter	1347 VAL					
9999900-03-7	Total Suspended Solids (TSS)	149.					

*** Validation Complete ***

NSA MID-SOUTH
RFI, ASSEMBLY A
SWMU 8 GROUNDWATER SAMPLES

TURBIDITY							
	SAMPLE ID ------->	008-G-01FL-00					
	ORIGINAL ID ----->	008GMW001F					
	LAB SAMPLE ID --->	120404					
	ID FROM REPORT -->	008GMW001F					
	SAMPLE DATE ----->	03/22/95					
	DATE ANALYZED --->	03/23/95					
	MATRIX ---------->	Water					
	UNITS ---------->	NTU					
CAS #	Parameter	1347 VAL					
9999900-04-4	Turbidity	22.					

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 1ST EVENT
SWMU 8 GROUNDWATER SAMPLES

SW846-VOA

SAMPLE ID ------->		008-G-01FL-01		008-G-03FL-01		008-G-04FL-01					
ORIGINAL ID ----->		008G10010F		008G10030F		008G10040F					
LAB SAMPLE ID --->		139525		139526		139527					
ID FROM REPORT -->		008G10010F		008G10030F		008G10040F					
SAMPLE DATE ----->		11/29/95		11/29/95		11/29/95					
DATE ANALYZED --->		12/07/95		12/07/95		12/07/95					
MATRIX ---------->		Water		Water		Water					
UNITS ---------->		UG/L		UG/L		UG/L					
CAS #	Parameter	1635	VAL	1635	VAL	1635	VAL				
74-87-3	Chloromethane	10.	U	10.	U	10.	U				
74-83-9	Bromomethane	10.	U	10.	U	10.	U				
75-01-4	Vinyl chloride	10.	U	10.	U	10.	U				
75-00-3	Chloroethane	10.	U	10.	U	10.	U				
75-09-2	Methylene chloride	10.	U	10.	U	10.	U				
67-64-1	Acetone	10.	U	21.	U	25.	U				
75-15-0	Carbon disulfide	10.	U	10.	U	10.	U				
75-35-4	1,1-Dichloroethene	10.	U	10.	U	10.	U				
75-34-3	1,1-Dichloroethane	10.	U	10.	U	10.	U				
540-59-0	1,2-Dichloroethene (total)	10.	U	10.	U	10.	U				
67-66-3	Chloroform	10.	U	10.	U	10.	U				
107-06-2	1,2-Dichloroethane	10.	U	10.	U	10.	U				
78-93-3	2-Butanone (MEK)	10.	U	10.	U	10.	U				
71-55-6	1,1,1-Trichloroethane	10.	U	10.	U	10.	U				
56-23-5	Carbon tetrachloride	10.	U	10.	U	10.	U				
75-27-4	Bromodichloromethane	10.	U	10.	U	10.	U				
78-87-5	1,2-Dichloropropane	10.	U	10.	U	10.	U				
10061-01-5	cis-1,3-Dichloropropene	10.	U	10.	U	10.	U				
79-01-6	Trichloroethene	10.	U	10.	U	10.	U				
124-48-1	Dibromochloromethane	10.	U	10.	U	10.	U				
79-00-5	1,1,2-Trichloroethane	10.	U	10.	U	10.	U				
71-43-2	Benzene	10.	U	10.	U	10.	U				
10061-02-6	trans-1,3-Dichloropropene	10.	U	10.	U	10.	U				
75-25-2	Bromoform	10.	U	10.	U	10.	U				
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.	J	10.	U	10.	U				
591-78-6	2-Hexanone	10.	U	10.	U	10.	U				
127-18-4	Tetrachloroethene	10.	U	10.	U	10.	U				
79-34-5	1,1,2,2-Tetrachloroethane	10.	U	10.	U	10.	U				
108-88-3	Toluene	10.	U	10.	U	10.	U				
108-90-7	Chlorobenzene	10.	U	10.	U	10.	U				
100-41-4	Ethylbenzene	10.	U	10.	U	10.	U				
100-42-5	Styrene	10.	U	10.	U	10.	U				
1330-20-7	Xylene (Total)	10.	U	10.	U	10.	U				

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 2ND EVENT
SWMU 8 GROUNDWATER SAMPLES

SW846-VOA

SAMPLE ID ------->		008-G-01FL-02		008-G-02FL-02		008-G-03FL-02		008-G-04FL-02	
ORIGINAL ID ----->		008GE00102		008GE00202		008GE00302		008GE00402	
LAB SAMPLE ID --->		145588		145589		145590		145591	
ID FROM REPORT -->		008GE00102		008GE00202		008GE00302		008GE00402	
SAMPLE DATE ----->		04/09/96		04/09/96		04/09/96		04/09/96	
DATE ANALYZED --->		04/19/96		04/21/96		04/19/96		04/20/96	
MATRIX ---------->		Water		Water		Water		Water	
UNITS ---------->		ug/L		ug/L		ug/L		ug/L	
CAS #	Parameter	1749	VAL	1749	VAL	1749	VAL	1749	VAL
74-87-3	Chloromethane	10.	U	2000.	U	10.	U	10.	U
74-83-9	Bromomethane	10.	U	2000.	U	10.	U	10.	U
75-01-4	Vinyl chloride	10.	U	2000.	U	10.	U	10.	U
75-00-3	Chloroethane	10.	U	2000.	U	10.	U	10.	U
75-09-2	Methylene chloride	10.	U	2000.	U	10.	U	10.	U
67-64-1	Acetone	32.		19000.		10.	U	10.	U
75-15-0	Carbon disulfide	10.	U	2000.	U	10.	U	10.	U
75-35-4	1,1-Dichloroethene	10.	U	2000.	U	10.	U	10.	U
75-34-3	1,1-Dichloroethane	10.	U	2000.	U	10.	U	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U	2000.	U	10.	U	10.	U
67-66-3	Chloroform	10.	U	2000.	U	10.	U	10.	U
107-06-2	1,2-Dichloroethane	10.	U	2000.	U	10.	U	10.	U
78-93-3	2-Butanone (MEK)	10.	U	2000.	U	10.	U	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U	2000.	U	10.	U	10.	U
56-23-5	Carbon tetrachloride	10.	U	2000.	U	10.	U	10.	U
75-27-4	Bromodichloromethane	10.	U	2000.	U	10.	U	10.	U
78-87-5	1,2-Dichloropropane	10.	U	2000.	U	10.	U	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U	2000.	U	10.	U	10.	U
79-01-6	Trichloroethene	10.	U	2000.	U	10.	U	10.	U
124-48-1	Dibromochloromethane	10.	U	2000.	U	10.	U	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U	2000.	U	10.	U	10.	U
71-43-2	Benzene	10.	U	2000.	U	10.	U	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U	2000.	U	10.	U	10.	U
75-25-2	Bromoform	10.	U	2000.	U	10.	U	10.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	10.	U	2000.	U	10.	U	10.	U
591-78-6	2-Hexanone	10.	U	2000.	U	10.	U	10.	U
127-18-4	Tetrachloroethene	10.	U	2000.	U	10.	U	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U	2000.	U	10.	U	10.	U
108-88-3	Toluene	10.	U	2000.	U	10.	U	10.	U
108-90-7	Chlorobenzene	10.	U	2000.	U	10.	U	10.	U
100-41-4	Ethylbenzene	10.	U	2000.	U	10.	U	10.	U
100-42-5	Styrene	10.	U	2000.	U	10.	U	10.	U
1330-20-7	Xylene (Total)	10.	U	2000.	U	10.	U	10.	U

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 3RD EVENT
SWMU 8 GROUNDWATER SAMPLES

APX9-METAL											
	SAMPLE ID ------->	008-G-01FL-03		008-H-01FL-03		008-G-02FL-03		008-G-03FL-03		008-G-04FL-03	
	ORIGINAL ID ----->	008G01FL03		008H01FL03		008G02FL03		008G03FL03		008G04FL03	
	LAB SAMPLE ID --->	152871S		152869S		152866S		152867S		152868S	
	ID FROM REPORT -->	008G01FL03		008H01FL03		008G02FL03		008G03FL03		008G04FL03	
	SAMPLE DATE ----->	08/20/96		08/20/96		08/20/96		08/20/96		08/20/96	
	MATRIX ---------->	Water		Water		Water		Water		Water	
	UNITS ---------->	UG/L		UG/L		UG/L		UG/L		UG/L	
CAS #	Parameter	1972	VAL	1972	VAL	1972	VAL	1972	VAL	1972	VAL
7440-36-0	Antimony	33.	U	33.	U	33.	U	33.	U	33.	U
7440-38-2	Arsenic	1.2	UR	1.2	UR	1.2	UR	1.2	UR	1.2	UR
7440-39-3	Barium	53.1	J	52.3	J	102.	J	56.	J	55.2	J
7440-41-7	Beryllium	0.07	J	0.06	U	0.67	J	0.06	U	0.08	J
7440-43-9	Cadmium	4.	U	4.	U	4.	U	4.	U	4.	U
7440-47-3	Chromium	12.3		4.8	U	17.2		4.8	U	7.3	J
7440-48-4	Cobalt	2.5	J	1.9	U	8.2	J	1.9	U	2.9	J
7440-50-8	Copper	10.	U	4.7	U	12.9	U	15.8	U	14.4	U
7439-92-1	Lead	1.5	U	2.	U	7.7	U	2.6	U	1.5	U
7439-97-6	Mercury	0.04	UJ	0.04	UJ	0.04	UJ	0.04	UJ	0.04	UJ
7440-02-0	Nickel	25.4	J	11.5	J	16.6	J	9.6	U	9.8	J
7782-49-2	Selenium	1.	UJ	1.	UJ	1.	UJ	1.	UJ	1.	UJ
7440-22-4	Silver	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U
7440-28-0	Thallium	2.	U	2.	U	2.	U	2.	U	2.	U
7440-62-2	Vanadium	2.3	J	2.2	U	25.	J	2.2	U	5.	J
7440-66-6	Zinc	21.5	U	6.2	U	22.3	U	11.	U	17.3	U
7440-31-5	Tin	48.5	U	45.	U	90.8	U	68.	U	62.1	U

*** Validation Complete ***

TH
) EVENT
R SAMPLES

3-G-02FL-03		008-G-03FL-03		008-G-04FL-03		
G02FL03		008G03FL03		008G04FL03		
866		152867		152868		
G02FL03		008G03FL03		008G04FL03		
20/96		08/20/96		08/20/96		
26/96		08/26/96		08/26/96		
l		Water		Water		
L		MG/L		MG/L		
72	VAL	1972	VAL	1972	VAL	
0.01	U	0.01	U	0.01	U	

plete ***

	008-G-04FL-03 008G04FL03 26698.07 008G04FL03 08/20/96 08/25/96 08/27/96 Water UG/L	
VAL	1972	VAL
U	1.2	U
U	0.8	U
U	500.	U
U	500.	U
U	2.4	U
U	1.6	U
U	0.6	U
U	0.6	U
U	0.6	U
U	5.	U

NSA MID-SOUTH
ASSEMBLY A, 3RD EVENT
SWMU 8 GROUNDWATER SAMPLES

SW846-OP P

SAMPLE ID ------->	008-G-01FL-03	008-H-01FL-03	008-G-02FL-03	008-G-03FL-03	008-G-04FL-03
ORIGINAL ID ----->	008G01FL03	008H01FL03	008G02FL03	008G03FL03	008G04FL03
LAB SAMPLE ID --->	152871	152869	152866	152867	152868
ID FROM REPORT -->	008G01FL03	008H01FL03	008G02FL03	008G03FL03	008G04FL03
SAMPLE DATE ----->	08/20/96	08/20/96	08/20/96	08/20/96	08/20/96
DATE EXTRACTED -->	08/24/96	08/24/96	08/24/96	08/24/96	08/24/96
DATE ANALYZED --->	09/09/96	09/09/96	09/09/96	09/09/96	09/09/96
MATRIX ---------->	Water	Water	Water	Water	Water
UNITS ---------->	ug/L	ug/L	ug/L	ug/L	ug/L

CAS #	Parameter	1972	VAL	1972	VAL	1972	VAL	1972	VAL	1972	VAL
62-73-7	Dichlorvos	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
7786-34-7	Mevinphos, Alpha	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
8065-48-3	Demeton,O	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
13194-48-4	Ethoprop	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
300-76-5	Naled	5.	U	5.	U	5.	U	5.	U	5.	U
298-02-2	Phorate	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
126-75-0	Demeton,S	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
333-41-5	Diazinon	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
298-04-4	Disulfoton	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
298-00-0	Methyl parathion	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
299-84-3	Ronnel	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
55-38-9	Fenthion	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
2921-88-2	Chloropyrifos	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
327-98-0	Trichloronate	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
150-50-5	Merphos	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
34643-46-4	Tokuthion	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
115-90-2	Fensulfothion	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
22248-79-9	Stirophos (Tetrachlorovinphos)	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
35400-43-2	Sulprofos (Bolstar)	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
86-50-0	Azinphos methyl	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
56-72-4	Coumaphos	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 3RD EVENT
SWMU 8 GROUNDWATER SAMPLES

SW846-PEST

SAMPLE ID ------->	008-G-01FL-03	008-H-01FL-03	008-G-02FL-03	008-G-03FL-03	008-G-04FL-03	
ORIGINAL ID ----->	008G01FL03	008H01FL03	008G02FL03	008G03FL03	008G04FL03	
LAB SAMPLE ID --->	152871	152869	152866	152867	152868	
ID FROM REPORT -->	008G01FL03	008H01FL03	008G02FL03	008G03FL03	008G04FL03	
SAMPLE DATE ----->	08/20/96	08/20/96	08/20/96	08/20/96	08/20/96	
DATE EXTRACTED -->	08/24/96	08/24/96	08/24/96	08/24/96	08/24/96	
DATE ANALYZED --->	08/27/96	08/27/96	08/27/96	08/27/96	08/27/96	
MATRIX ---------->	Water	Water	Water	Water	Water	
UNITS ---------->	ug/L	ug/L	ug/L	ug/L	ug/L	

CAS #	Parameter	1972	VAL	1972	VAL	1972	VAL	1972	VAL	1972	VAL	
319-84-6	alpha-BHC	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
319-85-7	beta-BHC	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
319-86-8	delta-BHC	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
58-89-9	gamma-BHC (Lindane)	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
76-44-8	Heptachlor	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
309-00-2	Aldrin	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
1024-57-3	Heptachlor epoxide	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
959-98-8	Endosulfan I	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
60-57-1	Dieldrin	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
72-55-9	4,4'-DDE	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
72-20-8	Endrin	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
33213-65-9	Endosulfan II	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
72-54-8	4,4'-DDD	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
1031-07-8	Endosulfan sulfate	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
50-29-3	4,4'-DDT	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
72-43-5	Methoxychlor	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	
53494-70-5	Endrin ketone	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
7421-93-4	Endrin aldehyde	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U	
5103-71-9	alpha-Chlordane	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
5103-74-2	gamma-Chlordane	0.05	U	0.05	U	0.05	UJ	0.05	U	0.05	U	
8001-35-2	Toxaphene	1.	U	1.	U	1.	UJ	1.	U	1.	U	
12674-11-2	Aroclor-1016	1.	U	1.	U	1.	UJ	1.	U	1.	U	
11104-28-2	Aroclor-1221	1.	U	1.	U	1.	UJ	1.	U	1.	U	
11141-16-5	Aroclor-1232	1.	U	1.	U	1.	UJ	1.	U	1.	U	
53469-21-9	Aroclor-1242	1.	U	1.	U	1.	UJ	1.	U	1.	U	
12672-29-6	Aroclor-1248	1.	U	1.	U	1.	UJ	1.	U	1.	U	
11097-69-1	Aroclor-1254	1.	U	1.	U	1.	UJ	1.	U	1.	U	
11096-82-5	Aroclor-1260	1.	U	1.	U	1.	UJ	1.	U	1.	U	
12789-03-6	Technical Chlordane	1.	U	1.	U	1.	UJ	1.	U	1.	U	

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 3RD EVENT
SWMU 8 GROUNDWATER SAMPLES

SW846-SVOA											
	SAMPLE ID ------->	008-G-01FL-03		008-H-01FL-03		008-G-02FL-03		008-G-03FL-03		008-G-04FL-03	
	ORIGINAL ID ----->	008G01FL03		008H01FL03		008G02FL03		008G03FL03		008G04FL03	
	LAB SAMPLE ID --->	152871		152869		152866		152867		152868	
	ID FROM REPORT -->	008g01fl03		008h01fl03		008g02fl03		008g03fl03		008g04fl03	
	SAMPLE DATE ----->	08/20/96		08/20/96		08/20/96		08/20/96		08/20/96	
	DATE EXTRACTED -->	08/23/96		08/23/96		08/23/96		08/23/96		08/23/96	
	DATE ANALYZED --->	08/26/96		08/26/96		08/26/96		08/26/96		08/26/96	
	MATRIX ---------->	Water		Water		Water		Water		Water	
	UNITS ---------->	ug/L		ug/L		ug/L		ug/L		ug/L	
CAS #	Parameter	1972	VAL	1972	VAL	1972	VAL	1972	VAL	1972	VAL
108-95-2	Phenol	10.	U	10.	U	10.	U	10.	U	10.	U
111-44-4	bis(2-Chloroethyl)ether	10.	U	10.	U	10.	U	10.	U	10.	U
95-57-8	2-Chlorophenol	10.	U	10.	U	10.	U	10.	U	10.	U
541-73-1	1,3-Dichlorobenzene	10.	U	10.	U	10.	U	10.	U	10.	U
106-46-7	1,4-Dichlorobenzene	10.	U	10.	U	10.	U	10.	U	10.	U
95-50-1	1,2-Dichlorobenzene	10.	U	10.	U	10.	U	10.	U	10.	U
95-48-7	2-Methylphenol (o-Cresol)	10.	U	10.	U	10.	U	10.	U	10.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10.	U	10.	U	10.	U	10.	U	10.	U
106-44-5	4-Methylphenol (p-Cresol)	10.	U	10.	U	10.	U	10.	U	10.	U
621-64-7	N-Nitroso-di-n-propylamine	10.	U	10.	U	10.	U	10.	U	10.	U
67-72-1	Hexachloroethane	10.	U	10.	U	10.	U	10.	U	10.	U
98-95-3	Nitrobenzene	10.	U	10.	U	10.	U	10.	U	10.	U
78-59-1	Isophorone	10.	U	10.	U	10.	U	10.	U	10.	U
88-75-5	2-Nitrophenol	10.	U	10.	U	10.	U	10.	U	10.	U
105-67-9	2,4-Dimethylphenol	10.	U	10.	U	10.	U	10.	U	10.	U
120-83-2	2,4-Dichlorophenol	10.	U	10.	U	10.	U	10.	U	10.	U
120-82-1	1,2,4-Trichlorobenzene	10.	U	10.	U	10.	U	10.	U	10.	U
91-20-3	Naphthalene	10.	U	10.	U	10.	U	10.	U	10.	U
106-47-8	4-Chloroaniline	10.	U	10.	U	10.	U	10.	U	10.	U
87-68-3	Hexachlorobutadiene	10.	U	10.	U	10.	U	10.	U	10.	U
111-91-1	bis(2-Chloroethoxy)methane	10.	U	10.	U	10.	U	10.	U	10.	U
59-50-7	4-Chloro-3-methylphenol	10.	U	10.	U	10.	U	10.	U	10.	U
91-57-6	2-Methylnaphthalene	10.	U	10.	U	10.	U	10.	U	10.	U
77-47-4	Hexachlorocyclopentadiene	10.	U	10.	U	10.	U	10.	U	10.	U
88-06-2	2,4,6-Trichlorophenol	10.	U	10.	U	10.	U	10.	U	10.	U
95-95-4	2,4,5-Trichlorophenol	25.	U	25.	U	25.	U	25.	U	25.	U
91-58-7	2-Chloronaphthalene	10.	U	10.	U	10.	U	10.	U	10.	U
88-74-4	2-Nitroaniline	25.	U	25.	U	25.	U	25.	U	25.	U
131-11-3	Dimethylphthalate	10.	U	10.	U	10.	U	10.	U	10.	U
208-96-8	Acenaphthylene	10.	U	10.	U	10.	U	10.	U	10.	U
606-20-2	2,6-Dinitrotoluene	10.	U	10.	U	10.	U	10.	U	10.	U
99-09-2	3-Nitroaniline	25.	U	25.	U	25.	U	25.	U	25.	U
83-32-9	Acenaphthene	10.	U	10.	U	10.	U	10.	U	10.	U
51-28-5	2,4-Dinitrophenol	25.	U	25.	U	25.	U	25.	U	25.	U
100-02-7	4-Nitrophenol	25.	U	25.	U	25.	U	25.	U	25.	U
132-64-9	Dibenzofuran	10.	U	10.	U	10.	U	10.	U	10.	U

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 3RD EVENT
SWMU 8 GROUNDWATER SAMPLES

SW846-SVOA

SAMPLE ID ------->	008-G-01FL-03	008-H-01FL-03	008-G-02FL-03	008-G-03FL-03	008-G-04FL-03	
ORIGINAL ID ----->	008G01FL03	008H01FL03	008G02FL03	008G03FL03	008G04FL03	
LAB SAMPLE ID --->	152871	152869	152866	152867	152868	
ID FROM REPORT -->	008g01fl03	008h01fl03	008g02fl03	008g03fl03	008g04fl03	
SAMPLE DATE ----->	08/20/96	08/20/96	08/20/96	08/20/96	08/20/96	
DATE EXTRACTED -->	08/23/96	08/23/96	08/23/96	08/23/96	08/23/96	
DATE ANALYZED --->	08/26/96	08/26/96	08/26/96	08/26/96	08/26/96	
MATRIX ---------->	Water	Water	Water	Water	Water	
UNITS ---------->	ug/L	ug/L	ug/L	ug/L	ug/L	

CAS #	Parameter	1972	VAL	1972	VAL	1972	VAL	1972	VAL	1972	VAL
121-14-2	2,4-Dinitrotoluene	10.	U	10.	U	10.	U	10.	U	10.	U
84-66-2	Diethylphthalate	10.	U	10.	U	10.	U	10.	U	10.	U
7005-72-3	4-Chlorophenylphenyl ether	10.	U	10.	U	10.	U	10.	U	10.	U
86-73-7	Fluorene	10.	U	10.	U	10.	U	10.	U	10.	U
100-01-6	4-Nitroaniline	25.	U	25.	U	25.	U	25.	U	25.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	25.	U	25.	U	25.	U	25.	U	25.	U
86-30-6	N-Nitrosodiphenylamine	10.	U	10.	U	10.	U	10.	U	10.	U
101-55-3	4-Bromophenyl-phenylether	10.	U	10.	U	10.	U	10.	U	10.	U
118-74-1	Hexachlorobenzene	10.	U	10.	U	10.	U	10.	U	10.	U
87-86-5	Pentachlorophenol	25.	U	25.	U	25.	U	25.	U	25.	U
85-01-8	Phenanthrene	10.	U	10.	U	10.	U	10.	U	10.	U
120-12-7	Anthracene	10.	U	10.	U	10.	U	10.	U	10.	U
86-74-8	Carbazole	10.	U	10.	U	10.	U	10.	U	10.	U
84-74-2	Di-n-butylphthalate	10.	U	10.	U	10.	U	10.	U	10.	U
206-44-0	Fluoranthene	10.	U	10.	U	10.	U	10.	U	10.	U
129-00-0	Pyrene	10.	U	10.	U	10.	U	10.	U	10.	U
85-68-7	Butylbenzylphthalate	10.	U	10.	U	10.	U	10.	U	10.	U
91-94-1	3,3'-Dichlorobenzidine	10.	U	10.	U	10.	U	10.	U	10.	U
56-55-3	Benzo(a)anthracene	10.	U	10.	U	10.	U	10.	U	10.	U
218-01-9	Chrysene	10.	U	10.	U	10.	U	10.	U	10.	U
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	10.	U	10.	U	10.	U	10.	U	10.	U
117-84-0	Di-n-octylphthalate	10.	U	10.	U	10.	U	10.	U	10.	U
205-99-2	Benzo(b)fluoranthene	10.	U	10.	U	10.	U	10.	U	10.	U
207-08-9	Benzo(k)fluoranthene	10.	U	10.	U	10.	U	10.	U	10.	U
50-32-8	Benzo(a)pyrene	10.	U	10.	U	10.	U	10.	U	10.	U
193-39-5	Indeno(1,2,3-cd)pyrene	10.	U	10.	U	10.	U	10.	U	10.	U
53-70-3	Dibenz(a,h)anthracene	10.	U	10.	U	10.	U	10.	U	10.	U
191-24-2	Benzo(g,h,i)perylene	10.	U	10.	U	10.	U	10.	U	10.	U

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 3RD EVENT
SWMU 8 GROUNDWATER SAMPLES

SW846-VOA											
	SAMPLE ID ------->	008-G-01FL-03		008-H-01FL-03		008-G-02FL-03		008-G-03FL-03		008-G-04FL-03	
	ORIGINAL ID ----->	008G01FL03		008H01FL03		008G02FL03		008G03FL03		008G04FL03	
	LAB SAMPLE ID --->	152871		152869		152866		152867		152868	
	ID FROM REPORT -->	008g01fl03		008h01fl03		008g02fl03		008g03fl03		008g04fl03	
	SAMPLE DATE ----->	08/20/96		08/20/96		08/20/96		08/20/96		08/20/96	
	DATE ANALYZED --->	08/27/96		08/28/96		08/26/96		08/27/96		08/27/96	
	MATRIX ---------->	Water		Water		Water		Water		Water	
	UNITS ---------->	ug/L		ug/L		ug/L		ug/L		ug/L	
CAS #	Parameter	1972	VAL	1972	VAL	1972	VAL	1972	VAL	1972	VAL
74-87-3	Chloromethane	10.	U	10.	U	10.	U	10.	U	10.	U
74-83-9	Bromomethane	10.	U	10.	U	10.	U	10.	U	10.	U
75-01-4	Vinyl chloride	10.	U	10.	U	10.	U	10.	U	10.	U
75-00-3	Chloroethane	10.	U	10.	U	10.	U	10.	U	10.	U
75-09-2	Methylene chloride	10.	U	10.	U	10.	U	10.	U	10.	U
67-64-1	Acetone	10.	U	10.	U	10.	U	42.		10.	U
75-15-0	Carbon disulfide	10.	U	10.	U	10.	U	10.	U	10.	U
75-35-4	1,1-Dichloroethene	10.	U	10.	U	10.	U	10.	U	10.	U
75-34-3	1,1-Dichloroethane	10.	U	10.	U	10.	U	10.	U	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U	10.	U	10.	U	10.	U	10.	U
67-66-3	Chloroform	10.	U	10.	U	10.	U	10.	U	10.	U
107-06-2	1,2-Dichloroethane	10.	U	10.	U	10.	U	10.	U	10.	U
78-93-3	2-Butanone (MEK)	10.	U	10.	U	10.	U	10.	U	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U	10.	U	10.	U	10.	U	10.	U
56-23-5	Carbon tetrachloride	10.	U	10.	U	10.	U	10.	U	10.	U
75-27-4	Bromodichloromethane	10.	U	10.	U	10.	U	10.	U	10.	U
78-87-5	1,2-Dichloropropane	10.	U	10.	U	10.	U	10.	U	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U	10.	U	10.	U	10.	U	10.	U
79-01-6	Trichloroethene	10.	U	10.	U	10.	U	10.	U	10.	U
124-48-1	Dibromochloromethane	10.	U	10.	U	10.	U	10.	U	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U	10.	U	10.	U	10.	U	10.	U
71-43-2	Benzene	10.	U	10.	U	10.	U	10.	U	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U	10.	U	10.	U	10.	U	10.	U
75-25-2	Bromoform	10.	U	10.	U	10.	U	10.	U	10.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	10.	U	10.	U	10.	U	10.	U	10.	U
591-78-6	2-Hexanone	10.	U	10.	U	10.	U	10.	U	10.	U
127-18-4	Tetrachloroethene	10.	U	10.	U	10.	U	10.	U	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U	10.	U	10.	U	10.	U	10.	U
108-88-3	Toluene	10.	U	10.	U	10.	U	10.	U	10.	U
108-90-7	Chlorobenzene	10.	U	10.	U	10.	U	10.	U	10.	U
100-41-4	Ethylbenzene	10.	U	10.	U	10.	U	10.	U	10.	U
100-42-5	Styrene	10.	U	10.	U	10.	U	10.	U	10.	U
1330-20-7	Xylene (Total)	10.	U	10.	U	10.	U	10.	U	10.	U

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 3RD EVENT
SWMU 8 GROUNDWATER SAMPLES

TPH-DRO											
	SAMPLE ID ------->	008-G-01FL-03		008-H-01FL-03		008-G-02FL-03		008-G-03FL-03		008-G-04FL-03	
	ORIGINAL ID ----->	008G01FL03		008H01FL03		008G02FL03		008G03FL03		008G04FL03	
	LAB SAMPLE ID --->	152871		152869		152866		152867		152868	
	ID FROM REPORT -->	008G01FL03		008H01FL03		008G02FL03		008G03FL03		008G04FL03	
	SAMPLE DATE ----->	08/20/96		08/20/96		08/20/96		08/20/96		08/20/96	
	DATE EXTRACTED -->	08/27/96		08/27/96		08/27/96		08/27/96		08/27/96	
	DATE ANALYZED --->	08/28/96		08/28/96		08/28/96		08/28/96		08/28/96	
	MATRIX ---------->	Water		Water		Soil		Water		Water	
	UNITS ---------->	UG/L		UG/L		UG/L		UG/L		UG/L	
CAS #	Parameter	1972	VAL	1972	VAL	1972	VAL	1972	VAL	1972	VAL
9999900-02-6	TPH - Diesel Range Organics	100.	U	100.	U	100.	U	100.	U	100.	U

*** Validation Complete ***

NSA MID-SOUTH
ASSEMBLY A, 3RD EVENT
SWMU 8 GROUNDWATER SAMPLES

TPH-GRO	SAMPLE ID ------->	008-G-01FL-03		008-H-01FL-03		008-G-02FL-03		008-G-03FL-03		008-G-04FL-03	
	ORIGINAL ID ----->	008G01FL03		008H01FL03		008G02FL03		008G03FL03		008G04FL03	
	LAB SAMPLE ID --->	152871		152869		152866		152867		152868	
	ID FROM REPORT -->	008G01FL03		008H01FL03		008G02FL03		008G03FL03		008G04FL03	
	SAMPLE DATE ----->	08/20/96		08/20/96		08/20/96		08/20/96		08/20/96	
	DATE ANALYZED --->	08/23/96		08/23/96		08/23/96		08/23/96		08/23/96	
	MATRIX ---------->	Water		Water		Soil		Water		Water	
	UNITS ---------->	UG/L		UG/L		UG/L		UG/L		UG/L	
CAS #	Parameter	1972	VAL	1972	VAL	1972	VAL	1972	VAL	1972	VAL
9999900-02-5	TPH - Gasoline Range Organics	50.	U	50.	U	50.	U	50.	U	50.	U

*** Validation Complete ***

Appendix K

Pre-Removal Stockpiled Soil Samples

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

APK9-METAL																			
		SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04						
		ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304						
		LAB SAMPLE ID --->	147359S		147360S		147361S		147362S		147363S		147364S						
		ID FROM REPORT -->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304						
		SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96						
		MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil						
		UNITS ---------->	MG/KG		MG/KG		MG/KG		MG/KG		MG/KG		MG/KG						
CAS #	Parameter		1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL					
7440-36-0	Antimony		7.6	UR	7.7	UR	7.6	UR	7.6	UR	7.4	UR	7.3	UR					
7440-38-2	Arsenic		9.9		12.8		4.2	J	12.8		8.4		7.4						
7440-39-3	Barium		89.		128.		53.3		84.3		98.4		102.						
7440-41-7	Beryllium		0.37	J	0.49	J	0.25	U	0.4	J	0.44	J	0.56	J					
7440-43-9	Cadmium		0.76	U	1.	J	0.76	U	1.1	J	0.9	J	1.1	J					
7440-47-3	Chromium		10.7		12.5		15.9		10.6		13.5		12.6						
7440-48-4	Cobalt		7.6	J	9.3	J	3.4	J	8.	J	6.4	J	6.9	J					
7440-50-8	Copper		16.		18.5		15.9		17.		18.		18.5						
7439-92-1	Lead		30.6		15.6		127.		17.1		80.4		69.5						
7439-97-6	Mercury		0.17	J	0.13	UJ	0.17	J	0.13	UJ	0.21	J	0.3	J					
7440-02-0	Nickel		13.5		17.		7.7	J	16.		12.7		12.2						
7782-49-2	Selenium		0.61	UJ	0.54	UJ	0.25	UJ	0.36	UJ	0.44	UJ	0.24	UJ					
7440-22-4	Silver		0.76	UJ	0.77	UJ	0.76	UJ	0.76	UJ	0.74	UJ	0.73	UJ					
7440-28-0	Thallium		2.5	U	2.9	J	0.5	UJ	0.51	UJ	0.49	UJ	0.49	UJ					
7440-62-2	Vanadium		23.6		26.4		24.		25.6		21.3		23.						
7440-66-6	Zinc		64.8		60.7		71.8		70.1		86.1		105.						
7440-31-5	Tin		26.8	J	40.	J	17.1	J	34.5	J	27.8	J	20.9	J					

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

APX9-METAL											
		SAMPLE ID ------->	008-S-0014-01		008-S-0014-04						
		ORIGINAL ID ----->	008S001401		008S001404						
		LAB SAMPLE ID --->	147365S		147366S						
		ID FROM REPORT -->	008S001401		008S001404						
		SAMPLE DATE ----->	05/01/96		05/01/96						
		MATRIX ---------->	Soil		Soil						
		UNITS ---------->	MG/KG		MG/KG						
CAS #	Parameter		1816	VAL	1816	VAL					
7440-36-0	Antimony		7.5	UR	7.2	UR					
7440-38-2	Arsenic		11.8		10.4						
7440-39-3	Barium		125.		90.7						
7440-41-7	Beryllium		0.46	J	0.37	J					
7440-43-9	Cadmium		1.	J	0.74	J					
7440-47-3	Chromium		9.8		14.						
7440-48-4	Cobalt		9.3	J	6.3	J					
7440-50-8	Copper		17.2		17.4						
7439-92-1	Lead		9.2		49.3						
7439-97-6	Mercury		0.12	UJ	1.	J					
7440-02-0	Nickel		17.1		12.5						
7782-49-2	Selenium		0.51	UJ	0.35	UJ					
7440-22-4	Silver		0.75	UJ	0.72	UJ					
7440-28-0	Thallium		0.5	UJ	0.48	UJ					
7440-62-2	Vanadium		23.2		26.6						
7440-66-6	Zinc		57.6		75.6						
7440-31-5	Tin		29.1	J	16.6	J					

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

METAL-CN													
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001104		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360		147361		147362		147363		147364	
	ID FROM REPORT -->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE ANALYZED --->	05/15/96		05/15/96		05/15/96		05/15/96		05/15/96		05/15/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	MG/KG		MG/KG		MG/KG		MG/KG		MG/KG		MG/KG	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
57-12-5	Cyanide (CN)	0.5		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

METAL-CN								
	SAMPLE ID ------->	008-S-0014-01		008-S-0014-04				
	ORIGINAL ID ----->	008S001401		008S001404				
	LAB SAMPLE ID --->	147365		147366				
	ID FROM REPORT -->	008S001401		008S001404				
	SAMPLE DATE ----->	05/01/96		05/01/96				
	DATE ANALYZED --->	05/15/96		05/15/96				
	MATRIX ---------->	Soil		Soil				
	UNITS ---------->	MG/KG		MG/KG				
CAS #	Parameter	1816	VAL	1816	VAL			
57-12-5	Cyanide (CN)	0.5	U	0.5	U			

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-HERB													
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360		147361		147362		147363		147364	
	ID FROM REPORT -->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE EXTRACTED -->	05/15/96		05/15/96		05/15/96		05/15/96		05/15/96		05/15/96	
	DATE ANALYZED --->	05/30/96		05/30/96		05/30/96		05/30/96		05/31/96		05/31/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
94-82-6	2,4-DB	9.5	U	9.5	U	9.5	U	9.5	U	9.5	U	4.8	R
88-85-7	Dinoseb	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U
93-76-5	2,4,5-T	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U	0.95	U
93-72-1	2,4,5-TP (Silvex)	0.95	U	0.95	U	0.95	U	0.95	U	0.98	J	0.67	J
75-99-0	Dalapon	23.	U	23.	U	23.	U	23.	U	23.	U	23.	U
1918-00-9	Dicamba	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U
120-36-5	Dichlorprop	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	7.6	J
94-74-6	MCPA	940.	U	930.	U	930.	U	930.	U	930.	U	930.	U
93-65-2	MCPP	940.	U	940.	U	1400.	J	940.	U	940.	U	940.	U
94-75-7	2,4-D	10.		9.4	U	20.	R	10.	J	9.4	J	13.	J

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-HERB

	SAMPLE ID ------->	008-S-0014-01		008-S-0014-04					
	ORIGINAL ID ----->	008S001401		008S001404					
	LAB SAMPLE ID --->	147365		147366					
	ID FROM REPORT -->	008S001401		008S001404					
	SAMPLE DATE ----->	05/01/96		05/01/96					
	DATE EXTRACTED -->	05/15/96		05/15/96					
	DATE ANALYZED --->	05/31/96		05/31/96					
	MATRIX ---------->	Soil		Soil					
	UNITS ---------->	UG/KG		UG/KG					
CAS #	Parameter	1816	VAL	1816	VAL				
94-82-6	2,4-DB	9.5	U	9.5	U				
88-85-7	Dinoseb	4.7	U	4.7	U				
93-76-5	2,4,5-T	0.95	U	0.95	U				
93-72-1	2,4,5-TP (Silvex)	0.95	U	0.95	U				
75-99-0	Dalapon	23.	U	23.	U				
1918-00-9	Dicamba	0.94	U	0.94	U				
120-36-5	Dichlorprop	20.	J	9.4	U				
94-74-6	MCPA	930.	U	940.	U				
93-65-2	MCPP	940.	U	940.	U				
94-75-7	2,4-D	9.4	U	20.	J				

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-OP P

SAMPLE ID ------->	008-S-0011-01	008-S-0011-04	008-S-0012-01	008-S-0012-04	008-S-0013-01	008-S-0013-04
ORIGINAL ID ----->	008S001101	008S001104	008S001201	008S001204	008S001301	008S001304
LAB SAMPLE ID --->	147359	147360	147361	147362	147363	147364
ID FROM REPORT -->	008S001101	008S001104	008S001201	008S001204	008S001301	008S001304
SAMPLE DATE ----->	05/01/96	05/01/96	05/01/96	05/01/96	05/01/96	05/01/96
DATE EXTRACTED -->	05/07/96	05/07/96	05/07/96	05/07/96	05/07/96	05/07/96
DATE ANALYZED --->	05/23/96	05/23/96	05/23/96	05/23/96	05/23/96	05/23/96
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg

CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
86-50-0	Azinphos methyl	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
35400-43-2	Sulprofos (Bolstar)	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
2921-88-2	Chloropyrifos	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
56-72-4	Coumaphos	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
8065-48-3	Demeton,O	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
333-41-5	Diazinon	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
62-73-7	Dichlorvos	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
298-04-4	Disulfoton	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
13194-48-4	Ethoprop	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
115-90-2	Fensulfothion	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
55-38-9	Fenthion	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
150-50-5	Merphos	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
7786-34-7	Mevinphos, Alpha	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
300-76-5	Naled	200.	UJ	210.	UJ	210.	UJ	210.	UJ	200.	UJ	210.	UJ
298-00-0	Methyl parathion	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
298-02-2	Phorate	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
299-84-3	Ronnel	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
22248-79-9	Stirophos (Tetrachlorovinphos)	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
34643-46-4	Tokuthion	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
327-98-0	Trichloronate	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U
126-75-0	Demeton,S	100.	U	110.	U	100.	U	110.	U	100.	U	100.	U

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-OP P

	SAMPLE ID ------->	008-S-0014-01		008-S-0014-04							
	ORIGINAL ID ----->	008S001401		008S001404							
	LAB SAMPLE ID --->	147365		147366							
	ID FROM REPORT -->	008S001401		008S001404							
	SAMPLE DATE ----->	05/01/96		05/01/96							
	DATE EXTRACTED -->	05/07/96		05/07/96							
	DATE ANALYZED --->	05/23/96		05/23/96							
	MATRIX ---------->	Soil		Soil							
	UNITS ---------->	ug/Kg		ug/Kg							
CAS #	Parameter	1816	VAL	1816	VAL						
86-50-0	Azinphos methyl	100.	U	100.	U						
35400-43-2	Sulprofos (Bolstar)	100.	U	100.	U						
2921-88-2	Chloropyrifos	100.	U	100.	U						
56-72-4	Coumaphos	100.	U	100.	U						
8065-48-3	Demeton,O	100.	U	100.	U						
333-41-5	Diazinon	100.	U	100.	U						
62-73-7	Dichlorvos	100.	U	100.	U						
298-04-4	Disulfoton	100.	U	100.	U						
13194-48-4	Ethoprop	100.	U	100.	U						
115-90-2	Fensulfothion	100.	U	100.	U						
55-38-9	Fenthion	100.	U	100.	U						
150-50-5	Merphos	100.	U	100.	U						
7786-34-7	Mevinphos, Alpha	100.	U	100.	U						
300-76-5	Naled	210.	UJ	200.	UJ						
298-00-0	Methyl parathion	100.	U	100.	U						
298-02-2	Phorate	100.	U	100.	U						
299-84-3	Ronnel	100.	U	100.	U						
22248-79-9	Stirophos (Tetrachlorovinphos)	100.	U	100.	U						
34643-46-4	Tokuthion	100.	U	100.	U						
327-98-0	Trichloronate	100.	U	100.	U						
126-75-0	Demeton,S	100.	U	100.	U						

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-PEST															
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360		147361_10		147362		147363_10		147364_10	
	ID FROM REPORT -->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE EXTRACTED -->	05/07/96		05/07/96		05/07/96		05/07/96		05/07/96		05/07/96	
	DATE ANALYZED --->	05/27/96		05/27/96		05/29/96		05/29/96		05/30/96		05/30/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
319-84-6	alpha-BHC	2.	U	2.1	U	21.	U	2.1	U	20.	U	21.	U
319-85-7	beta-BHC	2.	U	2.1	U	21.	U	2.1	U	20.	U	21.	U
319-86-8	delta-BHC	2.	U	2.1	U	21.	U	2.1	U	20.	U	21.	U
58-89-9	gamma-BHC (Lindane)	2.	U	2.1	U	21.	U	2.1	U	20.	U	21.	U
76-44-8	Heptachlor	2.	U	2.1	U	21.	U	2.1	U	20.	U	21.	U
309-00-2	Aldrin	2.4		2.1	U	21.	U	2.1	U	20.	U	21.	U
1024-57-3	Heptachlor epoxide	2.2	J	2.1	U	21.	U	2.1	U	20.	U	21.	U
959-98-8	Endosulfan I	2.	UJ	2.1	UJ	21.	U	2.1	U	20.	U	21.	U
60-57-1	Dieldrin	1600.	DJ	35.	J	11000.	DJ	530.	D	9400.	DJ	5600.	DJ
72-55-9	4,4'-DDE	160.	J	4.7	J	42.	U	4.3	UJ	41.	U	42.	U
72-20-8	Endrin	8.6	J	4.3	U	36.	J	4.3	UJ	64.		34.	J
33213-65-9	Endosulfan II	4.1	U	4.3	U	42.	U	4.3	U	41.	U	42.	U
72-54-8	4,4'-DDD	18.	R	4.3	U	42.	U	4.3	U	41.	U	16.	R
1031-07-8	Endosulfan sulfate	4.1	U	4.3	U	42.	U	4.3	U	41.	U	42.	U
50-29-3	4,4'-DDT	460.	DJ	17.		240.		14.		680.	DJ	430.	
72-43-5	Methoxychlor	20.	U	21.	U	210.	U	21.	U	200.	U	210.	U
53494-70-5	Endrin ketone	4.3		4.3	U	46.		2.8	J	70.		28.	J
7421-93-4	Endrin aldehyde	4.1	U	4.3	U	42.	U	4.3	U	41.	U	42.	U
5103-71-9	alpha-Chlordane	14.		2.1	U	29.		2.1	U	19.	J	24.	
5103-74-2	gamma-Chlordane	12.		2.1	U	32.		2.1	U	14.	J	20.	J
8001-35-2	Toxaphene	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U
12674-11-2	Aroclor-1016	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U
11104-28-2	Aroclor-1221	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U
53469-21-9	Aroclor-1242	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U
12672-29-6	Aroclor-1248	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U
11097-69-1	Aroclor-1254	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U
11096-82-5	Aroclor-1260	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U
11141-16-5	Aroclor-1232	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U
12789-03-6	Technical Chlordane	41.	U	43.	U	420.	U	43.	U	410.	U	420.	U

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-PEST

SAMPLE ID ------->	008-S-0014-01		008-S-0014-04				
ORIGINAL ID ----->	008S001401		008S001404				
LAB SAMPLE ID --->	147365		147366_10				
ID FROM REPORT -->	008S001401		008S001404				
SAMPLE DATE ----->	05/01/96		05/01/96				
DATE EXTRACTED -->	05/07/96		05/07/96				
DATE ANALYZED --->	05/29/96		05/27/96				
MATRIX ---------->	Soil		Soil				
UNITS ---------->	UG/KG		UG/KG				
CAS # Parameter	1816	VAL	1816	VAL			
319-84-6 alpha-BHC	2.1	U	20.	U			
319-85-7 beta-BHC	2.1	U	20.	U			
319-86-8 delta-BHC	2.1	U	20.	U			
58-89-9 gamma-BHC (Lindane)	2.1	U	20.	U			
76-44-8 Heptachlor	2.1	U	20.	U			
309-00-2 Aldrin	2.1	U	11.	DJ			
1024-57-3 Heptachlor epoxide	2.1	U	12.	DJ			
959-98-8 Endosulfan I	2.1	U	20.	UJ			
60-57-1 Dieldrin	230.	D	4000.	DJ			
72-55-9 4,4'-DDE	4.2	UJ	1300.	DJ			
72-20-8 Endrin	4.2	UJ	34.	DJ			
33213-65-9 Endosulfan II	4.2	U	41.	U			
72-54-8 4,4'-DDD	4.2	U	510.	DJ			
1031-07-8 Endosulfan sulfate	4.2	U	41.	U			
50-29-3 4,4'-DDT	2.4	J	6100.	DJ			
72-43-5 Methoxychlor	21.	U	200.	U			
53494-70-5 Endrin ketone	4.2	U	25.	DJ			
7421-93-4 Endrin aldehyde	4.2	U	41.	U			
5103-71-9 alpha-Chlordane	2.1	U	83.	D			
5103-74-2 gamma-Chlordane	2.1	U	60.	D			
8001-35-2 Toxaphene	42.	U	410.	U			
12674-11-2 Aroclor-1016	42.	U	410.	U			
11104-28-2 Aroclor-1221	42.	U	410.	U			
53469-21-9 Aroclor-1242	42.	U	410.	U			
12672-29-6 Aroclor-1248	42.	U	410.	U			
11097-69-1 Aroclor-1254	42.	U	410.	U			
11096-82-5 Aroclor-1260	42.	U	410.	U			
11141-16-5 Aroclor-1232	42.	U	410.	U			
12789-03-6 Technical Chlordane	42.	U	410.	U			

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-SVOA															
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360		147361		147362		147363		147364	
	ID FROM REPORT -->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE EXTRACTED -->	05/09/96		05/09/96		05/09/96		05/09/96		05/09/96		05/09/96	
	DATE ANALYZED --->	05/24/96		05/24/96		05/24/96		05/24/96		05/24/96		05/24/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
108-95-2	Phenol	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
111-44-4	bis(2-Chloroethyl)ether	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
95-57-8	2-Chlorophenol	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
541-73-1	1,3-Dichlorobenzene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
106-46-7	1,4-Dichlorobenzene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
95-50-1	1,2-Dichlorobenzene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
95-48-7	2-Methylphenol (o-Cresol)	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
106-44-5	4-Methylphenol (p-Cresol)	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
621-64-7	N-Nitroso-di-n-propylamine	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
67-72-1	Hexachloroethane	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
98-95-3	Nitrobenzene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
78-59-1	Isophorone	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
88-75-5	2-Nitrophenol	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
105-67-9	2,4-Dimethylphenol	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
120-83-2	2,4-Dichlorophenol	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
120-82-1	1,2,4-Trichlorobenzene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
91-20-3	Naphthalene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
106-47-8	4-Chloroaniline	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
87-68-3	Hexachlorobutadiene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
111-91-1	bis(2-Chloroethoxy)methane	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
59-50-7	4-Chloro-3-methylphenol	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
91-57-6	2-Methylnaphthalene	410.	U	430.	U	8300.	U	430.	U	52.	J	420.	U
77-47-4	Hexachlorocyclopentadiene	410.	UJ	430.	UJ	8300.	UJ	430.	UJ	410.	UJ	420.	UJ
88-06-2	2,4,6-Trichlorophenol	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
95-95-4	2,4,5-Trichlorophenol	1000.	U	1100.	U	21000.	U	1100.	U	1000.	U	1000.	U
91-58-7	2-Chloronaphthalene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
88-74-4	2-Nitroaniline	1000.	U	1100.	U	21000.	U	1100.	U	1000.	U	1000.	U
131-11-3	Dimethylphthalate	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
208-96-8	Acenaphthylene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
606-20-2	2,6-Dinitrotoluene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
99-09-2	3-Nitroaniline	1000.	U	1100.	U	21000.	U	1100.	U	1000.	U	1000.	U
83-32-9	Acenaphthene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
51-28-5	2,4-Dinitrophenol	1000.	U	1100.	U	21000.	U	1100.	U	1000.	U	1000.	U
100-02-7	4-Nitrophenol	1000.	U	1100.	U	21000.	U	1100.	U	1000.	U	1000.	U
132-64-9	Dibenzofuran	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-SVOA															
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360		147361		147362		147363		147364	
	ID FROM REPORT -->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE EXTRACTED -->	05/09/96		05/09/96		05/09/96		05/09/96		05/09/96		05/09/96	
	DATE ANALYZED --->	05/24/96		05/24/96		05/24/96		05/24/96		05/24/96		05/24/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
121-14-2	2,4-Dinitrotoluene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
84-66-2	Diethylphthalate	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
7005-72-3	4-Chlorophenylphenyl ether	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
86-73-7	Fluorene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
100-01-6	4-Nitroaniline	1000.	U	1100.	U	21000.	U	1100.	U	1000.	U	1000.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	1000.	U	1100.	U	21000.	U	1100.	U	1000.	U	1000.	U
86-30-6	N-Nitrosodiphenylamine	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
101-55-3	4-Bromophenyl-phenylether	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
118-74-1	Hexachlorobenzene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
87-86-5	Pentachlorophenol	1000.	U	1100.	U	21000.	U	1100.	U	1000.	U	1000.	U
85-01-8	Phenanthrene	410.	U	430.	U	8300.	U	430.	U	99.	J	63.	J
120-12-7	Anthracene	410.	U	430.	U	8300.	U	430.	U	410.	U	41.	J
86-74-8	Carbazole	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
84-74-2	Di-n-butylphthalate	410.	U	430.	U	8300.	U	430.	U	62.	J	420.	U
206-44-0	Fluoranthene	410.	U	430.	U	8300.	U	430.	U	70.	J	59.	J
129-00-0	Pyrene	410.	U	430.	U	8300.	U	430.	U	48.	J	44.	J
85-68-7	Butylbenzylphthalate	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
91-94-1	3,3'-Dichlorobenzidine	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
56-55-3	Benzo(a)anthracene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
218-01-9	Chrysene	410.	U	430.	U	8300.	U	430.	U	46.	J	41.	J
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
117-84-0	Di-n-octylphthalate	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
205-99-2	Benzo(b)fluoranthene	410.	U	430.	U	8300.	U	430.	U	54.	J	56.	J
207-08-9	Benzo(k)fluoranthene	410.	U	430.	U	8300.	U	430.	U	48.	J	54.	J
50-32-8	Benzo(a)pyrene	410.	U	430.	U	8300.	U	430.	U	410.	U	40.	J
193-39-5	Indeno(1,2,3-cd)pyrene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
53-70-3	Dibenz(a,h)anthracene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
191-24-2	Benzo(g,h,i)perylene	410.	U	430.	U	8300.	U	430.	U	410.	U	420.	U
9999900-32-2	3-Methylphenol/4-Methylphenol	NR		NR		NR		NR		NR		NR	
122-39-4	Diphenylamine	NR		NR		NR		NR		NR		NR	

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-SVOA

	SAMPLE ID ------->	008-S-0014-01		008-S-0014-04							
	ORIGINAL ID ----->	008S001401		008S001404							
	LAB SAMPLE ID --->	147365		147366							
	ID FROM REPORT -->	008S001401		008S001404							
	SAMPLE DATE ----->	05/01/96		05/01/96							
	DATE EXTRACTED -->	05/09/96		05/09/96							
	DATE ANALYZED --->	05/24/96		05/24/96							
	MATRIX ---------->	Soil		Soil							
	UNITS ---------->	ug/Kg		ug/Kg							
CAS #	Parameter	1816	VAL	1816	VAL						
108-95-2	Phenol	420.	U	8200.	U						
111-44-4	bis(2-Chloroethyl)ether	420.	U	8200.	U						
95-57-8	2-Chlorophenol	420.	U	8200.	U						
541-73-1	1,3-Dichlorobenzene	420.	U	8200.	U						
106-46-7	1,4-Dichlorobenzene	420.	U	8200.	U						
95-50-1	1,2-Dichlorobenzene	420.	U	8200.	U						
95-48-7	2-Methylphenol (o-Cresol)	420.	U	8200.	U						
108-60-1	2,2'-oxybis(1-Chloropropane)	420.	U	8200.	U						
106-44-5	4-Methylphenol (p-Cresol)	420.	U	8200.	U						
621-64-7	N-Nitroso-di-n-propylamine	420.	U	8200.	U						
67-72-1	Hexachloroethane	420.	U	8200.	U						
98-95-3	Nitrobenzene	420.	U	8200.	U						
78-59-1	Isophorone	420.	U	8200.	U						
88-75-5	2-Nitrophenol	420.	U	8200.	U						
105-67-9	2,4-Dimethylphenol	420.	U	8200.	U						
120-83-2	2,4-Dichlorophenol	420.	U	8200.	U						
120-82-1	1,2,4-Trichlorobenzene	420.	U	8200.	U						
91-20-3	Naphthalene	420.	U	8200.	U						
106-47-8	4-Chloroaniline	420.	U	8200.	U						
87-68-3	Hexachlorobutadiene	420.	U	8200.	U						
111-91-1	bis(2-Chloroethoxy)methane	420.	U	8200.	U						
59-50-7	4-Chloro-3-methylphenol	420.	U	8200.	U						
91-57-6	2-Methylnaphthalene	420.	U	8200.	U						
77-47-4	Hexachlorocyclopentadiene	420.	UJ	8200.	UJ						
88-06-2	2,4,6-Trichlorophenol	420.	U	8200.	U						
95-95-4	2,4,5-Trichlorophenol	1000.	U	20000.	U						
91-58-7	2-Chloronaphthalene	420.	U	8200.	U						
88-74-4	2-Nitroaniline	1000.	U	20000.	U						
131-11-3	Dimethylphthalate	420.	U	8200.	U						
208-96-8	Acenaphthylene	420.	U	8200.	U						
606-20-2	2,6-Dinitrotoluene	420.	U	8200.	U						
99-09-2	3-Nitroaniline	1000.	U	20000.	U						
83-32-9	Acenaphthene	420.	U	8200.	U						
51-28-5	2,4-Dinitrophenol	1000.	U	20000.	U						
100-02-7	4-Nitrophenol	1000.	U	20000.	U						
132-64-9	Dibenzofuran	420.	U	8200.	U						

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-SVOA

	SAMPLE ID ------->	008-S-0014-01		008-S-0014-04							
	ORIGINAL ID ----->	008S001401		008S001404							
	LAB SAMPLE ID --->	147365		147366							
	ID FROM REPORT -->	008S001401		008S001404							
	SAMPLE DATE ----->	05/01/96		05/01/96							
	DATE EXTRACTED -->	05/09/96		05/09/96							
	DATE ANALYZED --->	05/24/96		05/24/96							
	MATRIX ---------->	Soil		Soil							
	UNITS ---------->	ug/Kg		ug/Kg							
CAS #	Parameter	1816	VAL	1816	VAL						
121-14-2	2,4-Dinitrotoluene	420.	U	8200.	U						
84-66-2	Diethylphthalate	420.	U	8200.	U						
7005-72-3	4-Chlorophenylphenyl ether	420.	U	8200.	U						
86-73-7	Fluorene	420.	U	8200.	U						
100-01-6	4-Nitroaniline	1000.	U	20000.	U						
534-52-1	2-Methyl-4,6-Dinitrophenol	1000.	U	20000.	U						
86-30-6	N-Nitrosodiphenylamine	420.	U	8200.	U						
101-55-3	4-Bromophenyl-phenylether	420.	U	8200.	U						
118-74-1	Hexachlorobenzene	420.	U	8200.	U						
87-86-5	Pentachlorophenol	1000.	U	20000.	U						
85-01-8	Phenanthrene	420.	U	8200.	U						
120-12-7	Anthracene	420.	U	8200.	U						
86-74-8	Carbazole	420.	U	8200.	U						
84-74-2	Di-n-butylphthalate	420.	U	8200.	U						
206-44-0	Fluoranthene	420.	U	8200.	U						
129-00-0	Pyrene	420.	U	8200.	U						
85-68-7	Butylbenzylphthalate	420.	U	8200.	U						
91-94-1	3,3'-Dichlorobenzidine	420.	U	8200.	U						
56-55-3	Benzo(a)anthracene	420.	U	8200.	U						
218-01-9	Chrysene	420.	U	8200.	U						
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	84.	J	8200.	U						
117-84-0	Di-n-octylphthalate	420.	U	8200.	U						
205-99-2	Benzo(b)fluoranthene	420.	U	8200.	U						
207-08-9	Benzo(k)fluoranthene	420.	U	8200.	U						
50-32-8	Benzo(a)pyrene	420.	U	8200.	U						
193-39-5	Indeno(1,2,3-cd)pyrene	420.	U	8200.	U						
53-70-3	Dibenz(a,h)anthracene	420.	U	8200.	U						
191-24-2	Benzo(g,h,i)perylene	420.	U	8200.	U						
9999900-32-2	3-Methylphenol/4-Methylphenol	NR		NR							
122-39-4	Diphenylamine	NR		NR							

*** Validati... Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-VOA																			
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360		147361		147362		147363		147364	
	ID FROM REPORT -->	008s001101		008s001104		008s001201		008s001204		008s001301		008s001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE ANALYZED --->	05/11/96		05/10/96		05/11/96		05/10/96		05/11/96		05/10/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
74-87-3	Chloromethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
74-83-9	Bromomethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
75-01-4	Vinyl chloride	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
75-00-3	Chloroethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
75-09-2	Methylene chloride	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
67-64-1	Acetone	23.		13.	U	12.	U	13.	U	12.	U	12.	U
75-15-0	Carbon disulfide	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
75-35-4	1,1-Dichloroethene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
75-34-3	1,1-Dichloroethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
540-59-0	1,2-Dichloroethene (total)	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
67-66-3	Chloroform	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
107-06-2	1,2-Dichloroethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
78-93-3	2-Butanone (MEK)	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
71-55-6	1,1,1-Trichloroethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
56-23-5	Carbon tetrachloride	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
75-27-4	Bromodichloromethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
78-87-5	1,2-Dichloropropane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
79-01-6	Trichloroethene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
124-48-1	Dibromochloromethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
71-43-2	Benzene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
75-25-2	Bromoform	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
591-78-6	2-Hexanone	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
127-18-4	Tetrachloroethene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
108-88-3	Toluene	25.		8.	J	21.		3.	J	44.		16.	
108-90-7	Chlorobenzene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
100-41-4	Ethylbenzene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
100-42-5	Styrene	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
1330-20-7	Xylene (Total)	12.	U	13.	U	12.	U	13.	U	12.	U	12.	U
110-75-8	2-Chloroethylvinylether	NR		NR		NR		NR		NR		NR	
95-50-1	1,2-Dichlorobenzene	NR		NR		NR		NR		NR		NR	
541-73-1	1,3-Dichlorobenzene	NR		NR		NR		NR		NR		NR	
106-46-7	1,4-Dichlorobenzene	NR		NR		NR		NR		NR		NR	

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-VOA													
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360		147361		147362		147363		147364	
	ID FROM REPORT -->	008s001101		008s001104		008s001201		008s001204		008s001301		008s001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE ANALYZED --->	05/11/96		05/10/96		05/11/96		05/10/96		05/11/96		05/10/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
75-69-4	Trichlorofluoromethane	NR		NR		NR		NR		NR		NR	
108-05-4	Vinyl acetate	NR		NR		NR		NR		NR		NR	
108-38-3	m-Xylene	NR		NR		NR		NR		NR		NR	
95-47-6	o-Xylene	NR		NR		NR		NR		NR		NR	
106-42-3	p-Xylene	NR		NR		NR		NR		NR		NR	

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-VOA

	SAMPLE ID ------->	008-S-0014-01		008-S-0014-04 RE							
	ORIGINAL ID ----->	008S001401		008S001404RE							
	LAB SAMPLE ID --->	147365		147366RE							
	ID FROM REPORT -->	008s001401		008s001404RE							
	SAMPLE DATE ----->	05/01/96		05/01/96							
	DATE ANALYZED --->	05/11/96		05/11/96							
	MATRIX ---------->	Soil		Soil							
	UNITS ---------->	ug/Kg		ug/Kg							
CAS #	Parameter	1816	VAL	1816	VAL						
74-87-3	Chloromethane	13.	U	12.	U						
74-83-9	Bromomethane	13.	U	12.	U						
75-01-4	Vinyl chloride	13.	U	12.	U						
75-00-3	Chloroethane	13.	U	12.	U						
75-09-2	Methylene chloride	13.	U	12.	U						
67-64-1	Acetone	13.	U	12.	U						
75-15-0	Carbon disulfide	13.	U	12.	U						
75-35-4	1,1-Dichloroethene	13.	U	12.	U						
75-34-3	1,1-Dichloroethane	13.	U	12.	U						
540-59-0	1,2-Dichloroethene (total)	13.	U	12.	U						
67-66-3	Chloroform	13.	U	12.	U						
107-06-2	1,2-Dichloroethane	13.	U	12.	U						
78-93-3	2-Butanone (MEK)	13.	U	12.	U						
71-55-6	1,1,1-Trichloroethane	13.	U	12.	U						
56-23-5	Carbon tetrachloride	13.	U	12.	U						
75-27-4	Bromodichloromethane	13.	U	12.	U						
78-87-5	1,2-Dichloropropane	13.	U	12.	U						
10061-01-5	cis-1,3-Dichloropropene	13.	U	12.	U						
79-01-6	Trichloroethene	13.	U	12.	U						
124-48-1	Dibromochloromethane	13.	U	12.	U						
79-00-5	1,1,2-Trichloroethane	13.	U	12.	U						
71-43-2	Benzene	13.	U	12.	U						
10061-02-6	trans-1,3-Dichloropropene	13.	U	12.	U						
75-25-2	Bromoform	13.	U	12.	U						
108-10-1	4-Methyl-2-Pentanone (MIBK)	13.	U	12.	UJ						
591-78-6	2-Hexanone	13.	U	12.	UJ						
127-18-4	Tetrachloroethene	13.	U	12.	UJ						
79-34-5	1,1,2,2-Tetrachloroethane	13.	U	12.	UJ						
108-88-3	Toluene	9.	J	23.	J						
108-90-7	Chlorobenzene	13.	U	12.	UJ						
100-41-4	Ethylbenzene	13.	U	12.	UJ						
100-42-5	Styrene	13.	U	2.	J						
1330-20-7	Xylene (Total)	13.	U	12.	UJ						
110-75-8	2-Chloroethylvinylether	NR		NR							
95-50-1	1,2-Dichlorobenzene	NR		NR							
541-73-1	1,3-Dichlorobenzene	NR		NR							
106-46-7	1,4-Dichlorobenzene	NR		NR							

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

SW846-VOA							
	SAMPLE ID ------->	008-S-0014-01	008-S-0014-04 RE				
	ORIGINAL ID ----->	008S001401	008S001404RE				
	LAB SAMPLE ID --->	147365	147366RE				
	ID FROM REPORT -->	008s001401	008s001404RE				
	SAMPLE DATE ----->	05/01/96	05/01/96				
	DATE ANALYZED --->	05/11/96	05/11/96				
	MATRIX ---------->	Soil	Soil				
	UNITS ---------->	ug/Kg	ug/Kg				
CAS #	Parameter	1816 VAL	1816 VAL				
75-69-4	Trichlorofluoromethane	NR	NR				
108-05-4	Vinyl acetate	NR	NR				
108-38-3	m-Xylene	NR	NR				
95-47-6	o-Xylene	NR	NR				
106-42-3	p-Xylene	NR	NR				

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

TPH-DRO													
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04 RE		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360RE		147361		147362		147363		147364	
	ID FROM REPORT -->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE EXTRACTED -->	05/11/96		05/21/96		05/11/96		05/11/96		05/11/96		05/11/96	
	DATE ANALYZED --->	05/22/96		06/06/96		05/22/96		05/22/96		05/22/96		05/22/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
9999900-02-6	TPH - Diesel Range Organics	26000.		11000.	J	150000.		14000.		71000.		100000.	

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

TPH-DRO							
	SAMPLE ID ------->	008-S-0014-01	008-S-0014-04				
	ORIGINAL ID ----->	008S001401	008S001404				
	LAB SAMPLE ID --->	147365	147366				
	ID FROM REPORT -->	008S001401	008S001404				
	SAMPLE DATE ----->	05/01/96	05/01/96				
	DATE EXTRACTED -->	05/11/96	05/11/96				
	DATE ANALYZED --->	05/22/96	05/22/96				
	MATRIX ---------->	Soil	Soil				
	UNITS ---------->	UG/KG	UG/KG				
CAS #	Parameter	1816 VAL	1816 VAL				
9999900-02-6	TPH - Diesel Range Organics	23000.	130000.				

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

TPH-GRO													
	SAMPLE ID ------->	008-S-0011-01		008-S-0011-04		008-S-0012-01		008-S-0012-04		008-S-0013-01		008-S-0013-04	
	ORIGINAL ID ----->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	LAB SAMPLE ID --->	147359		147360		147361		147362		147363		147364	
	ID FROM REPORT -->	008S001101		008S001104		008S001201		008S001204		008S001301		008S001304	
	SAMPLE DATE ----->	05/01/96		05/01/96		05/01/96		05/01/96		05/01/96		05/01/96	
	DATE ANALYZED --->	05/06/96		05/06/96		05/06/96		05/06/96		05/06/96		05/06/96	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL	1816	VAL
9999900-02-5	TPH - Gasoline Range Organics	79.		64.	U	62.	U	64.	U	61.	U	62.	U

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
Pre-Removal Stockpiled Soil Samples

TPH-GRO								
	SAMPLE ID ------->	008-S-0014-01		008-S-0014-04				
	ORIGINAL ID ----->	008S001401		008S001404				
	LAB SAMPLE ID --->	147365		147366				
	ID FROM REPORT -->	008S001401		008S001404				
	SAMPLE DATE ----->	05/01/96		05/01/96				
	DATE ANALYZED --->	05/07/96		05/07/96				
	MATRIX ---------->	Soil		Soil				
	UNITS ---------->	UG/KG		UG/KG				
CAS #	Parameter	1816	VAL	1816	VAL			
9999900-02-5	TPH - Gasoline Range Organics	63.	U	112.				

*** Validation Complete ***

Appendix L

Confirmation Samples

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
APRIL 1997 CONFIRMATION SAMPLES

SW846-PEST											
	SAMPLE ID ------->	008-S-0015-01		008-S-0016-01		008-S-0017-01		008-S-0018-01			
	ORIGINAL ID ----->	008S001501		008S001601		008S001701		008S001801			
	LAB SAMPLE ID --->	S771867*1		S771867*2		S771867*3		S771867*4			
	ID FROM REPORT -->	008S001501		008S001601		008S001701		008S001801			
	SAMPLE DATE ----->	04/03/97		04/03/97		04/03/97		04/03/97			
	DATE EXTRACTED -->	04/04/97		04/04/97		04/04/97		04/04/97			
	DATE ANALYZED --->	04/10/97		04/10/97		04/10/97		04/10/97			
	MATRIX ---------->	Soil		Soil		Soil		Soil			
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG			
CAS #	Parameter	MEC01	VAL	MEC01	VAL	MEC01	VAL	MEC01	VAL		
319-84-6	alpha-BHC	9.9	U	92.	U	94.	U	21.	U		
319-85-7	beta-BHC	9.9	U	92.	U	94.	U	21.	U		
319-86-8	delta-BHC	9.9	U	92.	U	94.	U	21.	U		
58-89-9	gamma-BHC (Lindane)	9.9	U	92.	U	94.	U	21.	U		
76-44-8	Heptachlor	9.9	U	92.	U	94.	U	21.	U		
309-00-2	Aldrin	1.4	J	92.	U	94.	U	0.99	J		
1024-57-3	Heptachlor epoxide	9.9	U	92.	U	94.	U	21.	U		
959-98-8	Endosulfan I	2.8	J	15.	J	21.	J	4.4	J		
60-57-1	Dieldrin	730.	D	1800.	D	1700.	D	980.	D		
72-55-9	4,4'-DDE	27.	NJ	180.		330.	J	65.	NJ		
72-20-8	Endrin	19.	U	180.	U	180.	U	41.	U		
33213-65-9	Endosulfan II	19.	U	180.	U	180.	U	41.	U		
72-54-8	4,4'-DDD	20.		97.	J	280.		37.	J		
1031-07-8	Endosulfan sulfate	19.	U	180.	U	180.	U	41.	U		
50-29-3	4,4'-DDT	76.		330.		1000.		160.			
72-43-5	Methoxychlor	99.	U	920.	U	940.	U	210.	U		
53494-70-5	Endrin ketone	2.9	J	12.	J	180.	U	2.7	J		
7421-93-4	Endrin aldehyde	19.	U	180.	U	180.	U	41.	U		
5103-71-9	alpha-Chlordane	2.7	J	15.	J	21.	J	4.2	J		
5103-74-2	gamma-Chlordane	2.9	J	13.	J	19.	J	4.7	J		
8001-35-2	Toxaphene	990.	U	9200.	U	9400.	U	2100.	U		
12674-11-2	Aroclor-1016	190.	U	1800.	U	1800.	U	410.	U		
11104-28-2	Aroclor-1221	390.	U	3600.	U	3700.	U	840.	U		
53469-21-9	Aroclor-1242	190.	U	1800.	U	1800.	U	410.	U		
12672-29-6	Aroclor-1248	190.	U	1800.	U	1800.	U	410.	U		
11097-69-1	Aroclor-1254	190.	U	1800.	U	1800.	U	410.	U		
11096-82-5	Aroclor-1260	190.	U	1800.	U	1800.	U	410.	U		
11141-16-5	Aroclor-1232	190.	U	1800.	U	1800.	U	410.	U		
12789-03-6	Technical Chlordane	NR		NR		NR		NR			

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
APRIL 1997 CONFIRMATION SAMPLES

SW846-SVOA

SAMPLE ID ------->	008-S-0015-01		008-S-0016-01		008-S-0017-01		008-S-0018-01		
ORIGINAL ID ----->	008S001501		008S001601		008S001701		008S001801		
LAB SAMPLE ID --->	S771867*1		S771867*2		S771867*3		S771867*4		
ID FROM REPORT -->	008S001501		008S001601		008S001701		008S001801		
SAMPLE DATE ----->	04/03/97		04/03/97		04/03/97		04/03/97		
DATE EXTRACTED -->	04/04/97		04/04/97		04/04/97		04/04/97		
DATE ANALYZED --->	04/05/97		04/05/97		04/05/97		04/05/97		
MATRIX ---------->	Soil		Soil		Soil		Soil		
UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		
CAS # Parameter	MEC01	VAL	MEC01	VAL	MEC01	VAL	MEC01	VAL	
108-95-2 Phenol	380.	U	360.	U	370.	U	410.	U	
111-44-4 bis(2-Chloroethyl)ether	380.	U	360.	U	370.	U	410.	U	
95-57-8 2-Chlorophenol	380.	U	360.	U	370.	U	410.	U	
541-73-1 1,3-Dichlorobenzene	380.	U	360.	U	370.	U	410.	U	
106-46-7 1,4-Dichlorobenzene	380.	U	360.	U	370.	U	410.	U	
95-50-1 1,2-Dichlorobenzene	380.	U	360.	U	370.	U	410.	U	
95-48-7 2-Methylphenol (o-Cresol)	380.	U	360.	U	370.	U	410.	U	
108-60-1 2,2'-oxybis(1-Chloropropane)	380.	U	360.	U	370.	U	410.	U	
106-44-5 4-Methylphenol (p-Cresol)	NR		NR		NR		NR		
621-64-7 N-Nitroso-di-n-propylamine	380.	U	360.	U	370.	U	410.	U	
67-72-1 Hexachloroethane	380.	U	360.	U	370.	U	410.	U	
98-95-3 Nitrobenzene	380.	U	360.	U	370.	U	410.	U	
78-59-1 Isophorone	380.	U	360.	U	370.	U	410.	U	
88-75-5 2-Nitrophenol	380.	U	360.	U	370.	U	410.	U	
105-67-9 2,4-Dimethylphenol	380.	U	360.	U	370.	U	410.	U	
120-83-2 2,4-Dichlorophenol	380.	U	360.	U	370.	U	410.	U	
120-82-1 1,2,4-Trichlorobenzene	380.	U	360.	U	370.	U	410.	U	
91-20-3 Naphthalene	380.	U	360.	U	370.	U	410.	U	
106-47-8 4-Chloroaniline	770.	U	720.	U	730.	U	820.	U	
87-68-3 Hexachlorobutadiene	380.	U	360.	U	370.	U	410.	U	
111-91-1 bis(2-Chloroethoxy)methane	380.	U	360.	U	370.	U	410.	U	
59-50-7 4-Chloro-3-methylphenol	380.	U	360.	U	370.	U	410.	U	
91-57-6 2-Methylnaphthalene	380.	U	360.	U	370.	U	410.	U	
77-47-4 Hexachlorocyclopentadiene	380.	U	360.	U	370.	U	410.	U	
88-06-2 2,4,6-Trichlorophenol	380.	U	360.	U	370.	U	410.	U	
95-95-4 2,4,5-Trichlorophenol	380.	U	360.	U	370.	U	410.	U	
91-58-7 2-Chloronaphthalene	380.	U	360.	U	370.	U	410.	U	
88-74-4 2-Nitroaniline	2000.	U	1800.	U	1900.	U	2100.	U	
131-11-3 Dimethylphthalate	380.	U	360.	U	370.	U	410.	U	
208-96-8 Acenaphthylene	380.	U	360.	U	370.	U	410.	U	
606-20-2 2,6-Dinitrotoluene	380.	U	360.	U	370.	U	410.	U	
99-09-2 3-Nitroaniline	2000.	U	1800.	U	1900.	U	2100.	U	
83-32-9 Acenaphthene	380.	U	360.	U	370.	U	410.	U	
51-28-5 2,4-Dinitrophenol	2000.	U	1800.	U	1900.	U	2100.	U	
100-02-7 4-Nitrophenol	2000.	U	1800.	U	1900.	U	2100.	U	
132-64-9 Dibenzofuran	380.	U	360.	U	370.	U	410.	U	

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
APRIL 1997 CONFIRMATION SAMPLES

SW846-SVOA											
	SAMPLE ID ------->	008-S-0015-01		008-S-0016-01		008-S-0017-01		008-S-0018-01			
	ORIGINAL ID ----->	008S001501		008S001601		008S001701		008S001801			
	LAB SAMPLE ID --->	S771867*1		S771867*2		S771867*3		S771867*4			
	ID FROM REPORT -->	008S001501		008S001601		008S001701		008S001801			
	SAMPLE DATE ----->	04/03/97		04/03/97		04/03/97		04/03/97			
	DATE EXTRACTED -->	04/04/97		04/04/97		04/04/97		04/04/97			
	DATE ANALYZED --->	04/05/97		04/05/97		04/05/97		04/05/97			
	MATRIX ---------->	Soil		Soil		Soil		Soil			
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG			
CAS #	Parameter	MEC01	VAL	MEC01	VAL	MEC01	VAL	MEC01	VAL		
121-14-2	2,4-Dinitrotoluene	380.	U	360.	U	370.	U	410.	U		
84-66-2	Diethylphthalate	380.	U	360.	U	370.	U	410.	U		
7005-72-3	4-Chlorophenylphenyl ether	380.	U	360.	U	370.	U	410.	U		
86-73-7	Fluorene	380.	U	360.	U	370.	U	410.	U		
100-01-6	4-Nitroaniline	2000.	U	1800.	U	1900.	U	2100.	U		
534-52-1	2-Methyl-4,6-Dinitrophenol	2000.	U	1800.	U	1900.	U	2100.	U		
86-30-6	N-Nitrosodiphenylamine	380.	U	360.	U	370.	U	410.	U		
101-55-3	4-Bromophenyl-phenylether	380.	U	360.	U	370.	U	410.	U		
118-74-1	Hexachlorobenzene	380.	U	360.	U	370.	U	410.	U		
87-86-5	Pentachlorophenol	2000.	U	1800.	U	1900.	U	2100.	U		
85-01-8	Phenanthrene	380.	U	15.	J	370.	U	410.	U		
120-12-7	Anthracene	380.	U	360.	U	370.	U	410.	U		
86-74-8	Carbazole	380.	U	360.	U	370.	U	410.	U		
84-74-2	Di-n-butylphthalate	380.	U	360.	U	370.	U	410.	U		
206-44-0	Fluoranthene	21.	J	30.	J	25.	J	410.	U		
129-00-0	Pyrene	19.	J	37.	J	30.	J	410.	UJ		
85-68-7	Butylbenzylphthalate	380.	U	360.	UJ	370.	UJ	410.	UJ		
91-94-1	3,3'-Dichlorobenzidine	770.	U	720.	UJ	730.	UJ	820.	UJ		
56-55-3	Benzo(a)anthracene	380.	U	360.	UJ	370.	UJ	410.	UJ		
218-01-9	Chrysene	380.	U	360.	UJ	370.	UJ	410.	UJ		
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	380.	U	66.	J	270.	J	100.	J		
117-84-0	Di-n-octylphthalate	380.	UJ	360.	UJ	370.	UJ	410.	UJ		
205-99-2	Benzo(b)fluoranthene	380.	UJ	360.	UJ	370.	UJ	410.	UJ		
207-08-9	Benzo(k)fluoranthene	380.	UJ	360.	UJ	370.	UJ	410.	UJ		
50-32-8	Benzo(a)pyrene	380.	UJ	360.	UJ	370.	UJ	410.	UJ		
193-39-5	Indeno(1,2,3-cd)pyrene	380.	UJ	360.	UJ	370.	UJ	410.	UJ		
53-70-3	Dibenz(a,h)anthracene	380.	UJ	360.	UJ	370.	UJ	410.	UJ		
191-24-2	Benzo(g,h,i)perylene	380.	UJ	360.	UJ	370.	UJ	410.	UJ		
9999900-32-2	3-Methylphenol/4-Methylphenol	380.	U	360.	U	370.	U	410.	U		
122-39-4	Diphenylamine	NR		NR		NR		NR			

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
APRIL 1997 CONFIRMATION SAMPLES

TPH											
	SAMPLE ID ------->	008-S-0015-01		008-S-0016-01		008-S-0017-01		008-S-0018-01			
	ORIGINAL ID ----->	008S001501		008S001601		008S001701		008S001801			
	LAB SAMPLE ID --->	S771867*1		S771867*2		S771867*3		S771867*4			
	ID FROM REPORT -->	008S001501		008S001601		008S001701		008S001801			
	SAMPLE DATE ----->	04/03/97		04/03/97		04/03/97		04/03/97			
	DATE EXTRACTED -->	04/07/97		04/07/97		04/07/97		04/07/97			
	DATE ANALYZED --->	04/08/97		04/08/97		04/08/97		04/08/97			
	MATRIX ---------->	Soil		Soil		Soil		Soil			
	UNITS ---------->	MG/KG		MG/KG		MG/KG		MG/KG			
CAS #	Parameter	MEC01	VAL	MEC01	VAL	MEC01	VAL	MEC01	VAL		
9999900-02-4	Petroleum Hydrocarbons, TPH	460.		400.		480.		240.			

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
MAY 1997 CONFIRMATION SAMPLES

PESTICIDES																	
	SAMPLE ID ------->	008-S-0019-01		008-S-0020-01		008-S-0021-01		008-S-0022-01		008-S-0023-00		008-S-0024-00	
	ORIGINAL ID ----->	008S001901		008S001601		008S001701		008S001801		008S001500		008S002000	
	LAB SAMPLE ID --->	S772456*5		S772456*2		S772456*3		S772456*4		S772456*1		S772456*6	
	ID FROM REPORT -->	008S001901		008S001601		008S001701		008S001801		008S001500		008S002000	
	SAMPLE DATE ----->	05/01/97		05/01/97		05/01/97		05/01/97		05/01/97		05/01/97	
	DATE EXTRACTED -->	05/05/97		05/05/97		05/05/97		05/05/97		05/05/97		05/05/97	
	DATE ANALYZED --->	05/06/97		05/07/97		05/06/97		05/07/97		05/07/97		05/06/97	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	MEM17	VAL	MEM17	VAL	MEM17	VAL	MEM17	VAL	MEM17	VAL	MEM17	VAL
319-84-6	alpha-BHC	2.	U	2.	U	2.2	U	2.	U	2.	U	2.7	U
319-85-7	beta-BHC	2.	U	0.21	J	2.2	U	2.	U	0.2	J	2.7	U
319-86-8	delta-BHC	2.	U	2.	U	0.062	J	0.061	U	0.049	U	2.7	U
58-89-9	gamma-BHC (Lindane)	2.	U	2.	U	2.2	U	2.	U	2.	U	2.7	U
76-44-8	Heptachlor	2.	U	2.	U	2.2	U	2.	U	2.	U	2.7	U
309-00-2	Aldrin	2.	U	1.5	J	2.2	U	1.8	J	1.3	J	0.52	J
1024-57-3	Heptachlor epoxide	2.	U	4.		0.51	J	1.9	J	1.7	J	2.7	U
959-98-8	Endosulfan I	2.	U	2.	U	2.2	U	2.	U	2.	U	2.7	U
60-57-1	Dieldrin	88.	D	1200.	D	84.	D	840.	D	1200.	D	1200.	D
72-55-9	4,4'-DDE	0.86	J	220.	DJ	11.		100.	DJ	300.	DJ	1.5	J
72-20-8	Endrin	4.	U	2.8	U	4.2	U	3.3	U	2.1	U	5.2	U
33213-65-9	Endosulfan II	4.	U	4.	U	4.2	U	4.	U	3.9	U	5.2	U
72-54-8	4,4'-DDD	0.42	U	50.	DNJ	1.8	U	71.	DJ	80.	DNJ	0.21	U
1031-07-8	Endosulfan sulfate	4.	U	4.	U	4.2	U	4.	U	3.9	U	5.2	U
50-29-3	4,4'-DDT	3.4	J	410.	D	22.		220.	DJ	780.	D	7.5	U
72-43-5	Methoxychlor	20.	U	20.	U	22.	U	20.	U	20.	U	27.	U
7421-93-4	Endrin aldehyde	4.	U	4.	U	4.2	U	4.	U	3.9	U	5.2	U
8001-35-2	Toxaphene	200.	U	200.	U	220.	U	200.	U	200.	U	270.	U
57-74-9	Chlordane	20.	U	51.	J	22.	U	30.	NJ	30.	U	27.	U

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
MAY 1997 CONFIRMATION SAMPLES

PESTICIDES															
	SAMPLE ID ------->	008-S-0025-00		008-S-0026-00		008-S-0027-00		008-S-0028-00		008-S-0029-00		008-S-0030-00	
	ORIGINAL ID ----->	008S002100		008S002200		008S002300		008S002400		008S002500		008S002600	
	LAB SAMPLE ID --->	S772456*7		S772456*8		S772456*9		S772456*10		S772456*11		S772456*12	
	ID FROM REPORT -->	008S002100		008S002200		008S002300		008S002400		008S002500		008S002600	
	SAMPLE DATE ----->	05/01/97		05/01/97		05/01/97		05/01/97		05/01/97		05/01/97	
	DATE EXTRACTED -->	05/05/97		05/05/97		05/05/97		05/05/97		05/05/97		05/05/97	
	DATE ANALYZED --->	05/06/97		05/06/97		05/06/97		05/07/97		05/07/97		05/07/97	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	MEM17	VAL	MEM17	VAL	MEM17	VAL	MEM17	VAL	MEM17	VAL	MEM17	VAL
319-84-6	alpha-BHC	2.5	U	2.6	U	2.3	U	2.	U	2.4	U	2.	U
319-85-7	beta-BHC	2.5	U	2.6	U	2.3	U	2.	U	2.4	U	0.56	J
319-86-8	delta-BHC	2.5	U	2.6	U	2.3	U	2.	U	2.4	U	2.	U
58-89-9	gamma-BHC (Lindane)	2.5	U	2.6	U	2.3	U	2.	U	2.4	U	2.	U
76-44-8	Heptachlor	2.5	U	2.6	U	2.3	U	2.	U	0.53	J	20.	J
309-00-2	Aldrin	0.76	J	0.59	J	2.3	U	1.5	J	2.1	J	2.	U
1024-57-3	Heptachlor epoxide	2.5	U	2.6	U	2.3	U	2.	U	3.1		70.	D
959-98-8	Endosulfan I	2.5	U	2.6	U	2.3	U	2.	U	2.4	U	2.	U
60-57-1	Dieldrin	1100.	D	180.	D	93.	D	560.	D	2500.	D	92.	D
72-55-9	4,4'-DDE	4.4	J	4.8	J	3.7	U	4.5		13.		7.1	
72-20-8	Endrin	4.8	U	5.	U	4.5	U	1.1	U	4.6	U	0.82	U
33213-65-9	Endosulfan II	4.8	U	5.	U	4.5	U	3.8	U	4.6	U	3.8	U
72-54-8	4,4'-DDD	0.41	U	0.82	U	4.5	U	1.6	U	2.6	U	4.4	
1031-07-8	Endosulfan sulfate	4.8	U	5.	U	4.5	U	3.8	U	4.6	U	3.8	U
50-29-3	4,4'-DDT	11.	J	15.	J	10.	J	14.		36.	J	5.9	U
72-43-5	Methoxychlor	25.	U	26.	U	23.	U	20.	U	24.	U	12.	J
7421-93-4	Endrin aldehyde	4.8	U	5.	U	4.5	U	3.8	U	4.6	U	3.8	U
8001-35-2	Toxaphene	250.	U	260.	U	230.	U	200.	U	240.	U	200.	U
57-74-9	Chlordane	25.	U	26.	U	23.	U	20.	U	16.	NJ	260.	

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
MAY 1997 CONFIRMATION SAMPLES

PESTICIDES											
	SAMPLE ID ------->	008-S-0031-00		008-S-0032-00		008-S-0033-00		008-S-0034-00			
	ORIGINAL ID ----->	008S002700		008S002800		008S002900		008S003000			
	LAB SAMPLE ID --->	S772456*13		S772456*14		S772456*15		S772456*16			
	ID FROM REPORT -->	008S002700		008S002800		008S002900		008S003000			
	SAMPLE DATE ----->	05/01/97		05/01/97		05/01/97		05/01/97			
	DATE EXTRACTED -->	05/05/97		05/05/97		05/05/97		05/05/97			
	DATE ANALYZED --->	05/07/97		05/07/97		05/07/97		05/07/97			
	MATRIX ---------->	Soil		Soil		Soil		Soil			
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG			
CAS #	Parameter	MEM17	VAL	MEM17	VAL	MEM17	VAL	MEM17	VAL		
319-84-6	alpha-BHC	2.3	U	2.1	U	2.3	U	2.1	U		
319-85-7	beta-BHC	2.3	U	2.1	U	2.3	U	2.1	U		
319-86-8	delta-BHC	2.3	U	2.1	U	2.3	U	2.1	U		
58-89-9	gamma-BHC (Lindane)	2.3	U	2.1	U	2.3	U	2.1	U		
76-44-8	Heptachlor	2.3	U	2.1	U	2.3	U	2.1	U		
309-00-2	Aldrin	1.2	J	6.5		2.1	J	1.3	J		
1024-57-3	Heptachlor epoxide	0.74	J	2.1	U	2.3	U	2.1	U		
959-98-8	Endosulfan I	2.3	U	2.1	U	2.3	U	2.1	U		
60-57-1	Dieldrin	320.	D	880.	D	370.	D	300.	D		
72-55-9	4,4'-DDE	2.9	J	4.7		4.3	J	5.4			
72-20-8	Endrin	4.4	U	1.2	U	4.5	U	4.	U		
33213-65-9	Endosulfan II	4.4	U	4.1	U	4.5	U	4.	U		
72-54-8	4,4'-DDD	0.71	U	3.	J	1.6	J	2.4	U		
1031-07-8	Endosulfan sulfate	4.4	U	4.1	U	4.5	U	4.	U		
50-29-3	4,4'-DDT	8.9	J	12.	J	11.	J	16.			
72-43-5	Methoxychlor	23.	U	21.	U	23.	U	21.	U		
7421-93-4	Endrin aldehyde	4.4	U	4.1	U	4.5	U	4.	U		
8001-35-2	Toxaphene	230.	U	210.	U	230.	U	210.	U		
57-74-9	Chlordane	23.	U	21.	U	23.	U	21.	U		

*** Validation Complete ***

NSA MID-SOUTH
SWMU 8 RFI, ASSEMBLY A
JUNE 1997 DOWNSLOPE & WETLAND SAMPLES

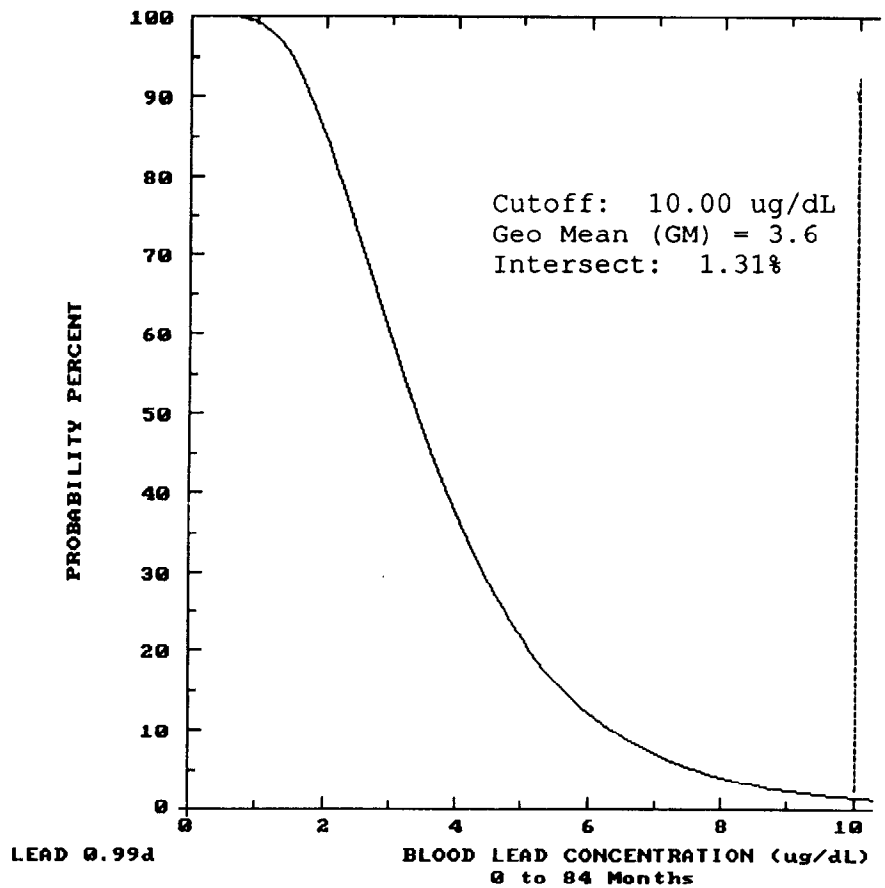
PESTICIDES

SAMPLE ID ------->	008-S-0035-01		008-M-0036-01					
ORIGINAL ID ----->	008S003101		008M003201					
LAB SAMPLE ID --->	S773280*2		S773280*1					
ID FROM REPORT -->	008S003101		008M003201					
SAMPLE DATE ----->	06/10/97		06/10/97					
DATE EXTRACTED -->	06/11/97		06/11/97					
DATE ANALYZED --->	06/12/97		06/12/97					
MATRIX ---------->	Soil		Sediment					
UNITS ---------->	UG/KG		UG/KG					
CAS # Parameter	MEM23	VAL	MEM23	VAL				
319-84-6 alpha-BHC	3.1	U	2.6	U				
319-85-7 beta-BHC	0.36	U	2.6	U				
319-86-8 delta-BHC	0.52	U	0.56	U				
58-89-9 gamma-BHC (Lindane)	3.1	U	2.6	U				
76-44-8 Heptachlor	0.27	U	2.6	U				
309-00-2 Aldrin	0.66	U	3.6					
1024-57-3 Heptachlor epoxide	1.4	U	2.6	U				
959-98-8 Endosulfan I	11.		0.71	J				
60-57-1 Dieldrin	150.	D	45.	D				
72-55-9 4,4'-DDE	3.2	J	0.9	J				
72-20-8 Endrin	0.44	U	5.	U				
33213-65-9 Endosulfan II	6.	U	5.	U				
72-54-8 4,4'-DDD	2.1	U	5.	U				
1031-07-8 Endosulfan sulfate	2.6	U	5.	U				
50-29-3 4,4'-DDT	11.	J	0.67	J				
72-43-5 Methoxychlor	31.	U	26.	U				
7421-93-4 Endrin aldehyde	6.	U	5.	U				
8001-35-2 Toxaphene	310.	U	260.	U				
57-74-9 Chlordane	31.	U	26.	U				

*** Validation Complete ***

Appendix M

Blood Lead Concentration


Cutoff: 10.00 ug/dL
Geo Mean (GM) = 3.6
Intersect: 1.31%
PROBABILITY PERCENT
100
90
80
70
60
50
40
30
20
10
0
0
2
4
6
8
10
LEAD 0.99d
BLOOD LEAD CONCENTRATION (ug/dL)
0 to 84 Months