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FINAL RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION WORK PLAN ZONE D, ZONE F AND ZONE G CNC CHARLESTON SC

6/13/1996

ENSAFE/ ALLEN AND HOSHALL

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COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY
NAVAL BASE CHARLESTON
CHARLESTON, SOUTH CAROLINA
CTO-029

FINAL
ZONES D, F, AND G RFI WORK PLAN

Prepared for:

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

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Release of this document requires the prior notification of the Commanding Officer of the Naval Base Charleston, Charleston, South Carolina.

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ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
AEC	Area of Ecological Concern
AL	Action Level
AOC	Area of Concern
AR	Assessment Report
bgs	below ground surface
BIs	Biological Indices
BRA	Baseline Risk Assessment
CEC	Cation Exchange Capacity
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
CHASP	Comprehensive Health and Safety Plan
CMS	Corrective Measures Study
CNSY	Charleston Naval Shipyard
COC	Constituents of Concern
COPC	Constituents of Potential Concern
CPT	Cone Penetrometer Technology
CRZ	Contamination Reduction Zone
CSI	Confirmatory Sampling Investigation
DOD	Department of Defense
DPT	Direct Push Technology
DQO	Data Quality Objective
DRMO	Defense Reutilization Marketing Office
E/A&H	EnSafe/Allen & Hoshall
EOD	Explosive Ordinance Demolition
ERA	Environmental Risk Assessment
EZ	Exclusion Zone
FDS	Fuel Distributin System
FID	Flame Ionization Detector
FISC	Fleet and Industrtial Supply Center
HAZWOPER	Hazardous Waste Operations and Emergency Response
IDLH	Immediately Dangerous to Life and Health
LEL	Lower Explosive Limit
LIF	Laser Induced Fluorescence

ACRONYMS AND ABBREVIATIONS (Continued)

μg/g	micrograms per gram
μg/kg	micrograms per kilogram
μg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
MSDS	Material Safety Data Sheet
NAVBASE	Naval Base Charleston
NFI	No Further Investigation
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PEL	Permissible Exposure Limit
PHSO	Project Health and Safety Officer
PID	Photoionization detector
POL	Petroleum, oil, and lubricants
PPE	Personal Protective Equipment
ppm	parts per million
PRG	Preliminary Remedial Goals
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SAR	Supplied-Air Respirator
SCBA	Self-contained breathing apparatus
SCDHEC	South Carolina Department of Health and Environmental Control
SHSO	Site Health and Safety Officer
STEL	Short-Term Exposure Limit
SWMU	Solid Waste Management Unit
SZ	Support Zone
TIC	Tentatively Identified Compound
TDS	Total Dissolved Solids
TLV	Threshold Limit Value
TOC	Total Organic Carbon

ACRONYMS AND ABBREVIATIONS (Continued)

TPH	Total Petroleum Hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
ZHASP	Zone Health and Safety Plan

1.0 INTRODUCTION

As part of the U.S. Navy Comprehensive Long-Term Environmental Action Navy program, the following Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan has been prepared by EnSafe/Allen and Hoshall (E/A&H) for Zones D, F, and G at Naval Base Charleston (NAVBASE). This work plan addresses sampling and analysis requirements specific to sites within Zones D, F, and G and is intended for use in conjunction with the *Final Comprehensive RFI Work Plan* (August 30, 1994) prepared for NAVBASE by E/A&H. Each Solid Waste Management Unit (SWMU) and Area of Concern (AOC) to be investigated within Zones D, F, and G is described in Appendix A and located on Figure 1-1.

1.1 Environmental Setting

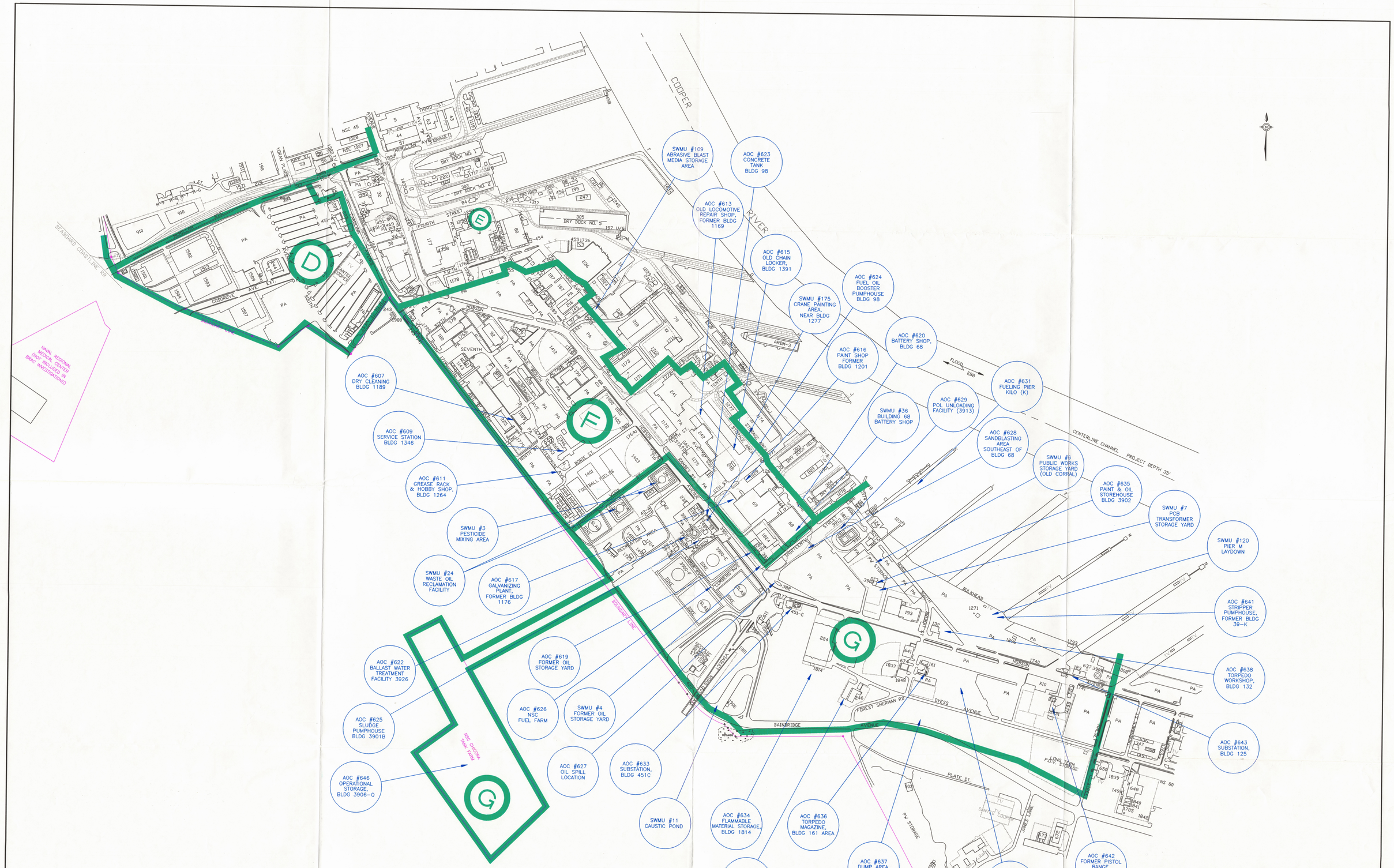
Physiography

Zones D, F, and G are in the centermost portion of NAVBASE. Zone G also includes the Chicora Tank Farm area approximately a half mile west of the base. Figure 1-2 identifies the boundaries for Zones D, F, and G in relation to NAVBASE boundaries and the remaining investigative zones.

Zone D is bordered by McMillan Avenue (Zone C) to the north, Carolina Avenue (Zone F) to the east, Fifth Street West to the southeast, and the base boundary to the southwest.

Zone F is bordered by the controlled industrial area (Zone E) to the north and east; Carolina Avenue and the base boundary to the west; and Hobson Avenue, Wood Street, and Thirteenth Street (Zone G) to the south.

Zone G is bordered by Thirteenth Street, Wood Street, and Hobson Avenue to the north; Cooper River to the northeast; Halsey Street and Bainbridge Avenue (Zones H and I) to the southeast; and the base boundary to the south and west.



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Rev Number: 000	Rev Date:00/00/00	Rev By: NAME
Rev Number: 000	Rev Date:00/00/00	Rev By: NAME
Rev Number: 001	Rev Date:06/06/96	Rev By: E.ROGERS

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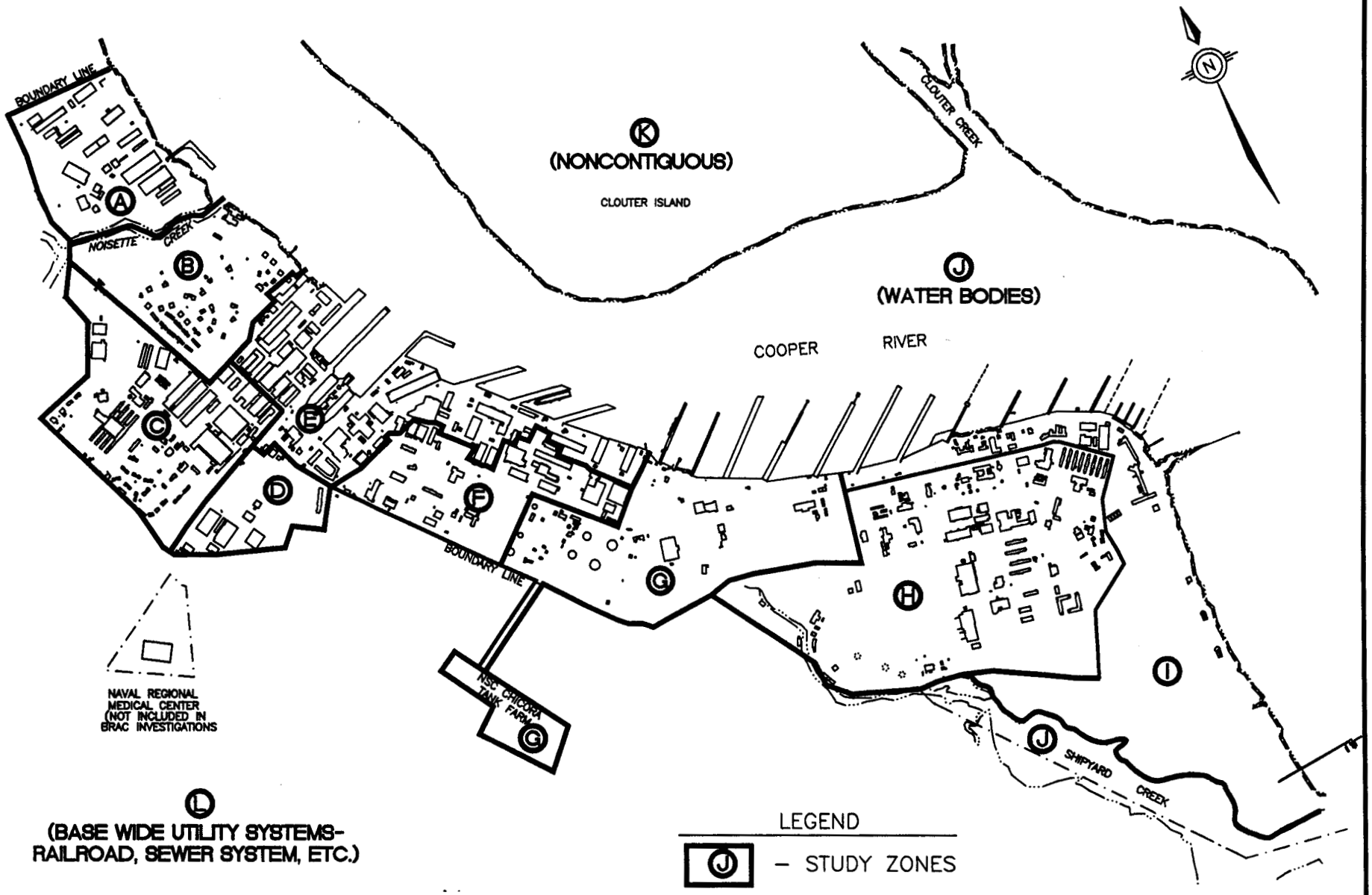
SCALE FEET

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 1-1
SWMU/AOC LOCATION MAP

Dr by: E. ROGERS	Tr by: NAME	
Ck by: C. SMITH	App by: NAME	Sheet 1
Date: 11/14/95	DWG Name: 29ZNDFG2	Of 1



SOURCES: SOUTHDIV, n.d. ESE, 1981.

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 1-2
BASE WIDE
ZONE BOUNDARIES

DWG DATE: 06/06/96 | DWG NAME: 29ZONED

Geologic and Hydrogeologic Information

The local and regional geologic/hydrogeologic characteristics are described in Volume II, Sections 1.2 through 1.5 of the *Final Comprehensive RFI Work Plan*. The potential direction of groundwater flow for Zones D, F, and G is toward the Cooper River. However, groundwater probably flows south toward Shipyard Creek along the southern portions of Zones F and G. Surface conditions within Zones D, F, and G have been reworked throughout the years. However, most of Zones D, F, and G are assumed to be composed of fine-grained silts, silty sands, and clays. The southeastern section of Zone G may not be native soil, as Figure 1-3 shows. This area was filled with dredge material from the Cooper River in 1938 and also was used as a sanitary landfill between the 1930s and 1973.

Climate

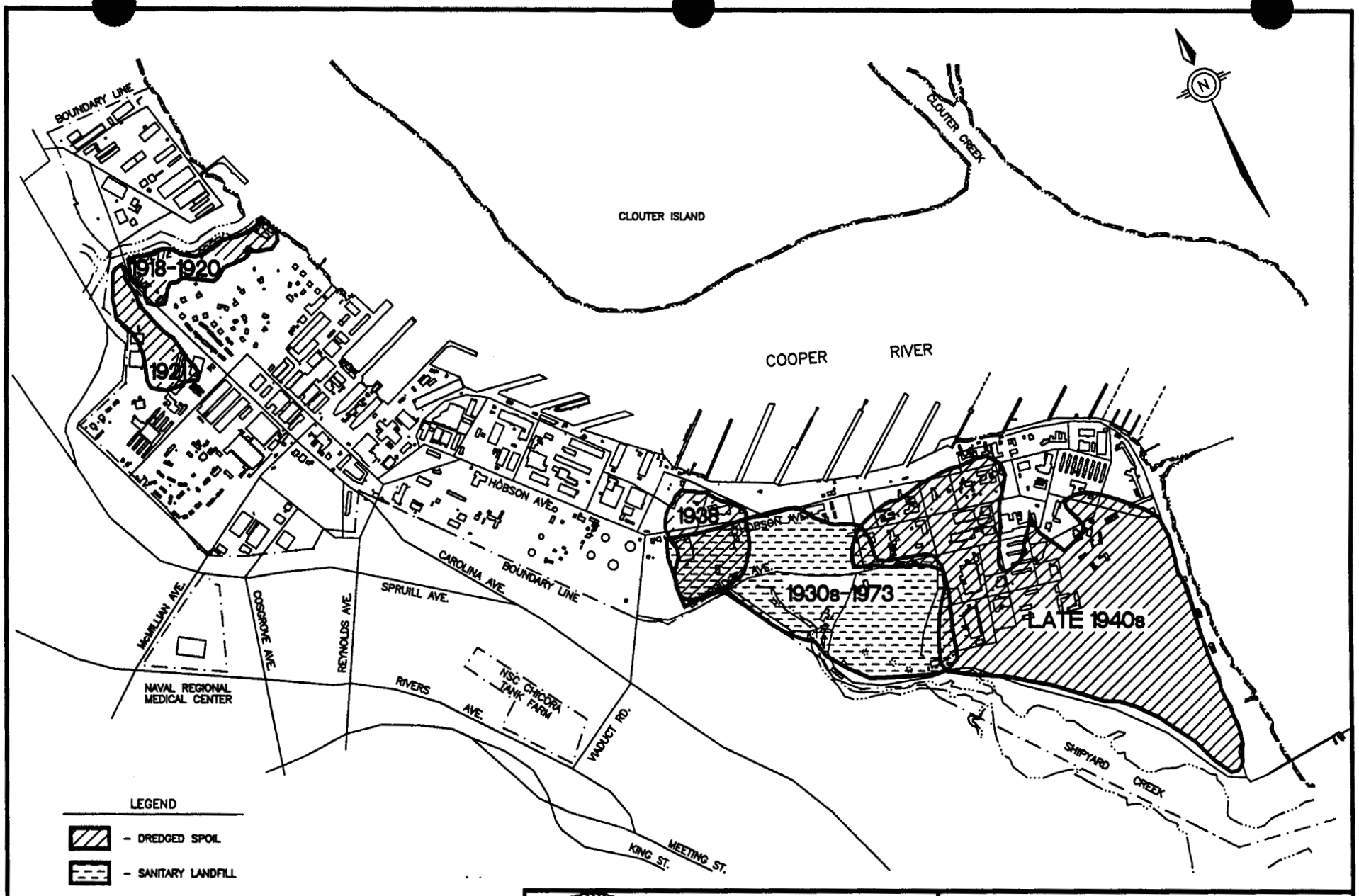
The climatological setting of NAVBASE is described in Volume II, Section 1.6 of the *Final Comprehensive RFI Work Plan*.

1.2 Investigative Strategy

The proposed investigative approach for each site was developed in accordance with the overall investigative strategy presented in Section 2, Volume I, *Final Comprehensive RFI Work Plan*, emphasizing a fast-track cleanup program.

Central to this idea is a phased approach to data collection that will ultimately identify constituents of potential concern (COPCs) (if present), to collect data to evaluate the nature and extent of any contamination, and to evaluate if a corrective measures study (CMS) is needed. To meet these objectives, sampling methods and locations discussed in this work plan are designed to be as complete as possible.

If the proposed sampling efforts do not achieve the objectives, sampling will continue until sufficient data are obtained. In order to assess the need for additional sampling not specified



LEGEND

- DREDGED SPOIL
- SANITARY LANDFILL

SOURCES: SOUTHDIV, n.d. ESE, 1981.

2000 0 2000

SCALE FEET

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 1-3
AREAS FILLED AND
APPROXIMATE DATES
OF FILLING OPERATIONS

DWG DATE: 06/06/96 | DWG NAME: 29FILCHD

in this work plan, the data collected will be evaluated regarding potential human health impacts expressed as preliminary remedial goals (PRGs), ecological risks, and technical requirements for a CMS. For some chemicals, additional information on background concentrations will be required, necessitating onsite and offsite data collection. Background concentrations, migration pathways, human and ecological receptors, and PRGs are discussed in Section 1, Volume III of the *Final Comprehensive RFI Work Plan.* Sampling will continue until the extent of contamination is assessed, which is defined herein as the horizontal and vertical area in which concentrations of COPCs in the investigated media are above either PRGs or background concentrations, whichever is appropriate. Methods for calculating background levels for organics and inorganics will be handled outside of the Zones D, F, and G Work Plan. Background determination is discussed further in the Baseline Risk Assessment (BRA) Work Plan.

The zone-specific work plans outline the data collection process for each SWMU and AOC in the particular zones. The *Final Comprehensive RFI Work Plan* discusses how these data will be used to fulfill the investigation goals. RFI and BRA reports will be generated when each zone investigation concludes, and a final RFI report and final BRA will address NAVBASE as a single entity once all zone investigations are completed.

Since many of the petroleum-related sites within the Zones D, F, and G area of investigation collectively constitute a significant portion of the Fuel Distribution System (FDS), a focused investigation will be conducted to collect information related to known and unknown petroleum releases from the entire FDS at NAVBASE. These sites are identified and described in Appendix A. This investigation will employ **Cone Penetrometer Technology (CPT)** and Direct Push Technology (DPT) equipment to locate petroleum contaminants along the fuel pipelines and near tanks and other components of the FDS by collecting soil samples from selected depths for Total Petroleum Hydrocarbons (TPH) analysis. These **investigative methods** will also be used to determine the extent of the contamination throughout the area of investigation. Following the

initial phase of the investigation, discrete soil and groundwater sampling will be conducted to confirm screening results and to determine whether contamination will be reviewed for remediation through the RFI process or through South Carolina's Underground Storage Tank (UST) program.

The proposed schedule for conducting the investigation for Zones D, F and G is included in the *Corrective Action Management Plan* (April 21, 1995) prepared for the NAVBASE RFI. Activity scheduling during the investigation for Zones D, F, and G will be closely coordinated with the Navy, U.S. Environmental Protection Agency (USEPA) Region IV, and South Carolina Department of Health and Environmental Control (SCDHEC).

1.3 Other Relevant Investigations

Because the Zones D, F, and G investigations are part of a larger investigative strategy, some pathways included for investigation in Volume III of the *Final Comprehensive RFI Work Plan* that may be relevant to Zones D, F, and G will also be considered in other zone investigations.

- Sediment and surface water sampling of Shipyard Creek to measure potential impact will be addressed in the Zone J investigation.

- The sewer and rail systems will be addressed in the Zone L investigation.

- Groundwater flow and hydrology are dependent upon basewide conditions. Information gathered in this investigation will contribute to groundwater characterization of individual sites within Zones D, F, and G, and will attempt to build a conceptual model of groundwater processes across these three zones. For the purposes of this work plan, all "shallow wells" will be at a depth of approximately 15 feet, and all "deep wells" will be to the top of the Ashley Formation, approximately 50 feet deep.

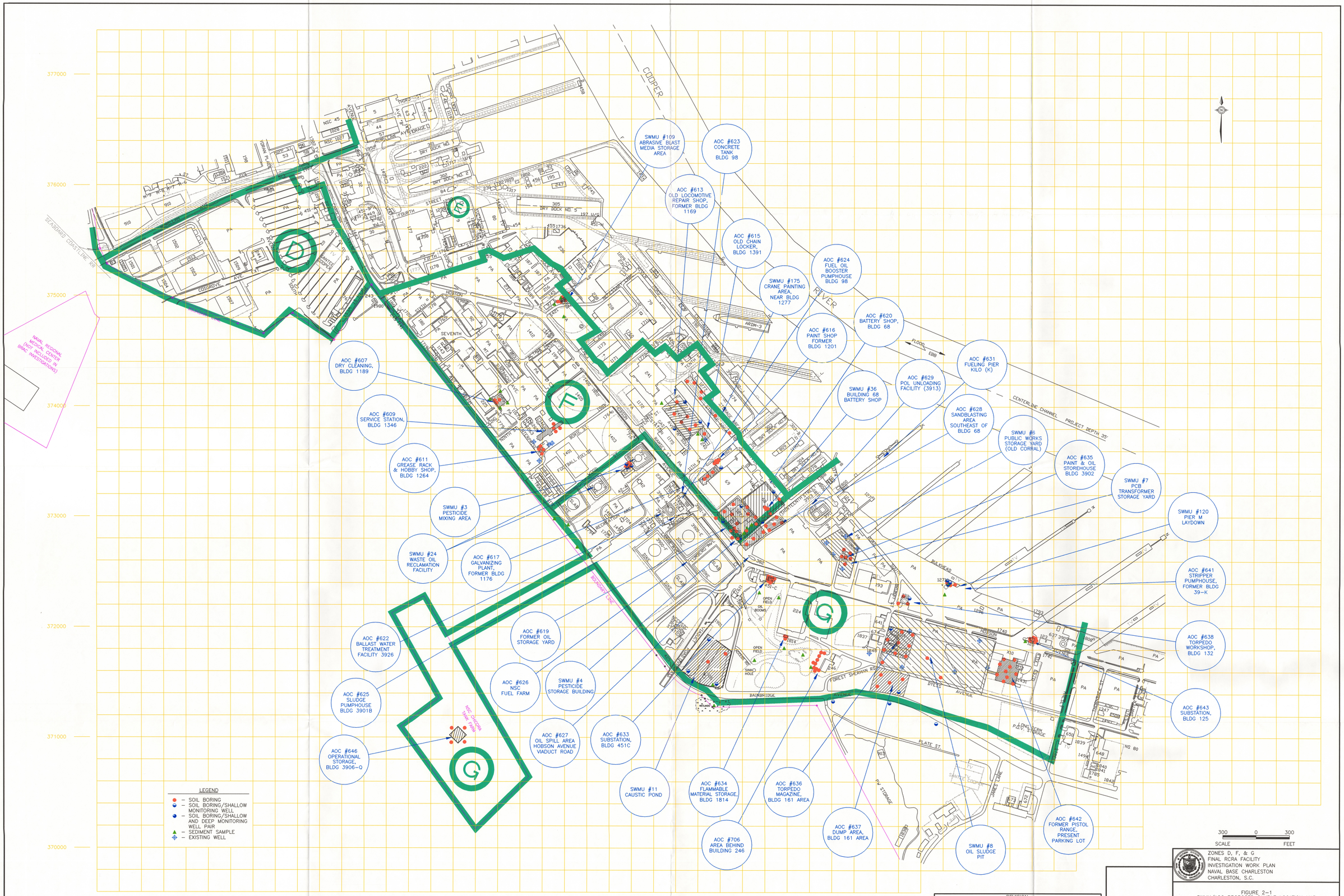
- Because most of Zones D, F, and portions of G appear to be composed of native soil, it may be feasible, once the analytical data have been reviewed, to designate some onsite areas as representative of background. An offsite investigation to determine background concentrations for some chemicals relevant to the Zones D, F, and G Work Plan may be conducted as part of the *Final Comprehensive RFI Work Plan*.

2.0 SWMU AND AOC-SPECIFIC INVESTIGATORY APPROACH

The SWMUs and AOCs in Zones D, F, and G requiring either a Confirmatory Sampling Investigation (CSI) or RFI activities, as determined in the *Final RCRA Facility Assessment* (RFA) (June 1995), are presented in the following sections and shown on the Proposed Sampling Locations Map (Figure 2-1). Table A (found in Appendix A) indicates the location of each site within Zones D, F, and G; the proximity to existing structures; and the respective site investigative approach as proposed by the RFA. The sites identified represent known hazardous waste activity that has occurred in Zones D, F, and G. The systematic grid sampling plan outlined in Section 3 was established to identify potential contamination from any sites not found in the RFA process and to collect data for the background evaluation. No known hazardous waste activity has occurred in Zone D. Therefore, the systematic grid sampling plan will be the only investigatory approach implemented in that zone.

Radiological Potential

The Charleston Naval Shipyard (CNSY) Radiological Control Office has **completed a radiological survey and cleanup and thereby demonstrated the absence of radioactivity at Naval Base Charleston, with the exception of SWMU 2 which is still active. USEPA has already submitted a letter to Charleston Naval Shipyard recommending the release from radiological controls of all Naval Base Charleston property, except SWMU 2.**



NOTE: 1. AOCs AND SWMUs DESIGNATED FOR NFI ARE NOT SHOWN.
2. SCREENING SAMPLES FOR THE FUEL DISTRIBUTION SYSTEM INVESTIGATION ARE NOT SHOWN.

REVISION		
Rev Number: 000	Rev Date: 00/00/00	Rev By: NAME
Rev Number: 000	Rev Date: 00/00/00	Rev By: NAME
Rev Number: 000	Rev Date: 00/00/00	Rev By: NAME
Rev Number: 000	Rev Date: 00/00/00	Rev By: NAME
Rev Number: 001	Rev Date: 06/07/96	Rev By: E.ROGERS

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-1
SWMU/AOC PROPOSED SAMPLE LOCATION MAP

Dr by: E. ROGERS	Tr by: NAME	
Ck by: C. SMITH	App by: NAME	Sheet 1
Date: 11/14/95	DWG Name: 29ZNDFG1	Of 1

00300VV02X

2.1 SWMU 4, Pesticide Storage Building, and AOC 619, Former Oil Storage Yard

SWMU 4 is an active pesticide storage facility and AOC 619 is a former oil storage yard. Because SWMU 4 is within the boundaries of AOC 619, the RFI will be conducted concurrently with the AOC 619 CSI. No evidence of a release or contamination has been found or reported for SWMU 4 (E/A&H, 1995b). The AOC 619 site boundary was expanded from the RFA to include stained soil and stressed vegetation observed during the October 1995 site visit. **Stained soil was observed along the west and northwest boundaries of the site in the unpaved areas. The native weeds and grasses present in these areas also appeared to be stressed.** Although no spills or releases have been documented, the possibility that waste oil could have been stored in an open pit onsite, coupled with site visit observations, increases the potential for contamination to be present. Table 2-1 describes these sites.

Table 2-1
SWMU 4 and AOC 619
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
SWMU 4 Pesticide Storage Building	SWMU 4 is a steel building with a concrete floor that has been used to store various insecticides and rodenticides since 1980. The building has a formulation and mixing room. Sink and floor drains are connected to the sanitary sewer system and an equipment rinse area/wash rack is near the storage administration facility. No evidence of contamination has been found or reported for this site.[a]	Pesticides	**Soil** Soil Gas **Groundwater** Air **Sediment**
AOC 619 Former Oil Storage Yard	AOC 619 is the site of a yard used from 1955 to 1982 to store waste oil, possibly in an open pit. Currently, the site includes buildings on its asphalt-paved surface, and on unpaved area in the NW portion of the site. Although no spills or releases were documented, the possibility that waste oil could have been stored in an open pit onsite, coupled with stressed vegetation observed, increases the potential for contamination.[b]	Petroleum Products and Waste Oil	**Soil** Soil Gas **Groundwater** Air Surface Water

Notes:
a = Described in the *Interim RCRA Facility Assessment*, August 1987.
b = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
c = Pathways scheduled for sampling are bold.

2.1.1 Previous Investigations

Neither SWMU 4 nor AOC 619 has been previously investigated.

2.1.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for these sites cannot be evaluated.

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for each site likely to require remedial action. Data will be collected to support evaluation of these alternatives. Table B-1 (Appendix B) lists treatment alternatives for groundwater; Table B-2 lists treatment alternatives for soil. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify the most feasible treatment alternatives.

2.1.3 Data Gaps

Currently no environmental media data have been collected at SWMU 4 or AOC 619 to characterize the sites or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.1.4 Potential Receptors

Potential receptors of exposure to contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the RFI to assess the level of risk to the entire spectrum of current and potential users, including any highly sensitive individuals within the population, who might be exposed through invasive or noninvasive activities at SWMU 4 and/or AOC 619. Potential receptors would likely be workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 5 feet below ground surface (bgs), site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater in this area. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to SWMU 4 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential pathways highlighted in Table 2-1.

2.1.5 Objective

The objective of the proposed field investigation is to confirm whether contamination is present in environmental media. If present, the investigation will delineate the horizontal and vertical extent of any soil and groundwater contamination at AOC 619 and soil and sediment contamination at SWMU 4. While soil gas, surface water, and air are potential contaminant pathways, initial sampling of these matrices is not required to determine if contaminants are present. For AOC 619, if soil and/or groundwater contamination is identified, then the site will be designated for a complete RFI to delineate the nature and extent of contamination. For SWMU 4, the nature and extent of any contamination found will be delineated during this effort. Data collection efforts will support technical evaluation of identified treatment alternatives, if required.

2.1.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** All soil boring samples will be screened for volatile organic compounds (VOCs) with a photoionization detector (PID). All screening results will be recorded in field notebooks and on boring logs.

2.1.7 Sampling and Analysis Plan

To fulfill the RFI and CSI objectives, site-specific sampling and analysis requirements have been proposed for SWMU 4 and AOC 619. Table 2-2 summarizes the types of samples to be collected and the analytical parameters. The boundaries of both SWMU 4 and AOC 619 have been outlined based upon a review of historical drawings, maps, and NAVBASE records. The boundaries may be modified based on the sample results.

Table 2-2
SWMU 4 and AOC 619
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	19	VOCs, Semivolatile organic compounds (SVOCs), Pesticides, Polychlorinated biphenyls (PCBs), and Metals
Soil (3-5' bgs)	19	
Sediment	3	
Groundwater (Shallow well)	3	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, total organic carbon (TOC), and cation exchange capacity (CEC).

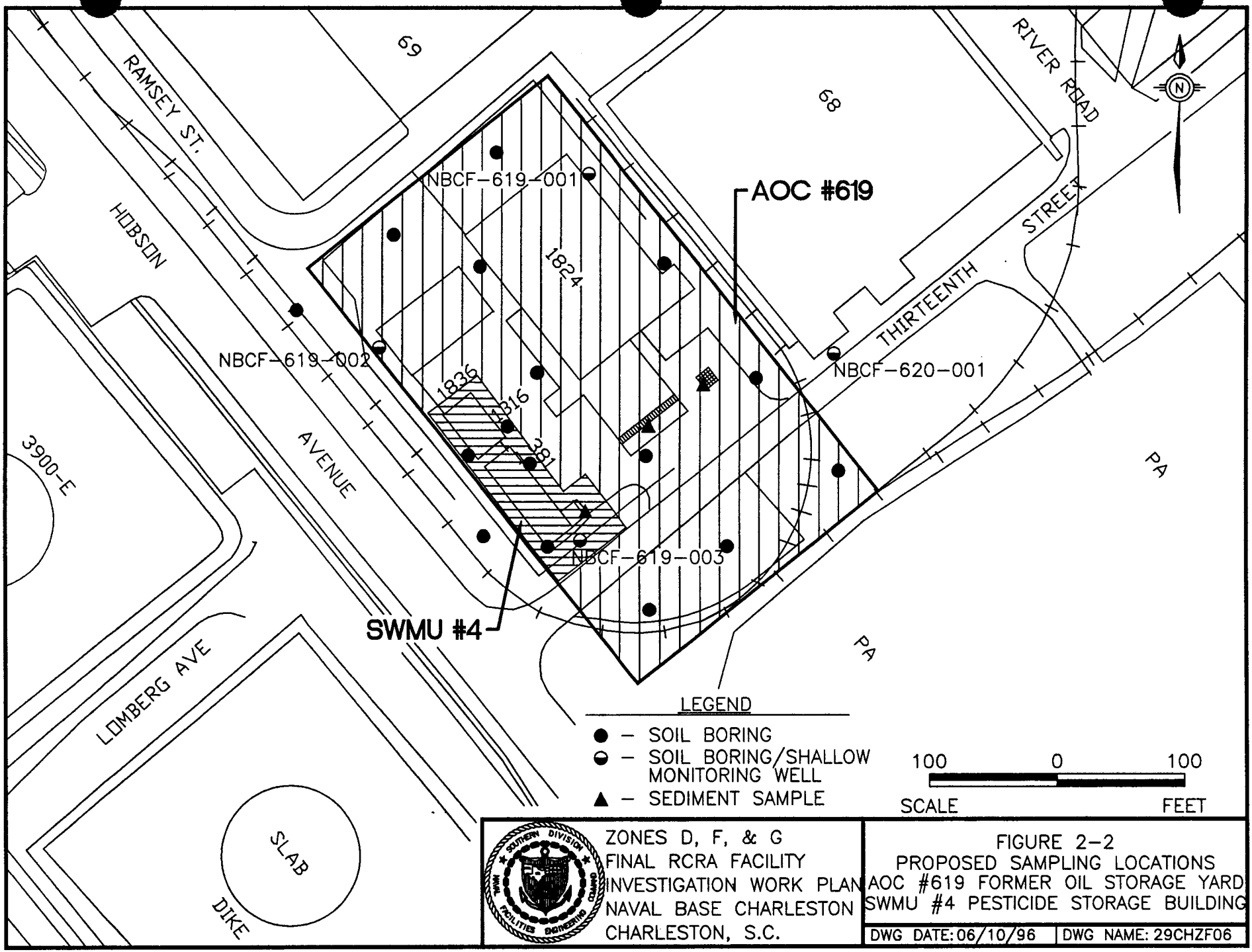
Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. Data Quality Objective (DQO) Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include quality assurance/quality control (QA/QC) samples.

Nineteen soil borings are proposed to detect the presence of any soil contamination from these two sites. **Soil borings located in the NW portion and along the rail spur on the west side of the site will be located in areas of stained soil or visually stressed vegetation. In addition,** two of these borings, along the rail spur on the southwest side of the site, will also support the Zone L investigation of the rail system. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower interval will be adjusted to avoid sampling the saturated soil.

Groundwater will be addressed by installing and sampling three shallow monitoring wells at these sites. These well locations will provide information regarding potential groundwater contamination from both sites. Analytical data from a fourth well, NBCF-620-001 associated with AOC 620, will also be used in this investigation. Data from all monitoring wells will be reviewed to assess whether additional wells are needed to define the extent of groundwater contamination.

Three sediment sample locations are proposed to assess if surface water runoff from the sites has introduced contaminated sediment into the storm sewer system.

The proposed sampling locations are illustrated on Figure 2-2. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.


RAMSEY ST.
HOBSON
AVENUE
LOMBERG AVE
3900-E
SLAB
DIKE
69
68
RIVER ROAD
THIRTEENTH
STREET
PA
PA
AOC #619
SWMU #4
NBCF-619-001
NBCF-619-002
NBCF-619-003
NBCF-620-001
1824
1836
1316
381
N
LEGEND
● – SOIL BORING
◒ – SOIL BORING/SHALLOW MONITORING WELL
▲ – SEDIMENT SAMPLE
100 0 100
SCALE FEET
ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 2-2
PROPOSED SAMPLING LOCATIONS
AOC #619 FORMER OIL STORAGE YARD
SWMU #4 PESTICIDE STORAGE BUILDING
DWG DATE: 06/10/96
DWG NAME: 29CHZF06

2.2 SWMU 36, Building 68 Battery Shop and AOC 620, Battery Shop, Building 68

SWMU 36 and AOC 620 are RFI sites associated with the former Battery Shop in Building 68. Building 68 is a 48,000-square-foot concrete structure. From 1942 to 1952, the building was a paint and oil warehouse. Beginning in 1952, the facility was used for destruction, assembly, rebuilding, and charging of submarine batteries. Its most recent use was to store and charge large acid batteries. Building 68 is currently vacant and has been closed. In areas where batteries were stored and charged at AOC 620, the floor is in poor condition, cracked and deteriorated from acid spills. Stains are evident on most of the floor, especially around the floor drains in the charging room. Two containment areas, located in the northeast side of Building 68, equipped with floor drains, were used during battery assembly (E/A&H, 1995b). During the period of operation, waste acid was routinely discharged to the floor drains which routed the acid to holding tanks at the south end of the building. The contents of the waste acid holding tanks were then pumped to a neutralization pit in Building 1278. The use of neutralization pits was discontinued in 1990, after which, all wastes discharged to the drains were diverted into holding tanks. On two occasions at SWMU 36, the floor drain to the waste acid holding tank separated from the floor allowing approximately 1,025 gallons of sulfuric acid to discharge to the soil below the building. Following each spill, a sodium carbonate solution was used to neutralize the soil below the building (Ebasco, 1987). Table 2-3 describes SWMU 36 and AOC 620.

Table 2-3
SWMU 36 and AOC 620
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
SWMU 36 Building 68 Battery Shop	SWMU 36 is the site of two sulfuric acid releases. Acid was discharged to the floor drains leading to the holding tanks, however the drains were separated from the floor and acid was discharged to the soil beneath Building 68.[a]	Sulfuric Acid Lead	Soil Air Groundwater Surface Water/Sediment

Table 2-3
SWMU 36 and AOC 620
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
AOC 620 Battery Shop, Building 68	AOC 620 comprises all activities within Building 68 that were related to the Battery Shop. From 1952 until the building was closed, the facility was used to store, charge, and repair submarine batteries. Before then the building stored paint and oil.[b]	Paint, Solvents, Petroleum Products, Batteries	**Soil** Air Soil Gas **Groundwater**

Notes:
a = Described in the *Interim RCRA Facility Assessment,* August 1987.
b = Described in the *Final RCRA Facility Assessment, Volume II,* June 6, 1995.
c = Pathways scheduled for sampling are bold.

2.2.1 Previous Investigations

These sites have not been previously investigated.

2.2.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for each of the sites likely to require remedial action. Data will be collected to support evaluation of these alternatives. Table B-1 (Appendix B) lists treatment alternatives for groundwater; and Table B-2 lists treatment alternatives for soil. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify the most feasible treatment alternatives.

2.2.3 Data Gaps

Currently no environmental media data have been collected at SWMU 36 and AOC 620 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.2.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, any future users this area may support following base closure and possibly ecological receptors in the Cooper River. Data will be generated during the investigation to assess the level of risk to the spectrum of current and potential future receptors, including any highly sensitive individuals within the population, who may be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 5 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. Sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-3.

The releases at SWMU 36 may also present a risk to ecological receptors in the Cooper River. Assuming shallow groundwater discharge to the Cooper River, metals mobilized by the potential change in pH, and/or organic contaminants may impact ecological receptors. If analytical data

from the initial phase of this investigation indicates that metals **and/or organic contaminants** may be a concern, an ecological risk assessment will be implemented.

2.2.5 Objective

The objective of the proposed field investigation is to confirm whether contamination is present in environmental media. If present, the investigation will fill the identified data gaps by delineating the horizontal and vertical extent of any soil and/or groundwater contamination as well as the rate of contaminant migration at the sites. While sediment, soil gas, and surface water are potential contaminant pathways, initial sampling of these matrices is not required to assess if contaminants are present. For these sites, the nature and extent of any contamination found will be delineated during this effort. Data collection efforts will support technical evaluation of treatment alternatives, if required.

2.2.6 Screening Alternatives

No sampling has been conducted to determine COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** All soil boring samples will be screened for VOCs using a PID. All screening results will be recorded in field notebooks and on boring logs.

2.2.7 Sampling and Analysis Plan

To fulfill the RFI objectives, the following site-specific sampling and analysis requirements have been proposed for SWMU 36 and AOC 620. Table 2-4 summarizes the types of samples to be collected and the analytical parameters. To identify sample locations, the boundaries of these

two sites have been based on a review of historical drawings and maps and visual observations made during the site visit. The boundaries may be modified based on the sample results.

Nine soil borings are proposed to identify any contamination from these sites. Three of the borings located near the floor drains, will characterize the potential soil contamination in the area of the release. Four other soil borings, along the old rail spurs on the northeast and southwest sides of the building, will also support the Zone L investigation of the rail system. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.

Table 2-4
SWMU 36 and AOC 620
Sampling Plan

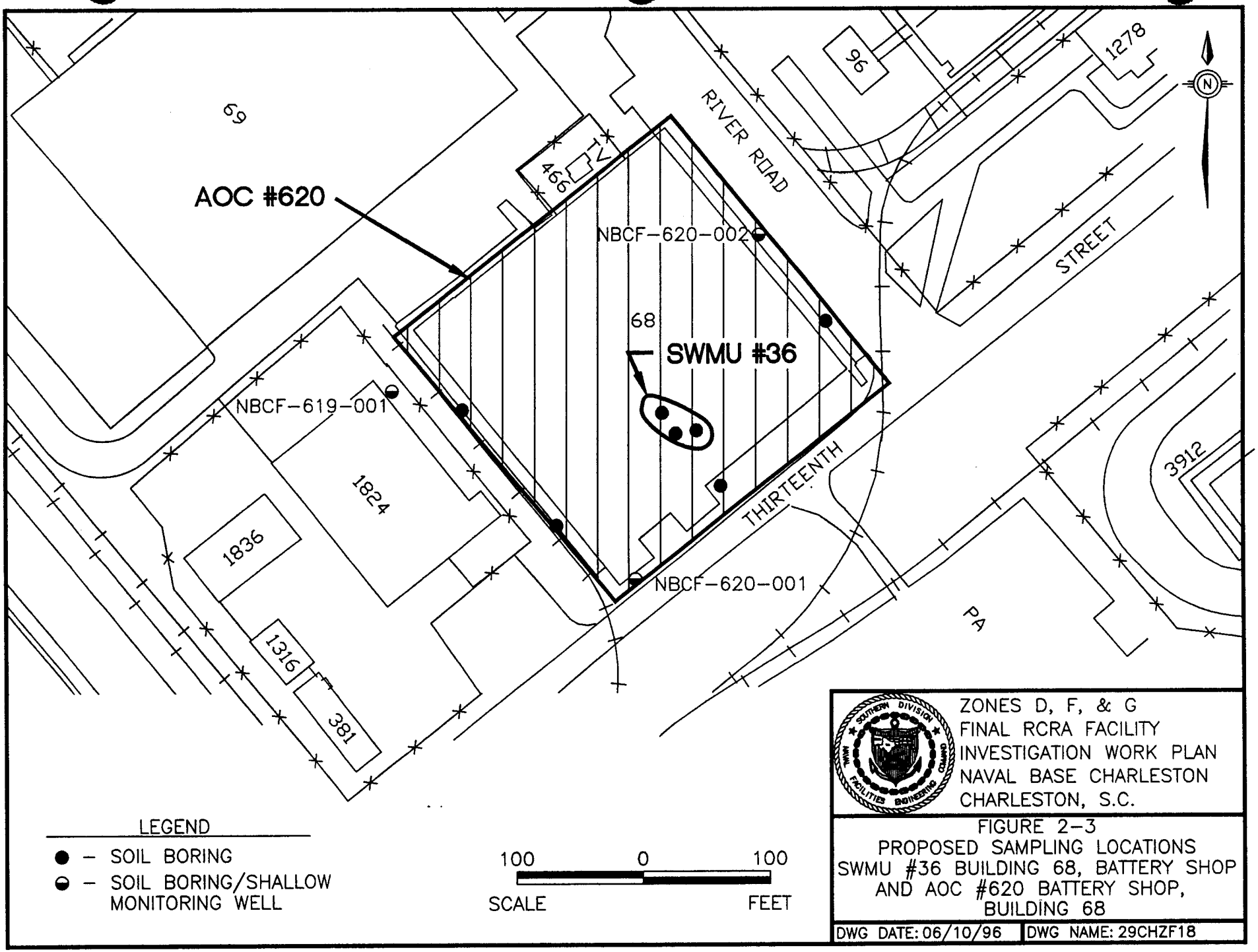
Matrix	Quantity	Analysis
Soil (0-1' bgs)	9	VOCs, SVOCs, and Metals
Soil (3-5' bgs)	9	
Sediment	None	
Groundwater		
(Shallow well)	2	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.
- **All groundwater samples will be field screened for pH. Should these field measurements indicate abnormal pH, laboratory analysis for pH will be performed on these samples.**

To address the groundwater pathway, two shallow monitoring wells will be installed at AOC 620: one along Thirteenth Street and the second one along the northeast side of Building 68. Analytical data from a third well, NBCF-619-001, associated with AOC 619 will also be used in this investigation. These well locations will provide information regarding potential groundwater contamination from either site. Data from these three monitoring wells will be reviewed to determine whether additional wells are needed to define the extent of groundwater contamination.

The proposed sampling locations are illustrated on Figure 2-3. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.


AOC #620
SWMU #36
NBCF-620-002
NBCF-619-001
NBCF-620-001
69
68
466
96
1278
1824
1836
1316
381
3912
RIVER ROAD
THIRTEENTH
STREET
PA
N
LEGEND
● – SOIL BORING
◒ – SOIL BORING/SHALLOW MONITORING WELL
100 0 100
SCALE FEET
ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 2-3
PROPOSED SAMPLING LOCATIONS
SWMU #36 BUILDING 68, BATTERY SHOP
AND AOC #620 BATTERY SHOP,
BUILDING 68
DWG DATE: 06/10/96
DWG NAME: 29CHZF18

2.3 SWMU 109, Abrasive Blast Media Storage Area

SWMU 109 consists of three hoppers identified as Buildings 1364, 1365, and 1393 that were used to store abrasive blast media temporarily. Although no spills or releases were documented at this site, a heavy layer of blasting media was observed on the paved and unpaved area around each hopper during the site visit. The CSI proposed for SWMU 109 will investigate these areas for potential releases to the surrounding soil, groundwater, and sediment (E/A&H, 1995b). Table 2-5 describes this SWMU.

Table 2-5
SWMU 109
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
SWMU 109 Abrasive Blast Media Storage Area	This site consists of 3 hoppers identified as Buildings 1364, 1365, and 1393 that temporarily stored abrasive blast media. Hoppers 1364 and 1365 have been in operation since 1949, the third hopper (Building 1393) was installed in 1962. Particulate air emissions from the hoppers were permitted in 1992 under the Bureau of Air Quality Control Permit No. 0560-0002. The hoppers currently contain aluminum oxide blasting materials. However, the types of materials stored in the past are unknown, but probably include "Black Beauty" blast media.[a]	Unused Blast Media	**Soil** **Groundwater** Air **Sediment** Surface Water

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume I*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.3.1 Previous Investigations

This site has not been previously investigated.

2.3.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.3.3 Data Gaps

Currently, no environmental media data have been collected at SWMU 109 to characterize the site or to support detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.3.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support following base closure. Data will be generated during the investigation to assess the level of risk to the spectrum of current and potential future receptors, including any highly sensitive individuals within the population, who may be exposed through invasive or noninvasive activities. Potential receptors are workers involved with any invasive type of activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 5 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to SWMU 109 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential soil, groundwater, and sediment pathways bolded in Table 2-5.

2.3.5 Objective

The goal of the CSI is to classify the site as requiring no further investigation (NFI) or an RFI by using data quality objective (DQO) Level III or IV data to determine whether COPCs are present. If an RFI is required, the objectives of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.3.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define the nature and extent of contamination detected.** All soil boring samples will be screened for VOCs with a PID. All screening results will be recorded in field notebooks and boring logs.

2.3.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-6 summarizes the types of samples to be collected and the analytical parameters. To identify sample locations, the boundaries of the SWMU have been based on a review of historical drawings and maps and the site visit. The boundaries may be modified based on the sample results.

Six soil borings, one shallow monitoring well, and three sediment samples are proposed. The six proposed soil borings are to detect the presence of soil contamination, if any, from SWMU 109. Three of the sample locations along the rail spur will also be used in the Zone L

investigation. Samples from two depth intervals are proposed for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the

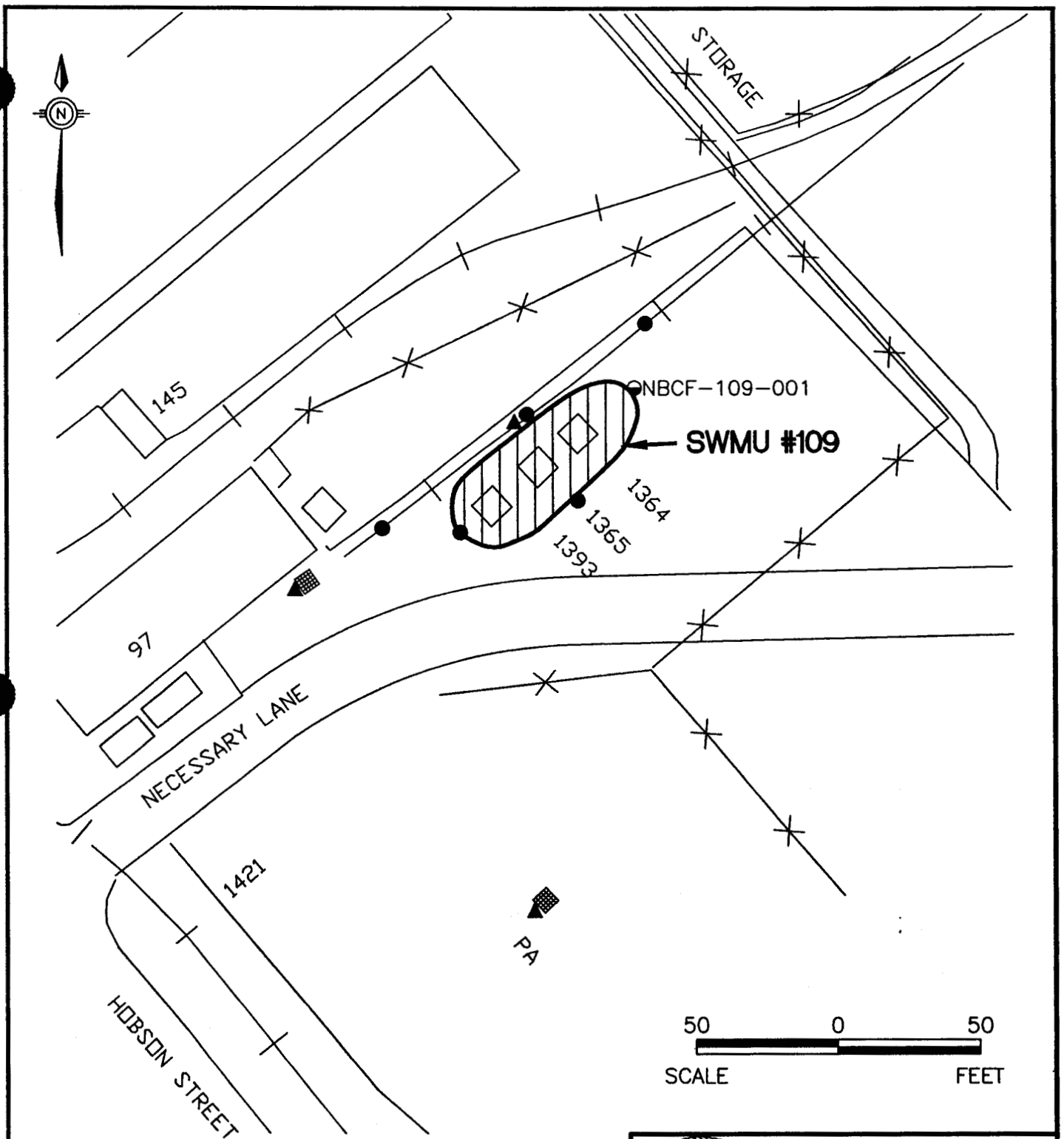
Table 2-6
SWMU 109
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	6	SVOCs, Metals
Soil (3-5' bgs)	6	
Sediment	3	
Groundwater		
(Shallow well)	1	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

lower sample interval will be adjusted to avoid sampling the saturated soil. The shallow monitoring well will be installed to determine if the site has impacted shallow groundwater. The three sediment samples proposed are intended to detect any contaminants introduced into the storm sewer catch basins by runoff from the SWMU. The proposed sampling locations are illustrated on Figure 2-4. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.



LEGEND

- ● – SOIL BORING
- ◒ – SOIL BORING/SHALLOW MONITORING WELL
- ▲ – SEDIMENT SAMPLE
- ◆ – CATCH BASIN

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-4
PROPOSED SAMPLING LOCATIONS
SWMU #109
ABRASIVE BLAST MEDIA STORAGE AREA

DWG DATE: 06/10/96 | DWG NAME: 29CHZF15

2.4 SWMU 175, Crane Painting Area, Near Building 1277

SWMU 175 is the site of a former crane painting operation that was generally south and west of Building 1277. The period of operation is not known; however, painting operations were discontinued in 1993. No information is available regarding the operating practices or the types of materials used. Most of the land near SWMU 175 is currently paved storage and industrial (E/A&H, 1995b).

The area of the site was expanded from the RFA to include areas observed during the site visit and identified through interviews with base personnel (Droze, 1995). During the site visit, spent abrasive blast media and waste paint were observed on the asphalt and tracks. In addition, two cranes were observed staged at the southern end of the track section during the October 1995 site visit. An RFI is proposed at this SWMU. Table 2-7 describes SWMU 175.

Table 2-7
SWMU 175
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
SWMU 175 Crane Painting Area, Near Building 1277	The former crane painting area near Building 1277 ceased operations in 1993. The site has crane tracks and paved asphalt road. Visible evidence of the former painting activities were observed during the site visit. Although no spills or releases were documented at this site, a past release is probable.[a]	Blast Media, Paint Constituents, Heavy Metals, Lead, Acetone, Xylene, Toluene	**Soil** **Groundwater** Surface Water Soil Gas Air

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume IV*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.4.1 Previous Investigations

This site has not been previously investigated.

2.4.2 Treatment Alternatives

Because there are no environmental media data for this SWMU, treatment alternatives for this site cannot be evaluated. However, because the site is predominantly paved, an insitu technique would be favored.

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for each site likely to require remedial action. Data will be collected to support evaluation of these alternatives. Table B-1 (Appendix B) lists treatment alternatives for groundwater; Table B-2 lists treatment alternatives for soil.

Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify the most feasible treatment alternatives.

2.4.3 Data Gaps

Currently, no environmental media data have been collected to characterize this site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigative objectives, the following data gaps have been identified and will be resolved:

- The nature and extent of impact to environmental media has not been defined. There are no data to establish whether COPCs are present for any potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives.

2.4.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support following base closure.

Data will be generated during the investigation to assess the level of risk to the spectrum of current and potential future receptors, including any highly sensitive individuals within the population, who may be exposed through invasive or noninvasive activities. Potential receptors are workers involved with any invasive type of activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to SWMU 175 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential soil and groundwater pathways bolded in Table 2-7.

2.4.5 Objective

The objectives of the RFI are to use DQO Level III or IV data to determine whether COPCs are present and to determine if potential releases from the site have impacted NAVBASE property. The RFI will also fill the identified data gaps by delineating the horizontal and vertical extent of any soil, and/or groundwater contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial alternatives.

2.4.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define the nature and extent of**

contamination detected. A PID will be used to qualitatively screen for VOCs in all soil boring samples. Results will be recorded in field notebooks and on boring logs.

2.4.7 Sampling and Analysis Plan

To fulfill the RFI objectives, site-specific sampling and analysis requirements have been proposed for SWMU 175. Table 2-8 summarizes the types of samples to be collected and the analytical parameters. To identify sample locations, the boundary of SWMU 175 has been expanded based upon a review of NAVBASE historical drawings, maps, and site visit observations.

Table 2-8
SWMU 175
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	5	VOCs, SVOCs, Pesticides, PCBs, and Metals
Soil (3-5' bgs)	5	
Sediment	None	
Groundwater (Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

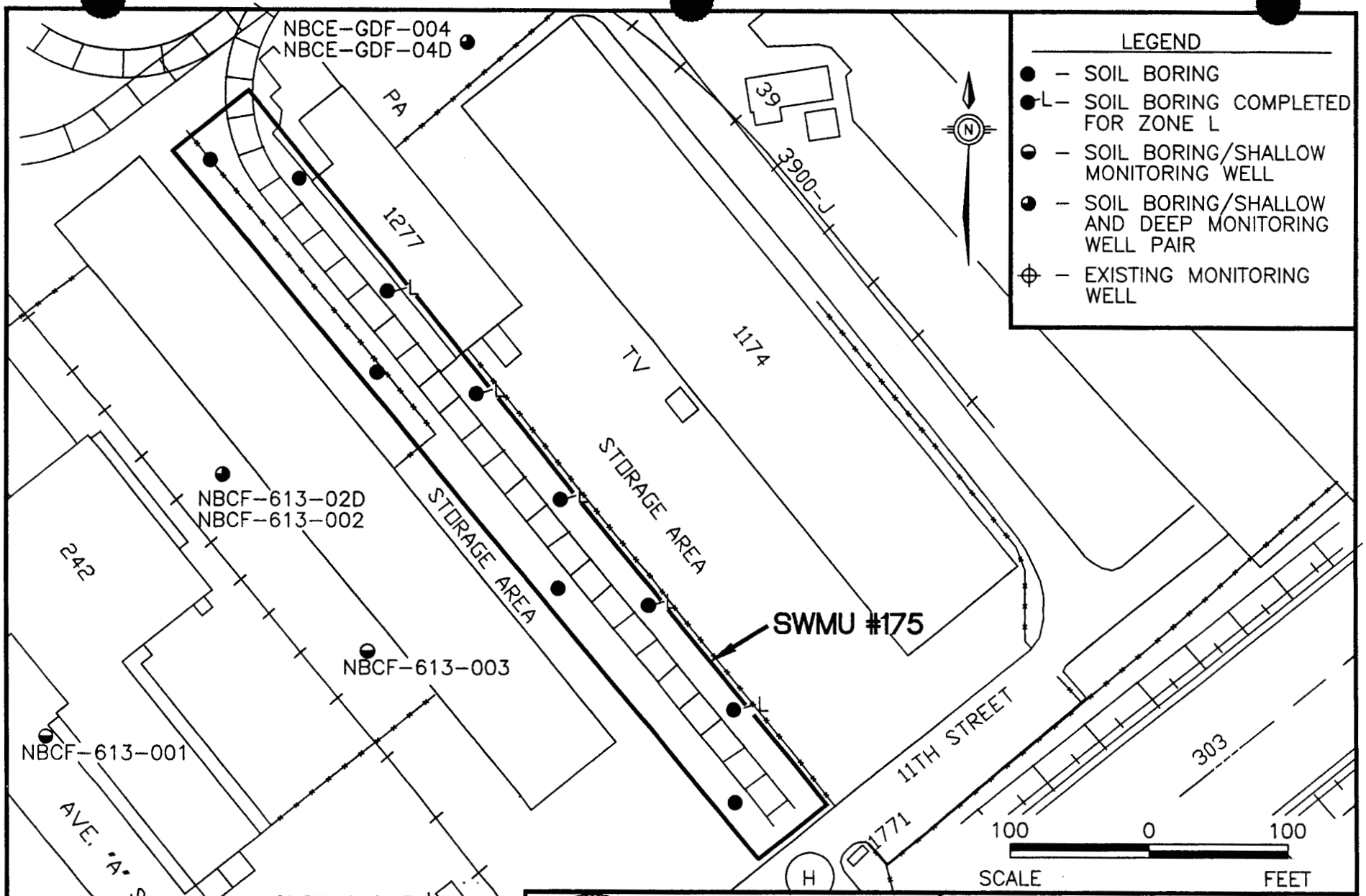
Notes:
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.
- **Groundwater quality for SWMU 175 will initially be assessed using analytical data from wells in adjacent Zone E and AOC 613. The need for wells at SWMU 175 will be reevaluated based on soil sample and groundwater analytical results .**

Five soil borings and analytical data from five additional borings associated with the Zone L investigation are proposed to determine the nature and extent of soil contamination, if any, at

SWMU 175. Samples from two depth intervals are proposed for all five soil borings, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.

To address the groundwater, analytical data from monitoring wells from the adjacent Zone E and AOC 613 will be used in the SWMU 175 investigation. Data from these monitoring wells will be reviewed to determine whether additional wells are needed to define the extent of groundwater contamination at SWMU 175. Data from these borings and groundwater wells will be used to determine the impact by identified past facilities and operations throughout the study area.

Proposed sampling locations are illustrated on Figure 2-5. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan.*



ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-5
PROPOSED SAMPLING LOCATIONS
SWMU #175
CRANE PAINTING AREA,
NEAR BUILDING 1277

DWG DATE: 06/11/96 | DWG NAME: 29CHZF17

2.5 AOC 607, Dry Cleaning, Building 1189

The former dry-cleaning facility in Building 1189 operated from 1942 to 1986. The facility is currently closed. Although no spills were documented, given common practices during the operational period of this facility, a release is probable (E/A&H, 1995b). An RFI is proposed for AOC 607. Table 2-9 describes the site.

2.5.1 Previous Investigations

This site has not been investigated previously.

Table 2-9
AOC 607
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 607 Dry-Cleaning, Building 1189	The former dry-cleaning facility in Building 1189 operated from 1942 to 1986 and also supported the local seamen's housing area. Since 1986, the facility has been used as a laundry with two industrial washers and dryers. The building also contains office space most recently used for miscellaneous storage. The facility was classified as a minor air emitter of total hydrocarbons. All emissions ceased in 1986 when dry cleaning operations were discontinued.[a]	Perchloroethylene Solvent	Air **Soil** **Soil Gas** **Groundwater** **Sediment**

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume I*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.5.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for each of the sites likely to require remedial action. Data will be collected to support evaluation of these alternatives. Table B-1

(Appendix B) lists treatment alternatives for groundwater; Table B-2 lists treatment alternatives for soil; and Table B-3 lists treatment alternatives for the presence of soil gas. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify the most feasible treatment alternatives.

2.5.3 Data Gaps

Currently no environmental media data have been collected at AOC 607 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.5.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. In addition, if releases are determined to have occurred, exposure potential may exist for nearby residents. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 607 and no pathways identified**

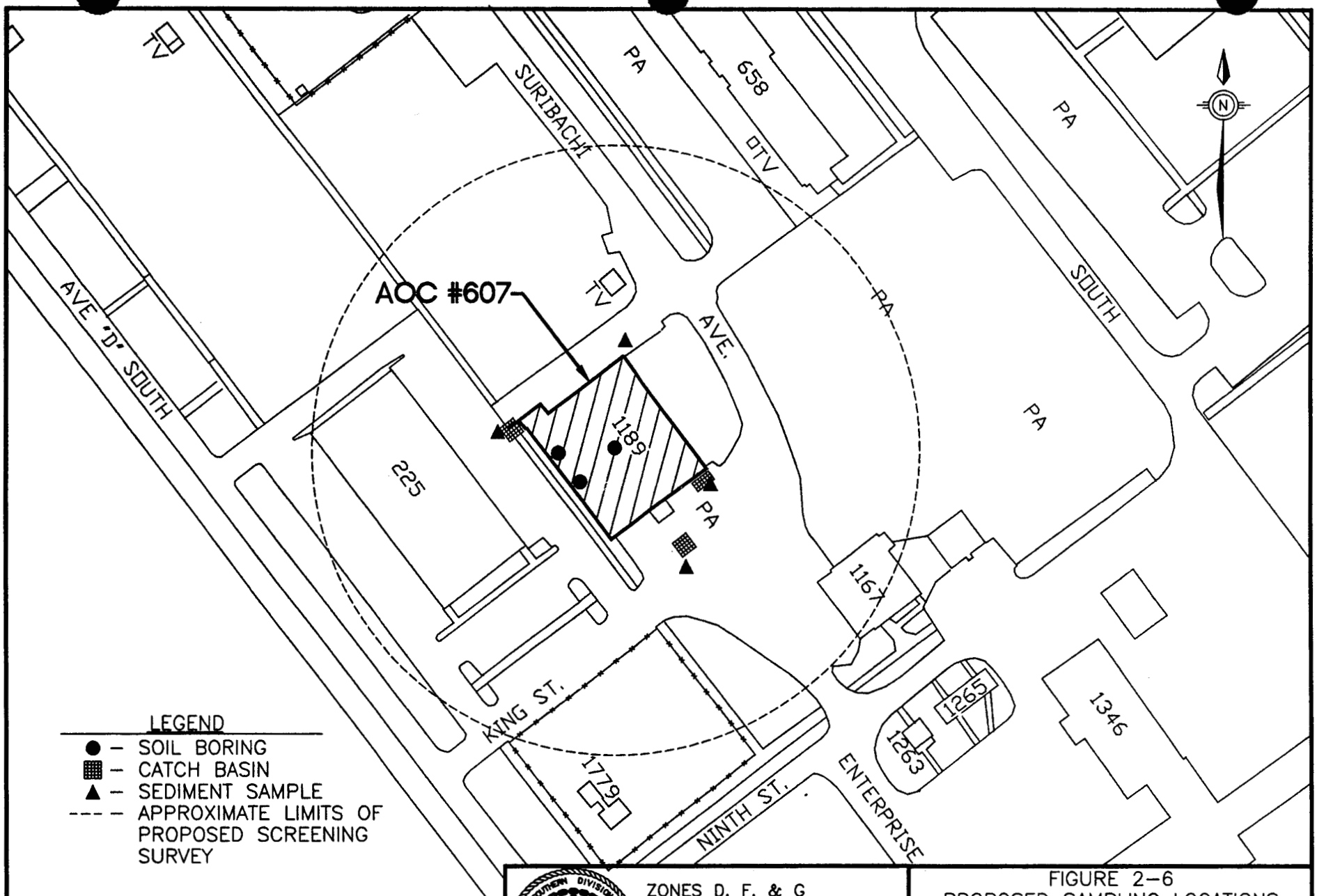
for transfer of contaminants offsite, no ecological receptors will be affected. Sampling will characterize the potential soil, groundwater and sediment pathways highlighted in Table 2-9.

2.5.5 Objective

The goal of the RFI is to use DQO Level III or IV data to determine whether COPCs are present and to determine if potential releases from the site have impacted NAVBASE property. The RFI will also fill the identified data gaps by delineating the horizontal and vertical extent of any soil, sediment, and/or groundwater contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial alternatives.

2.5.6 Screening Alternatives

A DPT screening survey is proposed for AOC 607 to identify areas of soil and shallow groundwater that may have been impacted by the AOC. Figure 2-6 presents the approximate limits of the survey. However, the area of the survey will be determined by the results obtained and will not be restricted by the limits shown on the figure. Initially, the survey will be conducted on a square grid using 50-foot nodes. From each push sample location, a sample of the unsaturated soil and a groundwater sample will be collected for analysis. These samples will be analyzed for VOCs. Based on these initial results, additional sample points will be added, if necessary until the extent of soil and shallow groundwater contamination, related to the AOC have been determined. The results of this screening survey will be used to optimize the proposed Level III soil and groundwater sampling locations. The Level III samples will be used to confirm the source and delineate the affected and unaffected areas of the AOC. In addition to the DPT screening, all soil boring samples will be field screened for VOCs using a FID.



ZONES D, F, & G
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NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2–6
PROPOSED SAMPLING LOCATIONS
AOC #607
DRY CLEANING,
BUILDING 1189

DWG DATE: 06/06/96 | DWG NAME: 29CHZF20

2.5.7 Sampling and Analysis Plan

To fulfill the RFI objectives, site-specific sampling and analysis requirements have been proposed for AOC 607. Table 2-10 summarizes the types of samples to be collected and the analytical parameters. Because the number and location of the samples depend on the results of the screening survey, only the samples proposed for the initial source characterization are show. ~n Figure 2-6.

To achieve objectives, 12 soil borings, four sediment samples, and six shallow monitoring wells are proposed across the AOC 607 area to initially confirm the nature and extent of contamination, if any identified during the screening phase. Data from all borings, sediment samples, and groundwater wells will be used to determine the impact by identified past facilities and operations throughout the study area.

Table 2-10
AOC 607
Sampling Plan[a]

Matrix	Quantity	Analysis
Soil (0-1' bgs)	12	VOCs, SVOCs, and Metals
Soil (3-5' bgs)	12	
Sediment	4	
Groundwater		
(Shallow well)	6	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
a = The number and locations of the soil, groundwater, and sediment samples will be determined in part by the results of the screening survey.

- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

Samples from two depth intervals are proposed for each of the 12 soil borings, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.

Groundwater will be addressed by installing and sampling six shallow monitoring wells. Data from the shallow wells will be used to delineate the groundwater plume, if detected. Data from these wells will be reviewed to determine whether additional wells are needed to define the horizontal and vertical extent of groundwater contamination.

Sediment samples, to be collected from the area sanitary and storm water sewer systems, will be used to determine whether these systems have been impacted by contaminants introduced through disposal of spent or waste solvents into drains in Building 1189. Given the period of the AOCs operation and the general condition and areal distribution of the sewer systems, numerous smaller releases may have occurred from these systems.

The sample locations will be selected to characterize potential source areas, affected soil, and areas unaffected by the contaminants. All sampling will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

2.6 AOC 609, Service Station, Building 1346

AOC is the former gasoline station/automotive repair and maintenance shop at Building 1346. (E/A&H, 1995b). An Assessment Report (AR) was completed for the AOC's fuel tanks and submitted in 1993. A free product recovery system was installed in 1995 (S&ME, 1995). Because the fuel USTs have already been assessed and remediation has been initiated, the RFI will f ··· on the waste oil tank. Table 2-11 describes this AOC.

Table 2-11
AOC 609
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
AOC 609 Service Station, Building 1346	The gasoline station/automotive repair and maintenance shop at Building 1346 was built in 1962. Three of the original nine steel underground storage tanks were found to be leaking and were replaced with fiberglass USTs in 1992. A waste oil UST was scheduled for removal but no documentation has been found to confirm if the removal was performed. Several additional incidents have occurred at this facility concerning releases of petroleum products.[a,b]	Gasoline Diesel Fuel Motor Oils Lubricating Oils Degreasing Solvents Antifreeze Automotive Products	**Soil** Soil Gas **Groundwater** Air Surface Water

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume I*, June 6, 1995.
b = *Assessment Report Addendum, Building 1346*, March 29, 1995.
c = Pathways scheduled for sampling are bold.

2.6.1 Previous Investigations

During the removal of the UST system in 1991, samples were collected from the excavation. These samples confirmed that a release had occurred from the site. Six monitoring wells were installed to define the extent of groundwater contamination at the site. An AR was submitted to SCDHEC in February 1993. Based on the results presented in the AR, SCDHEC requested two additional perimeter wells be installed. These wells were installed and all wells were sampled in November 1994. These results confirmed the previous results. The source well exhibited very high concentrations of benzene (36,100 μg/l), toluene (47,800 μg/l), ethyl

benzene (3,620 μg/l), xylene (16,800 μg/l) and methyl tertiary butyl ether (62,200 μg/l). All perimeter wells were below the detection limits for the same parameters.

A free product recovery trench was installed in January 1995 and is currently in operation (S&ME, 1995). Appendix C contains the UST Assessment Report Addendum for this site. The waste oil tank was not investigated previously.

2.6.2 Treatment Alternatives

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for each of the sites likely to require remedial action. Data will be collected to support evaluation of these alternatives. Table B-1 (Appendix B) lists treatment alternatives for groundwater; and Table B-2 lists treatment alternatives for soil. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify the most feasible treatment alternatives.

2.6.3 Data Gaps

The data that already exist for AOC 609 indicate petroleum constituents related to the fuel USTs have migrated from this site. To ensure data collection efforts, relative to the waste oil are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are insufficient data to assess whether a release has occurred from the waste oil UST. If a release is demonstrated, the extent of soil and groundwater contamination will be delineated with subsequent sampling.

- There are insufficient data to support a detailed evaluation of treatment alternatives.

2.6.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 609 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential pathways highlighted in Table 2-11.

2.6.5 Objective

The objective of the proposed RFI is to fill the identified data gaps by documenting a waste oil release and then fully delineating the horizontal and vertical extents of soil and groundwater contamination at AOC 609. The site has been sampled as discussed in Section 2.6.1, and this proposed effort will be used to further delineate the extent of contamination relative to the waste oil. Data collection efforts will support the technical evaluation of identified treatment alternatives.

2.6.6 Screening Alternatives

No sampling has been conducted to identify COPCs related to the waste oil UST; therefore selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods**

will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define the nature and extent of contamination detected. All soil borings will be screened for VOCs using a PID. All screening results will be recorded in field notebooks and on boring logs.

2.6.7 Sampling and Analysis Plan

To fulfill the RFI objectives, site-specific sampling and analysis requirements have been proposed for AOC 609. Table 2-12 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundary of AOC 609 has been outlined based upon a review of NAVBASE records.

Table 2-12
AOC 609
Sampling Plan

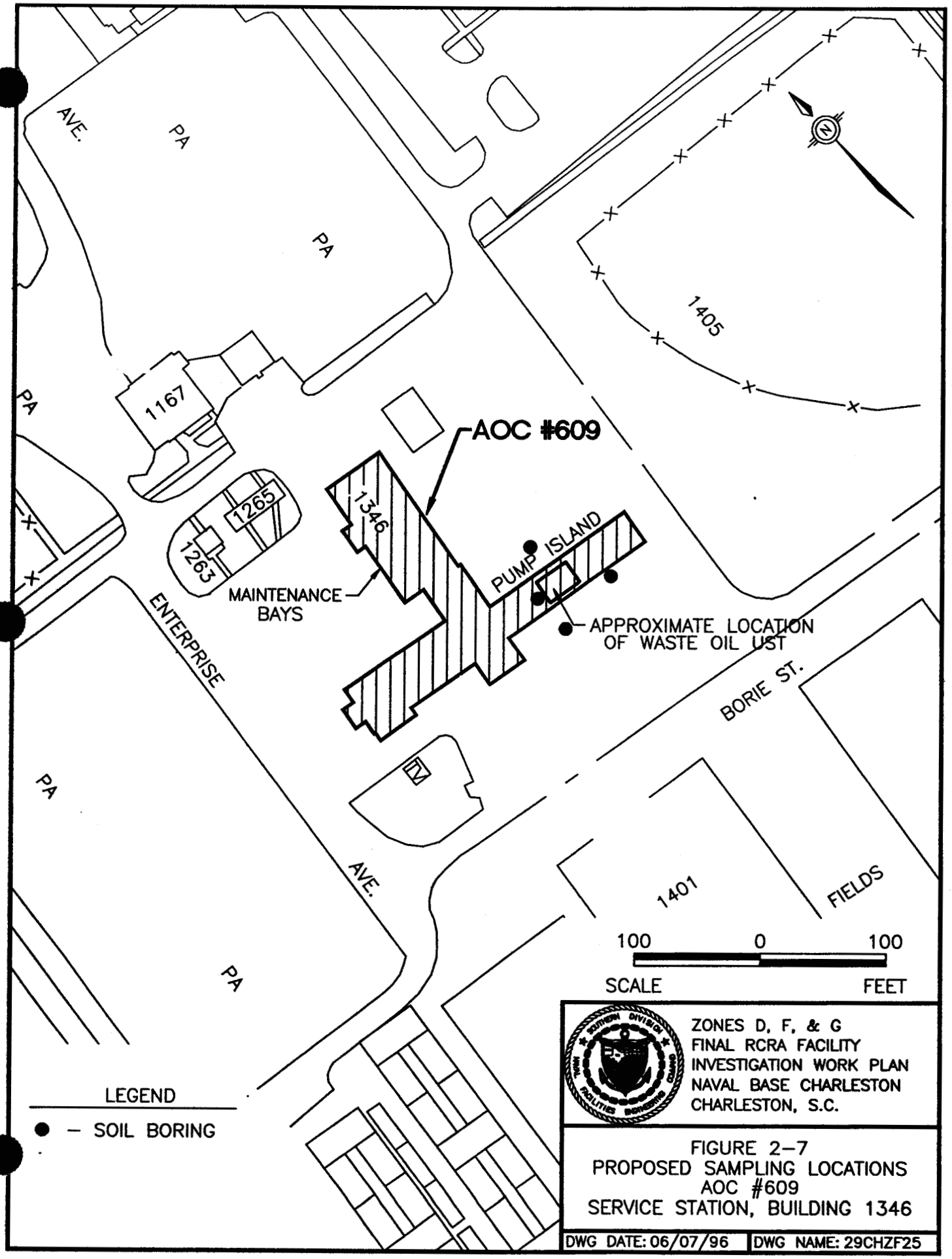
Matrix	Quantity	Analysis
Soil (0-1' bgs)	4	VOCs, SVOCs, and Metals
Soil (3-5' bgs)	4	
Sediment	None	
Groundwater		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

Four soil borings related to the waste oil UST are proposed to assess the nature and extent of soil contamination at AOC 609. **One of the borings will be located directly adjacent to the waste oil UST, to determine the nature and intensity of soil contamination at the potential**

source/release area. The other three borings will be located approximately 25 feet from the UST, to assess the extent of soil contamination related to the waste oil UST at AOC 609. Samples from two depth intervals are proposed for each of the four soil borings, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil. Proposed soil sampling locations are illustrated on Figure 2-7. **Groundwater quality at the site will be assessed using the analytical data from the eight existing monitoring wells.** All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.


AVE.
PA
PA
PA
PA
PA
1167
1265
1263
1346
1405
1401
AOC #609
PUMP ISLAND
MAINTENANCE BAYS
APPROXIMATE LOCATION OF WASTE OIL UST
ENTERPRISE
AVE.
BORIE ST.
FIELDS
100 0 100
SCALE FEET
LEGEND
● – SOIL BORING
ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 2–7
PROPOSED SAMPLING LOCATIONS
AOC #609
SERVICE STATION, BUILDING 1346
DWG DATE: 06/07/96
DWG NAME: 29CHZF25

2.7 AOC 611, Grease Rack and Hobby Shop, Building 1264

AOC 611 is the former Building 1264, which was used as an automotive hobby shop. Based on a review of historical NAVBASE maps, the location of AOC 611 was changed from the description in the RFA. The CSI proposed for AOC 611 will investigate soil and groundwater for potential releases (E/A&H, 1995b). Table 2-13 describes this AOC.

Table 2-13
AOC 611
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 611 Grease Rack and Hobby Shop, Building 1264	This site is the former Building 1264, used as an automotive hobby shop from the late 1950s to the early 1960s. No visible evidence of the former building remains. The area is currently partially asphalt paved and grass covered.[a]	Petroleum Products, Antifreeze, Isopropyl Alcohol, Solvents, Degreasers, Enamel Paint, Thinner, Battery Acid, Lead	**Soil** Soil Gas **Groundwater** Air Surface Water

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.7.1 Previous Investigations

This site has not been previously investigated.

2.7.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.7.3 Data Gaps

Currently no environmental media data have been collected at AOC 611 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data

collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.7.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. An exposure potential exists for users of the area and workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 611 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-13.

2.7.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to determine whether COPCs are present. If an RFI is required, the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil and/or groundwater contamination as well as the rate of contaminant migration

at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.7.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define the nature and extent of contamination detected.** All soil boring samples will be screened for VOCs with a PID. All screening results will be recorded in field notebooks and on boring logs.

2.7.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-14 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundaries of AOC 611 have been outlined based upon a review of NAVBASE historical figures and maps.

Four soil borings are proposed to identify any contamination due to a release from AOC 611. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.

Groundwater will be addressed by using the analytical data from four of the shallow monitoring wells **(CNB-1346-MW-7, CNB-1346-MW-3, CNB-1346-MW-4, CNB-1346-MW-5)** and one deep monitoring well **(CNB-1346-MW-6)** sampled during the AR investigation at AOC 609. Grid wells will be used to provide additional support to the groundwater investigation, if

required. Data from these wells will be reviewed to assess whether additional wells are needed to define the horizontal and vertical extent of groundwater contamination.

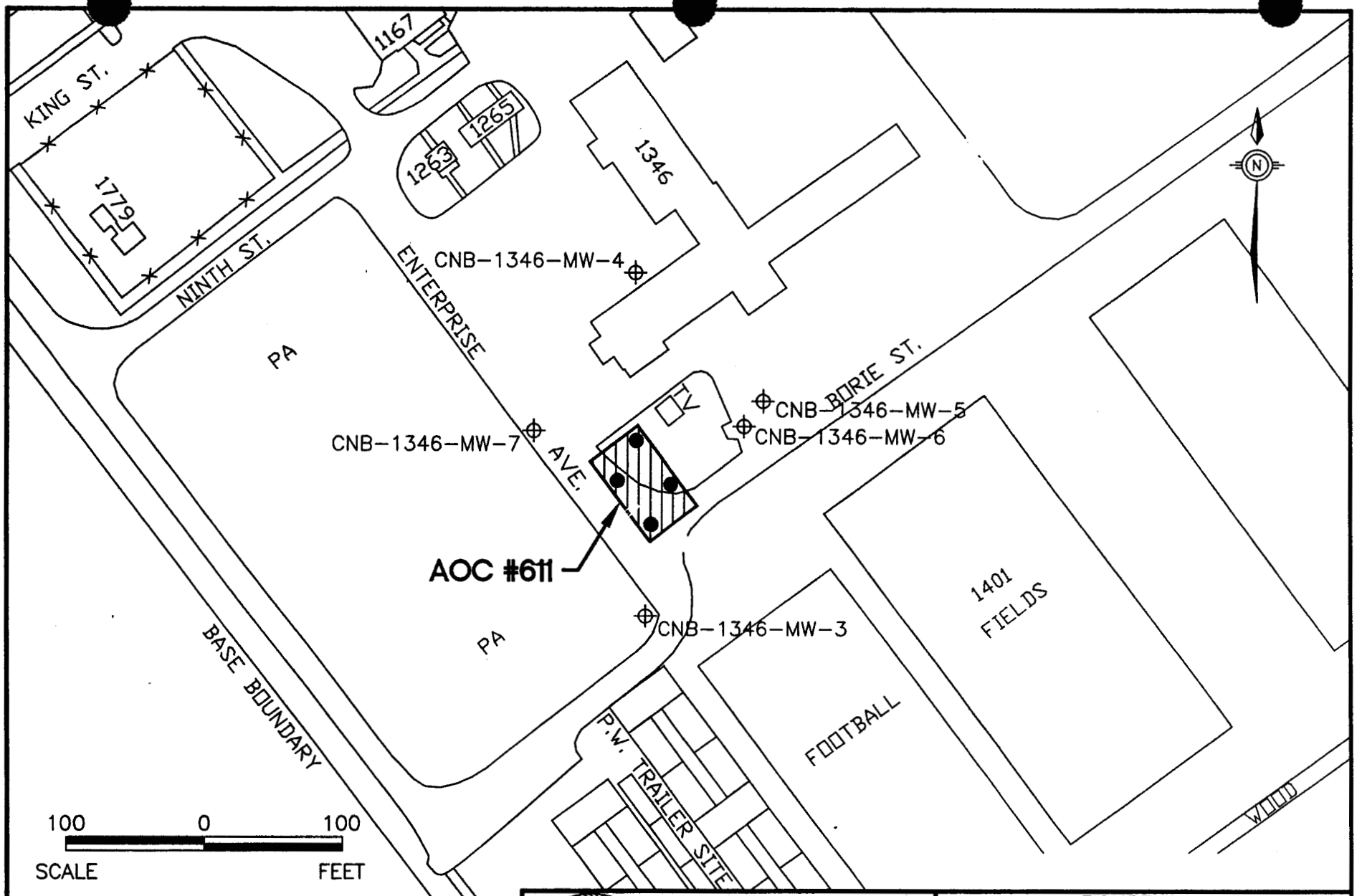
Each proposed sampling location is illustrated on Figure 2-8. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan.*

Table 2-14
AOC 611
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	4	VOCs, SVOCs, Metals, pH
Soil (3-5' bgs)	4	
Sediment	None	
Groundwater		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.
- **Analytical data from the existing monitoring wells will be used to assess the sites' impact on groundwater.**



ZONES D, F, AND G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-8
PROPOSED SAMPLING LOCATIONS
AOC #611
GREASE RACK AND HOBBY SHOP
BUILDING 1264

DWG DATE: 06/06/96 | DWG NAME: 29CHZF01

2.8 AOC 613, Old Locomotive Repair Shop, Former Building 1169, and AOC 615, Old Chain Locker, Building 1391

An RFI and a CSI have been proposed for AOC 613, the Old Locomotive Repair Shop and AOC 615, the Old Chain Locker, respectively. Former Building 1169 is the old locomotive and crane shop repair facility. Building 242, built in 1987, occupies a portion of AOC 613. A CSI has been proposed for AOC 615, the site of the former Building 1391, the Old Chain Locker. Currently the site is occupied by a parking area and Building 255. Table 2-15 describes these AOCs.

Table 2-15
AOC 613 and 615
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
AOC 613, Old Locomotive Repair Shop, Former Building 1169	This site is the former Building 1169, an old locomotive and crane repair shop facility which operated from the 1930s until 1985. The building was demolished in 1985. Maintenance activities at the site included changing oil, repairing hydraulic systems and equipment overhaul. Oil, grease, diesel fuel, and cleaning solvents were discharged into the storm water drainage system. Numerous spills were also reported. In addition, a UST which reportably contained waste oil and other types of liquid waste was also present at the site. The UST has reportably been removed although no details on the location, removal or remediation are available. Building 242, built in 1987, occupies a portion of the AOC.[a,b]	Petroleum Products, Waste Oil, Solvents	**Soil** Soil Gas **Groundwater** Air **Sediment**
AOC 615 Old Chain Locker, Building 1391	AOC 615 is the site of the former Building 1391, the old chain locker. The locker, which was in service from 1970 to 1977, stored and serviced anchor chain, which involved dipping the chain into large tanks which contained epoxies and resins. Epoxie and resin wastes were reportably stored in 55-gallon drums behind the building.[a,b]	Epoxies, Resins	**Soil** Soil Gas **Groundwater** Air Surface Water

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Described in the *Draft Final Environmental Baseline Survey*, December 1994.
c = Pathways scheduled for sampling are bold.

2.8.1 Previous Investigations

These sites have not been previously investigated.

2.8.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for these sites cannot be evaluated.

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for each of the sites likely to require remedial action. Data will be collected to support evaluation of these alternatives. Table B-1 (Appendix B) lists treatment alternatives for groundwater; Table B-2 lists treatment alternatives for soil. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify the most feasible treatment alternatives.

2.8.3 Data Gaps

Currently, no environmental media data have been collected to characterize these sites or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigative objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.8.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users and workers, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. An exposure potential exists for workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 613 and AOC 615 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential soil, sediment, and groundwater pathways highlighted in Table 2-15.

2.8.5 Objective

The objective of the proposed field investigation is to confirm whether contamination is present in environmental media. If present, then the investigation will delineate the horizontal and vertical extent of any soil and/or groundwater contamination. While there are other potential contaminant pathways, initial sampling of these matrices is not required to assess whether contaminants are present. For AOC 615, if soil and/or groundwater contamination is identified, the site will be designated for a complete RFI to delineate the nature and extent of contamination. For AOC 613, the nature and extent of any contamination found will be delineated during this effort. Data collection efforts will support technical evaluation of identified treatment alternatives.

2.8.6 Screening Alternatives

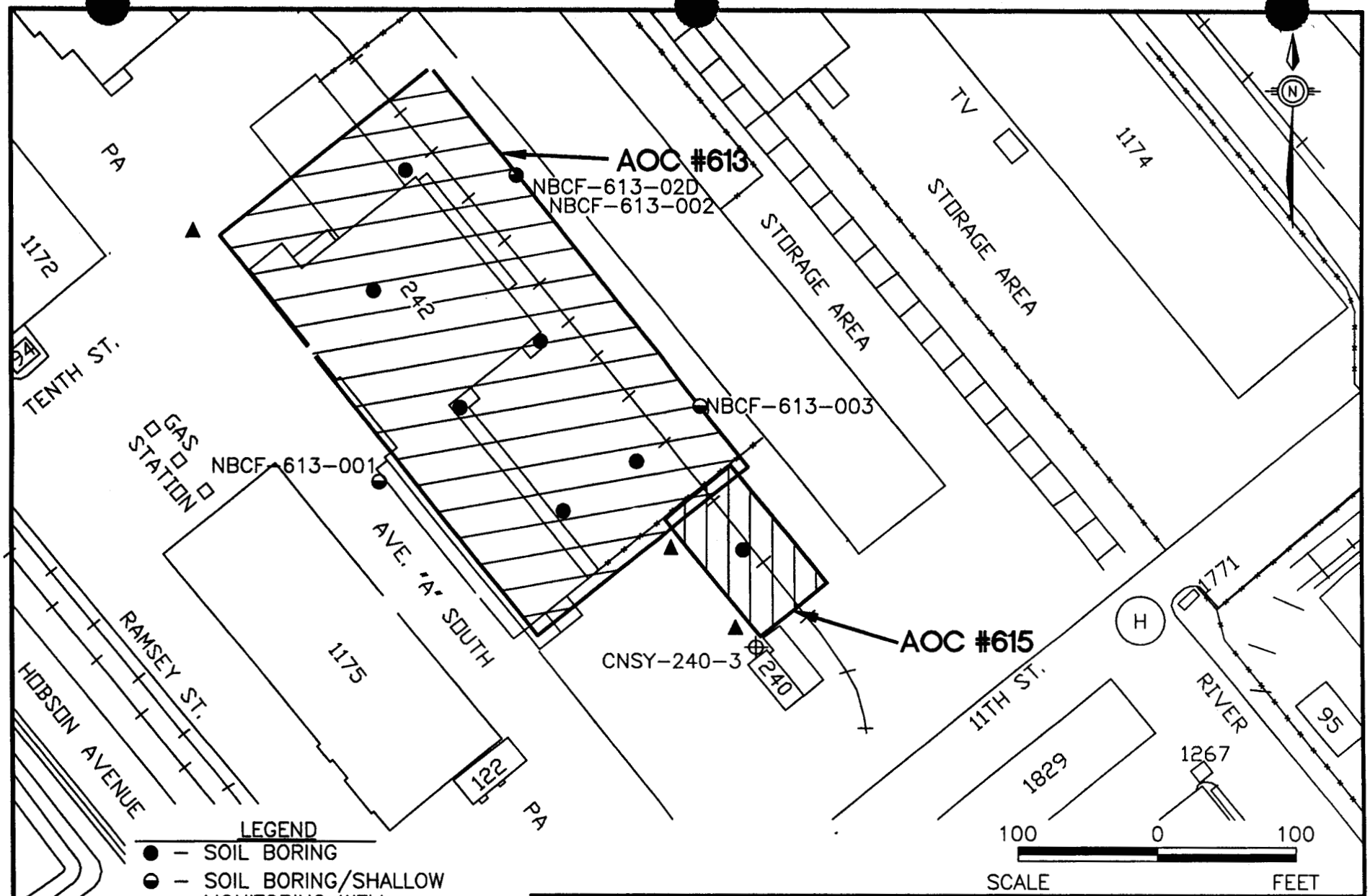
A DPT screening survey is proposed for AOCs 613 and 615 to identify areas of soil and shallow groundwater that may have been impacted by these AOCs. The area of the two AOCs shown on Figure 2-9 will be screened using push sample points on a 50- foot square grid. Based on these initial screening results, additional sample points may be required to determine the extent of contamination. At each location, a sample of unsaturated soil and a groundwater sample will be collected for analysis. These samples will be analyzed for VOCs, SVOCs, and metals. The results of this screening will be used to optimize the proposed Level III soil and groundwater sampling locations. In addition to the DPT screening, all soil boring locations will be screened for VOCs using a FID.

2.8.7 Sampling and Analysis Plan

To fulfill the objectives of the CSI and RFI, site-specific sampling and analysis requirements have been proposed for the combined AOCs 615 and 613. Table 2-16 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundaries of both AOCs 615 and 613 have been outlined based upon a review of NAVBASE records. The boundaries may be modified based on the sample results.

Ten soil borings, three shallow monitoring wells, and three sediment samples are proposed to determine if the sites have adversely impacted the soil, sediment and/or groundwater in the area. Data from all borings, sediment samples, and groundwater wells will be used to assess the impact of past facilities and operations throughout the study area.

Samples from two depth intervals are proposed for each of the 10 soil borings, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.



LEGEND

- ● – SOIL BORING
- ◒ – SOIL BORING/SHALLOW MONITORING WELL
- ▲ – SEDIMENT SAMPLE
- ◕ – SOIL BORING/SHALLOW AND DEEP MONITORING WELL PAIR
- ⊕ – EXISTING SHALLOW MONITORING WELL

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-9
PROPOSED SAMPLING LOCATIONS
AOC #613 OLD LOCOMOTIVE REPAIR SHOP,
BLDG 1169
AND AOC #615
OLD CHAIN LOCKER, BLDG 1391

DWG DATE: 06/10/96 | DWG NAME: 29CHZF02

Table 2-16
AOC 613 and 615
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	10	VOCs, SVOCs, Metals, Asbestos
Soil (3-5' bgs)	10	
Sedim	3	
Groundwater		VOCs, SVOCs, Metals
(Shallow well)	3	
(Deep well)	1	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

Three sediment samples will be collected from manholes which access the sanitary sewer system near the former facility. The purpose of these samples is to assess whether these three segments of sanitary sewer have been impacted by contaminants reportably introduced through disposal into drains at the AOC.

Groundwater will be addressed by installing and sampling three shallow and are deep monitoring wells. The shallow wells are proposed to identify contaminants which may be migrating from the site in the shallow aquifer. The deep well is intended to monitor the potential impact of the site on the deeper aquifer. Please note that the soil boring and monitoring well locations are tentative. Actual locations will be determined, in part, by the DPT screening results. Proposed sampling locations are illustrated on Figure 2-9. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

2.9 AOC 616, Paint Shop, Former Building 1201

The former Building 1201 was a paint shop which presumably was an enclosed building with or competent foundation and floor. Although no spills or releases were documented at this site, given common practices during the operating period of this facility, a past release is possible. The CSI proposed for AOC 616 will investigate adjacent soil for potential releases. Table 2-17 descr' ~s this AOC.

Table 2-17
AOC 616
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 616 Paint Shop, Former Building 1201	This AOC is the former Building 1201 which operated as a paint shop from 1955 until 1977. No visible evidence of the paint shop remains and the area is now covered by a parking and storage lot for Building 69. The site is currently a paved parking and storage area.[a]	Paint Thinner, Solvents, Paint Supply Products	**Soil** Soil Gas Groundwater Air Surface Water

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.9.1 Previous Investigations

This site has not been previously investigated.

2.9.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.9.3 Data Gaps

Currently no environmental media data have been collected at AOC 616 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data

collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.9.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. An exposure potential exists for users of the area and workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 616 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Confirmatory sampling will characterize the potential soil pathway highlighted in Table 2-17.

2.9.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to determine whether COPCs are present. If an RFI is required, then the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical

extent of any soil contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.9.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define the nature and extent of contamination detected.** Because the presence of volatile chlorinated compounds are suspected, a FID will be used to field screen all soil boring samples. All screening results will be recorded in field notebooks and on boring logs.

2.9.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-18 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundaries of AOC 616 have been outlined based upon a review of historical drawings, maps, and NAVBASE records. The boundaries may be modified based on the sample results.

Four soil boring locations are proposed to detect the presence of any contamination resulting from a release at AOC 616. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil. Each proposed sampling location is illustrated on Figure 2-10. **Due to the presumed structure of the former Building 1201, the paved surfaces in the area of the building and the time frame of the activity, the likelihood for a release to groundwater is minimal.** Therefore no

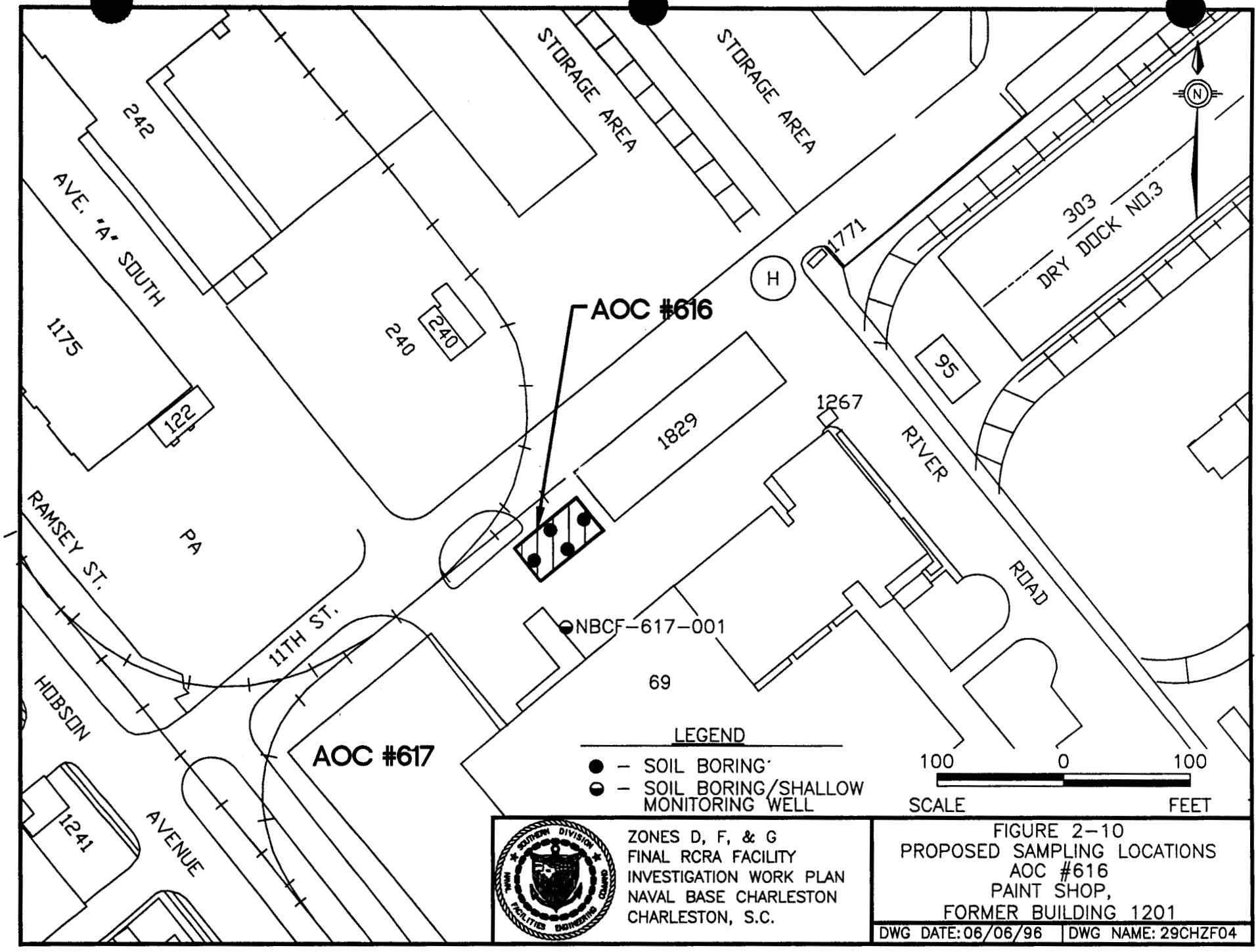
groundwater samples are proposed. **However, the analytical data from the shallow monitoring well associated with adjacent AOC 617 (NBCF-617-001) will be reviewed once the COPCs for AOC 616 are determined.** All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan.*

Table 2-18
AOC 616
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	4	VOCs, SVOCs, Metals
Soil (3-5' bgs)	4	
Sediment	None	
Groundwater		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.


STORAGE AREA
STORAGE AREA
242
AVE. "A" SOUTH
1175
122
240
240
AOC #616
H
1771
303
DRY DOCK NO.3
95
1829
1267
RIVER
ROAD
RAMSEY ST.
PA
11TH ST.
NBCF-617-001
69
HOBSON
AOC #617
1241
AVENUE
LEGEND
● – SOIL BORING
◒ – SOIL BORING/SHALLOW MONITORING WELL
100 0 100
SCALE FEET
ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 2-10
PROPOSED SAMPLING LOCATIONS
AOC #616
PAINT SHOP,
FORMER BUILDING 1201
DWG DATE: 06/06/96
DWG NAME: 29CHZF04

2.10 AOC 617, Galvanizing Plant, Former Building 1176

AOC 617 is a galvanizing plant in the former Building 1176. Although no spills or releases were documented, given common practices during the operational period of this facility, a past release is probable (E/A&H, 1995b). The location of AOC 617 was changed from the description in the RFA, based on a review of historical NAVBASE maps. The CSI proposed for AOC 617 will investigate adjacent soil and groundwater for potential releases. Table 2-19 describes this AOC.

Table 2-19
AOC 617
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 617 Galvanizing Plant, Former Building 1176	This site in the former Building 1176 was a galvanizing plant that operated from the early 1940s until approximately 1985. It was demolished and Building 69, a shipping and supply center, was constructed in the general area. A 3,000-gallon UST was an onsite chemical storage area.[a]	Zinc Solutions, Inorganic Acids	**Soil** Soil Gas **Groundwater** Air Surface Water

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.10.1 Previous Investigations

This site has not been previously investigated.

2.10.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.10.3 Data Gaps

Currently no environmental media data have been collected at AOC 617 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.10.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. An exposure potential exists for users of the area and workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 5 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 617 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Confirmatory sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-19.

2.10.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to assess whether COPCs are present. If an RFI is required, then the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.10.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** Because volatile chlorinated compounds could have been used or released at the AOC, a FID will be used to field screen all soil boring samples. All screening results will be recorded in field notebooks and on boring logs.

2.10.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-20 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundaries of AOC 617 have been outlined based upon a review of historical drawings, maps and NAVBASE records. The boundaries may be modified further based on the sample results.

Table 2-20
AOC 617
Sampling Plan

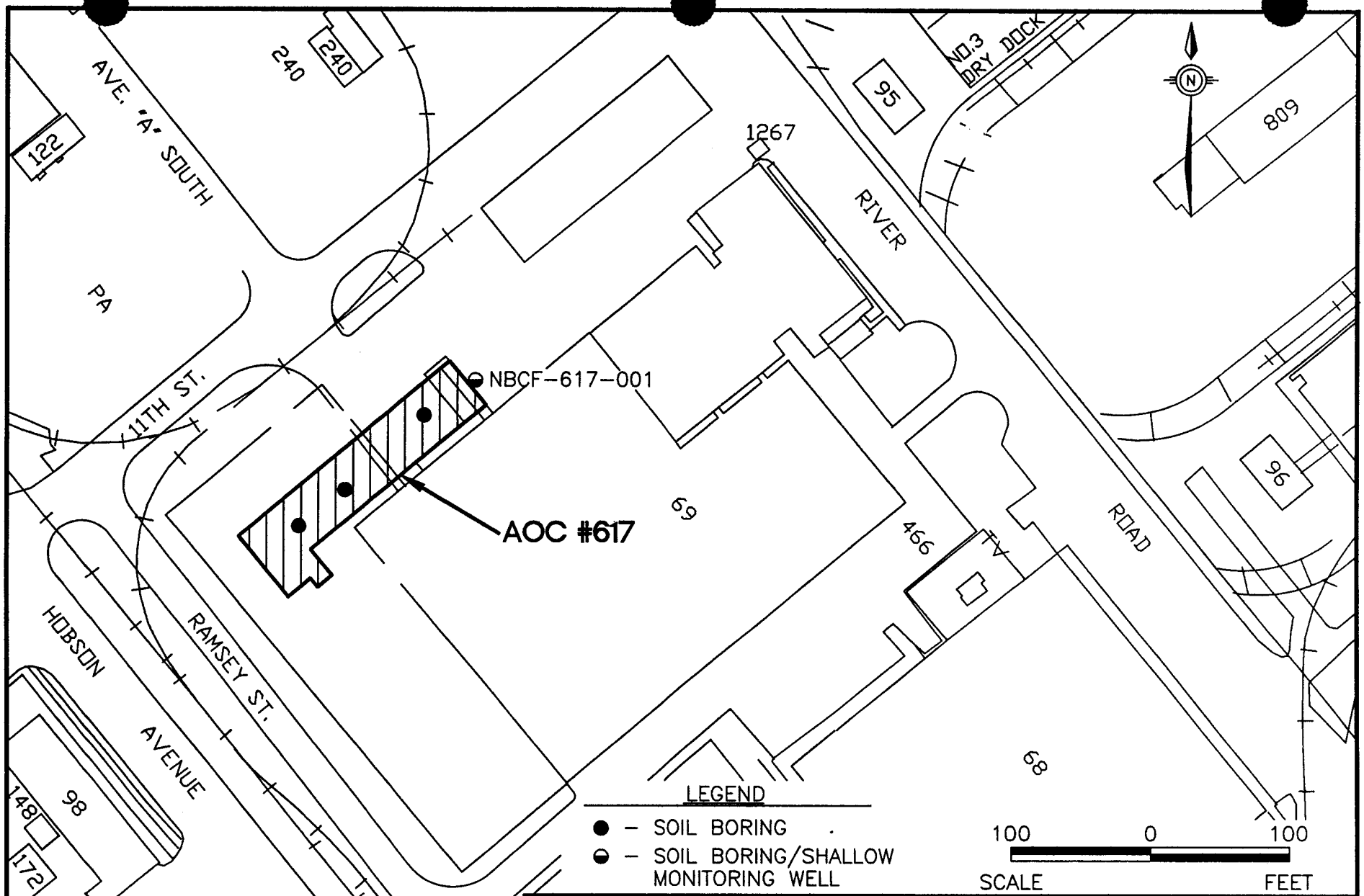
Matrix	Quantity	Analysis
Soil (0-1' bgs)	4	VOCs, SVOCs, Metals, pH
Soil (3-5' bgs)	4	
Sediment	None	
Groundwater		
(Shallow well)	1	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846, except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

Four soil boring locations and one shallow monitoring well are proposed to detect the presence of any contamination due to a release from AOC 617. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.

Groundwater will be addressed through the installation and sampling of a shallow monitoring well located downgradient of the former facility. This well is proposed to identify contaminants which may be migrating from the AOC. Proposed sampling locations are illustrated on Figure 2-11. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.



ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-11
PROPOSED SAMPLING LOCATIONS
AOC #617
GALVANIZING PLANT,
FORMER BUILDING 1176

DWG DATE: 06/10/96 | DWG NAME: 29CHZF32

2.11 AOC 628, Sandblasting Area, Southeast of Building 68

AOC 628 is the open area southeast of Building 68 that was used for abrasive blasting of large metal parts. Although no spills or releases were documented at this site, given the turbulent nature of abrasive blasting activities, it is probable that releases occurred (E/A&H, 1995b).

The location of AOC 628 was changed from that given in the RFA. A review of historical NAVBASE maps and interviews with base personnel familiar with the activity placed the former sandblasting area in the location shown on Figure 2-12 (Droze, 1995). The CSI proposed for AOC 628 will investigate these areas for potential releases to the surrounding soil. Table 2-21 describes the site.

Table 2-21
AOC 628
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 628 Sandblasting Area, Southeast of Building 68	AOC 628 is the open area southeast of Building 68 that was used for abrasive blasting of large metal parts from 1962 to 1967. Currently no visible evidence remains of former activities. A high-pressure fuel line runs beneath the site.[a]	Spent Blasting Media, Paint Residues, Organic Solvent Wastes, Metallic Residues, Petroleum Products	**Soil** Groundwater Surface Water/Sediment Air Soil Gas

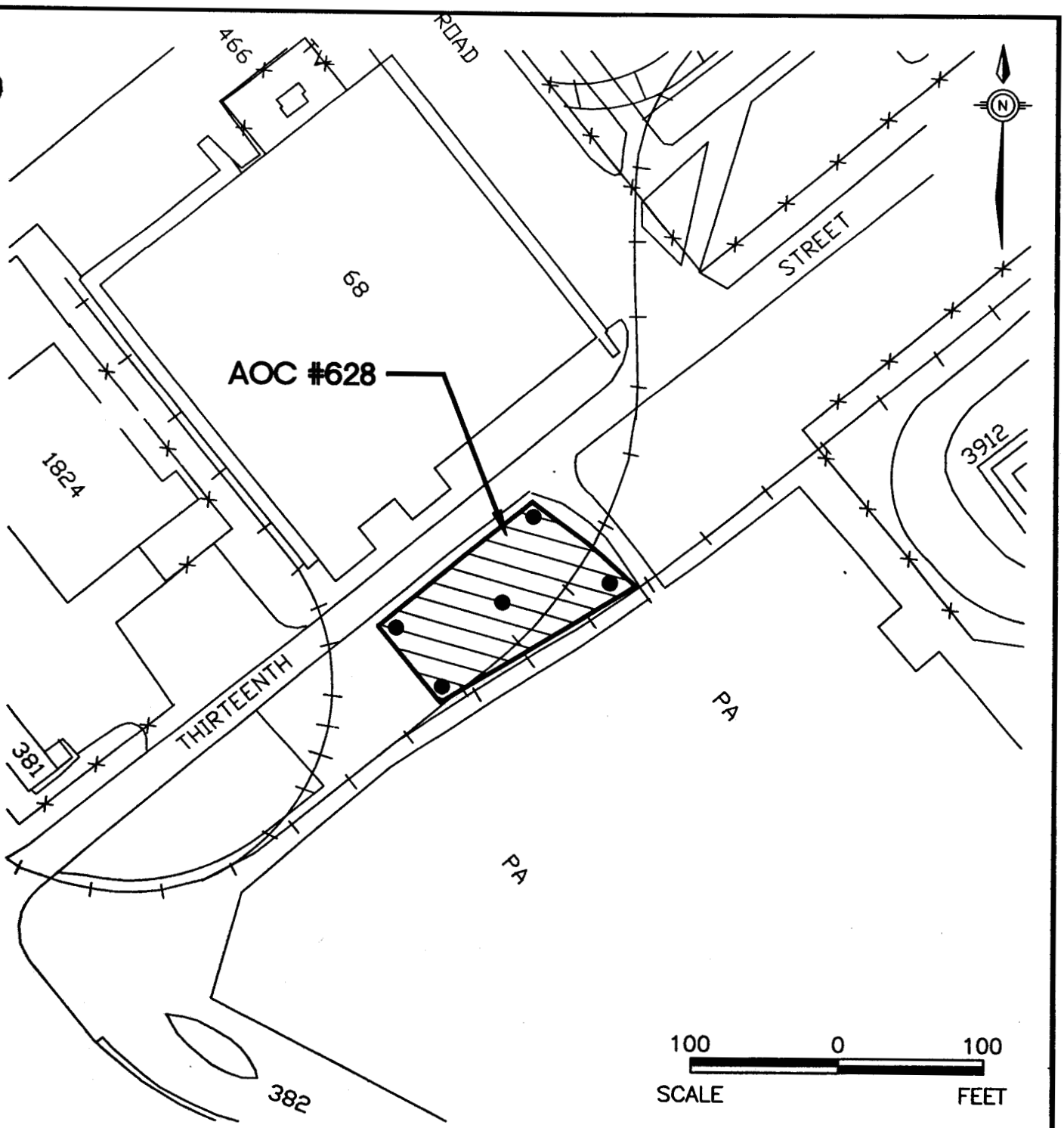
Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.11.1 Previous Investigations

This site has not been investigated previously.

2.11.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.



LEGEND

● – SOIL BORING

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2–12
PROPOSED SAMPLING LOCATIONS
AOC #628
SANDBLASTING AREA,
SOUTHEAST OF BUILDING 68

DWG DATE: 06/07/96 | DWG NAME: 29CHZF09

2.11.3 Data Gaps

Currently no environmental media data have been collected at AOC 628 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.11.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity, such as utility maintenance, bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 5 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 628 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential soil pathway highlighted in Table 2-21.

2.11.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to assess whether COPCs are present. If an RFI is required, the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.11.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** All soil boring samples will be screened for VOCs with a PID. All screening results will be recorded in field notebooks and on boring logs.

2.11.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-22 summarizes the types of samples to be collected and the analytical parameters. For the purpose of sample locations, the boundaries of AOC 628 have been based on a review of historical drawings and maps. The boundaries may be modified based on the sample results.

Table 2-22
AOC 628
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	5	VOCs, SVOCs, Metals
Soil (3-5' bgs)	5	
Sediment	None	
Groundwater		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

Five soil boring locations within the boundary of the area are proposed to detect the presence of any soil contamination due to a release from AOC 628. Samples will be collected at two depths for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil. Each proposed sampling location is illustrated on Figure 2-12. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

2.12 AOC 633, Substation, Building 451C

AOC 633 is the electrical substation in and around Building 451C. The CSI proposed for AOC 633 will investigate potential releases to the surrounding soil. Additional samples will be collected during this investigation to investigate the potential impact of the site on the adjacent area of ecological concern. Table 2-23 describes this AOC.

Table 2-23
AOC 633
Site Description

Number	Description	Materials Released, Stored or Disposed	Potential Pathways[b]
AOC 633 Substation, Building 451C	AOC 633 is the electrical substation located in Building 451C. Building 451C, built in 1943, is a block structure with a concrete roof and floor, several steel enclosures on concrete slabs and foundations from earlier buildings. Several high voltage switches, breakers and transformers and a battery bank are located in the two room block structure. An electrical transformer was destroyed and has been removed. Several large PCB releases have occurred including oil leak in 1981. No known remedial activities have occurred at this unit.[a]	PCBs, Petroleum Products	**Soil** Groundwater **Sediment/Surface water**

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.12.1 Previous Investigations

This site has not been previously investigated.

2.12.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.12.3 Data Gaps

Currently no environmental media data have been collected at AOC 633 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.12.4 Potential Receptors

Potential receptors that may be exposed to site contaminants include current land users, any future users this area may support and area of ecological concern (AEC) IV-1. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. The area associated with AOC 633 is fenced, which should restrict access to the soil. However, if contaminants have migrated outside the secured area, potential receptors would likely be workers involved with any invasive activity such as utility maintenance bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 5 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. Sampling will characterize the potential soil pathway highlighted in Table 2-23.

AEC IV-1, identified as a palustrine scrub-shrub wetland is directly southwest of the site and the potential exists for exposure to ecological receptors. This wetland area could receive

contaminated surface water runoff resulting in exposure to biological receptors other than humans. Characterization of potential contamination in this ecological area will be discussed in the Zone D, F, and G RFI report. The ecological risk assessment (ERA) will be performed in accordance with Volume III of the *Final Comprehensive RFI Work Plan.*

2.12.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to assess whether COPCs are present. If an RFI is required, the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.12.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** Because volatile petroleum compounds are suspected, a FID will be used to screen soil boring samples for VOCs. All screening results will be recorded in field notebooks and boring logs.

2.12.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-24 summarizes the types of samples to be collected and the analytical parameters. Seven soil boring locations within the boundary of the area are proposed to identify any contamination due to a release from AOC 633. The sample locations were selected based

on observations made during the site visit to identify any releases to the soil. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.

Table 2-24
AOC 633
Sampling Plan

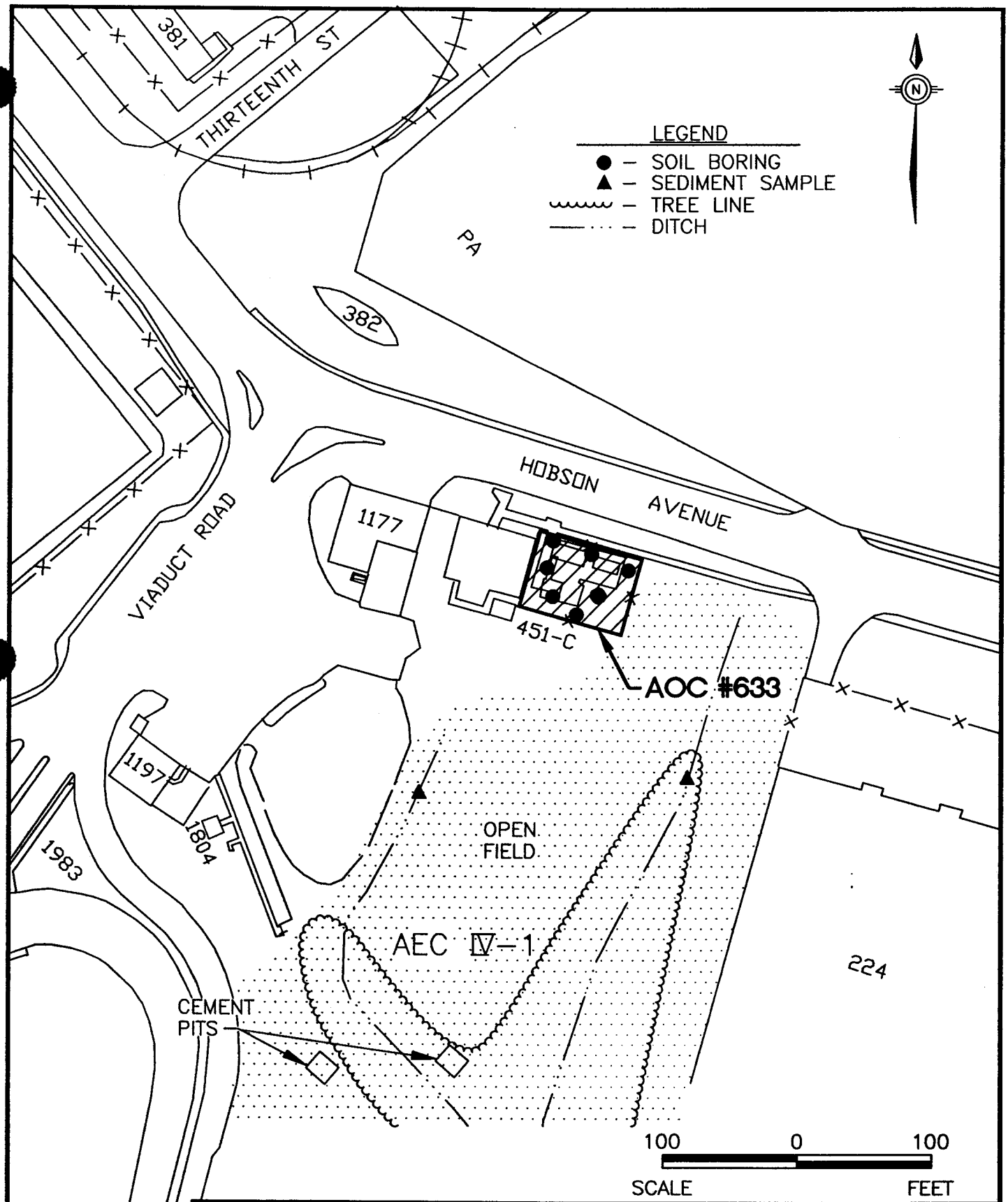
Matrix	Quantity	Analysis
Soil (0-1' bgs)	7	Pesticides and PCBs
Soil (3-5' bgs)	7	
Sediment	6	
Groundwater		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

A total of six sediment samples will be collected throughout AEC IV-1 to assess the potential impact from the adjacent AOCs. For clarity all **six** sediment samples proposed for the AEC are presented on Table 2-24. Two of the six locations **proposed to detect releases from AOC 633** are shown on Figure 2-13. **All six sediment sample locations are shown on Figure 2-14.**

Proposed sampling locations are illustrated on Figure 2-13. All sampling will adhere to the NAVBASE *Final Comprehensive RFI Work Plan.*



ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-13
PROPOSED SAMPLING LOCATIONS
AOC #633 SUBSTATION
BUILDING 451-C

DWG DATE: 06/07/96 | DWG NAME: 29CHZF10

2.13 AOC 634, Flammable Material Storage, Building 1814

AOC 634 consists of Building 1814, a former flammable material storage facility. Although no spills or releases were documented at this site, given common practices during its operation period, a release is probable (E/A&H, 1995b). The CSI proposed for AOC 634 will investigate this area for potential releases to the surrounding soil and also to AEC IV-1 adjacent to the site. Table 2-25 describes this AOC.

Table 2-25
AOC 634
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 634 Flammable Material Storage, Building 1814	AOC 634 consists of Building 1814, a former flammable materials storage facility. This facility had an aluminum roof, asphalt floor, and was surrounded by a chain-link fence. Built in 1977, Building 1814 stored small containers of flammable material until 1992. It is currently not in service and the roof and fence were removed.[a]	Paint, Flammable Material	**Soil** Soil Gas Groundwater Air Sediment/Surface Water

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.13.1 Previous Investigations

This site has not been previously investigated.

2.13.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.13.3 Data Gaps

Currently no environmental media data have been collected at AOC 634 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data

collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.13.4 Potential Receptors

Potential receptors that may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would most likely be workers involved with any invasive activity such as utility maintenance that would bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. Sampling will characterize the potential soil pathway highlighted in Table 2-25.

AEC IV-1 identified as a palustrine scrub-shrub wetland is adjacent to the site and the potential exists for exposure to ecological receptors. The ecological area to the west could receive contaminated surface water runoff and groundwater discharges, resulting in exposure to biological receptors other than humans. The ERA will be performed in accordance with Volume III of the *Final Comprehensive RFI Work Plan*. Characterization of potential contamination in the nearby ecological area will be addressed in the Zones D, F, and G RFI Report.

2.13.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to assess whether COPCs are present. If an RFI is required, the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.13.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** All soil boring samples will be screened for VOCs with PID. All screening results will be recorded in field notebooks and on boring logs.

2.13.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-26 summarizes the types of samples to be collected and the analytical parameters. Three soil boring locations within the boundary of the area, are proposed to identify any contamination due to a release from AOC 634. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be modified to avoid sampling the saturated soil.

Six sediment samples are proposed for AEC IV-1 to assess the potential impact from the adjacent AOCs 633 and 634. The sediment samples are shown on Table 2-24. Figure 2-14

shows the locations of the six sediment samples. All sampling will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

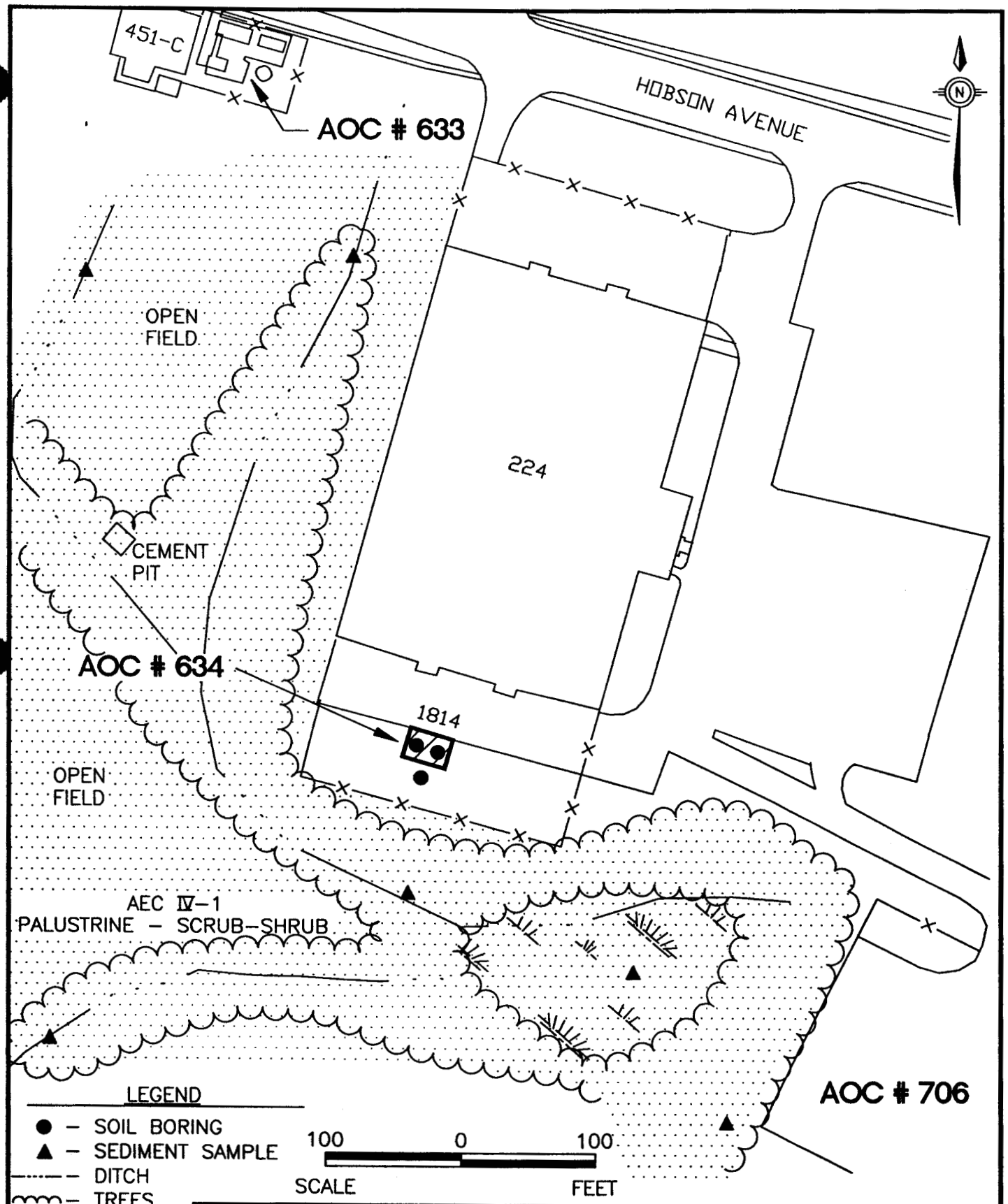
Table 2-26
AOC 634
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	3	VOCs, Metals
Soil (3-5' bgs)	3	
Sediment	None	
Groundwater		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:

- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.



ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-14
PROPOSED SAMPLING LOCATIONS
AOC #634
FLAMMABLE MATERIAL STORAGE
BUILDING 1814

DWG DATE: 06/07/96 | DWG NAME: 29CHZF08

2.14 AOC 638, Torpedo Workshop, Building 132

This site is a former torpedo workshop in Building 132. Although no spills or releases were documented at this site, given common practices during its operation period, a past release is probable (E/A&H, 1995b). The CSI proposed for AOC 638 will investigate this area for potential releases to the surrounding soil and groundwater. Table 2-27 describes this unit.

Table 2-27
AOC 638
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 638 Torpedo Workshop, Building 132	This site is a former torpedo workshop in Building 132 which was constructed in 1944 and used until 1991. A concrete-filled pit, a chimney, and two capped pipes reportedly associated with an abandoned UST are onsite. From 1991 to 1995, the Public Works Department used the building for equipment and parts storage. Currently the building is vacant and has been closed.[a]	Explosives, Propellants, Heavy Metals, Torpedo Fuels	**Soil** **Groundwater** Air Surface Water/Sediment Soil gas

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.14.1 Previous Investigations

This site has not been previously investigated.

2.14.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.14.3 Data Gaps

Currently no environmental media data have been collected at AOC 638 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data

collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.14.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity such as utility maintenance, bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 638 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-27.

2.14.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to assess whether COPCs are present. If an RFI is required, then the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil and possibly groundwater contamination as well as the rate of contaminant

migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.14.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** All soil boring samples will be screened for VOCs with a PID. Because the presence of volatile chlorinated compounds is possible, a FID will also be used. All screening results will be recorded in field notebooks and on boring logs.

2.14.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-28 summarizes the types of samples to be collected and the analytical parameters. Four soil boring locations within the boundary of the area are proposed to identify any soil contamination due to a release from AOC 638. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.

A noninvasive geophysical survey (magnetometer or EM-61) will be utilized to determine if a fuel oil UST is present at the site. If the presence of a UST is confirmed, then a shallow monitoring well will be installed to assess whether a release to groundwater has occurred. Proposed sampling locations are illustrated on Figure 2-15. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

Table 2-28
AOC 638
Sampling Plan

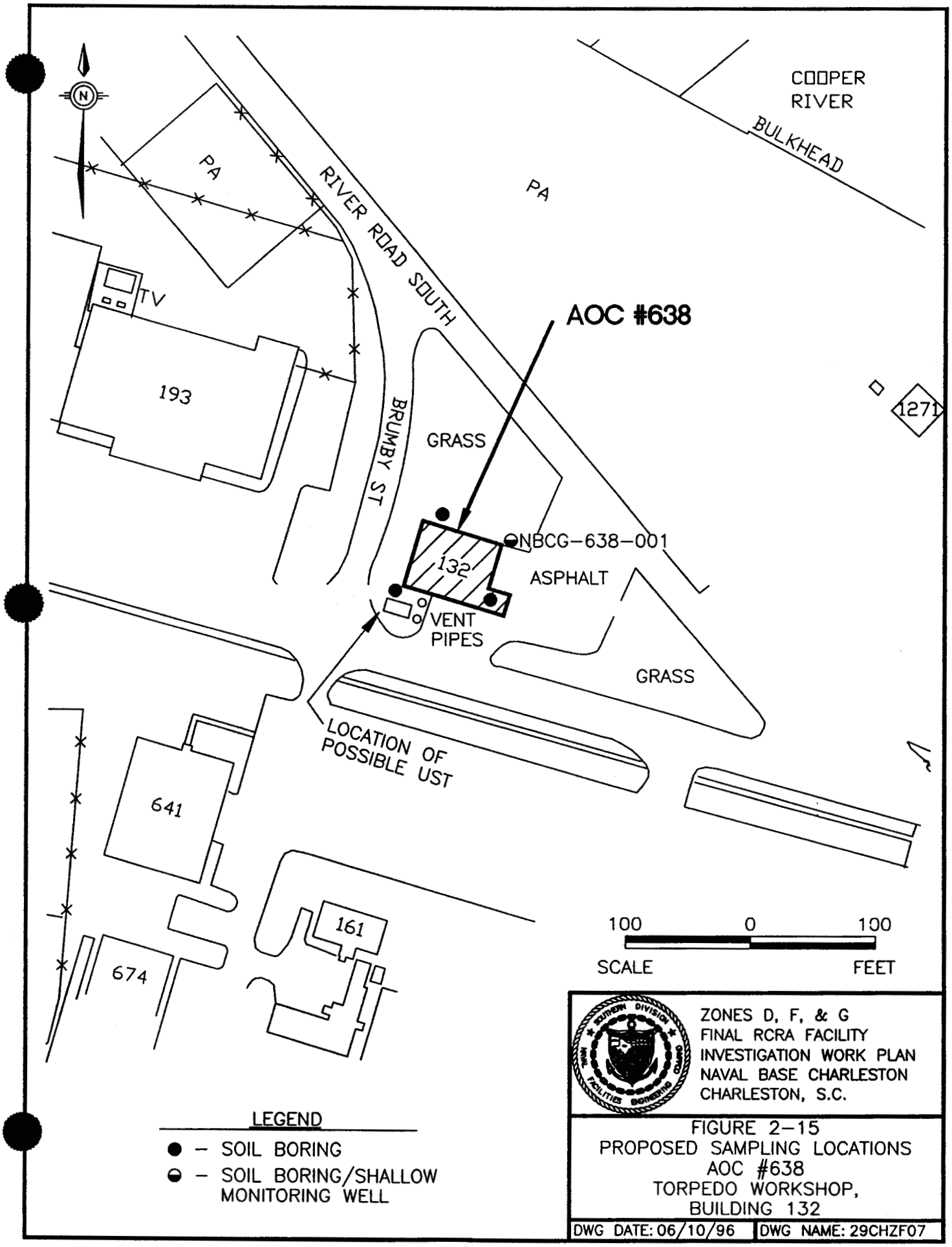
Matrix	Quantity	Analysis
Soil (0-1' bgs)	4	VOCs, SVOCs, Pesticides/PCBs, and Metals
Soil (3-5' bgs)	4	
Sediment	None	
Groundwater* (Shallow well)	1	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:

- Groundwater monitoring wells if required will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

* A Monitoring well will be installed only if a UST is present at the AOC.


COOPER RIVER
BULKHEAD
PA
PA
RIVER ROAD SOUTH
TV
193
AOC #638
1271
BRUMBY ST
GRASS
NBCG-638-001
132
ASPHALT
VENT PIPES
GRASS
LOCATION OF POSSIBLE UST
641
161
674
100 0 100
SCALE FEET
LEGEND
● - SOIL BORING
◒ - SOIL BORING/SHALLOW MONITORING WELL
ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 2-15
PROPOSED SAMPLING LOCATIONS
AOC #638
TORPEDO WORKSHOP,
BUILDING 132
DWG DATE: 06/10/96
DWG NAME: 29CHZF07

2.15 AOC 642, Former Pistol Range, Present Parking Lot

AOC 642 is a former outdoor pistol range. **Currently AOC 642 is a fenced, flat, and asphalt paved parking lot. Some weeds and grass have grown along the fence line. Lead shot is not visible on the surface.** The CSI proposed for AOC 642 will investigate this area for potential releases to the surrounding soil. Table 2-29 describes this AOC.

Table 2-29
AOC 642
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 642, Former Pistol Range Present Parking Lot	AOC 642 is a former outdoor pistol range near SWMUs 29 and 34. The pistol range operated during the 1940s. It is unknown if the lead-containing bullets and other pistol range backstop material were ever removed. Particulate deposition in the area surrounding the unit may also have occurred.[a]	Lead, Explosives	**Soil** Groundwater Sediment/Surface Water Air

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.15.1 Previous Investigations

This site has not been previously investigated.

2.15.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.15.3 Data Gaps

Currently no environmental media data have been collected at AOC 642 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data

collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.15.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Although no significant habitat was identified adjacent to AOC 642, a potential pathway was identified for transfer of contaminants offsite to surface waters of the Cooper River. Ecological receptors within this water body may be affected.** Sampling will characterize the potential soil pathway highlighted in Table 2-29.

2.15.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to assess whether COPCs are present. If an RFI is required, then the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical

extent of any soil contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.15.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** Although lead is anticipated to be the primary COPC, all soil boring samples will be screened for VOCs with a PID. All screening results will be recorded in field notebooks and boring logs.

2.15.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-30 summarizes the types of samples to be collected and the analytical parameters. Because the layout of the former pistol range is unknown, 10 soil boring locations within the boundary of the area are proposed to identify any contamination due to a release from AOC 642. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil. Proposed sampling locations are illustrated on Figure 2-16. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

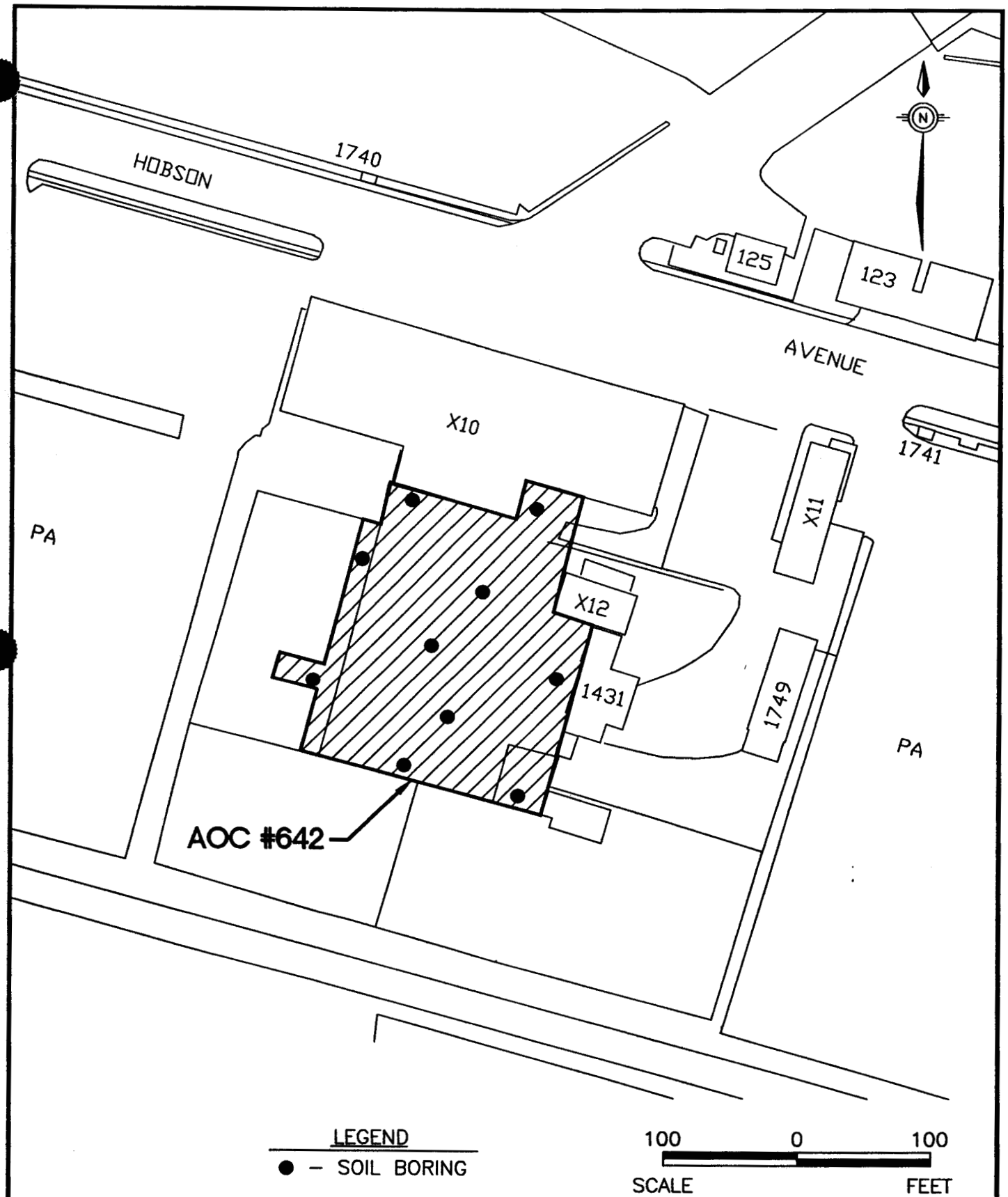
Table 2-30
AOC 642
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	10	Metals
Soil (3-5' bgs)	10	
Sediment	None	
Groundwater		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:

- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.



ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2–16
PROPOSED SAMPLING LOCATIONS
AOC #642
FORMER PISTOL RANGE,
PRESENT PARKING LOT

DWG DATE: 06/07/96 | DWG NAME: 29CHZF13

2.16 SWMU 8, Oil Sludge Pit; AOC 636, Torpedo Magazine, Building 161 Area; and AOC 637, Dump Area, Building 161 Area

SWMU 8, an RFI site, and AOCs 636 and 637, CSI sites, include the oil sludge pit area, torpedo magazine, and the dump area. Oil sludge was deposited in unlined pits at SWMU 8. AOC 636 is the torpedo magazine area adjacent to former Buildings 161 and 161 A-E. Although no spills or releases were documented, subsurface rupture or deterioration of the buried ordnance or torpedoes could result in releases which are visually undetectable (E/A&H, 1995b). AOC 637, approximately 400 feet south of Building 161, was used as a burning dump. Although no spills or releases were documented, the burning and possible burial of wastes suggests a strong possibility for contamination (E/A&H, 1995b). Table 2-31 describes these three sites.

Table 2-31
SWMU 8 and AOCs 636 and 637
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
SWMU 8 Oil Sludge Pit	At the pit area, oil sludge was disposed of in three unlined pits from 1944 to 1977. Two pits were filled before 1955. The remaining pit was filled in 1977. Previous investigations at SWMU 8 detected free-floating oil, particularly in the southwestern portion of the area overlying one of the pits. The thickness of the free-floating oil ranged from 2 to 4 inches over the unit and decreased rapidly with distance. The SWMU 8 area is currently used for parking.[a]	Oil Sludges	**Soil** **Groundwater** Air Soil Gas Surface Water/Sediment
AOC 636 Torpedo Magazine Building 161 Area	AOC 636 is the torpedo magazine area adjacent to Buildings 161 and 161 A-E. Subsurface disposal of waste torpedoes and munitions occurred at the unit prior to 1944 when the area was primarily marshlands. Dredged materials have since been used to reclaim the region. No visible evidence remains of the burial site. Currently the site is primarily paved parking and storage with a few scattered buildings. Flooding occurs during heavy rain due to the lack of storm drains.[b]	Explosives, Propellants	**Soil** **Groundwater** Air Soil Gas Surface Water/Sediment

Table 2-31
SWMU 8 and AOCs 636 and 637
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
AOC 637 Dump Area Building 161 Area	AOC 637, approximately 400 feet south of Building 161, was used as a burning dump from the late 1940s to the early 1950s. Operations at the unit were discontinued in the early 1950s. No visible evidence of the burning area remains. Dredged materials have been used as fill in this area, and much of the area is now asphalt paved.[b]	Solid and Hazardous Waste, Wood, Paper, Paint, Solvents, General Refuse	**Soil** **Groundwater** Soil Gas Air

Notes:
a = Described in the *Interim RCRA Facility Assessment*, August 1987.
b = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
c = Pathways scheduled for sampling are bold.

2.16.1 Previous Investigations

AOCs 636 and 637 have not been previously investigated. SWMU 8 has been previously investigated.

During the Confirmation Study conducted at SWMU 8 in 1982; two soil investigations were conducted. During Phase I, shallow borings were installed in the reported vicinity of the abandoned oil-sludge pits. The field investigation was expanded during Phase II after oil was discovered in a section of a newly dug ditch.

Monitoring wells were also installed in 1982 to assess the extent of oil in the subsurface. A substantial quantity of free phase oil was observed floating on the water table. Water samples were collected from two of the wells installed in the area, wells OPW-1 and OPW-3. Well OPW-2 was not sampled due to the presence of free phase oil. Samples were analyzed for sulfate content, 14 volatile organic compounds, and PCBs. Wells OPW-1 and OPW-3 contained less than 1 and 780 mg/l of sulfate and 0.84 and 0.17 mg/l of methylene chloride, respectively.

PCBs were not detected in the water sampled from OPW-3. However, the well OPW-1 sample contained 0.04 μg/l of PCB (Aroclor 1260) (Ebasco, 1987).

Within the area of the abandoned oil-sludge pits, 87 shallow borings were drilled to determine the areal extent of oil in the ground. Six borings were also drilled along the Cooper River to determine if oil seeping from these pits had moved toward the river. Because oil floats on top of the water table, the borings were drilled to the top of the water table which occurs in the area at an average depth of approximately 4 feet.

From the results of the boring program, it was determined that a long, narrow plume of free oil exists in the southwestern portion of the oil-sludge area. This area is approximately 50 feet wide by 600 feet long and trends in a northeast-southwest direction. Measurements taken in borings and in well OPW-2 indicate that the oil ranges in thickness from about 2 to 4 inches. East of the free floating oil plume is a small area containing oily residues. The remaining portions of the oil-sludge area were found to be free of oil. Morphology of this plume reflects the shape of the underlying abandoned pit. The low hydraulic gradient, the low permeability of the surrounding soils, and the high viscosity of the oil within the soils may have limited the potential for oil migration.

Although numerous samples were collected during the previous investigation, delineation of the oil contamination in soil and groundwater was not complete. In 1993, EnSafe installed an additional 31 soil borings and six monitoring wells. Both the groundwater and soil samples were analyzed for volatile organics, semivolatile organics, pesticides, PCBs and TAL inorganics. The results of the soil sample analysis revealed some elevated concentrations of some inorganics, various pesticides and their degradation products, PCBs, a few volatile organic and numerous semivolatile compounds. The complete analytical results from EnSafe's 1993 sampling are contained in Appendix D.

Of the inorganics and metals detected, the concentrations of chromium, lead, mercury, nickel, vanadium, antimony, and barium were the most significant. These analytes are common in waste oil sludge. A few volatile organic compounds, acetone, chlorobenzene, xylene, ethylbenzene, 1,1,1-trichloroethane and 1,1,2-trichloroethane were also detected in the soil samples. The highest concentrations were generally detected in borings located adjacent to the oil sludge pits. The semivolatile compounds most commonly detected included phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(h)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and benzo(g,h,i)perylene. These compounds are indicative of waste oil contamination. With the exception of the heptachlor epoxide, dieldrin and alpha-chlordane detected at elevated concentrations in only one sample, all other pesticide concentrations were generally low. Aroclor-1260 was the only PCB compound detected. It was only detected in two samples.

The results of the groundwater sample analysis indicated that the shallow groundwater had not been severely impacted by the soil contamination. No volatile, semivolatile, pesticide or PCB compounds were detected. Inorganic concentrations were generally representative of ambient groundwater conditions.

2.16.2 Treatment Alternatives

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for the sites likely to require remedial action. Data collection efforts will support evaluating these alternatives. Tables B-1 and B-2 (Appendix B) list the treatment alternatives for groundwater and soil/sediment, respectively. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify feasible treatment alternatives.

2.16.3 Data Gaps

Additional soil and groundwater samples will be collected from SWMU 8 to confirm previous results and to determine if releases have occurred from AOCs 636 and 637.

The data that already exist for SWMU 8 indicate that although groundwater does not appear to have been impacted, soil has been severely impacted and free phase oil still exists at this site. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are insufficient data to fully delineate the extent of contamination at SWMU 8 and sampling is necessary to identify the COPCs at AOC 636 and 637.

- There are insufficient data to support a detailed evaluation of treatment alternatives for all three sites. The primary sampling events conducted onsite revealed soil contamination at SWMU 8.

2.16.4 Potential Receptors

Potential receptors of exposure to contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the RFI to assess the level of risk to the entire spectrum of current and potential users, including any highly sensitive individuals within the population, who might be exposed through invasive or noninvasive activities at SWMU 8 and AOCs 636 and/or 637. Potential receptors would likely be workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater in this area. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Although no significant habitat was identified adjacent to SWMU 8, a potential pathway was identified for transfer of**

contaminants offsite to surface waters of Shipyard Creek. Ecological receptors within this water body may be affected. Sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-31.

2.16.5 Objective

The objective of the proposed field investigation is to confirm previous soil and groundwater results and collect data to support a possible CMS at SWMU 8. AT AOCs 636 and 637, the investigation objective is to determine whether contamination is present in environmental media. If present, then the investigation will delineate the horizontal and vertical extent of the soil and groundwater contamination at AOCs 636 and 637. While soil gas, surface water, sediment, and air are potential contaminant pathways, initial sampling of these matrices is not required to assess whether contaminants are present. For AOCs 636 and 637, if soil and/or groundwater contamination is identified, then the site will be designated for a complete RFI to delineate the nature and extent of contamination. For SWMU 8, the nature and extent of contamination will be confirmed during this effort. Data collection efforts will support technical evaluation of identified treatment alternatives.

2.16.6 Screening Alternatives

Because of the extensive sampling performed previously at SWMU 8, screening is not required. No sampling has been conducted to determine COPCs at AOC 636 and 637; therefore, selecting a screening alternative for these sites would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** All soil boring samples will be screened for VOCs with a PID. All screening results will be recorded in field notebooks and boring logs.

2.16.7 Sampling and Analysis Plan

To fulfill the CSI and RFI objectives, site-specific sampling and analysis requirements have been proposed for SWMU 8 and AOCs 636 and 637. Table 2-32 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundaries of the sites have been outlined based upon a review of historical drawings, maps, and NAVBASE records. The boundaries may be modified based on the sample results.

Table 2-32
SWMU 8, AOC 636 and AOC 637
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	17	VOCs, SVOCs, Pesticides/PCBs, Metals, high explosives, and propellants[a].
Soil (3-5' bgs)	17	
Sediment	None	
Groundwater (Shallow well)	8	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
a = **The soil collected from the nine locations associated with AOC 636 will also be analyzed for propellants and high explosives.**
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

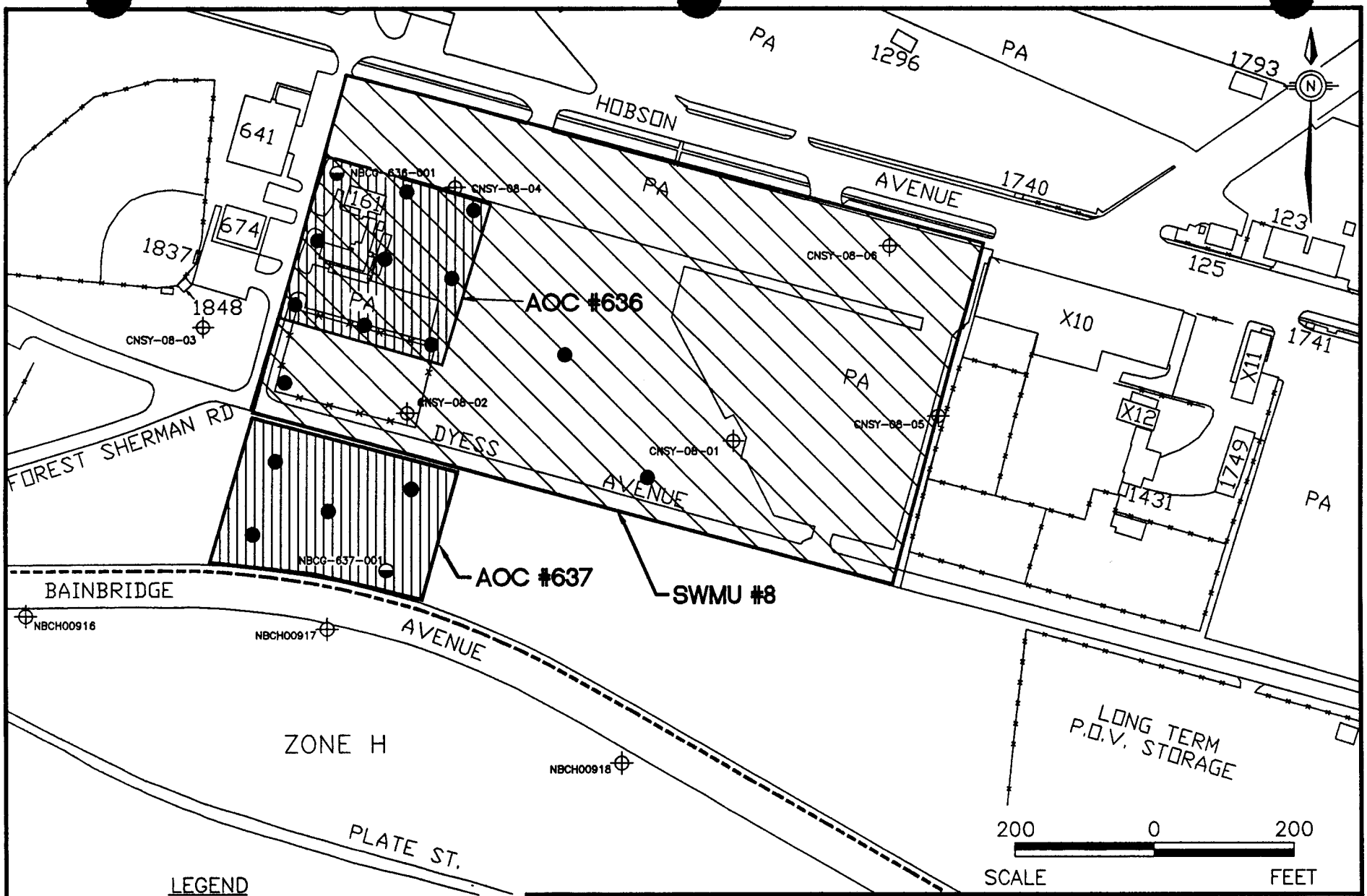
For SWMU 8, three soil borings are proposed across the area. This number represents roughly ten percent of the previous sample locations. These three samples will be collected from areas which previously exhibited elevated detections. The six existing shallow monitoring wells will be redeveloped and sampled to confirm previous groundwater analytical results at SWMU 8. Data from all borings and groundwater wells will be used to determine the impact by identified past facilities and operations throughout the study area.

For AOC 636, nine soil borings and one additional shallow monitoring well are proposed to determine if activities from this site have impacted environmental media. Before sampling is initiated, the area will be screened for buried ordnance using geophysics (EM-61). If anomalies are detected that could represent buried ordnance, the site will need to be cleared by the Navy prior to any sampling activities.

Five soil borings and one shallow monitoring well are proposed to detect the presence of any contamination due to a release from AOC 637.

In addition to the six existing wells and two new wells that will be installed and sampled, the analytical data from three monitoring wells associated with the investigation of SWMU 9 in Zone H (NBCH009016, NBCH009017, NBCH009018) will also be used to determine the sites impact on shallow and deep groundwater.

Samples will be collected at two depths for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower interval will be adjusted to avoid sampling the saturated soil. Proposed sampling locations are illustrated on Figure 2-17. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan.*



LEGEND

- ● – SOIL BORING
- ◒ – SOIL BORING/SHALLOW MONITORING WELL
- ⊕ – EXISTING WELL
- ------ – ZONE BOUNDARY

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-17
PROPOSED SAMPLING LOCATIONS
SWMU #8 OIL SLUDGE PIT
SWMU #637 DUMP AREA
AOC #636 TORPEDO MAGAZINE
BUILDING 161 AREA

DWG DATE: 06/10/96 | DWG NAME: 29CHZF21

2.17 SWMU 11, Caustic Pond

The former caustic pond, located near the junction of Bainbridge Avenue and Viaduct Road, was used for the disposal of calcium hydroxide $Ca(OH)_2$. The site and adjoining areas are currently covered with vegetation and pavement. The site visit identified no visible signs of impairment in the area. A RFI is proposed for this SWMU. The site area was changed based on old maps of the former Building 131 area and interviews with a former NAVBASE Public Works employee who was knowledgeable of the operations (Droze, 1995). Table 2-33 describes this SWMU.

2.17.1 Previous Investigations

Soil borings conducted during the initial assessment studies found sludge depths of 1 foot. Water infiltrating into the surficial groundwater through $Ca(OH)_2$ should have a high pH. However, groundwater samples collected from the monitoring wells around the site, exhibited neutral pH (Ebasco, 1987).

Four monitoring wells were installed in the area of the caustic pond during the Confirmation Study conducted at the CNSY in 1982. Water samples were collected from the four monitoring wells to assess the impact of the disposal of calcium hydroxide on the shallow groundwater environment. The samples collected were analyzed in the field for pH and specific conductance and, in a water quality laboratory, for calcium, chloride, and sulfate content. The results indicate that the groundwater pH varies from slightly acidic to slightly basic, ranging from 6.3 to 7.3. The calcium and chloride contents and specific conductance are somewhat elevated, ranging, respectively, from 101 to 490 milligrams per liter (mg/L), from 423 to 823 mg/L, and from 1,970 to 7,400 micro-ohms per centimeter. The relatively neutral pH values suggest that the normally high pH of the caustic water infiltrating from the pond has been lowered due to the naturally occurring acidic soils at the site (Ebasco, 1987).

Table 2-33
SWMU 11
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
SWMU 11 Caustic Pond	The caustic pond was used for the disposal of calcium hydroxide $Ca(OH)_2$ from the early 1940s through the early 1970s. $Ca(OH)_2$ was generated as a by-product during production of acetylene gas. Unknown quantities of water saturated with $Ca(OH)_2$ were discharged and settled in the pond while supernatant was discharged to Shipyard Creek. Soil borings taken during initial assessment found sludge depths of up to 1 foot. The groundwater data indicated that no $Ca(OH)_2$ remains.[a]	Calcium Hydroxide	**Soil** **Groundwater** **Sediment/Surface water**

Notes:
a = Described in the *Interim RCRA Facility Assessment*, August 1987.
b = Pathways scheduled for sampling are bold.

Calcium hydroxide is not naturally occurring and cannot persist for extended periods when released to the environment. It reacts with carbon dioxide which diffuses from the air or is carried by infiltrating rainwater to form calcium carbonate (limestone). The groundwater data indicate that mineralization has occurred and that no calcium hydroxide remains.

Calcium hydroxide contains no hazardous constituents but is hazardous by definition (Title 40 Code of Federal Regulations (CFR) part 261.22[a][1]) only when it is in solution and causes the pH to be greater than 12.5 standard units. This rarely occurs outside of laboratory conditions but is possible with saturated solutions of relatively pure $Ca(OH)_2$ at temperatures below 23.6°C.

2.17.2 Treatment Alternatives

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for the sites likely to require remedial action. Data collection efforts will support evaluating these alternatives. Tables B-1 and B-2 (Appendix B) list the treatment alternatives for groundwater and soil/sediment, respectively.

Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify feasible treatment alternatives.

2.17.3 Data Gaps

Additional soil, groundwater, and sediment samples will be collected to confirm that no contamination exceeding PRGs exists at SWMU 11.

The existing data for SWMU 11 indicates that although the sludge is still present beneath the site, groundwater quality has not been affected. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are insufficient data to fully delineate the extent of contamination from the SWMU.
- There are insufficient data to support the ERA of the wetlands directly south of the SWMU.
- Data are insufficient to support a detailed evaluation of treatment alternatives, if required.

2.17.4 Potential Receptors

Potential receptors of exposure to contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the RFI to assess the level of risk to the entire spectrum of current and potential users, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities at SWMU 11. Potential receptors would likely be workers involved with any invasive activity, such as utility maintenance, bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater in this

area. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. Confirmatory sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-33.

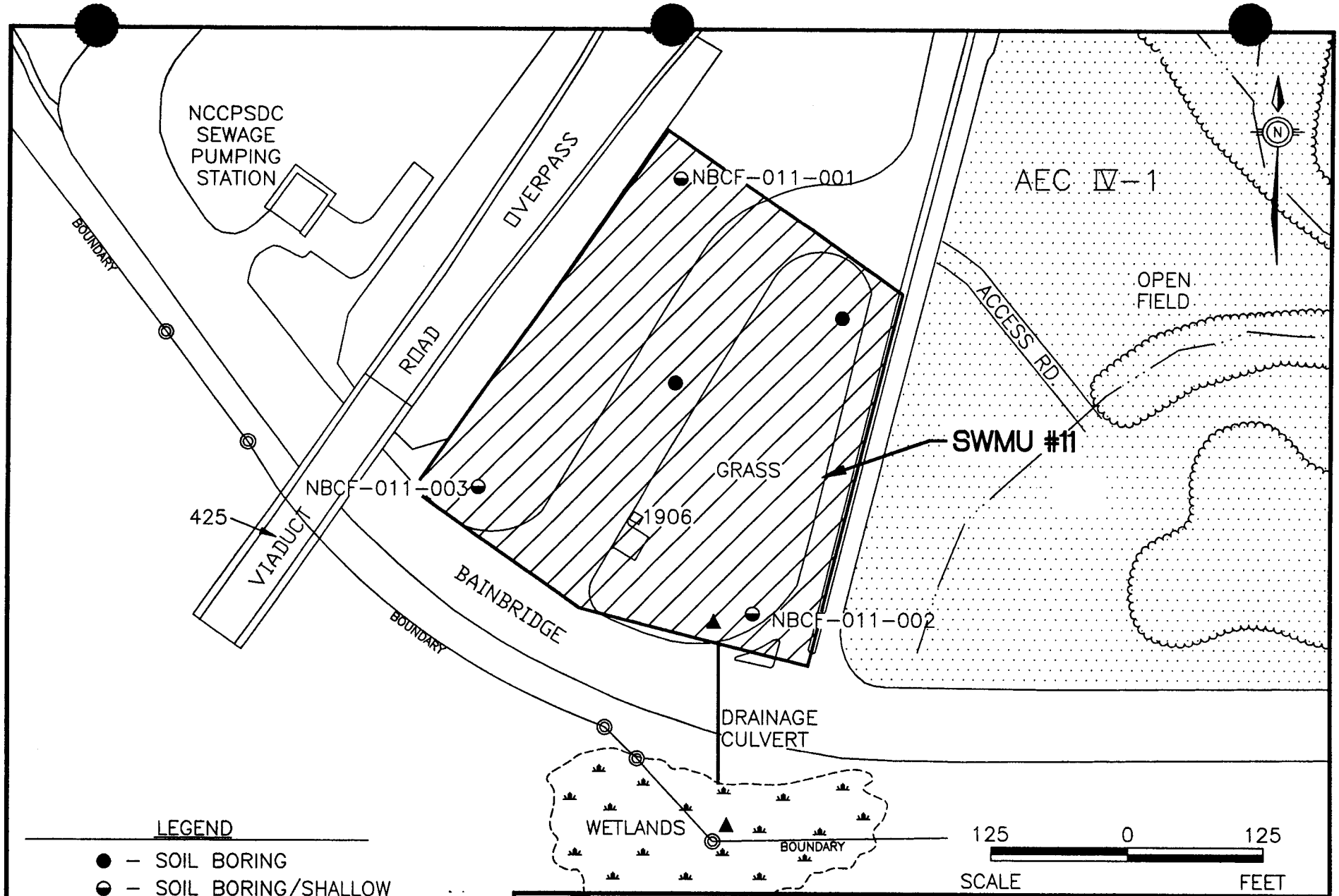
The wetland area directly southwest of SWMU 11 receives surface water runoff and sediment directly from the site via a drainage culvert (Figure 2-18). The results of the sampling in this area will be used to assess ecological risk to this sensitive natural resource. The ERA will be performed in accordance with Volume III of the *Final Comprehensive RFI Work Plan*.

2.17.5 Objective

For SWMU 11, the objectives of the proposed field investigation are to confirm the results of earlier sampling efforts for both soil and groundwater and also to assess if the site may be impacting the wetland to the south of the site. The objective is also to fill the identified data gaps by delineating the horizontal and vertical extent of the soil and groundwater contamination at SWMU 11. Data collection efforts will support technical evaluation of identified treatment alternatives, if required.

2.17.6 Screening Alternatives

A DPT screening effort is proposed to define the areal extent and thickness of the residual sludge and also to assess pH of the unsaturated and saturated soil at SWMU 11. A 100-foot sampling grid is proposed, with additional samples near the perimeter of the site as needed, to achieve the screening objectives. The stratigraphy encountered in each push hole will be logged to identify the thickness or absence of the sludge material. Soil samples will be collected from two intervals below the sludge at each location and field screened for abnormal pH. If possible these samples will be collected from both saturated and unsaturated soil.



ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
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FIGURE 2-18
PROPOSED SAMPLING LOCATIONS
SWMU #11
CAUSTIC POND

DWG DATE: 06/10/96 | DWG NAME: 29CHZF14

2.17.7 Sampling Analysis Plan

To fulfill the objectives of the RFI, site-specific sampling and analysis requirements have been proposed. Five soil borings are proposed to confirm the screening results. Soil samples will be collected at two depth intervals for each of the five soil borings, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be noted as a saturated sample. The sample locations will be selected to confirm screening results and also to delineate the horizontal and vertical extent of pH contamination and calcium carbonate residue not defined in the 1982 Confirmation Study. The locations shown on Figure 2-18 are tentative, actual locations will be determined by the DPT screening results.

Groundwater will be addressed by installing and sampling three shallow monitoring wells in the vicinity of the SWMU. The monitoring wells installed during the previous Confirmation Study could not be located during the site visit and are assumed to have been destroyed. Analytical data from the three newly installed wells will be reviewed to determine whether additional wells are needed to define the extent of groundwater contamination.

Two sediment samples will be collected to determine if contaminants from the caustic pond have migrated off site via surface water transport to the wetland area across Bainbridge Road to the south. Results of this sampling effort will be used to support the ecological risk assessment of the tidal wetland area.

The proposed sampling locations are shown on Figure 2-18. Table 2-34 summarizes the types of samples to be collected at SWMU 11 and the proposed analytical parameters. All sampling procedures will be performed in accordance with the NAVBASE *Final Comprehensive RFI Work Plan*.

Table 2-34
SWMU 11
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	5	Metals, pH
Soil (3-5' bgs)	5	
Sediment	2	
Groundwater		
(Shallow well)	3	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

2.18 SWMU 120, Pier M Laydown

This site consists of the laydown area associated with Pier M and includes the former Building AS-40-1 paint booth. A RFI is proposed for SWMU 120. Table 2-35 describes this SWMU.

Table 2-35
SWMU 120
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
SWMU 120 Pier M Laydown	The site consists of the laydown area associated with Pier M and includes the former Building AS-40-1 paint booth. The unit has an outdoor fenced area that stored palletized lead bricks and shielding. Radiologically contaminated tarps may have been placed in the laydown area in the past. Severe paint, grease, and solvent staining was noted outside Building AS-40-1. Building AS-40-1 later stored nonhazardous items.[a]	Lead Bricks, Lead Shielding, Paint Wastes, Greases, Paint Thinner Wastes	**Soil** Soil Gas **Groundwater** Air **Sediment**

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume I*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.18.1 Previous Investigations

This site has not been investigated previously.

2.18.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for each of the sites likely to require some type of remedial action. Data will be collected to support evaluation of these alternatives. Table B-1 (Appendix B) lists treatment alternatives for groundwater; Table B-2 lists treatment alternatives for soil. Alternatives presented here are for preliminary evaluation only. If contaminants are

present at concentrations requiring remediation, a CMS will be undertaken to identify the most feasible treatment alternatives.

2.18.3 Data Gaps

Currently no environmental media data have been collected at SWMU 120 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.18.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity, such as utility maintenance, bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater in this area. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Although no significant habitat was identified adjacent to SWMU 120, a potential pathway was identified for transfer of contaminants offsite to surface waters of the Cooper River. Ecological receptors within this**

water body may be affected. Sampling will characterize the potential soil, groundwater, and sediment pathways highlighted in Table 2-35.

2.18.5 Objective

The objective of the RFI is to use DQO Level III or IV data to assess whether contamination is present in environmental media. If present, the investigation will delineate the horizontal and vertical extent of any soil and/or groundwater contamination. Sediment samples will also be collected to assess whether contaminated runoff from the site has entered the storm sewer system. Data collection efforts will support technical evaluation of identified treatment alternatives.

2.18.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** Because volatile chlorinated compounds are suspected, a FID will be used to screen all soil boring samples for VOCs. All screening results will be recorded in field notebooks and boring logs.

2.18.7 Sampling and Analysis Plan

To fulfill the objectives of the RFI, the following site-specific sampling and analysis requirements have been proposed. Table 2-36 summarizes the types of samples to be collected and the analytical parameters. For the purpose of sample location, the boundaries of SWMU 120 have been identified based on a review of historical drawings and maps and also

on interviews with NAVBASE Public Works personnel who are familiar with the site (Droze, 1995).

Six soil boring locations in the vicinity of the SWMU are proposed to detect the presence of any contamination due to a release from SWMU 120. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling saturated soil.

Table 2-36
SWMU 120
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	6	VOCs, SVOCs, Pesticides/PCBs, and Metals
Soil (3-5' bgs)	6	
Sediment	2	
Groundwater		
(Shallow well)	3	
(Deep well)	None	

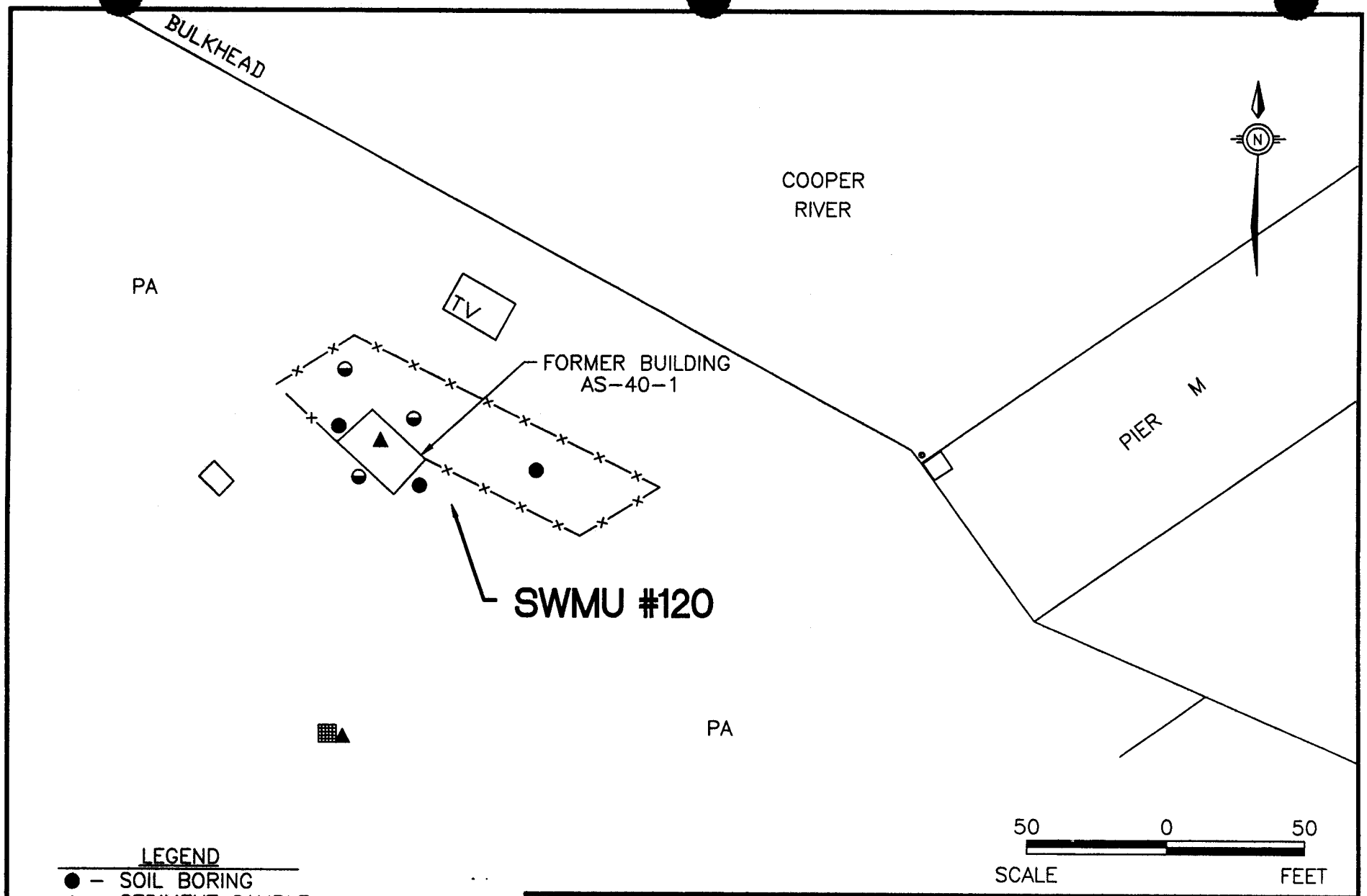
Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

Groundwater will be addressed by installing and sampling three shallow monitoring wells. Data from the three wells will be reviewed to assess whether COPCs are present in the groundwater and also to determine whether additional wells are needed to define the extent of groundwater contamination.

Two sediment samples are proposed for this RFI. One of the samples, proposed for the storm sewer drain, is situated to determine if runoff from the site has been introduced to the storm water sewer system. The other sediment sample will be collected from a sump-oil/water separator in the floor of the former Building AS-40-1.

The proposed sample locations are presented on Figure 2-19. All sampling activities will be performed in accordance with the NAVBASE *Final Comprehensive RFI Work Plan*.



LEGEND

- ● – SOIL BORING
- ▲ – SEDIMENT SAMPLE
- ▦ – STORM DRAIN
- ◒ – SOIL BORING/SHALLOW MONITORING WELL

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
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FIGURE 2-19
PROPOSED SAMPLING LOCATIONS
SWMU #120
PIER M LAYDOWN

DWG DATE: 06/06/96 | DWG NAME: 29CHZF30

2.19 AOC 643, Substation, Building 125

AOC 643 consists of the electric substation, Building 125. The CSI proposed for AOC 643 will investigate these areas for potential releases to the surrounding soil and sediment. Table 2-37 describes this AOC.

Table 2-37
AOC 643
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 643 Substation, Building 125	AOC 643 consists of the electric substation Building 125. Adjacent to Building 125 was a wooden enclosure on a concrete slab containing transformers, inactive DC generators, switches, and breakers. Past sampling has documented PCB containing transformers were stored at the site in the past. Records indicate that a dielectric fluid spill occurred and was cleaned up. Stains have been noted on the concrete pavement.[a]	Dielectric Fluid, PCBs	**Soil** **Sediment** Groundwater Surface Water

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.19.1 Previous Investigations

This site has not been previously investigated.

2.19.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.19.3 Data Gaps

Currently no environmental media data have been collected at AOC 643 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.19.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity such as utility maintenance bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume II of the *Final Comprehensive RFI Work Plan*. **Although no significant habitat was identified adjacent to AOC 643, a potential pathway was identified for transfer of contaminants offsite to surface waters of Cooper River. Ecological receptors within this waterbody may be affected.** Sampling will characterize the potential soil and sediment pathways highlighted in Table 2-37.

2.19.5 Objective

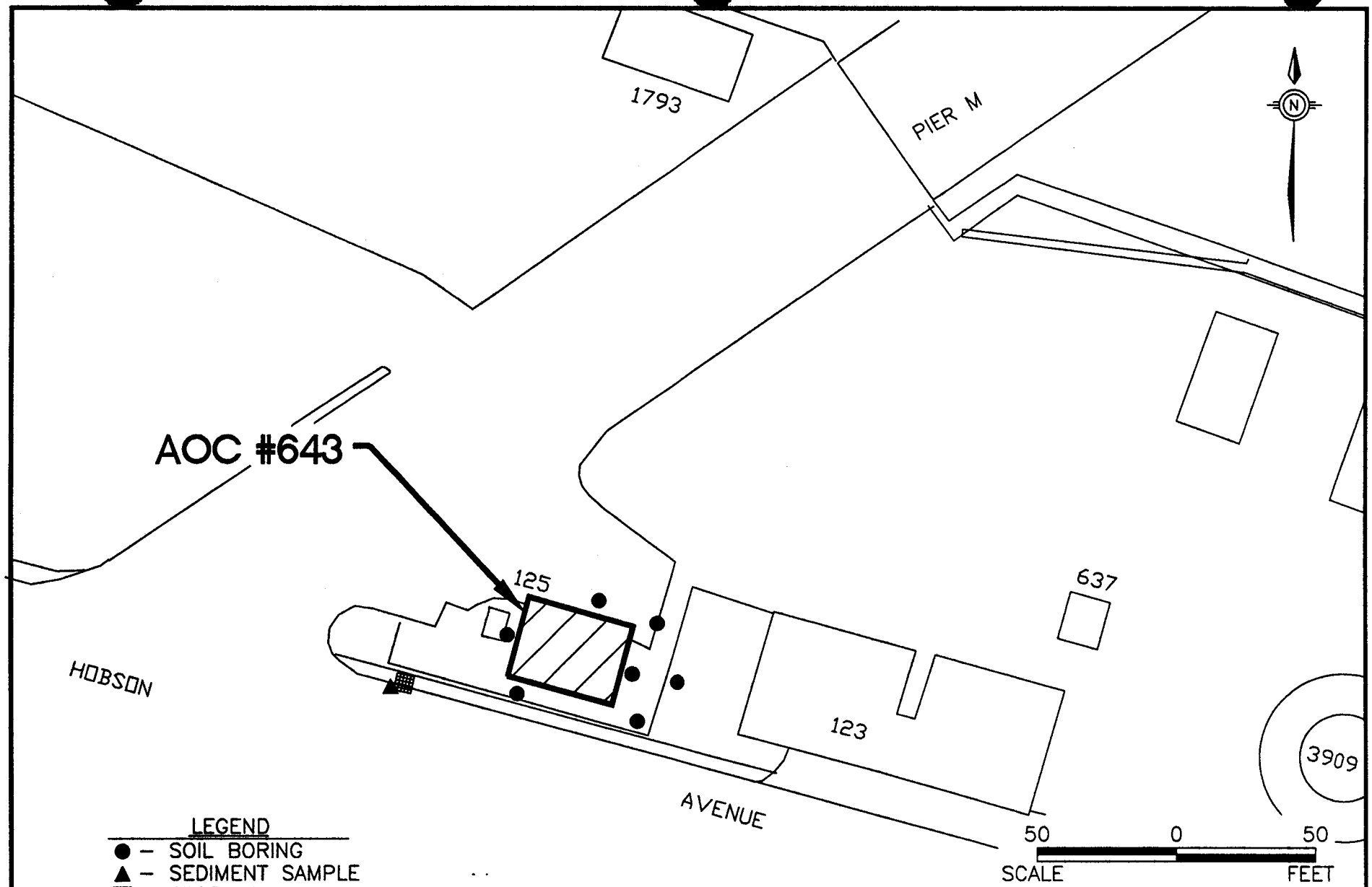
The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to assess whether COPCs are present. If an RFI is required, then the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil and/or sediment contamination as well as the rate of contaminant migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

2.19.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** Because volatile chlorinated compounds are suspected, a FID will be used to screen soil boring samples for VOCs. All screening results will be recorded in field notebooks and boring logs.

2.19.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-38 summarizes the types of samples to be collected and the analytical parameters. Seven soil boring locations within the boundary of the site are proposed to identify the presence of any soil contamination due to a release from AOC 643. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil. One sediment sample will be collected from the nearby storm drain on Hobson Avenue to determine if contaminants from AOC 643 may have entered the storm water sewer system via a surface water runoff pathway. The proposed sampling locations are illustrated on Figure 2-20. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.



ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2–20
PROPOSED SAMPLING LOCATIONS
AOC #643
SUBSTATION,
BUILDING 125

DWG DATE: 06/06/96 | DWG NAME: 29CHZF31

Table 2-38
AOC 643
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	7	VOCs, SVOCs, Pesticides, and PCBs
Soil (3-5' bgs)	7	
Sediment	1	
Groundwater		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

2.20 SWMU 3, Pesticide Mixing Area

SWMU 3, an RFI site is a former pesticide mixing area. The pesticide mixing area site consists of a concrete slab approximately 50 feet by 25 feet that was located southwest of and adjacent to the dike which surrounds Tank 39-D of the waste oil reclamation facility. Table 2-39 describes the SWMU.

Table 2-39
SWMU 3
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
SWMU 3, Pesticide Mixing Area	SWMU 3 is a former pesticide mixing area. Prior to 1971, pesticides were mixed in a small shed (Building 42-A). Equipment used for spraying and mixing pesticides was reportably rinsed on the ground outside. Rinsate was allowed to infiltrate the soil. Part of the area (approximately 20 square yards) surrounding the slab was devoid of vegetation when the Confirmation Study was conducted in 1982. This slab has since been removed and Building 249 constructed on top of part of the area of concern. The area which was once void of vegetation is now covered with grass and adjacent to the northwest wall of Building 249.[a]	Pesticides	**Soil** **Groundwater** Sediment/Surface Water

Notes:
a = Described in the *Interim RCRA Facility Assessment*, August, 1987.
b = Pathways scheduled for sampling are bold.

2.20.1 Previous Investigations

During the 1982 Confirmation Study, soil and water quality analyses were performed at the Pesticide Mixing Area. Eight samples collected from four boring locations were analyzed for arsenic, herbicides, pesticides, and PCBs. Low concentrations of various pesticides (and associated degradation products) which were documented to have been handled at the site in the past were detected. The results of these analyses are presented in Appendix E. Odd numbered samples were collected at a depth of 6 inches, and even numbered samples were collected at a depth of 2 feet.

Concentrations of arsenic in the soil ranged from 1.1 micrograms per gram (μg/g) in PA-4 to a high of 6.3 μg/g in PA-1, and analyses for herbicides 2,4-D and 2,4,5-TP indicated that the concentrations of these constituents in the soil were below the detection limit.

The eight soil samples exhibited concentrations of six pesticides. Three of the six pesticides are interrelated in that DDD and DDE are metabolites of DDT and are formed during the biodegradation of DDT. The fact that these were found in all eight samples is significant since DDT has not been in general use for about 15 years; therefore, they represent compounds that may have been present in the soil for a long time. Three other pesticides were also detected, including heptachlor, beta BHC, and delta BHC.

Water samples were collected from two monitoring wells to determine whether past pesticide mixing and equipment rinsing practices had impacted the shallow groundwater. The samples were analyzed for pesticides, herbicides, PCBs, and arsenic. The laboratory results, which are also presented in Appendix E, show that the concentrations of all of the above parameters were below method detection limits and that the pH of the groundwater is approximately 6.0. The sample location figure and a summary of the analytical results are contained in Appendix E.

2.20.2 Treatment Alternatives

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for the sites likely to require remedial action. Data collection efforts will support evaluating these alternatives. Tables B-1 and B-2 (Appendix B) list the treatment alternatives for groundwater and soil/sediment, respectively. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify feasible treatment alternatives.

2.20.3 Data Gaps

The data that already exist for SWMU 3 indicate that soil has been impacted by past activities at the site. Groundwater quality however, appears not to have been affected. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- Data are insufficient to fully delineate the extent of contamination.

- Data are insufficient to support a detailed evaluation of treatment alternatives, if required. The primary sampling event conducted onsite identified pesticide-contaminated soil. Further sampling is necessary to verify the maximum pesticide concentrations in the impacted soil and also to confirm the groundwater quality.

2.20.4 Potential Receptors

Potential receptors of exposure to contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the RFI to assess the level of risk to the entire spectrum of current and potential users, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities at SWMU 3. Potential receptors would likely be workers involved with any invasive activity, such as utility maintenance bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 5 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater in this area. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to SWMU 3 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Confirmatory sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-39.

2.20.5 Objective

The objectives of the proposed field investigation are to confirm the results of earlier sampling efforts for both soil and groundwater and also to fill the identified data gaps by delineating the horizontal and vertical extent of the soil and groundwater contamination. The area has been sampled extensively as discussed in Section 2.20.1, and this effort will be used to further delin[illegible] the extent of contamination. Data collection efforts will support technical evaluation of identified treatment alternatives, if required.

2.20.6 Screening Alternatives

No screening alternatives are planned because this effort is chiefly designed to confirm and further delineate the extent of contamination throughout the limited area of SWMU 3. All soil boring samples will be screened for VOCs with a PID. All screening results will be recorded in field notebooks and on boring logs.

2.20.7 Sampling and Analysis Plan

To fulfill the RFI objectives, site-specific sampling and analysis requirements have been proposed. Ten soil borings are proposed for additional delineation of SWMU 3. Samples will be collected at two depth intervals for each of the ten soil borings, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil. These locations were selected to confirm previous results and also to delineate the horizontal and vertical extent of contamination not defined in the 1982 study.

Groundwater will be addressed by installing and sampling three shallow monitoring wells in the vicinity of this site. The monitoring wells installed during the previous Confirmation Study could not be located during the site visit and are assumed to have been destroyed. Data from all three monitoring wells will be reviewed to assess whether additional wells are needed to define the extent of groundwater contamination.

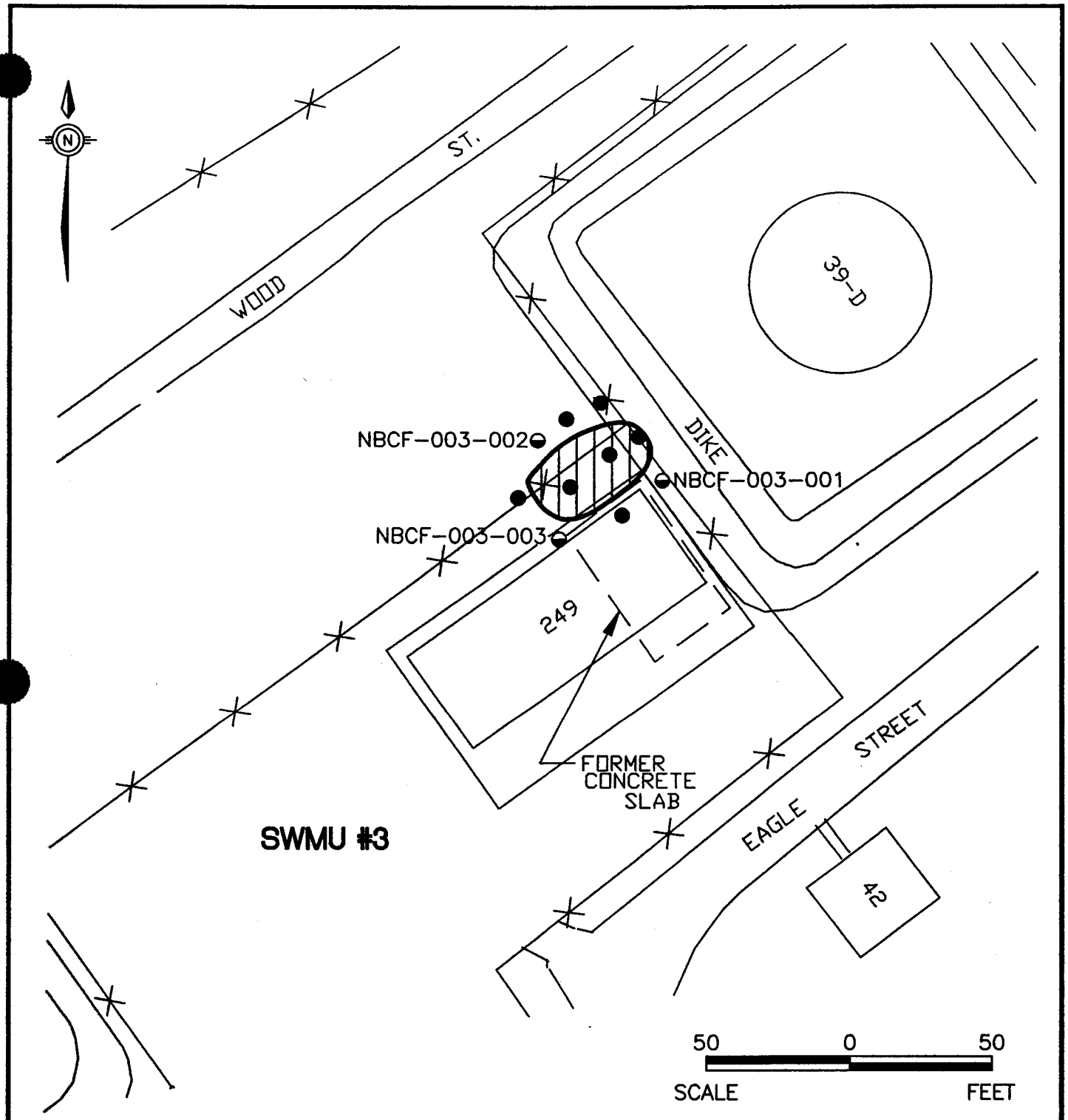
Proposed sampling locations are illustrated on Figure 2-21. Table 2-40 summarizes the types of samples to be collected at SWMU 3 and the analytical parameters. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

Table 2-40
SWMU 3
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	10	Pesticides, Metals
Soil (3-5' bgs)	10	
Sediment	None	
Groundwater		
(Shallow well)	3	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.



LEGEND

● – SOIL BORING

◒ – SOIL BORING/SHALLOW MONITORING WELL

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 2-21
PROPOSED SAMPLING LOCATIONS
SWMU #3
PESTICIDE MIXING AREA

DWG DATE: 06/10/96 | DWG NAME: 29CHZF19

2.21 SWMU 6, Public Works Storage Yard; SWMU 7, PCB Transformer Storage Yard; and AOC 635, Paint and Oil Storehouse, Building 3902

SWMU 6, the public works storage yard, is a fenced open area where routinely generated, containerized wastes were stored prior to shipment offsite. A RFI has been proposed for SWMU 6.

SWMU 7 consists of Building 3902 located in the Public Works Storage Yard, the adjacent concrete slab outside the building, and surrounding areas that were used for storage of transformers and associated electrical equipment, between 1970 and 1976. A RFI has been proposed for SWMU 7.

AOC 635 consists of Building 3902, a paint and oil storehouse. The area is a fenced compound known as *the old corral*. A RFI has been proposed for AOC 635. Table 2-41 describes these sites.

2.21.1 Previous Investigations

AOC 635 has not been previously investigated.

SWMU 6 was partially closed in 1986 when a renovation and expansion of the cold storage warehouse was expanded into the eastern boundary of the Public Works Storage Yard. A soil sampling program was completed in March 1986 as part of the requirements for the closure of this unit. Because of the wide variety of hazardous wastes stored within the compound during interim status, screening analyses of all soil samples was needed to identify any contaminants and to define the extent of soil contamination. The soil sampling program is described in the NSY Closure of Interim Status HW Facilities dated August 1988. Results of the analyses indicate that soils in the Public Works Storage Yard contain metals including barium, cadmium,

Table 2-41
SWMUs 6 and 7 and AOC 635
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
SWMU 6 Public Works Storage Yard	SWMU 6, the public works storage yard, is a fenced open area where routinely generated, containerized wastes were stored prior to shipment offsite. Among the wastes stored at the site were hazardous wastes from vehicle maintenance, building maintenance, and pest control operations. Wastes generated by vehicle maintenance consisted of cleaning solvents and waste oil. Spent solvents were disposed of by a contractor. Waste oil was recycled through NSY's waste oil reclamation facility. The storage yard ceased operation as a hazardous waste storage area when construction of the new temporary hazardous waste storage and transfer facility was completed.[a]	Hazardous Waste, Lead	**Soil** **Groundwater**
SWMU 7 PCB Transformer Storage Yard	SWMU 7 consists of Building 3902 the Public Works Storage Yard, the adjacent concrete slab outside the building, and surrounding areas that stored transformers and associated electrical equipment. Between 1970 and 1976, transformers no longer in service were brought to the concrete pad prior to transportation off base. Previous oil spills are evident around the pad. The site is abandoned with no material storage or activity. The building is locked and a perimeter fence restricts access.[a]	PCBs	**Soil** **Groundwater**
AOC 635 Paint and Oil Storehouse Building 3902	AOC 635 consists of Building 3902, a paint and oil storehouse. The storehouse, which was built in 1942, is a metal structure located on a 25 feet by 25 feet concrete pad. Storage operations continued at the unit until 1976, when it was removed from service. The unit was used for the storage of leaking transformers, electrical equipment, paint cans and drums, used motor oil, paint solvents and plating wastes. The western parking lot was also a drum storage area. The parking lot originally consisted of compacted gravel and dirt; it has since been paved. Storm water runoff tends to pool by the northwest fence line and the southwest corner of the unit. A storm water collection ditch along the east side of the facility drains to the Cooper River via Outfall 43. Graded soil/gravel, shredded paper, nonhazardous waste, and some metal parts are stored in the southwest corner of the area. The Public Works storage yard and the PCB transformer storage yard are adjacent to AOC 635. Five existing monitoring wells are within the confines of AOC 635.[b]	PCBs, Paints, Petroleum Products, Solvents, Metals	**Soil** **Groundwater** Surface Water Soil Gas Air

Notes:
a = Described in the *RCRA Facility Assessment, August 1987.*
b = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
c = Pathways scheduled for sampling are bold.

chromium and lead. Concentrations of PCBs were found to be less than 1 ppm (EnSafe, 1988). Although the extent of soil contamination was delineated, additional soil samples were collected in 1993. The results of this sampling confirmed the previous results of soil contaminated with metals, PCBs, pesticide and some semivolatile compounds. Seven shallow monitoring wells were also installed and sampled in 1993. The results of the groundwater sampling indicate that with the exception of some metals detected, groundwater has not been impacted by SWMU 6. The 1993 analytical summary data are contained in Appendix F.

SWMU 7 was sampled in 1981 and 1982 to assess the presence of contaminants in soil and groundwater. As part of the Confirmation Study two groundwater monitoring wells (WOC-1 and WOC-2) were installed during 1982 to assess whether groundwater quality in the uppermost aquifer has been impacted by previous site activities.

During the Confirmation Study, a soil sampling program was also conducted to assess the effects of past storage practices in the area. The sampling program was carried out in two phases. The first phase, conducted in July 1981, consisted of collecting composite samples along lines running parallel to the sides of Building 3902 and the attached concrete slab. Four composite samples, A through D, were collected at a depth of 6 inches, one from each side of the building.

The second sampling phase was conducted in February 1982 to better define the horizontal distribution of PCBs in the soil. Composite soil samples, OC-1 through OC-12, were collected on sampling lines paralleling each side of the building and attached slab at distances of 10 feet, 25 feet, and 40 feet from the building and slab. As in Phase I, these samples were collected every 3 feet at a depth of 6 inches. These twelve composite soil samples were analyzed for pesticides, PCBs, and arsenic. PCB concentrations ranged from nondetect to a maximum of 62 μg/g. Pesticide concentrations were detected up to 55.1 μg/g.

In 1993, to delineate the magnitude and extent of PCB and pesticide contamination in soil surrounding the concrete pad. Additional soil samples were collected at SWMU 7. The analytical results indicated elevated metals, pesticides, PCBs, and semivolatile concentrations. Arsenic, mercury, and lead were detected at concentrations above background levels. Numerous semivolatile compounds were detected at significantly elevated concentrations in numerous soil samples. The PCB compound Aroclor-1260 was detected at several sample locations. The maximum concentration detected was 510,000 μg/kg. However most detections of this compound were much less. Various concentrations of pesticides were also detected. The most common detections were 4,4-DDE, 4,4,-DDD, 4,4-DDT, alpha chlordane, gamma chlordane and heptachlor. The 1993 analytical summary data are presented in Appendix F.

2.21.2 Treatment Alternatives

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for the sites likely to require remedial action. Data collection efforts will support evaluation of these alternatives. Tables B-1 and B-2 (Appendix B) list the treatment alternatives for groundwater and soil/sediment, respectively. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify feasible treatment alternatives.

2.21.3 Data Gaps

Additional soil and groundwater samples will be collected at the sites to confirm that no contamination exceeding PRGs exists.

The extensive data that already exist for SWMUs 6 and 7 indicates significant releases of PCBs and pesticides from these sites. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- Data are insufficient to fully delineate the extent of contamination.

- Data are insufficient to support a detailed evaluation of treatment alternatives, if necessary. The primary sampling events conducted onsite revealed elevated concentrations of PCBs and pesticides. Further sampling is necessary to verify the maximum concentrations in the impacted soil.

2.21.4 Potential Receptors

Potential receptors of exposure to contaminants include current land users who access this area, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the RFI to assess the level of risk to the entire spectrum of current and potential users, including any highly sensitive individuals within the population, who might be exposed through invasive or noninvasive activities at SWMU 6, SWMU 7 and/or AOC 635. Potential receptors would likely be workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater in this area. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Although limited terrestrial habitat is found adjacent to SWMUs 6 and 7, and AOC 635, based on the contaminants of concern identified (i.e., PCBs and pesticides) a risk potential may exist to avian receptors. No pathways were identified for transfer of contaminants to offsite water bodies.** Sampling will characterize the potential pathways highlighted in Table 2-41.

2.21.5 Objective

The objective of the proposed field investigation is to confirm whether contamination is present in environmental media. If present, the investigation will delineate the horizontal and vertical extent of the soil and groundwater contamination at SWMUs 6 and 7 and AOC 635. While soil

gas, surface water, and air are potential contaminant pathways, initial sampling of these matrices is not required to determine if contaminants are present. For these three sites, the nature and extent of any contamination found will be delineated during this effort. Data collection efforts will support technical evaluation of identified treatment alternatives.

2.21 Screening Alternatives

Because SWMUs 6 and 7 have been extensively sampled previously and the COPCs have been tentatively identified, screening is not necessary. All soil boring samples will be field screened for VOCs with a PID. All screening results will be recorded in field notebooks and on boring logs.

2.21.7 Sampling and Analysis Plan

To fulfill the RFI objectives, site-specific sampling and analysis requirements have been proposed for SWMUs 6 and 7, and AOC 635. Table 2-42 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundaries of SWMUs 6 and 7, and AOC 635 have been outlined based upon a review of historical drawings, maps and other NAVBASE records. The boundaries may be modified based on the sample results.

In order to assess previous data collected for these sites, six of the former soil sampling locations will be resampled to confirm previous results. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower interval will be adjusted to avoid sampling the saturated soil.

Table 2-42
SWUMs 6 and 7 and AOC 635
Sampling Plan

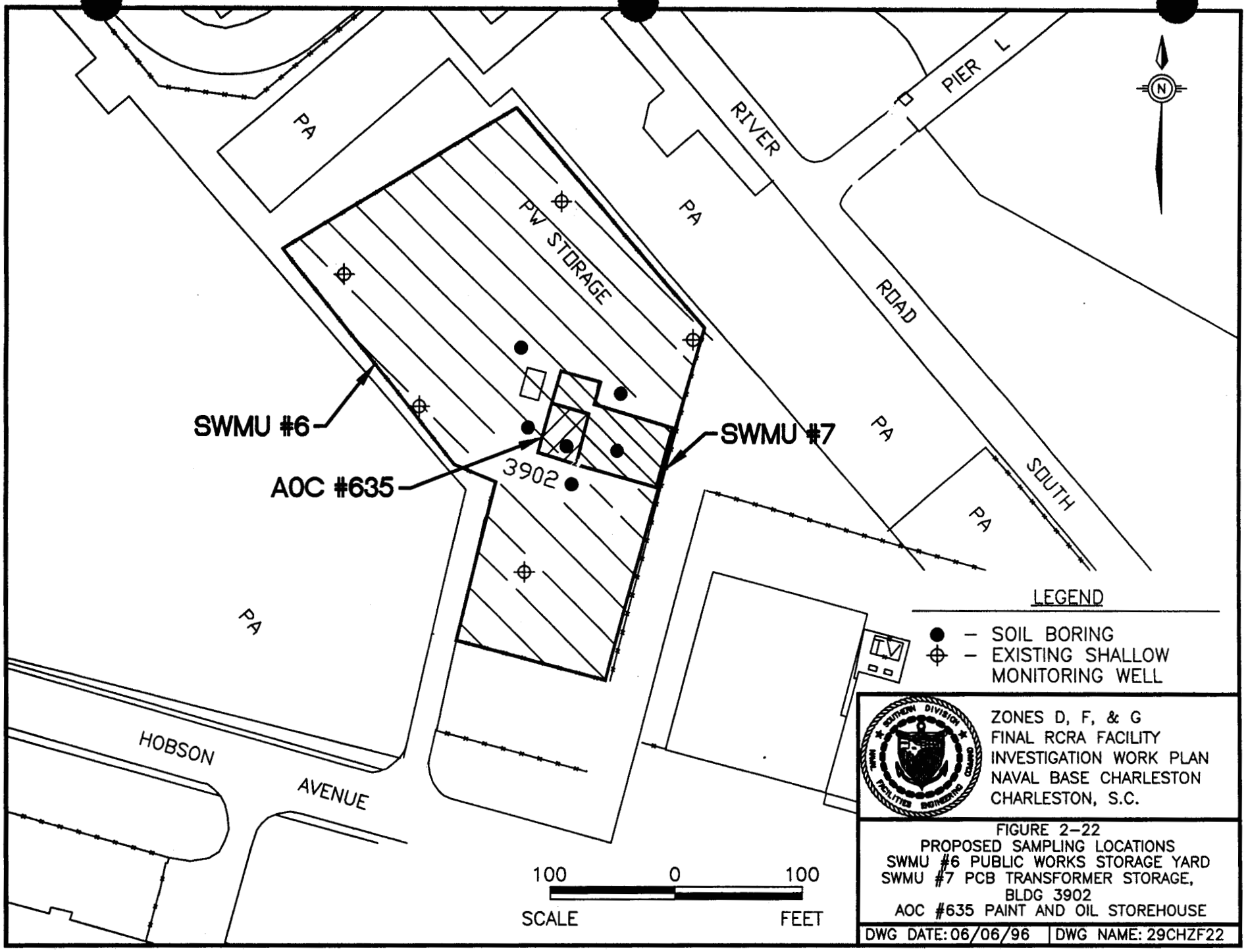
Matrix	Quantity	Analysis
Soil (0-1' bgs)	6	VOCs, SVOCs, Pesticides, PCBs, and Metals
Soil (3-5' bgs)	6	
Sediment	None	
Groundwater		
(Shallow well)	5	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846, except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

The five existing monitoring wells will be redeveloped and sampled to confirm the previous groundwater results. Data from all monitoring wells will be reviewed to assess whether additional wells are needed to define the extent of groundwater contamination. Data from all borings and groundwater wells will be used to determine the impact by identified past facilities and operations throughout the study area.

Proposed sampling locations are illustrated on Figure 2-22. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.


PA
PW STORAGE
PA
RIVER
PIER L
ROAD
SOUTH
PA
PA
SWMU #6
SWMU #7
AOC #635
3902
PA
HOBSON
AVENUE
100
0
100
SCALE
FEET
N
LEGEND
– SOIL BORING
– EXISTING SHALLOW MONITORING WELL
ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 2–22
PROPOSED SAMPLING LOCATIONS
SWMU #6 PUBLIC WORKS STORAGE YARD
SWMU #7 PCB TRANSFORMER STORAGE, BLDG 3902
AOC #635 PAINT AND OIL STOREHOUSE
DWG DATE: 06/06/96
DWG NAME: 29CHZF22

2.22 AOC 646, Operational Storage, Building 3906-Q

AOC 646 consists of Building 3906-Q, the operational storage for the Chicora Tank Farm. It was built in 1943 to house a boiler that heated the residual fuel oil used by the Navy. The CSI proposed for AOC 646 will investigate the area for potential releases to the surrounding soil. Table 2-43 describes this AOC.

Table 2-43
AOC 646
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[b]
AOC 646 Operational Storage, Building 3906-Q	AOC 646 consists of Building 3906-Q in the Chicora Tank Farm. The building was constructed in 1943 to house a boiler that heated residual oil stored in the tanks. The single-story, block structure has a flat concrete roof and concrete floor. The boiler was removed in 1971, and the building was modified for its current use as a storage facility. The trenches in the floor are believed to have been filled then. Until recently, the building was used to store materials needed to operate the fuel terminal, such as absorbent material, pumps, and compressors. A flammable storage locker in the southeast corner of the structure has contained paints, lubricants, kerosene and gasoline.[a]	Paints, Lubricants, Gasoline, Kerosene, Boiler Fuel	**Soil** Groundwater

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
b = Pathways scheduled for sampling are bold.

2.22.1 Previous Investigations

This site has not been investigated previously. The Chicora Tank Farm is currently being investigated for action under South Carolina's UST program.

2.22.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

2.22.3 Data Gaps

Currently no environmental media data have been collected at AOC 646 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.

- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.22.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users who access this area, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity, such as utility maintenance bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Terrestrial habitat adjacent to AOC 646 may provide a pathway for transfer of contaminant to avian or small wildlife species. No pathways were identified for transfer of contaminants to offsite water bodies.** Sampling will characterize the potential soil pathway highlighted in Table 2-43.

2.22.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to assess whether COPCs are present. If an RFI is required, the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil contamination at the site. Data collection efforts will also support the technical evaluation of identified remedial options, if required.

2.22.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** A FID will be used to field screen all soil boring samples. All screening results will be recorded in field notebooks and on boring logs.

2.22.7 Sampling and Analysis Plan

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-44 summarizes the types of samples to be collected and the analytical parameters. Four soil boring locations in the vicinity of the building are proposed to detect the presence of any soil contamination due to a release from AOC 646. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (4 to 6 feet). If saturated soil is encountered above 6 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil. Proposed sampling locations are illustrated on Figure 2-23. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

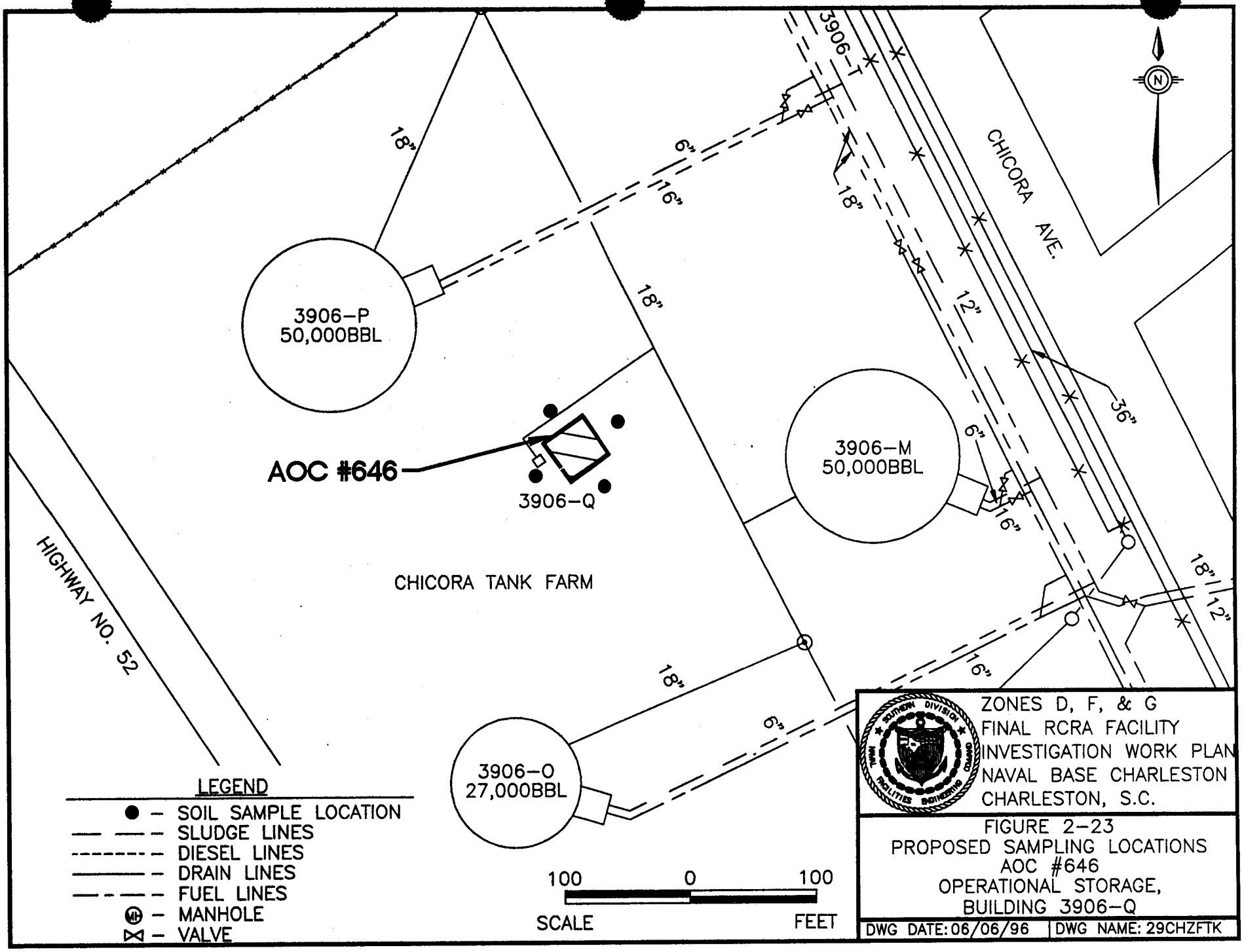
Table 2-44
AOC 646
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	4	VOCs, SVOCs, Metals, PCBs, PAHs
Soil (4-6' bgs)	4	
Grou- 'water		
(Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:

- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846, except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.


3906-P
50,000BBL
AOC #646
3906-Q
CHICORA TANK FARM
HIGHWAY NO. 52
3906-O
27,000BBL
3906-M
50,000BBL
3906-T
CHICORA AVE.
18"
6"
16"
12"
36"
LEGEND
SOIL SAMPLE LOCATION
SLUDGE LINES
DIESEL LINES
DRAIN LINES
FUEL LINES
MANHOLE
VALVE
100 0 100
SCALE FEET
ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 2-23
PROPOSED SAMPLING LOCATIONS
AOC #646
OPERATIONAL STORAGE,
BUILDING 3906-Q
DWG DATE: 06/06/96
DWG NAME: 29CHZFTK

2.23 AOC 706, AREA BEHIND BUILDING 246

AOC 706, an RFI site, includes the asphalt driveway to the north and west of Building 246, the former Hazardous Waste Storage and Transit Facility. Soil sample data presented in the *Closure Activities Report and Certification for Building 246 (Rust Environmental and Infrastructure, March 1996),* indicates the presence of Aroclor 1260, a PCB. The 1996 closure report states that PCBs were not stored in Building 246, while the *Interim RCRA Facility Assessment of USN Charleston Naval Shipyard, Charleston, South Carolina, (Ebasco Services Incorporated, August 1987),* states that an area in Building 246 was reserved for PCB storage. However, no evidence was found to support that PCBs were actually stored in the building. The source of the PCBs detected in soil is not currently known. Table 2-45 describes this AOC.

Table 2-45
AOC 706
Site Description

	Description	Materials Released	Potential Pathways[c]
AOC 706	Building 246 and the associated paved area were constructed in 1986. Prior to that time the parcel appears to have been an open lot surrounded with trees to the north, west, and south with access from Bainbridge Avenue. No containment structures are associated with the driveway and no materials are known to have been stored outside of the building on the paved area. There are no stormwater drains located on the paved area, or on the ground around Building 246. Rainwater that falls on the roof of Building 246 flows into gutters, then into an underground collection system. Surface water runoff on the northwest side of the building accumulates along the western edge of the asphalt drive prior to drainage into a nearby wetland area. Other areas surrounding Building 246 are covered by soil and grass.[a,b]	Stored or disposed hazardous waste PCBs	**Soil** Soil Gas Groundwater Air **Sediment**

Notes:
a = Described in the Interim RCRA Facility Assessment, August 1987.
b = Described in the Closure Activities Report, March 1996.
c = Pathways scheduled for sampling are bold.

2.23.1 Previous Investigations

Soil sample data presented in the *Closure Activities Report (Rust, March 1996),* indicates the presence of Aroclor 1260, a PCB. Composite soil samples were collected from the top six inches of soil along each side of the driveway to Building 246 and analyzed for Total Appendix IX constituents, excluding dioxins. Eight metals and Aroclor 1260 were found above detection limit. The contaminants that were detected were then compared to the Zone H soil background data as described in the closure report. If the concentrations of contaminants exceeded the background levels for Zone H, then they were compared to the USEPA Region III Risk Based Concentration (RBC) Table, Fourth Quarter, 1994. All concentrations that exceeded Zone H background levels were below the RBCs.

2.23.2 Treatment Alternatives

As outlined in the overall sampling strategy presented in the *Final Comprehensive RFI Work Plan*, treatment alternatives are being identified for each of the sites likely to require remedial action. Data will be collected to support evaluation of these alternatives. Table B-1 (Appendix B) lists treatment alternatives for groundwater; and Table B-2 lists treatment alternatives for soil. Alternatives presented here are for preliminary evaluation only. If contaminants are present at concentrations requiring remediation, a CMS will be undertaken to identify the most feasible treatment alternatives.

2.23.3 Data Gaps

The data that already exist for AOC 706 indicate the presence of Aloclor 1260. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are insufficient data to assess whether a release has occurred. If a release is demonstrated, the extent of soil and groundwater contamination will be delineated with subsequent sampling.

- There are insufficient data to support a detailed evaluation of treatment alternatives.

2.23.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan.*

An approximately 5-acre area of ecological concern (AEC IV-1) is located to the south and west of Building 246 where stormwater from the asphalt driveway drains. Described in the *Final Zone J Work Plan, (E/A&H November 1995)*, the area has a heavily overgrown drainage system to the east and a maintained field with several trees to the west. The eastern ditches form a scrub-shrub wetland which is vegetated along its entire perimeter. An open marshy area is in the center of the southeastern portion of the wetland, where the channel expands to an approximate 50 feet wide marsh. Various ecological receptors may be exposed to contaminated surface water and sediment runoff. Sampling will characterize the potential pathways highlighted in Table 2-46.

2.23.5 Objective

The objective of the proposed RFI is to fill the identified data gaps by documenting a release and then fully delineating the horizontal and vertical extents of soil and groundwater contamination at AOC 706. The site has been sampled as discussed in Section 2.23.1, and this proposed effort

will be used to further delineate the extent of contamination relative to the PCB. Data collection efforts will support the technical evaluation of identified treatment alternatives.

2.23.6 Screening Alternatives

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. **However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define nature and extent of contamination detected.** All soil borings will be screened for VOCs using a PID. All screening results will be recorded in field notebooks and on boring logs.

2.23.7 Sampling and Analysis Plan

To fulfill the RFI objectives, site-specific sampling and analysis requirements have been proposed for AOC 706. Table 2-46 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundary of AOC 706 has been outlined based upon a review of NAVBASE records.

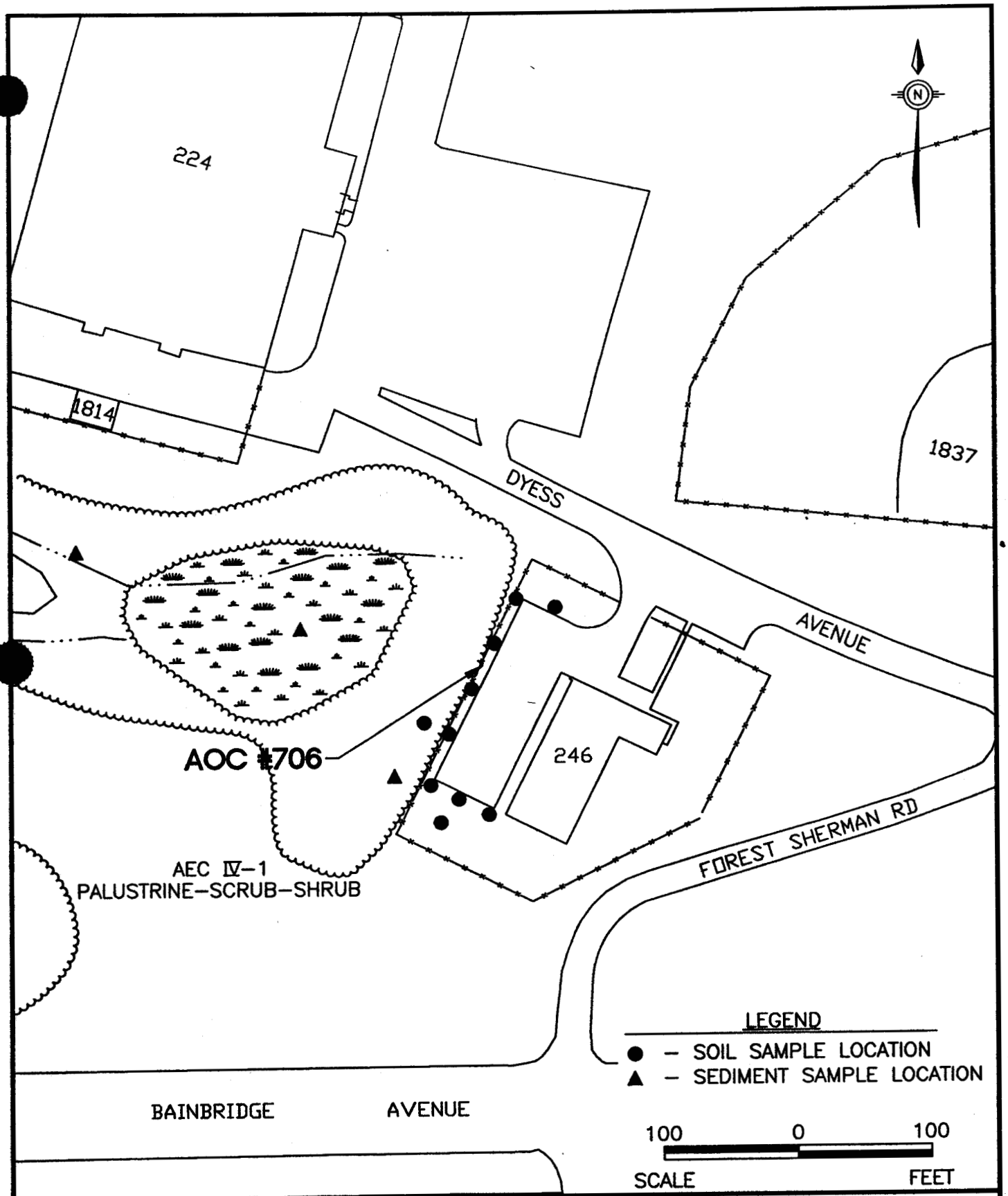
Table 2-46
AOC 706
Sampling Plan

Matrix	Quantity	Analysis
Soil (0-1' bgs)	10	VOCs, SVOCs, Metals, and Pesticides/PCBs
Soil (3-5' bgs)	10	
Sediment	None	
Groundwater (Shallow well)	None	
(Deep well)	None	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

Notes:
- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846, except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

Ten soil borings are proposed to assess the nature and extent of soil contamination at AOC 706. Samples from two depth intervals are proposed for each of the soil borings, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil. Proposed soil sampling locations are illustrated on Figure 2-24. In addition, analytical data from sediment samples located adjacent to AOC 706 will be used to assess the potential impact of the site on AEC IV-1. **Table 2-44 presents the sediment samples and the analyses proposed.** All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan.*



ZONES D, F, & G
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FIGURE 2-24
PROPOSED SAMPLING LOCATIONS
AOC #706
AREA BEHIND BUILDING 246

DWG DATE: 06/07/96 | DWG NAME: 29CHZF33

2.24 Fuel Distribution System

The FDS includes all pipelines, tanks and structures used to store and distribute fuel from the Fleet and Industrial Supply Center (FISC) fuel system within NAVBASE. This includes tanks, pumping systems, and active (until November 1995) and known abandoned pipelines. Although a number of these areas were designated for individual RFI or CSI investigations, the selected investigative approach is to assess petroleum contamination throughout the entire FDS, portions of which are located in Zones F, G, and E. This approach will provide the most comprehensive view possible within reasonable cost and time, and allow the investigation to fill the identified data gaps. The designated sites are described in Table 2-47. The FDS and associated SWMUs and AOCs are shown on Figure 2-25.

2.24.1 Previous Investigations

Various investigations of limited scope have been conducted, concentrating efforts on individual components of the FDS. The largest, and one with the most conclusive results was completed by S&ME in 1992, reviewing the level of total petroleum hydrocarbon (TPH) contamination associated with the 18 inch pipeline along Hobson Avenue and across Hobson Avenue from the Fuel Farm to Pier Kilo. The investigation identified three areas of significant contamination (exceeding 1,000 part per million (ppm) TPH) along the pipeline route at the depth of groundwater (6 feet bgs). The areas are delineated as:

- At foot of Pier Kilo, for 100 feet;
- Beginning 125 feet from the foot Pier Kilo, for 200 feet;
- From the Fuel Farm toward Pier Kilo, for 200 feet.

In July 1995, a screening investigation undertaken to verify the usefulness of Laser Induced Fluorescence (LIF) Technology at the Charleston Naval Base was conducted near the FISC Fuel Farm and at the intersection of Hobson Avenue and Viaduct Road. The investigation identified

sight petroleum contamination at a single location, but indicated many locations which were determined to be false positives.

Table 2-47
Fuel Distribution System
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
SWMU 24 Waste Oil Reclamation Facility	Tanks 39-A and 39-D operated as waste oil settling tanks, with water discharged to sanitary sewer and oil was handled as reclaimed fuel oil[a]	Waste Oils, Petroleum Products	Soil Groundwater Surface Water Utilityways
AOC 622 Ballast Water Treatment Facility, Facility 3926	Facility 3926 is an oil-water separator which separates ballast water for discharge to the sanitary sewer; oil was collected in Tank 3901A and disposed of as waste oil[a]	Petroleum Products, Metals	Soil Groundwater Sanitary sewer Surface Water Utilityways
AOC 623 Concrete Tank, Building 98	Tank 148 is a concrete stripper tank used to hold the contents of pipelines while being emptied for maintenance or alteration.[a]	Residual Petroleum Products (Bunker C, Navy Special Fuel Oil)	Soil Groundwater Utilityways
AOC 624 Fuel Oil Booster Pumphouse, Building 98	Building 98 served as a Pumphouse to boost the flow of fuel products (used and unused) through the FDS.[a]	Petroleum Products, Benzene, Toluene Ethylbenzene and Xylene (BTEX), Metals, VOCs	Soil Groundwater Surface Water Utilityways
AOC 625 Sludge Pumphouse, Building 3901B	Building 3901B served as a pumphouse to transfer waste oil to and from Tank 3901A.[a]	Petroleum Products, BTEX, VOCs, Metals	Soil Groundwater Surface Water Utilityways
AOC 626 Charleston Naval Supply Center Fuel Farm	Fuel Farm contains four large fuel tanks, several smaller tanks, various pumps and piping systems, waste oil and wastewater processing systems.[b]	Petroleum Products, BTEX, VOCs, PCBs, Metals	Soil Groundwater Surface Water Utilityways Subsurface gas
AOC 627 Oil Spill Area at Hobson Avenue and Viaduct Road	Location is scene of various fuel spills throughout the history of the FDS. Soil and utilities have been impacted.[a]	Petroleum Products, BTEX, VOCs, PCBs, Metals	Soil Groundwater Surface Water Utilityways
AOC 629 Tank Truck/ Car Loading/Unloading Facility	Facility supports transfer of petroleum products and waste oil to and from tank cars, tank trucks and the FDS.[a]	Petroleum Products (including lube oils), BTEX, VOCs, PCBs, Metals	Soil Groundwater Surface Water Utilityways Subsurface gas

Table 2-47
Fuel Distribution System
Site Description

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways[c]
AOC 631 Fueling Pier Kilo (K)	Facility supports transfer of petroleum products and waste oil to and from barges, and vessels along Pier Kilo.[a]	Petroleum Products, BTEX, VOCs, PCBs, Metals, Creosote	**Soil** **Groundwater** Surface Water **Utilityways** Subsurface gas
AOC 641 Stripper Pumphouse, Former Building 39-K	Facility was used to remove the fuel from the pipelines on pier previously located near site of present Pier M. This facility was misidentified during the RFA process.[a]	Residual Petroleum Products (Bunker C, Navy Special Fuel Oil)	**Soil** **Groundwater** Surface Water **Utilityways**

Notes:
a = Described in the *Final RCRA Facility Assessment, Volume II, June 6, 1995.*
b = Described in the *Final RCRA Facility Assessment, Volume I, June 6, 1995.*
c = Pathways scheduled for sampling are bold.

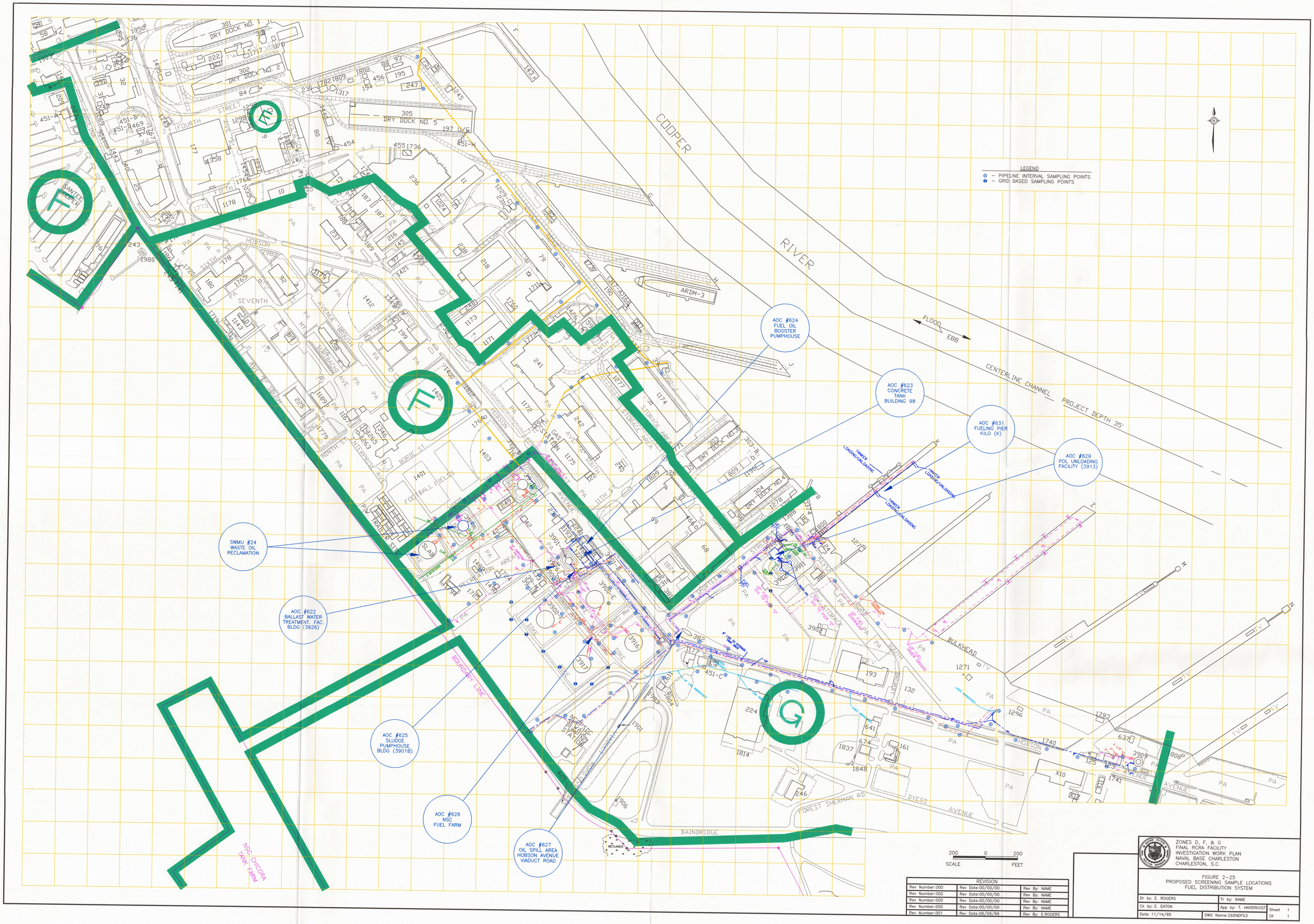
2.24.2 Treatment Alternatives

Because available environmental media data did not adequately identify the nature and extent of contamination, treatment alternatives for this site cannot be evaluated at this time.

2.24.3 Data Gaps

The currently available environmental media data indicate petroleum contamination is present at various locations throughout the FDS. However, the available data do not indicate the RCRA status of the contamination, nor do they identify the areal extent or distribution of the petroleum contamination throughout the FDS. This information is needed to complete the characterization of the site and to support a detailed evaluation of treatment alternatives, if necessary. To ensure data collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- Data are incomplete in establishing whether COPCs are present in the various potential migration pathways.



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Rev Number:000	Rev Date:00/00/00	Rev By: NAME
Rev Number:001	Rev Date:06/06/96	Rev By: E.ROGERS

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FIGURE 2-25
PROPOSED SCREENING SAMPLE LOCATIONS
FUEL DISTRIBUTION SYSTEM

Dr by: E. ROGERS	Tr by: NAME	
Ck by: E. EATON	App by: T. HAVERKOST	Sheet 1 Of 1
Date: 11/14/95	DWG Name:29ZNDF03	

- Incomplete data exist to support a detailed evaluation of treatment alternatives, if necessary.

2.24.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. Potential receptors would likely be workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. Additionally, the pipeline trenchways and other utility trenchways may act as a conduit, allowing petroleum products or contaminated groundwater to migrate from the area. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Although limited habitat exists adjacent to the Fuel Distribution System, the spatial extent of contamination may pose risk to terrestrial receptors such as birds and small mammals. No pathways were identified for transfer of contaminants to offsite water bodies.** Sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-47. Information on sewer drain locations with potential for petroleum contamination due to proximity to fuel facilities and/or soil or groundwater contamination will be communicated to Zone L investigators for sampling and analysis during the Zone L RFI.

2.24.5 Objective

The objective of the RFI is to delineate the nature and extent of the petroleum and related contamination. The objectives of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil and/or groundwater contamination as

well as the rate of contamination migration at the site. Data collection efforts will also support the technical evaluation of identified remedial options, if required.

2.24.6 Screening Alternatives

Although a screening alternative termed Laser-Induced Fluorescence (LIF) technology was initially considered for use in this investigation, the information collected in a test evaluation showed little correlation between LIF readings and petroleum contaminations, and therefore the screening alternative has been eliminated.

2.24.7 Sampling and Analysis Plan

To fulfill the RFI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-48 summarizes the types of samples to be collected and the analytical parameters. The investigative approach is to sample along the pipeline trenchways at an interval of approximately 200 feet to locate contamination caused by historic releases from the FDS. If significant petroleum contamination is detected, subsequent sampling will be implemented until delineation is complete. This initial sampling effort will be conducted using CPT and DPT to provide a continuous soil-type reading which allows the system to detect and distinguish between the type of sediment or fill material at various depths. This information will assist by identifying the optimum layer for sampling soil for TPH contamination. Each proposed sample location is illustrated on Figure 2-25.

Sample points along the pipeline trenchways will be roughly 200 feet apart. Sampling pushes will be to four feet below the trenchway, which in most cases is expected to limit the depth to approximately 14 feet, with the sand in the trenchway as the target location for sampling. Certain locations will require deeper penetrations, possibly up to 35 feet. The soil samples will be sent to a local laboratory for overnight results. This information will be used in determining additional subsequent sample push locations.

Table 2-48
Fuel Distribution System
Sampling Plan

Matrix	Quantity	Analysis
Soil (CPT & DPT)	135 (initial phase), plus additional locations as needed	Total Petroleum Hydrocarbons (TPH-DRO, TPH-GRO)
Soil	to be determined	VOCs, SVOCs, Metals, PCBs, PAHs
Groundwater		
(Shallow well)	to be determined	
(Deep well)	to be determined	

Engineering Parameters:
Selected soil samples will be tested for permeability, grain, size, porosity, TOC, and CEC.

Notes:
- Groundwater samples will be collected quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.

Since the pipelines in the FDS traverse much of the area of investigation, the selection of the sampling locations must consider the location of other underground structures and utilities. These include, but are not limited to, foundations, pile support structures, freshwater lines, sanitary sewer lines, storm sewer lines, electric utility lines and conduits, natural gas lines, methylacetylene and propadiene gas, oxygen, and high-pressure air. The areas near the waterfront will present the most difficulty in establishing sampling points. Utility and piling densities increase near the waterfront area. The Public Works Engineering Department has stressed that the utility maps are highly subjective and only approximate the subsurface utility locations. Very few, if any, utility lines were surveyed upon installation, repair, or modification.

Considerable research has been conducted to locate subsurface utilities and piling supports. The problems associated with subsurface obstructions predominately relate to the health and safety of field personnel, but may also alter the proposed sampling point location. The locations of the sampling points are selected to obtain adequate coverage along the pipeline trenchways and can be adjusted to allow clearance of subsurface structures. Due to the available subsurface information's limited accuracy, subsurface sample locations shown in this work plan are preliminary. Actual locations must be determined by field conditions. For purposes of this work plan, sample locations will be defined as a 20-foot radius surrounding any point. If a DPT sample push along a trenchway is interrupted by subsurface obstruction, the field sampling crew will attempt to relocate the sampling point within a 20 feet of the original point along the same trenchway. If a suitable point cannot be found, then the sampling pattern will be adjusted to maintain coverage of the area of interest. Every attempt will be made to keep spatial relationship and distribution of sampling points sites consistent with those proposed in the work plan. If a sampling point is relocated, the change will be annotated in the field logbook, and the sample location will be denoted on the sampling report.

A subcontractor specializing in utility/location techniques will be employed to assist the field teams in clearing locations for subsurface sampling points.

A coring subcontractor will be hired to core the asphalt or concrete surface before drilling or hand-augering begins. All subsurface borings will be advanced with a posthole digger or hand auger to 5 feet bgs to ensure the DPT rig will not encounter a subsurface utility or piling. If a subsurface obstruction is encountered, the boring will be terminated. When a boring is abandoned, the borehole will be pressure-grouted to the soil/asphalt or concrete interface, and the asphalt or concrete plug will be cemented back in place flush with the existing surface grade.

Once the initial data have been reviewed, subsequent LIF technology sampling will be conducted to delineate the areal extent and vertical extent of distinguishable petroleum contamination from

the various products handled in the FDS through the years. Once the various areas of contamination have been delineated, biased soil boring and groundwater sample locations will be selected to firmly identify the constituents present in the contaminated media, and support the determination of the RCRA status of that particular location and contamination type. Because the number and locations of the confirmation samples are dependent upon the screening results, num[illegible] of samples and specific locations cannot be determined at this time.

All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan.*

3.0 SYSTEMATIC (GRID-BASED) SAMPLING PLAN

As noted in the RFA, much of NAVBASE, including portions of Zones D, F, and G, is built upon a series of dredge spoil deposits and native soil whose composition has been impacted by industrial activities to an unknown extent. This heterogeneous structure is expected to significantly impact risk-management decisions; therefore, a more intensive approach for characterizing "background" or "reference area" conditions will be required than is typical of RFI investigations.

A systematic square grid scheme has been chosen to more fully characterize background and the nature of the NAVBASE soil and groundwater contamination. However, as discussed in the *Final Comprehensive RFI Work Plan*, Volume III, an algorithm has been designed to systematically exclude redundant sampling points and focus limited resources near biased field investigations. The grid-based sampling points are intended to supplement the biased locations while delineating site boundaries and provide a basis for comparing site-specific soil and groundwater quality. Initially, none of the grid-based points will be designated as background sampling locations. However, after analytical data are reviewed, specific areas representing background may be identified and designated as such, with regulatory agency concurrence. The grid is not specifically intended to be used to establish reference area determinations as needed for the ERA conducted under Zone J. Table 3-1 and Figure 3-1 present the proposed sampling descriptions and locations.

The usefulness of grid-based wells in D, F, and G as background wells may be limited due to the groundwater flow direction in this part of NAVBASE. The preliminary understanding of groundwater flow direction indicates that most of the proposed grid-based wells are downgradient of many contaminant sources. They most often will be used as **delineation** wells to help **document** the extent of contaminant migration or to detect any point sources that the RFA process has not documented.

Table 3-1
Grid-Based Sampling Plan

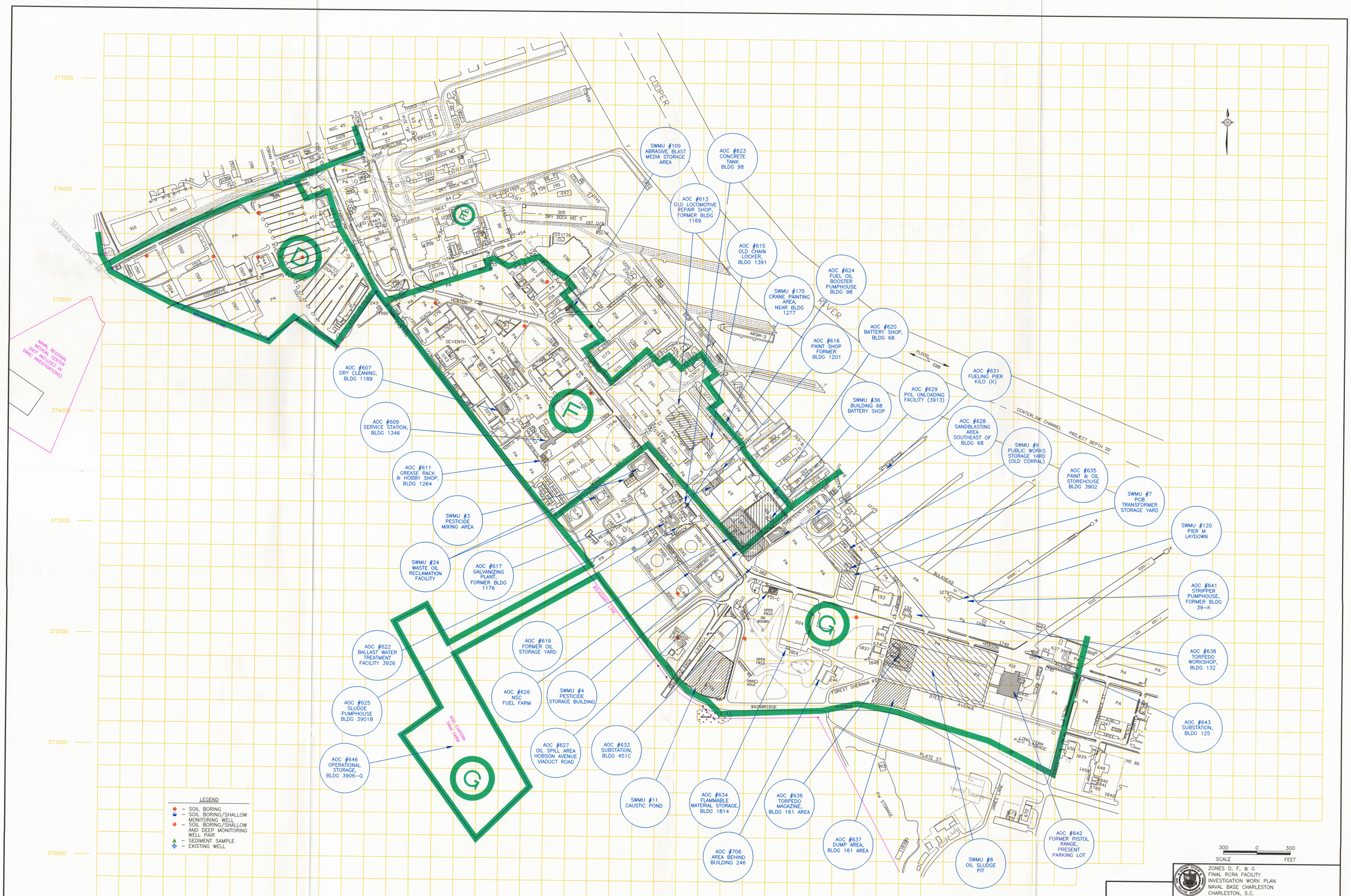
Matrix	Quantity	Analysis
Soil (surface)	18	VOCs, SVOCs, Pesticides, PCBs, Metals and Cyanide
Soil (depth)	18	
Groundwater		
(Shallow)	4	Chlorides, TDS and Sulfates (Groundwater only).
(Deep)	4	

Engineering Parameters:
Engineering parameters will be dictated by the field data collected.

Slug tests will be performed on 25% of the shallow/deep well pairs. While installing the deep wells, Shelby tubes will be collected at distinct changes in lithology. Samples will be tested for permeability, grain size, porosity, TOC, and CEC. Analysis for any of the remaining design parameters in Appendix B will be performed at selected locations when a better understanding of the contaminant distribution is developed.

Notes:

- Groundwater monitoring wells will be sampled quarterly for one year.
- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analysis will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in sampling plan, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.



NOTE: 1. AOCs AND SWMUs DESIGNATED FOR NFI ARE NOT SHOWN.
2. SCREENING SAMPLES FOR THE FUEL DISTRIBUTION SYSTEM INVESTIGATION ARE NOT SHOWN.

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Rev Number: 000	Rev Date: 00/00/00	Rev By: NAME
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Rev Number: 000	Rev Date: 00/00/00	Rev By: NAME
Rev Number: 001	Rev Date: 06/06/96	Rev By: E.ROGERS

ZONES D, F, & G
FINAL RCRA FACILITY
INVESTIGATION WORK PLAN
NAVAL BASE CHARLESTON
CHARLESTON, S.C.

FIGURE 3-1
SYSTEMATIC GRID BASED
SAMPLE LOCATIONS

Dr by: E. ROGERS	Tr by: NAME	
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4.0 HEALTH AND SAFETY PLAN

E/A&H is conducting an environmental monitoring program at various specified sites within NAVBASE to assess the nature and extent of contamination at these sites and to determine if additional action is required to maintain compliance with environmental regulations.

The [illegible]A has divided the NAVBASE sites into SWMUs and AOCs. These SWMUs and AOCs have been grouped into zones for investigative purposes. This Zone-Specific Health and Safety Plan (ZHASP) has been developed for SWMUs and AOCs in Zones D, F, and G.

This ZHASP was written to complement the E/A&H NAVBASE *Final Comprehensive Health and Safety Plan* (CHASP) by providing site-specific details which are absent in the CHASP. Site-specific details presented in this ZHASP include: potential site contaminants, proposed site activities, action levels (AL), and initial level of personal protective equipment (PPE). Copies of both this plan and the CHASP should be onsite during all field operations.

This Work Plan and ZHASP use both the term COPC and contaminants of concern (COCs). Not all COPCs are necessarily of interest from a human health perspective. COPCs refer to compounds of analytical interest. The analytical interest may be because of public health, regulatory, ecological, or other concerns. The term COC is used to identify (potential) site contaminants that may be present in sufficient concentrations to cause concern about potential occupational exposures to onsite personnel.

4.1 Applicability

The provisions of this plan are mandatory for E/A&H personnel. E/A&H personnel shall read this plan and sign the plan acceptance form (Appendix E) before starting site activities. In addition, personnel will operate in accordance with the most current requirements of 29 CFR 1910.120, Standards for Hazardous Waste Operations and Emergency Response (HAZWOPER). These regulations include the following provisions for employees involved in

cleanup operations covered by RCRA: training, 1910.120(e); medical surveillance, 1910.120(f); and PPE, 1910.120(g).

All non-E/A&H personnel present in E/A&H work areas shall either adopt and abide by this ZHASP and the corresponding CHASP or shall have their own safety plans which, at minimum, meet the requirements of the E/A&H CHASP and ZHASP.

This ZHASP applies to standard field procedures and tasks such as drilling; installing and developing monitoring wells; surveying; and collecting soil, groundwater, surface water, and sediment samples. Nonroutine procedures and tasks involving nonroutine risks are not covered by this plan. Examples of procedures that are not covered in this plan are:

- Trenching
- Confined space entry
- Locating and/or recovering unexploded ordnance
- Sampling, handling, or removing unidentified drums

Should it be necessary to conduct these or other "high-risk" tasks, specific health and safety procedures must be developed, approved, and implemented before proceeding.

4.2 Zone Characterization

Sites included in this ZHASP consist of SWMUs and AOCs as identified in the RFI plan for NAVBASE prepared by E/A&H. Table A (found in Appendix A) indicates the location of each SWMU and AOC within Zones D, F, and G and the associated sampling locations.

Physical hazards that are inherent in environmental investigations, or present throughout the zone are discussed in Section 4.27. Site-specific health safety information for each site in Zones D, F, and G is in Sections 4.3 through 4.26. Discussed in these subsections are site descriptions,

planned site activities, chemical hazards, and PPE requirements. Also any operational/physical hazards specific to a site will be discussed in its subsection.

Chemical hazards are discussed in terms of COPCs. COPCs are selected to represent the range of acute and chronic health (toxicological) hazards that are or foreseeably may be present onsite. Not every chemical known or suspected of being present is listed as a COPC. Rather, one or two of the most toxic or most prevalent contaminants within a class of chemicals is listed, as in the case with cadmium and chromium. To illustrate this principle, listed below are classes of chemicals or chemical categories in one column with examples of chemicals that may be COPCs listed in the second column.

Class of Chemical/Product	Contaminant of Potential Concern
• Chlorinated solvents/ degreasers	perchloroethylene, chloroform, methylene chloride, trichloroethylene, and 1,1,1-trichloroethane
• Nonchlorinated solvents	benzene, toluene, xylene, ethylbenzene, 2-butanone, and hexane
• Metals/heavy metals	lead, cadmium, chromium (especially hexavalent chromium), mercury, silver, and copper
• Fuels — gasoline, fuel, oils, diesel, lubricants	benzene, toluene, tetraethyl lead, kerosene, xylene, hexane
• Paints	see Solvents and Metals above, plus tributyl tin
• Pesticides — chlorinated	DDT, DDE, Chlordane, dieldrin, and endrin

Material Safety Data Sheets (MSDSs) for COPCs may be reviewed at the E/A&H Charleston Field Trailer.

4.2.1 Work Zones

Section 2.1 of the CHASP describes the function and interrelatedness of the three work zones which, in combination, comprise the work area. The three work zones are:

- Exclusion Zone (EZ)
- Contaminant Reduction Zone (CRZ)
- Support Zone (SZ)

These work zones will be established and used during fieldwork covered under this ZHASP.

4.2.2 Work Area Access

Authorized personnel will be allowed access to work areas as long as they follow the requirements of this ZHASP and the CHASP. See also Work Area Access, Section 2.2 of the CHASP.

Authorized Personnel — To enter an E/A&H-controlled work area, all E/A&H personnel must have a current HAZWOPER training certificate on file onsite. Individuals whose certification is not on file, or those who have a more recent certificate (have attended a refresher course), will provide the onsite Supervisor with copies of their certificates before being allowed to enter a work area.

Subcontractors, Department of Defense (DOD) oversight personnel, and other site visitors shall demonstrate compliance with HAZWOPER training requirements before entering a work area.

4.3 SWMU 4, Pesticide Storage Building, and AOC 619, Former Oil Storage Yard

SWMU 4 is an active pesticide storage facility and AOC 619 is a former oil storage yard. Because SWMU 4 is within the boundaries of AOC 619, the RFI will be conducted concurrently with the AOC 619 CSI. SWMU 4 is a steel building with a concrete floor and containment structure that has stored various insecticides and rodenticides since 1980. The building has a formulation and mixing room. Sink and floor drains are connected to the sanitary sewer system. An equipment rinse area/wash rack is near the storage administration facility along the southeast side of the building. No evidence of a release or contamination has been found or reported for this site (E/A&H, 1995b). AOC 619 is an open yard used from 1955 to 1982 to store waste oil, possibly in a open pit. The site boundary was expanded from the RFA to include stained soil and distressed vegetation observed during the October 1995 site visit. Several active buildings are currently on the site. The majority of the AOC is paved with asphalt. Although no spills or releases have been documented, the possibility that waste oil was stored in an open pit onsite, coupled with the stressed vegetation observed increases the potential for contamination to be present (E/A&H, 1993). These sites are described in Table 4-1.

Table 4-1
SWMU 4 and AOC 619
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 4 Pesticide Storage Building	VOCs, Metals, Hazardous Waste (HW) characteristics	**Soil** Soil Gas **Sediment** **Groundwater** Surface Water
AOC 619 Former Oil Storage Yard	Petroleum Products, Waste Oil	**Soil** Surface Water **Groundwater** Air

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling as required. Fieldwork for this site is described in Section 2.1.7 of this work plan.

Hazard Analysis and Employee Protection

Previous investigations have revealed no contamination for SWMU 4. The initial PPE level for field activities performed at this SWMU will be Level D. The AL for this site is a continuous PID reading of 5 parts per million (ppm) above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.4 SWMU 36 Building 68 Battery Shop and AOC 620 Battery Shop, Building 68

SWMU 36 and AOC 620 are RFI sites associated with the Battery Shop, Building 68. Building 68 is a 48,000-square-foot concrete structure. From 1942 to 1952, the building was used as a paint and oil warehouse. Beginning in 1952, the facility was used for destruction, assembly, rebuilding, and charging of submarine batteries. Its most recent use was to store and charge large acid batteries. Building 68 is currently vacant and has been closed. On two occasions at SWMU 36, the floor drain to the waste acid holding tank separated from the floor, allowing approximately 1,025 gallons of sulfuric acid to discharge to the soil below the building. Following each spill, a sodium carbonate solution was used to neutralize the soil below the building (E/A&H, 1993). In areas where batteries were stored and charged at AOC 620, the floor is in poor condition, cracked and deteriorated from acid spills. Stains are evident on most of the floor, especially around the floor drains in the charging room. The contents of the waste acid holding tank at the south end of the building were pumped to a neutralization pit in Building 1278. The use of neutralization pits was discontinued in 1990, after which all wastes discharged to the drains were diverted into holding tanks. Two containment areas in the northeast side of Building 68 equipped with floor drains were used during battery assembly (E/A&H, 1995b). Table 4-2 describes SWMU 36 and AOC 620.

Table 4-2
SWMU 36 and AOC 620
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 36 and AOC 620, Building 68 Battery Shop	Sulfuric Acid, Lead	**Soil** **Groundwater** Air Sediment Surface Water

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling, as required. Fieldwork for this site is described in Section 2.2.7 of this work plan.

Hazard Analysis and Employee Protection

Potential hazards for this site are sulfuric acid fumes and lead dust. Table 4-25 lists exposure guidelines for these compounds. MSDSs are available at the E/A&H field trailer. If additional hazards are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated in the ZHASP. Site physical hazards are related to underground utilities, heavy-machinery operation, and ambient weather conditions.

The initial PPE level for field activities performed at this SWMU will be Level D. If dust concentrations become elevated, dust masks will be worn. The AL for this site is a continuous Miniram (respirable dust monitor) reading of 2.5 milligrams per cubic meter (mg/m^3) or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.5 SWMU 109, Abrasive Blast Media Storage Area

SWMU 109 consists of three hoppers that temporarily stored abrasive blast media in Buildings 1364, 1365, and 1393. The hoppers in Buildings 1364 and 1365 have operated since

1949; the third hopper, in Building 1393, was installed in 1962. Particulate air emissions from the hoppers were permitted in 1992. Although no spill or releases were documented, blast media are visible around each hopper as described in the *Final RCRA Assessment, Volume 1, June 6, 1995*. SWMU 109 is described in Table 4-3.

Table 4-3
SWMU 109
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 109, Abrasive Blast Media Storage Area	Unused Blast Media	**Soil** **Groundwater** Air **Sediment** Surface water

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling, as required. Fieldwork for this site is described in Section 2.3.7 of this work plan.

Hazard Analysis and Employee Protection

Potential hazards for this site are silica and nuisance dust from the unused blast media. Table 4-25 lists exposure guidelines for this compound. MSDSs are available at the E/A&H field trailer. If additional hazards are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated in the ZHASP. Site physical hazards are related to underground utilities, heavy-machinery operation, and ambient weather conditions.

The initial PPE level for field activities performed at this SWMU will be Level D. If dust concentrations become elevated, dust masks will be worn. The AL for this site is a continuous Miniram (respirable dust monitor) reading of 2.5 mg/m^3 or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.6 SWMU 175, Crane Painting Area, Near Building 1277

SWMU 175 is the site of a former crane painting operation that was located generally to the south and west of Building 1277. The period of operation is not known; however painting operations ended in 1993. No information is available regarding the operating practices or the types of materials used. Most of the land near SWMU 175 is currently paved storage and industrial (E/A&H, 1995b).

The size of the site was expanded from the RFA to include areas observed during the site visit and identified through interviews with base personnel (Droze, 1995). During the site visit, spent abrasive blast media and waste paint were observed on the asphalt and tracks. In addition, two cranes were observed staged at the southern end of the track section during the October 1995 site visit. Table 4-4 describes SWMU 175.

Table 4-4
SWMU 175
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 175, Crane Painting Area	Paint Thinner, Solvents, Paint Supply Products	**Soil** Soil Gas Surface water **Groundwater** Air

Pathways scheduled to be sampled are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling as required. Fieldwork for this site is described in Section 2.4.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site include mineral spirits, solvents, and paint supply products. Table 4-25 lists exposure guidelines for the COCs. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.7 AOC 607, Dry Cleaning, Building 1189

The former dry-cleaning facility in Building 1189 operated from 1942 to 1986 and also supported the local seamen's housing area. Since 1986, the facility has been used as a laundry with two industrial washers and dryers. The building also contains office space most recently used for miscellaneous storage. The facility is currently closed. The dry-cleaning facility was classified as a minor emitter of total hydrocarbons. All emissions ceased in 1986 when dry-cleaning operations were discontinued. Although no spills were documented, given common practices during the operation period of this facility, a release is probable (E/A&H, 1995b). Table 4-5 describes the site.

Table 4-5
AOC 607
Site Description

Number	Materials of Concern	Potential Pathways
AOC 607, Dry Cleaning, Building 1189	Perchloroethylene (Cleaning Solvents)	**Soil** **Soil Gas** Surface Water **Groundwater** **Sediment**

Pathways scheduled to be sampled are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling as required. Fieldwork for this site is described in Section 2.5.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site include perchloroethylene. Table 4-25 lists exposure guidelines for the COCs. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.8 AOC 609, Service Station, Building 1346

The gasoline station/automotive repair and maintenance shop at Building 1346 was built in 1962. Three of the original nine steel USTs were found to be leaking and were replaced with Fiberglass USTs in 1992. A waste oil UST was scheduled for removal but no documentation has been found to confirm if the removal was performed. Several additional incidents have occurred at this facility concerning releases of petroleum products. An Assessment Report was completed for the AOC and submitted in 1993. A free-product recovery system was installed in 1995. Table 4-6 describes this AOC.

Table 4-6
AOC 609
Site Description

Number	Materials of Concern	Potential Pathways
AOC 609, Service Station, Building 1346	Gasoline, Petroleum Products, Waste Oil	**Soil** Soil Gas **Groundwater** Air Sediment Surface Water

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling as required. Fieldwork for this site is described in Section 2.6.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site include gasoline, petroleum products, and waste oil. Table 4-25 lists exposure guidelines for the COCs. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.9 AOC 611, Grease Rack and Hobby Shop, Building 1264

AOC 611 was formerly Building 1264, which was used as an automotive hobby shop by Navy personnel from the late 1950s through the early 1960s. No visible evidence of the former building remains. The area is currently an asphalt-paved parking area as described in the *Final RCRA Facility Assessment, Volume II, June 6, 1995.* Table 4-7 describes the site.

Table 4-7
AOC 611
Site Information and Description

Number	Materials of Concern	Potential Pathways
AOC 611, Grease Rack and Hobby Shop, Building 1264	Petroleum Products, Antifreeze, Isopropyl Alcohol, Solvents, Degreasers, Enamel Paint, Thinner, Battery Acid, Lead.	**Soil** Soil Gas **Groundwater** Air Surface Water/Sediment

Pathways scheduled to be sampled are in bold.

Site Activities

Initial site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities include well development, purging, and sampling. Fieldwork for this site is described in Section 2.7.7 of this work plan.

Hazard Analysis and Employee Protection

The chemical hazards at this site are benzene, toluene, ethylbenzene, xylene, kerosene, lead, solvents, degreasers, ethylene glycol, paint, paint thinner, isopropyl alcohol, solvents, and battery acids. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional chemicals are identified durir the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities here is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.10 AOC 613, Old Locomotive Repair Shop, Former Building 1169; and AOC 615, Old Chain Locker, Building 1391

Former Building 1169 is the old locomotive and crane shop repair facility which operated from the 1930s until 1985, when the building was demolished. Maintenance activities at the site included changing oil, repairing hydraulic systems, and general repairs. Undercarriages were accessed from two concrete workpits. The area within the shop was paved with concrete and the adjacent area was unpaved. During its operation, oil grease, diesel fuel, and cleaning solvents were discharged into the storm water drainage system. Numerous spills were also reported. In addition, a UST which reportedly contained waste oil and other types of liquid waste was also onsite. The UST has reportedly been removed although no details on the removal or remediation are available. Currently, Building 242, built in 1987, occupies a portion of AOC 613. A CSI has been proposed for AOC 615, the site of the former Building 1391, the old chain locker. The locker, which was in service from 1970 to 1977, was used to store and service anchor chain. The service process involved dipping the chain into large tanks of epoxies

and resins. Epoxy and resin wastes were reportably stored behind the building in 55-gallon drums (E/A&H, 1995b; E/A&H, 1996). Currently the site is occupied by a parking area and Building 255. Table 4-8 describes these AOCs.

Table 4-8
AOC 613 and AOC 615
Site Information and Description

Number	Materials of Concern	Potential Pathways
AOC 613, Old Locomotive Repair Shop, Former Building 1169, and AOC 615, Old Chain Locker, Building 1391	Petroleum Products, Waste Oils, Solvents, Epoxies, and Resins	**Soil** Soil Gas **Groundwater** Air **Sediment**

Pathways scheduled for sampling are in bold.

Site Activities

Initial site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities include well development, purging, and sampling. Fieldwork for this site is described in Section 2.8.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are petroleum products, and solvents. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm or greater in the breathing zone. If this occurs, the required PPE level shall be upgraded to Level C.

4.11 AOC 616, Paint Shop, Former Building 1201

AOC 616 is the former Building 1201, which operated as a paint shop from 1955 until 1977. Although no spills or releases were documented at this site, given common practices during the operating period of this facility, a past release is probable. The site is currently a paved parking area. Table 4-9 describes this site.

Table 4-9
AOC 616
Site Description

Number	Materials of Concern	Potential Pathways
AOC 616, Paint Shop, Former Building 1201	Paint Thinner, Solvents, Paint Supply Products	**Soil** Soil Gas Surface water Groundwater Air

Pathways scheduled to be sampled are in bold.

Site Activities

Site activities will include soil borings and soil sampling. Fieldwork for this site is described in Section 2.9.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site include mineral spirits, solvents, and paint supply products. Table 4-25 lists exposure guidelines for COCs. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above

background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.12 AOC 617, Galvanizing Plant, Former Building 1176

AOC 617, in the former Building 1176, was a galvanizing plant that operated from the early 1940s until approximately 1985. It was demolished and Building 69, a shipping and supply center, was constructed in its place. A 3,000-gallon UST was used in an onsite chemical storage area. Operations have discontinued. Although no spills or releases were documented, given common practices during the operation period of this facility, a past release is probable. Table 4-10 describes this AOC.

Table 4-10
AOC 617
Site Description

Number	Materials of Concern	Potential Pathways
AOC 617 Galvanizing Plant, Former Building 1176	Zinc Solutions, Inorganic Acids	**Soil** Soil Gas Surface Water **Groundwater** Air

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling, as required. Fieldwork for this site is described in Section 2.10.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are sulfuric acid, nitric acid, and hydrochloric acid. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will

be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at AOC 617 is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm or greater in the breathing zone. If this occurs, the required PPE shall be upgraded to Level C.

4.13 AOC 628, Sandblasting Area, Southeast of Building 68

AOC 628 is the open area southeast of Building 68 that was used for abrasive blasting of large metal parts from 1962 to 1967. Currently no visible evidence remains of former activities and a high-pressure fuel line runs beneath the site. Although no spills or releases were documented at this site, given the turbulent nature of abrasive blasting activities, it is probable that releases occurred from this unit. The location of AOC 628 was changed from that given in the RFA. The CSI proposed for AOC 628 will investigate these areas for potential releases to the surrounding soil. Table 4-11 describes the site.

Table 4-11
AOC 628
Site Description

Number	Materials of Concern	Potential Pathways
AOC 628 Sandblasting Area, Southeast of Building 68	Spent Blasting Media, Paint Residues, Organic Solvent Wastes, Metallic Residues, Petroleum Products	**Soil** Groundwater Surface Water/Sediment Air Soil Gas

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings and soil sampling. Fieldwork for this site is described in Section 2.11.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site include spent blasting media (silica), mineral spirits, solvents, and paint supply products. Table 4-25 lists exposure guidelines for COCs. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone or respirable dust concentrations greater than 2.5 mg/m^3. If this occurs, the required level of PPE shall be upgraded to Level C.

4.14 AOC 633, Substation, Building 451C

AOC 633 is the electrical substation in building 451C. Built in 1943, Building 451C is a block structure with a concrete roof and floor, several steel enclosures on concrete slabs and foundations from earlier buildings. Several high-voltage switches, breakers, and transformers and a battery bank are in the two-room block structure. An electrical transformer was destroyed and has been removed. Several large PCB releases have occurred, including a 10C oil leak in 1981. No known remedial activities have occurred at this unit. Table 4-12 describes the site.

Table 4-12
AOC 633
Site Information and Description

Number	Materials of Concern	Potential Pathways
AOC 633 Substation, Building 451C	PCBs, Petroleum products	**Soil** Groundwater **Sediment** Surface Water

Pathways scheduled to be sampled are in bold.

Site Activities

Initial site activities will include soil borings and soil sampling. Fieldwork for this site is described in Section 2.12.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are PCBs and petroleum products. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are discovered during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required PPE level shall be upgraded to Level C.

4.15 AOC 634, Flammable Material Storage, Building 1814

AOC 634 consists of Building 1814, a former flammable materials storage facility. This unit, built in 1977, stored small containers of flammable material until 1992. It is currently not in service. Although no spills or releases were documented at this site, given common practices during the operation period of this facility, a past release is probable. Table 4-13 describes this AOC.

Table 4-13
AOC 634
Site Description

Number	Materials of Concern	Potential Pathways
AOC 634 Flammable Material Storage, Building 1814	Paint, Flammable Material	**Soil** Soil Gas Groundwater Air

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings and soil sampling. Fieldwork for this site is described in Section 2.13.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs for this site are acetone and mineral spirits. Table 4-25 lists exposure guidelines for chemicals. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this AOC will be Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.16 AOC 638, Torpedo Workshop, Building 132

This site is a torpedo workshop formerly in Building 132 that was constructed in 1944 and used until 1991. A concrete-filled pit, a chimney, and two capped pipes reportedly associated with

an abandoned UST are onsite. Currently, the Public Works Department uses the building for equipment and parts storage. Although no spills or releases were documented at this site, given common practices during the operation period of this facility, a past release is probable. Table 4-14 describes the site.

Table 4-14
AOC 638
Site Information and Description

Number	Materials of Concern	Potential Pathways
AOC 638, Torpedo Workshop, Building 132	Explosives, Propellants, Heavy Metals, Torpedo Fuels	Soil Soil Gas Sediment **Groundwater** Surface Water Air

Pathways scheduled for sampling are in bold.

Site Activities

Initial site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities include well development, purging, and sampling. Fieldwork for this site is described in Section 2.14.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are heavy metals and fuels. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities, ambient weather conditions, and potential unexploded ordnance.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed is modified Level D. The AL for

this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C. There is a possibility of unexploded ordnance onsite. Before ground intrusive activities begin, an explosive ordnance demolition (EOD) team will screen the area for any unexploded ordnance.

4.17 AOC 642, Former Pistol Range, Present Parking Lot

AOC 642 is a former outdoor pistol range near SWMUs 29 and 34. The pistol range operated during the 1940s. It is unknown if the lead-containing bullets and other pistol range backstop material were ever removed. Particulates may have been deposited in the area surrounding the unit. Table 4-15 describes the site.

Table 4-15
AOC 642
Site Description

Number	Materials of Concern	Potential Pathways
AOC 642, Former Pistol Range Present Parking Lot	Lead	**Soil** Groundwater Air Sediment Surface Water

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings and soil sampling. Fieldwork for this site is described in Section 2.15.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs for AOC 642 is lead. Table 4-25 lists exposure guidelines for the COC. The MSDS for the suspected site chemicals is available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities, ambient

weather conditions, and potentially unexploded ordnance. Before ground intrusive activities begin, an EOD team will screen the area for any unexploded ordnance.

The initial PPE for invasive field activities performed at AOC 642 is modified Level D. The AL for this site is 0.025 mg/m^3 in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.18 SWMU 8, Oil Sludge Pit, AOC 636, Torpedo Magazine, Building 161 Area; and AOC 637, Dump Area, Building 161 Area

SWMU 8, an RFI site, and AOCs 636 and 637, CSI sites, include the oil sludge pit area, torpedo magazine, and the dump area. At the oil sludge pit area, oil sludge was disposed of in three unlined pits from 1944 to 1977. Two pits were filled before 1955. The remaining pit was filled in 1977. Previous investigations at SWMU 8 detected free-floating oil, particularly in the southwestern portion of the area overlying one of the pits. The thickness of the free-floating oil detected ranged from 2 to 4 inches over the unit at the time and attenuated rapidly with distance (E/A&H, 1993; Ebasco, 1987). The SWMU 8 area is currently being used for parking.

AOC 637, the area approximately 400 feet south of the present location of Building 161, was used as a burning dump. The unit was used from the late 1940s to the early 1950s. Operations discontinued in the early 1950s. No visible evidence of the burning area remains. Dredged materials have been used as fill in this area, and much of the area is now paved with asphalt. Although no spills or releases were documented, the burning and possible burial of wastes suggests a strong possibility for contamination (E/A&H, 1995b).

AOC 636 is the torpedo magazine area adjacent to Buildings 161 and 161 A-E. Subsurface disposal of waste torpedoes and munitions occurred at the unit prior to 1944, when the area consisted primarily of marshlands. Dredged materials have since been used to reclaim the region. No visible evidence remains of the burial site. Currently the site is primarily open

ground with a few scattered buildings. Flooding occurs during heavy rain due to the lack of storm drains. Although no spills or releases were documented, subsurface rupture or deterioration of the buried ordnance or torpedoes could result in releases which are visually undectable (E/A&H, 1995b). Table 4-16 describes these three sites.

Table 4-16
SWMU 8, AOC 636, and AOC 637
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 8, Oil Sludge Pit Area	Waste Oils, Petroleum Products	**Soil** Soil Gas Sediment **Groundwater** Surface Water
AOC 636, Torpedo Magazine, Building 161	Fuels, Explosives	**Soil** **Groundwater**
AOC 637, Dump Area, Building 161 Area	Paint, Solvents	**Soil** Surface Water **Groundwater** Air

Pathways scheduled for sampling are in bold.

Site Activities

Initial site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities include well development, purging, and sampling. Fieldwork for this site is described in Section 2.16.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are fuels, solvents, and explosives. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities, ambient weather conditions, and potential unexploded ordnance.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed is modified Level D. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C. There is a possibility of unexploded ordnance onsite. Before ground intrusive activities begin, an EOD team will screen the area for any unexploded ordnance.

4.19 SWMU 11, Caustic Pond

SWMU 11 is a caustic pond used for the disposal of calcium hydroxide generated as a by-product of acetylene gas production. Unknown quantities of water saturated with $Ca(OH)_2$ were discharged and settled in the pond while supernatant was discharged to Shipyard Creek. Soil borings advanced during initial assessment found sludge to 1 foot deep. The groundwater data indicated that no $Ca(OH)_2$ remains. Table 4-17 describes this site.

Table 4-17
SWMU 11
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 11, Caustic Pond	Calcium Hydroxide	**Soil** **Surfacewater** **Groundwater** **Sediment**

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling, as required. Fieldwork for this site is described in Section 2.17.7 of this work plan.

Hazard Analysis and Employee Protection

The COC for this site is calcium hydroxide. Table 4-25 lists exposure guidelines for this compound. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

The initial PPE level for invasive field activities performed at this SWMU will be modified Level D. The AL for this site is a continuous PID reading of 50% of the personnel exposure limit (PEL) in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.20 SWMU 120, Pier M Laydown

SWMU 120 consists of the laydown area associated with Pier M and includes the former Building AS-40-1 paint booth. The unit has an outdoor fenced area that stored palletized lead bricks and shielding. Radiological contaminated tarps may have been placed in the laydown area. Severe paint, grease, and solvent staining was noted outside Building AS-40-1. Building AS-40-1 later stored nonhazardous items. Table 4-18 describes this area.

Table 4-18
SWMU 120
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 120 Pier M Laydown	Lead Bricks, Lead Shielding, Paint Wastes, Greases, Paint Thinner Wastes	**Soil** Soil Gas **Sediment** **Groundwater** Air

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling as required. Fieldwork for this site is described in Section 2.18.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are lead, petroleum products, and mineral spirits. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this SWMU will be modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.21 AOC 643, Substation, Building 125

AOC 643 consists of the electric substation, Building 125. Adjacent to Building 125 is a wooden enclosure on a concrete slab containing transformers, inactive direct current generators, switches, and breakers. Records indicate that dielectric fluid spilled and was cleaned up. Stains have been noted on the concrete pavement. Table 4-19 describes the site.

Table 4-19
AOC 643
Site Information and Description

Number	Materials of Concern	Potential Pathways
AOC 643 Substation, Building 125	Dielectric Fluid, PCBs	**Soil** **Sediment** Groundwater Surface Water

Pathways scheduled for sampling are in bold.

Site Activities

Initial site activities will include soil borings and soil sampling. Fieldwork for this site is described in Section 2.19.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are lubricating oil and PCBs. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.22 SWMU 3, Pesticide Mixing Area

SWMU 3 is a former pesticide mixing area which was once devoid of vegetation that has since grown back. The previous investigation included samples from within and outside the denuded area. Table 4-20 describes this area.

Table 4-20
SWMU 3
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 3, Pesticide Mixing Area	Pesticides	**Soil** **Sediment** **Surface Water** **Groundwater**

Pathways scheduled for sampling are in bold.

Site Activities

Site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities will include well development, purging, and sampling as required. Fieldwork for this site is described in Section 2.20.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are pesticides. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at SWMU 3 is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.23 SWMU 6, Public Works Storage Yard; SWMU 7, PCB Transformer Storage Yard; and AOC 635, Paint and Oil Storehouse, Building 3902

SWMU 6, the public works storage yard, is a fenced open area where routinely generated, containerized wastes were stored prior to shipment offsite. Among the wastes stored at the site were hazardous wastes generated from vehicle maintenance, building maintenance, and pest control operations. Wastes generated by vehicle maintenance consisted of cleaning solvents and waste oil. Spent solvents were disposed of by a contractor. Waste oils were recycled through CNSY's waste oil reclamation facility. Building maintenance operations generated paint waste which was disposed of by a contractor along with paint shop waste. The storage yard ceased operation as a hazardous waste storage area when the temporary hazardous waste storage and transfer facility was constructed (E/A&H, 1993).

SWMU 7 consists of Building 3902 within the Public Works Storage Yard, the adjacent concrete slab outside the building, and surrounding areas that stored transformers and associated electrical equipment. Transformers no longer in service were brought to the concrete pad on the south side of the building prior to transportation off base between 1970 and 1976. Transformers were either drained near the concrete pad prior to sale or sold intact. Previous spills are evident around this concrete pad. The total amount of PCBs released to the soil and the concentrations in particular areas have not been adequately characterized. Transformers have been stored in a new hazardous waste storage and transfer facility since 1986. The site is currently vacant with no material storage or other activity in the area. The building is locked and a perimeter fence restricts access into the area (E/A&H, 1992).

AOC 635 consists of Building 3902, a paint and oil storehouse. The area is a fenced compound known as *the old corral*. The storehouse, which was built in 1942, is a metal structure located on a 25 foot x 25 foot concrete pad. Storage operations continued until 1976, when the unit was removed from service. The unit was used to store leaking transformers, electrical equipment, paint cans and drums, used motor oil, paint solvents and plating wastes. The western parking lot was also a drum storage area. The parking lot originally consisted of compacted gravel and dirt; it has since been paved. Storm water runoff tends to pool by the northwest fence line and

the southwest corner of the unit. A storm water collection ditch along the east side of the facility drains to the Cooper River via Outfall 43. Graded soil/gravel, shredded paper, nonhazardous waste, and some metal parts are presently stored in the southwest corner of the area. The Public Works storage yard and the PCB transformer storage yard are adjacent to AOC 635. Seven monitoring wells are currently within the confines of AOC 635 (E/A&H, 1995b). Table 4-21 describes these areas.

Table 4-21
SWMU 6, SWMU 7, and AOC 635
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 6, Public Works Storage Yard	Solid Wastes, Lead	**Soil** Soil Gas Sediment **Groundwater** Surface Water
SWMU 7, PCB Transformer Storage Yard	PCBs	**Soil** **Groundwater**
AOC 635, Paint and Oil Storehouse, Building 3902	Paint, Solvents, PCBs	**Soil** Surface Water **Groundwater** Air

Pathways scheduled for sampling are in bold.

Site Activities

Initial site activities will include soil borings, soil sampling, and installing monitoring wells. Subsequent activities include well development, purging, and sampling. Fieldwork for this site is described in Section 2.21.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are lead, PCBs, and paint solvents/materials. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP.

Due to the potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.24 AOC 646, Operational Storage, Building 3906-Q

AOC 646 consists of Building 3906-Q, the operational storage for the Chicora Tank Farm. It was built in 1943 to house a boiler that heated the residual fuel oil used by the Navy. The CSI proposed for AOC 646 will investigate the area for potential releases to the surrounding soil. Table 4-22 describes this AOC.

Table 4-22
AOC 646
Site Description

Number	Materials of Concern	Potential Pathways
AOC 646 Operational Storage, Building 3906-Q	Paints, Lubricants, Gasoline, Kerosene, Boiler Fuel	**Soil** Groundwater Sediment

Pathways scheduled for sampling are in bold.

Site Activities

Initial site activities will include soil borings and soil sampling. Fieldwork for this site is described in Section 2.22.7 of this work plan.

Hazard analysis and Employee Protection

The COC's at this site are PCBs. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP.

Due to potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.25 AOC 706, Area Behind Building 246

AOC 706 consists of the asphalt driveway to the north and west of Building 246, the former Hazardous Waste Storage and Transit Facility. A review of records including historical aerial photographs indicate Building 246 and the associated paved area were constructed in 1986. Prior to that the parcel appears to have been an open lot surrounded by trees to the north, west and south, with access from Bainbridge Avenue. The current land use is industrial with no residential areas within an approximate quarter mile radius. Soil Sample data indicates that presence of Aroclor 1260, a PCB. Aroclor 1260 is a viscous, sticky resin commonly used in heat transfer fluids, hydraulic fluids, lubricants, insecticides, and as a di-electric fluid in electrical transformers. Table 4-23 describes this AOC.

Table 4-23
AOC 706
Site Description

Number	Materials of Concern	Potential Pathways
AOC 706	PCBs	**Soil** Groundwater **Sediment** Surface Water

Pathways scheduled for sampling are in bold.

Site Activities

Initial site activities will include soil borings and soil sampling. Fieldwork for this site is described in Section 2.23 of this work plan.

Hazard analysis and Employee Protection

The COC's at this site are PCBs. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are identified during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP.

Due to potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

4.26 Fuel Distribution System

The FDS includes all pipelines, tanks and structures used to store and distribute fuel from the Fleet and Industrial Supply Center (FISC) fuel system within NAVBASE. This includes tanks, pumping systems, and active (until November 1995) and known abandoned pipelines. Although a number of these areas were designated for individual RFI or CSI investigations, the selected investigative approach is to assess petroleum contamination throughout the entire FDS, portions of which are located in Zones F, G, and E. This approach will provide the most comprehensive view possible within reasonable cost and time, and allow the investigation to fill the identified data gaps. The designated sites are described in Table 4-24.

Table 4-24
Fuel Distribution System
Site Description

Number	Materials of Concern	Potential Pathways
SWMU 24 Waste Oil Reclamation Facility	Waste Oils, Petroleum Products	Soil Groundwater Surface Water Utilityways

Table 4-24
Fuel Distribution System
Site Description

Number	Materials of Concern	Potential Pathways
AOC 622 Ballast Water Treatment Facility, Facility 3926	Petroleum Products, Metals	**Soil** **Groundwater** Sanitary sewer Surface Water **Utilityways**
AOC 623 Concrete Tank, Building 98	Residual Petroleum Products (Bunker C, Navy Special Fuel Oil)	**Soil** **Groundwater** **Utilityways**
AOC 624 Fuel Oil Booster Pumphouse, Building 98	Petroleum Products, Benzene, Toluene Ethylbenzene and Xylene (BTEX), Metals, VOCs	**Soil** **Groundwater** Surface Water **Utilityways**
AOC 625 Sludge Pumphouse, Building 3901B	Petroleum Products, BTEX, VOCs, Metals	**Soil** **Groundwater** Surface Water **Utilityways**
AOC 626 Charleston Naval Supply Center Fuel Farm	Petroleum Products, BTEX, VOCs, PCBs, Metals	**Soil** **Groundwater** Surface Water **Utilityways** Subsurface gas
AOC 627 Oil Spill Area at Hobson Avenue and Viaduct Road	Petroleum Products, BTEX, VOCs, PCBs, Metals	**Soil** **Groundwater** Surface Water **Utilityways**
AOC 629 Tank Truck/ Car Loading/Unloading Facility	Petroleum Products (including lube oils), BTEX, VOCs, PCBs, Metals	**Soil** **Groundwater** Surface Water **Utilityways** Subsurface gas
AOC 631 Fueling Pier Kilo (K)	Petroleum Products, BTEX, VOCs, PCBs, Metals, Creosote	**Soil** **Groundwater** Surface Water **Utilityways** Subsurface gas
AOC 641 Stripper Pumphouse, Former Building 39-K	Residual Petroleum Products (Bunker C, Navy Special Fuel Oil)	**Soil** **Groundwater** Surface Water **Utilityways**

Pathways scheduled for sampling are in bold.

Site Activities

Initial site activities will include DPT soil sampling, and installing monitoring wells. Subsequent activities include well development, purging, and sampling. Field work for this site is described in Section 2.27.7 of this work plan.

Hazard Analysis and Employee Protection

The COCs at this site are PCBs and petroleum products. Table 4-25 lists exposure guidelines for these compounds. MSDSs for suspected site chemicals are available at the E/A&H field trailer. If additional COCs are discovered during the investigation, MSDSs will be immediately obtained, reviewed, and incorporated into the ZHASP. Site physical hazards are related to underground utilities and ambient weather conditions.

Due to potential dermal hazards associated with handling soil and groundwater at this site, the initial PPE level for invasive field activities performed at this site is modified Level D with nitrile inner and outer gloves. The AL for this site is a continuous PID reading of 5 ppm above background or greater in the breathing zone. If this occurs, the required level of PPE shall be upgraded to Level C.

Table 4-25
Zone D, F, and G Chemical Hazards
Exposure Information

Compound	Ionization Potential (ev)	Odor Threshold (ppm)	OSHA PEL	ACGIH TLV	NIOSH REL	Action Level
			Solvents/Degreasers			
Perchloroethylene	9.3	5	25 ppm	25 ppm 100 ppm- STEL	Potential Occupational Carcinogen	12 ppm
Trichloroethylene	9.5	50	50 ppm 200 ppm - STEL	50 ppm 100 ppm - STEL	25 ppm Potential Occupational Carcinogen	12 ppm
1,1,1-Trichloroethane	Not Listed	100	350 ppm 450 ppm - STEL	350 ppm 450 ppm - STEL	350 ppm - Ceiling	175 ppm
			Solvents/Degreasers			
Benzene	9.25	4.7	1 ppm 5 ppm - STEL	10 ppm Suspected Human Carcinogen	0.1 ppm 1 ppm Ceiling Potential Occupation Carcinogen	0.5 ppm
Toluene	8.8	40	100 ppm 150 ppm	50 ppm Skin	100 ppm 200 ppm - Ceiling	25 ppm
Ethylbenzene	8.8	140	100 ppm 125 ppm - STEL	100 ppm 125 ppm - STEl	Not Listed	50 ppm
Xylene	8.6	0.05	100 ppm 150 ppm - STEL	100 ppm 150 ppm - STEL	100 ppm 200 ppm - Ceiling	50 ppm
Acetone	0.40 ppm	1000 ppm	750 ppm	250 ppm	9.69	2.5 to 12.86
Mineral Spirits	NA	500 ppm	100 ppm	350 mg/m³	NA	3.2 to 15.3
PCBs	Not Listed	Not Listed	0.5 mg/m³ Skin	0.5 mg/m³ 1 mg/m³ Skin	Not Listed	0.25 mg/m³
Ethylene Glycol	9.3	Not Listed	50 ppm - Ceiling	50 ppm - Ceiling	Not Listed	25 ppm

Table 4-25
Zone D, F, and G Chemical Hazards
Exposure Information

Compound	Ionization Potential (ev)	Odor Threshold (ppm)	OSHA PEL	ACGIH TLV	NIOSH REL	Action Level
Metals						
Lead	N/A	N/A	0.05 mg/m³	0.15 mg/m³	<0.1 mg/m³	0.025 mg/m³
Cadmium	N/A	N/A	0.05 mg/m³	0.002 mg/m³ - Respirable Fraction 0.01 mg/m³ - Total Dust	Lowest Feasible Concentration	0.01 mg/m³
Chromium	N/A	N/A	1 mg/m³	1 mg/m³	0.5 mg/m³	0.25 mg/m³
Fuels						
Benzene	9.25	4.7	1 ppm 5 pp, - STEL	10 ppm Suspected Human Carcinogen	0.1 ppm 1 ppm - Ceiling Potential Occupational Carcinogen	0.5 ppm
Toluene	8.8	40	100 ppm 150 STEL	500 ppm - Skin	100 ppm 200 ppm - Ceiling	225 ppm
Ethylbenzene	8.8	140	100 ppm 125 ppm - STEL	100 ppm 125 ppm - STEL	Not Listed	50 ppm
Xylene	8.6	0.05	100 ppm 150 ppm - STEL	100 ppm 150 - STEL	100 ppm 200 ppm - Ceiling	50 ppm
Lubricating Oil	NA	5 mg/m³	5 mg/m³	NA	NA	NA
Kerosene	6.8	1	Not Listed	Not Listed	100 mg/m³	50 mg/m³
Acids						
Nitric Acid	N/A	N/A	2 ppm 4 ppm - STEL	2 ppm 4 ppm - STEL	2 ppm	1 ppm
Hydrochloric Acid	N/A	N/A	7 mg/m³ - Ceiling	7 mg/m³ - Ceiling	Not Listed	3.5 mg/m³
Sulfuric Acid	N/A	N/A	1 mg/m³	1 mg/m³ 3 mg/m³ - STEL	1 mg/m³	0.5 mg/m³

Table 4-25
Zone D, F, and G Chemical Hazards
Exposure Information

Compound	Ionization Potential (ev)	Odor Threshold (ppm)	OSHA PEL	ACGIH TLV	NIOSH REL	Action Level
Dusts						
Silica	NA	0.1 mg/m³	0.1 mg/m³	6.0 mg/m³	NA	NA
Nuisance Dust	NA	15 mg/m³	10 mg/m³	15 mg/m³	NA	NA
Pesticides						
DDT	Not Listed	Not Listed	1 mg/m³ - Skin	1 mg/m³	0.5 mg/m³	0.25 mg/m³
DDE	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	—
Chlordane	13.4	Not Listed	0.5 mg/m³ - Skin	0.5 mg/m³ - Skin	Potential Occupational Carcinogen	0.25 mg/m³
Dieldrin	Not Listed	0.041	0.25 mg/m³ - Skin	0.25 mg/m³ - Skin	Potential Occupational Carcinogen	0.12 mg/m³
Endrin	Not Listed	Not Listed	0.1 mg/m³ - Skin	0.1 mg/m³ - Skin	Not Listed	0.05 mg/m³
Malathion	Not Listed	Not Listed	10 mg/m³	10 mg/m³ - Skin	15 mg/m³	5 mg/m³
Parathion	Not Listed	Not Listed	0.1 mg/m³ - Skin	0.1 mg/m³ - Skin	0.05 mg/m³	0.025 mg/m³
Additional Site Contaminants						
Isopropyl Alcohol	1 ppm	400 ppm	400 ppm	400 ppm	10.10	2.0 to 127
Calcium Hydroxide	NA	15 mg/m³	5 mg/m³	5 mg/m³	NA	NA
Hydrazine	NA	1 ppm	0.1 ppm	0.03 ppm Ceiling	8.93	2.9 to 98

Notes:
ACGIH TLV — American Conference of Governmental Industrial Hygienist Threshold Limit Values.
NIOSH REL — National Institute for Occupational Safety and Health Recommended Exposure Limits.
STEL — Short-Term Exposure Limit
ev — Electron Volt

4.27 Zone Physical Hazards

Field personnel should be aware of and act in a manner to minimize the dangers associated with physical hazards typically encountered during environmental investigations. These hazards include heat-related illnesses, severe weather, aboveground utilities, working with and around drill rigs and heavy equipment, uneven terrain, slippery surfaces, and lifting.

4.27.1 Underground Utilities

A major safety concern in environmental investigations is drilling into underground utilities, particularly electrical and natural gas lines. Before drilling or conducting an intrusive activity with the potential to penetrate a utility line, at a minimum, the following steps must be taken at each location, for each well or penetration:

- Conduct a surficial resistivity and magnetic survey to locate underground utilities.
- Offset drilling location from located utility allowing a minimum of 5 feet.
- Core asphalt and concrete then post hole dig to 5 feet bgs.
- While drilling, posthole digging and hand augering in areas where underground utilities may be present, the individual(s) actually doing the invasive work shall wear boots and gloves that provide electrical insulation.

4.27.2 Procedures for Hot or Cold Weather Conditions

The Site Supervisor and the Site Health and Safety Officer (SHSO) shall be aware of the potential for heat stress and other environmental illnesses. When necessary, work regimens shall be implemented that minimize the potential for employee illness. At these times field staff need to be reminded to regularly look at their coworkers for signs or symptoms of heat- or

cold-induced illness. For a discussion of the more common heat- and cold-related illnesses and their associated symptoms see CHASP Section 6.5.1.

Heat stress conditions (area and/or personal) will be monitored during hot weather and/or when elevated levels of PPE are used. When the oral temperature of field staff reaches or exceeds 100°F, they shall rest until their temperatures drop below 99°F. The oral temperature of field staff should not exceed 100.4°F as specified by the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) and Biological Indices (BIs) for 1994-5, (Cincinnati, OH, ACGIH 1994, pp 84-90). Rather than measuring oral temperatures, which can be influenced by external factors such as breathing through one's mouth, infrared measurements of the tympanic membrane will be used as oral temperature equivalents.

4.27.3 Severe Weather Conditions

Fieldwork shall not be conducted when lightning can be seen from the work area. During extreme weather conditions the Site Supervisor shall use his/her best professional judgment and has the authority to stop fieldwork or dismiss workers for the day. Examples of conditions that may warrant work stoppage include: high winds, hail, flooding, and ice storms. In severe weather (e.g., lightning) or an emergency requiring immediate evacuation, contaminated equipment will be bagged or wrapped and taped in 6-mil polyethylene sheeting and tagged as "contaminated" for later decontamination.

4.27.4 Radiation Protection

Radioactive materials/hazards are potentially present within Zones D, F, and G as a result of past activities at the CNSY.

As a part of the CNSY and NAVBASE closure process, the Navy is required to conduct radiological surveys to verify that all material has been removed.

Before E/A&H and its contractors perform any of the below actions, the NAVBASE General Survey Project Superintendent of Zones D, F, and G, shall be contacted by E/A&H employees and contractors to determine if the CNSY verification surveys have been completed in those zones. Once completion of the surveys has been verified, work may be performed with no radiological precautions. This applies to all E/A&H employees and their contractors while conducting fieldwork in Zones D, F, and G, including but not limited to, walkover investigations, drilling, well development, soil sampling, water sampling, and trenching.

4.27.5 Working Around Drill Rigs and Heavy Equipment

Heavy equipment and drill rig operations will be performed in accordance with the procedures outlined in the CHASP Appendix F, Drilling Safety Guide.

4.28 Employee Protection

Employee protection for this project is addressed in several ways including the use of: work limitations (Section 4.28.1), selection of PPE (Section 4.28.2), air monitoring (Section 4.25.3), establishment of ALs (Section 4.28.3), personnel and equipment decontamination procedures (Section 4.29), standard safe work practices (Section 4.30) and general rules of conduct (Section 4.31).

4.28.1 Work Limitations

All site activities will be conducted during daylight only. All personnel scheduled for these activities will have completed initial health and safety training and actual field training as specified in 29 CFR 1910.120(e). All supervisors must complete an additional eight hours of HAZWOPER Site Supervisor training. All personnel must complete an eight-hour refresher training course annually to continue working onsite.

4.28.2 Selection of Personal Protective Equipment

It is important that specified PPE protects against known and suspected site hazards. Protective equipment is selected based on the types, concentrations, and routes of personal exposure that may be encountered. In situations where the types of materials and possibilities of contact are unknown or the hazards are not clearly identifiable, a more subjective determination must be made of the PPE required, and a greater emphasis is placed on experience and sound safety practices.

PPE requirements can change as site information is updated or changes. **A decision to deviate from specified levels of PPE as contained in this ZHASP must be made or reviewed by the Project Health and Safety Officer (PHSO).**

Initial Level of Personal Protective Equipment

Based on the best available information, the appropriate level of PPE for initial site entry is modified Level D. Modified Level D shall be the initial PPE for work activities that disturb the soil or could result in personnel coming into contact with contaminated soil, sediment, groundwater, or surface water. This level of protection was selected because the contaminants detected in the previous studies were low and free product was not detected. Modified Level D protection consists of a hard hat, chemical-resistant coveralls and gloves (vinyl or nitrile), eye protection, and steel-toed and shank boots.

Activities to be initiated in Modified Level D include: soil boring, well installation and construction, soil sampling, and well development. Collecting groundwater samples and determining water levels are two field activities which can be conducted in Level D, as long as field personnel supplement their Level D attire with nitrile gloves (outer gloves, not the 4-mil nitrile inner glove liners).

4.28.3 Air Monitoring

Air monitoring using a PID and/or other appropriate sampling equipment will be conducted before beginning field activities at a new EZ and during ground-disturbing activities. The PID will be field calibrated to measure VOCs relative to a 100 ppm isobutylene standard. If VOCs are detected downhole, colorimetric detector tubes and/or other sampling techniques may be used to identify and approximate concentrations of these compounds.

The PHSO reserves the right to require personal exposure monitoring or other types of air sample collection and analysis. These samples may be required for a variety of reasons such as: to identify a chemical odor, PID readings exceed or approach the AL, or to determine if personal exposures are below Occupational Safety and Health Administration (OSHA) PELs.

A combustible gas indicator (CGI) will be used during all soil borings and well installations. The CGI will be field calibrated to measure flammable gases relative to a methane standard. Downhole CGI readings will be collected periodically during soil-disturbing operations. Field activities will immediately cease if downhole readings exceed 20% of the lower explosive limit (LEL). If CGI readings do not subside, the area will be immediately evacuated and the situation reevaluated to determine how to proceed. The area will investigated; operations may not proceed until downhole readings are below 20% LEL.

Action Level and Ceiling Concentration

Each site at NAVBASE has a designated AL and ceiling concentration. For this project the AL is defined as the PID reading in the breathing zone above which respiratory protection must be upgraded; chemical protective clothing may also be upgraded. The AL is determined on a site-by-site basis. To exceed the AL, PID readings should be sustainable. Readings should remain above the AL for at least one or two minutes at a time. Readings that are elevated for only a few seconds every 15 or 20 minutes do not exceed the AL and do not require workers to upgrade their level of PPE.

The general AL for this zone, as determined on a properly calibrated PID, is 5 PID units above background. This AL was selected after reviewing available site-specific information and previous sampling data for each site in Zones D, F, and G. If additional information becomes available, the AL for this zone or specific sites may be revised. If the AL is exceeded, PPE shall be upgraded to Level C (assuming that cartridge respirators are appropriate, otherwise Level B) if airborne VOC concentrations in the breathing zone exceed the AL, or if the concentration of any contaminant exceeds 50 percent of the OSHA PEL.

If breathing zone concentrations exceed the AL, or site conditions indicate that additional health and safety precautions are needed, field activities in the area shall stop. Field staff shall notify the Site Supervisor of the situation and he/she shall contact the Project Manager and/or the PHSO. The PHSO will be responsible for reassessing the hazards and prescribing revised health and safety requirements as necessary, including upgraded PPE requirements, revised work schedules, and revised decontamination procedures. See Table 4-26 for specific criteria for each protection level.

If PID readings exceed 10 units, the SHSO shall contact the PHSO and discuss the need to identify and quantify airborne contaminants. Work shall not proceed until breathing zone concentrations return to background levels and it is reasonably anticipated that breathing zone readings will stay approximately at background, or the chemical constituent(s) are identified and appropriate PPE is donned.

The ceiling concentration is defined as the maximum allowable PID reading in the breathing zone regardless of PPE. A ceiling concentration of 50 PID units has been established. Should VOC concentrations exceed 50 ppm in the breathing zone, field workers should secure their equipment and back off the site. Work shall not resume until the Site Supervisor understands why VOC concentrations became elevated, knows the major constituents of the VOCs being generated, and the VOCs in the breathing zone are less than 5 ppm or workers have upgraded

to Level C or B. The proper PPE upgrade shall be determined by the PHSO based on site-specific chemical information, i.e., is there enough information to determine that air-purifying respirators will provide sufficient protection.

Field monitoring values will be recorded in a field logbook and copies must be posted for field personnel review.

Table 4-26
Level of Protection and Criteria

Level of Protection	Criteria for Use	Equipment
Level A	• When atmospheres are "immediately dangerous to life and health" (IDLH in the NIOSH/OSHA Pocket Guide to Chemical Hazards or other guides.) • When known atmospheres or potential situations exist that could affect the skin or eyes or be absorbed into the body through these surfaces. Consult standard references to obtain concentrations hazardous to skin, eyes, or mucous membranes. • Potential situations include those where immersion may occur, vapors may be generated or splashing may occur through site activities. • Where atmospheres are oxygen-deficient. • When the type(s) and or potential concentration of toxic substances are not known.	• Positive-pressure, full-face piece self-contained breathing apparatus (SCBA) or positive-pressure supplied air respirator (SAR) with escape SCBA. • Fully encapsulating chemical protective suit. • Chemical-resistant inner and outer gloves. • Steel toe and steel shank chemical-resistant boots. • Hard hat under suit. • Two-way radios worn inside suit. • Optional: coveralls, long cotton underwear, disposable protective suit, gloves and boots, over fully encapsulating suit.
Level B	• When respiratory protection is warranted and cartridge respirators are not appropriate. Examples of these conditions are: — when work area may contain less than 19.5 % oxygen, — when expected contaminants do not have appropriate warning properties e.g. vinyl chloride, or — when cartridges UÅe not available to protect against all COPCs. • Hazards associated with limited dermal exposure are not significant.	• Chemical-resistant clothes, coveralls. • Positive-pressure full-face, SCBA or SAR with escape bottle. • Hard hat. • Chemical-resistant outer and inner gloves. • Steel toe and steel shank boots. • Chemical-resistant outer boots.
Level C	• When respiratory protection is warranted and cartridge respirators are appropriate. • When PID readings exceed the Action Level. • When air monitoring indicates airborne concentration of a chemical is 50 % or more of the PEL or TLV • And the work area contains at least 19.5 % oxygen.	• Chemical-resistant coveralls. • Full-face, air-purifying respirator equipped with cartridges suitable for the hazard. • Hard hat. • Chemical-resistant outer and inner gloves. • Steel toe and steel shank boots. • Disposable outer boots.

Table 4-26
Level of Protection and Criteria

Level of Protection	Criteria for Use	Equipment
Modified Level D	• When chemical contamination is known or expected to be present, yet inhalation risk is low and respiratory protection is not required. • Site contaminants may be absorbed through the skin. • The "default level" of PPE required when the ZHASP does not specify another level of PPE. • And the work area has at least 19.5 % oxygen.	• Chemical-resistant coveralls. • Chemical-resistant outer gloves; inner gloves or glove liners, optional. • Steel toe and steel shank boots. • Hard hat. • Safety glasses with side shields or safety goggles. • Optional: chemical-resistant outer boots.
Level D	• When minimal or no chemical contamination is expected. • When ZHASP specifies Level D protection is adequate. • The work area has at least 19.5 % oxygen.	• Inner gloves or chemical-resistant gloves needed to handle soil or water samples. • Steel toe and steel shank boots. • Hard hat. • Safety glasses with side shields or safety goggles. • Optional: coveralls and disposable outer boots. • Work clothes.

Equipment Maintenance

Before being used daily, PIDs, CGIs, and other monitoring equipment shall be calibrated or their proper function verified. Throughout the day this equipment shall be periodically checked to ensure it is working properly. A final calibration shall be conducted at the end of the workday, at which time each instrument will be checked to ensure that it is free from surface contamination. Air monitoring equipment shall detect the calibration standard within a range of plus or minus 10%, otherwise the instrument shall be considered to be malfunctioning. Field staff shall note in their field notebooks that they conducted these calibrations and checks and note whether the equipment was functioning properly. When equipment is not functioning properly it should be brought to the attention of the Site Supervisor or SHSO, who will arrange to repair and/or replace that equipment as needed.

4.29 Personnel and Equipment Decontamination

As needed, a CRZ will be established adjacent to EZs established for invasive activities, and will include stations for decontaminating personnel, PPE, and hand tools. Typically, a portion of the CRZ will be covered with sheets of 6-mil polyethylene (generally, an area 20 feet by 20 feet

is sufficient) with specific stations to accommodate the removal and disposal of the protective clothing, boot covers, gloves, and respiratory protection.

Heavy equipment and field equipment that cannot adequately be decontaminated in the CRZ may be decontaminated on a more centrally located decontamination pad. Table 4-27 lists equipment that may be convenient to have onsite to decontaminate heavy equipment and vehicles; this table also explains how to use this equipment.

There are numerous ways to lay out decontamination areas. Decontamination areas for Level C and Modified D PPE should be based on this concept of decontamination, but can be scaled back in accordance with the decontamination needs of the specific site and level of PPE. As a general rule, people working in the CRZ, assisting in the decontamination of workers leaving the EZ, shall be outfitted in PPE that is one protection level below what the exiting workers are using. For example, if workers leave the EZ in Level C, personnel in the CRZ should be in Modified D.

Often equipment may be adequately decontaminated using a soapy wash solution and following specified rinsing procedures. Normally equipment decontamination will be completed in Level D with gloves or Modified D PPE. Respirators not only need to be decontaminated and cleaned between uses, but also need to be sanitized. Alcohol swabs are generally sufficient. In inclement weather (e.g., lightning) or an emergency requiring immediate evacuation, contaminated equipment will be bagged or wrapped and taped in 6-mil polyethylene sheeting and tagged as "contaminated" for later decontamination.

Table 4-27
Equipment Recommended for Decontaminating Heavy Equipment and Vehicles

• Storage tanks or drums to be used for storing collected wash and rinse solutions; alternatively, equipment to treat collected wash and rinse solutions may be substituted.
• Pumps and filters as needed to collect wash and rinsate solutions.
• Pressurized steam sprayers for steam cleaning equipment.
• Long-handled brushes for general cleaning of exterior surfaces. Also shovels and other equipment may be used to dislodge caked-on contaminated mud that may be present on the undercarriage or in the tires.
• Wash solutions, selected for their ability to remove (dissolve, etc.) contaminants
• Rinse solutions, selected for their ability to remove contaminants and wash solutions.
• Pressurized sprayers for washing and rinsing, particularly hard-to-reach areas.
• Clean buckets that can contain cleaning and rinsing solutions.
• Brooms and brushes that can be used to clean the interior, operator areas of vehicles and equipment.

4.29.1 Full Decontamination Procedures

Workers shall use the following cleaning and decontamination procedures when exiting the EZ. These procedures should be followed when workers are leaving the area for lunch, at the end of their shift, or when work is completed for an EZ. Procedures for rest breaks, changing SCBA tanks and cartridges are described in Section 4.28.2. Not all steps apply to every situation; follow applicable procedures. Decontamination procedures shall start at the EZ/CRZ interface and continue away from the EZ toward the SZ.

Full Decontamination

1. ***Equipment drop***. Deposit used equipment onto plastic drop cloths or into a plastic-lined tub. All gross contamination should be removed here; fine cleaning and decontamination of equipment may be completed here or elsewhere. Before moving equipment that is still contaminated, it must be wrapped and taped.

2. ***Outer boot and glove wash.*** Wash/remove gross contamination from outer boots, outer gloves, SCBA, and/or supplied-air respirator (SAR).

3. ***Tape removal.*** Remove tape from ankles and wrists and discard in plastic-lined drum.

4. ***Outer boot removal.*** Remove outer boots; disposable outer boots may be discarded in the same waste container used in Step 3. Thoroughly clean nondisposable boots before removing them from the site. (If nondisposable boots are used, they should be dedicated to the project.)

5. ***Outer glove removal.*** Remove and discard outer gloves. Gloves may be disposed of in the same waste container as used in Step 3.

6. ***SCBA and SAR removal.*** For Level B*.

   SCBA — With buddy or other site worker, remove backpack, remove facepiece, and shut off air flow.

   SAR — With buddy or other site worker, remove harness and escape bottle, remove facepiece, shut off air flow.

   * If coveralls are significantly contaminated, leave the respirator facepiece on, disconnect the air hose just downstream of the regulator, turn off the airflow, remove the backpack or equipment harness, and leave the facepiece in place. Remove the facepiece in Step 8.

7. ***Coverall removal.*** Rinse coveralls, if needed; remove coveralls and discard them. The same drum may be used as in Step 3. Nondisposable coveralls shall be double-bagged with the outer bag clearly labeled "contaminated."

8. ***Respirator removal.*** Remove respirator (or facepiece of Level B equipment, if it is still being worn). Discard spent cartridges, clean, disinfect, dry, and properly store respirator or facepiece.

9. ***Inner glove removal.*** Remove and discard inner gloves.

10. ***Exit area.*** Exit the CRZ via the SZ.

11. ***Field Wash.*** Wash and rinse hands and face.

12. ***Redress.*** Redress into appropriate PPE for reentry or change into street clothes.

Notes:

- All wastes (soil and water) generated during personal decontamination will be collected in 55-gallon drums. The drums will be labeled by E/A&H personnel; final disposal will be by the Navy.

- Hard hats and eye protection should be washed at the end of each workday with a soap and water solution.

4.28.2 Partial Decontamination Procedures

To change a respirator cartridge or SCBA tank:

1. ***Outer boot and glove wash.*** Wash outer boots and gloves. Wash/remove gross contamination from SCBA and/or SAR equipment.

2. ***Tape removal.*** Remove tape from ankles and wrists and discard in a plastic-lined drum.

3. ***Facepiece removal.*** Disconnect facepiece and air hose just downstream of regulator. The facepiece may remain in place, or be removed and cleaned. Remove the spent tank from the backpack and replace it with a full tank. Connect air hose and turn on air.

4. ***Respirator removal.*** Remove respirator, remove used cartridges, clean and disinfect respirator, install new cartridges, and don respirator.

5. ***Respirator check.*** Check to make sure that respirator still seals properly to your face.

6. ***Don clean PPE.*** Put on clean outer gloves, tape wrists (as applicable), and re-enter EZ.

When taking a rest break:

1. ***Outer boot and glove wash.*** Wash outer boots and gloves. Wash-remove gross contamination from SCBA and/or SAR equipment.

2. ***Tape removal.*** Remove tape from ankles and wrists and dispose of it in a plastic-lined drum.

3. ***Respirator removal.*** Remove SCBA unit, SAR harness or respirator, and place in a clean area; plastic sheeting may be needed.

4. ***Coverall removal.*** Remove outer wear if it is ripped or significantly contaminated. In hot weather, at least unzip and pull down upper half of coveralls.

5. ***Inner glove removal.*** Remove and discard inner gloves.

6. ***Wash.*** Wash and rinse hands and face at the field wash station.

7. ***Rest break.*** Take rest break; remember to drink plenty of water, Gatorade, or other similar beverage.

8. ***Don inner gloves.*** Put on inner gloves.

9. ***Don PPE.*** Don coveralls, outer boots, and outer gloves. Tape wrists and ankles (as needed) and reenter the EZ.

Decontamination procedures, based on Level D protection:

- Brush heavily soiled boots and rinse outer gloves and boots with soap and water.
- Remove gloves and deposit them in a trash container.
- Discard gloves and other disposable PPE in a trash container.
- Wash hands and face, and preferably shower as soon as practical.

4.28.3 Closure of the Decontamination Station

All disposable clothing and plastic sheeting used during site activities at sites with Level D through Level C will be double-bagged and disposed of in a refuse container. Decontamination and rinse solutions and disposable PPE from Level B site will be placed in a labeled 55-gallon drum (separate solids and liquids) for later analysis and disposal. All washtubs, pails, buckets, etc. will be washed and rinsed at the end of each workday.

4.29 Standard Safe Work Practices

- Eating, drinking, chewing gum or tobacco, smoking, or any activity that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated as contaminated, unless authorized by the SHSO.

- Hands and face must be thoroughly washed upon leaving the work area.

- No contact lenses will be worn in work areas while invasive activities are conducted.

- Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as practical after leaving the CRZ.

- Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, do not walk through puddles, leachate, or discolored surfaces, or lean, sit, or place equipment on drums, containers, or on soil suspected of being contaminated.

- Medicine and alcohol can exacerbate the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel on cleanup or response operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Consumption of alcoholic beverages is prohibited.

- Maintain adequate side and overhead clearance to ensure that the drill rig boom does not touch or pass close to any overhead power lines or other overhead obstacles or obstructions.

- NAVBASE Public Works and local utility representatives shall be contacted and requested to identify all underground utility lines. Utility lines should be marked using characteristic spray paint or labeled stakes. A buffer zone, 3 yards to either side of a utility line, should be maintained during all subsurface investigations.

- Due to the flammable properties of the potential chemical hazards, all spark or ignition sources should be bonded and/or grounded or mitigated before soil boring advancement or other site activities begin.

4.30 General Rules of Conduct

- Liquor, firearms, narcotics, tape recorders, and other contraband items are not permitted on the premises.

- Any violation of local, state, or federal laws, or conduct which is outside the generally accepted moral standards of the community is prohibited.

- Violation of the Espionage Act, willfully hindering or limiting production, or sabotage is not permitted.

- Willfully damaging or destroying property, or removing government records is forbidden.

- Misappropriation or unauthorized alteration of any government records is forbidden.

- Securing government tools in a personal or contractor's tool box is forbidden.

- Gambling in any form, selling tickets or articles, taking orders, soliciting subscriptions, taking up collections, etc. is forbidden.

- Doing personal work in government shop or office, using government property or material for unauthorized purposes, or using government telephones for unnecessary or unauthorized local or long-distance telephone calls is forbidden.

- Compliance with posted signs and notices is required.

- Boisterousness and noisy or offensive work habits, abusive language, or any verbal, written, symbolic, or other communicative expression which tends to disrupt the work or morale of others is forbidden.

- Fighting or threatening bodily harm to another is forbidden.

- Defacing any government property is forbidden.

- Wearing shorts of any type and/or offensive logos, pictures, or phrases on clothing is forbidden. Shirts, shoes and pants or slacks, or coverall-type garments will be worn at all times on government property.

- All persons operating motor vehicles will obey all NAVBASE traffic regulations.

4.31 Medical Monitoring Program

See CHASP Section 7.

4.32 Authorized Personnel

Personnel anticipated to be onsite at various times during site activities include:

• Engineers-in-Charge	Matthew A. Hunt (SOUTHDIV)
	Brian Stockmaster (SOUTHDIV)
• Site Contact	Amos Webb (NAVBASE)
• Principal In-Charge	James Speakman (E/A&H)
• Manager, Charleston Operations	Todd Haverkost (E/A&H)
• Task Order Manager/Project Manager	Craig Smith (E/A&H)
• Project Health and Safety Officer	John Borowski (E/A&H)

- Site Supervisor — Craig Smith (E/A&H)
- Site Health and Safety Officer — Tim McCord (E/A&H)

Responsibilities of Key Field Staff

Key field staff for this project, in terms of health and safety are:

- Site Supervisor
- Site Health and Safety Officer
- (All) Field Staff

The primary health and safety responsibilities associated with each of these positions are delineated in CHASP, Sections 8.1, 8.2, and 8.3, respectively.

4.33 Emergency Information

All hazardous waste site activities present a risk to onsite personnel. During routine operations, risk is minimized by establishing good work practices, staying alert, and using proper PPE. Unpredictable events such as physical injury, chemical exposure, or fire may occur and must be anticipated.

If any situation or unplanned occurrence requires outside emergency, immediately call the appropriate contact from the following list:

Contact	Agency or Organization	Telephone
Amos Webb	NAVBASE Charleston, Site Contact	(803) 743-5519
Matthew A. Hunt	SOUTHDIV	(803) 820-5525
Brian Stockmaster	SOUTHDIV	(803) 820-7481
Law Enforcement	NAVBASE Security	(803) 743-5555

Contact	Agency or Organization	Telephone
Fire Department	NAVBASE Fire Department	(803) 743-5333
Ambulance Service	NAVBASE Ambulance	(803) 743-5444
Hospital	Charleston Naval Hospital Baker Hospital	(803) 743-7000 (803) 744-2110
Poison Control	Southern Poison Control Center	1-800-922-1117
Craig Smith	EnSafe/Allen & Hoshall, Task Order Manager	(904) 479-4595
John Borowski	EnSafe/Allen & Hoshall, PHSO	(901) 372-7962

* Use Charleston Naval Hospital for (potentially) life-threatening situations. For medical needs that are less urgent, the naval hospital will not serve civilians; Baker Hospital is the next closest appropriate medical facility.

Should an emergency occur or a potential emergency becomes a possibility, the following persons shall be fully apprised of the situation a soon as practical: Amos Webb, NAVBASE; Matthew Hunt and Brian Stockmaster, SOUTHDIV Engineers-in-Charge; Todd Haverkost, E/A&H Manager, Charleston Operations; Craig Smith, Project Manager; and John Borowski, E/A&H PHSO. Other persons, as appropriate, may also need to be contacted.

4.33.1 Site Resources

A cellular telephone will be available in the SZ for routine and emergency communication/ coordination with NAVBASE, SOUTHDIV, and the E/A&H field office. First-aid and eye wash equipment will be available at the work area and in each field vehicle.

4.33.2 Emergency Procedures

Examples of an emergency include:

- A fire, explosion, or similar event at or near the site whether related to this project or not;
- A member of the field crew sustains a significant injury, or experiences symptoms of a chemical exposure; or
- The discovery of a condition which suggests that site conditions are imminently more dangerous or hazardous than anticipated.

If an emergency occurs, follow these procedures:

- If it is necessary to evacuate the area, immediately proceed to a rally point and remain there until instructed otherwise.
- Use planned escape routes.
- If a member of the field team experiences effects or symptoms of exposure while on the scene, the field crew will immediately halt work and act according to the instructions provided by the Site Supervisor or, in his absence, the SHSO.
- For applicable site activities, including all Level B activities, use wind indicators to continuously indicate downwind or preferred escape routes, from upwind routes.
- Investigate condition(s) suggesting that site conditions may be more hazardous than anticipated. The condition observed and the decisions made shall be recorded in the

safety logbook, or in the field logbook if no safety logbook is maintained. If there are doubts about how to proceed, suspend work and leave the work area until the PHSO has evaluated the situation and appropriately instructed the field team.

- If an accident occurs, the Site Supervisor is to complete an Accident Report Form (Appendix E) for submittal to the managing Principal-in-Charge of the project.

- If a member of the field crew suffers a personal injury, the SHSO will call **NAVBASE Fire Department 743-5333 or 5444** if an ambulance is needed. Next, alert appropriate emergency response agencies as the situation dictates. Complete an Accident Report Form for any such incident.

- If a member of the field crew suffers chemical exposure, flush the affected areas immediately with copious amounts of clean water, and if the situation dictates, the SHSO should alert appropriate emergency response agencies, or personally ensure that the exposed individual is transported to the nearest medical treatment facility for prompt treatment. (See Appendix G for directions to the emergency medical facility.) An Accident Report Form will be completed for any such incident.

Directions to the nearest emergency medical facility capable of providing general emergency medical assistance and treating chemical burns are provided in Appendix D of this work plan.

4.34 Forms

The following forms will be used in implementing this ZHASP:

- Plan Acceptance Form
- Plan Feedback Form

- Exposure History Form
- Accident Report Form

A ZHASP Plan Acceptance Form will be filled out by all employees working onsite before site activities begin. The Plan Feedback Form will be filled out by the SHSO and any other onsite employee who wishes to fill one out. The Exposure History Form will be completed by both the Field Project Manager and the individual(s) for whom the form is intended. Examples of each form are provided in Appendix H of this work plan.

All completed forms must be returned to the Task Order Manager at EnSafe/Allen & Hoshall, Memphis, Tennessee.

5.0 SIGNATORY REQUIREMENT

Condition I.E. of the Hazardous and Solid Waste Amendments (HSWA) portion of RCRA Part B Permit (EPA SCO 170 022 560) states: *All applications, reports, or information submitted to the Regional Administrator shall be signed and certified in accordance with 40 CFR §270.11.* The certification reads as follows:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

LCDR, CEC, USN
~~Commander~~ CSO, Charleston
~~Charleston Naval Shipyard~~

Date 6/17/96

6.0 REFERENCE LIST

Droze, Cleatwood. October 1995. Personal conference at CNSY to discuss site locations and historical activities with a former NAVBASE Public Works employee.

Ebasco Services, Inc. August 1987. *Interim RCRA Facility Assessment of USN Charleston Naval Shipyard.*

EnSafe. August 1988. Evaluation of Analytical Results. Follow-up Sampling, Closure of Interim Status HW Facilities, Naval Shipyard Charleston, SC.

EnSafe/Allen & Hoshall. April 21, 1995a. *Comprehensive Corrective Action Management Plan.*

EnSafe/Allen & Hoshall. August 30, 1994. *Final Comprehensive RFI Work Plans, Volumes I through V.*

EnSafe/Allen & Hoshall. June 6, 1995b. *Final RCRA Facility Assessment for Naval Base Charleston, Volumes I, II, III, and IV.*

EnSafe/Allen & Hoshall. January 1996. *Draft Final Environmental Baseline Survey.*

Rust Environmental and Infrastructure, March 1996, Closure Activities Report and Certification for Building 246.

S&ME, Inc. March 29, 1995. Assessment Report Addendum, Building 1346, Charleston Naval Base, Charleston, South Carolina.

United States Environmental Protection Agency. Permit, USEPA I.D. No. SCD 170 022 260

United States Environmental Protection Agency. Region IV. Environmental Services Division. February 1, 1991. *Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual.*

Appendix A

SWMU/AOC Summary

Table A-1
SWMU/AOC Summary
Zones D, F, and G
Naval Base Charleston

SWMU/ AOC #	Name	Materials Released, Stored, or Disposed	Investigative Approach	Location
		Zone F		
4	Pesticide Storage Building	Pesticides	RFI	Buildings 1836, 1824, 1316, 381. Hobson Avenue
619	Former Oil Storage Yard	Petroleum Products	CSI	Buildings 1836, 1824, 1316, 381. Hobson Avenue
36	Building 68 Battery Shop	Sulfuric Acid	RFI	Building 68. Near Thirteenth Street and River Road.
620	Battery Shop, Building 68	Paint, Solvents, Petroleum Products	RFI	Building 68. Near Thirteenth Street and River Road.
109	Abrasive Blast Media Storage Area	Blast Media	CSI	Buildings 1364, 1365, and 1393 near Necessary Lane.
175	Crane Painting Area, Near Building 1277	Paint Constituents, Heavy Metals, Lead, Acetone, Xylenes, Toluene	RFI	Near Building 1277 and 11th Street.
607	Dry Cleaning, Building 1189	Perchloroethylene	RFI	Building 1189
609	Service Station, Building 1346	Petroleum Products, Ethylene Glycol	RFI	Building 1346. Near Enterprise Avenue and Borie Street.
611	Grease Rack and Hobby Shop, Building 1264	Petroleum Products, Solvents, Degreasers, Lead	CSI	Enterprise Avenue and Borie Street
613	Old Locomotive Repair Shop, Former Building 1169	Petroleum Products, Solvents	RFI	Near Building 242, Avenue A South
615	Old Chain Locker, Building 1391	Epoxies, Resins	CSI	Near Buildings 240 and 242
616	Paint Shop, Former Building 1201	Paints, Heavy Metals	CSI	Southwest of Building 1829. 11th Street
617	Galvanizing Plant, Former Building 1176	Zinc, Inorganic Acids	CSI	Building 69
		Zone G		
628	Sandblasting Area, Southeast of Building 68	Paint, Blast Residue	CSI	Near Building 68. Thirteenth Street.
633	Substation, Building 451C	PCBs, Petroleum Products	CSI	Building 451-C. Hobson Avenue.

Table A-1
SWMU/AOC Summary
Zones D, F, and G
Naval Base Charleston

SWMU/ AOC #	Name	Materials Released, Stored, or Disposed	Investigative Approach	Location
		Zone G		
634	Flammable Material Storage, Building 1814	Paint, Flammable Material	CSI	Building 1814. Near Building 224.
638	Torpedo Workshop, Building 132	Explosives, Propellants, Flammable Material Storage	CSI	River Road South and Brumby Street. Building 132.
642	Former Pistol Range, Present Parking Lot	Lead, Explosives	CSI	Near Building X10, X12, and 1431.
8	Oil Sludge Pit	Oil Sludges	RFI	Near Building 161.
636	Torpedo Magazine, Building 161 Area	Explosives, Propellants	CSI	Near Building 161.
637	Dump Area, Building 161 Area	Solid and Hazardous Waste	CSI	Near Building 161.
11	Caustic Pond	Calcium Hydroxide	RFI	Near Bainbridge and sewage pumping station.
120	Pier M Laydown	Marine Anti-foulant Paint, Thinner, Lead	RFI	Near Building 1271.
643	Substation, Building 125	PCBs, Petroleum Products	CSI	Building 125. Hobson Avenue to the south.
3	Pesticide Mixing Area	Pesticides	RFI	Near Building 249.
6	Public Works Storage Yard (Old Corral)	Hazardous Waste, Lead	RFI	Building 3902. Hobson Avenue to the south.
7	PCB Transformer Storage Yard	PCBs	RFI	Building 3902. Hobson Avenue to the south.
635	Paint and Oil Storehouse, Building 3902	PCBs, Paints, Petroleum Products, Solvents, Metals	RFI	Building 3902. Hobson Avenue to the south.
646	Operational Storage, Building 3906-Q	Paints, Petroleum Products	CSI	Building 3906-Q in Chicora Tank Farm
706	Area Behind Building 246	Hazardous Waste, PCBs	RFI	Asphalt Driveway North and West of Building 246
		Fuel Distribution System		
24	Waste Oil Reclamation Facility	Waste Oil, Petroleum Products	RFI	Tanks 39A and 39D located north of the Fuel Farm and to the west of Hobson Ave.
622	Ballast Water Treatment Facility	Petroleum, Oils, Metals	CSI	Building 3926, within the Fuel Farm area

Table A-1
SWMU/AOC Summary
Zones D, F, and G
Naval Base Charleston

SWMU/ AOC #	Name	Materials Released, Stored, or Disposed	Investigative Approach	Location
		Fuel Distribution System		
623	Concrete Tank, Building 98	Petroleum Products	CSI	Building 98 and Tank 148, within the Fuel Farm area
624	Fuel Oil Booster Pumphouse, Building 98	Petroleum Products	RFI	Building 98, within the Fuel Farm area
625	Sludge Pumphouse, Building 3901-B	Petroleum Products	CSI	Building 3901-B, within the Fuel Farm area
626	Charleston Naval Supply Center Fuel Farm	Petroleum Products, Waste Oil	RFI	The fenced Fuel Farm area bounded by Hobson Avenue and Viaduct Avenue, and the associated piping leading to the waterfront
627	Oil Spill Area at Hobson Avenue and Viaduct Road	Petroleum Products	RFI	Vicinity of the intersection of Hobson Avenue and Viaduct Road
629	Tank Truck/Car Loading/Unloading Facility	Petroleum Products	CSI	Building 3913, at the foot of Pier Kilo
631	Fueling Pier Kilo (K)	Petroleum Products	RFI	Fueling Pier Kilo, along the Cooper River
641	Stripper Pumphouse, Former Building 39-K	Petroleum Products	CSI	Bulkhead, near Pier M

Key:
RFI = RCRA Facility Investigation.
CSI = Confirmatory Sampling Investigation.

Appendix B

Treatment Alternatives

Table B-1
Treatment Alternatives For Groundwater/Leachate

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of controls for contaminated groundwater and leachate	Vertical barrier	Slurry wall	Trench around site or hot spot is excavated and filled with bentonite slurry.	Organic/inorganic water chemistry[d] Soil type Soil moisture Particle size distribution Porosity Hydraulic conductivity (saturated and unsaturated) Relative permeability Clay content Soil sorptive capacity Cation exchange capacity Organic carbon content Soil pH Depth to groundwater Groundwater velocity and direction Depth to aquitard (Pilot - Compatibility testing with slurry wall material)
	Groundwater collection	Vertical extraction wells	Vertical wells are used to extract contaminated groundwater.	Use of aquifer Depth to water table Direction of flow Rate of flow Hydraulic conductivity (vertical and horizontal) Effective porosity Aquifer type Hydraulic gradient Identification of recharge and discharge areas Identification of aquifer boundaries Aquitard characteristics (Pilot - slug test)
	Leachate collection	Subsurface drains	System of perforated pipe laid in trenches onsite to collect contaminated groundwater.	Use of aquifer Depth to water table Direction of flow Rate of flow Hydraulic conductivity (vertical and horizontal) Effective porosity Aquifer type Hydraulic gradient Identification of recharge and discharge areas Identification of aquifer boundaries Aquitard characteristics (Pilot - slug test)

Table B-1 Treatment Alternatives For Groundwater/Leachate				
Data Quality Objective Elements	**Remedial Technology[a]**	**Process Option[b,c]**	**Description**	**Data Quality Needs**
To evaluate the feasibility and implementability of treatments for contaminated groundwater and leachate	Chemical treatment	Ion exchange	Ion exchange is the process of exchanging selected dissolved ionic contaminants with a set of substitute ions. Ion exchangers are primarily used for recovery of dilute solutions of metals or to soften water by removing calcium and manganese.	Organic/inorganic water chemistry[d] Indicator parameters Bicarbonate Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Copper Iron Magnesium Manganese Nickel Oil and grease pH Potassium Sodium Sulfate Total organic carbon (TOC) Total suspended solids Zinc
		Oxidation	Oxidation is a chemical reaction in which one or more electrons are transferred from the chemical being oxidized to an oxidizing agent. Chemical oxidation include destruction of cyanide transformation of organics to biodegradable forms, or detoxification of organics and inorganics.	Organic/inorganic water chemistry[d] Indicator parameters Bicarbonate Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Copper Iron Magnesium Manganese Nickel Oil and grease pH Potassium Sodium Sulfate Total organic carbon (TOC) Total suspended solids Zinc (Pilot - reagent consumption, optimal pH, and reaction time)

Table B-1
Treatment Alternatives For Groundwater/Leachate

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of controls for contaminated groundwater and leachate	Chemical treatment	Metal precipitation	Precipitation is a chemical unit process in which soluble metallic ions are removed from solution by conversion to an insoluble form. Precipitation is commonly used to treat heavy metals, phosphorus, and hardness.	Organic/inorganic water chemistry[d] Indicator parameters Bicarbonate Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Copper Iron Magnesium Manganese Nickel Oil and grease pH Potassium Sodium Sulfate Total organic carbon (TOC) Total Suspended Solids Zinc (Pilot - chemical dosage, contact time, mixing rate, optimal pH, and sludge handling)
		pH adjustment	Neutralizing agents are added to adjust pH.	Indicator parameters Bicarbonate Calcium Chloride Iron Magnesium Manganese pH Potassium Sodium Sulfate Total Suspended Solids (Pilot - titration curve)

Table B-1 Treatment Alternatives For Groundwater/Leachate				
Data Quality Objective Elements	**Remedial Technology[a]**	**Process Option[b,c]**	**Description**	**Data Quality Needs**
To evaluate the feasibility and implementability of controls for contaminated groundwater and leachate	Biological treatment	Aerobic	Aerobic is the use of oxygen-utilizing micro-organisms to biodegrade contaminants.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Dissolved oxygen Hardness Metals, dissolved Nitrogen, ammonia Nitrogen, kjeldahl Nitrogen, nitrate-nitrite Oil and grease Organic carbon pH Phosphorus Total solids Specific conductance Sulfate Sulfide Suspended solids Temperature Volatile suspended solids
		Anaerobic	Anaerobic is the use of non-oxygen-utilizing micro-organisms to biodegrade contaminants.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Dissolved oxygen Hardness Metals, dissolved Nitrogen, ammonia Nitrogen, kjeldahl Nitrogen, nitrate-nitrite Oil and grease Organic carbon pH Phosphorus Total solids Specific conductance Sulfate Sulfide Suspended solids Volatile suspended solids

Table B-1
Treatment Alternatives For Groundwater/Leachate

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of controls for contaminated groundwater and leachate	Physical treatment	Adsorption (granular activated carbon)	Adsorption is a physical separation process in which organic and inorganic materials are removed by sorption or the attraction and accumulation of one substance on the surface of another.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Dissolved oxygen Hardness Iron Metals, dissolved Manganese Nitrogen, ammonia Nitrogen, kjeldahl Nitrogen, nitrate-nitrite Oil and grease Organic carbon pH Phosphorus Sulfate Sulfide Suspended solids
		Air Stripping	Stripping refers to the removal of relatively volatile components from wastewater by passage of air, steam, or other gas through the contaminated liquid. Stripping is effective in removing ammonia, chlorinated solvents, monoaromatics, and other VOCs.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Biochemical oxygen demand Chemical oxygen demand Hardness Iron Manganese Metals, dissolved Oil and grease pH

Table B-1
Treatment Alternatives For Groundwater/Leachate

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of controls for contaminated groundwater and leachate	Physical treatment	Sedimen-tation	Sedimentation is a physical process that removes suspended solids from a liquid matrix by gravitational settling.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Dissolved oxygen Hardness Iron Metals, dissolved Manganese Nitrogen, ammonia Nitrogen, kjeldahl Nitrogen, nitrate-nitrite Oil and grease Organic carbon pH Phosphorus Sulfate Sulfide Suspended solids
		Filtration	Filtration is a physical process used to remove suspended solids from wastewater and is generally proceeded by chemical precipitation and neutralization.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Dissolved oxygen Hardness Iron Metals, dissolved Manganese Nitrogen, ammonia Nitrogen, kjeldahl Nitrogen, nitrate-nitrite Oil and grease Organic carbon pH Phosphorus Sulfate Sulfide Suspended solids

Table B-1
Treatment Alternatives For Groundwater/Leachate

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of controls for contaminated groundwater and leachate	Disposal	POTW	A chemical, physical, or biological wastewater treatment plant designed and constructed to treat municipal domestic wastewater.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Dissolved oxygen Hardness Iron Metals, dissolved Manganese Nitrogen, ammonia Nitrogen, kjeldahl Nitrogen, nitrate-nitrite Oil and grease Organic carbon pH Phosphorus Sulfate Sulfide Suspended solids
		RCRA TSDF	The process of chemical, physically, or biologically treating the wastewater in an offsite permitted commercial hazardous waste facility.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Biochemical oxygen demand Calcium Chemical oxygen demand Chloride Dissolved oxygen Hardness Iron Metals, dissolved Manganese Nitrogen, ammonia Nitrogen, kjeldahl Nitrogen, nitrate-nitrite Oil and grease Organic carbon pH Phosphorus Sulfate Sulfide Suspended solids

Table B-1 Treatment Alternatives For Groundwater/Leachate				
Data Quality Objective Elements	**Remedial Technology[a]**	**Process Option[b,c]**	**Description**	**Data Quality Needs**
To evaluate the feasibility and implementability of controls for contaminated groundwater and leachate	Disposal	Land application	The process of applying wastewater directly on the land for or to infiltration into the soil.	Depth to water table Total phosphorus Chloride Ammonia Nitrate Alkalinity pH Sodium Total dissolved solids Soil type hydraulic conductivity application rate
		Injection	The process of hydraulically placing wastewater into the aquifer using either vertical or horizontal wells.	Depth to water table Total phosphorus Chloride Ammonia Nitrate Alkalinity pH Sodium Total dissolved solids Total organic carbon Soil type hydraulic conductivity application rate (2.5 gallons/ft^2/day or 5/square root of slowest percolation rate.

Notes:

a = USEPA *Conducting Remedial Investigations/Feasibility Studies for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Municipal Landfill Sites*, EPA/540/P-91/001, Office of Solid Waste and Emergency Response Directive 9355.3-11, February 1991

b = 40 Code of Federal Regulations (CFR) 268 Land Disposal Restriction

c = USEPA *CERCLA Site Discharges to POTWs Treatability Manual*, EPA/540/2-90/007, Office of Solid Waste and Emergency Response, August 1990.

d = VOA and SVOA w/TICs, Metals, Cyanide, Pesticides, and PCBs

Table B-2
Treatment Alternatives For Hot Spots, Soil, Sediments, and Waste Materials

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of controls to prevent contact or runoff	Cap	Native Soil Single Barrier Double Barrier	This is the process of placing a physical horizontal barrier across the site.	Moisture content Permeability In-Situ density Atterberg limits Grain size analysis Porosity Depth
	Excavation	Dig up	This is the process of physically removing the hot spot, soil, or waste from the site.	Organic/inorganic water chemistry[d] Moisture content Permeability In-Situ density Atterberg limits Grain size analysis Porosity Depth
	Surface Water Controls	Erosion and runon/runoff controls	System of vegetation and site grading for preventing soil erosion and stormwater runon/runoff.	Organic/inorganic water chemistry[d] Indicator parameters Acidity-alkalinity Nitrogen, ammonia Nitrogen, kjeldahl Nitrogen, nitrate-nitrite Phosphorus Suspended solids
To evaluate the feasibility and implementability of treatments for contaminated soil and contaminants	Thermal Treatment	Thermal Destruction	Thermal destruction is the process of oxidizing organic and inorganics using high temperature.	Organic/inorganic water chemistry[d] Moisture content Particle size BTU content TCLP
		Thermal Desorption	Thermal desorption is the process of using low temperature to volatilize organics and inorganics from a solid matrix.	Organic/inorganic water chemistry[d] Moisture content Particle size TCLP
To evaluate the feasibility and implementability of treatments for contaminated soil and contaminants	Biological Treatment	Aerobic	Aerobic is the use of oxygen-utilizing micro-organisms to biodegrade contaminants.	Organic/inorganic water chemistry[d] Moisture content Soil Texture Temperature pH Soil microorganisms Total nitrogen Total phosphorus Depth to groundwater Dissolved oxygen Methane Chemical oxygen Demand

Table B-2
Treatment Alternatives For Hot Spots, Soil, Sediments, and Waste Materials

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of treatments for contaminated soil and contaminants	Biological Treatment (continued)	Anaerobic	Anaerobic is the use of non-oxygen-utilizing micro-organisms to biodegrade contaminants.	Organic/inorganic water chemistry[d] Moisture content Soil Texture Temperature pH Soil microorganisms Total nitrogen Total phosphorus Depth to groundwater Methane Chemical oxygen Demand
	Physical Treatment	Solidification/ fixation	Solidification is a physical process in which organic and inorganic materials are bound to the surface of another.	Organic/inorganic water chemistry[d] Moisture content Soil Texture Suspended Solids Bulk Density Grain size analysis Atterberg limits Cone index Unconfined Compressive strength Temperature pH
		Vacuum Extraction	Vacuum extraction refers to the removal of relatively volatile components from soil or waste by passage of air, steam, or other gas through the contaminated matrix. Stripping is effective in removing chlorinated solvents, monoaromatics, and other VOCs.	Organic/inorganic water chemistry[d] Moisture content Air Permeability Temperature pH Depth to groundwater
		Solvent Extraction	Solvent extraction is a physical separation process in which organic and inorganic materials are removed from the surface of a solid matrix to a liquid matrix.	Organic/inorganic water chemistry[d] Total Organic Carbon Total Recoverable Hydrocarbons Moisture content Soil Texture Permeability Bulk Density Grain size analysis Clay Content Temperature pH Chemical oxygen Demand Cation Exchange Capacity Depth to groundwater TCLP

Table B-2 Treatment Alternatives For Hot Spots, Soil, Sediments, and Waste Materials				
Data Quality Objective Elements	**Remedial Technology[a]**	**Process Option[b,c]**	**Description**	**Data Quality Needs**
To evaluate the feasibility and implementability of treatments for contaminated soil and contaminants (continued)	Disposal	Consolidation	This is the process of consolidating the waste, soil, and other debris in a properly designed and constructed landfill.	Organic/inorganic water chemistry[d] Moisture content Permeability In-Situ density Atterberg limits Grain size analysis Depth to Groundwater TCLP
		RCRA TSDF	The process of chemical, physically, or biologically treating the contaminant, soil, and other debris in an offsite permitted commercial hazardous waste facility.	Organic/inorganic water chemistry[d] Moisture content Soil Texture Temperature pH Soil microorganisms Total nitrogen Total phosphorus Depth to groundwater Dissolved oxygen TCLP

Notes:

a = USEPA *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites*, EPA/540/P-91/001, Office of Solid Waste and Emergency Response Directive 9355.3-11, February 1991

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d = VOA and SVOA w/TICs, Metals, Cyanide, Pesticides, and PCBs

Table B-3
Treatment Alternatives For Soil Gas

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of controls for subsurface gas	Cap	Native Soil Single Barrier Double Barrier	This is the process of placing a physical horizontal barrier across the site.	Moisture content Permeability In-Situ density Atterberg limits Grain size analysis Porosity Depth
	Vent	Vertical Horizontal	Vertical or horizontal wells are used to vent gases.	Moisture content Air Permeability Atterberg limits Grain size analysis Porosity Depth
To evaluate the feasibility and implementability of treatments for contaminated soil and contaminants	Thermal Treatment	Thermal Destruction	Thermal destruction is the process of oxidizing organic and inorganics using high temperature.	Organic/inorganic water chemistry[d] Moisture content Particle size BTU content TCLP
		Thermal Desorption	Thermal desorption is the process of using low temperature to volatilize organics and inorganics from a solid matrix.	Organic/inorganic water chemistry[d] Moisture content Particle size BTU content TCLP
	Physical Treatment	Carbon Absorption	Adsorption is a physical separation process in which organic and inorganic materials are removed by sorption or the attraction and accumulation of one substance on the surface of another.	Organic/inorganic water chemistry (VOA and SVOA w/TICs, Pesticides, and PCBs) Moisture content Temperature Total Organic Carbon
		Vacuum Extraction	Vacuum extraction refers to the removal of relatively volatile components from soil or waste by passage of air, steam, or other gas through the contaminated matrix. Stripping is effective in removing chlorinated solvents, monoaromatics, and other VOCs.	Organic/inorganic water chemistry[d] Moisture content Air Permeability Temperature pH Depth to groundwater

Table B-3
Treatment Alternatives For Soil Gas

Data Quality Objective Elements	Remedial Technology[a]	Process Option[b,c]	Description	Data Quality Needs
To evaluate the feasibility and implementability of treatments for contaminated soil and contaminants	Disposal	RCRA TSDF	The process of chemical, physically, or biologically treating the contaminant in an offsite permitted commercial hazardous waste facility.	Organic/inorganic water chemistry[d] Moisture content Soil Texture Temperature pH Soil microorganisms Total nitrogen Total phosphorus Depth to groundwater Dissolved oxygen TCLP

Notes:

a = USEPA *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites*, EPA/540/P-91/001, Office of Solid Waste and Emergency Response Directive 9355.3-11, February 1991

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d = VOA and SVOA w/TICs, Metals, Cyanide, Pesticides, and PCBs

Appendix C

Building 1346 Assessment Report Addendum

ASSESSMENT REPORT ADDENDUM
BUILDING NO. 1346
CHARLESTON NAVAL BASE
CHARLESTON, SOUTH CAROLINA
GWPD ID #14067

Prepared For:

Navy Public Works Center Jacksonville
Charleston Zone
3511 Rivers Avenue
North Charleston, South Carolina 29405-7744

Prepared By:

S&ME, Inc.
840 Low Country Boulevard
Mount Pleasant, South Carolina 29464

March 29, 1995

S&ME

April 12, 1995

South Carolina Department of
Health and Environmental Control
Groundwater Protection Division
2600 Bull Street
Columbia, South Carolina 29201

ATTENTION: Mr. Andrew Mettlen

Reference: **ASSESSMENT REPORT ADDENDUM**
Building No. 1346
Charleston Naval Base
Charleston, South Carolina
GWPD ID #14067
S&ME, Inc. Project No. 1134-93-298

Dear Mr. Addison:

S&ME, Inc. (S&ME) appreciates the opportunity to submit this correspondence for your review. In response to South Carolina Department of Health and Environmental Control (SCDHEC) correspondence dated April 16, 1993, S&ME has conducted additional monitoring well installations in accordance with the terms set forth in the SCDHEC well installations approval letter dated September 7, 1993.

We hope that this correspondence is responsive to your needs. If we can be of any further assistance or provide any additional information please feel free to contact us at (803) 884-0005.

Sincerely,
S&ME, Inc.

J. Keene Fleck

J. Keene Fleck, P.G.
Project Geologist

Sonny Chestnut, P.E.
Senior Environmental Engineer

JKF/SC/dd
cc: Mr. Carl Ray
Mr. Jerry Addison

S&ME, Inc. 840 Low Country Boulevard, Mt. Pleasant, South Carolina 29464, (803) 884-0005, Fax (803) 881-6149

Printed on Recycled Paper

S&ME

March 29, 1995

Charleston Naval Shipyard
Building 8, Room 234
Charleston, South Carolina 29408

ATTENTION: Mr. Jerry Addison

Reference: **ASSESSMENT REPORT ADDENDUM**
Building No. 1346
Charleston Naval Base
Charleston, South Carolina
GWPD ID #14067
S&ME, Inc. Project No. 1134-93-298

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cc: Mr. Carl Ray
Mr. Jerry Addison

S&ME, Inc. 840 Low Country Boulevard, Mt. Pleasant, South Carolina 29464, (803) 884-0005, Fax (803) 881-6149

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Appendix

I Figures
II SCDHEC Water Well Record Forms
III Sample Collection Summary Sheets
IV Tables
V Sample Chains of Custody/Laboratory Data Sheets

1.0 INTRODUCTION

The subject property has operated as a retail petroleum outlet for the past two to three decades. S&ME conducted environmental monitoring at the subject facility in early 1991 in conjunction with an Underground Storage Tank (UST) system removal. Laboratory analyses conducted on samples collected from the excavation indicated that a release had occurred.

S&ME subsequently installed six monitoring wells to define the vertical and horizonal extent of the contaminant plume at the site. The Assessment Report (AR) was submitted to the South Carolina Department of Health Environmental Control (SCDHEC) in February 1993. The SCDHEC response to the AR was received in April of 1993 wherein the installation of two additional monitoring wells was requested. In addition, the SCDHEC response requested the implementation of Free Product Recovery (FPR). A site location map and a site/monitoring well location plan are included in Appendix I as Figures 1 and 2, respectively.

S&ME submitted an FPR Plan to the SCDHEC in August 1993, with approval subsequently received in September, 1993. S&ME personnel installed the two wells on November 29 and 30, 1994, based upon SCDHEC correspondence dated September 7, 1993 authorizing the installations. The FPR trench system was installed in early January, 1995. This FPR system installation will be the subject of a separate report to be submitted to the SCDHEC once the system is fully operational and re-charge has forced product into the recovery wells. The following report details the field procedures utilized during the referenced well installations, sampling and analysis data and our conclusions regarding the site.

2.0 GROUNDWATER MONITORING WELL INSTALLATION

Two groundwater monitoring wells (CNB-1346-MW-7 and CNB-1346-MW-8) were installed at the subject facility between November 29 and November 30, 1994. The monitoring well locations are detailed in Appendix I, Figure 2. The well locations were determined based on the data obtained during the initial well installations, the location of groundwater utilities and above ground structures. It appears that these wells, in conjunction with previously installed wells, are sufficient to define the vertical and horizontal extent of the contaminant plume.

The groundwater monitoring wells were constructed by advancing 6 1/4-inch outside diameter (O.D.) hollow stem augers to a depth of approximately 13 feet below grade. The boreholes were converted to monitoring wells with the installation of 13 feet of two-inch diameter, schedule 40 PVC casings and screens. A 10-foot section of screen was used in each well with a number 10 (0.010 inch) factory slot size. The screens were installed from approximately two feet above and eight feet below the groundwater table. A clean, coarse, washed filter sand (FX-50) was installed by tremie within the annulus of the wells opposite the well screen and to a depth of one-foot above the tops of the screens. One-foot bentonite pellet seals were placed above the filter sand and the remaining annulus of the wells were filled with neat cement grout. Protective locking well caps were used to seal the tops of the casing to provide security. Steel, watertight, bolt-down manways were set level with the existing grade so as not to interfere with vehicular traffic.

After the installation of the groundwater monitoring wells, the tops of the well casings and locations were surveyed and added to a scaled site plan previously prepared by a surveyor. SCDHEC Water Well Record Forms are included in Appendix II.

Auger cuttings generated from the well installations were containerized in 55-gallon drums. S&ME requested permission to dispose of these drums in correspondence dated February 15, 1995. Upon receipt of approval from the SCDHEC, S&ME personnel will dispose of the drums according to terms set forth in the referenced S&ME correspondence.

3.0 GROUNDWATER MONITORING WELL SAMPLING/ DEVELOPMENT AND LABORATORY ANALYSIS

A minimum waiting period of 24 hours was allowed for the grout seals and concrete pads to become competent prior to well development and sampling. The wells were then developed and sampled in the order of installation. A minimum of 10 well volumes was purged from each well by slow pumping to ensure proper seating of the gravel pack filter prior to sampling. All equipment which was in direct contact with the purged water was decontaminated with a chemically neutral surfactant and rinsed a minimum of three times with deionized water prior to and between each well purged. The purged water from the wells installed on-site was containerized and currently remains on-site.

All eight wells present at the subject site were sampled utilizing disposable bailers brought to the site in factory sealed containers. As the samples were collected from the wells, they were immediately placed into specially prepared sample containers, labeled and placed on ice. The samples were then shipped by overnight courier to Hydrologic Laboratories, Inc. (Hydrologic) in Frankfort, Kentucky for analysis (SCDHEC certification #70002).

Sampling of all wells was conducted on January 9, 1995. This sampling event included collecting a groundwater sample from each of the eight monitoring wells on-site. The samples collected from the wells during this round were analyzed for Benzene, Ethylbenzene, Toluene and Xylenes (BETX) and Methyl-Tert-Butyl Ether (MTBE). In addition, the two recently installed wells (CNB-1346-MW-7 and CNB-1346-MW-8) were sampled for Total Petroleum Hydrocarbons (TPH) by EPA Method 5030. The worst case well parameters had been targeted during the Hydrogeologic Assessment conducted in 1992 and as such were not targeted for analysis during this phase of the assessment. Copies of the Sample Collection Summary Sheets are included in Appendix III. A summary of the water table elevations is presented in Appendix IV as Table 1.

4.0 LABORATORY ANALYSIS RESULTS

The following sections detail the analytical results obtained from samples collected in January, 1995. Analytical results are tabulated in Appendix IV in Tables 2 and 3. Samples collected from the subject site were submitted to Hydrologic for analysis of targeted parameters. Copies of the sample chain of custody forms and laboratory data sheets are included in Appendix V.

4.1 Soil Sample Analysis Results

Soil samples were collected during the installation of CNB-1346-MW-7 and CNB-1346-MW-8 from the capillary fringe. These samples were submitted to Hydrologic for analysis of BTEX constituents by EPA Method 8020 and Total Petroleum Hydrocarbons (TPH) by EPA Method 5030. There were no targeted analytes detected in the soil sample analyses. Soil sample analysis results are tabulated in Appendix IV, Table 2.

4.2 Groundwater Sample Analysis Results

Perimeter wells CNB-1346-MW-1, CNB-1346-MW-2, CNB-1346-MW-3 and CNB-1346-MW-4 were determined to be either free of petroleum constituents (laboratory results reported below quantitation limits (BQL)) or petroleum constituents were detected below drinking water standards (CNB-1346-MW-4).

The telescoping (deep) well sampled during this round did not exhibit indications of petroleum hydrocarbon impact indicating confinement of the impacted region to the upper reaches of the surficial aquifer. Conversely, CNB-1346-MW-5 was re-confirmed as the "worst case well". A 5.0 ppb Benzene Isoconcentration Map is presented in Appendix I as Figure 3 and a summary of the groundwater analytical data is presented in Appendix IV as Table 2.

5.0 POTENTIOMETRIC SURFACE

The potentiometric surface of the surficial aquifer was interpolated utilizing data obtained by collecting water level measurements in all shallow monitoring wells installed on the site and applying this information to a scaled site plan with surveyed well casing elevations. This allowed the plotting of groundwater contours across the site. Appendix I, Figure 4 presents a potentiometric surface map of the site based on the January 5, 1995 gauging data. The sample collection summary sheets for the monitoring wells are provided in Appendix III. As shown in Figure 4, the general direction of groundwater flow is to the east and slightly south. This direction of groundwater flow is consistent with measurements that have been collected in the past.

Guaging data obtained from the recently installed wells (CNB-1346-MW-7 and CNB-1346-MW-8) was not factored into the interpolated contours. Elevation data obtained from those wells appears to indicate that water table elevations at those locations has not yet stabilized. S&ME will monitor water table elevations at the site and submit potentiometric maps in slated Free Product Recovery reports incorporating this data.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the installation, sampling and analysis of two additional monitoring wells at the site, it appears that the horizontal and vertical extent of the dissolved petroleum plume have been defined. Further, S&ME in conjunction with Navy Base personnel, have implemented the Free Product Recovery (FPR) plan approved in SCDHEC correspondence dated September 7, 1993. Due to the clayey nature of soils at the subject facility and the associated low permeability, it is anticipated that "steady state" conditions will take some time to achieve. S&ME personnel will monitor progress of the FPR system and report to the SCDHEC on a quarterly basis. Given the length of time the plume has remained in the subsurface, it would appear that the low permeability of on-site soils will inhibit migration of the contaminants.

With the completion of assessment activities and the implementation of the FPR system, it is recommended that a Corrective Action Plan (CAP) be prepared for the site to address the dissolved petroleum constituent in the groundwater.

7.0 REFERENCES

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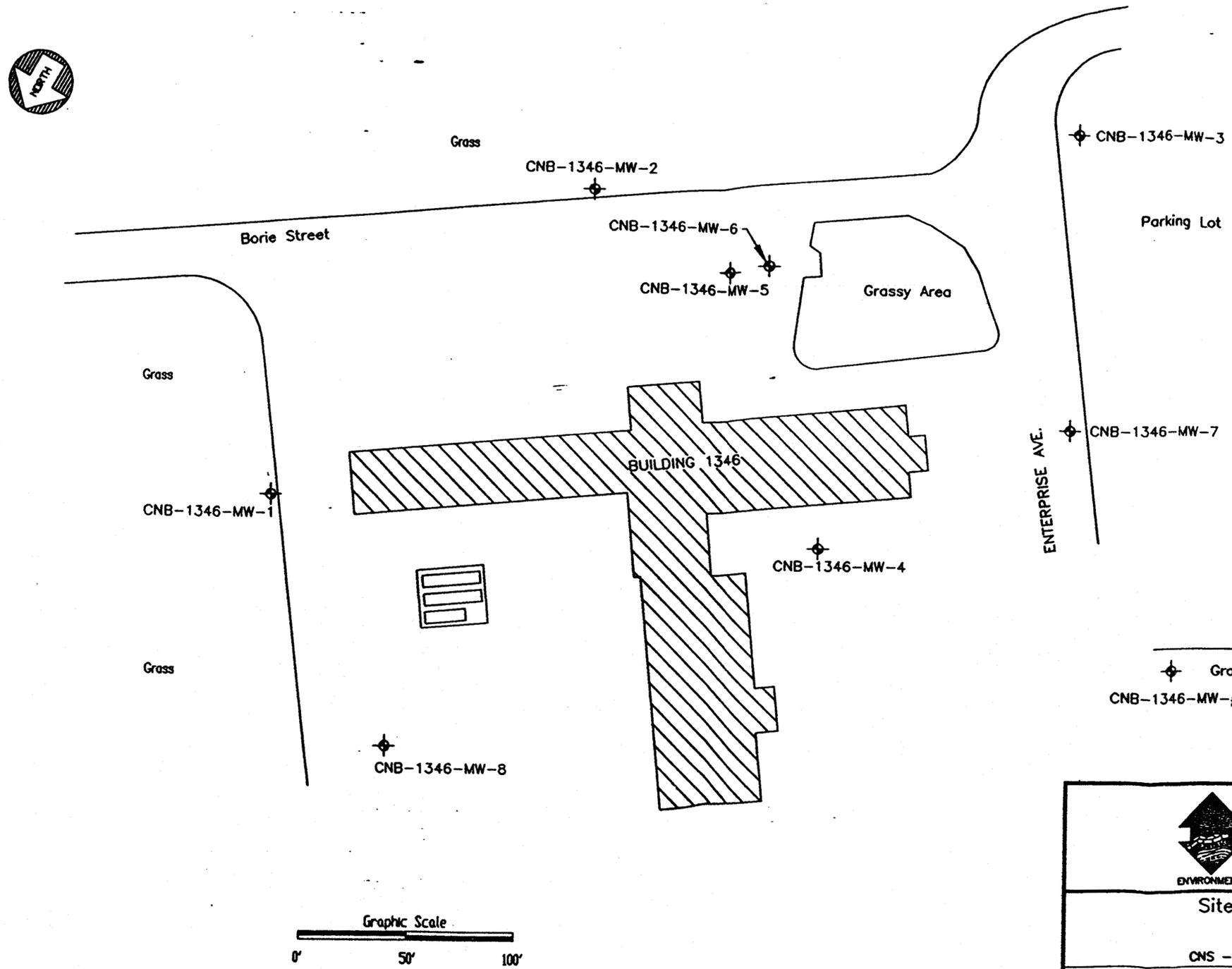
APPENDIX I

FIGURES

SCALE: 1" = 2000'	S&ME ENVIRONMENTAL SERVICES • ENGINEERING • TESTING	Site Location Map Building 1346 Charleston Naval Station Charleston, South Carolina	FIGURE NO 1
CHECKED BY:			
DRAWN BY:		JOB NO: 1134-93-298	
DATE: 3-20-95			



Legend

Groundwater Monitoring Well

CNB-1346-MW-#

S&ME

ENVIRONMENTAL SERVICES • ENGINEERING • TESTING

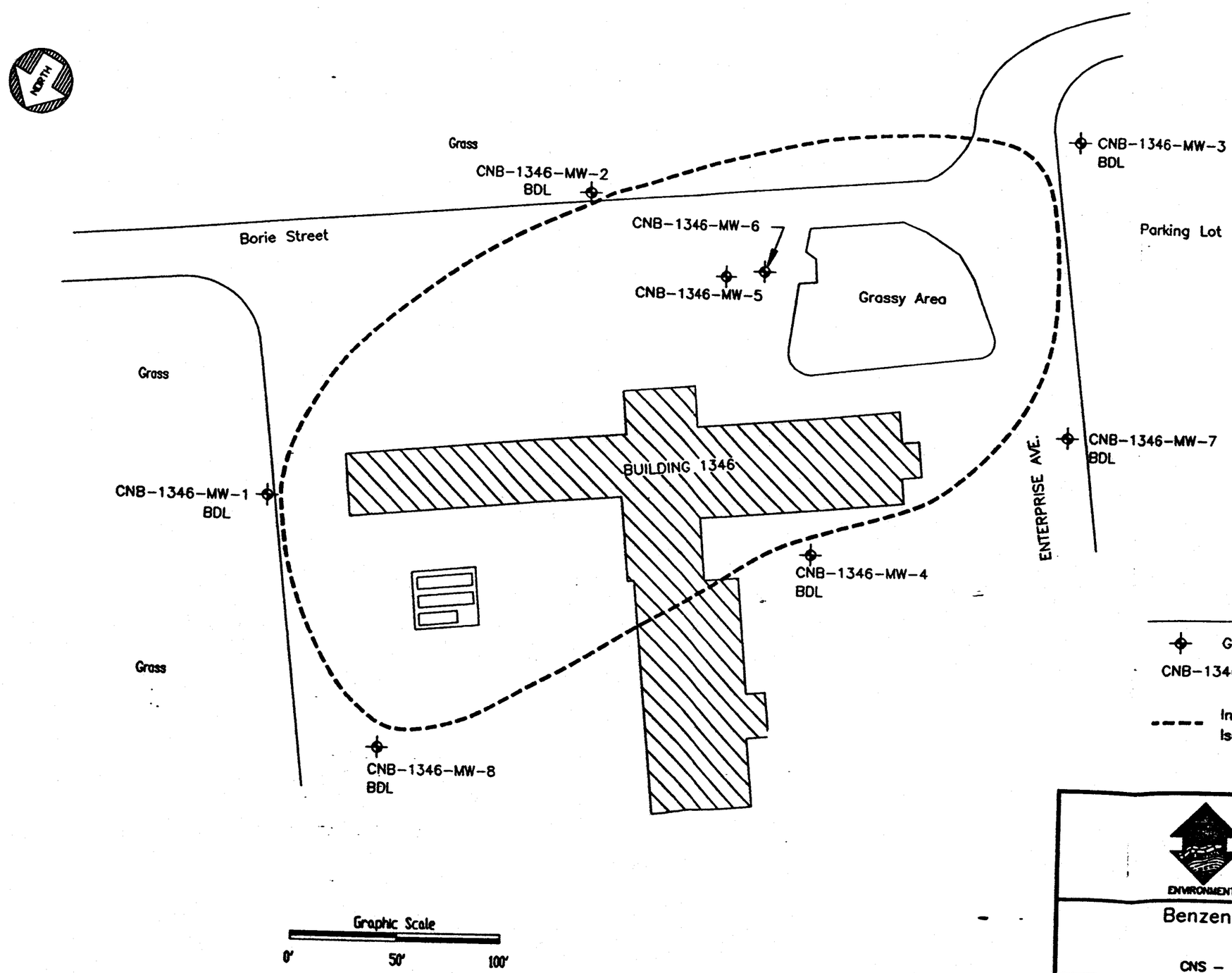
Site/Monitoring Well Location Plan

Building 1346

CNS – Charleston, South Carolina

SCALE: 1" = 50'	DRAWN BY: WJM	CHECKED BY:
JOB NO. 1134-93-298	DATE: 3-20-95	FIGURE NO. 2

00300VVB52



Legend

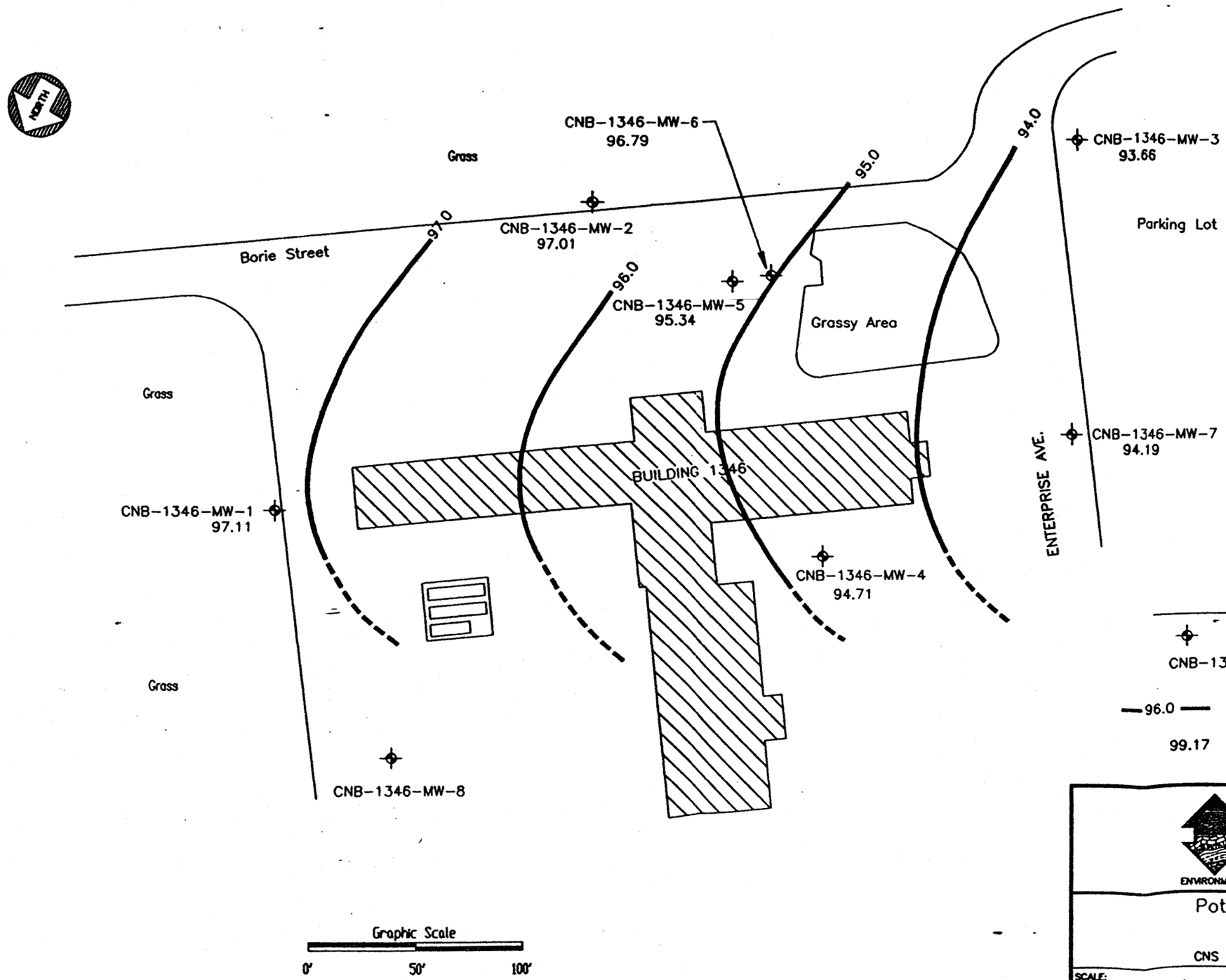
Groundwater Monitoring Well
CNB-1346-MW-#

Interpolated <5.0 ppb Benzene Isoconcentration Line

S&ME
ENVIRONMENTAL SERVICES · ENGINEERING · TESTING

Benzene Isoconcentration Plan
Building 1346
CNS – Charleston, South Carolina

SCALE: 1" = 50'	DRAWN BY: WJM	CHECKED BY:
JOB NO. 1134-93-298	DATE: 3-30-95	FIGURE NO. 3



Legend

Groundwater Monitoring Well
CNB-1346-MW-#

96.0 Potentiometric Surface Contor

99.17 Water Table Elevation

S&ME
ENVIRONMENTAL SERVICES · ENGINEERING · TESTING

Potentiometric Surface
Map 1/9/95
Building 1346
CNS – Charleston, South Carolina

SCALE: 1" = 50'	DRAWN BY: WJM	CHECKED BY:
JOB NO. 1134-93-298	DATE: 3-30-95	FIGURE NO. 4

4328862.dwg

APPENDIX II

SCDHEC WATER WELL RECORD FORMS

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

Ground Water Protection Division 2600 Bull Street Columbia, S.C. 29201 (803) 734-5331 **Water Well Record**

LOCATION OF WELL

County: Charleston System Name: CNB-1346-8

Latitude: Longitude: 79° 57' 5"

Distance And Direction from Road Intersections: Site occupies southwest corner Enterprise and Boric streets/Charleston Naval Shipyard

Street address & City of Well Location

Sketch Map: (See example on back)

See monitoring well location plan – Figure 4 of Addendum to Assessment Report

2. CUTTING SAMPLES [✓] Yes [ ] No

Geophysical Logs [ ] Yes (Please enclose) [✓] No

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Asphalt (Pavement)	2"	2"
SP - Silty Sand/Dark Grey	1'10"	2'
CH - Tight Clay/Dark Grey	4'	6'
- Light Grey	2'	8'
- Tan	5'	13'
* Indicate water bearing zones (use a 2nd sheet if needed)		

3. REMARKS

4. OWNER OF WELL
Address: Charleston Naval Shipyard, Environmental Protection, Code 106.2
Telephone No. (803) 743-5519

Engineer Address: S&ME, Inc. 840 Lowcountry Blvd. Mt. Pleasant SC 29464
Telephone No. (803) 884-0005

5. WELL DEPTH (Completed) 13 ft. Date Started 11/29/94 Date Completed 11/30/94

6. [ ] Mud Rotary [ ] Jetted [✓] Bored [ ] Dug [ ] Air Rotary [ ] Driven [ ] Cable tool [ ] Other

7. USE [ ] Domestic [ ] Public Supply Permit No. ____ [ ] Industry [ ] Irrigation [ ] Air Conditioning [ ] Commercial [ ] Test Well [✓] Groundwater Monitoring Well

8. CASING [✓] Threaded [ ] Welded
Diam 2"
Type [✓] PVC [ ] Galvanized [ ] Steel [ ] Other
2 in. to 2 ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface ____ ft.
Weight ____ lbs./ft.
Drive Shoe? [ ] Yes [✓] No

9. SCREEN:
Type: PVC Diam 2"
Slot/Gauze 0.01" Length 10'
Set Between 2 ft. and 12 ft.
____ ft. and ____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis [ ] Yes (Please enclose) [✓] No

10. STATIC WATER LEVEL
____ ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface
____ ft. after ____ hrs. pumping ____ G.P.M.
Pumping Test [ ] Yes (Please enclose) [✓] No
Yield ____

12. WATER QUALITY
Chemical Analysis [✓] Yes [ ] No Bacterial Analysis [ ] Yes [✓] No
Please Enclose Lab Results.

13. ARTIFICIAL FILTER (Gravel Pack) [✓] Yes [ ] No
Installed from 2 ft. to 13 ft.
Effective size 0.499 uniformity coefficient 1.6

14. WELL GROUTED? [✓] Yes [ ] No
Neat Cement [✓] Sand Cement [ ] Concrete [ ] Other [ ] ____
Depth From 0 ft. to 1 ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION ____ Feet ____ Direction
Petroleum Hydrocarbon Type
Well disinfected upon completion [ ] Yes [✓] No Type ____ Amount ____

16. PUMP Date Installed ____ not installed [✓]
Mfr. name ____ model no. ____
H.P. ____ volts ____ length of drop pipe ____ ft. capacity ____ gpm
TYPE: [ ] Submersible [ ] Jet (shallow) [ ] Turbine [ ] Jet (deep) [ ] Reciprocating [ ] Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

REGISTERED BUSINESS NAME: S&ME, Inc. ADDRESS: 840 Lowcountry Blvd. Mt. Pleasant SC 29464

Signed C. E. Stutts CERT. NO. 716
AUTHORIZED REPRESENTATIVE Date 11/30/94

DHEC # 1903 (10/86) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

Ground Water Protection Division 2600 Bull Street Columbia, S.C. 29201 (803) 734-5331 **Water Well Record**

1. LOCATION OF WELL
County: Charleston System Name: CNB-1346-7
Latitude: [illegible] Longitude: 79 57 [illegible]

Distance And Direction from Road Intersections
Site occupies southwest corner Enterprise and Borie streets/Charleston Naval Shipyard

Street address & City of Well Location

Sketch Map: (See example on back)
See monitoring well location plan - Figure 4 of Addendum to Assessment Report

2. CUTTING SAMPLES ☑ Yes ☐ No
Geophysical Logs ☐ Yes (Please enclose) ☑ No

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Asphalt (Pavement)	2"	2"
SP - Sandy black topsoil	2'	2'
CH - Red Clay	4'	6'
- Grey Clay	7'	13'

* Indicate water bearing zones
(use a 2nd sheet if needed)

3. REMARKS

4. OWNER OF WELL Charleston Naval Shipyard
Address Environmental Protection [illegible]
Code 106.2
Telephone No. (803) 743-5519

Engineer S&ME, Inc.
Address 840 Lowcountry Blvd.
Mt. Pleasant SC 29464
Telephone No. (803) 884-0005

5. WELL DEPTH (Completed) 13 ft. Date Started 11/29/94 Date Completed 11/30/94

6. ☐ Mud Rotary ☐ Jetted ☑ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. USE ☐ Domestic ☐ Public Supply Permit No. ____ ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Groundwater Monitoring Well

8. CASING ☑ Threaded ☐ Welded
Diam 2"
Type ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 2 ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface ____ ft.
Weight ____ lbs./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN:
Type: PVC Diam 2"
Slot/Gauze 0.01" Length 10'
Set Between 2 ft. and 12 ft. **NOTE: MULTIPLE SCREENS USE SECOND SHEET**
____ ft. and ____ ft.
Sieve Analysis ☐ Yes (Please enclose) ☑ No

10. STATIC WATER LEVEL
____ ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface
____ ft. after ____ hrs. pumping ____ G.P.M.
Pumping Test ☐ Yes (Please enclose) ☑ No
Yield

12. WATER QUALITY
Chemical Analysis ☑ Yes ☐ No Bacterial Analysis ☐ Yes ☑ No
Please Enclose Lab Results

13. ARTIFICIAL FILTER (Gravel Pack) ☑ Yes ☐ No
Installed from 2 ft. to 13 ft.
Effective size 0.499 uniformity coefficient 1.6

14. WELL GROUTED? ☑ Yes ☐ No
Neat Cement ☑ Sand Cement ☐ Concrete ☐ Other ☐
Depth From 0 ft. to 1 ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION ____ Feet ____ Direction
Petroleum Hydrocarbon Type
Well disinfected upon completion ☐ Yes ☑ No Type ____ Amount ____

16. PUMP Date Installed ____ not installed ☑
Mfr. name ____ model no. ____
H.P. ____ volts ____ length of drop pipe ____ ft. capacity ____ gpm
TYPE ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
REGISTERED BUSINESS NAME S&ME, Inc. ADDRESS 840 Lowcountry Blvd. Mt. Pleasant SC 29464
CERT. NO. 716
Signed C. E. Stutts Date 11/30/94
AUTHORIZED REPRESENTATIVE

DHEC # 1903 (10/86) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

APPENDIX III

SAMPLE COLLECTION SUMMARY SHEETS

SAMPLE COLLECTION SUMMARY SHEET

General

1. Job Name: NAVY BLDG. 1346
2. Project No.: 1134-93-298
3. Sampled By: TODD T. / FRANK S.
4. Weather: COOL / SUNNY
5. Location: NAVY BASE
6. Well #: 1346-1
7. Well Condition: Good
8. Personnel Present TODD/FRANK

Water Level Information

1. Date: 1/9/95 2. Time: 2:20 3. Static Water Level: 2.29 Ft Below M.P.
4. Description of Measuring Point (M.P.): HIGH SIDE OF PVC CASING
5. Height of M.P. above/below (Circle) Land Surface: 3"
6. Method of Water Level Measurement: ELECTRONIC WATER OR OIL/WATER INTERFACE PROBE

Evacuation Procedure (Wells)

1. Date: 1/9/95 2. Time Evacuation Started: 2:20 3. Time Evacuation Finished: 2:35
4. Method of Evacuation: DISPOSABLE BAILER 5. Total Well Depth: 11.6 Ft Below M.P.
6. Casing Diameter (D): 2 inches 7. HT. of water column (H - Well Depth - Water Level): 8.71 Ft
8. Volume of Water in Well ($0.041D^2H$) = 1.42 X 3 = 4.28 Gallons
   Well Volume X # Volumes = Total Gallons Purged
9. Decontamination Procedure: STANDARD S&ME PROCEEDURES

Meter Calibration:

Buffer PH 7.0 _____ Actual Buffer PH 4.0 or 10.0 _____ Actual _____ Standard Cond: _____ Actual

Record of Well Evacuation

Vol. Purged (Cummul. Gals)	Ø	.86	1.71	2.57	2.99	4.28
Water Temperature (F) (C)	20°C	18C	18°C	18°C	18°C	18°C
PH (Standard Units)	860	1110	2890	2950	3870	3950
Specific Cond. (M/MHOS) (PPM)	7.06	6.99	6.93	6.86	6.85	6.93
Turbidity (Subjective)	Clear	Clear	Cloudy	Cloudy	Cloudy	Cloudy
Odor (Subjective)	Ø	Ø	Ø	Ø	Ø	Ø
Other: _____						

Sampling Information

1. Date: 1/9/95 2. Time: 2:35 3. Sample Containers (Number/Size/Type): 2- 40ml vials
4. Analyses requested: 602 + MTBE
5. Samples Filtered: no 6. Filtration Equipment: n/a
7. Samples Preserved: yes 8. Preservative: HCL
9. Lab Performing Analyses: HYDROLOGIC 10. Sample Type: Well PVC ; Stream _____

SAMPLE COLLECTION SUMMARY SHEET

General

1. Job Name: NAVY BLDG. 1346
2. Project No.: 1134-93-298
3. Sampled By: TODD T. / FRANK S.
4. Weather: COOL / SUNNY
5. Location: NAVY BASE
6. Well #: 1346- 2
7. Well Condition: Good
8. Personnel Present TODD/FRANK

Water Level Information

1. Date: 1/9/95 2. Time: 1:50 3. Static Water Level: 2.20 Ft Below M.P.
4. Description of Measuring Point (M.P.): HIGH SIDE OF PVC CASING
5. Height of M.P. above/below (Circle) Land Surface: 3"
6. Method of Water Level Measurement: ELECTRONIC WATER OR OIL/WATER INTERFACE PROBE

Evacuation Procedure (Wells)

1. Date: 1/9/95 2. Time Evacuation Started: 1:50 3. Time Evacuation Finished: 2:10
4. Method of Evacuation: DISPOSABLE BAILER 5. Total Well Depth: 12.0 Ft Below M.P.
6. Casing Diameter (D): 2 inches 7. HT. of water column (H - Well Depth - Water Level): 9.8 Ft
8. Volume of Water in Well ($0.041D^2H$) = 1.61 X 3 = 4.82 Gallons

Well Volume X # Volumes = Total Gallons Purged

9. Decontamination Procedure: STANDARD S&ME PROCEEDURES

Meter Calibration:

Buffer PH 7.0 _____ Actual, Buffer PH 4.0 or 10.0 _____ Actual _____ Standard Cond: _____ Actual

Record of Well Evacuation

Vol. Purged (Cummul. Gals)	Ø	.96	1.92	2.88	3.84	4.82
Water Temperature (F) (C)	22°C	18°C	18°C	18°C	18°C	18°C
PH (Standard Units)	6.65	6.56	6.55	6.45	6.53	6.64
Specific Cond. (M/MHOS) (PPM)	620	870	490	400	510	510
Turbidity (Subjective)	Clear	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Odor (Subjective)	Ø	Ø	Ø	Ø	Ø	Ø
Other:						

Sampling Information

1. Date: 1/9/95 2. Time: 2:10 3. Sample Containers (Number/Size/Type): 2- 40ml vials
4. Analyses requested: 602 + MTBE
5. Samples Filtered: no 6. Filtration Equipment: n/a
7. Samples Preserved: yes 8. Preservative: HCL
9. Lab Performing Analyses: HYDROLOGIC 10. Sample Type: Well PVC ; Stream _____

General

1. Job Name: NAVY BLDG. 1346
2. Project No.: 1134-93-298
3. Sampled By: TODD T. / FRANK S.
4. Weather: COOL / SUNNY
5. Location: NAVY BASE
6. Well #: 1346- 3
7. Well Condition: Bad
8. Personnel Present TODD/FRANK

Water Level Information

1. Date: 1/9/95 2. Time: 1:00 3. Static Water Level: 5.00 Ft Below M.P.
4. Description of Measuring Point (M.P.): HIGH SIDE OF PVC CASING
5. Height of M.P. above/below (Circle) Land Surface: 4"
6. Method of Water Level Measurement: ELECTRONIC WATER OR OIL/WATER INTERFACE PROBE

Evacuation Procedure (Wells)

1. Date: 1/9/95 2. Time Evacuation Started: 1:00 3. Time Evacuation Finished: 1:25
4. Method of Evacuation: DISPOSABLE BAILER 5. Total Well Depth: 12.0 Ft Below M.P.
6. Casing Diameter (D): 2 inches 7. HT. of water column (H - Well Depth - Water Level): 7.0 Ft
8. Volume of Water in Well ($0.041D^2H$) = 1.14 x 3 = 3.44 Gallons
   Well Volume X # Volumes = Total Gallons Purged
9. Decontamination Procedure: STANDARD S&ME PROCEEDURES

Meter Calibration:

Buffer PH 7.0 _____ Actual Buffer PH 4.0 or 10.0 _____ Actual _____ Standard Cond: _____ Actual

Record of Well Evacuation

Vol. Purged (Cummul. Gals)	Ø	.68	1.38	2.06	2.73	3.44
Water Temperature (F) (C)	18°C	20°C	20°C	21°C	22°C	22°C
PH (Standard Units)	5.52	5.67	5.52	5.56	5.38	5.38
Specific Cond. (M/MHOS) (PPM)	930	930	940	1070	1010	1020
Turbidity (Subjective)	Clear	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Odor (Subjective)	Ø	Ø	Ø	Ø	Ø	Ø
Other:						

Sampling Information

1. Date: 1/9/95 2. Time: 1:25 3. Sample Containers (Number/Size/Type): 2- 40ml vials
4. Analyses requested: 602 + MTBE
5. Samples Filtered: no 6. Filtration Equipment: n/a
7. Samples Preserved: yes 8. Preservative: HCL.
9. Lab Performing Analyses: HYDROLOGIC 10. Sample Type: Well PVC ; Stream _____

SAMPLE COLLECTION SUMMARY SHEET

General

1. Job Name: NAVY BLDG. 1346
2. Project No.: 1134-93-298
3. Sampled By: TODD T. / FRANK S.
4. Weather: COOL / SUNNY
5. Location: NAVY BASE
6. Well #: 1346- 4
7. Well Condition: Good
8. Personnel Present TODD/FRANK

Water Level Information

1. Date: 1/9/95 2. Time: 12:20 3. Static Water Level: 4.79 Ft Below M.P.
4. Description of Measuring Point (M.P.): HIGH SIDE OF PVC CASING
5. Height of M.P. above/below (Circle) Land Surface: 3"
6. Method of Water Level Measurement: ELECTRONIC WATER OR OIL/WATER INTERFACE PROBE

Evacuation Procedure (Wells)

1. Date: 1/9/95 2. Time Evacuation Started: 12:20 3. Time Evacuation Finished: 12:30
4. Method of Evacuation: DISPOSABLE BAILER 5. Total Well Depth: 12.0 Ft Below M.P.
6. Casing Diameter (D): 2 inches 7. HT. of water column (H - Well Depth - Water Level): 7.21 Ft
8. Volume of Water in Well ($0.041D^2H$) = 1.18 X 3 = 3.5 Gallons

Well Volume X # Volumes = Total Gallons Purged

9. Decontamination Procedure: STANDARD S&ME PROCEEDURES

Meter Calibration:

Buffer PH 7.0 _____ Actual, Buffer PH 4.0 or 10.0 _____ Actual _____ Standard Cond: _____ Actual

Record of Well Evacuation

Vol. Purged (Cummul. Gals)	0	.7	1.4	2.1	2.8	3.5
Water Temperature (F) (C)	20c	22°c	22°c	20°c	20°c	20°c
PH (Standard Units)	6.25	6.50	6.50	6.57	6.61	6.62
Specific Cond. (M/MHOS) (PPM)	670	670	650	660	680	680
Turbidity (Subjective)	Clear	Clear	Clear	Clear	Clear	Clear
Odor (Subjective)	Ø	Ø	Ø	Ø	Ø	Ø
Other:						

Sampling Information

1. Date: 1/9/95 2. Time: 12:30 3. Sample Containers (Number/Size/Type): 2- 40ml vials
4. Analyses requested: 602 + MTBE
5. Samples Filtered: no 6. Filtration Equipment: n/a
7. Samples Preserved: yes 8. Preservative: HCL
9. Lab Performing Analyses: HYDROLOGIC 10. Sample Type: Well PVC ; Stream _____

SAMPLE COLLECTION SUMMARY SHEET

General

1. Job Name: NAVY BLDG. 1346
2. Project No.: 1134-93-298
3. Sampled By: TODD T. / FRANK S.
4. Weather: COOL / SUNNY
5. Location: NAVY BASE
6. Well #: 1346- 5
7. Well Condition: Good
8. Personnel Present TODD/FRANK

Water Level Information

1. Date: 1/9/95 2. Time: 2:50 3. Static Water Level: 4.23 Ft Below M.P.
4. Description of Measuring Point (M.P.): HIGH SIDE OF PVC CASING
5. Height of M.P. above/below (Circle) Land Surface: 2'
6. Method of Water Level Measurement: ELECTRONIC WATER OR OIL/WATER INTERFACE PROBE

Evacuation Procedure (Wells)

1. Date: 1/9/95 2. Time Evacuation Started: 2:50 3. Time Evacuation Finished: 3:30
4. Method of Evacuation: DISPOSABLE BAILER 5. Total Well Depth: 12.0 Ft Below M.P.
6. Casing Diameter (D): 4 inches 7. HT. of water column (H - Well Depth - Water Level): 7.77 Ft
8. Volume of Water in Well ($0.041D^2H$) = 5.09 X 3 = 15.29 Gallons

Well Volume X # Volumes = Total Gallons Purged

9. Decontamination Procedure: STANDARD S&ME PROCEEDURES

Meter Calibration:

Buffer PH 7.0 _____ Actual Buffer PH 4.0 or 10.0 _____ Actual _____ Standard Cond: _____ Actual

Record of Well Evacuation

Vol. Purged (Cummul. Gals)	0	3.05	6.11	9.16	12.21	15.29
Water Temperature (F) (C)	18°C	18°C	18°C	18°C	18°C	18°C
PH (Standard Units)	5.57	6.07	6.25	5.55	5.69	6.44
Specific Cond. (M/MHOS) (PPM)	730	240	360	250	340	270
Turbidity (Subjective)	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Odor (Subjective)	Strong	Strong	Strong	Strong	Strong	Strong
Other: _____						

Sampling Information

1. Date: 1/9/95 2. Time: 3:30 3. Sample Containers (Number/Size/Type): 2- 40ml vials
4. Analyses requested: 602 + MTBE
5. Samples Filtered: no 6. Filtration Equipment: n/a
7. Samples Preserved: yes 8. Preservative: HCL
9. Lab Performing Analyses: HYDROLOGIC 10. Sample Type: Well PVC ; Stream _____

SAMPLE COLLECTION SUMMARY SHEET

General

1. Job Name: NAVY BLDG. 1346
2. Project No.: 1134-93-298
3. Sampled By: TODD T. / FRANK S.
4. Weather: COOL / SUNNY
5. Location: NAVY BASE
6. Well #: 1346- 6
7. Well Condition: Good
8. Personnel Present TODD/FRANK

Water Level Information

1. Date: 1/9/95 2. Time: 3:40 3. Static Water Level: 4.69 Ft Below M.P.
4. Description of Measuring Point (M.P.): HIGH SIDE OF PVC CASING
5. Height of M.P. above/below (Circle) Land Surface: 3"
6. Method of Water Level Measurement: ELECTRONIC WATER OR OIL/WATER INTERFACE PROBE

Evacuation Procedure (Wells)

1. Date: 1/9/95 2. Time Evacuation Started: 3:46 3. Time Evacuation Finished: 4:20
4. Method of Evacuation: DISPOSABLE BAILER 5. Total Well Depth: 26.0 Ft Below M.P.
6. Casing Diameter (D): 2 inches 7. HT. of water column (H - Well Depth - Water Level): 21.31 Ft
8. Volume of Water in Well ($0.041D^2H$) = 3.49 X 3 = 10.48 Gallons

Well Volume X # Volumes = Total Gallons Purged

9. Decontamination Procedure: STANDARD S&ME PROCEEDURES

Meter Calibration:

Buffer PH 7.0 _____ Actual, Buffer PH 4.0 or 10.0 _____ Actual _____ Standard Cond: _____ Actual

Record of Well Evacuation

Vol. Purged (Cummul. Gals)	Ø	2.0	4.2	6.6	8.8	10.48
Water Temperature (F) (C)	18°	18°C	18°C	18°C	20°C	20°C
PH (Standard Units)	8.34	7.57	7.19	7.35	7.10	7.08
Specific Cond. (M/MHOS) (PPM)	4190	4230	4766	5210	5230	4670
Turbidity (Subjective)	Clear	Clear	Cloudy	Cloudy	Cloudy	Cloudy
Odor (Subjective)	mild	mild	mild	mild	mild	mild
Other:						

Sampling Information

1. Date: 1/9/95 2. Time: 4:20 3. Sample Containers (Number/Size/Type): 2- 40ml vials
4. Analyses requested: 602 + MTBE
5. Samples Filtered: no 6. Filtration Equipment: n/a
7. Samples Preserved: yes 8. Preservative: HCL
9. Lab Performing Analyses: HYDROLOGIC 10. Sample Type: Well PVC ; Stream _____

SAMPLE COLLECTION SUMMARY SHEET

General

1. Job Name: NAVY BLDG. 1346
2. Project No.: 1134-93-298
3. Sampled By: TODD T. / FRANK S.
4. Weather: COOL / SUNNY
5. Location: NAVY BASE
6. Well #: 1346- 7
7. Well Condition: New
8. Personnel Present TODD/FRANK

Water Level Information

1. Date: 1/9/95 2. Time: 11:00 3. Static Water Level: 4.75 Ft Below M.P.
4. Description of Measuring Point (M.P.): HIGH SIDE OF PVC CASING
5. Height of M.P. above/below (Circle) Land Surface: 4"
6. Method of Water Level Measurement: ELECTRONIC WATER OR OIL/WATER INTERFACE PROBE

Evacuation Procedure (Wells)

1. Date: 1/9/95 2. Time Evacuation Started: 11:00 3. Time Evacuation Finished: 11.35
4. Method of Evacuation: DISPOSABLE BAILER 5. Total Well Depth: 12 0 Ft Below M.P.
6. Casing Diameter (D): 2 inches 7. HT. of water column (H - Well Depth - Water Level): 7.25 Ft
8. Volume of Water in Well (0.041D²H) = 1.18 X 10 = 11.89 Gallons
   Well Volume X # Volumes = Total Gallons Purged
9. Decontamination Procedure: STANDARD S&ME PROCEEDURES

Meter Calibration:

Buffer PH 7.0 _____ Actual Buffer PH 4.0 or 10.0 _____ Actual _____ Standard Cond: _____ Actual

Record of Well Evacuation

Vol. Purged (Cummul. Gals)	Ø	2.38	4.76	7.14	9.52	11.89
Water Temperature (F) (C)	22 c	21°c	22°c	22°c	20°c	18°c
PH (Standard Units)	5.43	5.45	5.43	5.39	5.37	5.49
Specific Cond. (M/MHOS) (PPM)	440	340	290	270	530	470
Turbidity (Subjective)	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Odor (Subjective)	Ø	Ø	Ø	Ø	Ø	Ø
Other: _____						

Sampling Information

1. Date: 1/9/95 2. Time: 11:35 3. Sample Containers (Number/Size/Type): 3 - 40ml vials
4. Analyses requested: 602 + MTBE TPH 5030
5. Samples Filtered: no 6. Filtration Equipment: n/a
7. Samples Preserved: yes 8. Preservative: HCL
9. Lab Performing Analyses: HYDROLOGIC 10. Sample Type: Well PVC ; Stream _____

SAMPLE COLLECTION SUMMARY SHEET

General

1. Job Name: NAVY BLDG. 1346
2. Project No.: 1134-93-298
3. Sampled By: TODD T. / FRANK S.
4. Weather: COOL / SUNNY
5. Location: NAVY BASE
6. Well #: 1346- 8
7. Well Condition: New
8. Personnel Present TODD/FRANK

Water Level Information

1. Date: 1/9/95 2. Time: 10:00 3. Static Water Level: 3 34 Ft Below M.P.
4. Description of Measuring Point (M.P.): HIGH SIDE OF PVC CASING
5. Height of M.P. above/below (Circle) Land Surface: 4"
6. Method of Water Level Measurement: ELECTRONIC WATER OR OIL/WATER INTERFACE PROBE

Evacuation Procedure (Wells)

1. Date: 1/9/95 2. Time Evacuation Started: 10:00 3. Time Evacuation Finished: 10:40
4. Method of Evacuation: DISPOSABLE BAILER 5. Total Well Depth: 13.0 Ft Below M.P.
6. Casing Diameter (D): 2 inches 7. HT. of water column (H - Well Depth - Water Level): 9.66 Ft
8. Volume of Water in Well ($0.041D^2H$) = 1.58 X 10 = 15.84 Gallons

Well Volume X # Volumes = Total Gallons Purged

9. Decontamination Procedure: STANDARD S&ME PROCEEDURES

Meter Calibration:

Buffer PH 7.0 _____ (Actual) Buffer PH 4.0 or 10.0 _____ (Actual) _____ (Standard) Cond: _____ (Actual)

Record of Well Evacuation

		3.16	6.33	9.50	12.66	15.84
Vol. Purged (Cummul. Gals)	Ø	~~1.83~~	~~3.66~~	~~5.9~~	~~7.42~~	~~9.66~~
Water Temperature (F) (C)	24c	23c	22c	22c	22c	23c
PH (Standard Units)	5.75	5.84	5.71	5.65	5.73	5.67
Specific Cond. (M/MHOS) (PPM)	2290	2070	2230	2410	2500	2710
Turbidity (Subjective)	Ø	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Odor (Subjective)	Ø	Ø	Ø	Ø	Ø	Ø
Other:						

Sampling Information

1. Date: 1/9/95 2. Time: 10:40 3. Sample Containers (Number/Size/Type): ~~2~~ 3 - 40ml vials
4. Analyses requested: 602 + MTBE TPH 5030
5. Samples Filtered: no 6. Filtration Equipment: n/a
7. Samples Preserved: yes 8. Preservative: HCL
9. Lab Performing Analyses: HYDROLOGIC 10. Sample Type: Well PVC ; Stream _____

APPENDIX IV

TABLES

TABLE 1
SUMMARY OF WATER TABLE ELEVATIONS
BUILDING NO. 1346
CHARLESTON NAVAL BASE

MONITORING WELL NUMBER	CASING ELEVATION[1] (feet)	DEPTH TO WATER (feet)	WATER TABLE ELEVATION (feet)
CNB-1346-MW-1	99.40	2.29	97.11
CNB-1346-MW-2	99.21	2.20	97.01
CNB-1346-MW-3	98.98	5.32	93.66
CNB-1346-MW-4	99.50	4.79	94.71
CNB-1346-MW-5	99.57	4.23	95.34
CNB-1346-MW-6[2]	99.48	4.69	94.79
CNB-1346-MW-7	98.94	4.75	94.19
CNB-1346-MW-8	99.17	3.34	95.83

Notes: 1) Casing elevation determined relative to an assumed 100-ft temporary bench mark established on-site.

2) Deep well

TABLE 2
SUMMARY OF SOIL LABORATORY ANALYSIS DATA
BUILDING NO. 1346
CHARLESTON NAVAL BASE

SAMPLE LOCATION	PARAMETER					
	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	TPH[1] 5030	MTBE[2]
CNB-1346-MW-7	BDL[3]	BDL	BDL	BDL	BDL	BDL
CNB-1346-MW-8	BDL	BDL	BDL	BDL	BDL	BDL

Notes:
1) Total Petroleum Hydrocarbons
2) Methyl Tertiary Butyl Ether
3) Below Detection Limit

TABLE 3
SUMMARY OF GROUNDWATER LABORATORY ANALYSIS DATA
BUILDING NO. 1346
CHARLESTON NAVAL BASE

SAMPLE LOCATION	PARAMETER					
	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	TPH[1] 5030	MTBE[2]
CNB-1346-MW-1	BDL[3]	BDL	BDL	BDL	NA[4]	BDL
CNB-1346-MW-2	BDL	BDL	BDL	BDL	NA	BDL
CNB-1346-MW-3	BDL	BDL	BDL	BDL	NA	BDL
CNB-1346-MW-4	BDL	BDL	BDL	BDL	NA	BDL
CNB-1346-MW-5	36,100	47,800	3,620	16,800	NA	62,200
CNB-1346-MW-6	BDL	BDL	BDL	BDL	NA	189
CNB-1346-MW-7	BDL	BDL	BDL	BDL	BDL	BDL
CNB-1346-MW-8	BDL	BDL	BDL	BDL	BDL	BDL

Notes:
1) Total Petroleum Hydrocarbons
2) Methyl Tertiary Butyl Ether
3) Below Detection Limits
4) Not Analyzed for this Parameter

APPENDIX V

SAMPLE CHAIN OF CUSTODY/LABORATORY DATA SHEETS

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298

HYDROLOGIC PROJECT NUMBER: FL9434677
HYDROLOGIC SAMPLE NUMBER: 34677
HYDROLOGIC LAB I.D.#: 70002
SAMPLE IDENTIFICATION: MW-7
DATE SAMPLED: 11/29/94
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 12/7/94

METHOD EPA 8020

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
Benzene	71-43-2	6.0	BDL
Toluene	108-88-3	6.0	BDL
Ethylbenzene	100-41-4	6.0	BDL
Xylene (Total)	1330-20-7	6.0	BDL
MTBE		30.0	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298

HYDROLOGIC PROJECT NUMBER: FL9434677
HYDROLOGIC SAMPLE NUMBER: 34677
HYDROLOGIC LAB I.D.#: 70002
SAMPLE IDENTIFICATION: MW-7
DATE SAMPLED: 11/29/94
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 12/4/94

METHOD TPH 5030

ANALYSIS	CAS NO.	SDL (mg/kg)	RESULT (mg/kg)
Gasoline		2.0	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298

HYDROLOGIC PROJECT NUMBER: FL9434677
HYDROLOGIC SAMPLE NUMBER: 34678
HYDROLOGIC LAB I.D.#: 70002
SAMPLE IDENTIFICATION: MW-8
DATE SAMPLED: 11/29/94
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 12/8/94

METHOD EPA 8020

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
Benzene	71-43-2	6.0	BDL
Toluene	108-88-3	6.0	BDL
Ethylbenzene	100-41-4	6.0	BDL
Xylene (Total)	1330-20-7	6.0	BDL
MTBE		30.0	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298

HYDROLOGIC PROJECT NUMBER: FL9434677
HYDROLOGIC SAMPLE NUMBER: 34678
HYDROLOGIC LAB I.D.#: 70002
SAMPLE IDENTIFICATION: MW-8
DATE SAMPLED: 11/29/94
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 12/7/94

METHOD TPH 5030

ANALYSIS	CAS NO.	SDL (mg/kg)	RESULT (mg/kg)
Gasoline		2.0	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

REPORT TO:
S&ME, Inc. / Keene Fleck
840 Lowcountry Blvd.
Mt. Pleasant SC 29464
94-346677

Page 1 of 1

CHAIN OF CUSTODY

PO # 005946

HydroLogic, Inc.

100 Ashland Park Lane
Columbia, SC 29210
803-750-0913 800-243-0913

Method of Shipment
Anderson Armored Car

FOR SAMPLE MATRIX: W=WATER OR LIQUID, S=SOIL OR SOLID
FOR SAMPLE TYPE: G = GRAB, C = COMPOSITE

* PROGRAM IDENTIFICATION UST UNLESS OTHERWISE STATED

CLIENT: S&ME, Inc
PHONE: (803)884-0005
PROJ #: 1134-93-298
SAMPLER:

ENTER PRESERVATION CODE A-NONE B-HCl C-NaOH D-H2SO4 E-HNO3 F-OTHER(SPECIFY)

PROJECT ID #:
REPORT DUE:
VERBAL FAX COPY HARD COPY

FIELD ID	SAMPLE MATRIX	COLLECTION TIME	COLLECTION DATE	SAMPLE TYPE	BTEX M602/8020	TPH VOLATILES 5030	TPH SEMI/VOLATILES 3550	MTBE	NAPHTHALENE	PAH'S	SEMI\VOL. GC/MS (BNA)	VOLATILES GC/MS	OIL AND GREASE	LEAD ONLY	8 RCRA METALS	OTHER SPECIFY IN REMARKS				NUMBER OF CONTAINERS	PROGRAM IDENTIFICATION *	REMARKS	LABORATORY'S SAMPLE ID#
					X	X				X													
MW-7	W (S)		11/29	G	X	X														2		602 to include MTBE	
MW-8	W (S)		11/29	G	X	X														2		602 to include MTBE	
	W S																						
	W S																						
	W S																						
	W S																						
	W S																						
	W S																						
	W S																						

RELINQUISHED BY: J. Keene Fleck DATE: 12/5/94 TIME: 4:15 RECEIVED BY: [illegible]
RELINQUISHED BY: [illegible] DATE: 12/5 TIME: 4:15 RECEIVED BY: [illegible]

COMPANY NAME:	S & ME, Inc.
COMPANY PROJECT NUMBER:	#1134-93-298 BLDG. 1346
HYDROLOGIC PROJECT NUMBER:	FL951430
HYDROLOGIC SAMPLE NUMBER:	951435
HYDROLOGIC LAB I.D. #:	399
SAMPLE IDENTIFICATION:	1346-1
DATE SAMPLED:	1/9/95
DATE EXTRACTED:	N/A
DATE/TIME ANALYZED:	1/17/95

METHOD EPA 602/MTBE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Benzene	71-43-2	1.0	BDL
Ethylbenzene	100-41-4	1.0	BDL
Toluene	108-88-3	1.0	BDL
Xylene (Total)	1330-20-7	1.0	BDL
MTBE		5.0	BDL
Surrogate Recovery: BFB			73%

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298 BLDG. 1346

HYDROLOGIC PROJECT NUMBER: FL951430
HYDROLOGIC SAMPLE NUMBER: 951434
HYDROLOGIC LAB I.D. #: 399
SAMPLE IDENTIFICATION: 1346-2
DATE SAMPLED: 1/9/95
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 1/17/95

METHOD EPA 602/MTBE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Benzene	71-43-2	1.0	BDL
Ethylbenzene	100-41-4	1.0	BDL
Toluene	108-88-3	1.0	BDL
Xylene (Total)	1330-20-7	1.0	BDL
MTBE		5.0	BDL
Surrogate Recovery:			
BFB			72%

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298 BLDG. 1346

HYDROLOGIC PROJECT NUMBER: FL951430
HYDROLOGIC SAMPLE NUMBER: 951433
HYDROLOGIC LAB I.D. #: 399
SAMPLE IDENTIFICATION: 1346-3
DATE SAMPLED: 1/9/95
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 1/17/95

METHOD EPA 602/MTBE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Benzene	71-43-2	1.0	BDL
Ethylbenzene	100-41-4	1.0	BDL
Toluene	108-88-3	1.0	BDL
Xylene (Total)	1330-20-7	1.0	BDL
MTBE		5.0	BDL
Surrogate Recovery:			
BFB			75%

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298 BLDG. 1346

HYDROLOGIC PROJECT NUMBER: FL951430
HYDROLOGIC SAMPLE NUMBER: 951432
HYDROLOGIC LAB I.D. #: 399
SAMPLE IDENTIFICATION: 1346-4
DATE SAMPLED: 1/9/95
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 1/17/95

METHOD EPA 602/MTBE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Benzene	71-43-2	1.0	BDL
Ethylbenzene	100-41-4	1.0	BDL
Toluene	108-88-3	1.0	BDL
Xylene (Total)	1330-20-7	1.0	BDL
MTBE		5.0	BDL
Surrogate Recovery:			
BFB			75%

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME:	S & ME, Inc.
COMPANY PROJECT NUMBER:	#1134-93-298 BLDG. 1346
HYDROLOGIC PROJECT NUMBER:	FL951430
HYDROLOGIC SAMPLE NUMBER:	951436
HYDROLOGIC LAB I.D. #:	399
SAMPLE IDENTIFICATION:	1346-5
DATE SAMPLED:	1/9/95
DATE EXTRACTED:	N/A
DATE/TIME ANALYZED:	1/19/95

METHOD EPA 602/MTBE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Benzene	71-43-2	500	36100
Ethylbenzene	100-41-4	500	3620
Toluene	108-88-3	500	47800
Xylene (Total)	1330-20-7	500	16800
MTBE		2500	62200
Surrogate Recovery: BFB			98%

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: DILUTION FACTOR X 500

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298 BLDG. 1346

HYDROLOGIC PROJECT NUMBER: FL951430
HYDROLOGIC SAMPLE NUMBER: 951437
HYDROLOGIC LAB I.D. #: 399
SAMPLE IDENTIFICATION: 1346-6
DATE SAMPLED: 1/9/95
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 1/19/95

METHOD EPA 602/MTBE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Benzene	71-43-2	1.0	BDL
Ethylbenzene	100-41-4	1.0	BDL
Toluene	108-88-3	1.0	BDL
Xylene (Total)	1330-20-7	1.0	BDL
MTBE		**5.0**	**189**
Surrogate Recovery: BFB			109%

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298 BLDG. 1346

HYDROLOGIC PROJECT NUMBER: FL951430
HYDROLOGIC SAMPLE NUMBER: 951431
HYDROLOGIC LAB I.D. #: 399
SAMPLE IDENTIFICATION: 1346-7
DATE SAMPLED: 1/9/95
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 1/15/95

METHOD TPH 5030

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Gasoline		1000	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: S & ME, Inc.
COMPANY PROJECT NUMBER: #1134-93-298 BLDG. 1346

HYDROLOGIC PROJECT NUMBER: FL951430
HYDROLOGIC SAMPLE NUMBER: 951431
HYDROLOGIC LAB I.D. #: 399
SAMPLE IDENTIFICATION: 1346-7
DATE SAMPLED: 1/9/95
DATE EXTRACTED: N/A
DATE/TIME ANALYZED: 1/17/95

METHOD EPA 602/MTBE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Benzene	71-43-2	1.0	BDL
Ethylbenzene	100-41-4	1.0	BDL
Toluene	108-88-3	1.0	BDL
Xylene (Total)	1330-20-7	1.0	BDL
MTBE		5.0	BDL
Surrogate Recovery:			
BFB			87%

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME:	S & ME, Inc.
COMPANY PROJECT NUMBER:	#1134-93-298 BLDG. 1346
HYDROLOGIC PROJECT NUMBER:	FL951430
HYDROLOGIC SAMPLE NUMBER:	951430
HYDROLOGIC LAB I.D. #:	399
SAMPLE IDENTIFICATION:	1346-8
DATE SAMPLED:	1/9/95
DATE EXTRACTED:	N/A
DATE/TIME ANALYZED:	1/15/95

METHOD TPH 5030

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Gasoline		1000	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME:	S & ME, Inc.
COMPANY PROJECT NUMBER:	#1134-93-298 BLDG. 1346
HYDROLOGIC PROJECT NUMBER:	FL951430
HYDROLOGIC SAMPLE NUMBER:	951430
HYDROLOGIC LAB I.D. #:	399
SAMPLE IDENTIFICATION:	1346-8
DATE SAMPLED:	1/9/95
DATE EXTRACTED:	N/A
DATE/TIME ANALYZED:	1/17/95

METHOD EPA 602/MTBE

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Benzene	71-43-2	1.0	BDL
Ethylbenzene	100-41-4	1.0	BDL
Toluene	108-88-3	1.0	BDL
Xylene (Total)	1330-20-7	1.0	BDL
MTBE		5.0	BDL
Surrogate Recovery:			
BFB			84%

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

CHAIN OF CUSTODY

HydroLogic, Inc.
201 Summit View Drive, Suite 90
Brentwood, TN 37027
615-377-8780
800-640-4832

Page 1 of 1

F195143Q

Report To:
S+ME
840 Low Country Blvd.
Mt. Pleasant SC
29464

CLIENT INFORMATION

Name: Keena Flech
Phone: 803-884-0005
Project #: 1134-93-298 Bldg. 1346
P.O. #: 6056

Field ID	Matrix	Date/Time Collected	Pres.	Sampled By	TPH 5030	BTEX + MTBE								COMMENTS	Lab ID#	Temp	pH	Volume
1346-8	Water	1/9 10:40	HCL	FS	X	X							*	Detection Limits are				
1346-7	"	" 11:35	"	"	X	X								to Conform to				
1346-4	"	" 12:30	"	"		X								Drinking Water				
1346-3	"	" 1:25	"	"		X								Standards *				
1346-2	"	" 2:10	"	"		X												
1346-1	"	" 2:35	"	"		X												
1346-5	"	" 3:20	"	"		X												
1346-6	"	" 4:20	"	"		X												

LAB USE ONLY
Proj #:
Shipped By:

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE:	TIME:
F. Slaughter	1/11/95	10:00	Anderson Armored Car	1/11/95	10:00
S. Wilbanks	1/11/95	4:30			

Appendix D

SWMU 8, 1993 Analytical Results Summary

DATALCP3
11/02/95

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B011-93		008-S-B021-93		008-S-B022-93		008-S-B031-93		008-C-B031-93 D		008-S-B032-93	
	ORIGINAL ID ----->	S08B0101		S08B0201		S08B0202		S08B0301		S08B031D		S08B0302	
	LAB SAMPLE ID --->	S345365*1		S345382*1		S345382*5		S345382*2		S345382*4		S345382*3	
	ID FROM REPORT -->	S08B0101		S08B0201		S08B0202		S08B0301		S08B031D		S08B0302	
	SAMPLE DATE ----->	09/24/93		09/25/93		09/25/93		09/25/93		09/25/93		09/25/93	
	DATE ANALYZED --->	10/07/93		10/07/93		10/07/93		10/07/93		10/07/93		10/07/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL
CN	Cyanide												
CD	Cadmium											5.9	
CA	Calcium	11000.		11000.		170000.		28000.		19000.		11000.	
CR	Chromium	21.		6.5		34.		6.5		5.7		103.	
CO	Cobalt	7.3		1.4		1.5				1.2		12.	
CU	Copper	400.		11.		40.		27.		14.		2700.	
FE	Iron	8600.		2200.		53000.		3200.		2600.		78000.	
PB	Lead	310.	N	11.		9.8		10.		6.3		1400.	
MG	Magnesium	420.		270.		4400.		430.		380.		3800.	
MN	Manganese	41.		13.		81.		27.		24.		520.	
HG	Mercury	0.63		0.03		0.067		0.087		0.062		6.9	
NI	Nickel	13.				16.						79.	
K	Potassium	130.		110.		730.		130.		130.		1200.	
SE	Selenium												
AG	Silver	1.2										3.4	
NA	Sodium	110.				1100.		480.		390.		3200.	
TL	Thallium												
ZN	Zinc	500.		8.7		110.		37.		18.		2300.	
V	Vanadium	6.5		8.4		22.		7.4		6.		96.	
AL	Aluminum	1700.		4500.		5600.		3900.		3400.		8700.	
SB	Antimony											32.	
AS	Arsenic	10.		20.		8.		3.5		2.4		21.	
BA	Barium	29.		63.		27.		13.		9.3		500.	
BE	Beryllium												

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B041-93		008-S-B051-93		008-S-B061-93		008-S-B071-93		008-S-B081-93		008-S-B091-93	
	ORIGINAL ID ----->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0801		S08B0901	
	LAB SAMPLE ID --->	S345408*1		S345477*1		S345505*1		S345868*2		S345868*3		S345868*4	
	ID FROM REPORT -->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0801		S08B0901	
	SAMPLE DATE ----->	09/27/93		09/29/93		09/30/93		10/18/93		10/18/93		10/18/93	
	DATE ANALYZED --->	10/20/93		10/20/93		10/20/93		11/05/93		11/05/93		11/05/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS05	VAL	CNS05	VAL	CNS05	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
CN	Cyanide	NR		NR		NR		NR		NR		NR	
CD	Cadmium									0.7			
CA	Calcium	190000.		10000.		88000.		7500.		19000.		18000.	
CR	Chromium	6.6	J	8.	J	7.8	N	6.5		20.		17.	
CO	Cobalt	2.1				1.4				1.9		1.5	
CU	Copper	17.		7.9		12.		4.7	N	120.	N	96.	N
FE	Iron	3600.		1700.		3800.		3400.		7700.		7900.	
PB	Lead	19.	J	19.	J	41.	N*	6.8	N*	76.	N*	53.	N*
MG	Magnesium	2000.		260.		1200.		440.		1400.		1200.	
MN	Manganese	90.		22.		79.		24.		78.		50.	
HG	Mercury	0.023		0.044		0.065		0.042	N	0.62	N	0.2	N
NI	Nickel	6.9				5.8				8.1		9.3	
K	Potassium	270.	J			210.	N	140.		540.		410.	
SE	Selenium												
AG	Silver												
NA	Sodium	290.				170.		370.		650.		310.	
TL	Thallium												
ZN	Zinc	19.		39.		53.	N	13.	N	190.	N	120.	N
V	Vanadium	6.1		13.		6.9		6.3		18.		13.	
AL	Aluminum	2700.		4000.		2500.		3900.		4400.		5100.	
SB	Antimony	5.9	R	7.	R								
AS	Arsenic	5.6	J	1.6	J	5.	N*	1.9	N*	6.9	N*	5.9	N*
BA	Barium	15.		7.6		52.		9.1		28.		28.	
BE	Beryllium												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B101-93		008-S-B111-93		008-C-B111-93 D		008-S-B112-93		008-S-B121-93		008-S-B122-93	
	ORIGINAL ID ----->	S08B1001		S08B1101		S08B111D		S08B1102		S08B1201		S08B1202	
	LAB SAMPLE ID --->	S345868*5		S345905*1		S345905A*1		S345905*2		S345905*3		S345905*4	
	ID FROM REPORT -->	S08B1001		S08B1101		S08B111D		S08B1102		S08B1201		S08B1202	
	SAMPLE DATE ----->	10/18/93		10/19/93		10/19/93		10/19/93		10/19/93		10/19/93	
	DATE ANALYZED --->	11/05/93		11/05/93		11/08/93		11/05/93		11/05/93		11/05/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS14	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
CN	Cyanide	NR		NR		NR		NR		NR		NR	
CD	Cadmium			2.3		1.4				0.63		2.	
CA	Calcium	43000.		9500.		10400.	*	5000.		210000.		74000.	
CR	Chromium	8.2		48.		33.8		23.		18.		22.	
CO	Cobalt			5.1		4.8		4.7		3.4		3.5	
CU	Copper	33.	N	190.	N	128.	N	84.	N	39.	N	14000.	N
FE	Iron	2900.		36000.		17800.		16000.		4100.		15000.	
PB	Lead	21.	N*	240.	N*	187.	N	40.	N*	29.	N*	630.	N*
MG	Magnesium	550.		1600.		1540.		2800.		2300.		1000.	
MN	Manganese	29.		410.		154.	N	130.		150.		90.	
HG	Mercury	0.086	N	0.61	N	0.65	N	0.12	N	0.021	N	5.1	N
NI	Nickel			22.		18.3		8.9		13.		22.	
K	Potassium	140.		500.		590.		1400.		290.		780.	
SE	Selenium												
AG	Silver												
NA	Sodium	690.		290.		313.		3300.		240.		450.	
TL	Thallium												
ZN	Zinc	44.	N	580.	N	639.		130.	N	110.	N	3300.	N
V	Vanadium	6.2		31.		25.6		25.		14.		15.	
AL	Aluminum	2600.		5900.		7510.		9400.		2200.		4700.	
SB	Antimony			7.4	N								
AS	Arsenic	3.1	N*	6.5	N*	9.3		9.6	N*	2.2	N*	2.2	N*
BA	Barium	14.		78.		38.2		93.		14.		69.	
BE	Beryllium							1.					

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B131-93		008-S-B141-93		008-S-B151-93		008-S-B161-93		008-S-B171-93		008-C-B171-93 D	
	ORIGINAL ID ----->	S08B1301		S08B1401		S08B1501		S08B1601		S08B1701		S08B171D	
	LAB SAMPLE ID --->	S345905*5		S345905*6		S345905*7		S345933*1		S345933*2		S345933A*1	
	ID FROM REPORT -->	S08B1301		S08B1401		S08B1501		S08B1601		S08B1701		S08B171D	
	SAMPLE DATE ----->	10/19/93		10/19/93		10/19/93		10/20/93		10/20/93		10/20/93	
	DATE ANALYZED --->	11/05/93		11/05/93		11/05/93		11/05/93		11/05/93		11/08/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS14	VAL
CN	Cyanide	NR		NR		NR		NR		NR		NR	
CD	Cadmium			1.1						0.68		0.86	
CA	Calcium	58000.		38000.		140000.		65000.		37000.		50700.	*
CR	Chromium	27.		37.		11.				53.		51.	
CO	Cobalt	3.2		3.2		2.2		1.3	R	2.7	R	2.9	
CU	Copper	250.	N	150.	N	37.	N	16.	R	49.	R	74.7	N
FE	Iron	8800.		5500.		3500.		4100.		4900.		7230.	
PB	Lead	34.	N*	230.	N*	41.	N*	340.	J	140.	J	180.	N
MG	Magnesium	2200.		610.		2600.		800.		2000.		1780.	
MN	Manganese	130.		54.		150.		52.		56.		50.6	N
HG	Mercury	0.13	N	0.19	N	0.11	N	0.033	J	0.18	J	0.1	N
NI	Nickel	25.		13.		8.5		5.6		13.		14.9	
K	Potassium	630.		150.		320.		160.		580.		627.	
SE	Selenium												
AG	Silver												
NA	Sodium	950.		210.		220.		370.		160.		193.	
TL	Thallium												
ZN	Zinc	170.	N	640.	N	54.	N	87.	J	160.	J	155.	
V	Vanadium	28.		8.		20.		15.		16.		32.5	
AL	Aluminum	8100.		1300.		2400.		1900.		3400.		3850.	
SB	Antimony			7.6	N								
AS	Arsenic	8.6	N*	6.2	N*	2.2	N*	3.5	N*	7.2		6.9	
BA	Barium	28.		36.		13.		13.		50.		51.2	
BE	Beryllium												

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B181-93		008-S-B191-93		008-S-B192-93		008-S-B201-93		008-S-B202-93		008-S-B211-93	
	ORIGINAL ID ----->	S08B1801		S08B1901		S08B1902		S08B2001		S08B2002		S08B2101	
	LAB SAMPLE ID --->	S345933*3		S345933*4		S345933*5		S346088*19		S346088*20		S346088*21	
	ID FROM REPORT -->	S08B1801		S08B1901		S08B1902		S08B2001		S08B2002		S08B2101	
	SAMPLE DATE ----->	10/20/93		10/20/93		10/20/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->	11/05/93		11/05/93		11/05/93							
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
CN	Cyanide	NR		NR		NR							
CD	Cadmium			0.59						1.6			
CA	Calcium	160000.		57000.		39000.		79000.		45000.		8800.	
CR	Chromium	48.		25.		14.		4.2		33.		4.5	
CO	Cobalt	3.1	R	1.5	R	1.2	R	1.9		3.9			
CU	Copper	27.	R	22.	R	16.	R	9.1		27.			
FE	Iron	4200.		5700.		6100.		3300.		76000.		2100.	
PB	Lead	23.	J	180.	J	120.	J	6.3		47.		6.1	
MG	Magnesium	3200.		1100.		2200.		990.		2400.		260.	
MN	Manganese	110.		82.		140.		69.		210.		13.	
HG	Mercury	0.027	J	0.037	J	0.056	J	0.014		0.15		0.027	
NI	Nickel	9.9		13.		5.8		5.3		11.			
K	Potassium	660.		230.		330.		210.		840.		120.	
SE	Selenium												
AG	Silver												
NA	Sodium	410.		150.		190.		150.		2700.		220.	
TL	Thallium												
ZN	Zinc	93.	J	130.	J	50.	J	16.		62.		2.8	
V	Vanadium	9.		13.		13.		6.8		30.		4.3	
AL	Aluminum	2200.		3100.		3700.		2000.		9900.		3900.	
SB	Antimony												
AS	Arsenic	3.8	N*	5.9		5.7		8.4		12.		3.6	
BA	Barium	34.		45.		13.		42.		40.		12.	
BE	Beryllium												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B212-93		008-S-B221-93		008-S-B222-93		008-S-B231-93		008-S-B232-93		008-S-B241-93	
	ORIGINAL ID ----->	S08B2102		S08B2201		S08B2202		S08B2301		S08B2302		S08B2401	
	LAB SAMPLE ID --->	S346088*22		S346088*23		S346088*24		S346088*25		S346088*26		S346088*27	
	ID FROM REPORT -->	S08B2102		S08B2201		S08B2202		S08B2301		S08B2302		S08B2401	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/26/93		10/26/93		10/26/93		10/26/93	
	DATE EXTRACTED -->					10/29/93		10/29/93		10/29/93		10/29/93	
	DATE ANALYZED --->	11/16/93											
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
CN	Cyanide												
CD	Cadmium	1.				1.2				2.			
CA	Calcium	43000.		56000.		47000.		5800.		16000.		50000.	
CR	Chromium	35.		3.7		26.		4.5		49.		5.4	
CO	Cobalt	2.8				7.		1.2		7.9		3.	
CU	Copper	46.				400.				64.		17.	
FE	Iron	9400.		1600.		11000.		1900.		37000.		3400.	
PB	Lead	37.		2.3		390.	X	29.		38.		11.	
MG	Magnesium	1900.		670.		1300.		140.		4700.		620.	
MN	Manganese	120.		36.		100.		5.7		1600.		33.	
HG	Mercury	0.073		0.018		0.25		0.017		0.15		0.012	
NI	Nickel	14.				32.				16.		6.5	
K	Potassium	1000.		140.		410.				2300.		190.	
SE	Selenium												
AG	Silver												
NA	Sodium	1400.		150.		920.				3900.		140.	
TL	Thallium												
ZN	Zinc	69.		4.9		810.		5.7		110.		9.7	
V	Vanadium	27.		3.3		58.		4.2		16.		8.7	
AL	Aluminum	7700.		2800.		3400.		4200.		17000.		1300.	
SB	Antimony					23.	N						
AS	Arsenic			2.6		6.6				12.		150.	
BA	Barium	35.		15.		100.		3.7		39.		120.	
BE	Beryllium					0.6				1.2		0.69	

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B242-93		008-S-B251-93		008-C-B251-93 D		008-S-B252-93		008-S-B261-93		008-S-B262-93	
	ORIGINAL ID ----->	S08B2402		S08B2501		S08B251D		S08B2502		S08B2601		S08B2602	
	LAB SAMPLE ID --->	S346088*28		S346088*29		S346088A*5		S346088*30		S346088*31		S346088*32	
	ID FROM REPORT -->	S08B2402		S08B2501		S08B251D		S08B2502		S08B2601		S08B2602	
	SAMPLE DATE ----->	10/26/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	10/29/93		10/29/93		10/29/93		10/29/93		10/29/93		10/29/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS18	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL
CN	Cyanide					NR							
CD	Cadmium	1.2											
CA	Calcium	20000.		260000.		255000.	*	8700.		41000.		24000.	
CR	Chromium	32.		6.5		6.		5.1		24.		9.9	
CO	Cobalt	3.5		2.3		2.4				3.6			
CU	Copper	350.		10.		8.6	N			13.		9.7	
FE	Iron	7500.		3400.		3250.		2300.		14000.		3000.	
PB	Lead	310.	X			11.4		3.	N*	56.	N*	19.	N*
MG	Magnesium	1000.		2400.		2500.		320.		2300.		1000.	
MN	Manganese	72.		130.	N*	136.	N	18.	N*	270.	N*	42.	N*
HG	Mercury	2.1		0.03		0.03	N			0.074		0.058	
NI	Nickel	21.		6.8		7.8				8.8			
K	Potassium	390.		300.		318.				990.		330.	
SE	Selenium												
AG	Silver												
NA	Sodium	710.		470.		374.		170.		1000.		1200.	
TL	Thallium												
ZN	Zinc	550.		22.		25.8		4.9		40.		26.	
V	Vanadium	26.		5.3		5.2		4.		28.		9.3	
AL	Aluminum	3600.		1100.		1160.		3200.		12000.		3900.	
SB	Antimony	21.	N										
AS	Arsenic	7.9		9.7	N	6.1				7.6	N	2.8	N
BA	Barium	77.		7.8		6.2		4.8		20.		12.	
BE	Beryllium												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B271-93		008-S-B272-93		008-S-B281-93		008-S-B282-93		008-S-B291-93		008-S-B301-93	
	ORIGINAL ID ----->	S08B2701		S08B2702		S08B2801		S08B2802		S08B2901		S08B3001	
	LAB SAMPLE ID --->	S346088*33		S346088*34		S346088*35		S346088*36		S346088*37		S346088*38	
	ID FROM REPORT -->	S08B2701		S08B2702		S08B2801		S08B2802		S08B2901		S08B3001	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	10/29/93		10/29/93		10/29/93		10/29/93		10/29/93		10/29/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL
CN	Cyanide												
CD	Cadmium									0.6			
CA	Calcium	330000.		18000.		320000.		81000.		330000.		330000.	
CR	Chromium	11.		5.1		5.6		60.		4.1		5.	
CO	Cobalt	2.4				2.3		3.6		2.7		2.1	
CU	Copper	3.1				3.5		71.		4.4		6.6	
FE	Iron	3800.		3500.		2900.		6900.		2100.		2500.	
PB	Lead	15.	N*	2.4	N*	9.4	N*	140.	N*X	4.4	N*	8.5	N*
MG	Magnesium	3200.		420.		3100.		3100.		3300.		3100.	
MN	Manganese	180.	N*	69.	N*	160.	N*	80.	N*	270.	N*	170.	N*
HG	Mercury							0.13				0.012	
NI	Nickel	8.4				7.7		14.		8.		7.4	
K	Potassium	440.		170.		310.		1200.		320.		280.	
SE	Selenium												
AG	Silver												
NA	Sodium	240.		870.		240.		1100.		220.		310.	
TL	Thallium												
ZN	Zinc	23.		6.7		16.		160.		14.		18.	
V	Vanadium	8.1		4.9		4.4		20.		5.8		4.	
AL	Aluminum	860.		820.		600.		5900.		640.		710.	
SB	Antimony												
AS	Arsenic	4.	N	3.	N	3.8	N	6.5	N	2.1	N	3.	N
BA	Barium	4.8		5.6		4.3		62.		5.		5.	
BE	Beryllium												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

METAL													
	SAMPLE ID ------->	008-S-B302-93		008-C-B302-93 D		008-S-B311-93		008-C-B311-93 D		008-S-B312-93			
	ORIGINAL ID ----->	S08B3002		S08B302D		S08B3101		S08B311D		S08B3102			
	LAB SAMPLE ID --->	S346088*39		S346088A*6		S346088*40		S346088A*7		S346088*41			
	ID FROM REPORT -->	S08B3002		S08B302D		S08B3101		S08B311D		S08B3102			
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93			
	DATE EXTRACTED -->	10/29/93		10/29/93		10/29/93		10/29/93		10/29/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil			
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg			
CAS #	Parameter	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL		
CN	Cyanide			NR				NR					
CD	Cadmium												
CA	Calcium	26000.		44900.	*	88000.		109000.	*	55000.			
CR	Chromium	5.1		6.4		96.		110.		29.			
CO	Cobalt	1.4		1.6		7.5		7.2		4.3			
CU	Copper			3.2	N	100.		63.1	N	13.			
FE	Iron	3000.		3730.		6600.		6860.		15000.			
PB	Lead	5.	N*	9.		130.	N*X	60.2	N	20.	N*		
MG	Magnesium	560.		779.		3900.		4300.		4500.			
MN	Manganese	23.		37.8	N	100.		126.	N	140.			
HG	Mercury	0.057		0.03	N	0.14		0.16	N	0.058			
NI	Nickel	5.1				29.		21.2		10.			
K	Potassium	140.		178.		1200.		1530.		1700.			
SE	Selenium												
AG	Silver												
NA	Sodium	400.		398.		620.		705.		4200.			
TL	Thallium												
ZN	Zinc	8.9		11.9		300.		146.		54.			
V	Vanadium	4.6		5.7		17.		18.5		33.			
AL	Aluminum	3000.		3350.		4200.		5010.		14000.			
SB	Antimony									7.6	N		
AS	Arsenic	1.3	N	1.6		11.	N	6.7		7.6	N		
BA	Barium	6.9		7.3		64.		70.2		40.			
BE	Beryllium												

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SWMU 008 - Soil Data

PEST							
	SAMPLE ID ------->	008-S-B011-93	008-S-B021-93	008-S-B022-93	008-S-B031-93	008-C-B031-93 D	008-S-B032-93
	ORIGINAL ID ----->	S08B0101	S08B0201	S08B0202	S08B0301	S08B031D	S08B0302
	LAB SAMPLE ID --->	S345365*1	S345382*1	S345382*5	S345382*2	S345382*4	S345382*3
	ID FROM REPORT -->	S08B0101	S08B0201	S08B0202	S08B0301	S08B031D	S08B0302
	SAMPLE DATE ----->	09/24/93	09/25/93	09/25/93	09/25/93	09/25/93	09/25/93
	DATE EXTRACTED -->	09/29/93	09/29/93	09/29/93	09/29/93	09/29/93	09/29/93
	DATE ANALYZED --->	10/19/93	10/19/93	10/19/93	10/19/93	10/19/93	10/19/93
	MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
	UNITS ---------->	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
CAS #	Parameter	CNS03 VAL	CNS03 VAL	CNS03 VAL	CNS03 VAL	CNS03 VAL	CNS03 VAL
319-84-6	alpha-BHC						
319-85-7	beta-BHC						
319-86-8	delta-BHC						
58-89-9	gamma-BHC (Lindane)						
76-44-8	Heptachlor						
309-00-2	Aldrin						
1024-57-3	Heptachlor epoxide	5.1					250.
959-98-8	Endosulfan I						
60-57-1	Dieldrin	8.5					610.
72-55-9	4,4'-DDE	13.					43.
72-20-8	Endrin						
33213-65-9	Endosulfan II						
72-54-8	4,4'-DDD	45.					
1031-07-8	Endosulfan sulfate						
50-29-3	4,4'-DDT						
53494-70-5	Endrin ketone	4.5					
72-43-5	Methoxychlor						
5103-71-9	alpha-Chlordane						240.
5103-74-2	gamma-Chlordane	3.7			3.	3.	
8001-35-2	Toxaphene						
12674-11-2	Aroclor-1016						
11104-28-2	Aroclor-1221						
11141-16-5	Aroclor-1232						
53469-21-9	Aroclor-1242						
12672-29-6	Aroclor-1248						
11097-69-1	Aroclor-1254						
11096-82-5	Aroclor-1260						
7421-93-4	Endrin aldehyde		NR	NR	NR	NR	NR

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

PEST															
	SAMPLE ID ------->	008-S-B041-93		008-S-B051-93		008-S-B061-93		008-S-B071-93		008-S-B081-93		008-S-B091-93	
	ORIGINAL ID ----->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0801		S08B0901	
	LAB SAMPLE ID --->	S345408*1		S345477*1		S345505*1		S345868*2		S345868*3		S345868*4	
	ID FROM REPORT -->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0801		S08B0901	
	SAMPLE DATE ----->	09/27/93		09/29/93		09/30/93		10/18/93		10/18/93		10/18/93	
	DATE EXTRACTED -->	10/05/93		10/04/93		10/04/93		10/21/93		10/21/93		10/21/93	
	DATE ANALYZED --->	11/04/93		11/05/93		11/04/93		11/22/93		11/21/93		11/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS05	VAL	CNS05	VAL	CNS05	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin											3.9	P
1024-57-3	Heptachlor epoxide					2.2	P					11.	
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE					15.							
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	8.4											
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT					6.6	P						
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane											11.	
5103-74-2	gamma-Chlordane					4.4	P	2.8		4.5		51.	D
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde									77.			

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

PEST													
	SAMPLE ID ------->	008-S-B101-93		008-S-B111-93		008-C-B111-93 D		008-S-B112-93		008-S-B121-93		008-S-B122-93	
	ORIGINAL ID ----->	S08B1001		S08B1101		S08B111D		S08B1102		S08B1201		S08B1202	
	LAB SAMPLE ID --->	S345868*5		S345905*1		S345905A*1		S345905*2		S345905*3		S345905*4	
	ID FROM REPORT -->	S08B1001		S08B1101		S08B111D		S08B1102		S08B1201		S08B1202	
	SAMPLE DATE ----->	10/17/93		10/18/93		10/18/93		10/19/93		10/18/93		10/18/93	
	DATE EXTRACTED -->	10/19/93		10/20/93		10/20/93		10/20/93		10/20/93		10/20/93	
	DATE ANALYZED --->	10/21/93		10/21/93		10/21/93		10/21/93		10/21/93		10/21/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS14	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin					41.	P					7.6	P
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin					46.							
72-55-9	4,4'-DDE												
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD												
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT												
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane									2.8		21.	
5103-74-2	gamma-Chlordane									4.4	P		
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254											570.	
11096-82-5	Aroclor-1260											71.	
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

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SWMU 008 - Soil Data

PEST													
	SAMPLE ID ------->	008-S-B131-93		008-S-B141-93		008-S-B151-93		008-S-B161-93		008-S-B171-93		008-C-B171-93 D	
	ORIGINAL ID ----->	S08B1301		S08B1401		S08B1501		S08B1601		S08B1701		S08B171D	
	LAB SAMPLE ID --->	S345905*5		S345905*6		S345905*7		S345933*1		S345933*2		S345933A*1	
	ID FROM REPORT -->	S08B1301		S08B1401		S08B1501		S08B1601		S08B1701		S08B171D	
	SAMPLE DATE ----->	10/18/93		10/18/93		10/18/93		10/19/93		10/19/93		10/19/93	
	DATE EXTRACTED -->	10/20/93		10/20/93		10/20/93		10/21/93		10/21/93		10/21/93	
	DATE ANALYZED --->	10/21/93		10/21/93		10/21/93		10/25/93		10/25/93		10/25/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS14	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE			12.				28.	J	14.	J	20.	
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD			38.				24.	J	7.8	J		
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT												
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane							7.3	J	4.6	J	10.	
5103-74-2	gamma-Chlordane							22.	J	26.	J	40.	P
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde			4.									

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 008 - Soil Data

PEST													
	SAMPLE ID ------->	008-C-B171-93 RE		008-S-B181-93		008-S-B191-93		008-S-B192-93		008-S-B201-93		008-S-B201-93 RE	
	ORIGINAL ID ----->	S08B171D(RE)		S08B1801		S08B1901		S08B1902		S08B2001		S08B2001RE	
	LAB SAMPLE ID --->	S345933A*5		S345933*3		S345933*4		S345933*5		S346088*19		S346088*119	
	ID FROM REPORT -->	S08B171D(RE)		S08B1801		S08B1901		S08B1902		S08B2001		S08B2001RE	
	SAMPLE DATE ----->	10/19/93		10/19/93		10/19/93		10/19/93		10/26/93		10/26/93	
	DATE EXTRACTED -->	10/21/93		10/21/93		10/21/93		10/21/93		10/29/93		10/29/93	
	DATE ANALYZED --->	10/25/93		10/25/93		10/25/93		10/25/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS14	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS18	VAL	CNS18	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide					1.8	J						
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	19.		5.2		35.	J	110.	J				
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD												
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT					29.	J	200.	J				
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane	10.											
5103-74-2	gamma-Chlordane	39.				5.1	J	8.4					
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

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SWMU 008 - Soil Data

PEST													
	SAMPLE ID ------->	008-S-B202-93		008-S-B202-93 RE		008-S-B211-93		008-S-B211-93 RE		008-S-B212-93		008-S-B212-93 RE	
	ORIGINAL ID ----->	S08B2002		S08B2002RE		S08B2101		S08B2101RE		S08B2102		S08B2102RE	
	LAB SAMPLE ID --->	S346088*20		S346088*120		S346088*21		S346088*121		S346088*22		S346088*122	
	ID FROM REPORT -->	S08B2002		S08B2002RE		S08B2101		S08B2101RE		S08B2102		S08B2102RE	
	SAMPLE DATE ----->	10/26/93		10/26/93		10/26/93		10/26/93		10/26/93		10/26/93	
	DATE EXTRACTED -->	10/29/93		10/29/93		10/29/93		10/29/93		10/29/93		10/29/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE									47.			
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD												
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT												
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane												
5103-74-2	gamma-Chlordane												
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

PEST													
	SAMPLE ID ------->	008-S-B221-93		008-S-B221-93 RE		008-S-B222-93		008-S-B222-93 RE		008-S-B231-93		008-S-B232-93	
	ORIGINAL ID ----->	S08B2201		S08B2201RE		S08B2202		S08B2202RE		S08B2301		S08B2302	
	LAB SAMPLE ID --->	S346088*23		S346088*123		S346088*24		S346088*124		S346088*25		S346088*26	
	ID FROM REPORT -->	S08B2201		S08B2201RE		S08B2202		S08B2202RE		S08B2301		S08B2302	
	SAMPLE DATE ----->	10/26/93		10/26/93		12/12/93		10/26/93		10/26/93		12/09/93	
	DATE EXTRACTED -->	10/29/93		10/29/93		10/29/93		10/29/93		10/29/93		10/29/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin					66.	EJ						
72-55-9	4,4'-DDE					40.	EJ	38.					
72-20-8	Endrin												
33213-65-9	Endosulfan II							19.	P				
72-54-8	4,4'-DDD					75.	J	71.					
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT												
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane												
5103-74-2	gamma-Chlordane					36.	J	34.	P				
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde					55.	J						

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

PEST													
	SAMPLE ID ------->	008-S-B241-93		008-S-B242-93		008-S-B251-93		008-C-B251-93 D		008-S-B252-93		008-S-B261-93	
	ORIGINAL ID ----->	S08B2401		S08B2402		S08B2501		S08B251D		S08B2502		S08B2601	
	LAB SAMPLE ID --->	S346088*27		S346088*28		S346088*29		S346088A*5		S346088*30		S346088*31	
	ID FROM REPORT -->	S08B2401		S08B2402		S08B2501		S08B251D		S08B2502		S08B2601	
	SAMPLE DATE ----->	10/26/93		12/08/93		10/27/93		12/07/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	10/29/93		10/29/93		10/29/93		10/29/93		10/29/93		10/29/93	
	DATE ANALYZED --->							11/03/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS19	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE			47.									
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD			130.									
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT												
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane			4.2	P								
5103-74-2	gamma-Chlordane			19.									
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde			25.									

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

PEST													
	SAMPLE ID ------->	008-S-B262-93		008-S-B271-93		008-S-B272-93		008-S-B281-93		008-S-B282-93		008-S-B291-93	
	ORIGINAL ID ----->	S08B2602		S08B2701		S08B2702		S08B2801		S08B2802		S08B2901	
	LAB SAMPLE ID --->	S346088*32		S346088*33		S346088*34		S346088*35		S346088*36		S346088*37	
	ID FROM REPORT -->	S08B2602		S08B2701		S08B2702		S08B2801		S08B2802		S08B2901	
	SAMPLE DATE ----->	10/27/93		12/11/93		10/27/93		12/09/93		10/27/93		12/11/93	
	DATE EXTRACTED -->	10/29/93		10/29/93		10/29/93		10/29/93		10/29/93		10/29/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin									7.9	P		
72-55-9	4,4'-DDE					4.4				27.	D		
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	23.	P							58.	D		
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT												
53494-70-5	Endrin ketone									6.	P		
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane												
5103-74-2	gamma-Chlordane	8.	P			2.8				14.	P		
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

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SWMU 008 - Soil Data

PEST													
	SAMPLE ID ------->	008-S-B301-93		008-S-B302-93		008-C-B302-93 D		008-S-B311-93		008-C-B311-93 D		008-S-B312-93	
	ORIGINAL ID ----->	S08B3001		S08B3002		S08B302D		S08B3101		S08B311D		S08B3102	
	LAB SAMPLE ID --->	S346088*38		S346088*39		S346088A*6		S346088*40		S346088A*7		S346088*41	
	ID FROM REPORT -->	S08B3001		S08B3002		S08B302D		S08B3101		S08B311D		S08B3102	
	SAMPLE DATE ----->	10/27/93		12/10/93		12/07/93		10/27/93		12/07/93		12/09/93	
	DATE EXTRACTED -->	10/29/93		10/29/93		10/29/93		10/29/93		10/29/93		10/29/93	
	DATE ANALYZED --->					11/03/93				11/03/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS19	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide									2.6	P		
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE							72.	P	82.	D		
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD							20.	P	37.	P		
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT									25.			
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane									11.			
5103-74-2	gamma-Chlordane							96.		95.	D		
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

PEST

SAMPLE ID ------->	008-G-W061-93
ORIGINAL ID ----->	S08W0601
LAB SAMPLE ID --->	46404-6
ID FROM REPORT -->	S08W0601
SAMPLE DATE ----->	11/11/93
MATRIX ---------->	Soil
UNITS ----------->	ug/l

CAS #	Parameter	CNS24	VAL
319-84-6	alpha-BHC		
319-85-7	beta-BHC		
319-86-8	delta-BHC		
58-89-9	gamma-BHC (Lindane)		
76-44-8	Heptachlor		
309-00-2	Aldrin		
1024-57-3	Heptachlor epoxide		
959-98-8	Endosulfan I		
60-57-1	Dieldrin		
72-55-9	4,4'-DDE		
72-20-8	Endrin		
33213-65-9	Endosulfan II		
72-54-8	4,4'-DDD		
1031-07-8	Endosulfan sulfate		
50-29-3	4,4'-DDT		
53494-70-5	Endrin ketone		
72-43-5	Methoxychlor		
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene		
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242		
12672-29-6	Aroclor-1248		
11097-69-1	Aroclor-1254		
11096-82-5	Aroclor-1260		
7421-93-4	Endrin aldehyde		

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B011-93		008-S-B021-93		008-S-B022-93		008-S-B031-93		008-C-B031-93 D		008-S-B032-93	
	ORIGINAL ID ----->	S08B0101		S08B0201		S08B0202		S08B0301		S08B031D		S08B0302	
	LAB SAMPLE ID --->	S345365*1		S345382*1		S345382*5		S345382*2		S345382*4		S345382*3	
	ID FROM REPORT -->	S08B0101		S08B0201		S08B0202		S08B0301		S08B031D		S08B0302	
	SAMPLE DATE ----->	09/24/93		09/25/93		09/25/93		09/25/93		09/25/93		09/25/93	
	DATE EXTRACTED -->	09/29/93		09/29/93		09/29/93		09/29/93		09/29/93		09/29/93	
	DATE ANALYZED --->	10/01/93		10/01/93		10/01/93		10/01/93		10/01/93		10/01/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene			110.	J							72.	J
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene			160.	J							46.	J
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran											52.	J
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B011-93		008-S-B021-93		008-S-B022-93		008-S-B031-93		008-C-B031-93 D		008-S-B032-93	
	ORIGINAL ID ----->	S08B0101		S08B0201		S08B0202		S08B0301		S08B031D		S08B0302	
	LAB SAMPLE ID --->	S345365*1		S345382*1		S345382*5		S345382*2		S345382*4		S345382*3	
	ID FROM REPORT -->	S08B0101		S08B0201		S08B0202		S08B0301		S08B031D		S08B0302	
	SAMPLE DATE ----->	09/24/93		09/25/93		09/25/93		09/25/93		09/25/93		09/25/93	
	DATE EXTRACTED -->	09/29/93		09/29/93		09/29/93		09/29/93		09/29/93		09/29/93	
	DATE ANALYZED --->	10/01/93		10/01/93		10/01/93		10/01/93		10/01/93		10/01/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL
86-73-7	Fluorene											52.	J
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene			94.	J			30.	J			810.	
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene											180.	J
86-74-8	Carbazole											93.	J
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene							75.	J	44.	J	1100.	
129-00-0	Pyrene	490.	J					58.	J	40.	J	1100.	
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene											590.	
218-01-9	Chrysene							57.	J	54.	J	660.	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene			27.	J			52.	J	57.	J	1300.	
207-08-9	Benzo(k)fluoranthene											370.	J
50-32-8	Benzo(a)pyrene	450.	J									790.	
193-39-5	Indeno(1,2,3-cd)pyrene											540.	
53-70-3	Dibenzo(a,h)anthracene											150.	J
191-24-2	Benzo(g,h,i)perylene											570.	
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B041-93		008-S-B051-93		008-S-B061-93		008-S-B071-93		008-S-B071-93 RE		008-S-B081-93	
	ORIGINAL ID ----->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0701		S08B0801	
	LAB SAMPLE ID --->	S345408*1		S345477*1		S345505*1		S345868*2		S345868*20		S345868*3	
	ID FROM REPORT -->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0701		S08B0801	
	SAMPLE DATE ----->	09/27/93		09/29/93		09/30/93		10/18/93		10/18/93		10/18/93	
	DATE EXTRACTED -->	10/01/93		10/05/93		10/06/93		10/22/93		11/01/93		10/22/93	
	DATE ANALYZED --->	10/05/93		10/08/93		10/08/93		10/27/93		11/03/93		10/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS05	VAL	CNS05	VAL	CNS05	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene	38.	J										
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene	60.	J										
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran												
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B041-93		008-S-B051-93		008-S-B061-93		008-S-B071-93		008-S-B071-93 RE		008-S-B081-93	
	ORIGINAL ID ----->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0701		S08B0801	
	LAB SAMPLE ID --->	S345408*1		S345477*1		S345505*1		S345868*2		S345868*20		S345868*3	
	ID FROM REPORT -->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0701		S08B0801	
	SAMPLE DATE ----->	09/27/93		09/29/93		09/30/93		10/18/93		10/18/93		10/18/93	
	DATE EXTRACTED -->	10/01/93		10/05/93		10/06/93		10/22/93		11/01/93		10/22/93	
	DATE ANALYZED --->	10/05/93		10/08/93		10/08/93		10/27/93		11/03/93		10/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS05	VAL	CNS05	VAL	CNS05	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
86-73-7	Fluorene												
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	67.	J			46.	J						
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene												
86-74-8	Carbazole												
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	44.	J	130.	J	39.	J			46.	J		
129-00-0	Pyrene	88.	J	140.	J					48.	J		
85-68-7	Butylbenzylphthalate			62.	J								
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene												
218-01-9	Chrysene			100.	J								
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	50.	J	320.	J					80.	J		
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	44.	J	86.	J								
207-08-9	Benzo(k)fluoranthene												
50-32-8	Benzo(a)pyrene	46.	J	36.	J								
193-39-5	Indeno(1,2,3-cd)pyrene												
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene												
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B091-93		008-S-B101-93		008-S-B111-93		008-C-B111-93 D		008-S-B112-93		008-S-B121-93	
	ORIGINAL ID ----->	S08B0901		S08B1001		S08B1101		S08B111D		S08B1102		S08B1201	
	LAB SAMPLE ID --->	S345868*4		S345868*5		S345905*1		S345905A*1		S345905*2		S345905*3	
	ID FROM REPORT -->	S08B0901		S08B1001		S08B1101		S08B111D		S08B1102		S08B1201	
	SAMPLE DATE ----->	10/18/93		10/18/93		10/19/93		10/19/93		10/19/93		10/19/93	
	DATE EXTRACTED -->	10/22/93		10/22/93		10/22/93		10/22/93		10/22/93		10/22/93	
	DATE ANALYZED --->	10/27/93		10/27/93		11/04/93		10/27/93		10/27/93		10/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS14	VAL	CNS13	VAL	CNS13	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene												
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene												
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene											100.	J
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene					11000.	J	600.	J			130.	J
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran					3800.	J	330.	J				
121-14-2	2,4-Dinitrotoluene											130.	J
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B091-93		008-S-B101-93		008-S-B111-93		008-C-B111-93 D		008-S-B112-93		008-S-B121-93	
	ORIGINAL ID ----->	S08B0901		S08B1001		S08B1101		S08B111D		S08B1102		S08B1201	
	LAB SAMPLE ID --->	S345868*4		S345868*5		S345905*1		S345905A*1		S345905*2		S345905*3	
	ID FROM REPORT -->	S08B0901		S08B1001		S08B1101		S08B111D		S08B1102		S08B1201	
	SAMPLE DATE ----->	10/18/93		10/18/93		10/19/93		10/19/93		10/19/93		10/19/93	
	DATE EXTRACTED -->	10/22/93		10/22/93		10/22/93		10/22/93		10/22/93		10/22/93	
	DATE ANALYZED --->	10/27/93		10/27/93		11/04/93		10/27/93		10/27/93		10/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS14	VAL	CNS13	VAL	CNS13	VAL
86-73-7	Fluorene					10000.	J	760.	J			240.	J
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	110.	J			120000.		10000.		110.	J	3500.	
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene					31000.		2200.	J	32.	J	210.	J
86-74-8	Carbazole					6400.	J	790.	J				
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	310.	J	46.	J	200000.		21000.		400.	J	5300.	
129-00-0	Pyrene	310.	J	49.	J	200000.		15000.		400.	J	5600.	
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene	140.	J			853000.		7400.		180.	J	660.	
218-01-9	Chrysene	200.	J			83000.		7000.				2600.	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)			110.	J								
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	190.	J			76000.		7500.		210.	J	2700.	
207-08-9	Benzo(k)fluoranthene					38000.		3500.		100.	J	760.	
50-32-8	Benzo(a)pyrene	100.	J			58000.		5200.		140.	J	480.	
193-39-5	Indeno(1,2,3-cd)pyrene					34000.		2800.					
53-70-3	Dibenzo(a,h)anthracene					8200.	J	910.	J				
191-24-2	Benzo(g,h,i)perylene					29000.		2700.					
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B122-93		008-S-B131-93		008-S-B141-93		008-S-B151-93		008-S-B161-93		008-S-B171-93	
	ORIGINAL ID ----->	S08B1202		S08B1301		S08B1401		S08B1501		S08B1601		S08B1701	
	LAB SAMPLE ID --->	S345905*4		S345905*5		S345905*6		S345905*7		S345933*1		S345933*2	
	ID FROM REPORT -->	S08B1202		S08B1301		S08B1401		S08B1501		S08B1601		S08B1701	
	SAMPLE DATE ----->	10/19/93		10/19/93		10/19/93		10/19/93		10/20/93		10/20/93	
	DATE EXTRACTED -->	10/22/93		10/22/93		10/22/93		10/22/93		10/25/93		10/25/93	
	DATE ANALYZED --->	10/28/93		10/27/93		10/27/93		10/27/93		10/26/93		10/26/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene	12000.	J			200.	J						
106-47-8	4-Chloroaniline					780.	J						
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene	63000.		37.	J	330.	J						
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene							140.	J			260.	J
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran					68.	J	280.	J			91.	J
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B122-93		008-S-B131-93		008-S-B141-93		008-S-B151-93		008-S-B161-93		008-S-B171-93	
	ORIGINAL ID ----->	S08B1202		S08B1301		S08B1401		S08B1501		S08B1601		S08B1701	
	LAB SAMPLE ID --->	S345905*4		S345905*5		S345905*6		S345905*7		S345933*1		S345933*2	
	ID FROM REPORT -->	S08B1202		S08B1301		S08B1401		S08B1501		S08B1601		S08B1701	
	SAMPLE DATE ----->	10/19/93		10/19/93		10/19/93		10/19/93		10/20/93		10/20/93	
	DATE EXTRACTED -->	10/22/93		10/22/93		10/22/93		10/22/93		10/25/93		10/25/93	
	DATE ANALYZED --->	10/28/93		10/27/93		10/27/93		10/27/93		10/26/93		10/26/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
86-73-7	Fluorene							150.	J			220.	J
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	42000.		78.	J	220.	J	3000.				1400.	
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene	7100.	J			36.	J	90.	J				
86-74-8	Carbazole							190.	J			130.	J
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	7500.	J	60.	J	290.	J	2200.		210.	J	1700.	
129-00-0	Pyrene	30000.		180.	J	620.		3700.		360.	J	1600.	
85-68-7	Butylbenzylphthalate					52.	J						
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene							200.	J			1100.	
218-01-9	Chrysene	9300.	J			260.	J	620.		380.	J	1200.	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)					370.	J			140.	J		
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene							400.	J	130.	J	1200.	
207-08-9	Benzo(k)fluoranthene	5100.	J			70.	J	180.	J			450.	
50-32-8	Benzo(a)pyrene	3800.	J			110.	J	120.	J	65.	J	920.	
193-39-5	Indeno(1,2,3-cd)pyrene					99.	J					500.	
53-70-3	Dibenzo(a,h)anthracene											160.	J
191-24-2	Benzo(g,h,i)perylene					120.	J	94.	J			480.	
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-C-B171-93 D		008-S-B181-93		008-S-B191-93		008-S-B192-93		008-S-B201-93		008-S-B202-93	
	ORIGINAL ID ----->	S08B171D		S08B1801		S08B1901		S08B1902		S08B2001		S08B2002	
	LAB SAMPLE ID --->	S345933A*1		S345933*3		S345933*4		S345933*5		S346088*19		S346088*20	
	ID FROM REPORT -->	S08B171D		S08B1801		S08B1901		S08B1902		S08B2001		S08B2002	
	SAMPLE DATE ----->	10/20/93		10/20/93		10/20/93		10/20/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	10/25/93		10/25/93		10/25/93		10/25/93					
	DATE ANALYZED --->	10/26/93		11/19/93		10/27/93		10/27/93				11/03/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS14	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS18	VAL	CNS18	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene	130.	J	430.	J					90.	J		
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene	180.	J	500.	J					110.	J		
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene	800.		2200.									
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran	290.	J	950.	J								
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-C-B171-93 D		008-S-B181-93		008-S-B191-93		008-S-B192-93		008-S-B201-93		008-S-B202-93	
	ORIGINAL ID ----->	S08B171D		S08B1801		S08B1901		S08B1902		S08B2001		S08B2002	
	LAB SAMPLE ID --->	S345933A*1		S345933*3		S345933*4		S345933*5		S346088*19		S346088*20	
	ID FROM REPORT -->	S08B171D		S08B1801		S08B1901		S08B1902		S08B2001		S08B2002	
	SAMPLE DATE ----->	10/20/93		10/20/93		10/20/93		10/20/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	10/25/93		10/25/93		10/25/93		10/25/93					
	DATE ANALYZED --->	10/26/93		11/19/93		10/27/93		10/27/93				11/03/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS14	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS18	VAL	CNS18	VAL
86-73-7	Fluorene	670.		1900.									
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	3800.		10000.		44.	J			55.	J		
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene	1200.		3500.									
86-74-8	Carbazole	390.	J	1200.	J								
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	3800.		12000.		69.	J	24.	J			78.	J
129-00-0	Pyrene	4400.		13000.		150.	J	64.	J				
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene	2800.		7700.									
218-01-9	Chrysene	3100.		7600.		64.	J						
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)					78.	J						
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	2800.		9200.		98.	J	84.	J				
207-08-9	Benzo(k)fluoranthene	1100.		2800.									
50-32-8	Benzo(a)pyrene	2200.		6700.		59.	J						
193-39-5	Indeno(1,2,3-cd)pyrene	1200.		2600.									
53-70-3	Dibenzo(a,h)anthracene	360.	J	830.	J								
191-24-2	Benzo(g,h,i)perylene	1000.		2100.									
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B211-93		008-S-B212-93		008-S-B221-93		008-S-B222-93		008-S-B231-93		008-S-B232-93	
	ORIGINAL ID ----->	S08B2101		S08B2102		S08B2201		S08B2202		S08B2301		S08B2302	
	LAB SAMPLE ID --->	S346088*21		S346088*22		S346088*23		S346088*24		S346088*25		S346088*26	
	ID FROM REPORT -->	S08B2101		S08B2102		S08B2201		S08B2202		S08B2301		S08B2302	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->			11/03/93				11/03/93				11/03/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene			670.									
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene			1000.				380.	J				
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran												
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												
86-73-7	Fluorene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B211-93		008-S-B212-93		008-S-B221-93		008-S-B222-93		008-S-B231-93		008-S-B232-93	
	ORIGINAL ID ----->	S08B2101		S08B2102		S08B2201		S08B2202		S08B2301		S08B2302	
	LAB SAMPLE ID --->	S346088*21		S346088*22		S346088*23		S346088*24		S346088*25		S346088*26	
	ID FROM REPORT -->	S08B2101		S08B2102		S08B2201		S08B2202		S08B2301		S08B2302	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->			11/03/93				11/03/93				11/03/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene			1700.				790.					
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene			600.				480.					
86-74-8	Carbazole												
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene			350.	J			1100.				68.	J
129-00-0	Pyrene			2300.				2900.				53.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene			200.	J							46.	J
218-01-9	Chrysene												
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene							760.				67.	J
207-08-9	Benzo(k)fluoranthene												
50-32-8	Benzo(a)pyrene			490.				850.				35.	J
193-39-5	Indeno(1,2,3-cd)pyrene												
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene												
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B241-93		008-S-B242-93		008-S-B251-93		008-C-B251-93 D		008-S-B252-93		008-S-B261-93	
	ORIGINAL ID ----->	S08B2401		S08B2402		S08B2501		S08B251D		S08B2502		S08B2601	
	LAB SAMPLE ID --->	S346088*27		S346088*28		S346088*29		S346088A*5		S346088*30		S346088*31	
	ID FROM REPORT -->	S08B2401		S08B2402		S08B2501		S08B251D		S08B2502		S08B2601	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE EXTRACTED -->							11/02/93					
	DATE ANALYZED --->							11/08/93				11/04/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS19	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene	130.	J	220.	J								
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene	180.	J	320.	J								
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran	42.	J										
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B241-93		008-S-B242-93		008-S-B251-93		008-C-B251-93 D		008-S-B252-93		008-S-B261-93	
	ORIGINAL ID ----->	S08B2401		S08B2402		S08B2501		S08B251D		S08B2502		S08B2601	
	LAB SAMPLE ID --->	S346088*27		S346088*28		S346088*29		S346088A*5		S346088*30		S346088*31	
	ID FROM REPORT -->	S08B2401		S08B2402		S08B2501		S08B251D		S08B2502		S08B2601	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE EXTRACTED -->							11/02/93					
	DATE ANALYZED --->							11/08/93				11/04/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS19	VAL
86-73-7	Fluorene												
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	95.	J	300.	J	75.	J	100.	J	39.	J		
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene			73.	J								
86-74-8	Carbazole												
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene			670.		180.	J	210.	J			35.	J
129-00-0	Pyrene			2300.		190.	J	230.	J	54.	J	49.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene			460.									
218-01-9	Chrysene			670.				68.	J				
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene			630.									
207-08-9	Benzo(k)fluoranthene												
50-32-8	Benzo(a)pyrene												
193-39-5	Indeno(1,2,3-cd)pyrene			250.	J								
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene			160.	J								
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B262-93		008-S-B271-93		008-S-B272-93		008-S-B281-93		008-S-B282-93		008-S-B291-93	
	ORIGINAL ID ----->	S08B2602		S08B2701		S08B2702		S08B2801		S08B2802		S08B2901	
	LAB SAMPLE ID --->	S346088*32		S346088*33		S346088*34		S346088*35		S346088*36		S346088*37	
	ID FROM REPORT -->	S08B2602		S08B2701		S08B2702		S08B2801		S08B2802		S08B2901	
	SAMPLE DATE ----->	10/28/93		10/28/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE ANALYZED --->			11/04/93				11/05/93				11/06/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene									250.	J		
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene	180.	J										
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene									830.			
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran												
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												
86-73-7	Fluorene									780.	J		

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B262-93		008-S-B271-93		008-S-B272-93		008-S-B281-93		008-S-B282-93		008-S-B291-93	
	ORIGINAL ID ----->	S08B2602		S08B2701		S08B2702		S08B2801		S08B2802		S08B2901	
	LAB SAMPLE ID --->	S346088*32		S346088*33		S346088*34		S346088*35		S346088*36		S346088*37	
	ID FROM REPORT -->	S08B2602		S08B2701		S08B2702		S08B2801		S08B2802		S08B2901	
	SAMPLE DATE ----->	10/28/93		10/28/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE ANALYZED --->			11/04/93				11/05/93				11/06/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene									4500.			
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene									1200.			
86-74-8	Carbazole									320.	J		
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene			150.	J			64.	J	3700.		41.	J
129-00-0	Pyrene	1300.		280.	J	67.	J	64.	J	5800.		47.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene									2400.			
218-01-9	Chrysene	320.	J	130.	J					2300.			
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	120.	J							2400.			
207-08-9	Benzo(k)fluoranthene			120.	J					730.	J		
50-32-8	Benzo(a)pyrene	160.	J							1600.			
193-39-5	Indeno(1,2,3-cd)pyrene									760.	J		
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene									750.	J		
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B301-93		008-S-B302-93		008-C-B302-93 D		008-S-B311-93		008-C-B311-93 D		008-S-B312-93	
	ORIGINAL ID ----->	S08B3001		S08B3002		S08B302D		S08B3101		S08B311D		S08B3102	
	LAB SAMPLE ID --->	S346088*38		S346088*39		S346088A*6		S346088*40		S346088A*7		S346088*41	
	ID FROM REPORT -->	S08B3001		S08B3002		S08B302D		S08B3101		S08B311D		S08B3102	
	SAMPLE DATE ----->	10/28/93		10/28/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE EXTRACTED -->					11/02/93				11/02/93			
	DATE ANALYZED --->			11/06/93		11/08/93				11/12/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS19	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene												
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene			160.	J	90.	J						
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene			93.	J			5300.		4100.			
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran							1600.	J	1200.	J		
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

SVOA													
	SAMPLE ID ------->	008-S-B301-93		008-S-B302-93		008-C-B302-93 D		008-S-B311-93		008-C-B311-93 D		008-S-B312-93	
	ORIGINAL ID ----->	S08B3001		S08B3002		S08B302D		S08B3101		S08B311D		S08B3102	
	LAB SAMPLE ID --->	S346088*38		S346088*39		S346088A*6		S346088*40		S346088A*7		S346088*41	
	ID FROM REPORT -->	S08B3001		S08B3002		S08B302D		S08B3101		S08B311D		S08B3102	
	SAMPLE DATE ----->	10/28/93		10/28/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE EXTRACTED -->					11/02/93				11/02/93			
	DATE ANALYZED --->			11/06/93		11/08/93				11/12/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ----------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS19	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL
86-73-7	Fluorene							4300.		3100.	J		
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	140.	J	590.				24000.		19000.			
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene			110.	J			8300.		6100.			
86-74-8	Carbazole							2200.	J	1600.	J		
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	170.	J	81.	J	85.	J	32000.		27000.		42.	J
129-00-0	Pyrene	150.	J	300.		280.	J	30000.		24000.		53.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene							18000.		14000.			
218-01-9	Chrysene			150.	J	91.	J	21000.		17000.			
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene							20000.		16000.			
207-08-9	Benzo(k)fluoranthene							7600.		7200.			
50-32-8	Benzo(a)pyrene			66.	J	49.	J	15000.		13000.			
193-39-5	Indeno(1,2,3-cd)pyrene							7800.		6100.			
53-70-3	Dibenzo(a,h)anthracene							2900.	J	1900.	J		
191-24-2	Benzo(g,h,i)perylene							6400.		5100.			
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Soil Data

VOA							
	SAMPLE ID ------->	008-S-B011-93	008-S-B021-93	008-S-B022-93	008-S-B031-93	008-C-B031-93 D	008-S-B032-93
	ORIGINAL ID ----->	S08B0101	S08B0201	S08B0202	S08B0301	S08B031D	S08B0302
	LAB SAMPLE ID --->	S345365*1	S345382*1	S345382*5	S345382*2	S345382*4	S345382*3
	ID FROM REPORT -->	S08B0101	S08B0201	S08B0202	S08B0301	S08B031D	S08B0302
	SAMPLE DATE ----->	09/24/93	09/25/93	09/25/93	09/25/93	09/25/93	09/25/93
	DATE ANALYZED --->	10/09/93	10/09/93	10/09/93	10/09/93	10/09/93	10/09/93
	MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
	UNITS ---------->	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
CAS #	Parameter	CNS03 VAL	CNS03 VAL	CNS03 VAL	CNS03 VAL	CNS03 VAL	CNS03 VAL
74-87-3	Chloromethane						
74-83-9	Bromomethane						
75-01-4	Vinyl chloride						
75-00-3	Chloroethane						
75-09-2	Methylene chloride						
67-64-1	Acetone	130.					160.
75-15-0	Carbon disulfide						
75-35-4	1,1-Dichloroethene						
75-34-3	1,1-Dichloroethane						
67-66-3	Chloroform						
107-06-2	1,2-Dichloroethane						
78-93-3	2-Butanone (MEK)						
71-55-6	1,1,1-Trichloroethane						
56-23-5	Carbon tetrachloride						
75-27-4	Bromodichloromethane						
78-87-5	1,2-Dichloropropane						
10061-01-5	cis-1,3-Dichloropropene						
79-01-6	Trichloroethene						
124-48-1	Dibromochloromethane						
79-00-5	1,1,2-Trichloroethane						
71-43-2	Benzene						
10061-02-6	trans-1,3-Dichloropropene						
75-25-2	Bromoform						
108-10-1	4-Methyl-2-Pentanone (MIBK)						
591-78-6	2-Hexanone						
127-18-4	Tetrachloroethene						
79-34-5	1,1,2,2-Tetrachloroethane						
108-88-3	Toluene	8.2					
108-90-7	Chlorobenzene	18.		50.			7.3
100-41-4	Ethylbenzene						
100-42-5	Styrene						
1330-20-7	Xylene (Total)						
156-59-2	cis-1,2-Dichloroethylene						
156-60-5	trans-1,2-Dichloroethene						
108-05-4	Vinyl acetate						

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 008 - Soil Data

VOA													
	SAMPLE ID ------->	008-S-B041-93		008-S-B051-93		008-S-B061-93		008-S-B071-93		008-S-B081-93		008-S-B091-93	
	ORIGINAL ID ----->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0801		S08B0901	
	LAB SAMPLE ID --->	S345408*1		S345477*1		S345505*1		S345868*2		S345868*3		S345868*4	
	ID FROM REPORT -->	S08B0401		S08B0501		S08B0601		S08B0701		S08B0801		S08B0901	
	SAMPLE DATE ----->	09/27/93		09/29/93		09/30/93		10/18/93		10/18/93		10/18/93	
	DATE ANALYZED --->	10/11/93		10/13/93		10/14/93		10/25/93		10/25/93		10/26/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS05	VAL	CNS05	VAL	CNS05	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone												
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene			9.3	J								
108-90-7	Chlorobenzene			53.	J			11.				8.5	
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 008 - Soil Data

VOA													
	SAMPLE ID ------->	008-S-B101-93		008-S-B111-93		008-C-B111-93 D		008-S-B112-93		008-S-B121-93		008-S-B122-93	
	ORIGINAL ID ----->	S08B1001		S08B1101		S08B111D		S08B1102		S08B1201		S08B1202	
	LAB SAMPLE ID --->	S345868*5		S345905*1		S345905A*1		S345905*2		S345905*3		S345905*4	
	ID FROM REPORT -->	S08B1001		S08B1101		S08B111D		S08B1102		S08B1201		S08B1202	
	SAMPLE DATE ----->	10/18/93		10/19/93		10/19/93		10/19/93		10/19/93		10/19/93	
	DATE ANALYZED --->	10/26/93		10/26/93		10/27/93		10/26/93		10/26/93		11/01/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS14	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone							170.					
75-15-0	Carbon disulfide							7.9					
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane					1600.							
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene					580.	J						
108-90-7	Chlorobenzene			60.		310.	J	35.		14.			
100-41-4	Ethylbenzene					840.							
100-42-5	Styrene												
1330-20-7	Xylene (Total)					3400.							
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

VOA													
	SAMPLE ID ------->	008-S-B131-93		008-S-B141-93		008-S-B151-93		008-S-B161-93		008-S-B171-93		008-C-B171-93 D	
	ORIGINAL ID ----->	S08B1301		S08B1401		S08B1501		S08B1601		S08B1701		S08B171D	
	LAB SAMPLE ID --->	S345905*5		S345905*6		S345905*7		S345933*1		S345933*2		S345933A*1	
	ID FROM REPORT -->	S08B1301		S08B1401		S08B1501		S08B1601		S08B1701		S08B171D	
	SAMPLE DATE ----->	10/19/93		10/19/93		10/19/93		10/20/93		10/20/93		10/20/93	
	DATE ANALYZED --->	10/26/93		10/26/93		10/26/93		10/26/93		10/26/93		10/26/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS14	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride									57.	J	49.	J
67-64-1	Acetone												
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane											3.4	BJ
78-93-3	2-Butanone (MEK)											1.4	J
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene												
108-90-7	Chlorobenzene	66.		16.		56.		30.		19.			
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)											1.2	BJ
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 008 - Soil Data

VOA													
	SAMPLE ID ------->	008-S-B181-93		008-S-B191-93		008-S-B192-93		008-S-B201-93		008-S-B202-93		008-S-B211-93	
	ORIGINAL ID ----->	S08B1801		S08B1901		S08B1902		S08B2001		S08B2002		S08B2101	
	LAB SAMPLE ID --->	S345933*3		S345933*4		S345933*5		S346088*19		S346088*20		S346088*21	
	ID FROM REPORT -->	S08B1801		S08B1901		S08B1902		S08B2001		S08B2002		S08B2101	
	SAMPLE DATE ----->	10/20/93		10/20/93		10/20/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->	10/26/93		10/27/93		10/27/93				11/08/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS13	VAL	CNS13	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride					29.	J			170.			
67-64-1	Acetone												
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene	12.		17.				19.		41.			
108-90-7	Chlorobenzene												
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

VOA													
	SAMPLE ID ------->	008-S-B212-93		008-S-B221-93		008-S-B222-93		008-S-B231-93		008-S-B232-93		008-S-B241-93	
	ORIGINAL ID ----->	S08B2102		S08B2201		S08B2202		S08B2301		S08B2302		S08B2401	
	LAB SAMPLE ID --->	S346088*22		S346088*23		S346088*24		S346088*25		S346088*26		S346088*27	
	ID FROM REPORT -->	S08B2102		S08B2201		S08B2202		S08B2301		S08B2302		S08B2401	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->	11/08/93										11/09/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone	76.				200.				1100.			
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)											8.7	
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane					92.							
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane											8.6	
108-88-3	Toluene					5.8						33.	
108-90-7	Chlorobenzene			9.2		28.							
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene					17.							
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

VOA													
	SAMPLE ID ------->	008-S-B242-93		008-S-B251-93		008-C-B251-93 D		008-S-B252-93		008-S-B261-93		008-S-B262-93	
	ORIGINAL ID ----->	S08B2402		S08B2501		S08B251D		S08B2502		S08B2601		S08B2602	
	LAB SAMPLE ID --->	S346088*28		S346088*29		S346088A*5		S346088*30		S346088*31		S346088*32	
	ID FROM REPORT -->	S08B2402		S08B2501		S08B251D		S08B2502		S08B2601		S08B2602	
	SAMPLE DATE ----->	10/27/93		10/28/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE ANALYZED --->			11/08/93		11/09/93				11/09/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride					56.		140.		220.		220.	
67-64-1	Acetone	220.											
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane					7.8	J						
78-93-3	2-Butanone (MEK)					2.9	J						
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane					1.5	J						
108-88-3	Toluene			7.6						26.			
108-90-7	Chlorobenzene												
100-41-4	Ethylbenzene												
100-42-5	Styrene					1.7	J						
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Soil Data

VOA													
	SAMPLE ID ------->	008-S-B271-93		008-S-B272-93		008-S-B281-93		008-S-B282-93		008-S-B291-93		008-S-B301-93	
	ORIGINAL ID ----->	S08B2701		S08B2702		S08B2801		S08B2802		S08B2901		S08B3001	
	LAB SAMPLE ID --->	S346088*33		S346088*34		S346088*35		S346088*36		S346088*37		S346088*38	
	ID FROM REPORT -->	S08B2701		S08B2702		S08B2801		S08B2802		S08B2901		S08B3001	
	SAMPLE DATE ----->	10/28/93		10/28/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE ANALYZED --->	11/08/93				11/09/93							
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL	CNS19	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone												
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene												
108-90-7	Chlorobenzene	6.6				9.1							
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 008 - Soil Data

VOA											
	SAMPLE ID ------->	008-S-B302-93		008-C-B302-93 D		008-S-B311-93		008-C-B311-93 D		008-S-B312-93	
	ORIGINAL ID ----->	S08B3002		S08B302D		S08B3101		S08B311D		S08B3102	
	LAB SAMPLE ID --->	S346088*39		S346088A*6		S346088*40		S346088A*7		S346088*41	
	ID FROM REPORT -->	S08B3002		S08B302D		S08B3101		S08B311D		S08B3102	
	SAMPLE DATE ----->	10/28/93		10/28/93		10/28/93		10/28/93		10/28/93	
	DATE ANALYZED --->			11/09/93		11/09/93		11/09/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS19	VAL	CNS14	VAL	CNS19	VAL	CNS14	VAL	CNS19	VAL
74-87-3	Chloromethane										
74-83-9	Bromomethane										
75-01-4	Vinyl chloride										
75-00-3	Chloroethane										
75-09-2	Methylene chloride										
67-64-1	Acetone			100.				120.		160.	
75-15-0	Carbon disulfide							2.1	J		
75-35-4	1,1-Dichloroethene										
75-34-3	1,1-Dichloroethane										
67-66-3	Chloroform										
107-06-2	1,2-Dichloroethane										
78-93-3	2-Butanone (MEK)			10.	J			12.	J		
71-55-6	1,1,1-Trichloroethane			3.8	J			3.9	J		
56-23-5	Carbon tetrachloride										
75-27-4	Bromodichloromethane										
78-87-5	1,2-Dichloropropane										
10061-01-5	cis-1,3-Dichloropropene										
79-01-6	Trichloroethene										
124-48-1	Dibromochloromethane										
79-00-5	1,1,2-Trichloroethane										
71-43-2	Benzene										
10061-02-6	trans-1,3-Dichloropropene										
75-25-2	Bromoform										
108-10-1	4-Methyl-2-Pentanone (MIBK)										
591-78-6	2-Hexanone										
127-18-4	Tetrachloroethene										
79-34-5	1,1,2,2-Tetrachloroethane										
108-88-3	Toluene			6.	J						
108-90-7	Chlorobenzene	28.		64.				20.		33.	
100-41-4	Ethylbenzene			6.6							
100-42-5	Styrene										
1330-20-7	Xylene (Total)			14.				2.2	J		
156-59-2	cis-1,2-Dichloroethylene										
156-60-5	trans-1,2-Dichloroethene										
108-05-4	Vinyl acetate										

*** Validation Complete ***

DATALCP3
11/02/95

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Water Data

Time: 12:13

METAL													
	SAMPLE ID ------->	008-G-W011-93		008-G-W021-93		008-G-W031-93		008-G-W041-93		008-G-W051-93		008-G-W061-93	
	ORIGINAL ID ----->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W0601	
	LAB SAMPLE ID --->	S346404*4		S346404*3		S346404*1		S346404*2		46404-5		46404-6	
	ID FROM REPORT -->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W0601	
	SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		11/10/93		11/11/93		11/11/93	
	DATE EXTRACTED -->	11/12/93		11/12/93		11/12/93		11/12/93					
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL
CN	Cyanide												
CD	Cadmium												
CA	Calcium	120000.		110000.		280000.		110000.		94000.		93000.	
CR	Chromium												
CO	Cobalt												
CU	Copper												
FE	Iron	2600.		5800.		2600.		7000.		3200.		2300.	
PB	Lead												
MG	Magnesium	820000.		78000.		920000.		920000.		250000.		75000.	
MN	Manganese	87.		120.		84.		140.		1100.		750.	
HG	Mercury												
NI	Nickel												
K	Potassium	270000.		33000.		280000.		260000.		90000.		36000.	
SE	Selenium												
AG	Silver												
NA	Sodium	6500000.		650000.		7700000.		7500000.		2300000.		790000.	
TL	Thallium												
ZN	Zinc	40.				29.							
V	Vanadium	17.				25.							
AL	Aluminum	1000.				710.				1400.			
SB	Antimony												
AS	Arsenic					15.						11.	
BA	Barium	33.		530.		68.		70.		12.		11.	
BE	Beryllium												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Water Data

PEST													
	SAMPLE ID ------->	008-G-W011-93		008-G-W021-93		008-G-W031-93		008-G-W041-93		008-G-W051-93		008-H-W051-93 D	
	ORIGINAL ID ----->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W051D	
	LAB SAMPLE ID --->	S346404*4		S346404*3		S346404*1		S346404*2		46404-5		S346404A*1	
	ID FROM REPORT -->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W051D	
	SAMPLE DATE ----->	12/18/93		12/18/93		12/18/93		12/18/93		11/11/93		11/11/93	
	DATE EXTRACTED -->	11/12/93		11/12/93		11/12/93		11/12/93					
	DATE ANALYZED --->	11/17/93		11/17/93		11/17/93		11/17/93					
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS23	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE												
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD												
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT												
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane												
5103-74-2	gamma-Chlordane												
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Water Data

PEST							
	SAMPLE ID ------->	008-H-W051-93 RE					
	ORIGINAL ID ----->	S08W051D(RE)					
	LAB SAMPLE ID --->	S346404A*5					
	ID FROM REPORT -->	S08W051D(RE)					
	SAMPLE DATE ----->	11/10/93					
	DATE EXTRACTED -->	11/12/93					
	DATE ANALYZED --->	11/17/93					
	MATRIX ---------->	Water					
	UNITS ---------->	ug/l					
CAS #	Parameter	CNS23 VAL					
319-84-6	alpha-BHC						
319-85-7	beta-BHC						
319-86-8	delta-BHC						
58-89-9	gamma-BHC (Lindane)						
76-44-8	Heptachlor						
309-00-2	Aldrin						
1024-57-3	Heptachlor epoxide						
959-98-8	Endosulfan I						
60-57-1	Dieldrin						
72-55-9	4,4'-DDE						
72-20-8	Endrin						
33213-65-9	Endosulfan II						
72-54-8	4,4'-DDD						
1031-07-8	Endosulfan sulfate						
50-29-3	4,4'-DDT						
53494-70-5	Endrin ketone						
72-43-5	Methoxychlor						
5103-71-9	alpha-Chlordane						
5103-74-2	gamma-Chlordane						
8001-35-2	Toxaphene						
12674-11-2	Aroclor-1016						
11104-28-2	Aroclor-1221						
11141-16-5	Aroclor-1232						
53469-21-9	Aroclor-1242						
12672-29-6	Aroclor-1248						
11097-69-1	Aroclor-1254						
11096-82-5	Aroclor-1260						
7421-93-4	Endrin aldehyde						

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Water Data

SVOA													
	SAMPLE ID ------->	008-G-W011-93		008-G-W021-93		008-G-W031-93		008-G-W041-93		008-G-W051-93		008-G-W061-93	
	ORIGINAL ID ----->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W0601	
	LAB SAMPLE ID --->	S346404*4		S346404*3		S346404*1		S346404*2		46404-5		46404-6	
	ID FROM REPORT -->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W0601	
	SAMPLE DATE ----->	11/11/93		11/11/93		11/11/93		11/11/93		11/11/93		11/11/93	
	DATE EXTRACTED -->	11/16/93		11/16/93		11/16/93		11/16/93					
	DATE ANALYZED --->	11/21/93		11/21/93		11/21/93		11/21/93					
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene												
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene												
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran												
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 008 - Water Data

SVOA													
	SAMPLE ID ------->	008-G-W011-93		008-G-W021-93		008-G-W031-93		008-G-W041-93		008-G-W051-93		008-G-W061-93	
	ORIGINAL ID ----->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W0601	
	LAB SAMPLE ID --->	S346404*4		S346404*3		S346404*1		S346404*2		46404-5		46404-6	
	ID FROM REPORT -->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W0601	
	SAMPLE DATE ----->	11/11/93		11/11/93		11/11/93		11/11/93		11/11/93		11/11/93	
	DATE EXTRACTED -->	11/16/93		11/16/93		11/16/93		11/16/93					
	DATE ANALYZED --->	11/21/93		11/21/93		11/21/93		11/21/93					
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL
86-73-7	Fluorene												
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene												
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene												
86-74-8	Carbazole												
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene												
129-00-0	Pyrene												
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene												
218-01-9	Chrysene												
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene												
207-08-9	Benzo(k)fluoranthene												
50-32-8	Benzo(a)pyrene												
193-39-5	Indeno(1,2,3-cd)pyrene												
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene												
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Water Data

VOA

	SAMPLE ID ------->	008-G-W011-93		008-G-W021-93		008-G-W031-93		008-G-W041-93		008-G-W051-93		008-H-W051-93 D	
	ORIGINAL ID ----->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W051D	
	LAB SAMPLE ID --->	S346404*4		S346404*3		S346404*1		S346404*2		46404-5		S346404A*1	
	ID FROM REPORT -->	S08W0101		S08W0201		S08W0301		S08W0401		S08W0501		S08W051D	
	SAMPLE DATE ----->	11/11/93		11/11/93		11/11/93		11/11/93		11/11/93		11/11/93	
	DATE ANALYZED --->	11/20/93		11/20/93		11/20/93		11/20/93					
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS23	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone												
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene												
108-90-7	Chlorobenzene												
100-41-4	Ethylbenzene												
100-42-5	Styrene											0.67	J
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 008 - Water Data

VOA

SAMPLE ID ------->	008-G-W061-93
ORIGINAL ID ----->	S08W0601
LAB SAMPLE ID --->	46404-6
ID FROM REPORT -->	S08W0601
SAMPLE DATE ----->	11/11/93
MATRIX ---------->	Water
UNITS ----------->	ug/l

CAS #	Parameter	CNS24	VAL
74-87-3	Chloromethane		
74-83-9	Bromomethane		
75-01-4	Vinyl chloride		
75-00-3	Chloroethane		
75-09-2	Methylene chloride		
67-64-1	Acetone		
75-15-0	Carbon disulfide		
75-35-4	1,1-Dichloroethene		
75-34-3	1,1-Dichloroethane		
67-66-3	Chloroform		
107-06-2	1,2-Dichloroethane		
78-93-3	2-Butanone (MEK)		
71-55-6	1,1,1-Trichloroethane		
56-23-5	Carbon tetrachloride		
75-27-4	Bromodichloromethane		
78-87-5	1,2-Dichloropropane		
10061-01-5	cis-1,3-Dichloropropene		
79-01-6	Trichloroethene		
124-48-1	Dibromochloromethane		
79-00-5	1,1,2-Trichloroethane		
71-43-2	Benzene		
10061-02-6	trans-1,3-Dichloropropene		
75-25-2	Bromoform		
108-10-1	4-Methyl-2-Pentanone (MIBK)		
591-78-6	2-Hexanone		
127-18-4	Tetrachloroethene		
79-34-5	1,1,2,2-Tetrachloroethane		
108-88-3	Toluene		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene		
100-42-5	Styrene		
1330-20-7	Xylene (Total)		
156-59-2	cis-1,2-Dichloroethylene		
156-60-5	trans-1,2-Dichloroethene		
108-05-4	Vinyl acetate		

*** Validation Complete ***

Appendix E

SWMU 3, Analytical Summary

pH MEASUREMENTS OF WATER SAMPLES COLLECTED FROM MONITOR WELLS AT THE PESTICIDE-MIXING AREA, FEBRUARY 12, 1982[1]

Well Number	pH
WPA-1	6.02
WPA-2	6.04

[1] Measured at the time of sample collection.

ENERGY RESOURCES CO. INC

INORGANIC ANALYSIS

- Report Sheet -
- µg/l

Analyzed for: Geraghty & Miller
Sediments - waters

ERCO ID	CLIENT ID	As
IC-82-		
	Waters	µg/l
576	WPA-1	<10
577	WPA-2	<10
577 ERCO DUPLICATE		<10

If customer has any questions regarding analysis, refer to sample in question by its ERCO ID#.

Sample Rcvd. 2/17/82 Reported by Las

Date Analysis Completed 3/16/82 Checked by [illegible]

ENERGY RESOURCES CO. INC

INORGANIC ANALYSIS

- Report Sheet -
µg/gm dry wgt.

Analyzed for: Geraghty & Miller
Sediments

ERCO ID	CLIENT ID	As
IC-82		
554	PA-1	6.3
555	PA-2	2.8
556	PA-3	3.9
556	ERCO DUPLICATE	3.0
557	PA-4	1.1
558	PA-5	2.9
559	PA-6	4.2
560	PA-7	5.7
561	PA-8	4.8

If customer has any questions regarding analysis, refer to sample in question by its ERCO ID#.

Sample Rcvd. 2/17/82 Reported by Lau

Date Analysis Completed 3/16/82 Checked by MGL

ENERGY RESOURCES CO. INC.

HERBICIDE ANALYSES

ERCO ID	G&M ID	2,4-D (µg/l) Det. Limit	2,4-D (µg/l) Conc.	2,4,5-TP (µg/l) Det. Limit	2,4,5-TP (µg/l) Conc.
28-552	WPA-1	0.05	ND	0.02	ND
28-553	WPA-2	0.05	ND	0.02	ND
28-554	PA-1	5.0	ND	1.5	ND
28-555	PA-2	5.0	ND	1.5	ND
28-556	PA-3	5.0	ND	1.5	ND
28-557	PA-4	5.0	ND	1.5	ND
28-558	PA-5	5.0	ND	1.5	ND
28-559	Soil Blank	5.0	ND	1.5	ND
28-560	PA-7	5.0	ND	1.5	ND
28-561	PA-8	5.0	ND	1.5	ND
28-562	PA-9	5.0	ND	1.5	ND

ND = none detected

Reported by: George Perry

Checked by: ADW

[redacted] ENE[redacted] SO[redacted] CO[redacted] INC[redacted] [redacted] S[redacted] Rc[redacted] 2/1[redacted]

Date Analysis Completed: 3/25/82

Analyzed for:

Compounds	Client ID	WPA-1	WPA-2	PA-1	PA-2	PA-3	PA-4	PA-5	blank	PA-6	PA-7	PA-8
		28-552	28-553	28-554	28-555	28-556	28-557	28-558	28-559	28-560	28-561	28-561
1. 89P	aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2. 90P	dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3. 91P	chlordane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4. 92P	4,4'-DDT	ND	ND	100	40	880	7	6	ND	20	200	4
5. 93P	4,4'-DDE	ND	ND	230	40	350	4	7	ND	15	250	3
6. 94P	4,4'-DDD	ND	ND	11	7	150	ND	ND	ND	1	18	ND
7. 95P	α-endosulfan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8. 96P	β-endosulfan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9. 97P	endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10. 98P	endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11. 99P	endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12. 100P	heptachlor	ND	ND	ND	ND	2	ND	ND	ND	ND	1.0	ND
13. 101P	heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14. 102P	α-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
15. 103P	β-BHC	ND	ND	ND	ND	1	ND	ND	ND	ND	1	ND
16. 104P	γ-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17. 105P	δ-BHC	ND	ND	ND	ND	2	ND	ND	ND	ND	1	ND
18. 106P	PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19. 107P	PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20. 108P	PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21. 109P	PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
22. 110P	PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
23. 111P	PCB-1260	ND	ND	39	ND	100	2	2	ND	7	36	1
24. 112P	PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25. 113P	toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

GC

ENVIRONMENTAL
SCIENCE
CORPORATION

P.O. BOX 616
NUT STREET • MIDDLETOWN, CONN. 06457
TELEPHONE: 347-6961

Laboratory Report

LAB REPORT NO.
C-0440

State Certification No. PH

CLIENT

Commanding Officer
Southern Division
Naval Facilities Command
2144 Melbourne Street
P.O. Box 10068
Charleston, S.C. 29411

DATE May 17, 1982

CLIENT PHONE NO (803) 743-5510

SPECIAL INSTRUCTIONS

0004

SAMPLE DESCRIPTION	TEST	RESULTS	
Pesticide Mixing Area 2" Sample #1	D,P DDT	5.3	µg/ml (pp
	P,P DDT	<0.01	µg/gr (pp
	DDT total	5.3	µg/ml
	2,4 D	<0.01	µg/gr (pp
	2,4,5 TP (Silvex)	0.51	µg/gr (pp
Pesticide Mixing Area 2" Sample #2	D,D DDT	0.08	µg/gr
	P,P DDT	1.4	µg/gr
	Total DDT	1.48	µg/gr (pp
	2,4 D	0.09	µg/gr (pp
	2,4,5 TP (Silvex)	<0.01	µg/gr (pp

ANALYSES OF SOIL SAMPLES COLLECTED BY NAVAL PERSONNEL, May 1982.

REMARKS

June 15, 1982

Appendix F

SWMU 6 and 7, 1993 Analytical Results Summary

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Soil Data

METAL													
	SAMPLE ID ------->	006-S-B011-93		006-S-B021-93		006-S-B022-93		006-S-B031-93		006-S-B041-93		006-S-B042-93	
	ORIGINAL ID ----->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	LAB SAMPLE ID --->	S345287*1		S345287*2		S345287*5		S345287*3		S345287*4		S346028*17	
	ID FROM REPORT -->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	SAMPLE DATE ----->	09/21/93		09/21/93		09/21/93		09/21/93		09/21/93		10/26/93	
	DATE ANALYZED --->	10/07/93		10/07/93		10/07/93		10/07/93		10/07/93		11/11/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL
CN	Cyanide												
CD	Cadmium	0.95											
CA	Calcium	3500.		63000.		12000.		11000.		38000.		8000.	
CR	Chromium	17.		11.		41.		17.		20.		35.	
CO	Cobalt	3.3		4.		7.3		2.9		2.1		5.9	
CU	Copper	62.		42.		30.		23.		47.		48.	
FE	Iron	15000.		5100.		29000.		11000.		6900.		32000.	
PB	Lead	320.		72.		48.		57.		100.		123.	
MG	Magnesium	640.		1200.		5200.		1500.		1200.		4100.	
MN	Manganese	75.		120.		360.		190.		89.		400.	
HG	Mercury	0.35		0.054		0.25		0.17		0.21		4.	N
NI	Nickel	19.		10.		11.		5.3		8.5		9.9	
K	Potassium	350.		360.		2600.		650.		340.		1900.	
SE	Selenium												
AG	Silver												
NA	Sodium			800.		4100.		520.		280.		1400.	
TL	Thallium												
ZN	Zinc	230.		65.		100.		110.		120.		200.	
V	Vanadium	26.		11.		71.		24.		15.		59.	
AL	Aluminum	7300.		3300.		22000.		7400.		5200.		14000.	
SB	Antimony												
AS	Arsenic	9.3		5.1		22.		8.		8.2		28.	
BA	Barium	55.		45.		33.		43.		31.		47.	
BE	Beryllium	0.81				1.2						1.1	

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Soil Data

METAL													
	SAMPLE ID ------->	006-S-B051-93		006-S-B061-93		006-S-B061-93		006-S-B071-93		006-S-B072-93		006-S-B092-93	
	ORIGINAL ID ----->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	LAB SAMPLE ID --->	S345315*1		S345315*2		S345315*4		S345315*3		S346088*1		S346088*2	
	ID FROM REPORT -->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	SAMPLE DATE ----->	09/22/93		09/22/93		09/22/93		09/22/93		10/27/93		10/27/93	
	DATE ANALYZED --->	10/07/93		10/07/93		10/07/93		10/07/93		11/11/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL	CNS17	VAL
CN	Cyanide												
CD	Cadmium												
CA	Calcium	200000.		3200.		11000.		6800.		9100.		12000.	
CR	Chromium	10.		7.5		7.1		16.		43.	N	37.	N
CO	Cobalt	2.5				1.2		1.4		7.4		7.3	
CU	Copper			4.5		5.8		15.		27.		32.	
FE	Iron	5000.		6100.		5700.		6000.		34000.		39000.	
PB	Lead	6.9		13.		11.		64.		48.		52.	
MG	Magnesium	2900.		440.		490.		680.		6000.		6300.	
MN	Manganese	150.		42.		47.		48.		320.		630.	
HG	Mercury	0.025		0.56		0.55		0.076		0.82	N	0.23	N
NI	Nickel	6.8								12.		10.	
K	Potassium	350.		140.		140.		450.		3100.		2600.	
SE	Selenium												
AG	Silver												
NA	Sodium	280.		310.		360.				5800.		5500.	
TL	Thallium												
ZN	Zinc	19.		13.		16.		58.		100.	N	110.	N
V	Vanadium	10.		11.		9.1		19.		73.	N*	68.	N*
AL	Aluminum	4700.		9900.		9000.		6600.		19000.		16000.	
SB	Antimony												
AS	Arsenic	2.4		1.8		1.9		5.		37.		25.	
BA	Barium	20.		47.		49.		31.		32.		29.	
BE	Beryllium			0.68		0.73				1.3		1.1	

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Soil Data

METAL													
	SAMPLE ID ------->	006-S-B122-93		006-S-B141-93		006-S-B142-93		006-S-B151-93		006-S-B152-93		006-S-B172-93	
	ORIGINAL ID ----->	S06B1202		S06B1401		S06B1402		S06B1501		S06B1502		S06B1702	
	LAB SAMPLE ID --->	S346028*18		S346088*3		S346088*4		S346088*5		S346088*6		S346088*7	
	ID FROM REPORT -->	S06B1202		S06B1401		S06B1402		S06B1501		S06B1502		S06B1702	
	SAMPLE DATE ----->	10/26/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->	11/11/93		11/11/93				11/11/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL
CN	Cyanide												
CD	Cadmium			1.1				2.7					
CA	Calcium	16000.		22000.		13000.		21000.		21000.		7800.	
CR	Chromium	39.		23.	N	44.	N	25.	N	37.	N	45.	N
CO	Cobalt	7.6		23.		8.		11.		7.		7.9	
CU	Copper	33.		12.		34.		540.		69.		37.	
FE	Iron	38000.		14000.		36000.		21000.		28000.		33000.	
PB	Lead	70.		20.		62.		1000.	X	103.		52.	
MG	Magnesium	6100.		800.		6000.		1100.		4500.		5200.	
MN	Manganese	650.		55.		520.		160.		530.		360.	
HG	Mercury	1.5	N	0.055	N	0.34	N	0.12	N	0.35	N	0.37	N
NI	Nickel	11.				12.		24.		11.		13.	
K	Potassium	2600.		440.		2800.		520.		2200.		3000.	
SE	Selenium												
AG	Silver							2.5					
NA	Sodium	2200.		230.		4800.		620.		3400.		3900.	
TL	Thallium												
ZN	Zinc	130.		41.	N	120.	N	930.	N	180.	N	120.	N
V	Vanadium	73.		20.	N*	72.	N*	42.	N*	52.	N*	68.	N*
AL	Aluminum	17000.		7300.		21000.		7100.		14000.		22000.	
SB	Antimony							7.5	N*				
AS	Arsenic	16.		3.7		26.		4.8		19.		20.	
BA	Barium	31.		29.		36.		170.		50.		34.	
BE	Beryllium	1.2				1.2				0.88		1.4	

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Soil Data

METAL													
	SAMPLE ID ------->	006-S-B201-93		006-S-B202-93		006-S-B212-93		006-S-B251-93		006-C-B251-93 D		006-S-B252-93	
	ORIGINAL ID ----->	S06B2001		S06B2002		S06B2102		S06B2501		S06B251D		S06B2502	
	LAB SAMPLE ID --->	S346088*8		S346088*9		S346028*19		S346088*10		S346088A*3		S346088*11	
	ID FROM REPORT -->	S06B2001		S06B2002		S06B2102		S06B2501		S06B251D		S06B2502	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/26/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->			11/16/93		11/11/93				11/08/93		11/16/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS17	VAL	CNS18	VAL	CNS17	VAL	CNS18	VAL	CNS14	VAL	CNS18	VAL
CN	Cyanide									NR			
CD	Cadmium							0.92		1.1			
CA	Calcium	21000.		13000.		31000.		34000.		18500.	*	9200.	
CR	Chromium	38.	N	43.		42.		33.		95.		45.	
CO	Cobalt	26.		9.		7.2		2.6		2.7		8.9	
CU	Copper	12.		36.		32.		23.		16.5	N	34.	
FE	Iron	17000.		37000.		29000.		10000.		13200.		36000.	
PB	Lead	8.5		66.		53.		11.		13.1	N	52.	
MG	Magnesium	830.		6300.		4500.		850.		645.		5900.	
MN	Manganese	65.		470.		460.		77.		72.9	N	440.	
HG	Mercury	0.023	N	0.22		0.24	N	0.022		0.04	N	0.25	
NI	Nickel			13.		11.				6.1		13.	
K	Potassium	320.		3200.		2800.		160.		233.		2900.	
SE	Selenium												
AG	Silver												
NA	Sodium	350.		4500.		2100.						2100.	
TL	Thallium												
ZN	Zinc	14.	N	120.		120.		29.		28.1		120.	
V	Vanadium	18.	N*	77.		69.		15.		17.5		77.	
AL	Aluminum	5700.		20000.		23000.		5800.		6170.		22000.	
SB	Antimony												
AS	Arsenic	3.7		43.		21.		4.3		4.7		36.	
BA	Barium	28.		39.		33.		27.		22.4		40.	
BE	Beryllium			1.5		1.2						1.4	

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Soil Data

METAL																	
	SAMPLE ID ------->	006-S-B261-93		006-S-B262-93		006-S-B272-93		006-C-B272-93 D		006-S-B292-93		006-S-B312-93	
	ORIGINAL ID ----->	S06B2601		S06B2602		S06B2702		S06B272D		S06B2902		S06B3102	
	LAB SAMPLE ID --->	S346088*12		S346088*13		S346088*14		S346088A*4		S346088*15		S346088*16	
	ID FROM REPORT -->	S06B2601		S06B2602		S06B2702		S06B272D		S06B2902		S06B3102	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->			11/16/93				11/08/93		11/16/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS14	VAL	CNS18	VAL	CNS18	VAL
CN	Cyanide							NR					
CD	Cadmium												
CA	Calcium	29000.		11000.		16000.		18400.	*	12000.		12000.	
CR	Chromium	30.		37.		44.		49.3		39.		46.	
CO	Cobalt	4.6		7.9		9.3		9.9		7.2		9.9	
CU	Copper	7.9		30.		35.		34.8	N	32.		40.	
FE	Iron	12000.		34000.		40000.		38000.		31000.		40000.	
PB	Lead	4.9		47.		52.		64.9		86.		58.	
MG	Magnesium	810.		5200.		6200.		6270.		4600.		6300.	
MN	Manganese	59.		550.		800.		716.	N	600.		720.	
HG	Mercury	0.019		0.42		0.25		0.38	N	0.22		0.27	
NI	Nickel			11.		13.		16.4		12.		13.	
K	Potassium	420.		2700.		3000.		3170.		2100.		3200.	
SE	Selenium												
AG	Silver												
NA	Sodium	120.		3500.		3700.		3570.		620.		3200.	
TL	Thallium												
ZN	Zinc	14.		110.		120.		142.		120.		140.	
V	Vanadium	18.		65.		78.		76.2		60.		84.	
AL	Aluminum	7100.		16000.		19000.		29100.		17000.		20000.	
SB	Antimony												
AS	Arsenic	1.6		20.		32.		24.3		18.		27.	
BA	Barium	31.		34.		35.		43.2		32.		35.	
BE	Beryllium			1.3		1.5		1.4		1.1		1.7	

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Soil Data

METAL								
	SAMPLE ID ------->	006-S-B322-93		006-S-B332-93				
	ORIGINAL ID ----->	S06B3202		S06B3302				
	LAB SAMPLE ID --->	S346088*17		S346088*18				
	ID FROM REPORT -->	S06B3202		S06B3302				
	SAMPLE DATE ----->	10/27/93		10/27/93				
	DATE ANALYZED --->	11/16/93						
	MATRIX ---------->	Soil		Soil				
	UNITS ---------->	mg/kg		mg/kg				
CAS #	Parameter	CNS18	VAL	CNS18	VAL			
CN	Cyanide							
CD	Cadmium							
CA	Calcium	13000.		11000.				
CR	Chromium	55.		36.				
CO	Cobalt	11.		6.8				
CU	Copper	47.		29.				
FE	Iron	45000.		29000.				
PB	Lead	81.		62.				
MG	Magnesium	7500.		4900.				
MN	Manganese	690.		480.				
HG	Mercury	0.57		0.42				
NI	Nickel	16.		9.8				
K	Potassium	3800.		2400.				
SE	Selenium							
AG	Silver							
NA	Sodium	4300.		3500.				
TL	Thallium							
ZN	Zinc	160.		110.				
V	Vanadium	91.		62.				
AL	Aluminum	27000.		18000.				
SB	Antimony							
AS	Arsenic	31.		20.				
BA	Barium	45.		34.				
BE	Beryllium	1.7		0.98				

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Soil Data

PEST													
	SAMPLE ID ------->	006-S-B011-93		006-S-B021-93		006-S-B022-93		006-S-B031-93		006-S-B041-93		006-S-B042-93	
	ORIGINAL ID ----->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	LAB SAMPLE ID --->	S345287*1		S345287*2		S345287*5		S345287*3		S345287*4		S346028*17	
	ID FROM REPORT -->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	SAMPLE DATE ----->	09/21/93		09/21/93		09/21/93		09/21/93		09/21/93		10/26/93	
	DATE EXTRACTED -->	09/24/93		09/24/93		09/24/93		09/24/93		09/24/93		10/29/93	
	DATE ANALYZED --->	10/20/93		10/19/93		10/19/93		10/19/93		10/20/93		12/02/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE			42.				53.		99.		8.3	
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD			110.		18.		13.		27.			
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT			72.				11.		200.			
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor	22.											
5103-71-9	alpha-Chlordane									20.			
5103-74-2	gamma-Chlordane							2.8		34.			
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 006 - Soil Data

PEST													
	SAMPLE ID ------->	006-S-B051-93		006-S-B061-93		006-S-B061-93		006-S-B071-93		006-S-B072-93		006-S-B092-93	
	ORIGINAL ID ----->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	LAB SAMPLE ID --->	S345315*1		S345315*2		S345315*4		S345315*3		S346088*1		S346088*2	
	ID FROM REPORT -->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	SAMPLE DATE ----->	09/22/93		09/22/93		09/22/93		09/22/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	09/24/93		09/24/93		09/24/93		09/24/93					
	DATE ANALYZED --->	10/19/93		10/20/93		10/20/93		10/20/93		12/09/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL	CNS17	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)							26.					
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	1000.		110.		170.		430.					
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	590.		77.		140.		420.					
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT	4200.		290.		600.		2000.					
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane							66.					
5103-74-2	gamma-Chlordane							91.					
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254	26000.											
11096-82-5	Aroclor-1260			2400.		2400.							
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 006 - Soil Data

PEST													
	SAMPLE ID ------->	006-S-B122-93		006-S-B141-93		006-S-B142-93		006-S-B151-93		006-S-B152-93		006-S-B172-93	
	ORIGINAL ID ----->	S06B1202		S06B1401		S06B1402		S06B1501		S06B1502		S06B1702	
	LAB SAMPLE ID --->	S346028*18		S346088*3		S346088*4		S346088*5		S346088*6		S346088*7	
	ID FROM REPORT -->	S06B1202		S06B1401		S06B1402		S06B1501		S06B1502		S06B1702	
	SAMPLE DATE ----->	10/26/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	10/29/93											
	DATE ANALYZED --->	12/02/93		12/08/93				12/09/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I			2.6									
60-57-1	Dieldrin												
72-55-9	4,4'-DDE			5.	P								
72-20-8	Endrin												
33213-65-9	Endosulfan II			6.1	P								
72-54-8	4,4'-DDD												
1031-07-8	Endosulfan sulfate			6.									
50-29-3	4,4'-DDT	7.9		7.7	P								
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane												
5103-74-2	gamma-Chlordane												
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260			240.	P			970.	P	120.	P		
7421-93-4	Endrin aldehyde												

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 006 - Soil Data

PEST													
	SAMPLE ID ------->	006-S-B201-93		006-S-B202-93		006-S-B212-93		006-S-B251-93		006-C-B251-93 D		006-S-B252-93	
	ORIGINAL ID ----->	S06B2001		S06B2002		S06B2102		S06B2501		S06B251D		S06B2502	
	LAB SAMPLE ID --->	S346088*8		S346088*9		S346028*19		S346088*10		S346088A*3		S346088*11	
	ID FROM REPORT -->	S06B2001		S06B2002		S06B2102		S06B2501		S06B251D		S06B2502	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/26/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->					10/29/93				11/03/93			
	DATE ANALYZED --->			12/02/93		12/08/93				12/04/93		12/09/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ----------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS17	VAL	CNS18	VAL	CNS17	VAL	CNS18	VAL	CNS14	VAL	CNS18	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC							2.4					
58-89-9	gamma-BHC (Lindane)							4.6					
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	9.9						56.	D	43.	D		
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	8.2						14.	P	13.	P		
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT					7.7		40.	P	32.	DP		
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane							6.9		3.8			
5103-74-2	gamma-Chlordane							7.3		9.5			
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260	420.				440.							
7421-93-4	Endrin aldehyde												

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SWMU 006 - Soil Data

PEST													
	SAMPLE ID ------->	006-S-B261-93		006-S-B262-93		006-S-B262-93 RE		006-S-B272-93		006-S-B272-93 RE		006-C-B272-93 D	
	ORIGINAL ID ----->	S06B2601		S06B2602		S06B2602RE		S06B2702		S06B2702		S06B272D	
	LAB SAMPLE ID --->	S346088*12		S346088*13		S346088*113		S346088*14		S346088*114		S346088A*4	
	ID FROM REPORT -->	S06B2601		S06B2602		S06B2602RE		S06B2702		S06B2702		S06B272D	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->											11/03/93	
	DATE ANALYZED --->			12/12/93								12/07/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS14	VAL
319-84-6	alpha-BHC							17.	J				
319-85-7	beta-BHC							26.	J				
319-86-8	delta-BHC							150.	J	119.			
58-89-9	gamma-BHC (Lindane)							24.	J				
76-44-8	Heptachlor							5.7	J				
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE							270.	EJ	360.		13.	
72-20-8	Endrin							80.	EJ				
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD							880.	EJ	2500.	D	150.	D
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT							3000.	EJ	1300.	D	74.	
53494-70-5	Endrin ketone							11.	J				
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane							140.	EJ	140.		7.2	
5103-74-2	gamma-Chlordane							220.	EJ	190.		9.3	P
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 006 - Soil Data

PEST													
	SAMPLE ID ------->	006-S-B292-93		006-S-B292-93 RE		006-S-B312-93		006-S-B312-93 RE		006-S-B322-93		006-S-B322-93 RE	
	ORIGINAL ID ----->	S06B2902		S06B2902		S06B3102		S06B3102RE		S06B3202		S06B3202(RE)	
	LAB SAMPLE ID --->	S346088*15		S346088*115		S346088*16		S346088*116		S346088*17		46088-117	
	ID FROM REPORT -->	S06B2902		S06B2902		S06B3102		S06B3102RE		S06B3202		S06B3202(RE)	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->	12/12/93								12/12/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE												
72-20-8	Endrin									22.	J	27.	
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	14.	J	15.									
1031-07-8	Endosulfan sulfate									71.	J	92.	
50-29-3	4,4'-DDT	7.	J	7.3									
53494-70-5	Endrin ketone									110.	EJ	130.	P
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane												
5103-74-2	gamma-Chlordane												
8001-35-2	Toxaphene									4.1	J		
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 006 - Soil Data

PEST								
	SAMPLE ID ------->	006-S-B332-93		006-S-B332-93 RE				
	ORIGINAL ID ----->	S06B3302		S06B3302(RE)				
	LAB SAMPLE ID --->	S346088*18		46088-118				
	ID FROM REPORT -->	S06B3302		S06B3302(RE)				
	SAMPLE DATE ----->	10/27/93		10/27/93				
	MATRIX ---------->	Soil		Soil				
	UNITS ---------->	ug/kg		ug/kg				
CAS #	Parameter	CNS18	VAL	CNS18	VAL			
319-84-6	alpha-BHC							
319-85-7	beta-BHC							
319-86-8	delta-BHC	3.8	J					
58-89-9	gamma-BHC (Lindane)							
76-44-8	Heptachlor							
309-00-2	Aldrin							
1024-57-3	Heptachlor epoxide							
959-98-8	Endosulfan I							
60-57-1	Dieldrin							
72-55-9	4,4'-DDE	48.	EJ	54.				
72-20-8	Endrin							
33213-65-9	Endosulfan II							
72-54-8	4,4'-DDD	200.	EJ	240.	D			
1031-07-8	Endosulfan sulfate							
50-29-3	4,4'-DDT	170.	EJ	100.				
53494-70-5	Endrin ketone							
72-43-5	Methoxychlor							
5103-71-9	alpha-Chlordane	4.2	J	5.				
5103-74-2	gamma-Chlordane	8.1	EJ	10.				
8001-35-2	Toxaphene							
12674-11-2	Aroclor-1016							
11104-28-2	Aroclor-1221							
11141-16-5	Aroclor-1232							
53469-21-9	Aroclor-1242							
12672-29-6	Aroclor-1248							
11097-69-1	Aroclor-1254							
11096-82-5	Aroclor-1260							
7421-93-4	Endrin aldehyde							

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Soil Data

SVOA																	
	SAMPLE ID ------->	006-S-B011-93		006-S-B021-93		006-S-B022-93		006-S-B031-93		006-S-B041-93		006-S-B042-93	
	ORIGINAL ID ----->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	LAB SAMPLE ID --->	S345287*1		S345287*2		S345287*5		S345287*3		S345287*4		S346028*17	
	ID FROM REPORT -->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	SAMPLE DATE ----->	09/21/93		09/21/93		09/21/93		09/21/93		09/21/93		10/26/93	
	DATE EXTRACTED -->	09/24/93		09/24/93		09/24/93		09/24/93		09/24/93		10/29/93	
	DATE ANALYZED --->	09/27/93		09/27/93		09/27/93		09/27/93		09/27/93		11/02/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene	36.	J	66.	J								
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene			35.	J								
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene	35.	J										
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene	42.	J	170.	J					37.	J		
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran	35.	J	99.	J					33.	J		
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Soil Data

SVOA													
	SAMPLE ID ------->	006-S-B011-93		006-S-B021-93		006-S-B022-93		006-S-B031-93		006-S-B041-93		006-S-B042-93	
	ORIGINAL ID ----->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	LAB SAMPLE ID --->	S345287*1		S345287*2		S345287*5		S345287*3		S345287*4		S346028*17	
	ID FROM REPORT -->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	SAMPLE DATE ----->	09/21/93		09/21/93		09/21/93		09/21/93		09/21/93		10/26/93	
	DATE EXTRACTED -->	09/24/93		09/24/93		09/24/93		09/24/93		09/24/93		10/29/93	
	DATE ANALYZED --->	09/27/93		09/27/93		09/27/93		09/27/93		09/27/93		11/02/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL
86-73-7	Fluorene	54.	J	200.	J								
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	550.		2200.		77.	J	47.	J	470.		79.	J
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene	150.	J	350.						100.	J	29.	J
86-74-8	Carbazole	110.	J	550.						85.	J		
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	550.		2600.		220.	J	170.	J	670.		280.	J
129-00-0	Pyrene	1100.		2900.		550.	J	230.	J	930.		440.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene	400.		1100.		140.	J			290.	J	150.	J
218-01-9	Chrysene	430.		1200.		250.	J	140.	J	450.		180.	J
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)									85.	J		
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	660.		1700.		240.	J	230.	J	600.		250.	J
207-08-9	Benzo(k)fluoranthene	250.	J	610.				67.	J	210.	J		
50-32-8	Benzo(a)pyrene	540.		1200.		280.	J	110.	J	330.	J	200.	J
193-39-5	Indeno(1,2,3-cd)pyrene	430.		1100.				120.	J	330.	J	130.	J
53-70-3	Dibenzo(a,h)anthracene			210.	J								
191-24-2	Benzo(g,h,i)perylene	440.		1100.		180.	J	110.	J	340.	J	130.	J
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

NAVAL BASE CHARLESTON-1993 DATA
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SVOA													
	SAMPLE ID ------->	006-S-B051-93		006-S-B061-93		006-S-B061-93		006-S-B071-93		006-S-B072-93		006-S-B092-93	
	ORIGINAL ID ----->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	LAB SAMPLE ID --->	S345315*1		S345315*2		S345315*4		S345315*3		S346088*1		S346088*2	
	ID FROM REPORT -->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	SAMPLE DATE ----->	09/22/93		09/22/93		09/22/93		09/22/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	09/24/93		09/24/93		09/24/93		09/24/93					
	DATE ANALYZED --->	09/27/93		09/27/93		09/27/93		09/27/93		11/11/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL	CNS17	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene												
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene												
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran												
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Soil Data

SVOA													
	SAMPLE ID ------->	006-S-B051-93		006-S-B061-93		006-S-B061-93		006-S-B071-93		006-S-B072-93		006-S-B092-93	
	ORIGINAL ID ----->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	LAB SAMPLE ID --->	S345315*1		S345315*2		S345315*4		S345315*3		S346088*1		S346088*2	
	ID FROM REPORT -->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	SAMPLE DATE ----->	09/22/93		09/22/93		09/22/93		09/22/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	09/24/93		09/24/93		09/24/93		09/24/93					
	DATE ANALYZED --->	09/27/93		09/27/93		09/27/93		09/27/93		11/11/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL	CNS17	VAL
86-73-7	Fluorene												
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	180.	J	220.	J	230.	J	78.	J				
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene					40.	J			41.	J		
86-74-8	Carbazole	52.	J	69.	J	58.	J						
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	250.	J	310.	J	400.		230.	J	140.	J		
129-00-0	Pyrene	270.	J	350.	J	380.		310.	J	520.	J	130.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene	120.	J	150.	J	170.	J	120.	J				
218-01-9	Chrysene	120.	J	160.	J	190.	J	260.	J				
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)							51.	J				
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	200.	J	240.	J	250.	J	440.					
207-08-9	Benzo(k)fluoranthene	60.	J	73.	J	100.	J	190.	J	220.	J		
50-32-8	Benzo(a)pyrene	130.	J	160.	J	160.	J	270.	J	200.	J		
193-39-5	Indeno(1,2,3-cd)pyrene	130.	J	140.	J	120.	J	220.	J	150.	J		
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene	140.	J	130.	J	110.	J			380.	J		
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 006 - Soil Data

SVOA													
	SAMPLE ID ------->	006-S-B122-93		006-S-B141-93		006-S-B141-93 RE		006-S-B142-93		006-S-B151-93		006-S-B152-93	
	ORIGINAL ID ----->	S06B1202		S06B1401		S06B1401RE		S06B1402		S06B1501		S06B1502	
	LAB SAMPLE ID --->	S346028*18		S346088*3		S346088*91		S346088*4		S346088*5		S346088*6	
	ID FROM REPORT -->	S06B1202		S06B1401		S06B1401RE		S06B1402		S06B1501		S06B1502	
	SAMPLE DATE ----->	10/26/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	10/29/93											
	DATE ANALYZED --->	11/02/93		11/03/93						11/06/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene									470.		420.	J
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene									280.	J	350.	J
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene									54.	J	83.	J
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene									590.		610.	
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran									400.		640.	
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Soil Data

SVOA													
	SAMPLE ID ------->	006-S-B122-93		006-S-B141-93		006-S-B141-93 RE		006-S-B142-93		006-S-B151-93		006-S-B152-93	
	ORIGINAL ID ----->	S06B1202		S06B1401		S06B1401RE		S06B1402		S06B1501		S06B1502	
	LAB SAMPLE ID --->	S346028*18		S346088*3		S346088*91		S346088*4		S346088*5		S346088*6	
	ID FROM REPORT -->	S06B1202		S06B1401		S06B1401RE		S06B1402		S06B1501		S06B1502	
	SAMPLE DATE ----->	10/26/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->	10/29/93											
	DATE ANALYZED --->	11/02/93		11/03/93						11/06/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL
86-73-7	Fluorene			53.	J					1100.		1500.	
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene			290.	J	390.	J	220.	J	5000.		6600.	
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene			63.	J	96.	J			1100.		1700.	
86-74-8	Carbazole			61.	J					430.		720.	
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	58.	J	390.	J	470.		470.	J	5300.		6000.	
129-00-0	Pyrene	140.	J	530.		920.		530.	J	4700.		5200.	
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene					180.	J	350.	J	1800.		2700.	
218-01-9	Chrysene			200.	J	250.	J	330.	J	1700.		2400.	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	64.	J	260.	J	290.	J	450.	J	1700.		2800.	
207-08-9	Benzo(k)fluoranthene			100.	J	102.	J	120.	J	590.		1100.	
50-32-8	Benzo(a)pyrene			180.	J	200.	J	300.	J	1200.		2200.	
193-39-5	Indeno(1,2,3-cd)pyrene									760.		1300.	
53-70-3	Dibenzo(a,h)anthracene									240.	J	380.	J
191-24-2	Benzo(g,h,i)perylene									740.		1200.	
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Soil Data

SVOA																	
	SAMPLE ID ------->	006-S-B172-93		006-S-B201-93		006-S-B202-93		006-S-B212-93		006-S-B251-93		006-C-B251-93 D	
	ORIGINAL ID ----->	S06B1702		S06B2001		S06B2002		S06B2102		S06B2501		S06B251D	
	LAB SAMPLE ID --->	S346088*7		S346088*8		S346088*9		S346028*19		S346088*10		S346088A*3	
	ID FROM REPORT -->	S06B1702		S06B2001		S06B2002		S06B2102		S06B2501		S06B251D	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/26/93		10/27/93		10/27/93	
	DATE EXTRACTED -->							10/29/93				11/02/93	
	DATE ANALYZED --->	11/11/93				11/11/93		11/02/93				11/08/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS17	VAL	CNS17	VAL	CNS18	VAL	CNS17	VAL	CNS18	VAL	CNS14	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene			150.	J								
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene												
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene			160.	J								
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran			75.	J								
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Soil Data

SVOA													
	SAMPLE ID ------->	006-S-B172-93		006-S-B201-93		006-S-B202-93		006-S-B212-93		006-S-B251-93		006-C-B251-93 D	
	ORIGINAL ID ----->	S06B1702		S06B2001		S06B2002		S06B2102		S06B2501		S06B251D	
	LAB SAMPLE ID --->	S346088*7		S346088*8		S346088*9		S346028*19		S346088*10		S346088A*3	
	ID FROM REPORT -->	S06B1702		S06B2001		S06B2002		S06B2102		S06B2501		S06B251D	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/26/93		10/27/93		10/27/93	
	DATE EXTRACTED -->							10/29/93				11/02/93	
	DATE ANALYZED --->	11/11/93				11/11/93		11/02/93				11/08/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS17	VAL	CNS17	VAL	CNS18	VAL	CNS17	VAL	CNS18	VAL	CNS14	VAL
86-73-7	Fluorene			140.	J								
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene			810.									
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene			200.	J								
86-74-8	Carbazole			170.	J								
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	240.	J	890.		140.	J	120.	J	150.	J	220.	J
129-00-0	Pyrene	1400.		640.		160.	J	260.	J	120.	J	120.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene	210.	J	260.	J			120.	J	66.	J		
218-01-9	Chrysene	510.	J	270.	J	74.	J	94.	J				
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	330.	J	360.	J			140.	J	120.	J	69.	J
207-08-9	Benzo(k)fluoranthene			140.	J								
50-32-8	Benzo(a)pyrene	330.	J	260.	J			150.	J	58.	J		
193-39-5	Indeno(1,2,3-cd)pyrene	230.	J	160.	J					40.	J		
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene	510.	J	140.	J								
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

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SWMU 006 - Soil Data

SVOA													
	SAMPLE ID ------->	006-S-B252-93		006-S-B261-93		006-S-B262-93		006-S-B272-93		006-C-B272-93 D		006-S-B292-93	
	ORIGINAL ID ----->	S06B2502		S06B2601		S06B2602		S06B2702		S06B272D		S06B2902	
	LAB SAMPLE ID --->	S346088*11		S346088*12		S346088*13		S346088*14		S346088A*4		S346088*15	
	ID FROM REPORT -->	S06B2502		S06B2601		S06B2602		S06B2702		S06B272D		S06B2902	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->									11/02/93			
	DATE ANALYZED --->	11/11/93				11/11/93				11/08/93		11/12/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS14	VAL	CNS18	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene												
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene												
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran												
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

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SVOA													
	SAMPLE ID ------->	006-S-B252-93		006-S-B261-93		006-S-B262-93		006-S-B272-93		006-C-B272-93 D		006-S-B292-93	
	ORIGINAL ID ----->	S06B2502		S06B2601		S06B2602		S06B2702		S06B272D		S06B2902	
	LAB SAMPLE ID --->	S346088*11		S346088*12		S346088*13		S346088*14		S346088A*4		S346088*15	
	ID FROM REPORT -->	S06B2502		S06B2601		S06B2602		S06B2702		S06B272D		S06B2902	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE EXTRACTED -->									11/02/93			
	DATE ANALYZED --->	11/11/93				11/11/93				11/08/93		11/12/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS14	VAL	CNS18	VAL
86-73-7	Fluorene												
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene			44.	J			330.	J	660.	J		
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene							110.	J	200.	J		
86-74-8	Carbazole									93.	J		
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	180.	J	54.	J	91.	J	980.		1200.		110.	J
129-00-0	Pyrene	300.	J	55.	J	120.	J	940.		1700.			
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene							640.	J	820.			
218-01-9	Chrysene							790.	J	850.		68.	J
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)							180.	J				
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	210.	J			110.	J	1100.		910.			
207-08-9	Benzo(k)fluoranthene							470.	J	370.	J		
50-32-8	Benzo(a)pyrene	140.	J					790.	J	720.	J	87.	J
193-39-5	Indeno(1,2,3-cd)pyrene							520.	J	430.	J		
53-70-3	Dibenzo(a,h)anthracene									140.	J		
191-24-2	Benzo(g,h,i)perylene							490.	J	390.	J		
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

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SVOA								
	SAMPLE ID ------->	006-S-B312-93		006-S-B322-93		006-S-B332-93		
	ORIGINAL ID ----->	S06B3102		S06B3202		S06B3302		
	LAB SAMPLE ID --->	S346088*16		S346088*17		S346088*18		
	ID FROM REPORT -->	S06B3102		S06B3202		S06B3302		
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		
	MATRIX ---------->	Soil		Soil		Soil		
	UNITS ---------->	ug/kg		ug/kg		ug/kg		
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	
108-95-2	Phenol							
95-57-8	2-Chlorophenol							
106-46-7	1,4-Dichlorobenzene							
95-50-1	1,2-Dichlorobenzene							
95-48-7	2-Methylphenol (o-Cresol)							
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		
621-64-7	N-Nitroso-di-n-propylamine							
67-72-1	Hexachloroethane							
98-95-3	Nitrobenzene							
78-59-1	Isophorone							
88-75-5	2-Nitrophenol							
105-67-9	2,4-Dimethylphenol							
111-91-1	bis(2-Chloroethoxy)methane							
120-83-2	2,4-Dichlorophenol							
120-82-1	1,2,4-Trichlorobenzene							
91-20-3	Naphthalene	430.	J					
106-47-8	4-Chloroaniline							
87-68-3	Hexachlorobutadiene							
59-50-7	4-Chloro-3-methylphenol							
91-57-6	2-Methylnaphthalene	260.	J					
77-47-4	Hexachlorocyclopentadiene							
88-06-2	2,4,6-Trichlorophenol							
95-95-4	2,4,5-Trichlorophenol							
91-58-7	2-Chloronaphthalene							
88-74-4	2-Nitroaniline							
131-11-3	Dimethylphthalate							
208-96-8	Acenaphthylene	140.	J					
606-20-2	2,6-Dinitrotoluene							
99-09-2	3-Nitroaniline							
83-32-9	Acenaphthene							
51-28-5	2,4-Dinitrophenol							
100-02-7	4-Nitrophenol							
132-64-9	Dibenzofuran	130.	J					
121-14-2	2,4-Dinitrotoluene							
84-66-2	Diethylphthalate							
7005-72-3	4-Chlorophenylphenylether							
86-73-7	Fluorene	120.	J					
100-01-6	4-Nitroaniline							

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SVOA											
		SAMPLE ID ------->	006-S-B312-93		006-S-B322-93		006-S-B332-93				
		ORIGINAL ID ----->	S06B3102		S06B3202		S06B3302				
		LAB SAMPLE ID --->	S346088*16		S346088*17		S346088*18				
		ID FROM REPORT -->	S06B3102		S06B3202		S06B3302				
		SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93				
		MATRIX ---------->	Soil		Soil		Soil				
		UNITS ---------->	ug/kg		ug/kg		ug/kg				
CAS #	Parameter		CNS18	VAL	CNS18	VAL	CNS18	VAL			
534-52-1	2-Methyl-4,6-Dinitrophenol										
86-30-6	N-Nitrosodiphenylamine										
101-55-3	4-Bromophenylphenylether										
118-74-1	Hexachlorobenzene										
87-86-5	Pentachlorophenol										
85-01-8	Phenanthrene		310.	J			320.	J			
111-44-4	bis(2-Chloroethyl)ether										
120-12-7	Anthracene		45.	J			68.	J			
86-74-8	Carbazole										
84-74-2	Di-n-butylphthalate										
206-44-0	Fluoranthene		320.	J	130.	J					
129-00-0	Pyrene										
85-68-7	Butylbenzylphthalate										
91-94-1	3,3'-Dichlorobenzidine										
56-55-3	Benzo(a)anthracene										
218-01-9	Chrysene		91.	J			280.	J			
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)										
117-84-0	Di-n-octylphthalate										
205-99-2	Benzo(b)fluoranthene						390.	J			
207-08-9	Benzo(k)fluoranthene						150.	J			
50-32-8	Benzo(a)pyrene						260.	J			
193-39-5	Indeno(1,2,3-cd)pyrene										
53-70-3	Dibenzo(a,h)anthracene										
191-24-2	Benzo(g,h,i)perylene						120.	J			
106-44-5	4-Methylphenol (p-Cresol)										
39638-32-9	Bis(2-Chloroisopropyl)Ether										
541-73-1	1,3-Dichlorobenzene										

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VOA													
	SAMPLE ID ------->	006-S-B011-93		006-S-B021-93		006-S-B022-93		006-S-B031-93		006-S-B041-93		006-S-B042-93	
	ORIGINAL ID ----->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	LAB SAMPLE ID --->	S345287*1		S345287*2		S345287*5		S345287*3		S345287*4		S346028*17	
	ID FROM REPORT -->	S06B0101		S06B0201		S06B0202		S06B0301		S06B0401		S06B0402	
	SAMPLE DATE ----->	09/21/93		09/21/93		09/21/93		09/21/93		09/21/93		10/26/93	
	DATE ANALYZED --->	09/27/93		09/27/93		09/27/93		09/27/93		09/27/93		11/04/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone											250.	
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene	7.2											
108-90-7	Chlorobenzene	23.		9.				11.				13.	
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

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VOA													
	SAMPLE ID ------->	006-S-B051-93		006-S-B061-93		006-S-B061-93		006-S-B071-93		006-S-B072-93		006-S-B092-93	
	ORIGINAL ID ----->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	LAB SAMPLE ID --->	S345315*1		S345315*2		S345315*4		S345315*3		S346088*1		S346088*2	
	ID FROM REPORT -->	S06B0501		S06B0601		S06B0610		S06B0701		S06B0702		S06B0902	
	SAMPLE DATE ----->	09/22/93		09/22/93		09/22/93		09/22/93		10/27/93		10/27/93	
	DATE ANALYZED --->	09/27/93		09/27/93		09/27/93		09/27/93		11/06/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS03	VAL	CNS17	VAL	CNS17	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone									630.		310.	
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene												
108-90-7	Chlorobenzene												
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

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VOA																	
	SAMPLE ID ------->	006-S-B122-93		006-S-B141-93		006-S-B142-93		006-S-B151-93		006-S-B152-93		006-S-B172-93	
	ORIGINAL ID ----->	S06B1202		S06B1401		S06B1402		S06B1501		S06B1502		S06B1702	
	LAB SAMPLE ID --->	S346028*18		S346088*3		S346088*4		S346088*5		S346088*6		S346088*7	
	ID FROM REPORT -->	S06B1202		S06B1401		S06B1402		S06B1501		S06B1502		S06B1702	
	SAMPLE DATE ----->	10/26/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->	11/04/93		11/06/93								11/06/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL	CNS17	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone	400.		150.						140.		1200.	
75-15-0	Carbon disulfide					42.		26.				60.	
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene												
108-90-7	Chlorobenzene	34.											
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)	17.											
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

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VOA													
	SAMPLE ID ------->	006-S-B201-93		006-S-B202-93		006-S-B212-93		006-S-B251-93		006-C-B251-93 D		006-S-B252-93	
	ORIGINAL ID ----->	S06B2001		S06B2002		S06B2102		S06B2501		S06B251D		S06B2502	
	LAB SAMPLE ID --->	S346088*8		S346088*9		S346028*19		S346088*10		S346088A*3		S346088*11	
	ID FROM REPORT -->	S06B2001		S06B2002		S06B2102		S06B2501		S06B251D		S06B2502	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/26/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->			11/07/93		11/04/93				11/09/93		11/06/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS17	VAL	CNS18	VAL	CNS17	VAL	CNS18	VAL	CNS14	VAL	CNS18	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone	120.				270.				110.	J	420.	
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)									13.	J		
71-55-6	1,1,1-Trichloroethane									8.6	J		
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene									5.2	J		
108-90-7	Chlorobenzene					54.							
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)									7.6	J		
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Soil Data

VOA													
	SAMPLE ID ------->	006-S-B261-93		006-S-B262-93		006-S-B272-93		006-C-B272-93 D		006-S-B292-93		006-S-B312-93	
	ORIGINAL ID ----->	S06B2601		S06B2602		S06B2702		S06B272D		S06B2902		S06B3102	
	LAB SAMPLE ID --->	S346088*12		S346088*13		S346088*14		S346088A*4		S346088*15		S346088*16	
	ID FROM REPORT -->	S06B2601		S06B2602		S06B2702		S06B272D		S06B2902		S06B3102	
	SAMPLE DATE ----->	10/27/93		10/27/93		10/27/93		10/27/93		10/27/93		10/27/93	
	DATE ANALYZED --->							11/10/93				11/09/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS18	VAL	CNS18	VAL	CNS18	VAL	CNS14	VAL	CNS18	VAL	CNS18	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone	99.		310.		540.				220.		680.	
75-15-0	Carbon disulfide							14.					
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)							93.	J				
71-55-6	1,1,1-Trichloroethane							3.9	J				
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene							3.9	J				
108-90-7	Chlorobenzene			70.		40.							
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)							3.3	J				
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Soil Data

VOA							
	SAMPLE ID ------->	006-S-B322-93		006-S-B332-93			
	ORIGINAL ID ----->	S06B3202		S06B3302			
	LAB SAMPLE ID --->	S346088*17		S346088*18			
	ID FROM REPORT -->	S06B3202		S06B3302			
	SAMPLE DATE ----->	10/27/93		10/27/93			
	DATE ANALYZED --->			11/08/93			
	MATRIX ---------->	Soil		Soil			
	UNITS ---------->	ug/kg		ug/kg			
CAS #	Parameter	CNS18	VAL	CNS18	VAL		
74-87-3	Chloromethane						
74-83-9	Bromomethane						
75-01-4	Vinyl chloride						
75-00-3	Chloroethane						
75-09-2	Methylene chloride						
67-64-1	Acetone	490.					
75-15-0	Carbon disulfide						
75-35-4	1,1-Dichloroethene						
75-34-3	1,1-Dichloroethane						
67-66-3	Chloroform						
107-06-2	1,2-Dichloroethane						
78-93-3	2-Butanone (MEK)						
71-55-6	1,1,1-Trichloroethane						
56-23-5	Carbon tetrachloride						
75-27-4	Bromodichloromethane						
78-87-5	1,2-Dichloropropane						
10061-01-5	cis-1,3-Dichloropropene						
79-01-6	Trichloroethene						
124-48-1	Dibromochloromethane						
79-00-5	1,1,2-Trichloroethane						
71-43-2	Benzene						
10061-02-6	trans-1,3-Dichloropropene						
75-25-2	Bromoform						
108-10-1	4-Methyl-2-Pentanone (MIBK)						
591-78-6	2-Hexanone						
127-18-4	Tetrachloroethene						
79-34-5	1,1,2,2-Tetrachloroethane						
108-88-3	Toluene						
108-90-7	Chlorobenzene						
100-41-4	Ethylbenzene						
100-42-5	Styrene						
1330-20-7	Xylene (Total)						
156-59-2	cis-1,2-Dichloroethylene						
156-60-5	trans-1,2-Dichloroethene						
108-05-4	Vinyl acetate						

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Water Data

METAL													
	SAMPLE ID ------->	006-G-W011-93		006-G-W021-93		006-G-W031-93		006-G-W041-93		006-G-W051-93		006-G-W061-93	
	ORIGINAL ID ----->	S06W0101		S06W0201		S06W0301		S06W0401		S06W0501		S06W0601	
	LAB SAMPLE ID --->	S346384*4		S346384*10		S346384*5		S346384*6		S346384*7		S346384*8	
	ID FROM REPORT -->	S06W0101		S06W0201		S06W0301		S06W0401		S06W0501		S06W0601	
	SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		11/10/93		11/10/93		11/10/93	
	DATE ANALYZED --->	11/30/93		11/30/93		11/30/93		11/30/93		11/30/93		11/30/93	
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL
CN	Cyanide	NR		NR		NR		NR		NR		NR	
CD	Cadmium												
CA	Calcium	130000.		170000.		280000.		240000.		150000.		140000.	
CR	Chromium												
CO	Cobalt												
CU	Copper												
FE	Iron	1700.		14000.		19000.		34000.		13000.		7300.	
PB	Lead												
MG	Magnesium	57000.		670000.		74000.		400000.		630000.		480000.	
MN	Manganese	920.		640.		1600.		510.		420.		130.	
HG	Mercury	0.2	R	0.2	R	0.2	R	0.2	R	0.2	R	0.2	R
NI	Nickel												
K	Potassium	31000.		190000.		36000.		130000.		190000.		150000.	
SE	Selenium												
AG	Silver												
NA	Sodium	480000.		5700000.		690000.		3500000.		6000000.		650000.	
TL	Thallium	50.	R	250.	R	50.	R	100.	R	500.	R	200.	R
ZN	Zinc					21.							
V	Vanadium												
AL	Aluminum					630.							
SB	Antimony												
AS	Arsenic												
BA	Barium			48.		140.		150.		46.		33.	
BE	Beryllium												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Water Data

METAL									
		SAMPLE ID ------->	006-H-W061-93 D		006-G-W071-93				
		ORIGINAL ID ----->	S06W061D		S06W0701				
		LAB SAMPLE ID --->	S346384A*1		S346384*9				
		ID FROM REPORT -->	S06W061D		S06W0701				
		SAMPLE DATE ----->	11/10/93		11/10/93				
		DATE ANALYZED --->	11/29/93		11/30/93				
		MATRIX ---------->	Water		Water				
		UNITS ---------->	ug/l		ug/l				
CAS #	Parameter		CNS23	VAL	CNS24	VAL			
CN	Cyanide				NR				
CD	Cadmium								
CA	Calcium		160000.	E	72000.				
CR	Chromium								
CO	Cobalt								
CU	Copper								
FE	Iron		8100.	E	1700.				
PB	Lead								
MG	Magnesium		526000.		120000.				
MN	Manganese		143.	E	470.				
HG	Mercury				0.2	R			
NI	Nickel								
K	Potassium		155000.		57000.				
SE	Selenium								
AG	Silver								
NA	Sodium		4120000.		1300000.				
TL	Thallium				100.	R			
ZN	Zinc								
V	Vanadium								
AL	Aluminum								
SB	Antimony								
AS	Arsenic		12.3						
BA	Barium		35.7		11.				
BE	Beryllium								

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 006 - Water Data

PEST													
	SAMPLE ID ------->	006-G-W011-93		006-G-W021-93		006-G-W031-93		006-G-W041-93		006-G-W051-93		006-G-W061-93	
	ORIGINAL ID ----->	S06W0101		S06W0201		S06W0301		S06W0401		S06W0501		S06W0601	
	LAB SAMPLE ID --->	S346384*4		S346384*10		S346384*5		S346384*6		S346384*7		S346384*8	
	ID FROM REPORT -->	S06W0101		S06W0201		S06W0301		S06W0401		S06W0501		S06W0601	
	SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		11/10/93		11/10/93		11/10/93	
	DATE EXTRACTED -->	11/17/93		11/17/93		11/17/93		11/17/93		11/17/93		11/17/93	
	DATE ANALYZED --->	12/20/93		12/28/93		12/20/93		12/20/93		12/20/93		12/20/93	
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE												
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD												
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT												
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane												
5103-74-2	gamma-Chlordane												
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260												
7421-93-4	Endrin aldehyde												

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Water Data

PEST								
	SAMPLE ID ------->	006-H-W061-93 D		006-H-W061-93 RE		006-G-W071-93		
	ORIGINAL ID ----->	S06W061D		S06W061D(RE)		S06W0701		
	LAB SAMPLE ID --->	S346384A*1		S346384A*4		S346384*9		
	ID FROM REPORT -->	S06W061D		S06W061D(RE)		S06W0701		
	SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		
	DATE EXTRACTED -->	11/17/93		11/17/93		11/17/93		
	DATE ANALYZED --->	12/18/93		12/31/93		12/20/93		
	MATRIX ---------->	Water		Water		Water		
	UNITS ---------->	ug/l		ug/l		ug/l		
CAS #	Parameter	CNS23	VAL	CNS23	VAL	CNS24	VAL	
319-84-6	alpha-BHC							
319-85-7	beta-BHC							
319-86-8	delta-BHC							
58-89-9	gamma-BHC (Lindane)							
76-44-8	Heptachlor							
309-00-2	Aldrin							
1024-57-3	Heptachlor epoxide							
959-98-8	Endosulfan I							
60-57-1	Dieldrin							
72-55-9	4,4'-DDE							
72-20-8	Endrin							
33213-65-9	Endosulfan II							
72-54-8	4,4'-DDD							
1031-07-8	Endosulfan sulfate							
50-29-3	4,4'-DDT							
53494-70-5	Endrin ketone							
72-43-5	Methoxychlor							
5103-71-9	alpha-Chlordane							
5103-74-2	gamma-Chlordane							
8001-35-2	Toxaphene							
12674-11-2	Aroclor-1016							
11104-28-2	Aroclor-1221							
11141-16-5	Aroclor-1232							
53469-21-9	Aroclor-1242							
12672-29-6	Aroclor-1248							
11097-69-1	Aroclor-1254							
11096-82-5	Aroclor-1260							
7421-93-4	Endrin aldehyde							

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Water Data

SVOA													
	SAMPLE ID ------->	006-G-W011-93		006-G-W021-93		006-G-W031-93		006-G-W031-93 RE		006-G-W041-93		006-G-W051-93	
	ORIGINAL ID ----->	S06W0101		S06W0201		S06W0301		S06W0301RE		S06W0401		S06W0501	
	LAB SAMPLE ID --->	S346384*4		S346384*10		S346384*5		S346384*25		S346384*6		S346384*7	
	ID FROM REPORT -->	S06W0101		S06W0201		S06W0301		S06W0301RE		S06W0401		S06W0501	
	SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		11/10/93		11/10/93		11/10/93	
	DATE EXTRACTED -->	11/16/93		11/16/93		11/16/93		11/16/93		11/16/93		11/16/93	
	DATE ANALYZED --->	12/08/93		11/29/93		12/08/93		12/28/93		11/27/93		12/12/93	
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL
108-95-2	Phenol					7.2	J						
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene											2.9	J
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene											2.9	J
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene											2.	J
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran											1.3	J
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 006 - Water Data

SVOA													
	SAMPLE ID ------->	006-G-W011-93		006-G-W021-93		006-G-W031-93		006-G-W031-93 RE		006-G-W041-93		006-G-W051-93	
	ORIGINAL ID ----->	S06W0101		S06W0201		S06W0301		S06W0301RE		S06W0401		S06W0501	
	LAB SAMPLE ID --->	S346384*4		S346384*10		S346384*5		S346384*25		S346384*6		S346384*7	
	ID FROM REPORT -->	S06W0101		S06W0201		S06W0301		S06W0301RE		S06W0401		S06W0501	
	SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		11/10/93		11/10/93		11/10/93	
	DATE EXTRACTED -->	11/16/93		11/16/93		11/16/93		11/16/93		11/16/93		11/16/93	
	DATE ANALYZED --->	12/08/93		11/29/93		12/08/93		12/28/93		11/27/93		12/12/93	
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL
86-73-7	Fluorene											3.5	J
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol											5.1	J
85-01-8	Phenanthrene												
111-44-4	bis(2-Chloroethyl)ether											0.74	J
120-12-7	Anthracene												
86-74-8	Carbazole												
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene												
129-00-0	Pyrene												
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene												
218-01-9	Chrysene												
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene												
207-08-9	Benzo(k)fluoranthene												
50-32-8	Benzo(a)pyrene												
193-39-5	Indeno(1,2,3-cd)pyrene												
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene												
106-44-5	4-Methylphenol (p-Cresol)	2.9	J										
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 006 - Water Data

SVOA							
	SAMPLE ID ------->	006-G-W061-93	006-H-W061-93 D	006-G-W071-93			
	ORIGINAL ID ----->	S06W0601	S06W061D	S06W0701			
	LAB SAMPLE ID --->	S346384*8	S346384A*1	S346384*9			
	ID FROM REPORT -->	S06W0601	S06W061D	S06W0701			
	SAMPLE DATE ----->	11/10/93	11/10/93	11/10/93			
	DATE EXTRACTED -->	11/16/93	11/16/93	11/16/93			
	DATE ANALYZED --->	12/08/93	11/29/93	12/08/93			
	MATRIX ---------->	Water	Water	Water			
	UNITS ---------->	ug/l	ug/l	ug/l			
CAS #	Parameter	CNS24 VAL	CNS23 VAL	CNS24 VAL			
108-95-2	Phenol						
95-57-8	2-Chlorophenol						
106-46-7	1,4-Dichlorobenzene						
95-50-1	1,2-Dichlorobenzene						
95-48-7	2-Methylphenol (o-Cresol)						
108-60-1	2,2'-oxybis(1-Chloropropane)	NR	NR	NR			
621-64-7	N-Nitroso-di-n-propylamine						
67-72-1	Hexachloroethane						
98-95-3	Nitrobenzene						
78-59-1	Isophorone						
88-75-5	2-Nitrophenol						
105-67-9	2,4-Dimethylphenol						
111-91-1	bis(2-Chloroethoxy)methane						
120-83-2	2,4-Dichlorophenol						
120-82-1	1,2,4-Trichlorobenzene						
91-20-3	Naphthalene						
106-47-8	4-Chloroaniline						
87-68-3	Hexachlorobutadiene						
59-50-7	4-Chloro-3-methylphenol						
91-57-6	2-Methylnaphthalene						
77-47-4	Hexachlorocyclopentadiene						
88-06-2	2,4,6-Trichlorophenol						
95-95-4	2,4,5-Trichlorophenol						
91-58-7	2-Chloronaphthalene						
88-74-4	2-Nitroaniline						
131-11-3	Dimethylphthalate						
208-96-8	Acenaphthylene						
606-20-2	2,6-Dinitrotoluene						
99-09-2	3-Nitroaniline						
83-32-9	Acenaphthene						
51-28-5	2,4-Dinitrophenol						
100-02-7	4-Nitrophenol						
132-64-9	Dibenzofuran						
121-14-2	2,4-Dinitrotoluene						
84-66-2	Diethylphthalate						
7005-72-3	4-Chlorophenylphenylether						

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Water Data

SVOA								
	SAMPLE ID ------->	006-G-W061-93		006-H-W061-93 D		006-G-W071-93		
	ORIGINAL ID ----->	S06W0601		S06W061D		S06W0701		
	LAB SAMPLE ID --->	S346384*8		S346384A*1		S346384*9		
	ID FROM REPORT -->	S06W0601		S06W061D		S06W0701		
	SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		
	DATE EXTRACTED -->	11/16/93		11/16/93		11/16/93		
	DATE ANALYZED --->	12/08/93		11/29/93		12/08/93		
	MATRIX ---------->	Water		Water		Water		
	UNITS ---------->	ug/l		ug/l		ug/l		
CAS #	Parameter	CNS24	VAL	CNS23	VAL	CNS24	VAL	
86-73-7	Fluorene							
100-01-6	4-Nitroaniline							
534-52-1	2-Methyl-4,6-Dinitrophenol							
86-30-6	N-Nitrosodiphenylamine							
101-55-3	4-Bromophenylphenylether							
118-74-1	Hexachlorobenzene							
87-86-5	Pentachlorophenol							
85-01-8	Phenanthrene							
111-44-4	bis(2-Chloroethyl)ether							
120-12-7	Anthracene							
86-74-8	Carbazole							
84-74-2	Di-n-butylphthalate							
206-44-0	Fluoranthene							
129-00-0	Pyrene							
85-68-7	Butylbenzylphthalate							
91-94-1	3,3'-Dichlorobenzidine							
56-55-3	Benzo(a)anthracene							
218-01-9	Chrysene							
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)							
117-84-0	Di-n-octylphthalate							
205-99-2	Benzo(b)fluoranthene							
207-08-9	Benzo(k)fluoranthene							
50-32-8	Benzo(a)pyrene							
193-39-5	Indeno(1,2,3-cd)pyrene							
53-70-3	Dibenzo(a,h)anthracene							
191-24-2	Benzo(g,h,i)perylene							
106-44-5	4-Methylphenol (p-Cresol)							
39638-32-9	Bis(2-Chloroisopropyl)Ether							
541-73-1	1,3-Dichlorobenzene							

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Water Data

VOA													
	SAMPLE ID ------->	006-G-W011-93		006-G-W021-93		006-G-W031-93		006-G-W031-93		006-G-W041-93		006-G-W051-93	
	ORIGINAL ID ----->	S06W0101		S06W0201		S06W0301		S06W0301		S06W0401		S06W0501	
	LAB SAMPLE ID --->	S346384*4		S346384*10		S346384*25		S346384*5		S346384*6		S346384*7	
	ID FROM REPORT -->	S06W0101		S06W0201		S06W0301		S06W0301		S06W0401		S06W0501	
	SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		11/10/93		11/10/93		11/10/93	
	DATE EXTRACTED -->					11/16/93							
	DATE ANALYZED --->	11/20/93		11/20/93		12/28/93		11/20/93		11/20/93		11/23/93	
	MATRIX ---------->	Water		Water		Water		Water		Water		Water	
	UNITS ---------->	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
CAS #	Parameter	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL	CNS24	VAL
74-87-3	Chloromethane					NR							
74-83-9	Bromomethane					NR							
75-01-4	Vinyl chloride					NR							
75-00-3	Chloroethane					NR							
75-09-2	Methylene chloride					NR							
67-64-1	Acetone					NR							
75-15-0	Carbon disulfide					NR							
75-35-4	1,1-Dichloroethene					NR							
75-34-3	1,1-Dichloroethane					NR							
67-66-3	Chloroform					NR							
107-06-2	1,2-Dichloroethane					NR							
78-93-3	2-Butanone (MEK)					NR							
71-55-6	1,1,1-Trichloroethane					NR							
56-23-5	Carbon tetrachloride					NR							
75-27-4	Bromodichloromethane					NR							
78-87-5	1,2-Dichloropropane					NR							
10061-01-5	cis-1,3-Dichloropropene					NR							
79-01-6	Trichloroethene					NR							
124-48-1	Dibromochloromethane					NR							
79-00-5	1,1,2-Trichloroethane					NR							
71-43-2	Benzene					NR							
10061-02-6	trans-1,3-Dichloropropene					NR							
75-25-2	Bromoform					NR							
108-10-1	4-Methyl-2-Pentanone (MIBK)					NR							
591-78-6	2-Hexanone					NR							
127-18-4	Tetrachloroethene					NR							
79-34-5	1,1,2,2-Tetrachloroethane					NR							
108-88-3	Toluene					NR							
108-90-7	Chlorobenzene					NR							
100-41-4	Ethylbenzene					NR							
100-42-5	Styrene					NR							
1330-20-7	Xylene (Total)					NR						12.	
156-59-2	cis-1,2-Dichloroethylene					NR							
156-60-5	trans-1,2-Dichloroethene					NR							
108-05-4	Vinyl acetate					NR							

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 006 - Water Data

VOA

SAMPLE ID ------->	006-G-W061-93		006-H-W061-93 D		006-G-W071-93		
ORIGINAL ID ----->	S06W0601		S06W061D		S06W0701		
LAB SAMPLE ID --->	S346384*8		S346384A*1		S346384*9		
ID FROM REPORT -->	SC6W0601		S06W061D		S06W0701		
SAMPLE DATE ----->	11/10/93		11/10/93		11/10/93		
DATE ANALYZED --->	11/22/93		11/20/93		11/20/93		
MATRIX ---------->	Water		Water		Water		
UNITS ---------->	ug/l		ug/l		ug/l		
CAS # Parameter	CNS24	VAL	CNS23	VAL	CNS24	VAL	
74-87-3 Chloromethane							
74-83-9 Bromomethane							
75-01-4 Vinyl chloride							
75-00-3 Chloroethane							
75-09-2 Methylene chloride							
67-64-1 Acetone			1.9	J			
75-15-0 Carbon disulfide							
75-35-4 1,1-Dichloroethene							
75-34-3 1,1-Dichloroethane							
67-66-3 Chloroform							
107-06-2 1,2-Dichloroethane							
78-93-3 2-Butanone (MEK)							
71-55-6 1,1,1-Trichloroethane							
56-23-5 Carbon tetrachloride							
75-27-4 Bromodichloromethane							
78-87-5 1,2-Dichloropropane							
10061-01-5 cis-1,3-Dichloropropene							
79-01-6 Trichloroethene							
124-48-1 Dibromochloromethane							
79-00-5 1,1,2-Trichloroethane							
71-43-2 Benzene							
10061-02-6 trans-1,3-Dichloropropene							
75-25-2 Bromoform							
108-10-1 4-Methyl-2-Pentanone (MIBK)							
591-78-6 2-Hexanone							
127-18-4 Tetrachloroethene							
79-34-5 1,1,2,2-Tetrachloroethane							
108-88-3 Toluene							
108-90-7 Chlorobenzene							
100-41-4 Ethylbenzene							
100-42-5 Styrene							
1330-20-7 Xylene (Total)							
156-59-2 cis-1,2-Dichloroethylene							
156-60-5 trans-1,2-Dichloroethene							
108-05-4 Vinyl acetate							

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

METAL																	
	SAMPLE ID ------->	007-S-B031-93		007-C-B031-93 D		007-S-B032-93		007-S-B041-93		007-S-B051-93		007-S-B061-93	
	ORIGINAL ID ----->	S07B0301		S07B031D		S07B0302		S07B0401		S07B0501		S07B0601	
	LAB SAMPLE ID --->	S345716*1		S345716A*1		S345716*2		S345716*3		S345716*4		S345716*5	
	ID FROM REPORT -->	S07B0301		S07B031D		S07B0302		S07B0401		S07B0501		S07B0601	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE ANALYZED --->	11/02/93		11/02/93		11/02/93		11/02/93		11/02/93		11/02/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS09	VAL	CNS08	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL
CN	Cyanide	NR		NR		NR		NR		NR		NR	
CD	Cadmium												
CA	Calcium	100000.		115000.	*	4900.		22000.		81000.		68000.	
CR	Chromium	9.2		7.	N	31.		15.		7.7		17.	
CO	Cobalt	1.8		1.7		5.3		2.		1.8		3.9	
CU	Copper	7.6		8.		26.		22.		11.		33.	
FE	Iron	5200.		3260.	*	21000.		8100.		3800.		14000.	
PB	Lead	18.	N*	26.9		45.	N*	74.	N*	45.	N*	43.	N*
MG	Magnesium	13000.		1320.		3300.		460.		940.		1000.	
MN	Manganese	140.	N	132.		190.	N	73.	N	120.	N	140.	N
HG	Mercury	0.032		0.02		0.21		0.055		0.041		0.058	
NI	Nickel	5.2		5.		8.7		7.5		5.2		13.	
K	Potassium	160.		145.		1700.		180.		200.		190.	
SE	Selenium												
AG	Silver												
NA	Sodium	150.		141.		820.		210.		240.		100.	
TL	Thallium												
ZN	Zinc	53.	N	37.5	N	120.	N	92.	N	47.	N	130.	N
V	Vanadium	8.3		7.1		51.		6.8		6.8		19.	
AL	Aluminum	4600.		3610.	*	12000.		4000.		2300.		2300.	
SB	Antimony												
AS	Arsenic	2.7	N	2.2	N	35.	N	9.6	N	2.7	N	11.	N
BA	Barium	14.		26.7		26.		39.		15.		65.	
BE	Beryllium					0.92							

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

METAL													
	SAMPLE ID ------->	007-S-B071-93		007-S-B081-93		007-S-B091-93		007-S-B101-93		007-S-B111-93		007-S-B112-93	
	ORIGINAL ID ----->	S07B0701		S07B0801		S07B0901		S07B1001		S07B1101		S07B1102	
	LAB SAMPLE ID --->	S345716*6		S345716*7		S345716*8		S345716*9		S345716*10		S345716*11	
	ID FROM REPORT -->	S07B0701		S07B0801		S07B0901		S07B1001		S07B1101		S07B1102	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE ANALYZED --->	11/02/93		11/02/93		11/02/93		11/02/93		11/02/93		11/04/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS10	VAL
CN	Cyanide	NR		NR		NR		NR		NR		NR	
CD	Cadmium			0.8									
CA	Calcium	4300.		100000.		150000.		7600.		70000.		12000.	
CR	Chromium	18.		22.		5.5		21.		9.		43.	
CO	Cobalt	2.9		4.6		1.3		5.3		1.6		7.9	
CU	Copper	23.		25.		3.8		27.		17.		32.	
FE	Iron	6300.		15000.		3900.		18000.		3700.		33000.	
PB	Lead	220.	N*	60.	N*	12.	N*	28.	N*	46.	N*	55.	
MG	Magnesium	200.		1300.		15000.		2100.		880.		5600.	
MN	Manganese	38.	N	230.	N	110.	N	320.	N	99.	N	450.	
HG	Mercury	0.07		0.065		0.025		0.2		0.12		0.36	
NI	Nickel	9.4		14.				14.		5.3		12.	
K	Potassium	130.		300.		200.		1000.		200.		2700.	N*
SE	Selenium												
AG	Silver												
NA	Sodium	70.		120.		360.		330.		120.		1800.	
TL	Thallium												
ZN	Zinc	91.	N	390.	N	15.	N	74.	N	63.	N	120.	
V	Vanadium	12.		25.		6.7		38.		7.7		75.	
AL	Aluminum	1800.		4500.		3100.		7900.		3400.		18000.	
SB	Antimony												
AS	Arsenic	16.	N	7.4	N	2.3	N	38.	N	4.7	N	21.	N*
BA	Barium	53.		64.		13.		29.		14.		29.	
BE	Beryllium											1.3	

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

METAL																	
		SAMPLE ID ------->	007-S-B121-93		007-S-B131-93		007-S-B132-93		007-C-B132-93 D		007-S-B161-93		007-S-B171-93	
		ORIGINAL ID ----->	S07B1201		S07B1301		S07B1302		S07B132D		S07B1601		S07B1701	
		LAB SAMPLE ID --->	S345716*12		S345716*13		S345716*14		S345716A*2		45733-3		45733-4	
		ID FROM REPORT -->	S07B1201		S07B1301		S07B1302		S07B132D		S07B1601		S07B1701	
		SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/11/93		10/11/93	
		DATE ANALYZED --->	11/04/93		11/04/93		11/04/93		11/02/93					
		MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
		UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter		CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL	CNS10	VAL
CN	Cyanide		NR		NR		NR		NR					
CD	Cadmium		0.97								0.73			
CA	Calcium		240000.		9800.		12000.		12200.	*	260000.		5500.	
CR	Chromium		9.1		19.		49.		35.7	N	9.9		17.	
CO	Cobalt		2.4		4.6		8.3		7.3		2.1		4.7	
CU	Copper		11.		30.		34.		32.3		13.		17.	
FE	Iron		4800.		13000.		35000.		30800.	*	2500.		8100.	
PB	Lead		28.		58.		61.		54.		30.		23.	
MG	Magnesium		2900.		14000.		6600.		5170.		2400.		370.	
MN	Manganese		280.		160.		430.		618.		220.		85.	
HG	Mercury		0.25		0.34		0.4		0.31		0.096		0.035	
NI	Nickel		6.6		14.		14.		10.2		8.1		15.	
K	Potassium		380.	N*	710.	N*	3300.	N*	2690.		200.	N*	330.	N*
SE	Selenium													
AG	Silver													
NA	Sodium		240.		130.		6500.		6780.		140.		190.	
TL	Thallium													
ZN	Zinc		64.		110.		140.		124.	N	57.		270.	
V	Vanadium		8.9		28.		80.		64.5		5.3		13.	
AL	Aluminum		2500.		6600.		25000.		13600.	*	1400.		3600.	
SB	Antimony													
AS	Arsenic		6.3	N*	24.	N*	24.	N*	29.	N	6.7	N	12.	N
BA	Barium		16.		35.		39.		26.4		13.		110.	
BE	Beryllium						1.3		1.2					

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

METAL													
	SAMPLE ID ------->	007-S-B181-93		007-S-B182-93		007-S-B191-93		007-C-B191-93 D		007-S-B211-93		007-S-B221-93	
	ORIGINAL ID ----->	S07B1801		S07B1802		S07B1901		S07B191D		S07B2101		S07B2201	
	LAB SAMPLE ID --->	45733-5		45733-6		45733-7		S345733A*1		45733-8		45733-9	
	ID FROM REPORT -->	S07B1801		S07B1802		S07B1901		S07B191D		S07B2101		S07B2201	
	SAMPLE DATE ----->	10/11/93		10/11/93		10/11/93		10/11/93		10/11/93		10/11/93	
	DATE ANALYZED --->							11/02/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL	CNS10	VAL
CN	Cyanide							NR					
CD	Cadmium									1.1		0.87	
CA	Calcium	4700.		25000.		16000.		11900.	*	140000.		51000.	
CR	Chromium	19.		36.		16.		20.6	N	17.		23.	
CO	Cobalt	1.1		6.7		1.8		1.8		2.3		2.8	
CU	Copper	15.		22.		25.		29.8		23.		18.	
FE	Iron	15000.		35000.		7300.		7650.	*	17000.		15000.	
PB	Lead	290.		66.		110.		104.		80.		55.	
MG	Magnesium	280.		5100.		520.		438.		1800.		1500.	
MN	Manganese	140.		1000.		81.		79.9		190.		190.	
HG	Mercury	0.042		0.16		0.063		0.06		0.17		0.13	
NI	Nickel	5.3		11.		7.8		9.3		8.8		7.7	
K	Potassium	130.	N*	2200.	N*	170.	N*	155.		350.	N*	510.	N*
SE	Selenium												
AG	Silver												
NA	Sodium	80.		2600.		85.		81.6		170.		130.	
TL	Thallium												
ZN	Zinc	40.		90.		110.		88.5	N	110.		190.	
V	Vanadium	8.3		53.				13.1		22.		20.	
AL	Aluminum	2700.		15000.		3700.		3330.	*	4200.		6700.	
SB	Antimony												
AS	Arsenic	3.9	N	15.	N	13.	N	15.5	N	6.7	N	17.	N
BA	Barium	21.		32.		48.		45.8		42.		28.	
BE	Beryllium			0.93						0.56			

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

METAL																	
	SAMPLE ID ------->	007-S-B222-93		007-S-B231-93		007-C-B231-93 D		007-S-B241-93		007-S-B242-93		007-S-B271-93	
	ORIGINAL ID ----->	S07B2202		S07B2301		S07B231D		S07B2401		S07B2402		S07B2701	
	LAB SAMPLE ID --->	45733-10		45733-11		S345733A*2		45733-12		45733-1		45733-2	
	ID FROM REPORT -->	S07B2202		S07B2301		S07B231D		S07B2401		S07B2402		S07B2701	
	SAMPLE DATE ----->	10/11/93		10/11/93		10/11/93		10/11/93		10/11/93		10/11/93	
	DATE ANALYZED --->					11/02/93							
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL	CNS10	VAL	CNS10	VAL
CN	Cyanide					NR							
CD	Cadmium			0.61								0.65	
CA	Calcium	13000.		180000.		195000.	*	29000.		11000.		140000.	
CR	Chromium	54.		18.		13.8	N	17.		41.		16.	
CO	Cobalt	1.		3.		2.5		1.3		6.8		1.6	
CU	Copper	37.		20.		26.4		16.		31.		30.	
FE	Iron	40000.		13000.		6630.	*	5900.		33000.		7000.	
PB	Lead	69.		48.		73.		42.		58.		97.	
MG	Magnesium	5700.		2400.		2470.		540.		5400.		1400.	
MN	Manganese	720.		240.		179.		67.		560.		120.	
HG	Mercury	0.31		0.16		0.1		0.13		0.4		0.18	
NI	Nickel	16.		9.6		8.				11.		8.2	
K	Potassium	2900.	N*	570.	N*	429.		180.	N*	2800.	N*	200.	N*
SE	Selenium												
AG	Silver									NR			
NA	Sodium	710.		440.		409.		290.		3800.		190.	
TL	Thallium												
ZN	Zinc	160.		84.		77.5	N	55.		130.		90.	
V	Vanadium	85.		16.		10.1		9.9		70.		7.5	
AL	Aluminum	30000.		4700.		2720.	*	3700.		20000.		1700.	
SB	Antimony												
AS	Arsenic	30.	N	6.4	N	6.7	N	3.9	N	33.	N	6.4	N
BA	Barium	41.		25.		20.8		27.		31.		28.	
BE	Beryllium	1.4								1.1			

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

METAL													
	SAMPLE ID ------->	007-S-B281-93		007-C-B281-93 D		007-S-B291-93		007-S-B301-93		007-S-B302-93		007-S-B311-93	
	ORIGINAL ID ----->	S07B2801		S07B281D		S07B2901		S07B3001		S07B3002		S07B3101	
	LAB SAMPLE ID --->	S345784*1		S345784A*1		S345784*2		S345784*3		S345784*4		S345784*5	
	ID FROM REPORT -->	S07B2801		S07B281D		S07B2901		S07B3001		S07B3002		S07B3101	
	SAMPLE DATE ----->	10/13/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE ANALYZED --->	11/05/93		11/02/93		11/05/93		11/05/93		11/05/93		11/05/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS11	VAL	CNS08	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
CN	Cyanide	NR		NR		NR		NR		NR		NR	
CD	Cadmium	6100.		7000.	*	2000.		1400.		12000.		1100.	
CA	Calcium	14.	N	21.8	N	68.	N	8.	N	43.	N	11.	N
CR	Chromium	2.3		2.5		1.1		1.3		8.2			
CO	Cobalt	22.		22.3		21.		5.4		32.		4.1	
CU	Copper	5100.		5390.	*	6700.		3700.		36000.		6300.	
FE	Iron	590.	N*	524.		380.	N*	32.	N*	47.	N*	9.6	N*
PB	Lead	250.		209.		360.		320.		5900.		460.	
MG	Magnesium	40.	N	38.1		43.	N	18.	N	700.	N	24.	N
MN	Manganese	0.063	N	0.06		0.14	N	0.015	N	0.23	N	0.025	N
HG	Mercury	7.3	N	11.4						12.	N		
NI	Nickel	130.				230.		260.		2800.		450.	
K	Potassium												
SE	Selenium												
AG	Silver												
NA	Sodium							120.		4800.			
TL	Thallium												
ZN	Zinc	59.	N	58.7	N	96.	N	35.	N	120.	N	42.	N
V	Vanadium	11.		10.7		14.		11.		77.		16.	
AL	Aluminum	1800.		1690.	*	3800.		5200.		18000.		7800.	
SB	Antimony												
AS	Arsenic	14.		16.3	N	7.3				28.		1.4	
BA	Barium	34.		31.9		16.		27.		33.		23.	
BE	Beryllium									1.2			

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

METAL													
	SAMPLE ID ------->	007-S-B321-93		007-S-B331-93		007-S-B341-93		007-C-B341-93 D		007-S-B342-93		007-S-B351-93	
	ORIGINAL ID ----->	S07B3201		S07B3301		S07B3401		S07B341D		S07B3402		S07B3501	
	LAB SAMPLE ID --->	S345784*6		S345784*7		S345784*8		S345784A*2		S345784*9		S345868*1	
	ID FROM REPORT -->	S07B3201		S07B3301		S07B3401		S07B341D		S07B3402		S07B3501	
	SAMPLE DATE ----->	10/13/93		10/13/93		10/13/93		10/13/93		10/13/93		10/18/93	
	DATE ANALYZED --->	11/05/93		11/05/93		11/05/93		11/02/93		11/05/93		11/05/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
CAS #	Parameter	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL	CNS13	VAL
CN	Cyanide	NR		NR		NR		NR		NR		NR	
CD	Cadmium					1.5							
CA	Calcium	480.		260.		270000.		161000.	*	11000.		11000.	
CR	Chromium	10.	N	10.	N	20.	N	8.5	N	42.	N	35.	
CO	Cobalt					3.2		1.9		7.5		6.7	
CU	Copper	3.4				36.		11.6		33.		35.	N
FE	Iron	5600.		5900.		10000.		4900.	*	34000.		30000.	
PB	Lead	2.2	N*	2.	N*	57.	N*	22.5		54.	N*	50.	N*
MG	Magnesium	NR		560.		4000.		2090.		5800.		5800.	
MN	Manganese	17.	N	18.	N	200.	N	117.		710.	N	580.	
HG	Mercury					0.1	N	0.04		0.33	N	0.48	N
NI	Nickel					13.	N	6.6		11.	N	9.8	
K	Potassium	500.		570.		660.		309.		3000.		2400.	
SE	Selenium												
AG	Silver												
NA	Sodium			77.		530.		339.		4700.		6600.	
TL	Thallium												
ZN	Zinc	9.7	N	22.	N	130.	N	48.4	N	120.	N	130.	N
V	Vanadium	18.		21.		17.		8.4		73.		66.	
AL	Aluminum	7900.		7800.		4900.		2220.	*	20000.		13000.	
SB	Antimony												
AS	Arsenic					9.5				27.		24.	N*
BA	Barium	20.		21.		30.		11.7		31.		30.	
BE	Beryllium									1.2		1.1	

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

METAL												
		SAMPLE ID ------->	007-S-B361-93		007-S-B362-93		007-S-B371-93		007-S-B372-93			
		ORIGINAL ID ----->	S07B3601		S07B3602		S07B3701		S07B3702			
		LAB SAMPLE ID --->	S345784*10		S345784*11		S345784*12		S345784*13			
		ID FROM REPORT -->	S07B3601		S07B3602		S07B3701		S07B3702			
		SAMPLE DATE ----->	10/13/93		10/13/93		10/13/93		10/13/93			
		DATE ANALYZED --->	11/05/93		11/05/93		11/05/93		11/05/93			
		MATRIX ---------->	Soil		Soil		Soil		Soil			
		UNITS ---------->	mg/kg		mg/kg		mg/kg		mg/kg			
CAS #	Parameter		CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL		
CN	Cyanide		NR		NR		NR		NR			
CD	Cadmium		0.6									
CA	Calcium		7000.		12000.		31000.		4500.			
CR	Chromium		24.	N	48.	N	12.	N	24.	N		
CO	Cobalt		1.2		8.6		2.1		4.1			
CU	Copper		17.		31.		10.		17.			
FE	Iron		13000.		37000.		7900.		17000.			
PB	Lead		42.	N*	45.	N*	25.	N*	44.	N*		
MG	Magnesium		330.		5900.		1100.		3000.			
MN	Manganese		65.	N	760.	N	150.	N	230.	N		
HG	Mercury		0.063	N	0.27	N	0.071	N	0.14	N		
NI	Nickel				13.	N			7.	N		
K	Potassium		140.		2900.		490.		1600.			
SE	Selenium											
AG	Silver											
NA	Sodium		190.		4800.				2500.			
TL	Thallium											
ZN	Zinc		150.	N	120.	N	36.	N	60.	N		
V	Vanadium		9.		76.		20.		41.			
AL	Aluminum		3200.		27000.		5200.		10000.			
SB	Antimony											
AS	Arsenic		2.1		5.1		5.8		17.			
BA	Barium		92.		40.		16.		22.			
BE	Beryllium				1.3				0.74			

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

PEST													
	SAMPLE ID ------->	007-C-B031-93 D		007-S-B032-93		007-S-B041-93		007-S-B051-93		007-S-B061-93		007-S-B061-93	
	ORIGINAL ID ----->	S07B031D		S07B0302		S07B0401		S07B0501		S07B0301		S07B0601	
	LAB SAMPLE ID --->	S345716A*1		S345716*2		S345716*3		S345716*4		S345716*1		S345716*5	
	ID FROM REPORT -->	S07B031D		S07B0302		S07B0401		S07B0501		S07B0301		S07B0601	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE EXTRACTED -->	10/14/93		10/14/93		10/14/93		10/14/93		10/14/93		10/14/93	
	DATE ANALYZED --->	11/23/93		11/12/93		11/23/93		11/13/93		11/12/93		11/23/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS08	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC											3.8	P
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	28.	D	42.		430.	D	210.	D	29.	P	240.	D
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	5.	P	30.		180.	P	4.2	P	5.6			
1031-07-8	Endosulfan sulfate									4.	P		
50-29-3	4,4'-DDT	17.	P			160.	P	110.	PD	20.	PD	120.	PD
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane					9.8							
5103-74-2	gamma-Chlordane							2.9	P	6.	P		
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260	270.						330.		550.	P		
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

PEST													
	SAMPLE ID ------->	007-S-B071-93		007-S-B081-93		007-S-B091-93		007-S-B101-93		007-S-B111-93		007-S-B112-93	
	ORIGINAL ID ----->	S07B0701		S07B0801		S07B0901		S07B1001		S07B1101		S07B1102	
	LAB SAMPLE ID --->	S345716*6		S345716*7		S345716*8		S345716*9		S345716*10		S345716*11	
	ID FROM REPORT -->	S07B0701		S07B0801		S07B0901		S07B1001		S07B1101		S07B1102	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE EXTRACTED -->	10/14/93		10/14/93		10/14/93		10/14/93		10/14/93		10/14/93	
	DATE ANALYZED --->	11/12/93		11/23/93		11/23/93		11/23/93		11/23/93		11/07/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS10	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC												
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide	37.	DP										
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	340.	D	530.	D			71.					
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	120.		110.	P					30.	P		
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT	65.	DP	480.	PD			24.	PD	90.	PD		
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane			13.						150.			
5103-74-2	gamma-Chlordane									220.	DP		
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260	780.		1400.		270.		290.	D	1500.	D		
7421-93-4	Endrin aldehyde							21.	P				

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

PEST													
	SAMPLE ID ------->	007-S-B121-93		007-S-B131-93		007-S-B132-93		007-C-B132-93 D		007-S-B161-93		007-S-B171-93	
	ORIGINAL ID ----->	S07B1201		S07B1301		S07B1302		S07B132D		S07B1601		S07B1701	
	LAB SAMPLE ID --->	S345716*12		S345716*13		S345716*14		S345716A*2		45733-3		45733-4	
	ID FROM REPORT -->	S07B1201		S07B1301		S07B1302		S07B132D		S07B1601		S07B1701	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/11/93		10/11/93	
	DATE EXTRACTED -->	10/14/93		10/14/93		10/14/93		10/14/93					
	DATE ANALYZED --->	11/23/93		10/12/93		11/07/93		11/12/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL	CNS10	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC									61.			
58-89-9	gamma-BHC (Lindane)									28.			
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	6.3		570.	DP					1400.	D	16.	P
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD			78.	P					5900.	D		
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT	7.8	P	460.	D					360.		10.	P
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane			14.						120.	P		
5103-74-2	gamma-Chlordane									95.	P		
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260	130.								5800.		100.	
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

PEST													
	SAMPLE ID ------->	007-S-B181-93		007-S-B182-93		007-S-B182-93 RE		007-S-B191-93		007-C-B191-93 D		007-S-B211-93	
	ORIGINAL ID ----->	S07B1801		S07B1802		S07B1802RE		S07B1901		S07B191D		S07B2101	
	LAB SAMPLE ID --->	45733-5		45733-6		45733-27		45733-7		S345733A*1		45733-8	
	ID FROM REPORT -->	S07B1801		S07B1802		S07B1802RE		S07B1901		S07B191D		S07B2101	
	SAMPLE DATE ----->	10/11/93		10/11/93		10/11/93		10/11/93		10/11/93		10/11/93	
	DATE EXTRACTED -->									10/15/93			
	DATE ANALYZED --->									11/18/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC	2.2	P					11.					
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide							6.4	P				
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	120.	D					580.	PD	670.	D		
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	240.	PD					247.	PD	150.	DP		
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT	79.	DP					326.	PD	140.	DP		
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane	9.1	P					13.					
5103-74-2	gamma-Chlordane	40.	P					8.7	P	47.			
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260							1100.		720.		510000.	
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 007 - Soil Data

PEST													
	SAMPLE ID ------->	007-S-B221-93		007-S-B222-93		007-S-B231-93		007-C-B231-93 D		007-S-B241-93		007-S-B242-93	
	ORIGINAL ID ----->	S07B2201		S07B2202		S07B2301		S07B231D		S07B2401		S07B2402	
	LAB SAMPLE ID --->	45733-9		45733-10		45733-11		S345733A*2		45733-12		45733-1	
	ID FROM REPORT -->	S07B2201		S07B2202		S07B2301		S07B231D		S07B2401		S07B2402	
	SAMPLE DATE ----->	10/11/93		10/11/93		10/11/93		10/11/93		10/11/93		10/11/93	
	DATE EXTRACTED -->							10/15/93					
	DATE ANALYZED --->							11/18/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL	CNS10	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC					9.4	P						
58-89-9	gamma-BHC (Lindane)					11.	P						
76-44-8	Heptachlor									9.8			
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	130.				140.	DP	210.		1800.	DP	20.	
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	61.	P			54.	PD	100.	P	100.	P	55.	P
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT	100.	P			160.	PD	360.	P	3400.	D	87.	P
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane					13.	P			94.	P		
5103-74-2	gamma-Chlordane					39.	P			260.	PD		
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260					230.	D	2900.					
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 007 - Soil Data

PEST													
	SAMPLE ID ------->	007-S-B271-93		007-S-B281-93		007-C-B281-93 D		007-S-B291-93		007-S-B301-93		007-S-B302-93	
	ORIGINAL ID ----->	S07B2701		S07B2801		S07B281D		S07B2901		S07B3001		S07B3002	
	LAB SAMPLE ID --->	45733-2		S345784*1		S345784A*1		S345784*2		S345784*3		S345784*4	
	ID FROM REPORT -->	S07B2701		S07B2801		S07B281D		S07B2901		S07B3001		S07B3002	
	SAMPLE DATE ----->	10/11/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE EXTRACTED -->			10/18/93		10/15/93		10/18/93		10/18/93		10/18/93	
	DATE ANALYZED --->			11/12/93		11/17/93		11/13/93		11/13/93		11/07/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
319-84-6	alpha-BHC	39000.	D										
319-85-7	beta-BHC	3800.	D										
319-86-8	delta-BHC	28000.	D										
58-89-9	gamma-BHC (Lindane)	76000.	D					57.	P				
76-44-8	Heptachlor	1100.	P										
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE			120.	D	140.	D	830.					
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	82000.	D	30.	PD	77.	P	4000.	D			5.5	P
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT	100000.	D	160.	D	230.	D	2800.	D	45.	P	10.	
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane	7100.	P	2.	P	3.9	P	150.					
5103-74-2	gamma-Chlordane	7400.	P	2.9	P	7.9	P	270.		23.	P		
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260			160.		240.	P						
7421-93-4	Endrin aldehyde												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

PEST													
	SAMPLE ID ------->	007-S-B311-93		007-S-B321-93		007-S-B331-93		007-S-B341-93		007-C-B341-93 D		007-S-B342-93	
	ORIGINAL ID ----->	S07B3101		S07B3201		S07B3301		S07B3401		S07B341D		S07B3402	
	LAB SAMPLE ID --->	S345784*5		S345784*6		S345784*7		S345784*8		S345784A*2		S345784*9	
	ID FROM REPORT -->	S07B3101		S07B3201		S07B3301		S07B3401		S07B341D		S07B3402	
	SAMPLE DATE ----->	10/13/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE EXTRACTED -->	10/18/93		10/18/93		10/18/93		10/18/93		10/15/93		10/18/93	
	DATE ANALYZED --->	11/12/93		10/31/93		10/31/93		11/01/93		11/17/93		11/13/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL
319-84-6	alpha-BHC												
319-85-7	beta-BHC												
319-86-8	delta-BHC									2.5	P		
58-89-9	gamma-BHC (Lindane)												
76-44-8	Heptachlor												
309-00-2	Aldrin												
1024-57-3	Heptachlor epoxide												
959-98-8	Endosulfan I												
60-57-1	Dieldrin												
72-55-9	4,4'-DDE	430.	D	6.8				33.		24.			
72-20-8	Endrin												
33213-65-9	Endosulfan II												
72-54-8	4,4'-DDD	1100.	D					200.	D	160.	D		
1031-07-8	Endosulfan sulfate												
50-29-3	4,4'-DDT	1100.	D	26.		4.7	P	140.		54.	D		
53494-70-5	Endrin ketone												
72-43-5	Methoxychlor												
5103-71-9	alpha-Chlordane	38.						7.8		5.			
5103-74-2	gamma-Chlordane	78.						9.6	P	11.			
8001-35-2	Toxaphene												
12674-11-2	Aroclor-1016												
11104-28-2	Aroclor-1221												
11141-16-5	Aroclor-1232												
53469-21-9	Aroclor-1242												
12672-29-6	Aroclor-1248												
11097-69-1	Aroclor-1254												
11096-82-5	Aroclor-1260							120.					
7421-93-4	Endrin aldehyde												

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 007 - Soil Data

PEST											
	SAMPLE ID ------->	007-S-B351-93		007-S-B361-93		007-S-B362-93		007-S-B371-93		007-S-B372-93	
	ORIGINAL ID ----->	S07B3501		S07B3601		S07B3602		S07B3701		S07B3702	
	LAB SAMPLE ID --->	S345868*1		S345784*10		S345784*11		S345784*12		S345784*13	
	ID FROM REPORT -->	S07B3501		S07B3601		S07B3602		S07B3701		S07B3702	
	SAMPLE DATE ----->	10/18/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE EXTRACTED -->	10/21/93		10/18/93		10/18/93		10/18/93		10/18/93	
	DATE ANALYZED --->	11/25/93		11/12/93		11/18/93		11/24/93		11/13/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
319-84-6	alpha-BHC										
319-85-7	beta-BHC										
319-86-8	delta-BHC										
58-89-9	gamma-BHC (Lindane)										
76-44-8	Heptachlor										
309-00-2	Aldrin										
1024-57-3	Heptachlor epoxide			3.7	P						
959-98-8	Endosulfan I										
60-57-1	Dieldrin										
72-55-9	4,4'-DDE			54.				19.			
72-20-8	Endrin										
33213-65-9	Endosulfan II										
72-54-8	4,4'-DDD			8.8	P			120.	PD		
1031-07-8	Endosulfan sulfate										
50-29-3	4,4'-DDT			16.	P			22.	P		
53494-70-5	Endrin ketone										
72-43-5	Methoxychlor										
5103-71-9	alpha-Chlordane			19.				5.1			
5103-74-2	gamma-Chlordane							5.2	P		
8001-35-2	Toxaphene										
12674-11-2	Aroclor-1016										
11104-28-2	Aroclor-1221										
11141-16-5	Aroclor-1232										
53469-21-9	Aroclor-1242										
12672-29-6	Aroclor-1248										
11097-69-1	Aroclor-1254										
11096-82-5	Aroclor-1260			110.				110.			
7421-93-4	Endrin aldehyde							7.5	P		

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B031-93		007-C-B031-93 D		007-S-B032-93		007-S-B041-93		007-S-B051-93		007-S-B061-93	
	ORIGINAL ID ----->	S07B0301		S07B031D		S07B0302		S07B0401		S07B0501		S07B0601	
	LAB SAMPLE ID --->	S345716*1		S345716A*1		S345716*2		S345716*3		S345716*4		S345716*5	
	ID FROM REPORT -->	S07B0301		S07B031D		S07B0302		S07B0401		S07B0501		S07B0601	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE EXTRACTED -->	10/15/93		10/15/93		10/15/93		10/15/93		10/15/93		10/15/93	
	DATE ANALYZED --->	10/27/93		10/28/93		10/27/93		10/27/93		10/27/93		10/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS09	VAL	CNS08	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene											60.	J
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene											63.	J
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran												
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B031-93		007-C-B031-93 D		007-S-B032-93		007-S-B041-93		007-S-B051-93		007-S-B061-93	
	ORIGINAL ID ----->	S07B0301		S07B031D		S07B0302		S07B0401		S07B0501		S07B0601	
	LAB SAMPLE ID --->	S345716*1		S345716A*1		S345716*2		S345716*3		S345716*4		S345716*5	
	ID FROM REPORT -->	S07B0301		S07B031D		S07B0302		S07B0401		S07B0501		S07B0601	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE EXTRACTED -->	10/15/93		10/15/93		10/15/93		10/15/93		10/15/93		10/15/93	
	DATE ANALYZED --->	10/27/93		10/28/93		10/27/93		10/27/93		10/27/93		10/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS09	VAL	CNS08	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL
86-73-7	Fluorene												
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene			53.	J	56.	J	170.	J	35.	J	220.	J
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene							33.	J			49.	J
86-74-8	Carbazole												
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	80.	J	120.	J	240.	J	380.	J	94.	J	740.	
129-00-0	Pyrene	86.	J	140.	J	340.	J	440.		110.	J	990.	
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene					140.	J	170.	J			400.	J
218-01-9	Chrysene	60.	J	85.	J	140.	J	250.	J	65.	J	690.	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	56.	J	53.	J								
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	82.	J	110.	J	200.	J	320.	J	90.	J	880.	
207-08-9	Benzo(k)fluoranthene					83.	J	100.	J			330.	J
50-32-8	Benzo(a)pyrene	40.	J	62.	J	160.	J	170.	J	48.	J	430.	J
193-39-5	Indeno(1,2,3-cd)pyrene					87.	J	120.	J			310.	J
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene							110.	J			290.	J
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA																	
	SAMPLE ID ------->	007-S-B061-93 RE		007-S-B071-93		007-S-B081-93		007-S-B091-93		007-S-B101-93		007-S-B111-93	
	ORIGINAL ID ----->	S07B0601		S07B0701		S07B0801		S07B0901		S07B1001		S07B1101	
	LAB SAMPLE ID --->	S345716*35		S345716*6		S345716*7		S345716*8		S345716*9		S345716*10	
	ID FROM REPORT -->	S07B0601		S07B0701		S07B0801		S07B0901		S07B1001		S07B1101	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE EXTRACTED -->	11/18/93		10/15/93		10/15/93		10/15/93		10/15/93		10/15/93	
	DATE ANALYZED --->	11/19/93		10/28/93		10/28/93		10/28/93		10/28/93		10/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene	100.	J	33.	J	41.	J						
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene			40.	J					38.	J		
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene	91.	J			52.	J	78.	J				
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene												
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran												
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B061-93 RE		007-S-B071-93		007-S-B081-93		007-S-B091-93		007-S-B101-93		007-S-B111-93	
	ORIGINAL ID ----->	S07B0601		S07B0701		S07B0801		S07B0901		S07B1001		S07B1101	
	LAB SAMPLE ID --->	S345716*35		S345716*6		S345716*7		S345716*8		S345716*9		S345716*10	
	ID FROM REPORT -->	S07B0601		S07B0701		S07B0801		S07B0901		S07B1001		S07B1101	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE EXTRACTED -->	11/18/93		10/15/93		10/15/93		10/15/93		10/15/93		10/15/93	
	DATE ANALYZED --->	11/19/93		10/28/93		10/28/93		10/28/93		10/28/93		10/27/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL
86-73-7	Fluorene												
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	240.	J	100.	J	200.	J	36.	J	200.	J	92.	J
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene	59.	J			43.	J			44.	J		
86-74-8	Carbazole												
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	1400.		240.	J	600.		180.	J	380.	J	270.	J
129-00-0	Pyrene	1800.		240.	J	620.		300.	J	370.	J	250.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene	960.		150.	J	350.	J	180.	J	210.	J	130.	J
218-01-9	Chrysene	1200.		220.	J	510.		240.	J	250.	J	190.	J
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)											78.	J
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	1800.		320.	J	660.		290.	J	330.	J	260.	J
207-08-9	Benzo(k)fluoranthene	600.		96.	J	190.	J	110.	J	110.	J	84.	J
50-32-8	Benzo(a)pyrene	950.		160.	J	430.		260.	J	210.	J	150.	J
193-39-5	Indeno(1,2,3-cd)pyrene	640.		130.	J	320.	J	180.	J	160.	J	110.	J
53-70-3	Dibenzo(a,h)anthracene	170.	J			76.	J	47.	J				
191-24-2	Benzo(g,h,i)perylene	560.		120.	J	310.	J	200.	J	160.	J	110.	J
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B112-93		007-S-B121-93		007-S-B131-93		007-S-B132-93		007-C-B132-93 D		007-S-B161-93	
	ORIGINAL ID ----->	S07B1102		S07B1201		S07B1301		S07B1302		S07B132D		S07B1601	
	LAB SAMPLE ID --->	S345716*11		S345716*12		S345716*13		S345716*14		S345716A*2		45733-3	
	ID FROM REPORT -->	S07B1102		S07B1201		S07B1301		S07B1302		S07B132D		S07B1601	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/11/93	
	DATE EXTRACTED -->	10/15/93		10/15/93		10/15/93		10/15/93		10/15/93			
	DATE ANALYZED --->	10/27/93		10/27/93		10/27/93		10/27/93		10/28/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene											25.	J
91-20-3	Naphthalene											340.	J
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene												
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene											45.	J
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene											590.	
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran											240.	J
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B112-93		007-S-B121-93		007-S-B131-93		007-S-B132-93		007-C-B132-93 D		007-S-B161-93	
	ORIGINAL ID ----->	S07B1102		S07B1201		S07B1301		S07B1302		S07B132D		S07B1601	
	LAB SAMPLE ID --->	S345716*11		S345716*12		S345716*13		S345716*14		S345716A*2		45733-3	
	ID FROM REPORT -->	S07B1102		S07B1201		S07B1301		S07B1302		S07B132D		S07B1601	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/11/93	
	DATE EXTRACTED -->	10/15/93		10/15/93		10/15/93		10/15/93		10/15/93			
	DATE ANALYZED --->	10/27/93		10/27/93		10/27/93		10/27/93		10/28/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL
86-73-7	Fluorene											580.	
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene			38.	J	370.	J					3000.	
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene					98.	J					760.	
86-74-8	Carbazole											760.	
84-74-2	Di-n-butylphthalate	98.	J										
206-44-0	Fluoranthene			110.	J	570.		80.	J	140.	J	3800.	
129-00-0	Pyrene	110.	J	110.	J	600.		160.	J	180.	J	3700.	
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene					310.	J					2200.	
218-01-9	Chrysene	54.	J	90.	J	360.	J	62.	J	83.	J	2000.	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)											1600.	
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	86.	J	120.	J	410.	J	89.	J	110.	J	3400.	
207-08-9	Benzo(k)fluoranthene					160.	J					1100.	
50-32-8	Benzo(a)pyrene	66.	J	68.	J	280.	J	72.	J	75.	J	2100.	
193-39-5	Indeno(1,2,3-cd)pyrene					180.	J					1300.	
53-70-3	Dibenzo(a,h)anthracene											280.	J
191-24-2	Benzo(g,h,i)perylene					180.	J					1200.	
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B171-93		007-S-B181-93		007-S-B182-93		007-S-B191-93		007-C-B191-93 D		007-S-B211-93	
	ORIGINAL ID ----->	S07B1701		S07B1801		S07B1802		S07B1901		S07B191D		S07B2101	
	LAB SAMPLE ID --->	45733-4		45733-5		45733-6		45733-7		S345733A*1		45733-8	
	ID FROM REPORT -->	S07B1701		S07B1801		S07B1802		S07B1901		S07B191D		S07B2101	
	SAMPLE DATE ----->	10/11/93		10/11/93		10/11/93		10/11/93		10/11/93		10/11/93	
	DATE EXTRACTED -->									10/15/93			
	DATE ANALYZED --->									10/27/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		ug/kg		ug/kg		ug/kg		ug/kg		UG/KG	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene											280.	J
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane									[illegible]	J		
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene											17000.	
91-20-3	Naphthalene					44.	J	290.	J	1300.			
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene									470.	J		
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene			39.	J					94.	J		
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene							480.		1800.			
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran							210.	J	740.	J		
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B171-93		007-S-B181-93		007-S-B182-93		007-S-B191-93		007-C-B191-93 D		007-S-B211-93	
	ORIGINAL ID ----->	S07B1701		S07B1801		S07B1802		S07B1901		S07B191D		S07B2101	
	LAB SAMPLE ID --->	45733-4		45733-5		45733-6		45733-7		S345733A*1		45733-8	
	ID FROM REPORT -->	S07B1701		S07B1801		S07B1802		S07B1901		S07B191D		S07B2101	
	SAMPLE DATE ----->	10/11/93		10/11/93		10/11/93		10/11/93		10/11/93		10/11/93	
	DATE EXTRACTED -->									10/15/93			
	DATE ANALYZED --->									10/27/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		ug/kg		ug/kg		ug/kg		ug/kg		UG/KG	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL
86-73-7	Fluorene							450.		1400.			
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene			320.	J	110.	J	2200.		6600.		900.	J
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene			97.	J	61.	J	760.		2400.		190.	J
86-74-8	Carbazole			160.	J			460.	J	1300.			
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	110.	J	1500.		330.	J	3000.		7800.		3300.	
129-00-0	Pyrene	85.	J	1200.		310.	J	2600.		6800.		3900.	
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene			280.	J	230.	J	1200.		3800.		960.	J
218-01-9	Chrysene	63.	J	670.		310.	J	1200.		3800.		1600.	J
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	71.	J	830.		320.	J	1700.		4400.		2000.	
207-08-9	Benzo(k)fluoranthene			260.	J	120.	J	650.		1300.		540.	J
50-32-8	Benzo(a)pyrene			240.	J	220.	J	1100.		2900.		970.	J
193-39-5	Indeno(1,2,3-cd)pyrene			210.	J	120.	J	580.		1500.		970.	J
53-70-3	Dibenzo(a,h)anthracene			54.	J			160.	J	410.	J	250.	J
191-24-2	Benzo(g,h,i)perylene			180.	J	130.	J	520.		1300.		1100.	J
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B221-93		007-S-B222-93		007-S-B231-93		007-C-B231-93 D		007-S-B241-93		007-S-B242-93	
	ORIGINAL ID ----->	S07B2201		S07B2202		S07B2301		S07B231D		S07B2401		S07B2402	
	LAB SAMPLE ID --->	45733-9		45733-10		45733-11		S345733A*2		45733-12		45733-1	
	ID FROM REPORT -->	S07B2201		S07B2202		S07B2301		S07B231D		S07B2401		S07B2402	
	SAMPLE DATE ----->	10/11/93		10/11/93		10/11/93		10/11/93		10/11/93		10/11/93	
	DATE EXTRACTED -->							10/15/93					
	DATE ANALYZED --->							10/25/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL	CNS10	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene					290.	J	200.	J				
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene					310.	J	210.	J				
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene					94.	J	51.	J				
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene					540.		480.					
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran					240.	J	190.	J				
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B221-93		007-S-B222-93		007-S-B231-93		007-C-B231-93 D		007-S-B241-93		007-S-B242-93	
	ORIGINAL ID ----->	S07B2201		S07B2202		S07B2301		S07B231D		S07B2401		S07B2402	
	LAB SAMPLE ID --->	45733-9		45733-10		45733-11		S345733A*2		45733-12		45733-1	
	ID FROM REPORT -->	S07B2201		S07B2202		S07B2301		S07B231D		S07B2401		S07B2402	
	SAMPLE DATE ----->	10/11/93		10/11/93		10/11/93		10/11/93		10/11/93		10/11/93	
	DATE EXTRACTED -->							10/15/93					
	DATE ANALYZED --->							10/25/93					
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL	CNS10	VAL
86-73-7	Fluorene					720.		530.					
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	190.	J			2300.		2800.		250.	J		
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene	40.	J			680.		750.		72.	J		
86-74-8	Carbazole					460.		280.	J	230.	J		
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	650.		85.	J	1800.		3000.		540.		150.	J
129-00-0	Pyrene	590.		160.	J	3000.		4500.		630.		200.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene	180.	J	84.	J	920.		1600.		330.	J		
218-01-9	Chrysene	310.	J			1100.		1400.		380.			
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)					460.		160.	J				
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	480.		120.	J	1100.		1800.		600.		100.	J
207-08-9	Benzo(k)fluoranthene	150.	J			170.	J	550.					
50-32-8	Benzo(a)pyrene	210.	J	100.	J	360.	J	1200.		200.	J	81.	J
193-39-5	Indeno(1,2,3-cd)pyrene	130.	J			740.		680.		350.	J		
53-70-3	Dibenzo(a,h)anthracene					430.		170.	J	250.	J		
191-24-2	Benzo(g,h,i)perylene	110.	J			130.	J	730.		70.	J		
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B271-93		007-S-B281-93		007-C-B281-93 D		007-S-B291-93		007-S-B301-93		007-S-B302-93	
	ORIGINAL ID ----->	S07B2701		S07B2801		S07B281D		S07B2901		S07B3001		S07B3002	
	LAB SAMPLE ID --->	45733-2		S345784*1		S345784A*1		S345784*2		S345784*3		S345784*4	
	ID FROM REPORT -->	S07B2701		S07B2801		S07B281D		S07B2901		S07B3001		S07B3002	
	SAMPLE DATE ----->	10/11/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE EXTRACTED -->			10/18/93		10/15/93		10/18/93		10/18/93		10/18/93	
	DATE ANALYZED --->			10/28/93		10/26/93		10/28/93		11/05/93		10/29/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
108-95-2	Phenol	[illegible]											
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene	10000.	J										
95-50-1	1,2-Dichlorobenzene	9200.	J										
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene	7400.	J										
91-20-3	Naphthalene					65.	J			16000.			
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene			55.	J	60.	J			15000.			
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene			290.	J	97.	J			11000.			
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene							74.	J	3400.	J		
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran			41.	J	38.	J			7900.			
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B271-93		007-S-B281-93		007-C-B281-93 D		007-S-B291-93		007-S-B301-93		007-S-B302-93	
	ORIGINAL ID ----->	S07B2701		S07B2801		S07B281D		S07B2901		S07B3001		S07B3002	
	LAB SAMPLE ID --->	45733-2		S345784*1		S345784A*1		S345784*2		S345784*3		S345784*4	
	ID FROM REPORT -->	S07B2701		S07B2801		S07B281D		S07B2901		S07B3001		S07B3002	
	SAMPLE DATE ----->	10/11/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE EXTRACTED -->			10/18/93		10/15/93		10/18/93		10/18/93		10/18/93	
	DATE ANALYZED --->			10/28/93		10/26/93		10/28/93		11/05/93		10/29/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
86-73-7	Fluorene			58.	J			64.	J	14000.			
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol							650.	J				
85-01-8	Phenanthrene	18000.	J	1000.		620.		560.		30000.		89.	J
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene			220.	J	112.	J	140.	J	14000.	J		
86-74-8	Carbazole			150.	J	92.	J	80.	J	4800.	J		
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	24000.	J	3000.		1700.		1000.		21000.		160.	J
129-00-0	Pyrene	23000.	J	3200.		2000.		1400.		30000.		400.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene			1600.		900.		480.		14000.			
218-01-9	Chrysene	9600.	J	3100.		1700.		580.		11000.			
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)												
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	13000.	J	5000.		3500.		950.		12000.		160.	J
207-08-9	Benzo(k)fluoranthene			1700.		1300.		360.	J	5200.			
50-32-8	Benzo(a)pyrene	6400.	J	2500.		1600.		590.		10000.		110.	J
193-39-5	Indeno(1,2,3-cd)pyrene	6000.	J	2400.		1300.		500.		3600.	J		
53-70-3	Dibenzo(a,h)anthracene			850.		300.	J	112.	J	1300.	J		
191-24-2	Benzo(g,h,i)perylene			2400.		1300.		520.		3100.	J		
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B311-93		007-S-B321-93		007-S-B331-93		007-S-B341-93		007-C-B341-93 D		007-S-B342-93	
	ORIGINAL ID ----->	S07B3101		S07B3201		S07B3301		S07B3401		S07B341D		S07B3402	
	LAB SAMPLE ID --->	S345784*5		S345784*6		S345784*7		S345784*8		S345784A*2		S345784*9	
	ID FROM REPORT -->	S07B3101		S07B3201		S07B3301		S07B3401		S07B341D		S07B3402	
	SAMPLE DATE ----->	10/13/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE EXTRACTED -->	10/18/93		10/18/93		10/18/93		10/18/93		10/15/93		10/18/93	
	DATE ANALYZED --->	10/29/93		10/29/93		10/29/93		11/01/93		10/26/93		11/01/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL
108-95-2	Phenol												
95-57-8	2-Chlorophenol												
106-46-7	1,4-Dichlorobenzene												
95-50-1	1,2-Dichlorobenzene												
95-48-7	2-Methylphenol (o-Cresol)												
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine												
67-72-1	Hexachloroethane												
98-95-3	Nitrobenzene												
78-59-1	Isophorone												
88-75-5	2-Nitrophenol												
105-67-9	2,4-Dimethylphenol												
111-91-1	bis(2-Chloroethoxy)methane												
120-83-2	2,4-Dichlorophenol												
120-82-1	1,2,4-Trichlorobenzene												
91-20-3	Naphthalene	240.	J										
106-47-8	4-Chloroaniline												
87-68-3	Hexachlorobutadiene												
59-50-7	4-Chloro-3-methylphenol												
91-57-6	2-Methylnaphthalene	300.	J										
77-47-4	Hexachlorocyclopentadiene												
88-06-2	2,4,6-Trichlorophenol												
95-95-4	2,4,5-Trichlorophenol												
91-58-7	2-Chloronaphthalene												
88-74-4	2-Nitroaniline												
131-11-3	Dimethylphthalate												
208-96-8	Acenaphthylene												
606-20-2	2,6-Dinitrotoluene												
99-09-2	3-Nitroaniline												
83-32-9	Acenaphthene	260.	J					66.	J				
51-28-5	2,4-Dinitrophenol												
100-02-7	4-Nitrophenol												
132-64-9	Dibenzofuran	150.	J										
121-14-2	2,4-Dinitrotoluene												
84-66-2	Diethylphthalate												
7005-72-3	4-Chlorophenylphenylether												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

SVOA													
	SAMPLE ID ------->	007-S-B311-93		007-S-B321-93		007-S-B331-93		007-S-B341-93		007-C-B341-93 D		007-S-B342-93	
	ORIGINAL ID ----->	S07B3101		S07B3201		S07B3301		S07B3401		S07B341D		S07B3402	
	LAB SAMPLE ID --->	S345784*5		S345784*6		S345784*7		S345784*8		S345784A*2		S345784*9	
	ID FROM REPORT -->	S07B3101		S07B3201		S07B3301		S07B3401		S07B341D		S07B3402	
	SAMPLE DATE ----->	10/13/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE EXTRACTED -->	10/18/93		10/18/93		10/18/93		10/18/93		10/15/93		10/18/93	
	DATE ANALYZED --->	10/29/93		10/29/93		10/29/93		11/01/93		10/26/93		11/01/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL
86-73-7	Fluorene	170.	J					88.	J				
100-01-6	4-Nitroaniline												
534-52-1	2-Methyl-4,6-Dinitrophenol												
86-30-6	N-Nitrosodiphenylamine												
101-55-3	4-Bromophenylphenylether												
118-74-1	Hexachlorobenzene												
87-86-5	Pentachlorophenol												
85-01-8	Phenanthrene	400.						700.	J	280.	J		
111-44-4	bis(2-Chloroethyl)ether												
120-12-7	Anthracene	78.	J					170.	J	54.	J		
86-74-8	Carbazole	64.	J					93.	J				
84-74-2	Di-n-butylphthalate												
206-44-0	Fluoranthene	440.						920.		420.		170.	J
129-00-0	Pyrene	750.						1000.		570.		320.	J
85-68-7	Butylbenzylphthalate												
91-94-1	3,3'-Dichlorobenzidine												
56-55-3	Benzo(a)anthracene	180.	J							200.	J		
218-01-9	Chrysene	200.	J					440.	J	210.	J	130.	J
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)							110.	J				
117-84-0	Di-n-octylphthalate												
205-99-2	Benzo(b)fluoranthene	360.	J					590.	J	320.	J	190.	J
207-08-9	Benzo(k)fluoranthene	130.	J					230.	J	120.	J	88.	J
50-32-8	Benzo(a)pyrene	220.	J					400.	J	230.	J	170.	J
193-39-5	Indeno(1,2,3-cd)pyrene	140.	J					280.	J			88.	J
53-70-3	Dibenzo(a,h)anthracene												
191-24-2	Benzo(g,h,i)perylene	120.	J					280.	J	110.	J		
106-44-5	4-Methylphenol (p-Cresol)												
39638-32-9	Bis(2-Chloroisopropyl)Ether												
541-73-1	1,3-Dichlorobenzene												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

SVOA											
	SAMPLE ID ------->	007-S-B351-93		007-S-B361-93		007-S-B362-93		007-S-B371-93		007-S-B372-93	
	ORIGINAL ID ----->	S07B3501		S07B3601		S07B3602		S07B3701		S07B3702	
	LAB SAMPLE ID --->	S345868*1		S345784*10		S345784*11		S345784*12		S345784*13	
	ID FROM REPORT -->	S07B3501		S07B3601		S07B3602		S07B3701		S07B3702	
	SAMPLE DATE ----->	10/18/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE EXTRACTED -->	10/22/93		10/18/93		10/18/93		10/18/93		10/18/93	
	DATE ANALYZED --->	10/27/93		10/28/93		10/28/93		11/01/93		10/28/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
108-95-2	Phenol										
95-57-8	2-Chlorophenol										
106-46-7	1,4-Dichlorobenzene										
95-50-1	1,2-Dichlorobenzene										
95-48-7	2-Methylphenol (o-Cresol)										
108-60-1	2,2'-oxybis(1-Chloropropane)	NR		NR		NR		NR		NR	
621-64-7	N-Nitroso-di-n-propylamine										
67-72-1	Hexachloroethane										
98-95-3	Nitrobenzene										
78-59-1	Isophorone										
88-75-5	2-Nitrophenol										
105-67-9	2,4-Dimethylphenol										
111-91-1	bis(2-Chloroethoxy)methane										
120-83-2	2,4-Dichlorophenol										
120-82-1	1,2,4-Trichlorobenzene										
91-20-3	Naphthalene										
106-47-8	4-Chloroaniline										
87-68-3	Hexachlorobutadiene										
59-50-7	4-Chloro-3-methylphenol										
91-57-6	2-Methylnaphthalene										
77-47-4	Hexachlorocyclopentadiene										
88-06-2	2,4,6-Trichlorophenol										
95-95-4	2,4,5-Trichlorophenol										
91-58-7	2-Chloronaphthalene										
88-74-4	2-Nitroaniline										
131-11-3	Dimethylphthalate										
208-96-8	Acenaphthylene										
606-20-2	2,6-Dinitrotoluene										
99-09-2	3-Nitroaniline										
83-32-9	Acenaphthene							69.	J		
51-28-5	2,4-Dinitrophenol										
100-02-7	4-Nitrophenol										
132-64-9	Dibenzofuran										
121-14-2	2,4-Dinitrotoluene										
84-66-2	Diethylphthalate										
7005-72-3	4-Chlorophenylphenylether										

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

NAVAL BASE CHARLESTON-1993 DATA

SWMU 007 - Soil Data

SVOA										
	SAMPLE ID ------->	007-S-B351-93		007-S-B361-93		007-S-B362-93		007-S-B371-93		007-S-B372-93
	ORIGINAL ID ----->	S07B3501		S07B3601		S07B3602		S07B3701		S07B3702
	LAB SAMPLE ID --->	S345868*1		S345784*10		S345784*11		S345784*12		S345784*13
	ID FROM REPORT -->	S07B3501		S07B3601		S07B3602		S07B3701		S07B3702
	SAMPLE DATE ----->	10/18/93		10/13/93		10/13/93		10/13/93		10/13/93
	DATE EXTRACTED -->	10/22/93		10/18/93		10/18/93		10/18/93		10/18/93
	DATE ANALYZED --->	10/27/93		10/28/93		10/28/93		11/01/93		10/28/93
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg
CAS #	Parameter	CNS13	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
86-73-7	Fluorene										
100-01-6	4-Nitroaniline										
534-52-1	2-Methyl-4,6-Dinitrophenol										
86-30-6	N-Nitrosodiphenylamine										
101-55-3	4-Bromophenylphenylether										
118-74-1	Hexachlorobenzene										
87-86-5	Pentachlorophenol										
85-01-8	Phenanthrene	64.	J	66.	J			1400.			
111-44-4	bis(2-Chloroethyl)ether										
120-12-7	Anthracene							490.	J		
86-74-8	Carbazole							83.	J		
84-74-2	Di-n-butylphthalate										
206-44-0	Fluoranthene	250.	J	230.	J	250.	J	4600.		73.	J
129-00-0	Pyrene	390.	J	310.	J	660.	J	5400.		150.	J
85-68-7	Butylbenzylphthalate										
91-94-1	3,3'-Dichlorobenzidine										
56-55-3	Benzo(a)anthracene	160.	J	210.	J			4500.			
218-01-9	Chrysene	130.	J	260.	J	150.	J	4200.		66.	J
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)			51.	J						
117-84-0	Di-n-octylphthalate										
205-99-2	Benzo(b)fluoranthene	230.	J	400.	J	360.	J	5500.		86.	J
207-08-9	Benzo(k)fluoranthene			160.	J	150.	J	1400.		27.	J
50-32-8	Benzo(a)pyrene	160.	J	210.	J	300.	J	4200.		63.	J
193-39-5	Indeno(1,2,3-cd)pyrene			160.	J	180.	J	2100.		59.	J
53-70-3	Dibenzo(a,h)anthracene							670.	J		
191-24-2	Benzo(g,h,i)perylene			140.	J	200.	J	1700.		89.	J
106-44-5	4-Methylphenol (p-Cresol)										
39638-32-9	Bis(2-Chloroisopropyl)Ether										
541-73-1	1,3-Dichlorobenzene										

NAVAL BASE CHARLESTON-1993 DATA
NAVAL BASE CHARLESTON-1993 DATA
SWMU 007 - Soil Data

VOA													
	SAMPLE ID ------->	007-S-B031-93		007-C-B031-93 D		007-S-B032-93		007-S-B041-93		007-S-B051-93		007-S-B061-93	
	ORIGINAL ID ----->	S07B0301		S07B031D		S07B0302		S07B0401		S07B0501		S07B0601	
	LAB SAMPLE ID --->	S345716*1		S345716A*1		S345716*2		S345716*3		S345716*4		S345716*35	
	ID FROM REPORT -->	S07B0301		S07B031D		S07B0302		S07B0401		S07B0501		S07B0601	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE EXTRACTED -->											11/18/93	
	DATE ANALYZED --->	10/21/93		10/20/93		10/21/93		10/21/93		10/22/93		11/19/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS09	VAL	CNS08	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL
74-87-3	Chloromethane											NR	
74-83-9	Bromomethane											NR	
75-01-4	Vinyl chloride											NR	
75-00-3	Chloroethane											NR	
75-09-2	Methylene chloride											NR	
67-64-1	Acetone											NR	
75-15-0	Carbon disulfide											NR	
75-35-4	1,1-Dichloroethene											NR	
75-34-3	1,1-Dichloroethane											NR	
67-66-3	Chloroform											NR	
107-06-2	1,2-Dichloroethane											NR	
78-93-3	2-Butanone (MEK)											NR	
71-55-6	1,1,1-Trichloroethane											NR	
56-23-5	Carbon tetrachloride											NR	
75-27-4	Bromodichloromethane											NR	
78-87-5	1,2-Dichloropropane											NR	
10061-01-5	cis-1,3-Dichloropropene											NR	
79-01-6	Trichloroethene											NR	
124-48-1	Dibromochloromethane											NR	
79-00-5	1,1,2-Trichloroethane											NR	
71-43-2	Benzene											NR	
10061-02-6	trans-1,3-Dichloropropene											NR	
75-25-2	Bromoform											NR	
108-10-1	4-Methyl-2-Pentanone (MIBK)											NR	
591-78-6	2-Hexanone											NR	
127-18-4	Tetrachloroethene											NR	
79-34-5	1,1,2,2-Tetrachloroethane											NR	
108-88-3	Toluene											NR	
108-90-7	Chlorobenzene							8.3				NR	
100-41-4	Ethylbenzene											NR	
100-42-5	Styrene											NR	
1330-20-7	Xylene (Total)											NR	
156-59-2	cis-1,2-Dichloroethylene											NR	
156-60-5	trans-1,2-Dichloroethene											NR	
108-05-4	Vinyl acetate											NR	

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 007 - Soil Data

VOA													
	SAMPLE ID ------->	007-S-B061-93		007-S-B071-93		007-S-B081-93		007-S-B091-93		007-S-B101-93		007-S-B111-93	
	ORIGINAL ID ----->	S07B0601		S07B0701		S07B0801		S07B0901		S07B1001		S07B1101	
	LAB SAMPLE ID --->	S345716*5		S345716*6		S345716*7		S345716*8		S345716*9		S345716*10	
	ID FROM REPORT -->	S07B0601		S07B0701		S07B0801		S07B0901		S07B1001		S07B1101	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/09/93	
	DATE ANALYZED --->	10/22/93		10/23/93		10/22/93		10/23/93		10/22/93		10/22/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL	CNS09	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone							2100.	J				
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene												
108-90-7	Chlorobenzene												
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 007 - Soil Data

VOA													
	SAMPLE ID ------->	007-S-B112-93		007-S-B121-93		007-S-B131-93		007-S-B132-93		007-C-B132-93 D		007-S-B161-93	
	ORIGINAL ID ----->	S07B1102		S07B1201		S07B1301		S07B1302		S07B132D		S07B1601	
	LAB SAMPLE ID --->	S345716*11		S345716*12		S345716*13		S345716*14		S345716A*2		45733-3	
	ID FROM REPORT -->	S07B1102		S07B1201		S07B1301		S07B1302		S07B132D		S07B1601	
	SAMPLE DATE ----->	10/09/93		10/09/93		10/09/93		10/09/93		10/09/93		10/11/93	
	DATE ANALYZED --->	10/23/93		10/22/93		10/21/93		10/23/93		10/21/93			
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS10	VAL	CNS08	VAL	CNS10	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride												
67-64-1	Acetone							200.					
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene												
108-90-7	Chlorobenzene	86.										13.	
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 007 - Soil Data

VOA							
	SAMPLE ID ------->	007-S-B171-93	007-S-B181-93	007-S-B182-93	007-S-B191-93	007-C-B191-93 D	007-S-B211-93
	ORIGINAL ID ----->	S07B1701	S07B1801	S07B1802	S07B1901	S07B191D	S07B2101
	LAB SAMPLE ID --->	45733-4	45733-5	45733-6	45733-7	S345733A*1	45733-8
	ID FROM REPORT -->	S07B1701	S07B1801	S07B1802	S07B1901	S07B191D	S07B2101
	SAMPLE DATE ----->	10/11/93	10/11/93	10/11/93	10/11/93	10/11/93	10/11/93
	DATE ANALYZED --->					10/22/93	
	MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
	UNITS ---------->	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
CAS #	Parameter	CNS10 VAL	CNS10 VAL	CNS10 VAL	CNS10 VAL	CNS08 VAL	CNS10 VAL
74-87-3	Chloromethane						
74-83-9	Bromomethane						
75-01-4	Vinyl chloride						
75-00-3	Chloroethane						
75-09-2	Methylene chloride						
67-64-1	Acetone			310.			
75-15-0	Carbon disulfide						
75-35-4	1,1-Dichloroethene						
75-34-3	1,1-Dichloroethane						
67-66-3	Chloroform						
107-06-2	1,2-Dichloroethane						
78-93-3	2-Butanone (MEK)						
71-55-6	1,1,1-Trichloroethane						
56-23-5	Carbon tetrachloride						
75-27-4	Bromodichloromethane						
78-87-5	1,2-Dichloropropane						
10061-01-5	cis-1,3-Dichloropropene						
79-01-6	Trichloroethene						
124-48-1	Dibromochloromethane						
79-00-5	1,1,2-Trichloroethane						
71-43-2	Benzene						
10061-02-6	trans-1,3-Dichloropropene						
75-25-2	Bromoform						
108-10-1	4-Methyl-2-Pentanone (MIBK)						
591-78-6	2-Hexanone						
127-18-4	Tetrachloroethene		11.				
79-34-5	1,1,2,2-Tetrachloroethane						
108-88-3	Toluene						
108-90-7	Chlorobenzene	14.	17.	18.	19.	17.	10.
100-41-4	Ethylbenzene						
100-42-5	Styrene						
1330-20-7	Xylene (Total)						
156-59-2	cis-1,2-Dichloroethylene						
156-60-5	trans-1,2-Dichloroethene						
108-05-4	Vinyl acetate						

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 007 - Soil Data

VOA							
	SAMPLE ID ------->	007-S-B221-93	007-S-B222-93	007-S-B231-93	007-C-B231-93 D	007-S-B241-93	007-S-B242-93
	ORIGINAL ID ----->	S07B2201	S07B2202	S07B2301	S07B231D	S07B2401	S07B2402
	LAB SAMPLE ID --->	45733-9	45733-10	45733-11	S345733A*2	45733-12	45733-1
	ID FROM REPORT -->	S07B2201	S07B2202	S07B2301	S07B231D	S07B2401	S07B2402
	SAMPLE DATE ----->	10/11/93	10/11/93	10/11/93	10/11/93	10/11/93	10/11/93
	DATE ANALYZED --->				10/22/93		
	MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
	UNITS ---------->	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
CAS #	Parameter	CNS10 VAL	CNS10 VAL	CNS10 VAL	CNS08 VAL	CNS10 VAL	CNS10 VAL
74-87-3	Chloromethane						
74-83-9	Bromomethane						
75-01-4	Vinyl chloride						
75-00-3	Chloroethane						
75-09-2	Methylene chloride						
67-64-1	Acetone		780.				
75-15-0	Carbon disulfide						
75-35-4	1,1-Dichloroethene						
75-34-3	1,1-Dichloroethane						
67-66-3	Chloroform						
107-06-2	1,2-Dichloroethane						
78-93-3	2-Butanone (MEK)						
71-55-6	1,1,1-Trichloroethane						
56-23-5	Carbon tetrachloride						
75-27-4	Bromodichloromethane						
78-87-5	1,2-Dichloropropane						
10061-01-5	cis-1,3-Dichloropropene						
79-01-6	Trichloroethene						
124-48-1	Dibromochloromethane						
79-00-5	1,1,2-Trichloroethane						
71-43-2	Benzene						
10061-02-6	trans-1,3-Dichloropropene						
75-25-2	Bromoform						
108-10-1	4-Methyl-2-Pentanone (MIBK)						
591-78-6	2-Hexanone						
127-18-4	Tetrachloroethene						
79-34-5	1,1,2,2-Tetrachloroethane						
108-88-3	Toluene						
108-90-7	Chlorobenzene	87.		79.		50.	13.
100-41-4	Ethylbenzene						
100-42-5	Styrene						
1330-20-7	Xylene (Total)						
156-59-2	cis-1,2-Dichloroethylene						
156-60-5	trans-1,2-Dichloroethene						
108-05-4	Vinyl acetate						

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 007 - Soil Data

VOA													
	SAMPLE ID ------->	007-S-B271-93		007-S-B281-93		007-C-B281-93 D		007-S-B291-93		007-S-B301-93		007-S-B302-93	
	ORIGINAL ID ----->	S07B2701		S07B2801		S07B281D		S07B2901		S07B3001		S07B3002	
	LAB SAMPLE ID --->	45733-2		S345784*1		S345784A*1		S345784*2		S345784*3		S345784*4	
	ID FROM REPORT -->	S07B2701		S07B2801		S07B281D		S07B2901		S07B3001		S07B3002	
	SAMPLE DATE ----->	10/11/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE ANALYZED --->			10/23/93		10/25/93		10/23/93		10/23/93		10/23/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS10	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride									890.	E	250.	
67-64-1	Acetone												
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene												
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)												
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene									10.			
108-90-7	Chlorobenzene	160.		13.		35.		15.				150.	
100-41-4	Ethylbenzene												
100-42-5	Styrene												
1330-20-7	Xylene (Total)									57.			
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA

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SWMU 007 - Soil Data

VOA													
	SAMPLE ID ------->	007-S-B311-93		007-S-B321-93		007-S-B331-93		007-S-B341-93		007-C-B341-93 D		007-S-B342-93	
	ORIGINAL ID ----->	S07B3101		S07B3201		S07B3301		S07B3401		S07B341D		S07B3402	
	LAB SAMPLE ID --->	S345784*5		S345784*6		S345784*7		S345784*8		S345784A*2		S345784*9	
	ID FROM REPORT -->	S07B3101		S07B3201		S07B3301		S07B3401		S07B341D		S07B3402	
	SAMPLE DATE ----->	10/13/93		10/13/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE ANALYZED --->	10/23/93		10/23/93		10/23/93		10/23/93		10/23/93		10/23/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS08	VAL	CNS11	VAL
74-87-3	Chloromethane												
74-83-9	Bromomethane												
75-01-4	Vinyl chloride												
75-00-3	Chloroethane												
75-09-2	Methylene chloride											460.	
67-64-1	Acetone												
75-15-0	Carbon disulfide												
75-35-4	1,1-Dichloroethene									37.			
75-34-3	1,1-Dichloroethane												
67-66-3	Chloroform												
107-06-2	1,2-Dichloroethane												
78-93-3	2-Butanone (MEK)									240.			
71-55-6	1,1,1-Trichloroethane												
56-23-5	Carbon tetrachloride												
75-27-4	Bromodichloromethane												
78-87-5	1,2-Dichloropropane												
10061-01-5	cis-1,3-Dichloropropene												
79-01-6	Trichloroethene												
124-48-1	Dibromochloromethane												
79-00-5	1,1,2-Trichloroethane												
71-43-2	Benzene												
10061-02-6	trans-1,3-Dichloropropene												
75-25-2	Bromoform												
108-10-1	4-Methyl-2-Pentanone (MIBK)												
591-78-6	2-Hexanone												
127-18-4	Tetrachloroethene												
79-34-5	1,1,2,2-Tetrachloroethane												
108-88-3	Toluene											450.	
108-90-7	Chlorobenzene	6.4		48.		55.		110.					
100-41-4	Ethylbenzene												
100-42-5	Styrene											24.	
1330-20-7	Xylene (Total)												
156-59-2	cis-1,2-Dichloroethylene												
156-60-5	trans-1,2-Dichloroethene												
108-05-4	Vinyl acetate												

*** Validation Complete ***

NAVAL BASE CHARLESTON-1993 DATA
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SWMU 007 - Soil Data

VOA											
	SAMPLE ID ------->	007-S-B351-93		007-S-B361-93		007-S-B362-93		007-S-B371-93		007-S-B372-93	
	ORIGINAL ID ----->	S07B3501		S07B3601		S07B3602		S07B3701		S07B3702	
	LAB SAMPLE ID --->	S345868*1		S345784*10		S345784*11		S345784*12		S345784*13	
	ID FROM REPORT -->	S07B3501		S07B3601		S07B3602		S07B3701		S07B3702	
	SAMPLE DATE ----->	10/18/93		10/13/93		10/13/93		10/13/93		10/13/93	
	DATE ANALYZED --->	10/25/93		10/25/93		10/25/93		10/23/93		10/25/93	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
CAS #	Parameter	CNS13	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL	CNS11	VAL
74-87-3	Chloromethane										
74-83-9	Bromomethane										
75-01-4	Vinyl chloride										
75-00-3	Chloroethane										
75-09-2	Methylene chloride					300.				850.	
67-64-1	Acetone										
75-15-0	Carbon disulfide										
75-35-4	1,1-Dichloroethene										
75-34-3	1,1-Dichloroethane										
67-66-3	Chloroform										
107-06-2	1,2-Dichloroethane										
78-93-3	2-Butanone (MEK)										
71-55-6	1,1,1-Trichloroethane										
56-23-5	Carbon tetrachloride										
75-27-4	Bromodichloromethane										
78-87-5	1,2-Dichloropropane										
10061-01-5	cis-1,3-Dichloropropene										
79-01-6	Trichloroethene										
124-48-1	Dibromochloromethane										
79-00-5	1,1,2-Trichloroethane										
71-43-2	Benzene										
10061-02-6	trans-1,3-Dichloropropene										
75-25-2	Bromoform										
108-10-1	4-Methyl-2-Pentanone (MIBK)										
591-78-6	2-Hexanone										
127-18-4	Tetrachloroethene										
79-34-5	1,1,2,2-Tetrachloroethane										
108-88-3	Toluene			75.		320.		74.		170.	
108-90-7	Chlorobenzene										
100-41-4	Ethylbenzene										
100-42-5	Styrene										
1330-20-7	Xylene (Total)										
156-59-2	cis-1,2-Dichloroethylene										
156-60-5	trans-1,2-Dichloroethene										
108-05-4	Vinyl acetate										

*** Validation Complete ***

Appendix G

Directions to Nearest Medical Facility

DIRECTIONS TO THE NEAREST MEDICAL FACILITY

Baker Hospital
Baker Hospital Blvd.
Charleston, South Carolina

General Telephone Number - (803) 744-2110
Emergency Room Telephone Number - (803) 744-2110

Directions to BAKER HOSPITAL from the Main Gate of the Charleston Naval Shipyard:

(1) After exiting the Main Gate (McMillan Gate) continue west on McMillan to US Highway 52.

(2) Turn left (east) on US Highway 52 and proceed to State Route 7.

(3) Turn right (south) on State Route 7 and proceed to Interstate 26.

(4) Turn left (east) on Interstate 26 and proceed to Baker Hospital Boulevard.

(5) Turn right (south) on Baker Hospital Boulevard and proceed approximately 0.2 miles to the Baker Hospital Emergency Room.

Appendix H

Forms

PLAN ACCEPTANCE FORM

PROJECT HEALTH AND SAFETY PLAN

INSTRUCTIONS: This form is to be completed by each person working on the project work site and returned to EnSafe/Allen & Hoshall, Memphis, Tennessee.

Job No:

Contract No: N62467-89-D-0318

Project:

I represent that I have read and understand the contents of the above plan and agree to perform my work in accordance with it.

_____

Signed

_____

Print Name

_____

Company

_____

Date

EMPLOYEE EXPOSURE HISTORY FORM

Employee: _____

Job Name: _____

Date(s) From/To: _____

Hours Onsite: _____

Contaminants (Suspected/Reported):

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(See Attached Laboratory Analysis)

PLAN FEEDBACK FORM

Problems with plan requirements:

_____

_____

_____

Unexpected situations encountered:

_____

_____

_____

_____

Recommendations for revisions:

_____

_____

_____

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 1877
13 June 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: ZONE D, F, & G RCRA FACILITY INVESTIGATION WORKPLAN
Charleston Naval Shipyard, SC0 170 022 560

Dear Mr. Thompson,

The purpose of this letter is to submit the Zone D, F & G Draft Final RCRA Facility Investigation Workplan for Naval Base Charleston. The Workplan is submitted to fulfill the requirements of condition IV.B.2 of the RCRA Part B permit issued to the Navy by the South Carolina Department of Health and Environmental Control and U.S. Environmental Protection Agency.

Comments made by the Department and the EPA on the initial submittal have been addressed and included in this submittal. The Response to Comments which is also included was reviewed with Department and EPA representatives in order to ensure the comments were adequately addressed. We request that the Department and the EPA review the workplans and provide comment or approval as appropriate. If you should have any questions, please contact Brian Stockmaster or Matthew Hunt at (803) 820-7481 and (803) 820-5525 respectively.

Sincerely,

Joe V. Camp
for
P. H. DALBY
CDR, CEC, U.S. Navy
Caretaker Site Officer
By direction

Encl:
(1) Zone D, F, & G RFI Workplan, dated 13 June 1996

Copy to:
SCDHEC (Bergstrand, Tapia)
USEPA (3) (Brittain)
CSO Naval Base Charleston (Camp)
SPORTENVDETCHASN (Dearhart)