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RESOURCE CONSERVATION AND RECOVERY ACT FACILITY ASSESSMENT SAMPLING  
VISIT REPORT FOR GROUP 1 SOLID WASTE MANAGEMENT UNITS 20, 21 AND 52 NS  
MAYPORT FL  
8/1/1997  
ABB ENVIRONMENTAL SERVICES

**RESOURCE CONSERVATION AND RECOVERY ACT  
FACILITY ASSESSMENT SAMPLING VISIT REPORT**

**GROUP III  
SOLID WASTE MANAGEMENT UNITS 20, 21, AND 52**

**U.S. NAVAL STATION  
MAYPORT, FLORIDA**

**Unit Identification Code: N60201**

**Contract No.: N62467-89-D-0317/028**

**Prepared by:**

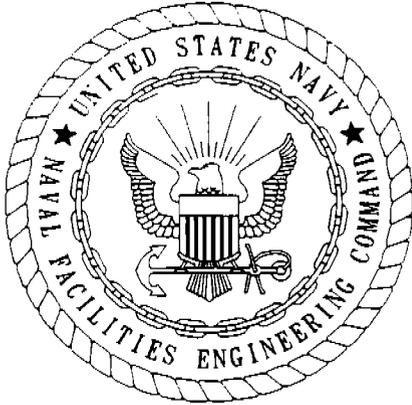
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**August 1997**



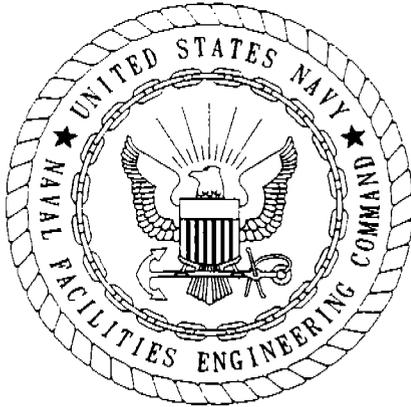
This document Resource Conservation and Recovery Act Facility Assessment Sampling Visit Report, Group III Solid Waste Management Units, U.S. Naval Station, Mayport, Florida has been prepared under the direction of a Florida Registered Professional Geologist. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment and recommendations in this document. This document was prepared for U.S. Naval Station, Mayport, Florida, and should not be construed to apply to any other site.

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CERTIFICATION OF TECHNICAL  
DATA CONFORMITY (MAY 1987)

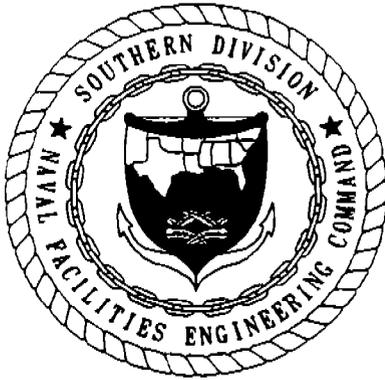
The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/028 are complete and accurate and comply with all requirements of this contract.

DATE: August 7, 1997

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## FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Installation Restoration (IR) program. This program complies with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act. The acts, passed by Congress in 1980 and 1986, respectively, established the means to assess and clean up hazardous waste sites for both private-sector and Federal facilities. These acts are the basis for what is commonly known as the Superfund program.

Originally, the Navy's part of this program was called the Navy Assessment and Control of Installation Pollutants (NACIP) program. Early reports reflect the NACIP process and terminology. The Navy eventually adopted the program structure and terminology of the standard Installation Restoration (IR) program.

The IR program is conducted in several stages as follows:

- The preliminary assessment (PA) identifies potential sites through record searches and interviews.
- A site inspection (SI) then confirms which areas contain contamination, constituting actual "sites." (Together, the PA and SI steps were called the initial assessment study under the NACIP program.)
- Next, the remedial investigation and the feasibility study (RI/FS) together determine the type and extent of contamination, establish criteria for cleanup, and identify and evaluate any necessary remedial action alternatives and their costs. As part of the RI/FS,

a risk assessment identifies potential effects on human health or the environment to help evaluate remedial action alternatives.

- The selected alternative is planned and conducted in the remedial design and remedial action stages. Monitoring then ensures the effectiveness of the effort.

A second program to address present hazardous material management is the Resource Conservation and Recovery Act (RCRA) Corrective Action program. This program is designed to identify and clean up releases of hazardous substances at RCRA-permitted facilities. RCRA ensures that solid and hazardous wastes are managed in an environmentally sound manner. The law applies primarily to facilities that generate or handle hazardous waste.

The RCRA program is conducted in the following three stages:

- The RCRA facility assessment (RFA) identifies solid waste management units (SWMUs), evaluates the potential for releases of contaminants, and determines the need for future investigations.
- The RCRA facility investigation (RFI) then determines the nature, extent, and fate of contaminant releases.
- The corrective measures study identifies and recommends measures to correct the release.

The hazardous waste investigations at U.S. Naval Station (NAVSTA) Mayport are presently being conducted under the RCRA Corrective Action program. Earlier preliminary investigations had been conducted at NAVSTA Mayport under the Navy's NACIP program and IR program following Superfund guidelines. In 1988, in coordination with the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Regulation; now known as the Florida Department of Environmental Protection [FDEP]), the hazardous waste investigations were formalized under the RCRA program.

NAVSTA Mayport is conducting the cleanup at their facility by working through the Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). The USEPA and the FDEP oversee the Navy environmental program. All aspects of the program are conducted in compliance with State and Federal regulations, as ensured by the participation of these regulatory agencies.

Questions regarding the RCRA program at NAVSTA Mayport should be addressed to Mr. David Driggers, Code 1852, at (803) 820-5501.

## EXECUTIVE SUMMARY

This Resource Conservation and Recovery Act (RCRA) Facility Assessment Sampling Visit (RFA SV) report (confirmatory sampling report) addresses the following Group III solid waste management units (SWMUs):

- SWMU 20, Hobby Shop Drain
- SWMU 21, Hobby Shop Scrap Storage Area
- SWMU 52, Public Works Department (PWD) Service Station Storage Area

The confirmatory sampling events were conducted in accordance with the RCRA Corrective Action program at U.S. Naval Station (NAVSTA) Mayport described in the Corrective Action Management Plan (ABB Environmental Services, Inc. [ABB-ES], 1995a) under U.S. Environmental Protection Agency (USEPA) Hazardous and Solid Waste Amendment (HSWA) permit number FL9 170 024 260 (RCRA permit number H016-118598).

The RFA SV activities were conducted because a release of RCRA hazardous substances from these Group III SWMUs to the environment was suspected, but not confirmed. The purpose of this report is to describe the sampling activities, findings, conclusions, and recommendations of the RFA SV at the Group III SWMUs.

The Group III RFA SV investigations at NAVSTA Mayport did not find evidence of a significant release of target analytes, selected from the Appendix IX (40 Code of Federal Regulations Part 264) Groundwater Monitoring List or USEPA Contract Laboratory program, from SWMU 20, Hobby Shop Drain; SWMU 21, Hobby Shop Scrap Storage Area; and SWMU 52, PWD Service Station Storage Area. This conclusion is based on comparison of the concentration and frequency of detection of the various compounds and elements detected during the investigation to screening values developed from background samples (surface and subsurface soil, and groundwater), and human health risk-based values. Ecological-based values were not considered; because the sites are paved, there is not an ecological receptor pathway. These sites are recommended for no further investigation at this time considering the industrial setting for SWMUs at NAVSTA Mayport; however, this recommendation should be reconsidered should the use of the site change in the future.

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U.S. Naval Station  
Mayport, Florida

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## GLOSSARY

AOC	Area of Concern
AMI	Atlantic Marine, Inc.
APHA	American Public Health Association
bls	below land surface
CAMP	Corrective Action Management Plan
CFR	Code of Federal Regulations
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DQOs	data quality objectives
DRMO	Defense Reutilization and Marketing Office
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
ft/ft	feet per foot
FTC	Fleet Training Center
GIR	General Information Report
HI	hazardous index
HSWA	Hazardous and Solid Waste Amendments of 1984
JSI	Jacksonville Shipyard, Inc.
mg/kg	milligrams per kilogram
msl	mean sea level
mg/l	milligrams per liter
µg/kg	micrograms per kilogram
µg/l	micrograms per liter
NADEP	Naval Aviation Depot
NAVSTA	Naval Station
NCP	National Oil and Hazardous Substances Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NFSI	North Florida Shipyard, Inc.
NGVD	National Geodetic Vertical Datum
NTUs	nephelometric turbidity units
PARCC	precision, accuracy, representativeness, completeness, and comparability
PCB	polychlorinated biphenyl
PWD	Public Works Department
QAPP	quality assurance project plan
RBC	risk based concentration
RCRA	Resource Conservation and Recovery Act of 1976, as amended

GLOSSARY (Continued)

RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SIMA	Shore Intermediate Maintenance Activity
SOUTHNAV- FACENGCOC	Southern Division, Naval Facilities Engineering Command
SMP	Site Management Plan
SV	Sampling Visit
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
VSI	Visual Site Inspection

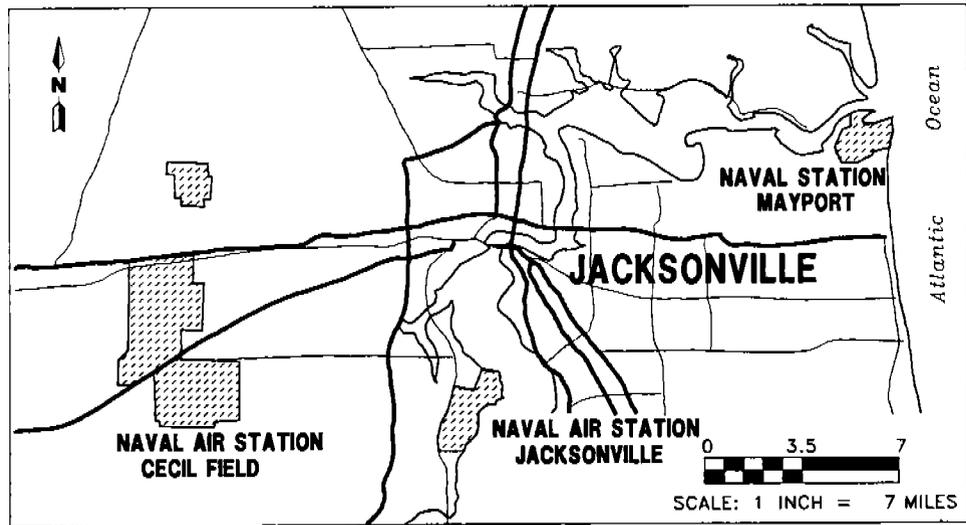
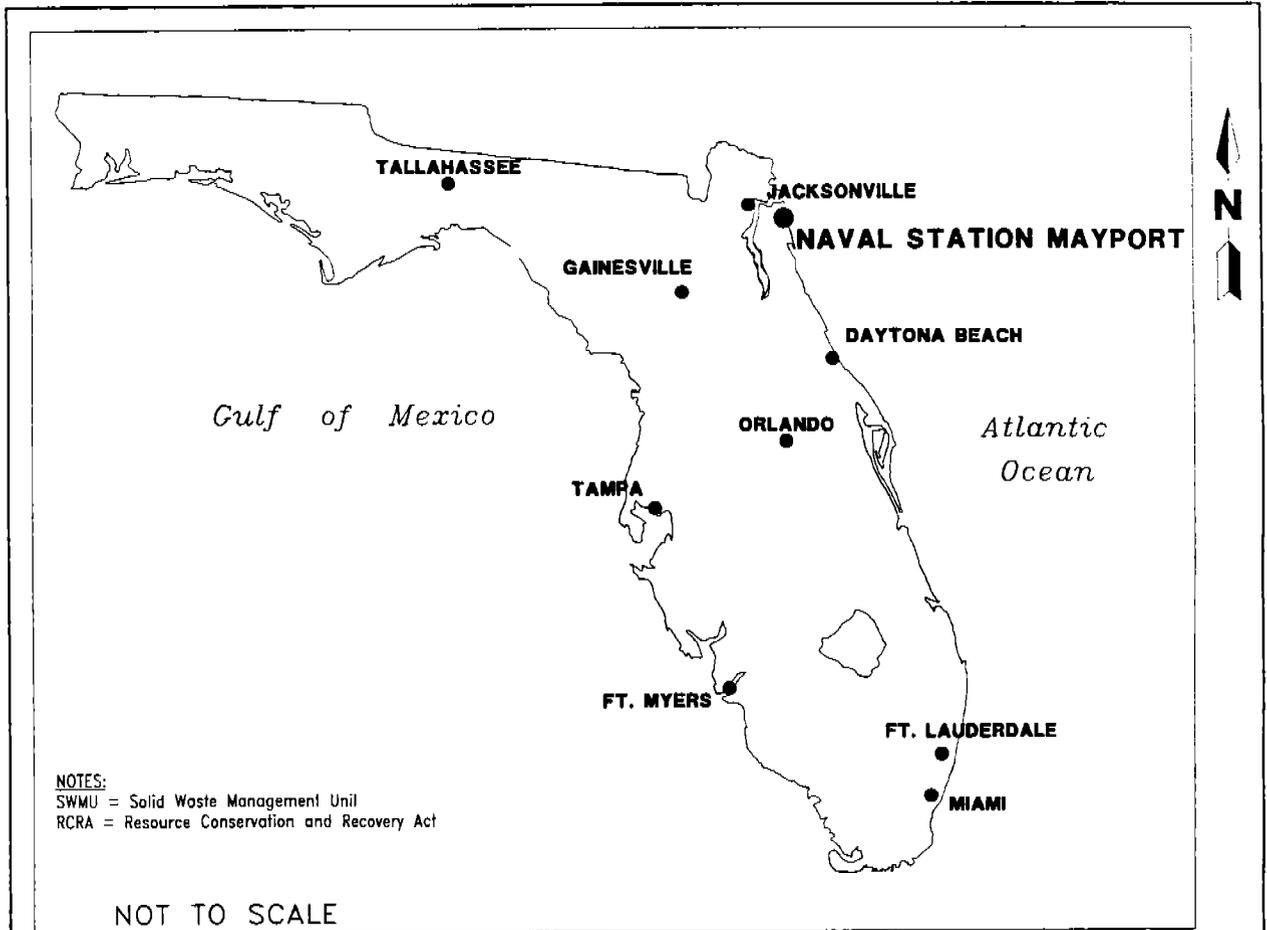
## 1.0 INTRODUCTION

This report presents the site descriptions and background, field investigative activities, findings, preliminary risk evaluation, and conclusions and recommendations of the Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) sampling visit (SV) for confirmatory sampling at Group III solid waste management units (SWMUs) at the U.S. Naval Station (NAVSTA) in Mayport, Florida. NAVSTA Mayport is located in northeastern Duval County, Florida, at the confluence of the St. Johns River and the Atlantic Ocean. Figure 1-1 presents the regional setting of NAVSTA Mayport.

The RCRA Corrective Action Program General Information Report (GIR) for NAVSTA Mayport (ABB-ES, 1995a) provides information common to all four SWMU groups being investigated including background sampling information and analytical methodology, risk assessment approach, and the ecological characterization of NAVSTA Mayport. The NAVSTA Mayport GIR includes a summary of published information including geography, physiography, demographics, climate, regional geology, and hydrogeology; methods and procedures used to conduct the field activities; methodology used to validate analytical data and conduct risk assessments; and characterization of statewide background conditions including surface and subsurface soil, surface water, sediment, and groundwater that will be used to evaluate the data from each RFA SV SWMU. The information contained in the NAVSTA Mayport GIR (ABB-ES, 1995a) is common to all of NAVSTA Mayport's SWMUs, and it will not be repeated in this confirmatory sampling report.

1.1 RCRA CORRECTIVE ACTION PROGRAM. The U.S. Environmental Protection Agency (USEPA) issued permit No. H016-118598 (FL9 170 024 260) to NAVSTA Mayport on March 25, 1988, in accordance with the Hazardous and Solid Waste Amendments (HSWA) of 1984. The permit was revised and reissued on June 15, 1993 (USEPA, 1988a). An RFA visual site inspection (VSI) for NAVSTA Mayport was conducted on behalf of the USEPA Region IV by their contractor, A.T. Kearney, Inc. (A.T. Kearney, 1989). The RFA identified 56 SWMUs and 2 areas of concern (AOC) at NAVSTA Mayport. Fifteen SWMUs were determined not to require further action because no release of hazardous substances to the environment had occurred. Eighteen SWMUs were determined to require an RCRA facility investigation (RFI) because hazardous substance releases to the environment were confirmed and required further characterization to determine the nature and extent of contamination. Twenty-three SWMUs were determined to require further investigation because hazardous substance releases to the environment were suspected but not confirmed. RFA SVs have been conducted at 10 of these 23 sites to confirm the presence or absence of a release(s) to the environment (Table 1-1). SWMU 51 consists of petroleum underground storage tanks and appurtenances and is being managed under a different program of RCRA (i.e., 40 Code of Federal Regulations [CFR], Part 280, Subtitle C, Regulation of Underground Storage Tanks).

Because of the number of SWMUs at NAVSTA Mayport, the diversity of their past and/or present operations, and the magnitude of permit requirements, the USEPA recommended that a phased approach be used to implement RFI, RFA SV, and other corrective action activities. A corrective action management plan (CAMP) was prepared that describes the phased approach, proposed schedule, and strategy to implement the RCRA Corrective Action program at NAVSTA Mayport. The original CAMP is located in Appendix F of Volume I of the USEPA-approved RFI workplan (ABB-ES,



**FIGURE 1-1  
 FACILITY LOCATION MAP**



**RCRA FACILITY ASSESSMENT  
 SAMPLING VISIT REPORT,  
 GROUP III SWMUs**

**U.S. NAVAL STATION  
 MAYPORT, FLORIDA**

**Table 1-1  
Solid Waste Management Units Requiring a Resource Conservation and Recovery Act (RCRA)  
Facility Assessment Sampling Visit (RFA SV)**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Group I RFA SV Solid Waste Management Units (SWMUs)		RFA SV Conducted (Yes/No)
26	Landfill C	Yes
49	Flight Line Retention Ponds	Yes
50	East and West Dredge Spoil Disposal Areas	Yes
56	Building 1552 Accumulation Area	Yes
Group II RFA SV SWMUs		RFA SV Conducted (Yes/No)
19	Naval Aviation Depot Blasting Area	Yes
28	Defense Reutilization Marketing Office (DRMO) Yard	Yes
48	Former Chemistry Laboratory Accumulation Area	Yes
51	Waste Oil Tanks	No <sup>1</sup>
Group III RFA SV SWMUs		RFA SV Conducted (Yes/No)
18	Fleet Training Center (FTC) Diesel Generator Sump	No <sup>2</sup>
20	Hobby Shop Drain	Yes
21	Hobby Shop Scrap Storage Area	Yes
23	Jacksonville Shipyard, Inc. (JSI), Area	No <sup>2</sup>
24	North Florida Shipyard, Inc. (NFSI), Area	No <sup>2</sup>
25	Atlantic Marine, Inc. (AMI), Area	No <sup>2</sup>
29	Oily Waste Pipeline Break	No <sup>1</sup>
44	Wastewater Treatment Facility Clarifiers 1 and 2	No <sup>2</sup>
45	Sludge Drying Beds	No <sup>2</sup>
46	Shore Intermediate Maintenance Activity (SIMA) Engine Drain Sump	No <sup>1</sup>
52	Public Works Department (PWD) Service Station Storage Area	Yes
Group IV RFA SV SWMUs		RFA SV Conducted (Yes/No)
47	Oily Waste Collection System	No <sup>3</sup>
53	Sewer Pipelines	No <sup>3</sup>
54	Oil-Water Separators	No <sup>1</sup>
55	Storm Sewer and Drainage System	No <sup>3</sup>
AOC A	Fuel Distribution System	No <sup>1</sup>
AOC B	Underground Product Storage Tanks	No <sup>1</sup>

<sup>1</sup> SWMUs 29, 51, 52, and 54, and Area of Concern (AOC) A and B are being assessed under Chapter 62-770, Florida Administrative Code (State Underground Petroleum Environmental Response).

<sup>2</sup> SWMUs 18, 23, 24, 25, 44, and 45 are being assessed in conjunction with the RCRA Facility Investigation (RFI) being conducted at the Group III SWMUs.

<sup>3</sup> An RFA SV workplan (confirmatory sampling) has been prepared for the Group IV SWMUs (ABB-ES, 1995c)

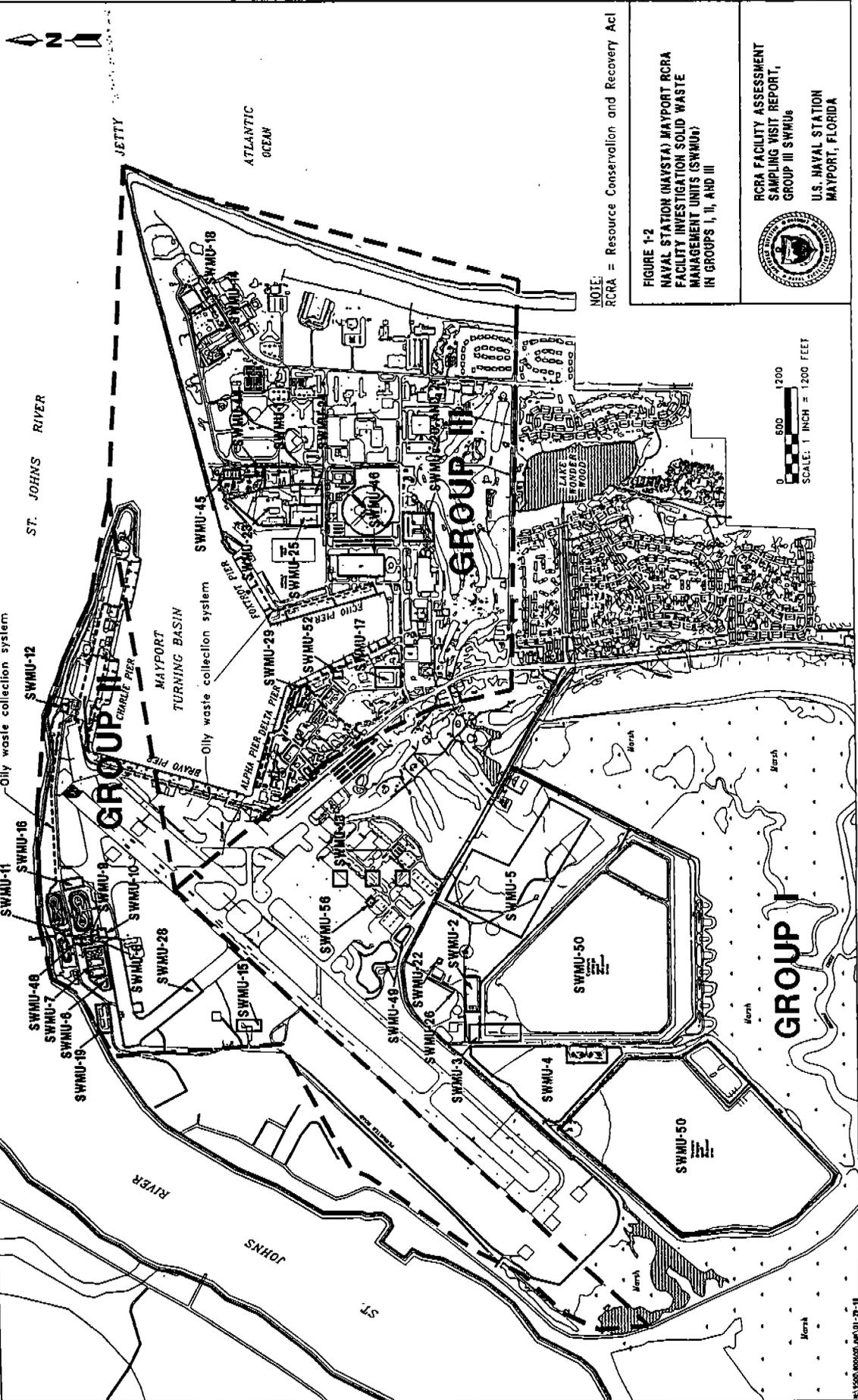
1991). The CAMP identifies the operational groups of SWMUs, ranks them by their relative risks to human health and the environment, and contains the proposed schedule for the field investigations and report submittals. A revised CAMP was submitted for regulatory approval in March 1995 (ABB-ES, 1995b).

Four SWMU groups are defined in the CAMP. SWMU Groups I through III are presented on Figure 1-2. SWMU Groups I through III were defined by grouping of individual SWMUs within a geographic area that have similar past waste management practices and the potential for similar corrective measures. Group IV SWMUs are not directly associated within a given geographic area, but consist of utility networks and systems that span multiple geographic areas and are not shown on Figure 1-2.

The Group III SWMUs are located in the eastern part of NAVSTA Mayport contiguous with the Turning Basin, the Atlantic Ocean, and the mouth of the St. Johns River and include former hazardous and solid waste storage areas, firefighter training areas, and wastewater treatment facilities (Figure 1-2). The SWMUs were incorporated into Group III because of their: (1) proximity to each other, (2) nearness to the Mayport Turning Basin and Atlantic Ocean, and (3) potential for similar or related corrective measures. Group III SWMUs were ranked as Priority 3 because of a "low perceived risk" due to contaminants being of localized areal extent affecting a small volume of soil and groundwater and having a potential for minimal, if any, adverse impacts to ecological receptors by soil and groundwater. Group III includes SWMU 1, Landfill A; SWMU 14, Mercury and Oil Waste Spill Area; SWMU 17, Carbonaceous Fuel Boiler; SWMU 18, Fleet Training Center (FTC) Diesel Generator Sump; SWMU 20, Hobby Shop Drain; SWMU 21, Hobby Shop Scrap Storage Area; SWMU 23, Jacksonville Shipyard, Inc.; SWMU 24, North Florida Shipyard, Inc.; SWMU 25, Atlantic Marine, Inc.; SWMU 29, Oily Waste Pipeline Break; SWMU 44, Wastewater Treatment Facility (WWTF) Clarifiers 1 and 2, SWMU 45 WWTF Sludge Drying Beds; SWMU 46, Shore Intermediate Maintenance Activity (SIMA) Engine Drain Sump; and SWMU 52, Public Works Department (PWD) Service Station Storage Area (Figure 1-3). This report presents the results of RFA SV activities at the three SWMUs (SWMUs 20, 21, and 52) in Group III (Table 1-1) identified by the permit as requiring confirmatory sampling.

1.2 GROUP III INVESTIGATIONS. The following presents a brief summary of the historical evolution of the investigations at NAVSTA Mayport's Groups III SWMUs. Previous investigations under the RCRA Corrective Action program at NAVSTA Mayport include RFI and RFA SV activities at Groups I and II SWMUs (Figure 1-2). Groups I and II were previously addressed in the RFA SV Report Group I and II SWMUs (ABB-ES, 1995d). Group IV SWMUs will be addressed in subsequent confirmatory sampling events in accordance with the schedule presented in the NAVSTA Mayport CAMP (ABB-ES, 1995b). Except as noted within this report, field activities were conducted in accordance with the approved RFA SV workplan for Group III SWMUs (ABB-ES, 1994). This RFA SV report addresses the Group III RFA SV SWMUs listed below (Figure 1-3):

- SWMU 20, Hobby Shop Drain;
- SWMU 21, Hobby Shop Scrap Storage Area; and
- SWMU 52, PWD Service Station Storage Area.



NOTE:  
RCRA = Resource Conservation and Recovery Act

FIGURE 1-2  
NAVAL STATION (NAVSTA) MAYPORT RCRA  
FACILITY INVESTIGATION SOLID WASTE  
MANAGEMENT UNITS (SWMUs)  
IN GROUPS I, II, AND III

RCRA FACILITY ASSESSMENT  
SAMPLING VISIT REPORT,  
GROUP III SWMUs  
U.S. NAVAL STATION  
MAYPORT, FLORIDA



0 500 1200  
SCALE: 1 INCH = 1200 FEET



Although the HSWA permit identified the following Group III SWMUs as requiring confirmatory sampling (Table 1-1 and Figure 1-3), they are being assessed during the RFI being conducted at SWMUs 1, 14, and 17 and are included in the Group III RFI report:

- SWMU 18, FTC Diesel Generator Sump;
- SWMU 23, Jacksonville Shipyard, Inc. (JSI), Area;
- SWMU 24, North Florida Shipyard, Inc. (NFSI), Area;
- SWMU 25, Atlantic Marine, Inc. (AMI), Area;
- SWMU 44, Wastewater Clarifiers 1 and 2; and
- SWMU 45, Wastewater Treatment Facility Sludge Drying Beds.

SWMU 18 is located in the proximity of RFI SWMU 14, Mercury and Oily Waste Spill Area, and they share a similar hydrogeologic setting and similar petroleum-related contamination. SWMUs 23, 24, 25, 44, and 45 are in the proximity of SWMU 1, Landfill A, and share a similar hydrogeologic setting and may have similar contaminants.

The HSWA permit also identified Group III SWMU 29, Oily Waste Pipeline Break, and SWMU 46 Shore Immediate Maintenance Activity (SIMA) Engine Drain Sump, as requiring confirmatory sampling (Figure 1-3), but they are being assessed under Chapter 62-770, Florida Administrative Code (FAC) (State Underground Petroleum Environmental Response) regulations. The Florida Department of Environmental Protection (FDEP) is providing oversight at these SWMUs.

The purpose of RFA SV sampling activities was to confirm whether or not contaminant releases have occurred. Releases of contaminants to the environment were suspected but not confirmed at SWMUs 20, 21, and 52. RFA SV sampling activities included the collection of soil and groundwater samples from SWMUs 20, 21, and 52.

Analytical results of environmental samples were used to assess whether contaminants are present or potentially released from SWMUs 20, 21, and 52. The analytical data also were used to conduct a preliminary risk screening of SWMUs 20, 21, and 52. The preliminary risk screening includes numeric estimates of excess cancer and noncancer risks for present use, residential use, and industrial use. Given the limitations of the number of samples and analytical data, only a qualitative evaluation of uncertainty is feasible. Based on comparison of the analytical data to relevant regulatory criteria and results of the preliminary risk screening, recommendations were made for additional sampling or conducting an RFI, if necessary, or for no further action at this time.

**1.3 Group III RFA SV REPORT FORMAT.** This report on confirmatory sampling activities at the Group III RFA SV SWMUs presents one chapter per SWMU or group of SWMUs. Each chapter includes a site description and site history, field investigative activities, findings, a preliminary risk evaluation, and conclusions and recommendations. Each chapter contains the following elements:

**Site Description and Background.** It provides literature information and previous investigative data describing waste management practices, types and quantities of contaminants, and affected media at that SWMU.

RFA SV Field Investigations. They describe the data collection activities and deviations, if any, from the workplan that occurred during the Group III RFA SVs.

Findings. This element presents the results of laboratory analyses of environmental samples (surface and subsurface soil, and groundwater) collected during the Group III RFA SV field investigations.

Preliminary Risk Evaluation. It presents the preliminary assessment of risk for human health and the environment for the SWMU.

Conclusions and Recommendations. They provide an assessment of the findings relative to the benchmark screening criteria for each media at a site (soil or groundwater).

Data analysis has been focused to support one of the following recommendations for each SWMU: (1) take no further action, (2) investigate nature and extent of contamination by performing an RFI, or (3) implement interim measures.

Except as noted within this report, field activities were conducted in accordance with the approved RFA SV workplan for Group III SWMUs (ABB-ES, 1994). The general operating guidelines for access, security, and field team organization implemented during RFA SV activities were consistent with RFI requirements as described in Chapter 2.0, Site Management Plan (SMP), of the RFI workplan, Volume II (ABB-ES, 1991). In addition, Section 3.1, General Site Operations, of the RFI workplan, Volume II, provides descriptions of field personnel responsibilities, sample identification, sample management, chain of custody, project documentation, field changes, corrective actions, decontamination, waste management, and other general project standards and procedures. These general requirements were followed during the Group III RFA SV activities.

The following chapters summarize SWMU site descriptions and background, describe the rationale and procedures for field investigations, and present the findings from data-gathering activities. The chapters appear in the following order:

#### Group III SWMUs

- Chapter 2.0, SWMUs 20 and 21, Hobby Shop Drain and Scrap Storage Area
- Chapter 3.0, SWMU 52, Public Works Department (PWD) Service Station Storage Area
- Chapter 4.0, Summary

2.0 SWMUs 20 AND 21, HOBBY SHOP  
DRAIN AND SCRAP STORAGE AREA

2.1 SITE DESCRIPTION AND BACKGROUND.

2.1.1 SWMU 20, Hobby Shop Drain The Hobby Shop is located in and around Building 414 in the southeastern part of NAVSTA Mayport (Figure 2-1). A.T. Kearney, Inc., conducted an RFA VSI for the site in 1989; however, since the VSI, in 1991, renovations were made to parts of the Hobby Shop area.

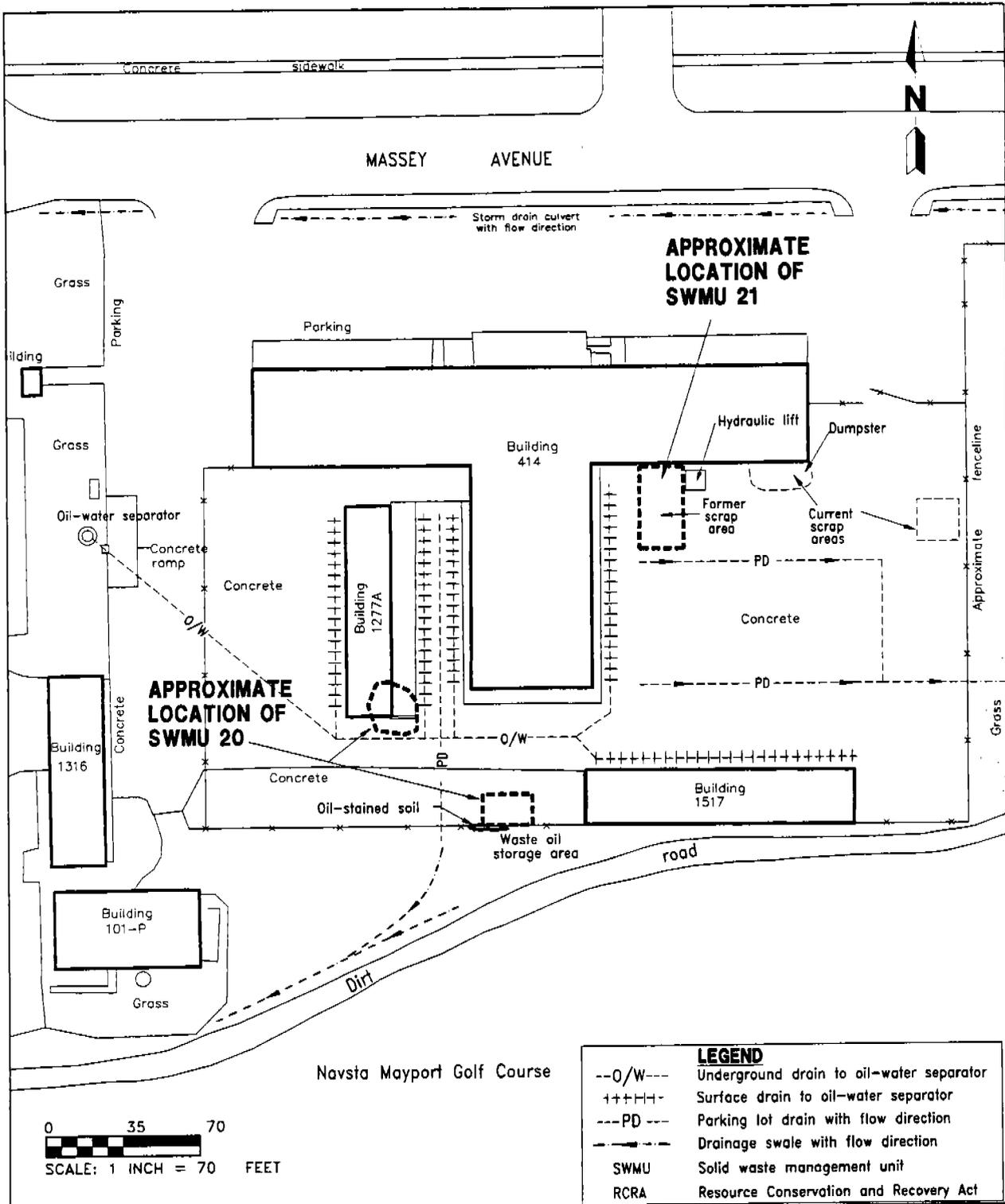
According to the RFA in 1989, the Hobby Shop Drain (SWMU 20) was located at the southeast corner of Building 1277 (currently Building 1277A, Figure 2-1), which also housed automotive maintenance and repair bays. The drain was located on the soil adjacent to a sloped concrete apron leading to the raised concrete floor of Building 1277. The drain inlet was covered with a screen and led to an underground pipe. The outlet for the pipe was reported to be at grade on the western side of Building 1277, at the edge of an asphalt parking lot. The Hobby Shop is reported to have been in operation since 1959 (A.T. Kearney, Inc., 1989).

At the time of the VSI in 1989, the soil in the area of the drain inlet and along the edge of the concrete apron was stained and appeared oily. Stains were also noted leading from the outlet of the drain pipe, across the parking lot, and toward a storm drainage ditch that parallels Massey Avenue on the south side of the roadway. Because of the staining, the drainage pathway across the asphalt was clearly visible and was observed to be cracked with some repaired sections along its length. Dark oily sediments were observed in the drainage ditch and an oily sheen was also noted at the point where the water in the drainage ditch entered a drain pipe that flowed under a side street perpendicular to Massey Avenue (A.T. Kearney, Inc., 1989).

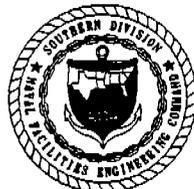
The source of the dark staining and oil was not identified at the time of the VSI; however, it was indicated that possible sources were material drained from inside the automobile maintenance and repair bays or runoff from the roadway and parking area to the east of Building 1277 (A.T. Kearney, Inc., 1989). Building 414 is east of Building 1277.

Additional investigation was recommended for SWMU 20 in the RFA because of highly permeable soil, the evidence of releases of an oily substance to soil and surface water, and the types of materials typically generated in automotive maintenance and repair activities. In the 1989 RFA report, it was suggested that the number and location of samples should be sufficient to identify the extent and characterize releases to the environment based on the following criteria: identify the source of the influent to the drain, collect soil samples in the area of the drain and source area, collect soil samples from beneath the asphalt along the drainage pathway across the parking lot on the west side of Building 1277, and collect sediment and surface water samples from the storm ditch into which the effluent from the drain is believed to have discharged. Also, it was recommended that samples should be analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals (A.T. Kearney, 1989).

During a site visit by ABB-ES on May 5, 1994, the conditions described in the 1989 RFA were not observed. As noted above, in 1991, the Hobby Shop area was renovated. This renovation included construction of a new Building 1277 (1277A)



**FIGURE 2-1  
SWMUs 20 AND 21 SITE MAP**



**RCRA FACILITY ASSESSMENT  
SAMPLING VISIT REPORT,  
GROUP III SWMUs**

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MAYPORT, FLORIDA**

MAYPORT\_SWMU20\JMK\01-29-96

as well as a new drain system and new concrete pavement across the entire site (Figure 2-1). According to NAVSTA Mayport PWD personnel, during the construction work, soil was excavated and removed from the site. However, documentation of the soil excavation and removal (including volume, depth, area of excavation, etc.) is not available.

The new drain system is composed of two separate trough drain systems. One trough drain is used to catch runoff exiting the garage bays and is located parallel to garage bay doors of each building. This drain system flows to an oil-water separator located beneath a grassy area located to the west of the Hobby Shop site. The oil is periodically collected for recycling and effluent from the oil-water separator flows into the sanitary sewer system.

The other trough drain system, located in the open parking lot area, is used for storm drainage and catches parking lot runoff. The storm drain flows into small grassy swales located on the south and east sides of the Hobby Shop area.

Near the south discharge point of the parking lot storm drain is a small waste oil storage area. This is a curbed containment area on concrete pavement with waste oil containers (capacity unknown) on stands. A valved drainpipe extends through the curb (south side of the southwest corner) and drains to a grassy area located to the south of the curbed containment area. The function of the drain is to allow the release of rainwater that may build up within the curbed containment area. A small area (less than 1 square yard) of soil adjacent to the waste oil storage area was stained.

2.1.2 SWMU 21, Hobby Shop Scrap Storage Area The RFA describes the Hobby Shop Scrap Storage Area (SWMU 21) in 1989 as a fenced area, approximately 20 feet square, located adjacent to the southern wall of the east wing of Building 414, approximately 20 feet from the southeastern corner of the wing (Figure 2-1) (A.T. Kearney, Inc., 1989). The area was enclosed by the wall of Building 414 and a chainlink fence, except for an entrance way on the south side of the area. The surrounding parking lot area was old, pitted asphalt, and there were no berms or curbs. Scrap metal, engine parts, and appliances were stored in the area. The scrap materials stored in the area were collected by the Defense Reutilization and Marketing Office (DRMO) for resale. Facility personnel were not able to provide the startup date of the storage area, but since the Hobby Shop is reported to have been in operation since 1959 (A.T. Kearney, Inc., 1989), it is reasonable to suggest that the storage area could have been in use for many years.

At the time of the VSI in 1989, materials stored in the Hobby Shop area included engine parts (e.g., engine blocks, rocker arms, and mufflers), two open gas cylinders, a 50-pound container labeled Freon 22™, an automobile battery, refrigerator, and other scrap metal items (A.T. Kearney, Inc., 1989). Several of the engine parts were observed to be oily with evidence of oil having dripped onto the base of the storage area. The base of the storage area was observed to be heavily stained with dark oily materials (A.T. Kearney, Inc., 1989).

Additional investigation appeared warranted for SWMU 21 because of highly permeable soil in the area, the poor condition of the asphalt base of the storage area, and the evidence of releases of oily materials documented during the VSI. The RFA suggested that to determine the characteristics and extent of releases of hazardous constituents, the following should be conducted: the integrity of the asphalt base should be evaluated and, if the structural integrity is

determined to have been impaired, then soil samples should be collected beneath the base course material. Also, it was suggested that soil and sediment samples be collected around the perimeter of the Hobby Shop area in locations of likely runoff and drainage from the storage area and that the samples be analyzed for VOCs, SVOCs, and metals.

During a site visit by ABB-ES on May 5, 1994, the items described as being stored at the time of the 1989 VSI were not observed. As stated previously, the Hobby Shop area was renovated in 1991. This renovation included construction of a new drain system and new concrete pavement across the entire site.

Currently, the scrap area is located farther toward the east from the southeast corner of Building 414, near the eastern edge of the Hobby Shop site. The scrap is stored on the new concrete pavement. Oily parts similar to those described in the 1989 RFA were not observed.

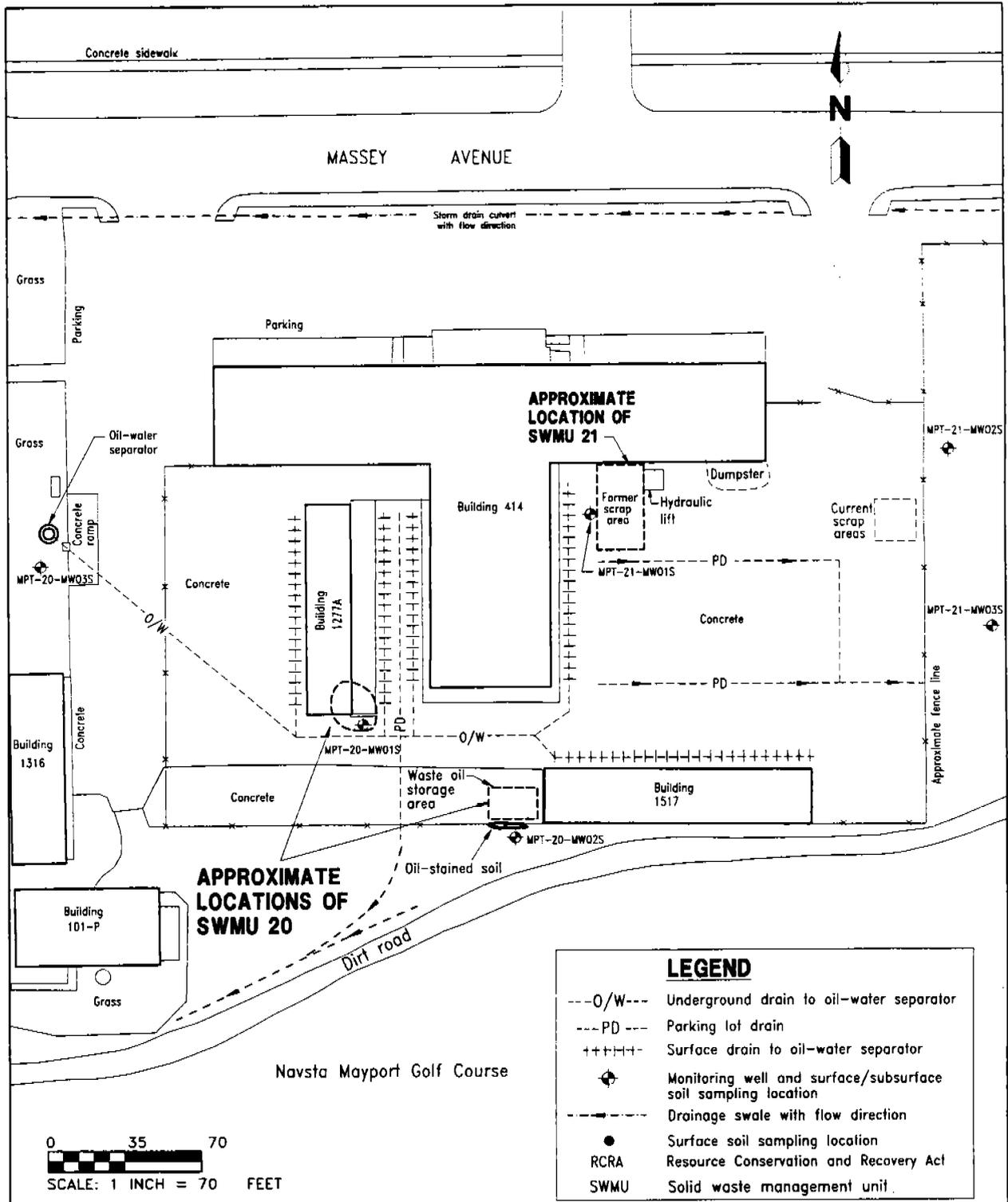
**2.2 RFA SV FIELD INVESTIGATIONS.** RFA SV field investigations at SWMUs 20 and 21 included the following activities: (1) collecting surface and subsurface soil samples; (2) installing monitoring wells; (3) collecting groundwater samples; and (4) submitting these samples for laboratory analysis. Soil sampling was conducted on May 4 and 5, 1995. Monitoring well installation occurred in May 1995, and groundwater sampling occurred between June 1 and 3, 1995.

Soil and groundwater sampling was conducted to assess whether or not hazardous constituents have been released at the site and obtain a sufficient number of samples to evaluate potential exposure pathways and conduct a preliminary risk screening. Risk to ecological receptors were not considered because the sites are paved; therefore, there are no ecological receptor pathways. The RFA SV sampling activities were based on the recommendations in the RFA report (A.T. Kearney) and current site conditions. The RFA SV sampling and analysis objectives (confirmatory sampling) did not include characterization of the horizontal and vertical extent of contaminants.

Because many field activities are similar for all NAVSTA Mayport SWMUs, the sampling procedures for RFI and RFA SV (confirmatory sampling) events are described in Section 2.1, Summary of Exploration and Sampling Program, of the NAVSTA Mayport GIR (ABB-ES, 1995a). Site-specific elements and deviations from sampling procedures, if any, particular to SWMUs 20 and 21 are discussed in subsequent paragraphs, and standard operating procedures are referenced where necessary. Monitoring well installation, soil and groundwater sampling procedures, and associated equipment decontamination procedures were conducted in general conformance with USEPA Region IV standard operating procedures (USEPA, 1991a and 1996).

The following subsections present a description of the RFA SV field investigations at SWMUs 20 and 21. The locations of the SWMU 20 and 21 soil samples and monitoring wells where groundwater samples were collected are shown on Figure 2-2.

**2.2.1 Soil Sampling** Fourteen soil samples (eight surface and six subsurface) were collected from SWMUs 20 and 21. Surface and subsurface soil sampling was accomplished as described in the NAVSTA Mayport RFI workplan (ABB-ES, 1991) and Subsection 2.1.2, Soil Sampling, of the NAVSTA Mayport GIR (ABB-ES, 1995a).



**FIGURE 2-2  
SOIL AND GROUNDWATER SAMPLING  
LOCATIONS AT SWMUs 20 AND 21**



**RCRA FACILITY ASSESSMENT  
SAMPLING VISIT REPORT,  
GROUP III SWMUs**

**U.S. NAVAL STATION  
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Two surface soil samples (land surface to a depth of 1 foot beneath the land surface [bls]) were collected from the stormwater drainage ditch located adjacent to SWMUs 20 and 21 and parallel to Massey Avenue. The drainage ditch was reported by A.T. Kearney (1989) to have potentially received runoff from drainage ditches on the west and east sides of SWMUs 20 and 21.

A surface and subsurface soil sample was collected during the drilling of the borehole for each of the monitoring wells (six monitoring wells). The rationale for locating the monitoring wells is described in Subsection 2.2.2. The surface soil sample was collected at 0 to 1 foot bls and the subsurface soil sample collected just above the water table (either the 3-to-4 or the 4-to-5 feet bls sampling interval). Where concrete or asphalt was present, the 1-foot surface soil sampling interval began at the base of the concrete or asphalt.

2.2.2 Monitoring Well Installation Drilling and well installation was accomplished as described in the NAVSTA Mayport RFI workplan (ABB-ES, 1991) and Subsection 2.1.1, Monitoring Well and Piezometer Installation, of the NAVSTA Mayport GIR (ABB-ES, 1995a). The following presents the rationale for locating monitoring wells where groundwater samples were collected at SWMUs 20 and 21.

The monitoring wells were screened in the water table zone of the surficial aquifer. Boring logs that describe the lithology and well installation details at each monitoring well location are provided in Appendix A.

SWMU 20, Hobby Shop Drain. The RFA report (A.T. Kearney, Inc., 1989) indicated that the Hobby Shop Drain was located near the southeastern part of Building 1227 (Building 1277A, see Figure 2-1). Monitoring well MPT-20-MW01S was placed at this location. The surface topography in this area slopes gently to the south. The location of monitoring well MPT-20-MW02S was chosen to identify effects of the Hobby Shop Drain on the surface soil, subsurface soil, and groundwater in this area. The well is also adjacent to the current west oil storage area.

The RFA report (A.T. Kearney, Inc., 1989) also indicated that the outlet for the Hobby Shop Drain could be seen at the edge of the parking lot on the western side of Building 1277. The location of monitoring well MPT-20-MW03S was chosen to address the potential for contaminants to have been released from drain discharge in this area. In addition, the oil-water separator for the current waste oil recovery system is located on the western side of Building 1277 (now Building 1277A). A groundwater sample was collected from each of the monitoring wells installed at SWMU 20.

SWMU 21, Hobby Shop Scrap Storage Area. The RFA report (A.T. Kearney, Inc., 1989) described the Hobby Shop Scrap Storage Area as being adjacent to the southern wall of the east wing of Building 414, approximately 20 feet from the southeastern corner of the wing. During 1991, renovation of the site included removing the pavement along with some of the underlying soil, and repaving the site with concrete. Monitoring well MPT-21-MW01S was installed (Figure 2-2) at the former scrap storage area as described in the RFA report (A.T. Kearney, Inc., 1989).

The current scrap area is on the new concrete pavement about 75 feet to the east of the former area, along the boundary of the site. Monitoring well MPT-21-MW02S was installed (Figure 2-2) in this area to assess effects of the past and current scrap areas on the surface soil, subsurface soil, and groundwater. Monitoring well MPT-21-MW03S was installed to provide information with regard to the effects

of the scrap areas and if the parking lot drain discharge area has been adversely impacted. A groundwater sample was collected from each of the monitoring wells installed at SWMU 21.

**2.2.3 Groundwater Sampling** In general, groundwater sampling was accomplished as described in Subsection 2.1.4, Groundwater Sampling, of the NAVSTA Mayport GIR (ABB-ES, 1995a).

The groundwater sample collection method used was low-flow sampling. This groundwater sampling procedure is a modification of previous sampling methods; however, it closely resembles a method used by USEPA (USEPA, 1996). Prior to groundwater sample collection, the monitoring well was slowly purged using a peristaltic pump to remove stagnant water without causing the resuspension of silts and clays. Turbidity, temperature, pH, and conductivity were measured during purging to ensure good conductance between the well and the surrounding matrix. Each monitoring well was purged until temperature, conductivity, and pH had stabilized and at least three well volumes of water were removed. Also, purging continued until a turbidity of 5 nephelometric turbidity units (NTUs) or less was achieved.

Except for VOCs, all groundwater samples were collected using a peristaltic pump and disposable Teflon™ tubing. The samples were collected before the material came in contact with the pump. VOCs were collected last. The sampler prevented agitation of the water in the monitoring well by slowly pulling the remaining length of Teflon™ tubing (which contained the groundwater sample) out of the well. The tubing contents were then carefully transferred to a VOC vial for shipment to the laboratory.

**2.2.4 Laboratory Analysis** Soil and groundwater samples were analyzed for target analytes selected from the Groundwater Monitoring List contained in Appendix IX, 40 CFR, Part 264, and USEPA Contract Laboratory program target compound list and target analyte list, including VOCs, SVOCs, pesticides, polychlorinated biphenyls (PCBs), metals, and cyanide. The analysis was conducted using methods contained in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, USEPA SW846 (USEPA, 1986). A list of the target analytes is presented in Tables 2-2 through 2-5 of the NAVSTA Mayport GIR (ABB-ES, 1995a). Analytical results of the 1995 sampling events are provided in Appendix B.

**2.2.5 Data Review** Data validation is the technical review of individual analytical results relative to the following criteria:

- Data quality objectives (DQOs) and the quality assurance project plan (QAPP) in the NAVSTA Mayport RFI workplan (ABB-ES, 1991)
- Naval Energy and Environmental Support Activity (NEESA) guidance document 20.2-047B, Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Program (NEESA, 1988)
- Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses (USEPA, 1988)
- National Functional Guidelines for Organic Data Review (USEPA, 1990)

The data validation process is described in Section 2.3 of the NAVSTA Mayport GIR (ABB-ES, 1995a).

After the data were reviewed and validated, they were evaluated using the precision, accuracy, representativeness, comparability, and completeness (PARCC) criteria specified in the DQOs. PARCC criteria are described in Section 2.3 of the NAVSTA Mayport GIR (ABB-ES, 1995a). The evaluation of the data according to the PARCC criteria is presented as Appendix C.

**2.3 FINDINGS.** The following presents a brief description of the results of the RFA SV sampling activities at SWMUs 20 and 21. The findings include site geologic and hydrogeologic conditions and analytical results from surface and subsurface soil samples and groundwater samples.

**2.3.1 Site Geology** Six soil borings were drilled at SWMUs 20 and 21 for collecting soil samples and installing shallow monitoring wells (monitoring wells with screens placed across the water table) (Figure 2-2). Boring logs for these six monitoring wells are presented in Appendix A, Boring Logs.

Subsurface soil encountered during installation of the six monitoring wells at SWMUs 20 and 21 had minimal variation over the short lateral distance between each location. The following is a description of the subsurface soil encountered at each of the six locations.

- Boring MPT-20-MW01S (located near the southeastern part of Building 1227 [Building 1277A] Figure 2-1) encountered a silty clay to a depth of approximately 3 feet bls, which was overlying a sand layer with shell fragments to approximately 10 feet bls, overlying a clayey sand to the explored depth of 15.5 feet bls.
- Boring MPT-20-MW02S (located south of Building 1277A near the waste oil storage area) encountered sand with shell fragments from the land surface to approximately 13 feet bls, overlying a clayey sand to the explored depth of 14.2 feet bls.
- Boring MPT-20-MW03S (located on the west side of SWMU 20 near the oil-water separator) encountered a fine sand from the land surface to approximately 13 feet bls, overlying a clayey sand to the explored depth of 14.0 feet bls.
- Boring MPT-21-MW01S (located near Building 414 within the boundaries of the former scrap storage area) encountered sand with shell fragments from the land surface to approximately 10 feet bls, overlying a clayey sand to the explored depth of 15.5 feet bls.
- Boring MPT-21-MW02S (located on the east side of SWMU 21) encountered sand with shell fragments from the land surface to approximately 10 feet bls, overlying a clayey sand to the explored depth of 15.5 feet bls.
- Boring MPT-21-MW03S (located to the southeast of SWMU 21) encountered sand with shell fragments from the land surface to approximately 10 feet bls, overlying a clayey sand to the explored depth of 15.5 feet bls.

**2.3.2 Site Hydrogeology** The depth to groundwater at SWMU 20 and SWMU 21 monitoring wells was measured on July 19, 1995. The depth to the groundwater at each location was measured relative to a notch or mark on the north side of each monitoring well which had been surveyed to the National Geodetic Vertical Datum (NGVD) of 1929 (commonly referred to as mean sea level [msl]). The depths to groundwater measured at each of the monitoring wells for SWMUs 20 and 21 are provided in Table 2-1 along with depths to groundwater measured at monitoring wells in the vicinity of Building 191. The Building 191 site, the Navy Supply Center, is located to the west of SWMUs 20 and 21. Also shown in the table are values for the water-level measurements relative to the NGVD datum. The elevation data were used to prepare a map of the potentiometric surface (lines that represent altitudes of equal height above the reference datum) of the water table zone of the surficial aquifer (Figure 2-3). The potentiometric surface map of the water table is used to infer that groundwater flow is from higher to lower altitudes in a direction perpendicular to the equipotential lines. Based on the equipotential lines shown on Figure 2-3, the groundwater flow direction at SWMUs 20 and 21 is generally to the northwest at Buildings 20 and 21 and to the west at Building 191. A summary of monitoring well installation details for the SWMUs 20 and 21 and the position of each well relative to its associated SWMU is provided in Table 2-2.

An approximation of the horizontal linear velocity of groundwater flow in the water table zone of the surficial aquifer in the vicinity of SWMUs 20 and 21 is based on the potentiometric surface (hydraulic gradient) of the water table, estimates of radial hydraulic conductivities at monitoring well locations, and an estimate of the porosity (ratio of the volume of voids to total volume of the soil) of the saturated subsurface soil. The horizontal linear velocity was calculated from a modified form of Darcy's equation and represents the ratio of linear travel distance to travel time between two points (Freeze and Cherry, 1979). The horizontal linear velocity is expressed as  $V_p/N_e$ , where  $V_p$  is the Darcy velocity ( $V_p = KI$ ,  $K$  = radial hydraulic conductivity, and  $I$  = hydraulic gradient) and  $N_e$  is the effective porosity of the saturated geologic stratum. An effective porosity of 0.35 is used in the calculations. (See Subsection 3.2.3, Physical Characteristics of Soil, in the NAVSTA Mayport GIR [ABB-ES, 1995a]).

*In situ* radial hydraulic conductivity values for monitoring wells in the vicinity of SWMUs 20 and 21 are presented in Table 2-3. The range of *in situ* radial hydraulic conductivity values in the vicinity of SWMUs 20 and 21 is approximately 2.3 feet per day (MPT-20-MW02S) to 7.8 feet per day (MPT-21-MW01S). The hydraulic gradient appears to be relatively uniform over SWMUs 20 and 21 (0.011 foot per foot [ft/ft] on July 19, 1995), and an approximation of the horizontal linear velocity of the groundwater ranges from approximately 0.07 to 0.25 feet per day.

Based on the values for horizontal linear velocity and assuming no dilution, dispersion, or retardation, a contaminant in the water table zone of the surficial aquifer may travel at rates of 26 to 89 feet per year (Table 2-3).

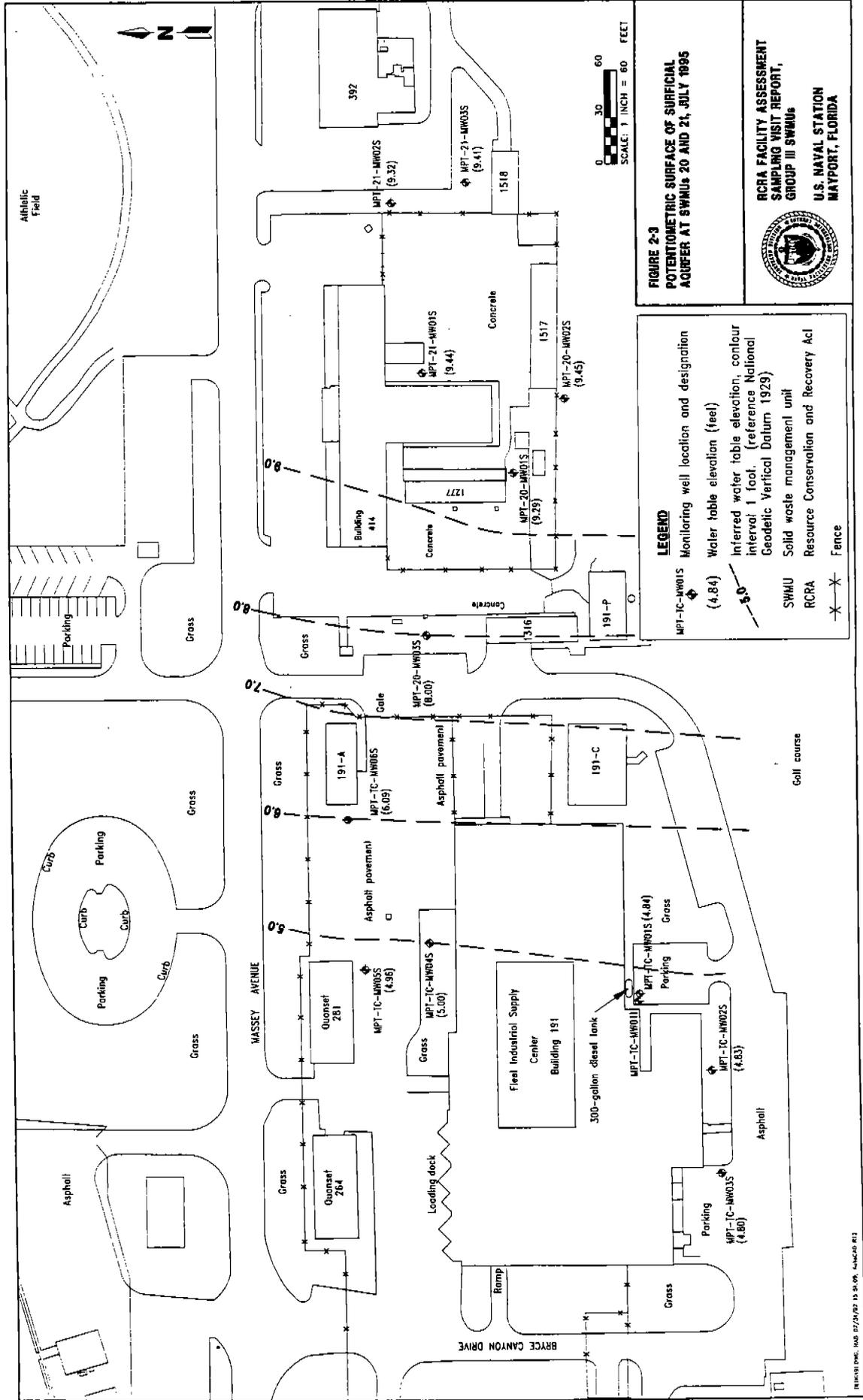
**2.3.3 Surface and Subsurface Soil Analytical Results** Tables 2-4 and 2-5 summarize the validated analytical results for organic and inorganic target analytes, respectively, detected in the surface soil samples. Tables 2-6 and 2-7 summarize the validated analytical results for organic and inorganic target analytes, respectively, detected in the subsurface soil samples. A summary of frequencies of detection, range of detection limits, range of detected concentra

**Table 2-1  
Solid Waste Management Units (SWMUs) 20 and 21 Water-Level Data,  
July 19, 1995**

Group III RFA SV Report  
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Monitoring Well	Elevation (NGVD)	Water Level		
		Time (EST)	Depth (TOC)	Elevation (msl)
MPT-20-MW01S	13.49	12:51	4.20	9.29
MPT-20-MW02S	13.68	11:55	4.23	9.45
MPT-20-MW03S	12.01	12:33	4.01	8.00
MPT-21-MW01S	13.21	12:46	3.77	9.44
MPT-21-MW02S	12.79	12:59	3.47	9.32
MPT-21-MW03S	12.36	13:02	2.95	9.41
MPT-TC-MW01S	9.56	12:16	4.72	4.84
MPT-TC-MW01I	9.6	NM	NM	NM
MPT-TC-MW02S	10.89	12:14	6.06	4.83
MPT-TC-MW03S	8.68	12:06	3.88	4.8
MPT-TC-MW04S	8.78	12:40	3.78	5.0
MPT-TC-MW05S	8.73	12:38	3.77	4.96
MPT-TC-MW06S	9.84	12:36	3.75	6.09

Notes: RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 NGVD = National Geodetic Vertical Datum of 1929.  
 EST = Eastern Standard Time.  
 TOC = The top of casing was the surveyed datum point for measuring the water level.  
 msl = mean sea level.  
 S = Suffix on the monitoring well identifier that designates a shallow monitoring well screened across the water table.  
 I = Suffix on the monitoring well that designates a well screened in an intermediate zone of the surficial aquifer.  
 NM = Water level not measured.



**FIGURE 2-3**  
**POTENTIOMETRIC SURFACE OF SURFICIAL**  
**AQUIFER AT SWMUS 20 AND 21, JULY 1995**

RCRA FACILITY ASSESSMENT  
 SAMPLING VISIT REPORT,  
 GROUP III SWMUS  
 U.S. NAVAL STATION  
 MAYPORT, FLORIDA



**LEGEND**

- Monitoring well location and designation
- Water table elevation (feet)
- Inferred water table elevation, contour interval 1 foot. (reference National Geodetic Vertical Datum 1929)
- SWMU Solid waste management unit
- RCRA Resource Conservation and Recovery Act
- Fence

**Table 2-2  
Summary of Monitoring Well Installations at SWMUs 20 and 21**

Group III RFA SV Report  
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Mayport, Florida

SWMU Number	Monitoring Well Number	Hydraulic Position to SWMUs 20 <sup>1</sup> and 21 <sup>2</sup>	Diameter (inches)	Total Depth (feet)	Screened Interval (feet bls)
20	MPT-20-MW01S	U <sup>1</sup>	2	15.5	5 to 15
20	MPT-20-MW02S	U <sup>1</sup>	2	14.2	4 to 14
20	MPT-20-MW03S	D <sup>1</sup>	2	14	3 to 13
21	MPT-21-MW01S	D <sup>2</sup>	2	15.5	5 to 15
21	MPT-21-MW02S	S <sup>2</sup>	2	15.5	5 to 15
21	MPT-21-MW03S	S <sup>2</sup>	2	15.5	5 to 15

<sup>1</sup> Hydraulic position of monitoring well relative to SWMU 20 site boundaries (see Figure 2-1).

<sup>2</sup> Hydraulic position of monitoring well relative to SWMU 21 site boundary (see Figure 2-1).

Notes: SWMU = solid waste management unit.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

bls = below land surface.

U = hydraulically upgradient or at a potential source area for a SWMU.

D = hydraulically downgradient or at a potential source area.

S = hydraulically side gradient (along a similar equipotential surface) or at a potential source area.

**Table 2-3  
Average Groundwater Velocities at SWMUs 20 and 21**

Group III RFA SV Report  
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Location	Hydraulic Conductivity (ft/day)	Estimated Gradient <sup>1</sup> (ft/ft)	Estimated Effective Porosity	Estimated Linear Velocity (ft/day)	Estimated Linear Velocity (ft/year)
MPT-20-MW01S	<sup>2</sup> 3.6	0.011	0.35	0.11	41
MPT-20-MW02S	<sup>2</sup> 2.3	0.011	0.35	0.07	26
MPT-20-MW03S	<sup>2</sup> 2.5	0.011	0.35	0.08	29
MPT-21-MW01S	<sup>2</sup> 7.8	0.011	0.35	0.25	89
MPT-21-MW02S	<sup>2</sup> 4.0	0.011	0.35	0.13	46
MPT-21-MW03S	<sup>2</sup> 4.1	0.011	0.35	0.13	47

<sup>1</sup> Based on synoptic water table elevations.

<sup>2</sup> *In situ* conductivity measurement, July 1995.

Notes: SWMU = solid waste management unit.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

ft/day = feet per day.

ft/ft = foot per foot.

ft/year = feet per year.

**Table 2-4  
Organic Analytes Detected in Surface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analytical Batch No.:	R9866	R9866	R9866	R9866	R9866
Sample Location:	MPT-20-MW01S	MPT-20-MW02S	MPT-20-MW03S	MPT-20-SS04	MPT-20-SS05
Sample Number:	20S00101	20S00201	20S00301	20S00401	20S00501
Date Sampled:	04-MAY-95	05-MAY-95	05-MAY-95	05-MAY-95	05-MAY-95
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
<b><u>Volatiles (µg/kg)</u></b>					
Carbon disulfide	4 J	2 J	11	--	--
Toluene	--	2 J	--	--	--
Ethylbenzene	--	--	1 J	--	--
Xylenes (total)	2 J	12	18	1 J	--
<b><u>Semivolatiles (µg/kg)</u></b>					
Phenanthrene	--	--	160 J	--	--
Fluoranthene	89 J	--	560 J	--	170 J
Pyrene	--	--	340 J	--	140 J
Butylbenzylphthalate	270 J	--	320 J	--	--
Benzo (a) anthracene	--	--	240 J	--	77 J
Chrysene	83 J	--	340 J	--	120 J
Benzo (b) fluoranthene	--	--	380 J	--	150 J
Benzo (k) fluoranthene	--	--	350 J	--	120 J
Benzo (a) pyrene	--	--	280 J	--	98 J
Indeno (1,2,3-cd) pyrene	--	--	180 J	--	--
Dibenz (a,h) anthracene	--	--	80 J	--	--
Benzo (g,h,i) perylene	75 J	--	170 J	--	--
<b><u>Pesticides/PCBs (µg/kg)</u></b>					
4,4-DDE	--	5.5	1.2 J	--	--
4,4-DDD	1.8 J	--	--	--	--
4,4-DDT	--	4.2	--	--	--
Endrin ketone	2.4 J	--	--	--	--
Chlordane	--	--	--	--	59 J
See notes at end of table.					

**Table 2-4 (Continued)**  
**Organic Analytes Detected in Surface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analytical Batch No.:	R9866	R9866	R9866
Sample Location:	MPT-21-MW01S	MPT-21-MW01S	MPT-21-MW02S
Sample Number:	21S00101	21S00101DUP	21S00201
Date Sampled:	04-MAY-95	04-MAY-95	04-MAY-95
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1
<b><u>Volatiles (µg/kg)</u></b>			
Carbon disulfide	--	--	--
Toluene	--	--	--
Ethylbenzene	--	--	--
Xylenes (total)	--	1 J	5 J
<b><u>Semivolatiles (µg/kg)</u></b>			
Phenanthrene	--	--	--
Fluoranthene	--	--	--
Pyrene	--	--	--
Butylbenzylphthalate	--	--	--
Benzo (a) anthracene	--	--	--
Chrysene	--	--	--
Benzo (b) fluoranthene	--	--	--
Benzo (k) fluoranthene	--	--	--
Benzo (a) pyrene	--	--	--
Indeno (1,2,3-cd) pyrene	--	--	--
Dibenz (a,h) anthracene	--	--	--
Benzo (g,h,i) perylene	--	--	--
<b><u>Pesticides/PCBs (µg/kg)</u></b>			
4,4-DDE	--	--	--
4,4-DDD	--	--	--
4,4-DDT	--	--	--
Endrin ketone	--	--	--
Chlordane	240	180 J	--

Notes: SWMU = solid waste management unit.  
 RCRA = Resource Conservation and Recovery Act.  
 RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 ft = foot.  
 bls = below land surface.  
 µg/kg = micrograms per kilogram.  
 J = estimated value.  
 -- = analyte not detected.  
 PCB = polychlorinated biphenyl.  
 DDE = dichlorodiphenyldichloroethene.  
 DDD = dichlorodiphenyldichloroethane.  
 DDT = dichlorodiphenyltrichloroethane.  
 DUP = duplicate.

**Table 2-5  
Inorganic Analytes Detected in Surface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analytical Batch Number:	R9866	R9866	R9866	R9866	R9866
Sample Location:	MPT-20-MW01S	MPT-20-MW02S	MPT-20-MW03S	MPT-20-SS04	MPT-20-SS05
Sample Number:	20S00101	20S00201	20S00301	20S00401	20S00501
Date Sampled:	04-MAY-95	05-MAY-95	05-MAY-95	05-MAY-95	05-MAY-95
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
<b><u>Inorganics (mg/kg)</u></b>					
Arsenic	2.2 J	1.1 J	1.3 J	0.3 J	0.31 J
Barium	25.7 J	9.4 J	18.5 J	9.2 J	6.6 J
Beryllium	0.1 J	0.1 J	–	0.11 J	0.06 J
Cadmium	1.4	0.34 J	1.6	0.4 J	–
Chromium	13.8	9.2	17.3	4.8	3.9
Cobalt	0.85 J	–	–	–	–
Copper	29	3.9 J	40.9	–	–
Lead	234 J	19.9 J	240 J	2.2 J	3.1 J
Nickel	6.7 J	1.4 J	9.6	1.3 J	–
Selenium	–	0.15 J	–	0.12 J	–
Vanadium	8.9 J	5.5 J	6.2 J	4.8 J	4.2 J
Zinc	161	23.6	137	3.9 J	4.7
See notes at end of table.					

**Table 2-5 (Continued)**  
**Inorganic Analytes Detected in Surface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analytical Batch Number:	R9866	R9866	R9866	R9866
Sample Location:	MPT-21-MW01S	MPT-21-MW01S	MPT-21-MW02S	MPT-21-MW03S
Sample Number:	21S00101	21S00101DUP	21S00201	21S00301
Date Sampled:	04-MAY-95	04-MAY-95	04-MAY-95	04-MAY-95
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1	0 to 1
<b><u>Inorganics (mg/kg)</u></b>				
Arsenic	0.81 J	0.52 J	0.55 J	0.96 J
Barium	3.9 J	3.3 J	3.9 J	3.5 J
Beryllium	0.07 J	-	-	0.09 J
Cadmium	-	-	-	-
Chromium	1.7 J	1.7 J	1.5 J	3.9
Cobalt	-	-	-	-
Copper	-	-	-	-
Lead	3.9 J	3 J	36.8 J	-
Nickel	-	-	-	-
Selenium	-	-	-	-
Vanadium	2.2 J	2.1 J	2.5 J	5 J
Zinc	5.1	4.2	13.6	2.9 J

Notes: SWMU = solid waste management unit.  
 RCRA = Resource Conservation and Recovery Act.  
 RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 ft bls = feet below land surface.  
 mg/kg = milligrams per kilogram.  
 J = estimated value.  
 - = analyte not detected.  
 DUP = duplicate.

**Table 2-6  
Organic Analytes Detected in Subsurface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analytical Batch Number:	R9866	R9866	R9866	R9866	R9866
Sample Location:	MPT-20-MW01S	MPT-20-MW02S	MPT-21-MW01S	MPT-21-MW02S	MPT-21-MW03S
Sample Number:	20B00105	20B00205	21B00104	21B00203	21B00303
Date Sampled:	04-MAY-95	05-MAY-95	04-MAY-95	04-MAY-95	04-MAY-95
Sample Depth (ft bls):	4 to 5	4 to 5	3 to 4	2 to 3	2 to 3
<b><u>Volatiles (µg/kg)</u></b>					
2-Butanone	-	4 J	-	-	-
Xylenes (total)	1 J	-	1 J	3 J	1 J
<b><u>Semivolatiles (µg/kg)</u></b>					
Butylbenzylphthalate	86 J	-	-	-	-
<b><u>Pesticides/PCBs (µg/kg)</u></b>					
Chlordane	-	-	31	-	-
Notes: SWMU = solid waste management unit. RCRA = Resource Conservation and Recovery Act. RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit. ft bls = feet below land surface. µg/kg = milligrams per kilogram. - = analyte not detected. J = estimated value. PCB = polychlorinated biphenyl.					

**Table 2-7  
Inorganic Analytes Detected in Subsurface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analytical Batch Number:	R9866	R9866							
Sample Location:	MPT-20-MW01S	MPT-20-MW02S	MPT-20-MW02S	MPT-20-MW03S	MPT-21-MW01S	MPT-21-MW02S	MPT-21-MW02S	MPT-21-MW03S	
Sample Number:	20B00105	20B00205	20B00205DUP	20B00305	21B00104	21B00203	21B00303		
Date Sampled:	04-MAY-95	05-MAY-95	05-MAY-95	05-MAY-95	04-MAY-95	04-MAY-95	04-MAY-95		
Sample Depth (ft bls):	4 to 5	4 to 5	4 to 5	4 to 5	3 to 4	2 to 3	2 to 3		
<b>Inorganics (mg/kg)</b>									
Arsenic	0.49 J	0.63 J	0.69 J	0.5 J	0.77 J	0.64 J	0.73 J		
Barium	2.8 J	3 J	3.3 J	2.5 J	4.2 J	4.6 J	3.1 J		
Beryllium	-	-	-	0.11 J	-	-	-		
Chromium	1.6 J	1.6 J	1.2 J	1.6 J	0.66 J	1.8 J	0.57 J		
Lead	1.6 J	2.7 J	3.2 J	1.4 J	3.6 J	16.4 J	-		
Vanadium	2 J	1.8 J	2.1 J	1.2 J	2.2 J	2.8 J	1.9 J		
Zinc	5.6	4.2 J	4.1 J	3.8 J	-	13.2	-		
Cyanide	-	-	-	-	0.14 J	-	-		

Notes: SWMU = solid waste management unit.  
 RCRA = Resource Conservation and Recovery Act.  
 RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 ft bls = feet below land surface.  
 DUP = duplicate.  
 mg/kg = milligrams per kilogram.  
 J = estimated value.  
 - = analyte not detected.

tions, and arithmetic mean and benchmark comparison values is provided in Tables 2-8 and 2-9 for surface and subsurface soil samples, respectively. Complete analytical results are included in Appendix B.

The target analytes detected in the environmental samples were also compared in Tables 2-8 and 2-9 to background screening values computed from stationwide surface and subsurface soil samples (ABB-ES, 1995a), benchmark values from USEPA Region III risk-based concentrations (RBC) (USEPA, 1995), and the State of Florida cleanup goals (residential and industrial) (FDEP, 1995). Each of the benchmark criteria provided in Tables 2-8 and 2-9 are human health-based and represent the lower of either: (1) a noncarcinogenic hazard index (HI) where values of less than 1 represent a concentration at which noncarcinogenic effects are not likely or (2) a lifetime excess cancer risk of  $1 \times 10^{-6}$ , which represents a chance of 1 in 1,000,000 for an adverse carcinogenic effect for a continuous lifetime exposure. The concentrations listed for the USEPA Region III RBCs correspond to an HI of 0.1, whereas the State of Florida cleanup goals are based on an HI of 1. Values for Florida cleanup goals consist of aggregate residential exposure (child and adult) for surface soil, whereas subsurface soil concentrations were compared to an industrial worker exposure.

Six surface and subsurface soil sample pairs were collected from the monitoring well locations shown on Figure 2-2. Also, two surface soil samples were collected from the stormwater drainage ditch. Surface soil at SWMUs 20 and 21, in general, consists of gray, fine-grained sand with numerous shell fragments. Subsurface soil at all sampling locations was similar to the surface soil. The following presents a description of the analytes detected in the surface and subsurface soil samples.

Surface Soil. Four VOCs (carbon disulfide, toluene, ethylbenzene, and xylene), 12 SVOCs (phenanthrene, fluoranthene, pyrene, butylbenzylphthalate, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene), and five pesticides (4,4'-DDE, 4,4'-DDD, 4,4'-DDT, endrin ketone, and chlordane) were detected in the surface soil samples (Table 2-4).

Inorganic target analytes detected in the surface and subsurface soil samples consisted of arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, selenium, vanadium, and zinc (Table 2-5).

Subsurface Soil. Two VOCs (2-butanone and xylene), one SVOC (butylbenzylphthalate), and one pesticide (chlordane) were detected in the subsurface soil samples (Table 2-6).

Inorganic target analytes detected in the surface and subsurface soil samples consisted of arsenic, barium, beryllium, chromium, lead, vanadium, zinc, and cyanide (Tables 2-7).

**2.3.4 Groundwater Analytical Results** A summary of indicator parameters for groundwater is provided in Table 2-10. Tables 2-11 and 2-12 summarize the validated analytical results for organic and inorganic target analytes, respectively, detected in groundwater samples collected at SWMUs 20 and 21. A summary of frequencies of detection, range of detection limits, range of detected concentrations, arithmetic mean, and benchmark comparison values is provided in Table 2-13. Complete analytical results are presented in Appendix A.

**Table 2-8**  
**Preliminary Risk Screening of Surface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analyte	Frequency of Detection <sup>1</sup>	Range of Reporting Limits	Range of Detected Concentrations <sup>2</sup>	Mean of Detected Concentrations <sup>3</sup>	Background Screening Value <sup>4</sup>	Region III RBC <sup>5</sup>	Florida Soil Cleanup Goal <sup>6</sup> Residential	Florida Soil Cleanup Goal <sup>6</sup> Industrial	Exceeds Residential Benchmark (Yes/No)	Exceeds Industrial Benchmark (Yes/No)
<b>Volatiles (µg/kg)</b>										
Carbon disulfide	3/8	5 to 5	2 to 11	5.7	ND	780,000	5,200	34,000	No	No
Ethylbenzene	1/8	5 to 6	1	1	ND	780,000	1,400,000	10,000,000	No	No
Toluene	1/8	5 to 6	2	2	ND	1,600,000	520,000	3,500,000	No	No
Xylenes (Total)	6/8	2.5 to 5	1 to 18	6.6	ND	16,000,000	13,000,000	92,000,000	No	No
<b>Semivolatiles (µg/kg)</b>										
Benzo(a)anthracene	2/8	670 to 730	77 to 240	159	ND	7880	1,400	4,900	No	No
Benzo(a)pyrene	2/8	670 to 730	98 to 280	189	ND	788	100	500	Yes	No
Benzo(b)fluoranthene	2/8	670 to 730	150 to 380	265	ND	7880	1,400	5,000	No	No
Benzo(g,h,i)perylene	2/8	670 to 720	75 to 170	123	ND	NS	14,000	50,000	No	No
Benzo(k)fluoranthene	2/8	670 to 730	120 to 350	235	ND	78,800	14,000	48,000	No	No
Butylbenzylphthalate	2/8	670 to 720	270 to 320	295	ND	1,600,000	15,000,000	31,000,000	No	No
Chrysene	3/8	670 to 720	83 to 340	181	ND	788,000	140,000	500,000	No	No
Dibenz(a,h)anthracene	1/8	670 to 730	80	80	ND	788	100	500	No	No
Fluoranthene	3/8	670 to 720	89 to 560	273	ND	310,000	2,900,000	48,000,000	No	No
Indeno(1,2,3-cd)pyrene	1/8	670 to 730	180	180	ND	7880	1,400	5,000	No	No
Phenanthrene	1/8	670 to 730	160	160	ND	NS	1,700,000	21,000,000	No	No
Pyrene	2/8	670 to 730	140 to 340	240	ND	230,000	2,200,000	41,000,000	No	No
<b>Pesticides and PCBs (µg/kg)</b>										
4,4'-DDD	1/8	1.3 to 1.4	1.8	1.8	ND	2,700	4,500	17,000	No	No
4,4'-DDE	2/8	0.68-0.74	1.2 to 5.5	3.4	2.3	71,900	3,000	11,000	No	No
4,4'-DDT	1/8	1.3 to 1.4	4.2	4.2	ND	71,900	3,100	12,000	No	No
Chlordane	2/8	6.8 to 7.4	59 to 210*	135	ND	7,490	800	3,000	No	No
Endrin ketone	1/8	1.3 to 1.4	2.4	2.4	ND	NS	23,000	480,000	No	No

See notes at end of table.

**Table 2-8 (Continued)**  
**Preliminary Risk Screening of Surface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analyte	Frequency of Detection <sup>1</sup>	Range of Reporting Limits	Range of Detected Concentrations <sup>2</sup>	Mean of Detected Concentrations <sup>2</sup>	Background Screening Value <sup>4</sup>	Region III RBC <sup>5</sup>	Florida Soil Cleanup Goal <sup>6</sup> Residential	Florida Soil Cleanup Goals <sup>6</sup> Industrial	Exceeds Residential Benchmark (Yes/No)	Exceeds Industrial Benchmark (Yes/No)
<b>Inorganics (mg/kg)</b>										
Arsenic	8/8	NR	0.3 to 2.2	0.92	ND	<sup>7</sup> 0.37	<sup>7</sup> 0.8	<sup>7</sup> 3.7	Yes	No
Barium	6/8	NR	3.5 to 25.7	10	5.6	550	5,200	84,000	No	No
Beryllium	4/8	0.03 to 0.06	0.05* to 0.11	0.09	0.16	0.15	0.2	1.0	No	No
Cadmium	4/8	0.24 to 0.26	0.34 to 1.6	0.94	2.0	3.9	37	600	No	No
Chromium	8/8	NR	1.5 to 17.3	7	2.6	<sup>8</sup> 39	<sup>8</sup> 290	<sup>8</sup> 430	No	No
Cobalt	1/8	0.63 to 0.67	0.85 to 0.85	0.85	ND	470	4,700	110,000	No	No
Copper	3/8	1.15 to 2.8	3.9 to 40.9	24.6	2.2	290	2,900	7,200	No	No
Lead	7/8	0.79 to 0.79	2.2 to 240	77.1	ND	<sup>9</sup> 400	500	1,000	No	No
Nickel	4/8	1.2 to 1.2	1.3 to 9.6	4.8	ND	160	1,500	26,000	No	No
Selenium	2/8	0.10 to 0.11	0.12 to 0.15	0.14	1.36	39	390	9,900	No	No
Vanadium	8/8	NR	2.15* to 8.9	4.9	4	55	490	4,800	No	No
Zinc	8/8	NR	2.9 to 161	43.9	2.6	2,300	23,000	560,000	No	No

See notes at end of table.

**Table 2-8 (Continued)**  
**Preliminary Risk Screening of Surface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
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<sup>1</sup> Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values, "R" qualifier)

<sup>2</sup> Asterisk values are the average of the detected concentrations in a sample and its duplicate. For duplicate samples having one nondetected value, one-half the contract-required quantitation limit is used as a surrogate.

<sup>3</sup> The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U" or "UJ" qualifiers) and rejected ("R" qualifier).

<sup>4</sup> The background screening concentration is twice the average of detected concentrations for inorganic analytes in background samples. Organic values are only one time the mean of detected concentrations and are included for comparison purposes only. Surface soil background samples are MPT-B-SS1, MPT-B-SS1DUP, MPT-B-SS2, MPT-B-SS3, MPT-B-SS4, MPT-B-SS5, and MPT-B-SS6.

<sup>5</sup> For all chemicals except the essential nutrients (calcium, iron, magnesium, potassium, and sodium), U.S. Environmental Protection Agency (USEPA) Region III RBCs for residential surface soil exposure per January 1993 guidance, Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening (USEPA/903/R-93-001) was used for screening. Actual values are taken from the USEPA Region III RBC tables dated February 9, 1995, and are based on a cancer risk of  $10^{-6}$  and for noncarcinogens an adjusted hazard quotient (HQ) of 0.1.

<sup>6</sup> Values are taken from the Florida Department of Environmental Protection memorandum, Soil Cleanup Goals for Florida, dated September 29, 1995. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of  $10^{-6}$  and for noncarcinogens a HQ of 1.

<sup>7</sup> The risk-based concentration is based on carcinogenic effects, value from the FDEP Memorandum, Applicability of Soil Cleanup Goals for Florida, dated January 19, 1996.

<sup>8</sup> Chromium in hexavalent form.

<sup>9</sup> No RBC is available for lead because of the lack of toxicity data. The value provided is based on USEPA's recommended target cleanup level for Superfund sites (USEPA, 1994).

Environmental samples included in this evaluation are 20S00101, 20S00201, 20S00301, 20S00401, 20S00501, 21S00101, 21S00101D, 21S00201, and 21S00301.

- Notes:
- SWMU = solid waste management unit.
  - RBC = risk-based concentration.
  - µg/kg = micrograms per kilogram.
  - ND = analyte not detected in background surface soil sample.
  - PCBs = polychlorinated biphenyls.
  - 4,4'-DDD = dichlorodiphenyldichloroethane
  - 4,4'-DDE = dichlorodiphenyldichloroethene.
  - 4,4'-DDT = dichlorodiphenyltrichloroethane.
  - mg/kg = milligrams per kilogram.
  - NS = no screening concentration.
  - NR = not reported; analyte detected in each sample; reporting limits are same as range of detected concentrations.
  - RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

**Table 2-9  
Preliminary Risk Screening of Subsurface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analyte	Frequency of Detection <sup>1</sup>	Range of Reporting Limits	Range of Detected Concentrations <sup>2</sup>	Mean of Detected Concentrations <sup>3</sup>	Background Screening Value <sup>4</sup>	Region III RBC <sup>5</sup>	FDEP Soil Cleanup Goal <sup>6</sup> Residential	FDEP Soil Cleanup Goal <sup>6</sup> Industrial	Exceeds Residential Benchmark (Yes/No)	Exceeds Industrial Benchmark (Yes/No)
<b>Volatiles (µg/kg)</b>										
2-Butanone	1/6	6 to 12	5	5	ND	4,700,000	2,200,000	15,000,000	No	No
Xylenes (Total)	4/6	6 to 6	1 to 3	1.5	ND	16,000,000	13,000,000	92,000,000	No	No
<b>Semivolatiles (µg/kg)</b>										
Butylbenzylphthalate	1/6	730 to 820	86	86	ND	1,600,000	15,000,000	31,000,000	No	No
<b>Pesticides and PCBs (µg/kg)</b>										
Chlordane	1/6	7.4 to 8.4	31	31	ND	490	800	3,000	No	No
<b>Inorganics (mg/kg)</b>										
Arsenic	6/6	NR	0.49 to 0.77	0.63	0.9	70.37	70.8	73.7	No	No
Barium	6/6	NR	2.5 to 4.6	3.4	5.6	550	5,200	84,000	No	No
Beryllium	1/6	0.07 to 0.07	0.11 to 0.11	0.11	0.16	0.15	0.2	1.0	No	No
Chromium	6/6	NR	0.57 to 1.8	1.3	2.6	39	290	430	No	No
Lead	5/6	0.77 to 0.77	1.4 to 16.4	5.2	ND	400	500	1,000	No	No
Vanadium	6/6	NR	1.2 to 2.8	2	4	55	490	4,800	No	No
Zinc	4/6	2.1 to 2.8	3.8 to 13.2	6.7	2.6	2,300	23,000	560,000	No	No
Cyanide	1/6	0.06 to 0.06	0.14 to 0.14	0.14	2.6	160,000	1,600,000	40,000,000	No	No

See notes at end of table.

**Table 2-9 (Continued)**  
**Preliminary Risk Screening of Subsurface Soil Samples at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

- <sup>1</sup> Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values, "R" qualifier).
- <sup>2</sup> Asterisk values are the average of the detected concentrations in a sample and its duplicate. For duplicate samples having one nondetected value, one-half the contract-required quantitation limit is used as a surrogate.
- <sup>3</sup> The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U" or "UJ" qualifiers) and rejected ("R" qualifier).
- <sup>4</sup> The background screening concentration is twice the average of detected concentrations for inorganic analytes in background samples. Organic values are only one time the mean of detected concentrations and are included for comparison purposes only. Background subsurface soil samples are MPT-B-BS1, MPT-B-BS1DUP, MPT-B-BS4, MPT-B-BS5, and MPT-B-BS6.
- <sup>5</sup> For all chemicals except the essential nutrients (calcium, iron, magnesium, potassium, and sodium), U.S. Environmental Protection Agency (USEPA) Region III RBCs for residential surface soil exposure per January 1993 guidance, Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening (USEPA/903/R-93-001) was used for screening. Actual values are taken from the USEPA Region III RBC tables dated February 9, 1995 and are based on a cancer risk of 10<sup>-6</sup> and for noncarcinogens an adjusted hazard quotient (HQ) of 0.1.
- <sup>6</sup> Values are taken from the FDEP memorandum, Soil Cleanup Goals for Florida, dated September 29, 1995. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of 10<sup>-6</sup> and for noncarcinogens HQ of 1.
- <sup>7</sup> The risk-based concentration is based on carcinogenic effects, value from the FDEP Memorandum, Applicability of Soil Cleanup Goals for Florida, dated January 19, 1996.
- <sup>8</sup> Chromium in hexavalent form.
- <sup>9</sup> No RBC is available for lead because of the lack of toxicity data. The value provided is based on USEPA's recommended target cleanup level for Superfund sites (USEPA, 1994).

Environmental samples included in this evaluation are 20B00105, 20B00205, 20B00205D, 20B00305, 21B00104, 21B00203, and 21B00303.

Notes: SWMU = solid waste management unit.

RBC = risk-based concentration.

FDEP = Florida Department of Environmental Protection.

µg/kg = micrograms per kilogram.

ND = analyte not detected in background subsurface soil sample.

PCBs = polychlorinated biphenyls.

mg/kg = milligrams per kilogram.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

NR = not reported; analyte detected in each sample; reporting limits are same as range of detected concentrations.

**Table 2-10**  
**Indicator Parameters Measured in Groundwater Samples at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analytical Batch Number:	R9977	Secondary Water Quality Criteria <sup>1</sup>							
Sample Location:	MPT-20-MW01S	MPT-20-MW02S	MPT-20-MW03S	MPT-21-MW01S	MPT-21-MW02S	MPT-21-MW03S	MPT-21-MW02S	MPT-21-MW03S	
Sample Number:	20G00101	20G00201	20G00301	21G00101	21G00201	21G00301	21G00201	21G00301	
Date Sampled:	01-JUN-95	03-JUN-95	01-JUN-95	02-JUN-95	02-JUN-95	02-JUN-95	02-JUN-95	02-JUN-95	
<b>Groundwater Quality (mg/l)</b>									
Alkalinity as CaCO <sub>3</sub>	201	221	282	209	198	108			-
Ammonia as N	0.8	0.8	1.1	1	1	-			-
Chloride	14	16.8	22.3	11	16.2	3.66			250,000
Hardness as CaCO <sub>3</sub>	190	257	329	206	194	102			-
Nitrate/nitrite as N	0.14	0.59	0.2	0.2	1.23	0.15			10,000
Phosphorous as P, total	0.39	0.33	0.33	0.18	0.17	-			-
Sulfate	14.4	30.9	80.3	22.2	9.56	8.86			250,000
Sulfide	-	-	1.6	-	-	-			-
Total dissolved solids	292	311	463	283	275	145			500
Total kjeldahl nitrogen	1	1	1.3	1	1.1	-			-
Total organic carbon	7.6	10.3	7.5	6.6	6	3.5			-
<b>Color (standard unite)</b>									
Color	10	40	10	10	10	5			15
<b>pH (unite)</b>									
pH	7.41	7.09	7.55	7.76	7.53	7.89			6.5 to 8.5

<sup>1</sup> Secondary water quality criteria, Chapter 62-550.320, Florida Administrative Code

Notes: SWMU = solid waste management unit.  
 RCRA = Resource Conservation and Recovery Act.  
 RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 S = shallow monitoring well.  
 mg/l = milligrams per liter.  
 CaCO<sub>3</sub> = calcium carbonate.  
 - = analyte not detected.  
 N = porosity.

**Table 2-11**  
**Organic Analytes Detected in Groundwater Samples at SWMUs 20 and 21**

Group III RFA SV Report  
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Analytical Batch Number:	R9977	R9977	R9977
Sample Location:	MPT-20-MW01S	MPT-21-MW01S	MPT-21-MW02S
Sample Number:	20G00101	21G00101	21G00201
Date Sampled:	01-JUN-95	02-JUN-95	02-JUN-95
<b>Volatiles (<math>\mu\text{g}/\text{l}</math>)</b>			
Acetone	-	4 J	4 J
<b>Semivolatiles (<math>\mu\text{g}/\text{l}</math>)</b>			
bis(2-Ethylhexyl) phthalate	2 J	-	-
Notes: SWMU = solid waste management unit. RCRA = Resource Conservation and Recovery Act. RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit. $\mu\text{g}/\text{l}$ = micrograms per liter. - = analyte not detected. J = estimated value.			

**Table 2-12**  
**Inorganic Analytes Detected in Groundwater Samples at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analytical Batch Number:	R9977								
Sample Location:	MPT-20-MW01S	MPT-20-MW02S	MPT-20-MW03S	MPT-20-MW03S	MPT-21-MW01S	MPT-21-MW02S	MPT-21-MW03S	MPT-21-MW02S	MPT-21-MW03S
Sample Number:	20G00101	20G00201	20G00301	20G00301DUP	21G00101	21G00201	21G00301	21G00201	21G00301
Date Sampled:	01-JUN-95	03-JUN-95	01-JUN-95	01-JUN-95	02-JUN-95	02-JUN-95	02-JUN-95	02-JUN-95	02-JUN-95
<b>Inorganics (µg/l)</b>									
Arsenic	--	--	5.4 J	5.5 J	--	--	--	--	--
Barium	9.9 J	13.1 J	28 J	29.8 J	2.9 J	3.2 J	1.8 J	3.2 J	1.8 J
Calcium	61,400	90,800	86,900	89,600	54,900	66,900	38,000	66,900	38,000
Iron	136	1,250	474	477	102	125	54.6 J	125	54.6 J
Magnesium	9,110	5,130	24,500	24,300	16,100	6,130	1,430 J	6,130	1,430 J
Manganese	81.6	107	129	140	47.9	50.5	15.3	50.5	15.3
Nickel	--	--	6 J	6.4 J	--	--	--	--	--
Selenium	--	--	0.91 J	--	--	--	--	--	--
Sodium	17,800	10,400	29,400	27,100	13,100	13,100	5,160	13,100	5,160
Vanadium	4 J	3.6 J	1.8 J	2 J	1.8 J	2.1 J	1.8 J	2.1 J	1.8 J

Notes: SWMU = solid waste management unit.  
 RCRA = Resource Conservation and Recovery Act.  
 RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 DUP = duplicate.  
 µg/l = micrograms per liter.  
 -- = analyte not detected.  
 J = estimated value.

**Table 2-13**  
**Preliminary Risk Screening of Groundwater at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analyte	Frequency of Detection <sup>1</sup>	Range of Reporting Limits	Range of Detected Concentrations <sup>2</sup>	Mean of Detected Concentrations <sup>3</sup>	Background Screening Concentration <sup>4</sup>	Risk Based Screening Concentration <sup>5</sup>	Florida Guidance Concentration <sup>6</sup>	Exceeds Risk Based Concentration (Yes/No)	Exceeds Florida Guidance Concentration (Yes/No)
<b>Volatiles (µg/l)</b>									
Acetone	2/6	10 to 10	4	4	NA (16)	370	700	No	No
<b>Semivolatiles (µg/l)</b>									
bis(2-Ethylhexyl) phthalate	1/6	10 to 10	2	2	NA (6.2)	4.8	6	No	No
<b>Pesticides/PCBs (µg/l)</b>									
No analytes detected									
<b>Inorganics (µg/l)</b>									
Arsenic	1/6	1.2 to 3.4	5.45*	5.45	9.8	°0.038	°50	Yes	No
Barium	6/6	NR	1.8 to 28.9*	10	39	260	2,000	No	No
Calcium	6/6	NR	38,000 to 90,800	66,708	207,466	1,055,398	NA	No	NA
Iron	6/6	NR	54.6 to 1,250	357	1,728	13,267	300	No	Yes
Magnesium	6/6	NR	1,430 to 24,400*	10,383	153,984	118,807	NA	No	NA
Manganese	6/6	NR	15.3 to 134.5	72.8	210	18	50	Yes	Yes
Nickel	1/6	5.7 to 5.7	6.2*	6.2	ND	73	100	No	No
Selenium	1/6	0.25 to 0.5	0.58*	0.58	11.8	18	50	No	No
Sodium	6/6	NR	5,160 to 28,250*	14,635	1,519,016	396,022	NA (160,000)	No	No
Vanadium	6/6	NR	1.8 to 4	2.5	9.2	26	49	No	No

See notes on next page.

**Table 2-13 (Continued)  
Preliminary Risk Screening of Groundwater at SWMUs 20 and 21**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

<sup>1</sup> Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).

<sup>2</sup> Value indicated by asterisk is the average of a sample and its duplicate. For nondetected values, one-half the contract-required quantitation limit or contract-required detection limit is used as a surrogate.

<sup>3</sup> The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U," or "UJ" qualifiers) and rejected ("R" qualifier).

<sup>4</sup> The background screening value is twice the average of detected concentrations for inorganic analytes in background samples.

<sup>5</sup> For all chemicals except the essential nutrients (calcium, iron, magnesium, potassium, and sodium), U.S. Environmental Protection Agency (USEPA) Region III risk based concentrations (RBC) for tap water per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening, EPA/903/R-93-001) was used for screening. Actual values are taken from RBC Table dated February 9, 1995, and are based on a cancer risk of  $10^{-6}$  or an adjusted hazard quotient of 0.1. For the essential nutrients, screening values were derived based on recommended daily allowances.

<sup>6</sup> Florida Department of Environmental Protection Groundwater Guidance Concentrations (June 1994).

<sup>7</sup> Analytes were included or excluded from the risk assessment for the following reasons:

- S = the maximum detected concentration did not exceed the screening concentration and will not be considered further.
- G = the maximum detected concentration did not exceed the Florida cleanup goals and will not be considered further.
- B = the maximum detected concentration did not exceed twice the arithmetic mean of detected concentrations at background locations.
- F = the frequency of detection was less than 5 percent and professional judgment was used to exclude analyte from further study.
- C = the analyte is a member of a chemical class that contains other human health chemicals of potential concern (i.e., carcinogenic polynuclear aromatic hydrocarbons [PAHs]).
- M = the analyte was detected at less than 5 percent and is a human health chemicals of potential concern in more than one media.
- P = the maximum detected concentration did not exceed the USEPA proposed soil screening levels (SSLs), 9355.4-14FS, dated December 1994.

<sup>8</sup> The value is based on arsenic as a carcinogen.

<sup>9</sup> The value is based on chromium hexavalent form.

<sup>10</sup> Treatment technology action limit for drinking water distribution systems per "National Primary Drinking Water Regulations" 40 CFR 141 as amended in 57 FR 41345, August 3, 1993.

<sup>11</sup> The values is based on thallium as thallium sulfate.

Notes: The average of a sample and its duplicate is used for all table calculations.

Samples include: 20G00101, 20G00201, 20G00301, 21G00101, 21G00201, 21G00301.

Duplicate sample includes: 20G00301D.

Background samples include: 01MW001S, 08MW005S, 08MW001R, 08MW001S, 08MW005S, 08MW001R, 08MW001S, 08MW005S, MPT-S-1-1, and S1. (08G00101, 08G00102, 08G00103)

SWMU = solid waste management unit.  
RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 $\mu\text{g/l}$  = micrograms per liter.  
ND = not detected in any background samples.  
NA = not available.  
PCBs = polychlorinated biphenyls.  
NR = not reported; analyte detected in each sample; reporting limits are same as range of detected concentrations.

The target analytes detected in the environmental samples were also compared in Table 2-13 to background screening values computed from statewide background groundwater samples (ABB-ES, 1995a), benchmark values consisting of USEPA Region III RBCs (USEPA, 1995), and Florida groundwater guidance concentrations (FDEP, 1994). The Florida groundwater guidance concentrations consist of promulgated and unpromulgated values. The State of Florida promulgated values are equal or more stringent than Federal primary and secondary drinking water regulations (57FR31777, July 17, 1992). Promulgated values that are exceeded will be identified in the text.

Each of the benchmark criteria provided in Table 2-13 are human health-based and represent the lower of either a noncarcinogenic HI of 1 or a lifetime excess cancer risk of  $1 \times 10^{-6}$ . Benchmark values for a noncarcinogenic HI of 1 or less represent a concentration where noncarcinogenic effects are not likely. A benchmark value for a lifetime excess cancer risk of  $1 \times 10^{-6}$  represents a chance of 1 in 1,000,000 for an adverse carcinogenic effect for a continuous lifetime exposure.

Indicator Parameter Results. Results of indicator parameters for the shallow groundwater beneath SWMUs 20 and 21 were compared to the State of Florida secondary water quality criteria (Chapter 62-550.320, FAC). Only one parameter exceeds the water quality criteria. The State of Florida secondary water quality criterion for color (15 American Public Health Association [APHA]) was exceeded in the groundwater sample collected from monitoring well MPT-20-MW02S (40 APHA). Values determined for hardness, expressed as  $\text{CaCO}_3$ , suggest that the groundwater would be considered hard (greater than 180 milligrams per liter [mg/l]; Durfor and Becker, 1964).

Analytical Results. One VOC (acetone) and one SVOC (bis(2-ethylhexyl)phthalate) were detected in the groundwater samples from monitoring wells at SWMUs 20 and 21. No pesticides or PCBs were detected in the groundwater samples from SWMUs 20 and 21. Ten inorganic analytes were detected in the groundwater samples. Inorganic analytes detected include arsenic, barium, calcium, iron, magnesium, manganese, nickel, selenium, sodium, and vanadium. The inorganic groundwater samples were not filtered and represent total concentrations.

2.4 PRELIMINARY RISK EVALUATION. The Federal National Oil and Hazardous Substance Pollution Contingency Plan (NCP), Final Rule, (40 CFR, Part 300) states that for carcinogens a lifetime excess cancer risk in the range of  $1 \times 10^{-4}$  (a chance of 1 in 10,000 for an adverse carcinogenic effect for a continuous lifetime exposure) to  $1 \times 10^{-6}$  represents concentrations that are considered by USEPA to be protective of human health.

FDEP uses  $1 \times 10^{-6}$  as a risk management goal to evaluate whether or not contaminants at a site are present at concentrations that are protective of human health. The FDEP soil cleanup goals are intended to be used only as goals for the cleanup decisions in corrective actions and should not be used as rule, standards, or to deny or approve permits (FDEP, 1996).

Calculations for Total Cancer Risk values are provided in Tables 2-14 and 2-15 for surface and subsurface soil samples, respectively, taken at SWMUs 20 and 21. Surface and subsurface soil concentrations were compared to an aggregate residential exposure (child and adult) for USEPA Region III RBCs. The default

**Table 2-14  
Estimated Human Health Risk Based on Maximum Values for  
Surface Soil at SWMUs 20 and 21**

Group III RFA SV Report  
U.S. Naval Station  
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Analyte	Maximum Detected Concentration <sup>1</sup>	Residential Exposure				Industrial Exposure	
		USEPA Region III RBC <sup>2</sup>	Estimated Residential Cancer Risk <sup>3</sup>	FDEP Soil Cleanup Goal <sup>4</sup>	Estimated Residential Cancer Risk <sup>3</sup>	FDEP Soil Cleanup Goal <sup>4</sup>	Estimated Industrial Cancer Risk <sup>3</sup>
<b>Volatiles (µg/kg)</b>							
No analytes exceeded screening criteria							
<b>Semivolatiles (µg/kg)</b>							
Benzo(a)pyrene	280	88	3.2E-6	100	2.8E-6	500	5.6E-7
<b>Pesticides and PCBs (µg/kg)</b>							
No analytes exceeded screening criteria							
<b>Inorganics (mg/kg)</b>							
Arsenic	2.2	0.37	5.9E-6	0.8	2.7E-6	3.7	6.0E-7
Total Cancer Risk			9.1E-6		5.5E-6		1.1E-6

<sup>1</sup> The maximum value is from Table 2-8, and represents either the maximum value detected for an analyte in an environmental sample or if marked with an asterisk "\*" is the average for an environmental sample and associated duplicate (one-half the contract required quantitation limit is used as a surrogate for nondetects, "U" or "UJ" qualified samples for environmental samples and duplicate pairs).

<sup>2</sup> USEPA Region III RBCs for residential surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening USEPA/903/R-93-001) used for screening. Actual values are taken from the USEPA Region III RBC tables dated February 9, 1995, and are based on a cancer risk of 10<sup>-6</sup>.

<sup>3</sup> The cancer risk is an estimated value based on the assumptions used to determine the human health-based risk values.

<sup>4</sup> Values are taken from the FDEP memorandum, Soil Cleanup Goals for Florida, dated September 29, 1995 and January 19, 1996. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of 10<sup>-6</sup>.

Notes: SWMU = solid waste management unit.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

USEPA = U.S. Environmental Protection Agency.

RBC = risk-based concentration.

FDEP = Florida Department of Environmental Protection.

µg/kg = micrograms per kilogram.

PCB = polychlorinated biphenyl.

mg/kg = milligrams per kilogram.

**Table 2-15**  
**Estimated Human Health Risk Based on Maximum Values for**  
**Subsurface Soil at SWMUs 20 and 21**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analyte	Maximum Detected Concentration <sup>1</sup>	Industrial Exposure			
		USEPA Region III RBC <sup>2</sup>	Estimated Industrial Cancer Risk <sup>3</sup>	FDEP Soil Cleanup Goal <sup>4</sup>	Estimated Industrial Cancer Risk <sup>3</sup>
<b>Volatiles (µg/kg)</b>					
No analytes exceeded screening criteria					
<b>Semivolatiles (µg/kg)</b>					
No analytes exceeded screening criteria					
<b>Pesticides and PCBs (µg/kg)</b>					
No analytes exceeded screening criteria					
<b>Inorganics (mg/kg)</b>					
Arsenic	0.77	3.3	2.3E-7	3.7	2.1E-7
Total Cancer Risk			2.3E-7		2.1E-7

<sup>1</sup> The maximum value is from Table 2-9, and represents either the maximum value detected for an analyte in an environmental sample or if marked with an asterisk "\*" is the average for an environmental sample and associated duplicate (one-half the contractor-required quantitation limit is used as a surrogate for nondetects, "U" or "UJ" qualified samples for environmental samples and duplicate pairs).

<sup>2</sup> USEPA Region III RBCs for industrial surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening, (USEPA/903/R-93-001) was used for screening. Actual values are taken from the USEPA Region III RBC tables dated February 9, 1995, and are based on a cancer risk of 10<sup>-6</sup>.

<sup>3</sup> The cancer risk is an estimated value based on the assumptions used to determine the human health-based risk values.

<sup>4</sup> Values are taken from the FDEP memorandum, Soil Cleanup Goals for Florida, dated September 29, 1995 and January 19, 1996. The values are for an industrial worker soil exposure and are based on a cancer risk of 10<sup>-5</sup>.

Notes: SWMU = solid waste management unit.  
 RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 USEPA = U.S. Environmental Protection Agency.  
 RBC = risk-based concentration.  
 FDEP = Florida Department of Environmental Protection.  
 µg/kg = micrograms per kilogram.  
 mg/kg = milligrams per kilogram.  
 PCB = polychlorinated biphenyl.

assumptions used in estimating risk-based benchmark concentrations may not be representative and likely to overstate the specific exposure present at the site (i.e., underestimate the concentration that would result in a lifetime excess cancer risk of  $1 \times 10^{-6}$ ). The following presents an assessment of target analytes detected in surface and subsurface soil and groundwater samples that exceed benchmarks.

**2.4.1 Surface Soil** None of the VOCs or pesticides detected in the surface soil samples exceed the benchmark values (Table 2-8). One SVOC (benzo(a)pyrene) and one inorganic analyte (arsenic) were detected in surface soil samples at concentrations that exceed residential benchmark values, which are based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$ .

Two of the eight surface soil samples (MPT-20-MW03S and MPT-20-SS05 [Figure 2-2]) contained benzo(a)pyrene at concentrations that exceed the USEPA Region III RBC (88 micrograms per kilogram [ $\mu\text{g}/\text{kg}$ ]), and one of the eight surface soil samples (MPT-20-MW03S) contained benzo(a)pyrene at a concentration (280  $\mu\text{g}/\text{kg}$ ) that exceeds the FDEP residential soil cleanup goal (100  $\mu\text{g}/\text{kg}$ ). None of the samples contained these chemicals at concentrations that exceed their respective FDEP industrial soil cleanup goal.

Six of the eight surface soil samples contained arsenic at concentrations that exceed the USEPA Region III RBC (0.37 milligrams per kilogram [ $\text{mg}/\text{kg}$ ]), and five of the samples contained arsenic at concentrations that exceed the FDEP residential soil cleanup goal (0.8  $\text{mg}/\text{kg}$ ). The difference between the USEPA and FDEP residential benchmark values is a result of variations in assumptions used in the computations. Arsenic was not detected in background surface soil samples. None of the samples contained arsenic at concentrations that exceed the FDEP industrial soil cleanup goal (0.37  $\mu\text{g}/\text{kg}$ ).

The excess lifetime carcinogenic human health risk (surface soil) was estimated for analytes that exceeded the benchmarks (benzo(a)pyrene and arsenic) by comparison of the maximum detected value (Table 2-8) with the estimated  $1 \times 10^{-6}$  cancer risk values from the USEPA Region III RBCs (residential exposure) and the FDEP soil cleanup goals (residential and industrial exposure) (Table 2-14). This assessment suggests that hypothetical residential and industrial exposures are likely to be within the risk management range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  that is acceptable to the USEPA.

The assessment also suggests that the hypothetical residential exposure is greater than the FDEP risk management goal of  $1 \times 10^{-6}$ ; however, the hypothetical industrial exposure is likely to be at or slightly above the goal.

**2.4.2 Subsurface Soil** None of the organic analytes detected in the subsurface soil samples exceed either their respective residential or industrial benchmark values (Table 2-9). Only one inorganic analyte, arsenic, was detected in subsurface soil samples at concentrations that approached but did not exceed residential benchmark values. None of the subsurface soil samples contained arsenic at concentrations that exceed the background screening value (Table 2-9).

Each of the six subsurface soil samples contained arsenic at concentrations that exceed the USEPA Region III RBC (0.37  $\text{mg}/\text{kg}$ ), and one of the six samples contained concentrations that approached but did not exceed the FDEP residential soil cleanup goal (0.8  $\text{mg}/\text{kg}$ ). None of the samples contained arsenic at concentrations

that exceed the FDEP industrial soil cleanup goal (3.7 mg/kg) or that exceeds the background screening value (0.9 mg/kg). The background screening value for arsenic exceeds the USEPA Region III RBC and the FDEP residential soil cleanup goal, but not the industrial cleanup goal.

The excess lifetime carcinogenic human health risk (subsurface soil) was estimated for arsenic by comparison of the maximum detected value (Table 2-9) with the estimated  $1 \times 10^{-6}$  cancer risk values from the USEPA Region III RBCs (industrial exposure) and the FDEP soil cleanup goals (industrial exposure) (Table 2-15). This assessment suggests that hypothetical industrial exposures are likely to be within the risk management range that is acceptable to the USEPA. The FDEP risk management goal of  $1 \times 10^{-6}$  was not exceeded by the estimated cancer risk of  $2.1 \times 10^{-7}$ .

**2.4.3 Groundwater** None of the organic analytes detected in groundwater samples collected from SWMU 20 and 21 monitoring wells exceed the benchmark values (Table 2-13). However, three inorganic analytes (arsenic, iron, and manganese) exceed benchmark values.

Arsenic was detected as a single occurrence at a concentration (5.45 micrograms per liter [ $\mu\text{g}/\text{l}$ ]) that exceeds the USEPA Region III RBC ( $0.038 \mu\text{g}/\text{l}$ ), but was less than the Florida guidance concentration ( $50 \mu\text{g}/\text{l}$ ), which is a Federal- and State-promulgated standard. The detected concentration is also less than the background screening value for arsenic of  $9.8 \mu\text{g}/\text{l}$  (ABB-ES, 1995a).

Iron was detected in two of the six groundwater samples at concentrations that exceed the Florida guidance concentration ( $300 \mu\text{g}/\text{l}$ ). However, the concentration of iron is less than the essential nutrient screening concentration ( $13,267 \mu\text{g}/\text{l}$ ) that is protective to the majority of exposed populations (See Appendix D-2 of the NAVSTA Mayport GIR). The detected concentration is also less than the background screening value for iron of  $1,728 \mu\text{g}/\text{l}$  (ABB-ES, 1995a).

Manganese was detected in five of the six groundwater samples at concentrations that exceed the USEPA Region III RBC ( $18 \mu\text{g}/\text{l}$ ) and in four of the six samples at concentrations that exceed the Florida guidance concentration ( $50 \mu\text{g}/\text{l}$ ). The detected concentration is also less than the background screening value for manganese of  $210 \mu\text{g}/\text{l}$  (ABB-ES, 1995a).

Based on the detection of arsenic, iron, and manganese at concentrations less than their respective background screening concentrations, it is likely that the concentrations detected are related to natural and/or anthropogenic conditions and not a release from the SWMUs.

**2.5 CONCLUSIONS AND RECOMMENDATIONS.** The following subsections present conclusions and recommendations derived from the review and interpretation of the data collected during the field investigation.

**2.5.1 Conclusions** It should be noted that the conditions identified in 1989 during the RFA were not observed during the site visit on May 5, 1994, because the site was renovated in 1991. Soil and groundwater sampling was conducted as recommended in the RFA to address past and current concerns. It should be noted that the current site conditions may not reflect the past activities because soil may have been removed during the 1991 construction, and the site has been paved

with concrete. It could not be determined from a visual observation of the soil samples whether or not the base course material beneath the existing concrete surface was new or was the material present at the time of the RFA in 1989. The following presents conclusions made from an assessment of the surface and subsurface soil and groundwater samples collected at SWMUs 20 and 21.

Surface Soil. Concentrations of 4 VOCs, 12 SVOCs, 4 pesticides, and 12 metals were detected in the surface soil samples (Tables 2-4 and 2-5). The detected concentrations of VOCs and pesticides do not exceed any of the human health-based risk screening values and, therefore, do not warrant additional investigation at this time (Table 2-8). One SVOC (benzo(a)pyrene) and one inorganic analyte (arsenic) were detected in surface soil samples at concentrations that exceed residential benchmark values, which are based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$ . However, none of the samples contained these chemicals at concentrations that exceed their respective FDEP industrial soil cleanup goal.

The assessment of lifetime excess cancer risk suggests that the hypothetical residential exposure to benzo(a)pyrene and arsenic is within the risk range accepted by USEPA ( $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ), but is greater than the FDEP risk management goal of  $1 \times 10^{-6}$  (Table 2-14). However, the hypothetical industrial exposure for these two chemicals is likely to be at or slightly above the FDEP goal.

Subsurface Soil. Concentrations of two VOCs, one SVOC, one pesticide and eight metals were detected in the subsurface soil samples (Tables 2-6 and 2-7). None of the organic analytes detected in the subsurface soil samples exceed either their respective residential or industrial benchmark values (Table 2-9) and, therefore, do not warrant additional investigation at this time. One inorganic analyte (arsenic) was detected in subsurface soil sample at a concentration that approached but did not exceed the residential benchmark value, which is based on a lifetime excess cancer risk of  $1 \times 10^{-6}$ . None of the samples contained arsenic at concentrations that exceed the FDEP industrial soil cleanup goal.

This assessment of lifetime excess cancer risk suggests that hypothetical residential and industrial exposures are likely to be at or less than the risk management range that is acceptable to the USEPA and FDEP risk management goal (Table 2-15).

It should be noted that because the land features at NAVSTA Mayport are a result of the deposition of dredge material from the Mayport Turning Basin, it cannot be determined whether the concentrations of arsenic detected in the surface and subsurface soil samples are related to a release at SWMUs 20 and 21 or are residual concentrations from the dredge material.

Based on the evaluation of the surface and subsurface soil analytical results to residential and industrial exposure scenarios, and the assumption that industrial use of SWMUs 20 and 21 will not change in the foreseeable future, additional investigation does not appear to be warranted at this time.

Groundwater. Target analytes detected in the groundwater samples collected from SWMUs 20 and 21 consist of 1 VOC, 1 SVOC, and 10 inorganics (Tables 2-13 and 2-14). Pesticides, PCBs, and cyanide were not detected in the groundwater samples. Organic chemicals that were detected in the soil samples were not detected in the groundwater samples collected from SWMUs 20 and 21.

Neither of the organic analytes detected in the SWMU 20 and 21 groundwater samples exceed their respective benchmark values (Table 2-13). However, three of the inorganic analytes (arsenic, iron, and manganese) were detected at concentrations that exceed benchmark values.

Based on the detection of arsenic, iron, and manganese at concentrations less than their respective background screening concentrations it is likely that the concentrations detected are related to natural and/or anthropogenic conditions and not a release from the SWMUs. Additionally, the surficial aquifer is not currently being used as a drinking water source; therefore, additional investigation does not appear to be warranted at this time.

2.5.2 Recommendations Based on industrial exposure scenarios, SWMUs 20 and 21 are recommended for no further investigation at this time. Because chemicals are likely present at the SWMUs at concentrations exceeding human health based residential criteria; use of the site should be restricted to industrial, and groundwater from the surficial aquifer should not be used as a potable water source. This recommendation is based on the analytical results of surface soil, subsurface soil, and groundwater samples collected for this assessment and on comparison to human health-based benchmarks. Under current use, the industrial exposure scenario will not likely change in the foreseeable future; therefore, the recommendation and assumptions are considered to be consistent with FDEP's risk management goal and the risk range accepted by the USEPA. However, the recommendation should be reevaluated if use of the site changes in the future. The following rationale supports this recommendation:

#### Surface and Subsurface Soil.

- The concentrations of VOCs and pesticides detected in surface soils do not exceed any of the human health-based risk screening values.
- One SVOC (benzo(a)pyrene) and one inorganic analyte (arsenic) were detected in surface soil samples at concentrations that exceed residential benchmark values, which are based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$ . However, none of the samples contained these chemicals at concentrations that exceed their respective FDEP industrial soil cleanup goal.
- The hypothetical residential exposure to benzo(a)pyrene and arsenic in surface soil is within the risk range accepted by USEPA ( $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ), but is greater than the FDEP risk management goal of  $1 \times 10^{-6}$ . However, the hypothetical industrial exposure for these two chemicals is likely to be at or slightly above the FDEP goal.
- VOCs, SVOCs, and pesticides were not detected in the subsurface soil samples at concentrations that exceed the human health-based screening criteria for residential and industrial exposure scenarios.
- One inorganic analyte (arsenic) was detected in a subsurface soil sample at concentrations that approach but do not exceed FDEP residential benchmark values, which are based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$ . None of the samples contained arsenic at concentrations that exceed the FDEP industrial soil cleanup goal. Additionally, none

of the subsurface soil samples contained arsenic at concentrations that exceed the background screening value.

- The hypothetical industrial exposure to arsenic in subsurface soil is likely less than the risk management range that is acceptable to the USEPA and the FDEP risk management goal.
- Noncarcinogenic risks were not identified for surface or subsurface soil by comparison of the analytical data to the risk-based screening values for residential and industrial exposure scenarios.
- Arsenic detected in the surface and subsurface soil samples is likely related to the deposition of dredge spoil material and may not represent disposal of hazardous materials.

#### Groundwater.

- Pesticides, PCBs, and cyanide were not detected in the groundwater samples collected from the SWMUs 20 and 21 monitoring wells.
- Organic chemicals that were detected in the soil samples were not detected in the groundwater samples collected from SWMUs 20 and 21.
- The VOC (acetone) and the SVOC (bis(2-ethylhexyl)phthalate) detected in SWMUs 20 and 21 groundwater samples do not exceed the human health-based benchmark values.
- Three of the inorganic analytes (arsenic, iron, and manganese) were detected at concentrations that exceed benchmark values. However, these three analytes were detected at concentrations less than their respective background screening concentrations. Therefore, it is likely that the concentrations detected are related to natural and/or anthropogenic conditions and not a release from the SWMUs.
- The surficial aquifer is not currently being used as a drinking water source.

### 3.0 SWMU 52, PWD SERVICE STATION STORAGE AREA

3.1 SITE DESCRIPTION AND BACKGROUND. The PWD service station is located at Building 25, which is west of the destroyer berthing pier (Figure 3-1). The PWD Service Station Storage Area is located on and adjacent to a concrete slab that is 30 feet long and 20 feet wide and is situated along the northeast wall of the building. There is a drain in the concrete slab that discharges to a nearby oil-water separator.

The RFA report (A.T. Kearney, Inc., 1989) identified items of potential concern located in the area of the concrete pad at the rear of Building 25. These items included 55-gallon drums, a bowser, and a drain leading to an oil-water separator.

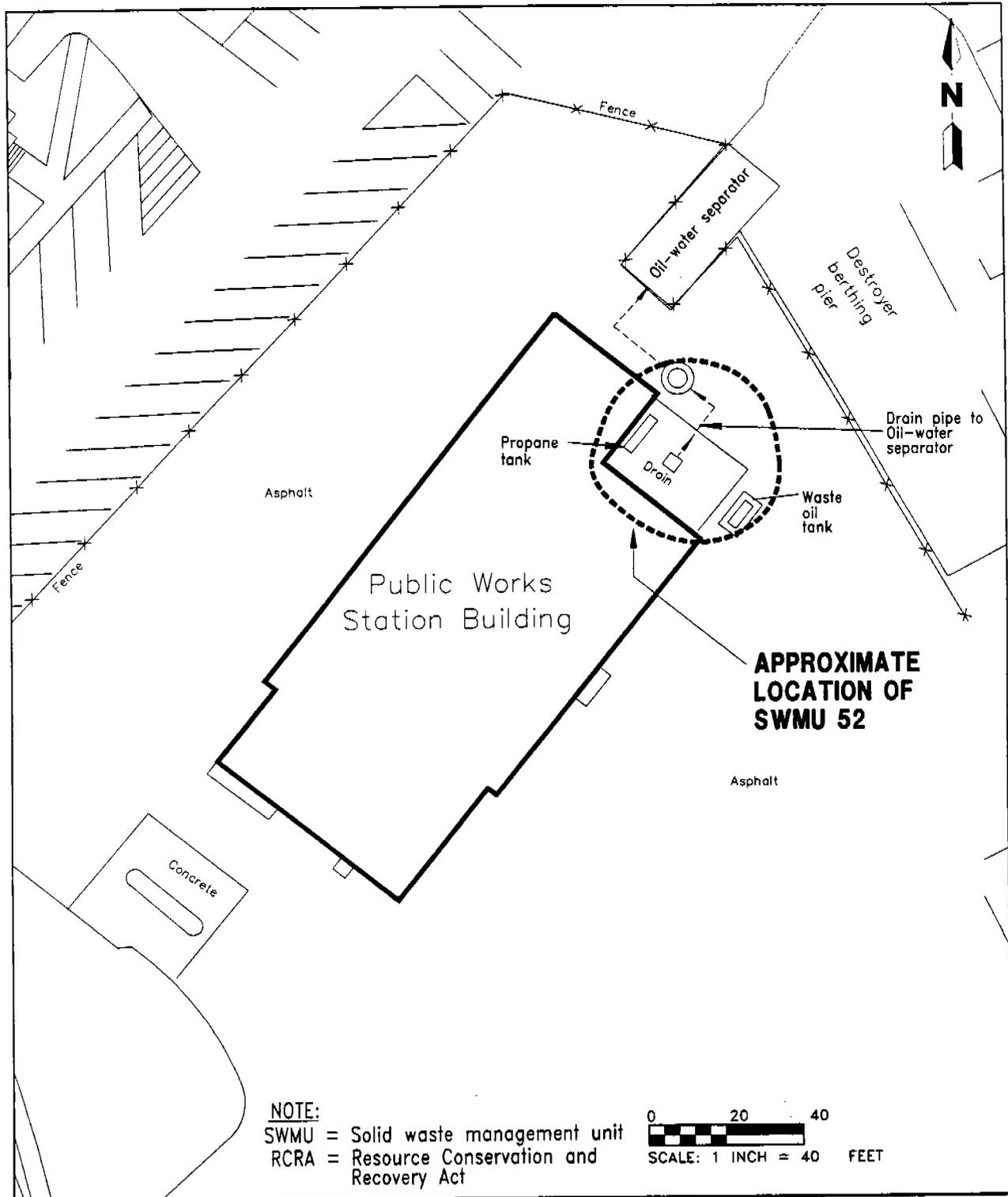
At the time of the VSI in 1989, there were at least four 55-gallon drums stored on the concrete slab. Facility personnel indicated that one drum contained window washing solution, one contained coolant, and one contained waste oil. Another drum had an open bung and appeared to be one quarter full of an oily substance. A waste oil bowser of approximately 300-gallon capacity was located on the asphalt just off the northeast edge of the concrete slab. The bowser was reported to be emptied periodically and the oil taken offsite to be recycled. Dark stains were noted on the asphalt beneath the waste oil bowser.

Additional investigation appeared warranted for SWMU 52 based on the highly permeable soil in the site area, the proximity to Mayport Turning Basin, and the evidence of a release (staining of the asphalt) noted during the VSI. It was suggested in the RFA report that soil samples should be collected in the area of the stained asphalt and that the samples should be analyzed for VOCs, SVOCs, and metals. This sampling was to allow an assessment of the nature and extent of the potential release of hazardous constituents.

During the site visit by ABB-ES personnel on May 5, 1994, the site generally appeared as described in the 1989 RFA. However, no drums were present on the pad and in place of the bowser was a small tank (approximately 250 gallons) within a metal containment tub. The tank has metal skids that keep it above the pavement. No staining of the pavement in the area of the tank was observed. A small pipe protrudes from the building wall above the concrete pad. This pipe discharges condensate from an air compressor in the building. Any condensate would ultimately flow into the drain and be processed through the oil-water separator. The oil in the separator is periodically collected for recycling, and oil-water from the effluent flows into the sanitary sewer system.

3.2 RFA SV FIELD INVESTIGATIONS. RFA SV field investigations at SWMU 52 included the following activities: (1) collecting a surface and subsurface soil sample; (2) installing a monitoring well; (3) collecting a groundwater sample; and (4) submitting these samples for laboratory analysis. Drilling and soil sampling was conducted on May 5, 1995. Groundwater sampling was conducted on June 3, 1995.

Soil and groundwater sampling was conducted to assess whether or not hazardous constituents have been released at the site and obtain a sufficient number of samples to evaluate potential exposure pathways and conduct a preliminary risk screening. Risks to ecological receptors were not considered because the sites are paved; therefore, there are no ecological receptor pathways. Based on the



**FIGURE 3-1**  
**SWMU 52 SITE MAP,**  
**PUBLIC WORKS DEPARTMENT**  
**SERVICE STATION STORAGE AREA**



**RCRA FACILITY ASSESSMENT**  
**SAMPLING VISIT REPORT,**  
**GROUP III SWMUs**

**U.S. NAVAL STATION**  
**MAYPORT, FLORIDA**

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recommendations in the RFA report, a monitoring well was installed and soil and groundwater sampling was conducted in the vicinity of the concrete pad, drain, oil tank, and oil-water separator to assess if releases of hazardous constituents have occurred at SWMU 52. The RFA SV sampling and analysis objectives (confirmatory sampling) did not include characterization of the horizontal and vertical extent of contaminants.

The following sections present a description of the RFA SV field investigations at SWMU 52. The location of the SWMU 52 soil samples and monitoring well where the groundwater sample was collected is shown on Figure 3-2.

**3.2.1 Soil Sample Collection Procedure** Surface and subsurface soil sampling was accomplished as described in the NAVSTA Mayport RFI workplan (ABB-ES, 1991) and Subsection 2.1.2, Soil Sampling, of the NAVSTA Mayport GIR (ABB-ES, 1995a).

One surface soil sample (0 to 1 foot beneath the existing asphalt surfacing) and one subsurface soil sample (3 to 4 feet bls) were collected during the drilling of the boring to install monitoring well MPT-52-MW01S.

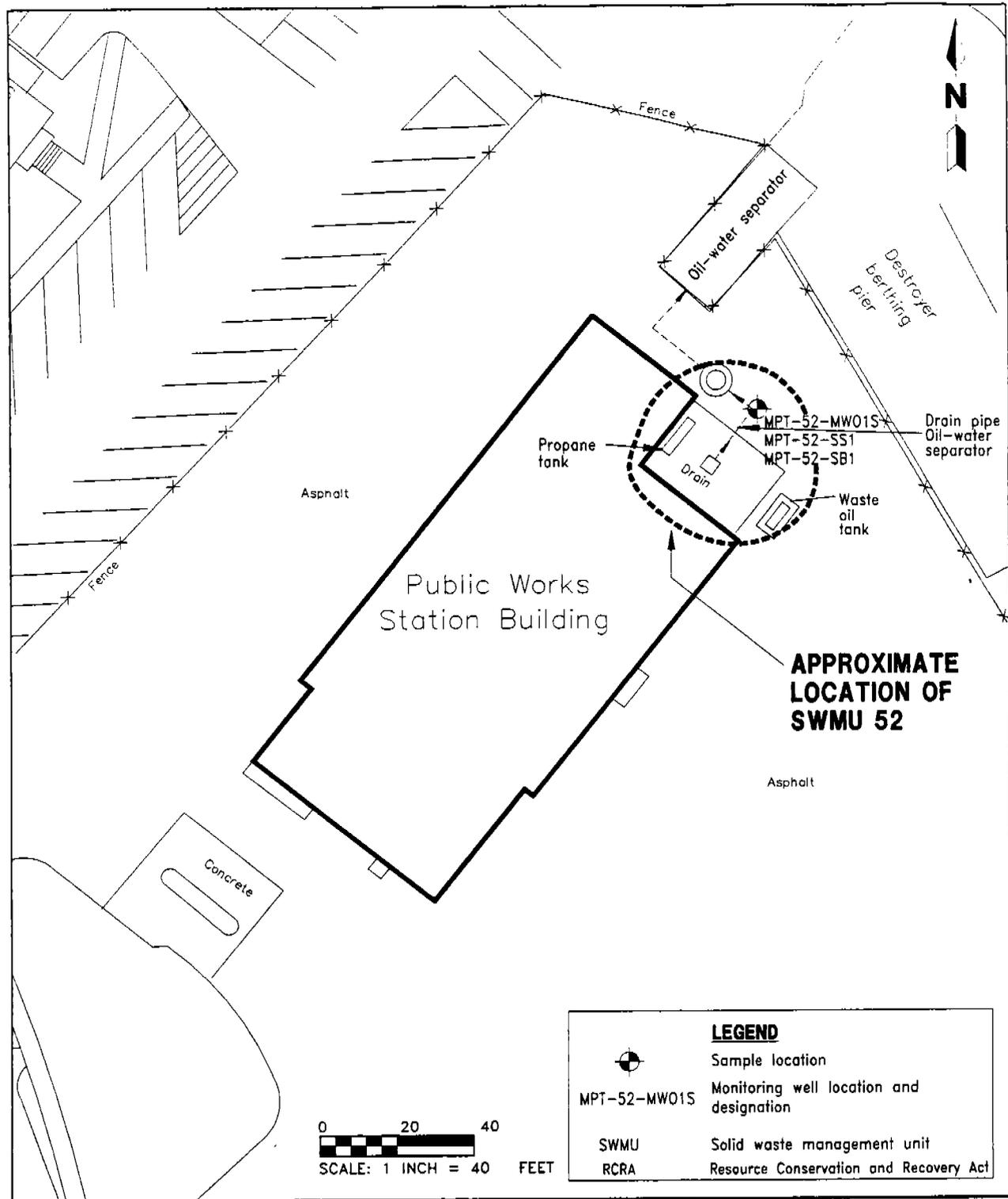
**3.2.2 Monitoring Well Installation Procedure** Drilling and well installation was accomplished as described in the NAVSTA Mayport RFI workplan (ABB-ES, 1991) and Subsection 2.1.1, Monitoring Well and Piezometer Installation, of the NAVSTA Mayport GIR (ABB-ES, 1995a).

One monitoring well (MPT-52-MW01S) was installed in the water table zone of the surficial aquifer (well screen interval 3 to 13 feet bls). This location was selected to assess whether or not a release has occurred to surface soil (beneath the pavement), subsurface soil, and groundwater in the immediate area of the SWMU. A groundwater sample was collected from the monitoring well.

**3.2.3 Groundwater Sampling** In general, groundwater sampling was accomplished as described in Subsection 2.1.4, Groundwater Sampling, of the NAVSTA Mayport GIR (ABB-ES, 1995a).

The groundwater sample collection method used was low-flow sampling. This groundwater sampling procedure is a modification of previous sampling methods; however, it closely resembles a method used by USEPA (USEPA, 1996). Prior to groundwater sample collection, the monitoring well was slowly purged using a peristaltic pump to remove stagnant water without causing the resuspension of silts and clays. Turbidity, temperature, pH, and conductivity were measured during purging to ensure good conductance between the well and the surrounding matrix. The monitoring well was purged until temperature, conductivity, and pH had stabilized and at least three well volumes of water were removed. Also, purging continued until a turbidity of 5 NTUs or less was achieved.

Except for VOCs, the groundwater sample was collected using a peristaltic pump and disposable Teflon™ tubing. The sample was collected before the material came in contact with the pump. VOCs were collected last. The sampler prevented agitation of the water in the monitoring well by slowly pulling the remaining length of Teflon™ tubing (which contained the groundwater sample) out of the well. The tubing contents were then carefully transferred to a VOC vial for shipment to the laboratory.



**FIGURE 3-2**  
**SOIL AND GROUNDWATER**  
**SAMPLING LOCATION AT SWMU 52**



**RCRA FACILITY ASSESSMENT**  
**SAMPLING VISIT REPORT,**  
**GROUP III SWMUs**

**U.S. NAVAL STATION**  
**MAYPORT, FLORIDA**

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3.2.4 Laboratory Analysis Soil and groundwater samples were analyzed for target analytes selected from the Groundwater Monitoring List contained in Appendix IX, 40 CFR, Part 264, and USEPA Contract Laboratory program target compound list and target analyte list, including VOCs, SVOCs, pesticides, PCBs, metals, and cyanide. The analysis was conducted using methods contained in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, USEPA SW846 (USEPA, 1986). A list of the target analytes is presented in Tables 2-2 through 2-5 of the NAVSTA Mayport GIR (ABB-ES, 1995a). Analytical results of the 1995 sampling events are provided in Appendix B.

3.2.5 Data Review Data validation is the technical review of individual analytical results relative to the following criteria:

- DQOs and the QAPP in the NAVSTA Mayport RFI workplan (ABB-ES, 1991)
- NEESA guidance document 20.2-047B, Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Program (NEESA, 1988)
- Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses (USEPA, 1988)
- National Functional Guidelines for Organic Data Review (USEPA, 1990)

The data validation process is described in Section 2.3 of the NAVSTA Mayport GIR (ABB-ES, 1995a).

After the data were reviewed and validated, they were evaluated using the PARCC criteria (PARCC) specified in the DQOs. PARCC criteria are described in Section 2.3 of the NAVSTA Mayport GIR (ABB-ES, 1995a). The evaluation of the data according to the PARCC criteria is presented as Appendix C.

3.3 FINDINGS. The following presents a brief description of the results of the RFA SV sampling activities at SWMU 52. The findings include site geologic and hydrogeologic conditions and analytical results from surface and subsurface soil samples and groundwater samples.

3.3.1 Site Geology One soil boring was drilled at SWMU 52 for collecting soil samples and installing a shallow monitoring well, MPT-52-MW01S (screened across the water table). The boring log for this monitoring well is presented in Appendix A, Boring Logs.

Subsurface soil encountered during installation of the monitoring well at SWMU 52 consisted of fine sand from the surface to the explored depth of 13.2 feet bls.

3.3.2 Site Hydrogeology The groundwater level at the SWMU 52 monitoring well was measured on July 19, 1995. The depth to the groundwater at monitoring well MPT-52-MW01S was measured relative to a notch or mark on the north side of the monitoring well which had been surveyed to the NGVD of 1929 (commonly referred to as msl). The depth to groundwater measured at MPT-52-MW01S was 3.68 feet from the top of the well casing, which equates to a water surface elevation of 3.80 feet relative to msl. Because a single monitoring well was installed at this location, a potentiometric surface map could not be prepared.

The *in situ* radial hydraulic conductivity value for the monitoring well at SWMU 52 is approximately 6.8 feet per day. Because only one monitoring well was installed, no site-specific information on hydraulic gradient is available; therefore, an approximation of the horizontal linear velocity of groundwater flow in the water table zone of the surficial aquifer for SWMU 52 was not calculated.

**3.3.3 Surface and Subsurface Soil Analytical Results** Tables 3-1 and 3-2 summarize the validated analytical results for organic and inorganic target analytes, respectively, detected in surface soil samples. Tables 3-3 and 3-4 summarize the validated analytical results for organic and inorganic target analytes, respectively, detected in the subsurface soil samples. A summary of frequencies of detection, range of detection limits, range of detected concentrations, and arithmetic mean and benchmark comparison values are provided in Tables 3-5 and 3-6 for surface and subsurface soil samples, respectively. Complete analytical results are included in Appendix A.

The target analytes detected in the environmental samples were compared to background screening values computed from stationwide surface and subsurface soil samples (ABB-ES, 1995a), benchmark values from USEPA Region III risk-based concentrations (USEPA, 1995), and the State of Florida cleanup goals (residential and industrial) (FDEP, 1995).

Each of the benchmark criteria provided in Tables 3-5 and 3-6 are human health-based and represent the lower of either: (1) a noncarcinogenic HI where values of less than 1 represent a concentration at which noncarcinogenic effects are not likely or (2) a lifetime excess cancer risk of  $1 \times 10^{-6}$ , which represents a chance of 1 in 1,000,000 for an adverse carcinogenic effect for a continuous lifetime exposure. The concentrations listed for the USEPA Region III RBCs correspond to an HI of 0.1, whereas the State of Florida cleanup goals are based on an HI of 1. The Federal NCP, Final Rule, (40 CFR, Part 300) states that for carcinogens a lifetime excess cancer risk in the range of  $1 \times 10^{-4}$  (a chance of 1 in 10,000 for an adverse carcinogenic effect for a continuous lifetime exposure) to  $1 \times 10^{-6}$  represents concentrations that are considered by USEPA to be protective of human health.

One surface and subsurface soil sample pair was collected from the monitoring well installed at SWMU 52. The following presents a description of the analytes detected in the surface and subsurface soil sample pair.

**Surface Soil.** One VOC (xylene), nine SVOCs (fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene), two pesticides (4,4'-DDE and 4,4'-DDT), and six inorganic analytes (arsenic, barium, chromium, lead, vanadium, and zinc) were detected in the surface soil sample (Table 3-1 and 3-2).

**Subsurface Soil.** Two VOCs (2-butanone and xylene), two pesticides (4,4'-DDE and 4,4'-DDT), and five inorganic analytes (arsenic, barium, beryllium, chromium, and vanadium) were detected in subsurface soil samples (Tables 3-3 and 3-4). No SVOCs were detected in the subsurface soil samples.

**3.3.4 Groundwater Analytical Results** A summary of indicator parameters for groundwater is provided in Table 3-7. Table 3-8 summarizes the validated analytical results for inorganic target analytes detected in groundwater samples collected at SWMU 52. A summary of frequencies of detection, range of detection

**Table 3-1  
Organic Analytes Detected in a Surface Soil Sample at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analytical Batch Number:	R9866
Sample Location:	MPT-52-MW01S
Sample Number:	52S00101
Date Sampled:	05-MAY-95
Sample Depth:	0 to 1
<b><u>Volatiles (µg/kg)</u></b>	
Xylenes (total)	8
<b><u>Semivolatiles (µg/kg)</u></b>	
Fluoranthene	150 J
Pyrene	110 J
Benzo (a) anthracene	87 J
Chrysene	130 J
Benzo (b) fluoranthene	140 J
Benzo (k) fluoranthene	100 J
Benzo (a) pyrene	100 J
Indeno (1,2,3-cd) pyrene	75 J
Benzo (g,h,i) perylene	91 J
<b><u>Pesticides/PCBs (µg/kg)</u></b>	
4,4-DDE	380
4,4-DDT	790

Notes: SWMU = solid waste management unit.  
RCRA = Resource Conservation and Recovery Act.  
RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
µg/kg = micrograms per kilogram.  
J = estimated value.  
PCB = polychlorinated biphenyls.  
DDE = dichlorodiphenyldichloroethene.  
DDT = dichlorodiphenyltrichloroethane.

**Table 3-2  
Inorganic Analytes Detected in a Surface Soil Sample at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analytical Batch Number:	R9866
Sample Location:	MPT-52-MW01S
Sample Number:	52S00101
Date Sampled:	05-MAY-95
Sample Depth (ft bls):	0 to 1
<b><u>Inorganics (mg/kg)</u></b>	
Arsenic	0.51 J
Barium	4.8 J
Chromium	4.2
Lead	3.6 J
Vanadium	6.3 J
Zinc	5.4
<p>Notes: SWMU = solid waste management unit.  RCRA = Resource Conservation and Recovery Act.  RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  mg/kg = milligram per kilogram.  J = estimated value.  ft bls = feet below land surface.</p>	

**Table 3-3  
Organic Analytes Detected in a Subsurface Soil Sample at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analytical Batch Number:	R9866
Sample Location:	MPT-52-MW01S
Sample Number:	52B00104
Date Sampled:	05-MAY-95
Sample Depth (ft bls):	3 to 4
<b><u>Volatiles (µg/kg)</u></b>	
2-Butanone	7 J
Xylenes (total)	2 J
<b><u>Semivolatiles (µg/kg)</u></b>	
None Detected.	
<b><u>Pesticide/PCBs (µg/kg)</u></b>	
4,4-DDE	1.4 J
4,4-DDT	2.3 J
<p>Notes: SWMU = solid waste management unit.  RCRA = Resource Conservation and Recovery Act.  RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  ft bls = feet below land surface.  µg/kg = micrograms per kilogram.  J = estimated value.  PCB = polychlorinated biphenyl.  4,4-DDE = dichlorodiphenyldichloroethene.  4,4-DDT = dichlorodiphenyltrichloroethane.</p>	

**Table 3-4**  
**Inorganic Analytes Detected in a Subsurface Soil Sample at SWMU 52**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analytical Batch Number:	R9866
Sample Location:	MPT-52-MW01S
Sample Number:	52B00104
Date Sampled:	05-MAY-95
Sample Depth (ft bls):	3 to 4

<b><u>Inorganics (mg/kg)</u></b>	
Arsenic	0.43 J
Barium	2.6 J
Beryllium	0.08 J
Chromium	1.6 J
Vanadium	1.1 J

Notes: SWMU = solid waste management unit.  
 RCRA = Resource Conservation and Recovery Act.  
 RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
 ft bls = feet below land surface.  
 mg/kg = milligrams per kilogram.  
 J = estimated value.

**Table 3-5  
Preliminary Risk Screening of Surface Soil Samples at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analyte	Frequency of Detection <sup>1</sup>	Range of Reporting Limits	Mean of Detected Concentrations <sup>2</sup>	Mean of Detected Concentrations <sup>3</sup>	Background Screening Value <sup>4</sup>	Region III RBC <sup>5</sup>	FDEP Soil Cleanup Goal <sup>6</sup> Residential	FDEP Soil Cleanup Goal <sup>6</sup> Industrial	Exceeds Residential Benchmark (Yes/No)	Exceeds Industrial Benchmark (Yes/No)
<b>Volatiles (µg/kg)</b>										
Xylenes (Total)	1/1	NR	8	8	ND	16,000,000	13,000,000	92,000,000	No	No
<b>Semivolatiles (µg/kg)</b>										
Benzo(a)anthracene	1/1	NR	87	87	ND	7880	1,400	4,900	No	No
Benzo(a)pyrene	1/1	NR	100	100	ND	788	100	500	Yes	No
Benzo(b)fluoranthene	1/1	NR	140	140	ND	7880	1,400	5,000	No	No
Benzo(g,h,i)perylene	1/1	NR	91	91	ND	NS	14,000	5,000	No	No
Benzo(k)fluoranthene	1/1	NR	100	100	ND	78,800	14,000	50,000	No	No
Chrysene	1/1	NR	130	130	ND	788,000	140,000	500,000	No	No
Fluoranthene	1/1	NR	150	150	ND	310,000	2,900,000	48,000,000	No	No
Indeno(1,2,3-cd)pyrene	1/1	NR	75	75	ND	7880	1,400	5,000	No	No
Pyrene	1/1	NR	110	110	ND	230,000	2,200,000	41,000,000	No	No
<b>Pesticides and PCBs (µg/kg)</b>										
4,4'-DDE	1/1	NR	380	380	2.3	71,900	3,000	11,000	No	No
4,4'-DDT	1/1	NR	790	790	ND	71,900	3,100	12,000	No	No
<b>Inorganics (mg/kg)</b>										
Arsenic	1/1	NR	0.51	0.51	ND	70.37	70.8	73.7 7	Yes	No
Barium	1/1	NR	4.8	4.8	5.6	550	5,200	84,000	No	No
Chromium	1/1	NR	4.2	4.2	2.6	839	8290	8430	No	No
Lead	1/1	NR	3.6	3.6	ND	8400	500	1,000	No	No
Vanadium	1/1	NR	6.3	6.3	4	55	490	4,800	No	No
Zinc	1/1	NR	5.4	5.4	2.6	2,300	23,000	560,000	No	No

See notes at end of table.

**Table 3-5 (Continued)  
Preliminary Risk Screening of Surface Soil Samples at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

- <sup>1</sup> Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values, "R" qualifier).
- <sup>2</sup> Asterisk values are the average of the detected concentrations in a sample and its duplicate. For duplicate samples having one nondetected value, one-half the contract required quantitation limit is used as a surrogate.
- <sup>3</sup> The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U" or "UJ" qualifiers) and rejected ("R" qualifier).
- <sup>4</sup> The background screening concentration is twice the average of detected concentrations for inorganic analytes in background samples. Organic values are only one time the mean of detected concentrations and are included for comparison purposes only. Surface soil background samples are MPT-B-SS1, MPT-B-SS1DUP, MPT-B-SS2, MPT-B-SS3, MPT-B-SS4, MPT-B-SS5, and MPT-B-SS6.
- <sup>5</sup> For all chemicals except the essential nutrients (calcium, iron, magnesium, potassium, and sodium), U.S. Environmental Protection Agency (USEPA) Region III RBCs for residential surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening, (EPA/903/R-93-001) was used for screening. Actual values are taken from the USEPA Region III RBC tables dated February 9, 1995, and are based on a cancer risk of  $10^{-6}$  and for noncarcinogens an adjusted hazard quotient (HQ) of 0.1.
- <sup>6</sup> Values are taken from the FDEP memorandum, Soil Cleanup Goals for Florida, dated September 29, 1995. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of  $10^{-6}$  and for noncarcinogens an HQ of 1.
- <sup>7</sup> The risk-based concentration is based on carcinogenic effects.
- <sup>8</sup> Chromium in hexavalent form, value from the FDEP Memorandum, Applicability of Soil Cleanup Goals for Florida, dated January 19, 1996.
- <sup>9</sup> No RBC is available for lead because of the lack of toxicity data. The value provided is based on USEPA's recommended target cleanup level for Superfund sites (USEPA, 1994).

Environmental sample included in this evaluation is 52S00101.

Notes: SWMU = solid waste management unit.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

RBC = risk-based concentration.

FDEP = Florida Department of Environmental Protection.

$\mu\text{g}/\text{kg}$  = micrograms per kilogram.

NR = not reported; analyte detected in each sample; reporting limits are same as range of detected concentrations.

ND = analyte not detected in background subsurface soil sample.

PCBs = polychlorinated biphenyls.

4,4'-DDE = dichlorodiphenyldichloroethene.

4,4'-DDT = dichlorodiphenyltrichloroethane.

$\text{mg}/\text{kg}$  = milligrams per kilogram.

**Table 3-6  
Preliminary Risk Screening of Subsurface Soil Samples at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analyte	Frequency of Detection <sup>1</sup>	Range of Reporting Limits	Range of Detected Concentrations <sup>2</sup>	Mean of Detected Concentrations <sup>3</sup>	Background Screening Value <sup>4</sup>	Region III RBC <sup>5</sup>	FDEP Soil Cleanup Goal <sup>6</sup> Residential	FDEP Soil Cleanup Goal <sup>6</sup> Industrial	Exceeds Residential Benchmark (Yes/No)	Exceeds Industrial Benchmark (Yes/No)
<b>Volatiles (µg/kg)</b>										
2-Butanone	1/1	NR	7	7	ND	4,700,000	2,200,000	15,000,000	No	No
Xylenes (Total)	1/1	NR	2	2	ND	16,000,000	13,000,000	92,000,000	No	No
<b>Semivolatiles (µg/kg)</b>										
No Analytes Detected										
<b>Pesticides and PCBs (µg/kg)</b>										
4,4'-DDE	1/1	NR	1.4	1.4	3.5	1,900	3,000	11,000	No	No
4,4'-DDT	1/1	NR	2.3	2.3	ND	1,900	3,100	12,000	No	No
<b>Inorganics (mg/kg)</b>										
Arsenic	1/1	NR	0.43	0.43	0.9	70.37	70.8	73.7	Yes	No
Barium	1/1	NR	2.6	2.6	5.6	550	5,200	84,000	No	No
Beryllium	1/1	NR	0.08	0.08	0.16	0.15	0.2	1.0	No	No
Chromium	1/1	NR	1.6	1.6	2.6	539	5290	5430	No	No
Vanadium	1/1	NR	1.1	1.1	4	55	490	4,800	No	No

See notes at end of table

**Table 3-6 (Continued)**  
**Preliminary Risk Screening of Subsurface Soil Samples at SWMU 52**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

<sup>1</sup> Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values, "R" qualifier).

<sup>2</sup> Asterisk values are the average of the detected concentrations in a sample and its duplicate. For duplicate samples having one nondetected value, one-half the contract required quantitation limit is used as a surrogate.

<sup>3</sup> The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U" or "UJ" qualifiers) and rejected ("R" qualifier).

<sup>4</sup> The background screening concentration is twice the average of detected concentrations for inorganic analytes in background samples. Organic values are only one time the mean of detected concentrations and are included for comparison purposes only. Subsurface soil background samples are MPT-B-BS1, MPT-B-BS1DUP, MPT-B-BS4, MPT-B-BS5, and MPT-B-BS6.

<sup>5</sup> For all chemicals except the essential nutrients (calcium, iron, magnesium, potassium and sodium), U.S. Environmental Protection Agency (USEPA) Region III RBCs for residential surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening, (EPA/903/R-93-001) was used for screening. Actual values are taken from the USEPA Region III RBC tables dated February 9, 1995, and are based on a cancer risk of  $10^{-6}$  and for noncarcinogens an adjusted hazard quotient (HQ) of 0.1.

<sup>6</sup> Values are taken from the FDEP memorandum, Soil Cleanup Goals for Florida, dated September 29, 1995. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of  $10^{-6}$  and for noncarcinogens an HQ of 1.

<sup>7</sup> The risk-based concentration is based on carcinogenic effects.

<sup>8</sup> Chromium in hexavalent form, value from the FDEP Memorandum, Applicability of Soil Cleanup Goals for Florida, dated January 19, 1996.

<sup>9</sup> No RBC is available for lead because of the lack of toxicity data. The value provided is based on USEPA's recommended target cleanup level for Superfund sites (USEPA, 1994).

Environmental sample included in this evaluation is 52B00101.

Notes: SWMU = solid waste management unit.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

FDEP = Florida Department of Environmental Protection.

$\mu\text{g}/\text{kg}$  = micrograms per kilogram.

NR = not reported; analyte detected in each sample; reporting limits are same as range of detected concentrations.

ND = analyte not detected in background subsurface soil sample.

PCBs = polychlorinated biphenyls.

4,4'-DDE = dichlorodiphenyldichloroethene.

4,4'-DDT = dichlorodiphenyltrichloroethane.

mg/kg = milligram per kilogram.

**Table 3-7**  
**Indicator Parameters Measured in a Groundwater Sample at SWMU 52**

Group III RFA SV Report  
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Analytical Batch Number:	R9977	
Sample Location:	MPT-52-MW01S	Secondary Water Quality Criteria <sup>1</sup>
Sample Number:	52G00101	
Date Sample:	03-JUN-95	
<b>Groundwater Quality Parameters (mg/l)</b>		
Alkalinity as CaCO <sub>3</sub>	266	--
Ammonia-N	0.5	--
Chloride	23.3	250,000
Hardness as CaCO <sub>3</sub>	341	--
Nitrate/Nitrite-N	0.56	10,000
Phosphorous-P, total	0.13	--
Sulfate	76.9	250,000
Total dissolved solids	440	--
Total Kjeldahl nitrogen	0.9	500
Total organic carbon	9.7	--
<b>Color (APHA units)</b>		
Color	15	15
<b>pH (standard units)</b>		
pH	7.55	6.5 to 8.5

<sup>1</sup> Secondary water quality criteria, Chapter 62-550.320, Florida Administrative Code.

Notes: SWMU = solid waste management unit.

RCRA = Resource Conservation and Recovery Act.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

S = shallow monitoring well.

mg/l = milligrams per liter.

CaCO<sub>3</sub> = calcium carbonate.

-- = analyte not detected.

APHA = American Public Health Association.

**Table 3-8  
Inorganic Analytes Detected in a Groundwater Sample at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analytical Batch Number:	R9977
Sample Location:	MPT-52-MW01S
Sample Number:	52G00101
Date Sampled:	03-JUN-95
<b><u>Inorganics</u> (<math>\mu\text{g}/\text{l}</math>)</b>	
Barium	5.2 J
Calcium	98,700
Iron	223
Magnesium	21,200
Manganese	106
Sodium	15,000
Vanadium	3.7 J
<p>Notes: SWMU = solid waste management unit.  RCRA = Resource Conservation and Recovery Act.  RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  S = shallow monitoring well.  <math>\mu\text{g}/\text{l}</math> = micrograms per liter.  J = estimated value.</p>	

limits, range of detected concentrations, arithmetic mean, and benchmark comparison values is provided in Table 3-9. Complete analytical results are presented in Appendix B.

The target analytes detected in the environmental samples were compared to background screening values computed from stationwide background groundwater samples (ABB-ES, 1995b), benchmark values consisting of USEPA Region III RBCs (USEPA, 1995), and Florida groundwater guidance concentrations (FDEP, 1994). The Florida groundwater guidance concentrations consist of promulgated and unpromulgated values. The State of Florida-promulgated values are equal or more stringent than Federal primary and secondary drinking water regulations (57FR31777, July 17, 1992). Promulgated values that are exceeded will be identified in the text.

Each of the benchmark criteria provided in Table 3-9 are human health-based and represent the lower of either a noncarcinogenic HI of 1 or a lifetime excess cancer risk of  $1 \times 10^{-6}$ . Benchmark values for a noncarcinogenic HI of 1 or less represent a concentration where noncarcinogenic effects are not likely. A benchmark value for a lifetime excess cancer risk of  $1 \times 10^{-6}$  represents a chance of 1 in 1,000,000 for an adverse carcinogenic effect for a continuous lifetime exposure.

Indicator Parameter Results. Water quality parameters for the SWMU 52 groundwater monitoring well were compared to the State of Florida secondary water quality criteria (Chapter 62-550.320, FAC). The value determined for color was equal to but does not exceed the State of Florida secondary water quality criterion for the groundwater sample collected from monitoring well MPT-52-MW01S. The value determined for hardness, expressed as  $\text{CaCO}_3$ , suggests that the groundwater would be considered hard (greater than 180 mg/l; Durfor and Becker, 1964).

Analytical Results. Target analytes detected in the groundwater sample consist of seven inorganic analytes (barium, calcium, iron, magnesium, manganese, sodium, and vanadium). The inorganic groundwater samples were not filtered and represent total concentrations. No organic analytes were detected in the groundwater sample collected from SWMU 52.

3.4 PRELIMINARY RISK EVALUATION. The Federal NCP, Final Rule, (40 CFR, Part 300) states that for carcinogens a lifetime excess cancer risk in the range of  $1 \times 10^{-4}$  (a chance of 1 in 10,000 for an adverse carcinogenic effect for a continuous lifetime exposure) to  $1 \times 10^{-6}$  represents concentrations that are considered by USEPA to be protective of human health.

FDEP uses  $1 \times 10^{-6}$  as a risk management goal to evaluate whether or not contaminants at a site are present at concentrations that are protective of human health. The FDEP soil cleanup goals are intended to be used only as goals for the cleanup decisions in corrective actions and should not be used as rule, standards or to deny or approve permits (FDEP, 1996).

Calculations for Total Cancer Risk values are provided in Tables 3-10 and 3-11 for surface and subsurface soil samples, respectively, taken at SWMU 52. Surface and subsurface soil concentrations were compared to an aggregate residential exposure (child and adult) for USEPA Region III RBCs. The default assumptions used in estimating risk-based benchmark concentrations may not be representative

**Table 3-9  
Preliminary Risk Screening of Groundwater at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analyte	Frequency of Detection <sup>1</sup>	Range of Reporting Limits	Range of Detected Concentrations <sup>2</sup>	Mean of Detected Concentrations <sup>3</sup>	Background Screening Concentration <sup>4</sup>	Risk-Based Screening Concentration <sup>5</sup>	Florida Guidance Concentration <sup>6</sup>	Exceeds Risk-Based Concentration (Yes/No)	Exceeds Florida Guidance Concentration (Yes/No)
<b><u>Volatile</u> (µg/l)</b>									
No analytes detected									
<b><u>Semivolatile</u> (µg/l)</b>									
No analytes detected									
<b><u>Pesticides/PCBs</u> (µg/l)</b>									
No analytes detected									
<b><u>Inorganics</u> (µg/l)</b>									
Barium	1/1	NR	5.2	5.2	9.8	260	2,000	No	No
Calcium	1/1	NR	98,700	98,700	207,466	1,055,398	NA	No	No
Iron	1/1	NR	223	223	1,728	13,267	300	No	No
Magnesium	1/1	NR	21,200	21,200	153,984	118,807	NA	No	No
Manganese	1/1	NR	106	106	210	18	50	Yes	Yes
Sodium	1/1	NR	15,000	15,000	1,519,016	396,022	160,000	No	No
Vanadium	1/1	NR	3.7	3.7	9.2	26	49	No	No

See notes at end of table.

**Table 3-9 (Continued)  
Preliminary Risk Screening of Groundwater at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

<sup>1</sup> Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).  
<sup>2</sup> Value indicated by asterisk is the average of a sample and its duplicate. For nondetected values, one-half the contract-required quantitation limit or contract-required detection limit is used as a surrogate.

<sup>3</sup> The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U," or "UJ" qualifiers) and rejected ("R" qualifier).

<sup>4</sup> The background screening value is twice the average of detected concentrations for inorganic analytes in background samples.  
<sup>5</sup> For all chemicals except the essential nutrients (calcium, iron, magnesium, potassium, and sodium), U.S. Environmental Protection Agency (USEPA) Region III risk-based concentrations (RBC) for tap water per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening, USEPA/903/R-93-001) was used for screening. Actual values are taken from RBC table dated February 9, 1995, and are based on a cancer risk of 10<sup>-6</sup> or an adjusted hazard quotient of 0.1. For the essential nutrients, screening values were derived based on recommended daily allowances.

<sup>6</sup> Florida Department of Environmental Protection Groundwater Guidance Concentrations (June 1994).  
<sup>7</sup> Analytes were included or excluded from the risk assessment for the following reasons:

S = the maximum detected concentration did not exceed the screening concentration and will not be considered further.

G = the maximum detected concentration did not exceed the Florida cleanup goals and will not be considered further.

B = the maximum detected concentration did not exceed twice the arithmetic mean of detected concentrations at background locations.

F = the frequency of detection was less than 5 percent and professional judgment was used to exclude analyte from further study.

C = the analyte is a member of a chemical class that contains other human health chemicals of potential concern (i.e., carcinogenic polynuclear aromatic hydrocarbons [PAHs]).

M = the analyte was detected at less than 5 percent and is a human health chemicals of potential concern in more than one media.

P = the maximum detected concentration did not exceed the USEPA proposed soil screening levels (SSLs), 9355.4-14FS, dated December 1994.

<sup>8</sup> The value is based on arsenic as a carcinogen.

<sup>9</sup> The value is based on chromium hexavalent form.

<sup>10</sup> Treatment technology action limit for drinking water distribution systems per "National Primary Drinking Water Regulations" 40 CFR 141 as amended in 57 FR 41345, August 3, 1993.

<sup>11</sup> The values is based on thallium as thallium sulfate.

Notes: The average of a sample and its duplicate is used for all table calculations.

Sample locations include: 52G00101.

Background sample locations include: 08G00101, 08G00102, 08G00103, 01MW001, 08MW005S, 08MW001S, 08MW001R, 8MW5S, MPT-1-MW1-1, MPT-S-1-1, and SMW001.

SWMU = solid waste management unit.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

µg/l = micrograms per liter.

PCBs = polychlorinated biphenyls.

NR = not reported; analyte detected in each sample; reporting limits are same as range of detected concentrations.

NA = not available.

**Table 3-10**  
**Estimated Human Health Risk Based on Maximum Values for**  
**Surface Soil at SWMU 52**

Group III RFA SV Report  
 U.S. Naval Station  
 Mayport, Florida

Analyte	Maximum Detected Concentration <sup>1</sup>	Residential Exposure			Industrial Exposure	
		USEPA Region III RBC <sup>2</sup>	Estimated Residential Cancer Risk <sup>3</sup>	FDEP Soil Cleanup Goal <sup>4</sup>	Estimated Residential Cancer Risk <sup>3</sup>	FDEP Soil Cleanup Goal <sup>4</sup>
<u>Volatiles</u> (µg/kg)						
No analytes exceeded screening criteria						
<u>Semivolatiles</u> (µg/kg)						
Benzo(a)pyrene	100	88	1.1E-6	100	1.0E-6	2.0E-7
<u>Pesticides and PCBs</u> (µg/kg)						
No analytes exceeded screening criteria						
<u>Inorganics</u> (mg/kg)						
Arsenic	0.51	0.37	1.4E-6	0.8	6.3E-7	1.3E-7
Total Cancer Risk			1.5E-6		1.6E-6	3.3E-7

<sup>1</sup> The maximum value is from Table 3-5, and represents either the maximum value detected for an analyte in an environmental sample or if marked with an asterisk "\*" is the average for an environmental sample and associated duplicate (one-half the contract-required quantitation limit is used as a surrogate for nondetects, "U" or "UU" qualified samples for environmental samples and duplicate pairs).

<sup>2</sup> USEPA Region III RBCs for residential surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening, (USEPA/903/R-93-001) was used for screening. Actual values are taken from the USEPA Region III RBC tables dated February 9, 1995, and are based on a cancer risk of 10<sup>-6</sup>.

<sup>3</sup> The cancer risk is an estimated value based on the assumptions used to determine the human health-based risk values.

<sup>4</sup> Values are taken from the FDEP memorandum, Soil Cleanup Goals for Florida, dated September 29, 1995 and January 19, 1996. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of 10<sup>-6</sup>.

Notes: SWMU = solid waste management unit.

RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.

USEPA = U.S. Environmental Protection Agency.

RBC = risk-based concentration.

FDEP = Florida Department of Environmental Protection.

µg/kg = micrograms per kilogram.

PCB = polychlorinated biphenyl.

mg/kg = milligram per kilogram.

**Table 3-11  
Estimated Human Health Risk Based on Maximum Values for  
Subsurface Soil at SWMU 52**

Group III RFA SV Report  
U.S. Naval Station  
Mayport, Florida

Analyte	Maximum Detected Concentration <sup>1</sup>	Industrial Exposure			
		USEPA Region III RBC <sup>2</sup>	Estimated Industrial Cancer Risk <sup>3</sup>	FDEP Soil Cleanup Goal <sup>4</sup>	Estimated Industrial Cancer Risk <sup>3</sup>
<b><u>Volatiles (µg/kg)</u></b>					
No analytes exceeded screening criteria					
<b><u>Semivolatiles (µg/kg)</u></b>					
No analytes detected					
<b><u>Pesticides and PCBs (µg/kg)</u></b>					
No analytes exceeded screening criteria					
<b><u>Inorganics (mg/kg)</u></b>					
Arsenic	0.43	3.3	1.3E-7	3.7	1.1E-7
Total Cancer Risk			1.3E-7		1.1E-7

<sup>1</sup> The maximum value is from Table 3-7 and represents either the maximum value detected for an analyte in an environmental sample or if marked with an asterisk "\*\*", is the average for an environmental sample and associated duplicate (one-half the contract-required quantitation limit is used as a surrogate for nondetects, "U" or "UJ" qualified samples for environmental samples and duplicate pairs).

<sup>2</sup> USEPA Region III RBCs for industrial surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening (EPA/903/R-93-001) was used for screening. Actual values are taken from the USEPA Region III RBC tables dated February 9, 1995, and are based on a cancer risk of 10<sup>-6</sup>.

<sup>3</sup> The cancer risk is an estimated value based on the assumptions used to determine the human health-based risk values.

<sup>4</sup> Values are taken from the FDEP memorandum, Soil Cleanup Goals for Florida, dated September 29, 1995 and January 19, 1996. The values are for an industrial worker soil exposure and are based on a cancer risk of 10<sup>-6</sup>.

Notes: SWMU = solid waste management unit.  
RFA SV = Resource Conservation and Recovery Act (RCRA) facility assessment and sampling visit.  
USEPA = U.S. Environmental Protection Agency.  
RBC = risk-based concentration.  
FDEP = Florida Department of Environmental Protection.  
µg/kg = micrograms per kilogram.  
PCB - polychlorinated biphenyl.  
mg/kg = milligram per kilogram.

and likely to overstate the specific exposure present at the site (i.e., underestimate the concentration that would result in a lifetime excess cancer risk of  $1 \times 10^{-6}$ ). The following presents an assessment of target analytes detected in surface and subsurface soil and groundwater samples that exceed benchmarks.

**3.4.1 Surface Soil** None of the VOCs or pesticides detected in the surface soil sample exceed the benchmark values. One SVOC (benzo(a)pyrene) and one inorganic analyte (arsenic) were detected in the surface soil sample at a concentration that exceeds benchmark values, which are based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$  (Table 3-5).

Benzo(a)pyrene was detected in the surface soil sample at a concentration (100  $\mu\text{g}/\text{kg}$ ) that exceeds the USEPA Region III RBC (88  $\mu\text{g}/\text{kg}$ ) and is equal to, but does not exceed, the FDEP residential soil cleanup goal (100  $\mu\text{g}/\text{kg}$ ). The concentration detected did not exceed the FDEP industrial soil cleanup goal (500  $\mu\text{g}/\text{kg}$ ).

The surface soil sample also contained arsenic at a concentration (0.51  $\text{mg}/\text{kg}$ ) that exceeds the USEPA Region III RBC (0.37  $\text{mg}/\text{kg}$ ), but not the FDEP residential (0.8  $\text{mg}/\text{kg}$ ) or industrial (3.7  $\text{mg}/\text{kg}$ ) soil cleanup goals. The difference between the USEPA and FDEP residential benchmark values is a result of variations in assumptions used in the computations. Arsenic was not detected in background surface soil samples.

The excess lifetime carcinogenic human health risk (surface soil) was estimated for analytes that exceeded the benchmarks (benzo(a)pyrene and arsenic) by comparison of the maximum detected value (Table 3-5) with the estimated  $1 \times 10^{-6}$  cancer risk values from the USEPA Region III RBCs (residential exposure) and the FDEP soil cleanup goals (residential and industrial exposure) (Table 3-10). This assessment suggests that hypothetical residential and industrial exposures are likely to be within or less than the risk management range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  that is acceptable to the USEPA and the FDEP risk management goal of  $1 \times 10^{-6}$ .

**3.4.2 Subsurface Soil** None of the organic analytes detected in the subsurface soil sample exceeds benchmark values (Table 3-7). One inorganic analyte, arsenic, was detected in the subsurface soil sample at a concentration that exceeds benchmark values, which are based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$ . It should be noted that arsenic was detected at a concentration (0.43  $\text{mg}/\text{kg}$ ) that is less than the background screening value (0.9  $\text{mg}/\text{kg}$ ) (ABB-ES, 1995a).

The subsurface soil sample contained arsenic at a concentration that exceeds the USEPA Region III RBC (0.37  $\text{mg}/\text{kg}$ ), but not the FDEP residential or industrial cleanup goals. The background screening value for arsenic exceeds the USEPA Region III RBC and the FDEP residential soil cleanup goal (0.8  $\text{mg}/\text{kg}$ ).

The excess lifetime carcinogenic human health risk (subsurface soil) was estimated for arsenic by comparison of the maximum detected value (Table 3-6) with the estimated  $1 \times 10^{-6}$  cancer risk values from the USEPA Region III RBCs (residential exposure) and the FDEP soil cleanup goals (residential and industrial exposure) (Table 3-11). This assessment suggests that hypothetical residential and industrial exposures are less than the risk management range that is acceptable to the USEPA and the FDEP risk management goal.

3.4.3 Groundwater No organics were detected in the groundwater sample collected from SWMU 52. One inorganic analyte (manganese) was detected at a concentration that exceeds a benchmark value (Table 3-9).

Manganese was detected in the SWMU 52 groundwater sample at a concentration (106 mg/kg) that exceeds both the USEPA Region III RBC (18  $\mu\text{g}/\ell$ ) and the Florida guidance concentration (50  $\mu\text{g}/\ell$ ). However, the detected concentration is less than the background screening value for manganese of 210  $\mu\text{g}/\ell$  (ABB-ES, 1995a).

Based on the detection of manganese at concentrations less than the background screening concentrations, it is likely that the concentration detected is related to natural and/or anthropogenic conditions and not a release from the SWMUs.

3.5 CONCLUSIONS AND RECOMMENDATIONS. The following subsections present conclusions and recommendations derived from the review and interpretation of the data collected during the field investigation.

3.5.1 Conclusions It should be noted that the items and staining identified in 1989 during the RFA were not observed during the site visit on May 5, 1994. Soil and groundwater sampling was conducted as recommended in the RFA to address past concerns. The following presents conclusions made from an assessment of the surface and subsurface soil and groundwater samples collected at SWMU 52.

Surface Soil. One VOC, nine SVOCs, two pesticides, and six inorganic analytes were detected in the surface soil sample (Table 3-1 and 3-2). None of the VOCs and pesticides exceed any of the human health-based risk screening values and, therefore, do not warrant further investigation (Table 3-5). One SVOC (benzo(a)pyrene) and one inorganic analyte (arsenic) were detected in the surface soil sample at concentrations that exceed human health-based risk benchmark values that represent a lifetime excess cancer risk of  $1 \times 10^{-6}$ . The detected concentrations of benzo(a)pyrene and arsenic exceeded the USEPA Region III RBC, but not the FDEP residential or industrial soil cleanup goals (Table 3-5).

The assessment of lifetime excess cancer risk suggests that hypothetical residential and industrial exposures are likely to be within or less than the risk management range ( $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) acceptable to the USEPA and the FDEP risk management goal of  $1 \times 10^{-6}$  (Table 3-10).

Subsurface Soil. Two VOCs, two pesticides, and five inorganic analytes were detected in subsurface soil samples (Tables 3-3 and 3-4). None of the organic analytes detected in the subsurface soil sample exceeds benchmark values (Table 3-6) and do not warrant additional investigation at this time. One inorganic analyte, arsenic, was detected in the subsurface soil sample at a concentration that exceeds benchmark values, which are based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$ . The subsurface soil sample contained arsenic at a concentration that exceeds the USEPA Region III RBC, but not the FDEP residential or industrial cleanup goals. The detected concentration was less than the background screening value.

The assessment of lifetime excess cancer risk suggests that hypothetical residential and industrial exposures are less than the risk management range that is acceptable to the USEPA and FDEP risk management goal (Table 3-11).

Because the land features at NAVSTA Mayport are a result of the deposition of dredge material from the Mayport Turning Basin, it cannot be determined whether or not the concentrations of arsenic are related to a release at SWMU 52 or are residual concentrations from the dredge material.

Based on the evaluation of the surface and subsurface soil analytical results to residential and industrial exposure scenarios and the assumption that industrial use of SWMU 52 will not change in the foreseeable future, additional investigation does not appear to be warranted at this time.

Groundwater. Target analytes detected in the groundwater sample consist of seven inorganic analytes. No organic analytes were detected in the groundwater sample collected from SWMU 52. Only one inorganic analyte, manganese, was detected at a concentration that exceeds a benchmark value. The concentration of manganese detected in the groundwater sample exceeds both the USEPA Region III RBC and the Florida guidance concentration.

Based on the detection of manganese at a concentration less than its background screening concentration it is likely that the concentration detected is related to natural and/or anthropogenic conditions and not a release from the SWMUs. Additionally, the surficial aquifer is not currently being used as a drinking water source; therefore, additional investigation does not appear to be warranted at this time.

3.5.2 Recommendations Based on industrial exposure scenarios, SWMU 52 is recommended for no further investigation at this time. Because chemicals are likely present at the SWMU at concentrations exceeding human health-based residential criteria; use of the site should be restricted to industrial, and groundwater from the surficial aquifer should not be used as a potable source. This recommendation is based on the analytical results of the surface soil, subsurface soil, and groundwater sample collected for this assessment and comparison to human health-based benchmarks. Under current use, the industrial exposure scenario will not likely change in the foreseeable future; therefore, the recommendation and assumptions are considered to be consistent with FDEP's risk management goal and the risk range accepted by the USEPA. However, the recommendation should be reevaluated if use of the site changes in the future. The following rationale supports this recommendation:

#### Surface and Subsurface Soil

- The concentrations of VOCs and pesticides detected in surface soil samples do not exceed human health-based risk screening values.
- One SVOC (benzo(a)pyrene) and one inorganic analyte (arsenic) were detected in surface soil samples at concentrations that exceed the USEPA Region III RBC benchmark values, which are based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$ . However, the surface soil sample did not contain these chemicals at concentrations that exceed their respective FDEP residential or industrial soil cleanup goal.
- The hypothetical residential exposure to benzo(a)pyrene and arsenic in surface soil is within the residential risk range accepted by USEPA ( $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ). Evaluation of hypothetical residential and industrial

exposures at the FDEP risk management goal of  $1 \times 10^{-6}$  suggests that the concentration of these chemicals is at or less than the FDEP goal.

- SVOCs were not detected in the SWMU 52 subsurface soil sample.
- The concentrations of VOCs and pesticides detected in subsurface soil samples do not exceed human health-based risk screening values.
- One inorganic analyte (arsenic) was detected in the subsurface soil sample at a concentration that exceeds the USEPA Region III RBC value, which is based on values for a lifetime excess cancer risk of  $1 \times 10^{-6}$ . However, the sample did not contain arsenic at a concentration that exceed the FDEP residential or industrial soil cleanup goal. Additionally, the arsenic concentration was less than the background screening value.
- The hypothetical residential and industrial exposure to arsenic in subsurface soil is likely less than the risk management range that is acceptable to the USEPA and FDEP risk management goal.
- Noncarcinogenic risks were not identified for surface or subsurface soil by comparison of the analytical data to the risk-based screening values for residential and industrial exposure scenarios.
- Arsenic detected in the surface and subsurface soil samples is likely related to the deposition of dredge spoil material and may not represent disposal of hazardous materials.

#### Groundwater

- No organic analytes or cyanide were detected in the groundwater samples collected from the SWMU 52 monitoring well.
- One inorganic analyte (manganese) was detected at a concentration that exceeds benchmark values. However, the detected concentration is less than its respective background screening concentration. Therefore, it is likely that the concentration detected is related to natural and/or anthropogenic conditions and not a release from the SWMU.
- The surficial aquifer is not currently being used as a drinking water source.

#### 4.0 SUMMARY

It is assumed that the industrial exposure scenario at NAVSTA Mayport will not likely change in the foreseeable future; therefore, the recommendation and assumptions contained in this report are considered to be consistent with FDEP's risk management goal and the risk range accepted by the USEPA. Should a future change in site use result in exposure assumptions other than those considered, the conclusions and recommendations should be reviewed. Land use at SWMUs 20, 21, and 52 should be restricted to industrial, and groundwater from the surficial aquifer beneath these sites should not be used as a potable source. The following presents a summary of the findings and assessment of the data collected at Group III SWMUs 20 and 21, Hobby Shop Drain and Scrap Storage Area, and SWMU 52, PWD Service Station Storage Area.

4.1 SWMUs 20 AND 21, HOBBY SHOP DRAIN AND SCRAP STORAGE AREA. SWMUs 20 and 21 are recommended for no further investigation at this time based on comparison of analytical results of surface and subsurface soil and groundwater samples to their corresponding background sample analytical results and human health-based risk screening values for residential and industrial exposures. This recommendation is based on the assumption that use of the site will remain industrial in the foreseeable future.

Surface Soil. Concentrations of VOCs and pesticides detected in surface soils do not exceed any of the human health-based risk screening values. Benzo(a)pyrene and arsenic were detected at concentrations that exceed residential benchmark values. However, none of the samples contained these chemicals at concentrations that exceed their respective FDEP industrial soil cleanup goals.

The assessment of lifetime excess cancer risk suggests that the hypothetical residential exposure to benzo(a)pyrene and arsenic is within the risk range accepted by USEPA, but is greater than the FDEP risk management goal. However, the hypothetical industrial exposure for these two chemicals is likely to be at or slightly above the FDEP goal.

Subsurface Soil. None of the organic analytes detected in the subsurface soil samples exceed either their respective residential or industrial benchmark values. Arsenic was detected in subsurface soil samples at concentrations that exceed the USEPA Region III RBC residential benchmark values. However, none of the samples contained arsenic at concentrations that exceed the FDEP residential or industrial soil cleanup goals.

This assessment of lifetime excess cancer risk suggests that hypothetical residential and industrial exposures are likely to be at or less than the risk management range that is acceptable to the USEPA and the FDEP risk management goal.

Groundwater. Pesticides, PCBs, and cyanide were not detected in the groundwater samples. Organic chemicals that were detected in the soil samples were not detected in the groundwater samples collected from SWMUs 20 and 21. The organic analytes that were detected in the SWMU 20 and 21 groundwater samples did not exceed their respective benchmark values. However, arsenic, iron, and manganese were detected at concentrations that exceed benchmark values.

Arsenic was detected as a single occurrence at a concentration that exceeds the USEPA Region III RBC, but was less than the Florida guidance concentration, which is a Federal- and State-promulgated standard. Iron was detected in two of the six groundwater samples at concentrations that exceed the Florida guidance concentration. Manganese was detected in five of the six groundwater samples at concentrations that exceed the USEPA Region III RBC and in four of the six samples at concentrations that exceed the Florida guidance concentration.

The detected concentrations of iron are less than the essential nutrient screening concentration that is protective to the majority of exposed populations.

Based on the detection of arsenic, iron, and manganese at concentrations less than their respective background screening concentrations, it is likely that the concentrations detected are related to natural and/or anthropogenic conditions and not a release from the SWMUs.

Additionally, the surficial aquifer is not currently being used as a drinking water source.

4.2 SWMU 52, PWD SERVICE STATION STORAGE AREA. SWMU 52 is recommended for no further investigation at this time based on comparison of analytical results of surface and subsurface soil and groundwater samples to their corresponding background sample analytical results and human health-based risk screening values for residential and industrial exposures. This recommendation is based on the assumption that use of the site will remain industrial in the foreseeable future.

Surface Soil. None of the VOCs and pesticides detected exceed any of the human health-based risk screening values. Benzo(a)pyrene and arsenic were detected in the surface and subsurface soil sample at concentrations that exceed the USEPA Region III human health-based risk benchmark values. The detected concentrations did not exceed the FDEP residential or industrial soil cleanup goals.

The assessment of lifetime excess cancer risk suggests that hypothetical residential and industrial exposures are likely to be within or less than the risk management range that is acceptable to the USEPA and the FDEP risk management goal.

Subsurface Soil. None of the organic analytes detected in the subsurface soil sample exceed benchmark values and do not warrant additional investigation at this time. Arsenic was detected in the subsurface soil sample at a concentration that exceeds a benchmark value. The subsurface soil sample contained arsenic at a concentration that exceeds the USEPA Region III RBC, but not the FDEP residential or industrial cleanup goals. The detected concentration was less than the background screening value.

The assessment of lifetime excess cancer risk suggests that hypothetical residential and industrial exposures are less than the risk management range that is acceptable to the USEPA and FDEP risk management goal.

Groundwater. No organic analytes were detected in the groundwater sample collected from SWMU 52. Manganese was detected at a concentration that exceeds a benchmark value. The concentration of manganese detected in the groundwater

sample exceeds both the USEPA Region III RBC and the Florida guidance concentration.

Based on the detection of manganese at a concentration less than its respective background screening concentration, it is likely that the concentration detected is related to natural and/or anthropogenic conditions and not a release from the SWMUs.

It should also be noted that the surficial aquifer is not currently being used as a drinking water source.

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**APPENDIX A**  
**BORING LOGS**

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-20-MW01S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 13.48 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5 FT.	DPTH TO $\nabla$ 5.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	20S00101	X	100%	0.0	CONCRETE SILTY CLAY-fill material, tan to brown, slight odor.		SC	Hand Auger	
					CONCRETE DEBRIS				
5	20B00105	X	100%	0.0	SAND- fine with shell fragments, light tan to gray.  SAND- as above.		SP	Hand Auger	
10					CLAYEY SAND- gray to dark gray.		SC	Observation	
					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-20-MW02S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENCOM		PROJECT NO: 8534-05	
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/05/95	COMPLTD: 05/05/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 4-14'	PROTECTION LEVEL: □
TOC ELEV.: 13.88 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 14.2FT.	DPTH TO ♯ 5.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	20S00201 X	100%	0.0	ORGANIC RICH SOIL SAND- fine, with shell fragmens. gray.		OH	Hand Auger	
	20B00205 X	100%	0.0	SAND- as above.		SP	Hand Auger	
				SAND- as above.				
				CLAYEY SAND- gray to dark gray.		SC	Observation	
	TOTAL DEPTH OF BORING = 14.2' BLS							

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-20-MW03S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/05/95	COMPLTD: 05/05/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT: 3-13'	PROTECTION LEVEL: D
TOC ELEV.: 12.01 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 14.0FT.	DPTH TO $\nabla$ 5.0 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
	20S00301 X		100%	0.0	ORGANIC RICH SOIL SAND- fine, damp, light gray to gray.		SP	Hand Auger	
5	20B00105 X		100%	0.0	SAND- as above.			Hand Auger	
					SAND- as above.			Observation	
					CLAYEY SAND- gray to dark gray.		SC		
15	TOTAL DEPTH OF BORING = 14.0' BLS								
20									

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-21-MW01S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/04/85	COMPLTD: 05/04/85
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 13.21 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5 FT.	DPTH TO $\nabla$ 4.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWNU 21

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	21S0010 D,MS,MSD	X	100%	0.0	CONCRETE		SP		Hand Auger
					SAND- fine with shell fragments, gray to light tan.				
	21B00104	X	100%	0.0	SAND- as above.				Hand Auger
5					SAND- as above.				Observation
10					CLAYEY SAND- gray to dark gray.		SC		Observation
15									
20					TOTAL DEPTH OF BORING = 15.5' BLS				

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-21-MW02S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENCOM		PROJECT NO: 8534-05	
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT: 5-15'	PROTECTION LEVEL: 0
TOC ELEV.: 12.78 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO $\nabla$ 3.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 21

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	21S0020	X	100%	0.0	ORGANIC RICH SOIL		OL		
					SAND- fine with shell fragments, gray.		SP	Hand Auger	
	21B0020B	X	100%	0.0	SAND- as above.			Hand Auger	
5					SAND- as above.			Observation	
10					CLAYEY SAND- gray to dark gray, mild odor.		SC	Observation	
15									
20					TOTAL DEPTH OF BORING = 15.5' BLS				

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-21-MW03S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/04/85	COMPLTD: 05/04/85
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: 0
TOC ELEV.: 12.38 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO $\nabla$ 3.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/85		SITE: SWMU 21

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
	21S00301 X	100%	0.0	CONCRETE				
				SAND- fine with shell fragments, moist, gray.		SP	Posthole 0 to 4'	
	21B00303 X	100%	0.0	SAND- as above.				
5				SAND- as above.				
10				CLAYEY SAND- gray to dark gray, mild odor.		SC	Observation	
15								
20				TOTAL DEPTH OF BORING = 15.5' BLS				

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-52-MW01S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/05/95	COMPLTD: 05/05/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 3-13'	PROTECTION LEVEL: D
TOC ELEV.: 7.48 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 13.2FT.	DPTH TO $\nabla$ 4.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 52

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
	52S00101	X	100%	0.0	ASPHALT		SP	Hand Auger	
	52B00104	X	100%	0.0	SAND- fine, moist, gray to brown.			Hand Auger	
5					SAND- as above.			Hand Auger	
					SAND- as above.			Observation	
10					SAND- as above.			Observation	
15	TOTAL DEPTH OF BORING = 13.2' BLS								
20									

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: NPT-TC-MWOIS	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8534-05	
CONTRACTOR: Huss Drilling		DATE STARTED: 5/18/94	COMPLTD: 5/18/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 3.0' to 13.0'	PROTECTION LEVEL: D
TOC ELEV.: 8.58 FT.	MONITOR INST.: N/A	TOT DPTH: 13FT.	DPTH TO $\nabla$ 8 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/18/95		SITE: Building 181

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
0				SILTY SAND: fine grained		SM		Post-Hole  Observation
5								
10								
15								
20								
				Total Depth of Boring = 13' bls				

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW011	BORING NO. MW-1D
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: 8534-05	
CONTRACTOR: Huss Drilling		DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Mud Rotary	CASE SIZE: 4 in.	SCREEN INT.: 35' to 40'	PROTECTION LEVEL: 0
TOC ELEV.: 9.6 FT.	MONITOR INST.: N/A	TOT DPTH: 40FT.	DPTH TO $\nabla$ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/95		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5			SILTY SAND: fine grained		SM	Post-Hole Observation	
10							
15							
20			SAND: fine to very fine, gray, moist, w/ shell fragments		SP	16,20,20,22	
25			SAND: as above			18,20,20,24	
30						12,14,16,12	

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW011	BORING NO. MW-10
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: 8534-05	
CONTRACTOR: Huss Drilling		DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Mud Rotary	CASE SIZE: 4 in.	SCREEN INT.: 35' to 40'	PROTECTION LEVEL: D
TOC ELEV.: 9.6 FT.	MONITOR INST.: N/A	TOT DPTH: 40FT.	DPTH TO $\nabla$ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/95		SITE: Bldg. 191

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1								
				SAND: as above	[Dotted Pattern]	SP		[Well Diagram]
35				SAND: as above, w/ abundant shell fragments			12,22,24,30	
40				SAND: as above, w/ trace shell fragments			18,22,24,28	
				Total Depth of Boring = 40' bls				
45								
50								
55								
60								

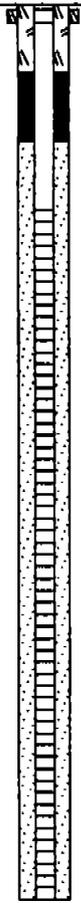
TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW02S	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: 8534-05	
CONTRACTOR: Huss Drilling		DATE STARTED: 5/18/94	COMPLTD: 5/19/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 4.0' to 14.0'	PROTECTION LEVEL: 0
TOC ELEV.: 10.89 FT.	MONITOR INST.: N/A	TOT DPTH: 14FT.	DPTH TO $\nabla$ 8 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/18/95		SITE: Building 19f

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5				SILTY SAND: fine grained		SM		
10								
15				Total Depth of Boring = 14' bls				
20								

<b>TITLE:</b> U.S. Naval Station, Mayport, FL		<b>LOG of WELL:</b> MPT-TC-MW03S	<b>BORING NO.</b>
<b>CLIENT:</b> SOUTHNAVFACENCOM		<b>PROJECT NO:</b> 8534-05	
<b>CONTRACTOR:</b> Huss Drilling		<b>DATE STARTED:</b> 5/19/94	<b>COMPLTD:</b> 5/19/94
<b>METHOD:</b> Hollow Stem Auger	<b>CASE SIZE:</b> 4 in.	<b>SCREEN INT.:</b> 3.0' to 13.0'	<b>PROTECTION LEVEL:</b> D
<b>TOC ELEV.:</b> 8.88 FT.	<b>MONITOR INST.:</b> N/A	<b>TOT DPTH:</b> 13FT.	<b>DPTH TO ∇:</b> 8 FT.
<b>LOGGED BY:</b> Paul Locascio (ESE)	<b>WELL DEVELOPMENT DATE:</b> 5/19/95		<b>SITE:</b> Building 19i

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
5				SILTY SAND: fine grained		SM		
10				Total Depth of Boring = 13' bis				
15								
20								

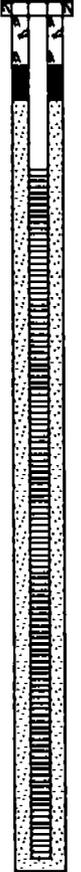
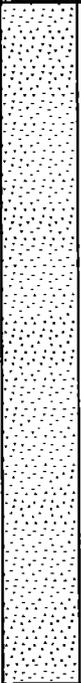
TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW04S	BORING NO.
CLIENT: SOUTHNAVFACENCOM			PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling		DATE STARTED: 5/20/84	COMPLTD: 5/20/84
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 3.0' to 13.0'	PROTECTION LEVEL: 0
TOC ELEV.: 8.88 FT.	MONITOR INST.: N/A	TOT DPTH: 13FT.	DPTH TO $\nabla$ N/A FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/20/95		SITE: Building 191

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
0					SILTY SAND: fine grained		SM		
5									
10									
15									
20									
					Total Depth of Boring = 13' bls				

<b>TITLE:</b> U.S. Naval Station, Mayport, FL		<b>LOG of WELL:</b> MPT-TC-MW05S	<b>BORING NO.</b>
<b>CLIENT:</b> SOUTHERN DIVISION, NAVFACENGCOM		<b>PROJECT NO:</b> 8534-05	
<b>CONTRACTOR:</b> GROUNDWATER PROTECTION, INC.		<b>DATE STARTED:</b> 05/31/85	<b>COMPLTD:</b> 05/31/85
<b>METHOD:</b> 4.25" H.S.A.	<b>CASE SIZE:</b> 2"	<b>SCREEN INT:</b> 2.5-12.5'	<b>PROTECTION LEVEL:</b> D
<b>TOC ELEV.:</b> 8.73 FT.	<b>MONITOR INST.:</b> F.I.D.	<b>TOT DPTH:</b> 12.5FT.	<b>DPTH TO ∇:</b> 3.0 FT.
<b>LOGGED BY:</b> S. SCAVONE	<b>WELL DEVELOPMENT DATE:</b> 08/02/85		<b>SITE:</b> BLDG. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/B-IN	WELL DATA
				ASPHALT		SM		
				SILTY SAND- fine to very fine, dark brown.				
				SAND- fine with shell fragments, light tan.		SP		
5				SAND- as above.				
				SAND- fine with shell fragments, gray.				
10								
15				TOTAL DEPTH OF BORING = 12.5' BLS				
20								

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW06S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/31/95	COMPLTD: 05/31/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 2.5-12.5'	PROTECTION LEVEL: D
TOC ELEV.: 9.84 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 12.5FT.	DPTH TO $\nabla$ 3.0 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 06/02/95		SITE: BLDG. 191

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				ASPHALT		SM		
				SILTY SAND- fine to very fine, dark brown.				
				SAND- fine with shell fragments, light tan.		SP		
5				SAND- as above.				
10				SAND- fine with shell fragments, gray.				
15				TOTAL DEPTH OF BORING = 12.5' BLS				
20								

**APPENDIX B**

**VALIDATED RFA ANALYTICAL DATA (Summary Tables)**

**APPENDIX B-1**

**SURFACE SOIL SAMPLE ANALYSES, SWMUS 20, 21, AND 52**

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMS 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866008  
 GROUP111  
 20S00101  
 04-MAY-95

R9866012  
 GROUP111  
 20S00201  
 05-MAY-95

R9866010  
 GROUP111  
 20S00301  
 05-MAY-95

R9866016  
 GROUP111  
 20S00401  
 05-MAY-95

Chemical Name	VALUE	QUAL UNITS	DL									
<b>VOLATILES</b>												
Chloromethane	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Bromomethane	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Vinyl chloride	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Chloroethane	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Methylene chloride	16 U	ug/kg	16	10 U	ug/kg	10	10 U	ug/kg	10	12 U	ug/kg	12
Acetone	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Carbon disulfide	4 J	ug/kg	6	2 J	ug/kg	5	11	ug/kg	5	5 U	ug/kg	5
1,1-Dichloroethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,1-Dichloroethene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,2-Dichloroethane (total)	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Chloroform	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,2-Dichloroethene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
2-Butanone	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
1,1,1-Trichloroethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Carbon tetrachloride	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Bromodichloromethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,2-Dichloropropane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
cis-1,3-Dichloropropene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Trichloroethene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Dibromochloromethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,1,2-Trichloroethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Benzene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
trans-1,3-Dichloropropene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Bromoform	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
4-Methyl-2-pentanone	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
2-Hexanone	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Tetrachloroethene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,1,2,2-Tetrachloroethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Toluene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Chlorobenzene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Ethylbenzene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Styrene (total)	2 J	ug/kg	6	12	ug/kg	5	18	ug/kg	5	1 J	ug/kg	5
Dichlorodifluoromethane	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Trichlorofluoromethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,3-Dichlorobenzene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Acrolein	110 UJ	ug/kg	110	100 UJ	ug/kg	100	100 UJ	ug/kg	100	110 UJ	ug/kg	110
Iodomethane	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
1,4-Dichlorobenzene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Acrylonitrile	110 U	ug/kg	110	100 U	ug/kg	100	100 U	ug/kg	100	110 U	ug/kg	110
Dibromomethane	730 U	ug/kg	730	680 U	ug/kg	680	670 U	ug/kg	670	670 U	ug/kg	670
1,2-Dichlorobenzene	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
2-Chloroethylvinyl ether	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Ethyl methacrylate	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,2,3-Trichloropropene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
trans-1,4-Dichloro-2-butene	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
Isobutyl alcohol	220 U	ug/kg	220	210 U	ug/kg	210	210 U	ug/kg	210	210 U	ug/kg	210
1,1,2-Tetrachloroethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5
1,2-Dibromo-3-chloropropane	11 U	ug/kg	11	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
1,2-Dibromooethane	6 U	ug/kg	6	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMDs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866008  
 GROUP111  
 20S00101  
 04-MAY-95

R9866010  
 GROUP111  
 20S00301  
 05-MAY-95

R9866012  
 GROUP111  
 20S00201  
 05-MAY-95

R9866016  
 GROUP111  
 20S00401  
 05-MAY-95

	VALUE	QUAL UNITS	DL									
1,4-Dioxane	220	R	ug/kg	210	R	ug/kg	210	R	ug/kg	210	R	ug/kg
3-Chloropropene	6	U	ug/kg	5	U	ug/kg	5	U	ug/kg	5	U	ug/kg
Acetonitrile	110	U	ug/kg	100	U	ug/kg	100	U	ug/kg	110	U	ug/kg
Chloroprene	220	U	ug/kg	210	U	ug/kg	210	U	ug/kg	210	U	ug/kg
Methacrylonitrile	6	U	ug/kg	5	U	ug/kg	5	U	ug/kg	5	U	ug/kg
Methyl methacrylate	11	U	ug/kg	10	U	ug/kg	10	U	ug/kg	11	U	ug/kg
Pentachloroethane	11	U	ug/kg	10	U	ug/kg	10	U	ug/kg	11	U	ug/kg
Propionitrile	110	U	ug/kg	100	U	ug/kg	100	U	ug/kg	110	U	ug/kg
Vinyl acetate	11	U	ug/kg	10	U	ug/kg	10	U	ug/kg	11	U	ug/kg

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866015  
 GROUP111  
 20S00501  
 05-MAY-95

R9866005  
 GROUP111  
 21S00101  
 04-MAY-95

R9866006  
 GROUP111  
 21S00101D  
 04-MAY-95

R9866003  
 GROUP111  
 21S00201  
 04-MAY-95

Chemical	VALUE	QUAL UNITS	DL									
<b>VOLATILES</b>												
Chloroethane	10 U	ug/kg	10	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Bromoethane	10 U	ug/kg	10	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Vinyl chloride	10 U	ug/kg	10	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Chloroethene	11 U	ug/kg	11	6 U	ug/kg	6	10 U	ug/kg	10	11 U	ug/kg	11
Methylene chloride	10 U	ug/kg	10	10 U	ug/kg	10	10 U	ug/kg	10	5 U	ug/kg	5
Acetone	5 U	ug/kg	5	5 U	ug/kg	5	10 U	ug/kg	10	11 U	ug/kg	11
Carbon disulfide	5 U	ug/kg	5									
1,1-Dichloroethane	5 U	ug/kg	5									
1,1-Dichloroethene	5 U	ug/kg	5									
1,2-Dichloroethane (total)	5 U	ug/kg	5									
Chloroform	5 U	ug/kg	5									
1,2-Dichloroethene	10 U	ug/kg	10	10 U	ug/kg	10	5 U	ug/kg	5	5 U	ug/kg	5
2-Butanone	5 U	ug/kg	5	5 U	ug/kg	5	5 U	ug/kg	5	11 U	ug/kg	11
1,1,1-Trichloroethane	5 U	ug/kg	5									
Carbon tetrachloride	5 U	ug/kg	5									
Bromodichloromethane	5 U	ug/kg	5									
1,2-Dichloropropane	5 U	ug/kg	5									
cis-1,3-Dichloropropene	5 U	ug/kg	5									
Trichloroethene	5 U	ug/kg	5									
Dibromochloromethane	5 U	ug/kg	5									
1,1,2-Trichloroethane	5 U	ug/kg	5									
Benzene	5 U	ug/kg	5									
trans-1,3-Dichloropropene	5 U	ug/kg	5									
Bromoform	10 U	ug/kg	10	10 U	ug/kg	10	5 U	ug/kg	5	5 U	ug/kg	5
4-Methyl-2-pentanone	10 U	ug/kg	10	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
2-Hexanone	5 U	ug/kg	5									
Tetrachloroethane	5 U	ug/kg	5									
1,1,2,2-Tetrachloroethane	5 U	ug/kg	5									
Toluene	5 U	ug/kg	5									
Chlorobenzene	5 U	ug/kg	5									
Ethylbenzene	5 U	ug/kg	5									
Styrene	5 U	ug/kg	5									
Xylenes (total)	10 U	ug/kg	10	10 U	ug/kg	10	10 U	ug/kg	10	11 U	ug/kg	11
Dichlorodifluoromethane	5 U	ug/kg	5									
Trichlorofluoromethane	5 U	ug/kg	5									
1,3-Dichlorobenzene	5 U	ug/kg	5									
Acrolein	100 UJ	ug/kg	100	100 UJ	ug/kg	100	100 UJ	ug/kg	100	670 U	ug/kg	670
Iodomethane	10 U	ug/kg	10	10 U	ug/kg	10	10 U	ug/kg	10	110 UJ	ug/kg	110
1,4-Dichlorobenzene	690 U	ug/kg	690	5 U	ug/kg	5	5 U	ug/kg	5	11 U	ug/kg	11
Acrylonitrile	100 U	ug/kg	100	100 U	ug/kg	100	100 U	ug/kg	100	5 U	ug/kg	5

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site Locator  
 Collect Date:

R9866015  
 GROUP111  
 20S00501  
 05-MAY-95

R9866005  
 GROUP111  
 21S00101  
 04-MAY-95

R9866006  
 GROUP111  
 21S0010D  
 04-MAY-95

R9866003  
 GROUP111  
 21S00201  
 04-MAY-95

- Dibromomethane
- 1,2-Dichlorobenzene
- 2-Chloroethylvinyl ether
- Ethyl methacrylate
- 1,2,3-Trichloropropane
- trans-1,4-Dichloro-2-butene
- Isobutyl alcohol
- 1,1,1,2-Tetrachloroethane
- 1,2-Dibromo-3-chloropropane
- 1,2-Dibromoethane
- 1,4-Dioxane
- 3-Chloropropane
- Acetonitrile
- Chloroethene
- Methacrylonitrile
- Methyl methacrylate
- Pentachloroethane
- Propionitrile
- Vinyl acetate

Chemical	VALUE	QUAL	UNITS	DL												
Dibromomethane	5	U	ug/kg	5												
1,2-Dichlorobenzene	690	U	ug/kg	690	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5
2-Chloroethylvinyl ether	10	U	ug/kg	10												
Ethyl methacrylate	5	U	ug/kg	5												
1,2,3-Trichloropropane	5	U	ug/kg	5												
trans-1,4-Dichloro-2-butene	5	U	ug/kg	5												
Isobutyl alcohol	210	U	ug/kg	210												
1,1,1,2-Tetrachloroethane	5	U	ug/kg	5												
1,2-Dibromo-3-chloropropane	10	U	ug/kg	10												
1,2-Dibromoethane	5	U	ug/kg	5												
1,4-Dioxane	210	R	ug/kg	210												
3-Chloropropane	5	U	ug/kg	5												
Acetonitrile	100	U	ug/kg	100												
Chloroethene	210	U	ug/kg	210												
Methacrylonitrile	5	U	ug/kg	5												
Methyl methacrylate	10	U	ug/kg	10												
Pentachloroethane	100	U	ug/kg	100												
Propionitrile	10	U	ug/kg	10												
Vinyl acetate	10	U	ug/kg	10												

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMDs 20 and 21 Surface Soil Data

Lab Sample Number: R9866001  
 Site: GR04P111  
 Locator: 21S00301  
 Collect Date: 04-MAY-95

VALUE QUAL UNITS DL

Chemical Name	Value	Qual	Units	DL
Chloromethane	11 U		ug/kg	11
Bromomethane	11 U		ug/kg	11
Vinyl chloride	11 U		ug/kg	11
Chloroethene	11 U		ug/kg	11
Methylene chloride	11 U		ug/kg	11
Acetone	11 U		ug/kg	11
Carbon disulfide	11 U		ug/kg	11
1,1-Dichloroethene	11 U		ug/kg	11
1,1-Dichloroethane	11 U		ug/kg	11
1,2-Dichloroethene (total)	11 U		ug/kg	11
Chloroform	11 U		ug/kg	11
1,2-Dichloroethane	11 U		ug/kg	11
2-Butene	11 U		ug/kg	11
1,1,1-Trichloroethene	11 U		ug/kg	11
Carbon tetrachloride	11 U		ug/kg	11
Bromodichloromethane	11 U		ug/kg	11
1,2-Dichloropropane	11 U		ug/kg	11
cis-1,3-Dichloropropene	11 U		ug/kg	11
Trichloroethene	11 U		ug/kg	11
Dibromochloromethane	11 U		ug/kg	11
1,1,2-Trichloroethane	11 U		ug/kg	11
Benzene	11 U		ug/kg	11
trans-1,3-dichloropropene	11 U		ug/kg	11
Bromoform	11 U		ug/kg	11
4-Methyl-2-pentene	11 U		ug/kg	11
2-Hexene	11 U		ug/kg	11
Tetrachloroethene	11 U		ug/kg	11
1,1,2,2-Tetrachloroethane	11 U		ug/kg	11
Toluene	11 U		ug/kg	11
Chlorobenzene	11 U		ug/kg	11
Ethylbenzene	11 U		ug/kg	11
Styrene	11 U		ug/kg	11
Xylenes (total)	11 U		ug/kg	11
Dichlorodifluoroethane	11 U		ug/kg	11
Trichlorofluoroethane	11 U		ug/kg	11
1,3-Dichlorobenzene	11 U		ug/kg	11
Acrolein	11 U		ug/kg	11
Iodomethane	11 U		ug/kg	11
1,4-Dichlorobenzene	11 U		ug/kg	11
Acrylonitrile	11 U		ug/kg	11

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMMUs 20 and 21 Surface Soil Data

Lab Sample Number: R9866001  
 Site: GROUP111  
 Locator: 21S00301  
 Collect Date: 04-MAY-95

VALUE QUAL UNITS DL

Dibromomethane	5 U	ug/kg	5
1,2-Dichlorobenzene	5 U	ug/kg	5
2-Chloroethyl vinyl ether	11 U	ug/kg	11
Ethyl methacrylate	5 U	ug/kg	5
1,2,3-Trichloropropene	5 U	ug/kg	5
trans-1,4-Dichloro-2-butene	5 U	ug/kg	5
Isobutyl alcohol	210 UJ	ug/kg	210
1,1,2-Tetrachloroethane	5 U	ug/kg	5
1,2-Dibromo-3-chloropropane	11 U	ug/kg	11
1,2-Dichloroethane	5 U	ug/kg	5
1,4-Dioxane	210 R	ug/kg	210
3-Chloropropene	5 U	ug/kg	5
Acetonitrile	110 U	ug/kg	110
Chloroprene	210 U	ug/kg	210
Methacrylonitrile	5 U	ug/kg	5
Methyl methacrylate	11 U	ug/kg	11
Pentachloroethane	11 U	ug/kg	11
Propionitrile	110 U	ug/kg	110
Vinyl acetate	11 U	ug/kg	11

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-, 1,3-, AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (9270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SIMUS 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866008  
 GROUP111  
 20S00101  
 04-MAY-95

R9866012  
 GROUP111  
 20S00201  
 05-MAY-95

R9866010  
 GROUP111  
 20S00301  
 05-MAY-95

R9866016  
 GROUP111  
 20S00401  
 05-MAY-95

Chemical Name	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMI-VOLATILES													
N-Nitrosodimethylamine	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Phenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Aniline	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
bis(2-Chloroethyl) ether	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Benzyl Alcohol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2-Methylphenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
bis(2-Chloroisopropyl) ether	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
N-Nitroso-di-n-propylamine	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Hexachloroethane	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Nitrobenzene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Isophorone	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2,4-Dimethylphenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Benzoic acid	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
bis(2-Chloroethoxy) methane	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2,4-Dichlorophenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
1,2,4-Trichlorobenzene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Naphthalene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
4-Chloroaniline	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Hexachlorobutadiene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
4-Chloro-3-methylphenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2-Methylnaphthalene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Hexachlorocyclopentadiene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2,4,6-Trichlorophenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Dimethylphthalate	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2,4,5-Trichlorophenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2-Chloronaphthalene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2-Nitroaniline	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Acenaphthylene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2,6-Dinitrotoluene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
3-Nitroaniline	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Acenaphthene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2,4-Dinitrophenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
4-Nitrophenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Dibenzofuran	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
2,4-Dinitrotoluene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Diethylphthalate	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
4-Chlorophenyl-phenylether	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Fluorene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
4-Nitroaniline	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
4,6-Dinitro-2-methylphenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
N-Nitrosodiphenylamine (1)	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
1,2-Diphenylhydrazine	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
4-Bromophenyl-phenylether	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Hexachlorobenzene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Pentachlorophenol	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Phenanthrene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Anthracene	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Di-n-Butylphthalate	730 U	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720
Fluoranthene	89 J	680 U	U	ug/kg	680	670 U	U	ug/kg	670	720 U	U	ug/kg	720

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866008  
 GROUP111  
 20S00101  
 04-MAY-95

R9866010  
 GROUP111  
 20S00301  
 05-MAY-95

R9866012  
 GROUP111  
 20S00201  
 05-MAY-95

R9866016  
 GROUP111  
 20S00401  
 05-MAY-95

Chemical Name	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS
Pyrene	730	730	U	ug/kg	680	680	U	ug/kg	340	340	J	ug/kg
Butylbenzylphthalate	730	730	J	ug/kg	680	680	U	ug/kg	320	320	J	ug/kg
3,3-Dichlorobenzidine	1500	1500	U	ug/kg	1400	1400	U	ug/kg	1500	1500	U	ug/kg
Benzo (a) anthracene	730	730	U	ug/kg	680	680	U	ug/kg	240	240	J	ug/kg
Chrysene	730	730	U	ug/kg	680	680	U	ug/kg	340	340	J	ug/kg
bis(2-ethylhexyl) phthalate	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Di-n-octylphthalate	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Benzo (b) fluoranthene	730	730	U	ug/kg	680	680	U	ug/kg	380	380	J	ug/kg
Benzo (k) fluoranthene	730	730	U	ug/kg	680	680	U	ug/kg	350	350	J	ug/kg
Benzo (a) pyrene	730	730	U	ug/kg	680	680	U	ug/kg	280	280	J	ug/kg
Indeno (1,2,3-cd) pyrene	730	730	U	ug/kg	680	680	U	ug/kg	180	180	J	ug/kg
Dibenz (a,h) anthracene	730	730	U	ug/kg	680	680	U	ug/kg	80	80	J	ug/kg
Benzo (g,h,i) perylene	730	730	U	ug/kg	680	680	U	ug/kg	170	170	J	ug/kg
2-Picoline	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
Methyl methanesulphonate	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Ethyl methanesulphonate	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Acetophenone	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
N-Nitrosopyridine	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Phenyl-tert-butylamine	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
2,6-Dichlorophenol	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
N-Nitroso-di-n-butylamine	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
N-Nitrosodiethylamine	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
N-Nitrosopyrrolidine	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Benzidine	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
1,2,4,5-Tetrachlorobenzene	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
Pentachlorobenzene	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
1-Naphthylamine	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
2-Naphthylamine	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
Phenacetin	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
4-Aminobiphenyl	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Pentachloronitrobenzene	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
Propamide	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
p-Dimethylaminoazobenzene	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
7,12-Dimethylbenz(A)Anthracene	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
3-Methylcholanthrene	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Pyridine	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
N-Nitrosomethyl ethylamine	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
N-Nitrosomorpholine	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
o-Toluidine	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Hexachloropropene	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
p-Phenylenediamine	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
Serfrole	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
Isosafrole	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
1,4-Naphthoquinone	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
1,3-Dinitrobenzene	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
3-Nitro-o-toluidine	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
1,3,5-Trinitrobenzene	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
4-Nitroquinoline-1-oxide	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
Methapyrene	730	730	U	ug/kg	680	680	U	ug/kg	670	670	U	ug/kg
3,3-Dimethylbenzidine	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg
Hexachlorophene	3500	3500	U	ug/kg	3300	3300	U	ug/kg	3300	3300	U	ug/kg

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866008  
 GROUP111  
 20S00101  
 04-MAY-95

R9866012  
 GROUP111  
 20S00201  
 05-MAY-95

R9866010  
 GROUP111  
 20S00301  
 05-MAY-95

R9866016  
 GROUP111  
 20S00401  
 05-MAY-95

	VALUE	QUAL UNITS	DL									
Aramite	3500 U	ug/kg	3500	3300 U	ug/kg	3300	3300 U	ug/kg	3300	3500 U	ug/kg	3500
2-Chlorophenol	730 U	ug/kg	730	680 U	ug/kg	680	670 U	ug/kg	670	720 U	ug/kg	720
3- & 4-Methylphenol (2)	730 U	ug/kg	730	680 U	ug/kg	680	670 U	ug/kg	670	720 UJ	ug/kg	720
Hexachloropropene	3500 U	ug/kg	3500	3300 U	ug/kg	3300	3300 U	ug/kg	3300	3500 U	ug/kg	3500
2-Acetylaminofluorene	730 UJ	ug/kg	730	680 UJ	ug/kg	680	670 UJ	ug/kg	670	720 U	ug/kg	720

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.



US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMUs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866015  
 GROUP111  
 20S00501  
 05-MAY-95

R9866005  
 GROUP111  
 21S00101  
 04-MAY-95

R9866006  
 GROUP111  
 21S00101D  
 04-MAY-95

R9866003  
 GROUP111  
 21S00201  
 04-MAY-95

Chemical Name	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4,6-Dinitro-2-methylphenol	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
N-Nitrosodiphenylamine (1)	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
1,2-Diphenylhydrazine	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
4-Bromophenyl-phenylether	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Hexachlorobenzene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Pentachlorophenol	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
Phenanthrene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Anthracene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Di-n-Butylphthalate	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Fluoranthene	170	J	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Pyrene	140	J	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Butylbenzylphthalate	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
3,3-Dichlorobenzidine	1400	U	ug/kg	1400	U	ug/kg	1400	U	ug/kg	1400	U	ug/kg	1400
Benzo (a) anthracene	77	J	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Chrysene	120	J	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
bis(2-Ethylhexyl) phthalate	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Di-n-octylphthalate	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Benzo (b) fluoranthene	150	J	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Benzo (k) fluoranthene	120	J	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Benzo (a) pyrene	96	J	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
indeno (1,2,3-cd) pyrene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Dibenz (a,h) anthracene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Benzo (g,h,i) perylene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
2-Picoline	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
Methyl methanesulphonate	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Ethyl methanesulphonate	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Acetophenone	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
N-Nitrosopiperidine	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Phenyl-tert-butylamine	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
2,6-Dichlorophenol	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
N-Nitroso-di-n-butylamine	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
N-Nitrosodiethylamine	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
N-Nitrosopyrrolidine	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Benztidine	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
1,2,4,5-Tetrachlorobenzene	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
Pentachlorobenzene	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
1-Naphthylamine	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
2-Naphthylamine	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
2,3,4,6-Tetrachlorophenol	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Phenacetin	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
4-Aminobiphenyl	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
Pentachloronitrobenzene	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
Propamide	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
p-(Dimethylamino)azobenzene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
7,12-Bimethylbenz(A)Anthracene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
3-Methylcholanthrene	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Pyridine	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
N-Nitrosomethyl ethylamine	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
N-Nitrosomorpholine	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
o-Toluidine	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690	U	ug/kg	690
Hexachloropropene	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300	U	ug/kg	3300
p-Phenylenediamine	33000	U	ug/kg	33000	U	ug/kg	33000	U	ug/kg	33000	U	ug/kg	33000

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
SUMS 20 and 21 Surface Soil Data

Lab Sample Number:  
Site  
Locator  
Collect Date:

R9866015  
GROUP111  
20S00501  
05-MAY-95

R9866005  
GROUP111  
21S00101  
04-MAY-95

R9866006  
GROUP111  
21S00101D  
04-MAY-95

R9866003  
GROUP111  
21S00201  
04-MAY-95

Chemical Name	VALUE	QUAL	UNITS	DL												
Styrene	3300	U	ug/kg	3300												
Isocyanate	3300	U	ug/kg	3300												
1,4-Naphthoquinone	69000	U	ug/kg	69000	68000	U	ug/kg	68000	69000	U	ug/kg	69000	67000	U	ug/kg	67000
1,3-Dinitrobenzene	690	U	ug/kg	690	680	U	ug/kg	680	690	U	ug/kg	690	670	U	ug/kg	670
5-Nitro-o-toluidine	690	U	ug/kg	690	680	U	ug/kg	680	690	U	ug/kg	690	670	U	ug/kg	670
1,3,5-Trinitrobenzene	690	U	ug/kg	690	680	U	ug/kg	680	690	U	ug/kg	690	670	U	ug/kg	670
4-Nitroquinoline-1-oxide	33000	U	ug/kg	33000												
Metapyrilene	3300	U	ug/kg	3300												
3,3-Dimethylbenzidine	690	U	ug/kg	690	680	U	ug/kg	680	690	U	ug/kg	690	670	U	ug/kg	670
Hexachlorophene	33000	U	ug/kg	33000												
Aramite	3300	U	ug/kg	3300												
2-Chlorophenol	690	U	ug/kg	690	680	U	ug/kg	680	690	U	ug/kg	690	670	U	ug/kg	670
3- & 4-Methylphenol (2)	690	U	ug/kg	690	680	U	ug/kg	680	690	U	ug/kg	690	670	U	ug/kg	670
Hexachloropropene	3300	U	ug/kg	3300												
2-Acetylaminofluorene	690	U	ug/kg	690	680	U	ug/kg	680	690	U	ug/kg	690	670	U	ug/kg	670

U = NOT DETECTED R = RESULT IS REJECTED  
J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SIMS 20 and 21 Surface Soil Date

Lab Sample Number: R9866001  
 Site: GROUP1111  
 Locator: 21500301  
 Collect Date: 04-MAY-95

VALUE QUANT UNITS DL

Chemical Name	Value	Quant	Units	DL
SEMIVOLATILES				
N-nitrosodimethylamine	710 U	ug/kg		710
Phenol	710 U	ug/kg		710
Aniline	710 U	ug/kg		710
bis(2-Chloroethyl) ether	710 U	ug/kg		710
Benzyl Alcohol	710 U	ug/kg		710
2-Methylphenol	710 U	ug/kg		710
bis(2-Chloroisopropyl) ether	710 U	ug/kg		710
N-Nitroso-di-n-propylamine	710 U	ug/kg		710
Hexachloroethane	710 U	ug/kg		710
Micobenzene	710 U	ug/kg		710
Isophorone	710 U	ug/kg		710
2-Nitrophenol	710 U	ug/kg		710
2,4-Dimethylphenol	710 U	ug/kg		710
Benzoic acid	3400 U	ug/kg		3400
bis(2-Chloroethoxy) methane	710 U	ug/kg		710
2,4-Dichlorophenol	710 U	ug/kg		710
1,2,4-Trichlorobenzene	710 U	ug/kg		710
Naphthalene	710 U	ug/kg		710
4-Chloroaniline	710 U	ug/kg		710
Hexachlorobutadiene	710 U	ug/kg		710
4-Chloro-3-methylphenol	710 U	ug/kg		710
2-Methylnaphthalene	710 U	ug/kg		710
Hexachlorocyclopentadiene	710 U	ug/kg		710
2,4,6-Trichlorophenol	710 U	ug/kg		710
Dimethylphthalate	710 U	ug/kg		710
2,4,5-Trichlorophenol	3400 U	ug/kg		3400
2-Chloronaphthalene	710 U	ug/kg		710
2-Nitroaniline	3400 U	ug/kg		3400
Acenaphthylene	710 U	ug/kg		710
2,6-Dinitrotoluene	710 U	ug/kg		710
3-Nitroaniline	3400 U	ug/kg		3400
Acenaphthene	710 U	ug/kg		710
2,4-Dinitrophenol	3400 U	ug/kg		3400
4-Nitrophenol	3400 U	ug/kg		3400
Dibenzofuran	710 U	ug/kg		710
2,4-Dinitrotoluene	710 U	ug/kg		710
Diethylphthalate	710 U	ug/kg		710
4-Chlorophenyl-phenylether	710 U	ug/kg		710
Fluorene	710 U	ug/kg		710
4-Nitroaniline	3400 U	ug/kg		3400

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWSUs 20 and 21 Surface Soil Data

Lab Sample Number: R9866001  
 Site: GROUP111  
 Locator: 21S00301  
 Collect Date: 04-MAY-95

	VALUE	QUAL	UNITS	DL
4,6-Dinitro-2-methylphenol	3400 U		ug/kg	3400
N-Nitrosodiphenylamine (1)	710 U		ug/kg	710
1,2-Diphenylhydrazine	710 U		ug/kg	710
4-Bromophenyl-phenylether	710 U		ug/kg	710
Hexachlorobenzene	710 U		ug/kg	710
Pentachlorophenol	3400 U		ug/kg	3400
Phenanthrene	710 U		ug/kg	710
Anthracene	710 U		ug/kg	710
Di-n-Butylphthalate	710 U		ug/kg	710
Fluoranthene	710 U		ug/kg	710
Pyrene	710 U		ug/kg	710
Butylbenzylphthalate	710 U		ug/kg	710
3,3-Dichlorobenzidine	1600 U		ug/kg	1600
Benzo (a) anthracene	710 U		ug/kg	710
Chrysene	710 U		ug/kg	710
bio(2-ethylhexyl) phthalate	710 U		ug/kg	710
Di-n-octylphthalate	710 U		ug/kg	710
Benzo (b) fluoranthene	710 U		ug/kg	710
Benzo (k) fluoranthene	710 U		ug/kg	710
Benzo (e) pyrene	710 U		ug/kg	710
Indeno (1,2,3-cd) pyrene	710 U		ug/kg	710
Dibenz (a,h) anthracene	710 U		ug/kg	710
Benzo (g,h,i) perylene	710 U		ug/kg	710
2-Picoline	3400 U		ug/kg	3400
Methyl methanesulfonate	710 U		ug/kg	710
Ethyl methanesulfonate	710 U		ug/kg	710
Acetophenone	710 U		ug/kg	710
N-Nitrosopiperidine	3400 U		ug/kg	3400
Phenyl-tert-butylamine	710 U		ug/kg	710
2,6-Dichlorophenol	710 U		ug/kg	710
N-Nitroso-di-n-butylamine	710 U		ug/kg	710
N-Nitrosodiphenylamine	710 U		ug/kg	710
N-Nitrosopyrrolidine	710 U		ug/kg	710
Benazidine	3400 U		ug/kg	3400
1,2,4,5-Tetrachlorobenzene	3400 U		ug/kg	3400
Pentachlorobenzene	3400 U		ug/kg	3400
1-Naphthylamine	3400 U		ug/kg	3400
2-Naphthylamine	3400 U		ug/kg	3400
2,3,4,6-Tetrachlorophenol	710 U		ug/kg	710
Phenacetin	710 U		ug/kg	710
4-Aminobiphenyl	3400 U		ug/kg	3400
Pentachloronitrobenzene	3400 U		ug/kg	3400
Pronamide	710 U		ug/kg	710
p-(Dimethylamino)azobenzene	710 U		ug/kg	710
7,12-Dimethylbenz(A)Anthracene	710 U		ug/kg	710
3-Methylcholanthrene	710 U		ug/kg	710
Pyridine	3400 U		ug/kg	3400
N-Nitrosomethylethylamine	710 U		ug/kg	710
N-Nitrosomorpholine	710 U		ug/kg	710
o-Toluidine	710 U		ug/kg	710
Hexachloropropene	3400 U		ug/kg	3400
p-Phenylenediamine	34000 U		ug/kg	34000

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Surface Soil Data

Lab Sample Number: R9866001  
 Site: GROUP111  
 Locator: 21S00301  
 Collect Date: 04-MAY-95

VALUE QUAL UNITS DL

Chemical Name	Value	Qual	Units	DL
Safrole	3400	U	ug/kg	3400
Isoafrrole	3400	U	ug/kg	3400
1,4-Naphthoquinone	71000	U	ug/kg	71000
1,3-Dinitrobenzene	710	U	ug/kg	710
5-Nitro-o-toluidine	710	U	ug/kg	710
1,3,5-Trinitrobenzene	710	U	ug/kg	710
4-Nitroquinoline-1-oxide	34000	UJ	ug/kg	34000
Methapyrene	3400	U	ug/kg	3400
3,3-Dimethylbenzidine	710	U	ug/kg	710
Hexachlorophene	34000	UJ	ug/kg	34000
Aramite	3400	U	ug/kg	3400
2-Chlorophenol	710	U	ug/kg	710
3- & 4-Methylphenol (2)	710	U	ug/kg	710
Hexachloropropene	3400	U	ug/kg	3400
2-Acetylaminofluorene	710	UJ	ug/kg	710

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2,; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (B270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866008  
 GROUP111  
 20S00101  
 04-MAY-95

R9866012  
 GROUP111  
 20S00201  
 05-MAY-95

R9866010  
 GROUP111  
 20S00301  
 05-MAY-95

R9866016  
 GROUP111  
 20S00401  
 05-MAY-95

PESTICIDES/PCBS	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
alpha-BHC	74	U	ug/kg	74	.69	.68	U	ug/kg	.68	.73	U	ug/kg	.73	.73	U	ug/kg
beta-BHC	1.4	U	ug/kg	1.4	1.3	1.3	U	ug/kg	1.3	1.4	U	ug/kg	1.4	1.4	U	ug/kg
delta-BHC	74	U	ug/kg	74	.69	.68	U	ug/kg	.68	.73	U	ug/kg	.73	.73	U	ug/kg
gamma-BHC (Lindane)	74	U	ug/kg	74	.69	.68	U	ug/kg	.68	.73	U	ug/kg	.73	.73	U	ug/kg
Heptachlor	74	U	ug/kg	74	.69	.68	U	ug/kg	.68	.73	U	ug/kg	.73	.73	U	ug/kg
Heptachlor epoxide	74	U	ug/kg	74	.69	.68	U	ug/kg	.68	.73	U	ug/kg	.73	.73	U	ug/kg
Endosulfan I	74	U	ug/kg	74	.69	.68	U	ug/kg	.68	.73	U	ug/kg	.73	.73	U	ug/kg
4,4'-DDE	74	U	ug/kg	74	.69	.68	U	ug/kg	.68	.73	U	ug/kg	.73	.73	U	ug/kg
Endrin	1.4	U	ug/kg	1.4	1.3	1.2	J	ug/kg	1.3	1.4	U	ug/kg	1.4	1.4	U	ug/kg
Endosulfan II	1.4	U	ug/kg	1.4	1.3	1.3	U	ug/kg	1.3	1.4	U	ug/kg	1.4	1.4	U	ug/kg
4,4'-DDO	1.4	J	ug/kg	1.4	1.3	1.3	U	ug/kg	1.3	1.4	U	ug/kg	1.4	1.4	U	ug/kg
Endosulfan sulfate	1.4	U	ug/kg	1.4	1.3	1.3	U	ug/kg	1.3	1.4	U	ug/kg	1.4	1.4	U	ug/kg
4,4'-DDT	1.4	U	ug/kg	1.4	4.2	1.3	U	ug/kg	1.3	1.4	U	ug/kg	1.4	1.4	U	ug/kg
Methoxychlor	3	U	ug/kg	3	2.8	2.7	U	ug/kg	2.7	2.9	U	ug/kg	2.9	2.9	U	ug/kg
Endrin aldehyde	1.4	U	ug/kg	1.4	1.3	1.3	U	ug/kg	1.3	1.4	U	ug/kg	1.4	1.4	U	ug/kg
Endrin ketone	2.4	J	ug/kg	2.4	1.3	1.3	U	ug/kg	1.3	1.4	U	ug/kg	1.4	1.4	U	ug/kg
Chlordane	7.4	U	ug/kg	7.4	6.9	6.8	U	ug/kg	6.8	7.3	U	ug/kg	7.3	7.3	U	ug/kg
Chlorobenzilate	22	U	ug/kg	22	21	20	U	ug/kg	20	22	U	ug/kg	22	22	U	ug/kg
Diallate	44	U	ug/kg	44	41	41	U	ug/kg	41	43	U	ug/kg	43	43	U	ug/kg
Toxaphene	36	U	ug/kg	36	34	34	U	ug/kg	34	36	U	ug/kg	36	36	U	ug/kg
Leadrin	74	U	ug/kg	74	.69	.68	U	ug/kg	.68	.73	U	ug/kg	.73	.73	U	ug/kg
Kepon	44	UJ	ug/kg	44	41	41	UJ	ug/kg	41	43	U	ug/kg	43	43	U	ug/kg
Aroclor-1016	36	U	ug/kg	36	34	34	U	ug/kg	34	36	U	ug/kg	36	36	U	ug/kg
Aroclor-1231	74	U	ug/kg	74	69	68	U	ug/kg	68	73	U	ug/kg	73	73	U	ug/kg
Aroclor-1232	74	U	ug/kg	74	69	68	U	ug/kg	68	73	U	ug/kg	73	73	U	ug/kg
Aroclor-1242	36	U	ug/kg	36	34	34	U	ug/kg	34	36	U	ug/kg	36	36	U	ug/kg
Aroclor-1248	36	U	ug/kg	36	34	34	U	ug/kg	34	36	U	ug/kg	36	36	U	ug/kg
Aroclor-1254	18	U	ug/kg	18	17	17	U	ug/kg	17	17	U	ug/kg	17	17	U	ug/kg
Aroclor-1260	18	U	ug/kg	18	17	16	U	ug/kg	16	16	U	ug/kg	16	16	U	ug/kg

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-, 1,3-, AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (9270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site Locator  
 Collect Date:

R9866015  
 GROUP111  
 20S00501  
 05-MAY-95

R9866005  
 GROUP111  
 21S00101  
 04-MAY-95

R9866006  
 GROUP111  
 21S00101B  
 04-MAY-95

R9866003  
 GROUP111  
 21S00201  
 04-MAY-95

DL

VALUE

DL

VALUE

DL

VALUE

DL

VALUE

PESTICIDES/PCBs	ug/kg	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
alpha-BHC	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
beta-BHC	1.3	U	1.3	UJ	UJ	1.4	UJ	UJ	1.3	U	UJ
delta-BHC	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
gamma-BHC (linolene)	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
Heptachlor	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
Heptachlor epoxide	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
Endosulfan I	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
Dieldrin	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
4,4-DDE	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
Endrin	.68	U	.68	UJ	UJ	.7	UJ	UJ	.68	U	UJ
Endosulfan II	1.3	U	1.3	UJ	UJ	1.4	UJ	UJ	1.3	U	UJ
4,4-DDD	1.3	U	1.3	UJ	UJ	1.4	UJ	UJ	1.3	U	UJ
Endosulfan sulfate	1.3	U	1.3	UJ	UJ	1.4	UJ	UJ	1.3	U	UJ
4,4-DDT	1.3	U	1.3	UJ	UJ	1.4	UJ	UJ	1.3	U	UJ
Methoxychlor	1.3	U	1.3	UJ	UJ	1.4	UJ	UJ	1.3	U	UJ
Endrin aldehyde	2.8	U	2.8	UJ	UJ	2.8	UJ	UJ	2.7	U	UJ
Endrin ketone	1.3	U	1.3	UJ	UJ	1.4	UJ	UJ	1.3	U	UJ
Chlordane	1.3	U	1.3	UJ	UJ	1.4	UJ	UJ	1.3	U	UJ
Chlorobenzilate	240	J	6.9	J	J	180	J	J	6.8	U	UJ
Diallate	21	U	21	UJ	UJ	21	UJ	UJ	20	U	UJ
Toxaphene	41	U	41	UJ	UJ	41	UJ	UJ	41	U	UJ
Isodrin	34	U	34	UJ	UJ	34	UJ	UJ	34	U	UJ
Kepon	.69	U	.69	UJ	UJ	.7	UJ	UJ	.68	U	UJ
Aroclor-1016	41	U	41	UJ	UJ	41	UJ	UJ	41	U	UJ
Aroclor-1221	34	U	34	UJ	UJ	34	UJ	UJ	34	U	UJ
Aroclor-1232	69	U	69	UJ	UJ	70	UJ	UJ	68	U	UJ
Aroclor-1242	69	U	69	UJ	UJ	70	UJ	UJ	68	U	UJ
Aroclor-1248	34	U	34	UJ	UJ	34	UJ	UJ	34	U	UJ
Aroclor-1254	34	U	34	UJ	UJ	34	UJ	UJ	34	U	UJ
Aroclor-1260	17	U	17	UJ	UJ	17	UJ	UJ	16	U	UJ

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2,3,4 AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group 111 Report  
 SMMs 20 and 21 Surface Soil Data

Lab Sample Number: R9866001  
 Site: GROUP111  
 Locator: 21S00301  
 Collect Date: 04-MAY-95

VALUE QUAL UNITS DL

PESTICIDES/PCBs	ug/kg	DL
alpha-BHC	.72 U	.72
beta-BHC	1.4 U	1.4
delta-BHC	.72 U	.72
gamma-BHC (Lindane)	.72 U	.72
Heptachlor	.72 U	.72
Aldrin	.72 U	.72
Heptachlor epoxide	.72 U	.72
Endosulfan I	.72 U	.72
Endosulfan II	.72 U	.72
4,4'-DDE	1.4 U	1.4
Endosulfan sulfate	1.4 U	1.4
4,4'-DDT	1.4 U	1.4
Methoxychlor	2.9 U	2.9
Endrin aldehyde	1.4 U	1.4
Endrin ketone	1.4 U	1.4
Chlordane	7.2 U	7.2
Chlorobenzilate	21 U	21
Diallate	63 U	63
Toxaphene	35 U	35
Isodrin	.72 U	.72
Xepone	63 U	63
Aroclor-1016	35 U	35
Aroclor-1221	72 U	72
Aroclor-1232	72 U	72
Aroclor-1242	35 U	35
Aroclor-1248	35 U	35
Aroclor-1254	17 U	17
Aroclor-1260	17 U	17

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMUs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site:  
 Locator:  
 Collect Date:

R9866008  
 GROUP111  
 20S00101  
 04-MAY-95

R9866012  
 GROUP111  
 20S00201  
 05-MAY-95

R9866010  
 GROUP111  
 20S00301  
 05-MAY-95

R9866016  
 GROUP111  
 20S00401  
 05-MAY-95

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Antimony	1.1 U		mg/kg	1.1	1.1 U		mg/kg	1.1	1.1 U		mg/kg	1.1	1.1 U		mg/kg	1.1
Arsenic	2.2 J		mg/kg	.6	1.3 J		mg/kg	.6	1.3 J		mg/kg	.6	1.3 J		mg/kg	.6
Barium	25.7 J		mg/kg	.24	9.4 J		mg/kg	.23	18.5 J		mg/kg	.22	9.2 J		mg/kg	.24
Beryllium	.1 J		mg/kg	.066	.1 J		mg/kg	.062	.06 U		mg/kg	.06	.11 J		mg/kg	.065
Cadmium	1.4		mg/kg	.26	.34 J		mg/kg	.25	1.6		mg/kg	.24	.4 J		mg/kg	.26
Chromium	13.8		mg/kg	.37	9.2		mg/kg	.35	17.3		mg/kg	.35	4.8		mg/kg	.37
Cobalt	.85 J		mg/kg	.68	.64 U		mg/kg	.64	.63 U		mg/kg	.63	.67 U		mg/kg	.67
Copper	.29		mg/kg	.22	3.9 J		mg/kg	.21	40.9		mg/kg	.2	1.4 UJ		mg/kg	1.4
Cyanide	.05 U		mg/kg	.05	.05 U		mg/kg	.05	.05 U		mg/kg	.05	.05 U		mg/kg	.05
Lead	234 J		mg/kg	.20	19.9 J		mg/kg	.4	240 J		mg/kg	.40	2.2 J		mg/kg	.4
Mercury	.03 U		mg/kg	.03	.03 U		mg/kg	.03	.03 UJ		mg/kg	.03	.03 U		mg/kg	.03
Nickel	6.7 J		mg/kg	1.3	1.4 J		mg/kg	1.2	9.6		mg/kg	1.2	1.3 J		mg/kg	1.2
Selenium	.11 UJ		mg/kg	.11	.15 J		mg/kg	.5	.1 U		mg/kg	.1	.12 J		mg/kg	.5
Silver	.61 UJ		mg/kg	.61	.61 UJ		mg/kg	.61	.61 UJ		mg/kg	.61	.61 UJ		mg/kg	.61
Thallium	.13 U		mg/kg	.13	.12 U		mg/kg	.12	.12 U		mg/kg	.12	.13 U		mg/kg	.13
Tin	8.4 UJ		mg/kg	8.4	2.8 U		mg/kg	2.8	6.4 UJ		mg/kg	6.4	3 U		mg/kg	3
Vanadium	8.9 J		mg/kg	.26	5.5 J		mg/kg	.25	6.2 J		mg/kg	.24	4.8 J		mg/kg	.26
Zinc	161		mg/kg	.46	23.6		mg/kg	.43	137		mg/kg	.43	3.9 J		mg/kg	.46

INORGANICS (SOIL)

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWSUs 20 and 21 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866015  
 GROUP111  
 20S00501  
 05-MAY-95

R9866005  
 GROUP111  
 21S00101  
 04-MAY-95

R9866006  
 GROUP111  
 21S00101D  
 04-MAY-95

R9866003  
 GROUP111  
 21S00201  
 04-MAY-95

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
ANTIMONY	1	U	mg/kg	1	1	U	mg/kg	1	1	U	mg/kg	1
ARSENIC	.31	J	mg/kg	.6	.52	J	mg/kg	.6	.55	J	mg/kg	.6
BARIUM	6.6	J	mg/kg	.23	3.3	J	mg/kg	.23	3.9	J	mg/kg	.22
BERYLLIUM	.06	J	mg/kg	.063	.06	U	mg/kg	.06	.06	U	mg/kg	.06
CADMIUM	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.24	U	mg/kg	.24
CHROMIUM	3.9	U	mg/kg	.36	1.7	J	mg/kg	.35	1.5	J	mg/kg	.35
COBALT	.65	U	mg/kg	.65	.64	U	mg/kg	.64	.63	U	mg/kg	.63
COPPER	1.7	UJ	mg/kg	1.7	1.3	UJ	mg/kg	1	2.8	UJ	mg/kg	2.8
CYANIDE	.05	U	mg/kg	.05	.05	U	mg/kg	.05	.05	U	mg/kg	.05
LEAD	3.1	J	mg/kg	.4	3	J	mg/kg	.4	36.8	J	mg/kg	.2
MERCURY	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.03	U	mg/kg	.03
NICKEL	1.2	U	mg/kg	1.2	1.2	U	mg/kg	1.2	1.2	U	mg/kg	1.2
SELENIUM	.1	UJ	mg/kg	.1	.1	UJ	mg/kg	.1	.1	U	mg/kg	.1
SILVER	.61	UJ	mg/kg	.61	.61	UJ	mg/kg	.61	.61	UJ	mg/kg	.61
THALLIUM	.13	U	mg/kg	.13	.12	U	mg/kg	.12	.12	U	mg/kg	.12
TIN	3.5	UJ	mg/kg	3.5	2.8	U	mg/kg	2.8	3	UJ	mg/kg	3
VANADIUM	4.2	J	mg/kg	.25	2.1	J	mg/kg	.25	2.5	J	mg/kg	.24
ZINC	6.7	J	mg/kg	.44	4.2	J	mg/kg	.44	13.6	J	mg/kg	.43

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SWOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Surface Soil Data

Lab Sample Number: R9866001  
 Site: GROUP111  
 Locator: 21S00301  
 Collect Date: 04-MAY-95

VALUE QUAL UNITS DL

INORGANICS (SOIL)

Element	Value	Qual	Units	DL
Antimony	1.1	U	mg/kg	1.1
Arsenic	.76	J	mg/kg	.6
Barium	3.5	J	mg/kg	.24
Beryllium	.09	J	mg/kg	.064
Cadmium	.26	U	mg/kg	.26
Chromium	3.9	U	mg/kg	.36
Cobalt	.66	U	mg/kg	.66
Copper	2.1	UJ	mg/kg	2.1
Cyanide	.09	U	mg/kg	.09
Lead	.79	UJ	mg/kg	.79
Mercury	.03	U	mg/kg	.03
Nickel	1.2	U	mg/kg	1.2
Selenium	.11	UJ	mg/kg	.11
Silver	.61	UJ	mg/kg	.61
Thallium	.13	U	mg/kg	.13
Tin	2.9	U	mg/kg	2.9
Vanadium	5	J	mg/kg	.26
Zinc	2.9	J	mg/kg	.45

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SYOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866017  
 GROUP111  
 52S00101  
 05-MAY-95

VALUE QUAL UNITS DL

Chemical Name	Value	Qual	Units	DL
Chloroethane	10 U		ug/kg	10
Bromoethane	10 U		ug/kg	10
Vinyl chloride	10 U		ug/kg	10
Chloroethane	10 U		ug/kg	10
Methylene chloride	10 U		ug/kg	10
Acetone	10 U		ug/kg	10
Carbon disulfide	5 U		ug/kg	5
1,1-Dichloroethane	5 U		ug/kg	5
1,1-Dichloroethane	5 U		ug/kg	5
1,2-Dichloroethane (total)	5 U		ug/kg	5
Chloroform	5 U		ug/kg	5
1,2-Dichloroethane	5 U		ug/kg	5
2-Butane	10 U		ug/kg	10
1,1,1-Trichloroethane	5 U		ug/kg	5
Carbon tetrachloride	5 U		ug/kg	5
Bromodichloroethane	5 U		ug/kg	5
1,2-Dichloropropane	5 U		ug/kg	5
cis-1,3-Dichloropropene	5 U		ug/kg	5
Trichloroethane	5 U		ug/kg	5
Dibromochloroethane	5 U		ug/kg	5
1,1,2-Trichloroethane	5 U		ug/kg	5
Benzene	5 U		ug/kg	5
trans-1,3-Dichloropropene	5 U		ug/kg	5
Bromoform	5 U		ug/kg	5
4-Methyl-2-pentanone	10 U		ug/kg	10
2-Hexanone	10 U		ug/kg	10
Tetrachloroethene	5 U		ug/kg	5
1,1,2,2-Tetrachloroethane	5 U		ug/kg	5
Toluene	5 U		ug/kg	5
Chlorobenzene	5 U		ug/kg	5
Ethylbenzene	5 U		ug/kg	5
Styrene	5 U		ug/kg	5
Xylenes (total)	6 U		ug/kg	5
Dichlorodifluoromethane	10 U		ug/kg	10
Trichlorofluoromethane	5 U		ug/kg	5
1,3-Dichlorobenzene	5 U		ug/kg	5
Acrolein	100 U		ug/kg	100
Iodomethane	10 U		ug/kg	10
1,4-Dichlorobenzene	5 U		ug/kg	5
Acrylonitrile	100 U		ug/kg	100
Dibromomethane	5 U		ug/kg	5
1,2-Dichlorobenzene	5 U		ug/kg	5
2-Chloroethyl vinyl ether	10 U		ug/kg	10
Ethyl methacrylate	5 U		ug/kg	5
1,2,3-Trichloropropene	5 U		ug/kg	5
trans-1,4-Dichloro-2-butene	5 U		ug/kg	5
Isobutyl alcohol	210 U		ug/kg	210
1,1,2-Tetrachloroethane	5 U		ug/kg	5
1,2-Dibromo-3-chloropropene	10 U		ug/kg	10
1,2-Dibromoethane	5 U		ug/kg	5

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMU 52 Surface Soil Data

Lab Sample Number: R9866017  
 Site: GROUP111  
 Locator: 52S00101  
 Collect Date: 05-MAY-95

VALUE QUAL UNITS DL

1,4-Dioxane	210 R	ug/kg	210
3-Chloropropene	5 U	ug/kg	5
Acetonitrile	100 U	ug/kg	100
Chloroprene	210 U	ug/kg	210
Methacrylonitrile	5 U	ug/kg	5
Methyl methacrylate	10 U	ug/kg	10
Pentachloroethane	10 U	ug/kg	10
Propionitrile	100 U	ug/kg	100
Vinyl acetate	10 U	ug/kg	10

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMAU 52 Surface Soil Date

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866017  
 GROUP111  
 52S00101  
 05-MAY-95

VALUE QUAL UNITS DL

SEMI-VOLATILES	VALUE	QUAL	UNITS	DL
M-Nitrosodimethylamine	700 U		ug/kg	700
Phenol	700 U		ug/kg	700
Aniline	700 U		ug/kg	700
bis(2-Chloroethyl) ether	700 U		ug/kg	700
Benzyl Alcohol	700 U		ug/kg	700
2-Methylphenol	700 U		ug/kg	700
bis(2-Chloroisopropyl) ether	700 U		ug/kg	700
M-Nitroso-di-n-propylamine	700 U		ug/kg	700
Hexachloroethane	700 U		ug/kg	700
Nitrobenzene	700 U		ug/kg	700
Isocorone	700 U		ug/kg	700
2-Nitrophenol	700 U		ug/kg	700
2,4-Dimethylphenol	700 U		ug/kg	700
Benzoic acid	3400 U		ug/kg	3400
bis(2-Chloroethoxy) methane	700 U		ug/kg	700
2,4-Dichlorophenol	700 U		ug/kg	700
1,2,4-Trichlorobenzene	700 U		ug/kg	700
Naphthalene	700 U		ug/kg	700
4-Chloroaniline	700 U		ug/kg	700
Hexachlorobutadiene	700 U		ug/kg	700
4-Chloro-3-methylphenol	700 U		ug/kg	700
2-Methylnaphthalene	700 U		ug/kg	700
Hexachlorocyclopentadiene	700 U		ug/kg	700
2,4,6-Trichlorophenol	700 U		ug/kg	700
Dimethylphthalate	700 U		ug/kg	700
2,4,5-Trichlorophenol	3400 U		ug/kg	3400
2-Chloronaphthalene	700 U		ug/kg	700
2-Nitroaniline	700 U		ug/kg	700
Acenaphthylene	700 U		ug/kg	700
2,6-Dinitrotoluene	700 U		ug/kg	700
3-Nitroaniline	3400 U		ug/kg	3400
Acenaphthene	700 U		ug/kg	700
2,4-Dinitrophenol	3400 U		ug/kg	3400
4-Nitrophenol	3400 U		ug/kg	3400
Dibenzofuran	700 U		ug/kg	700
2,4-Dinitrotoluene	700 U		ug/kg	700
Diethylphthalate	700 U		ug/kg	700
4-Chlorophenyl phenylether	700 U		ug/kg	700
Fluorene	700 U		ug/kg	700
6-Nitroaniline	3400 U		ug/kg	3400
4,6-Dinitro-2-methylphenol	3400 U		ug/kg	3400
M-Nitrosodiphenylamine (1)	700 U		ug/kg	700
1,2-Diphenylhydrazine	700 U		ug/kg	700
4-Bromophenyl phenylether	700 U		ug/kg	700
Hexachlorobenzene	700 U		ug/kg	700
Pentachlorophenol	3400 U		ug/kg	3400
Phenanthrene	700 U		ug/kg	700
Anthracene	700 U		ug/kg	700
DI-n-Butylphthalate	700 U		ug/kg	700
Fluoranthene	150 U		ug/kg	700

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SAMU 52 Surface Soil Data

Lab Sample Number: R9866017  
 Site Group: GROUP111  
 Locator: 52S00101  
 Collect Date: 05-MAY-95

VALUE QVAL UNITS DL

Chemical Name	Value	QVal	Units	DL
Pyrene	110	J	ug/kg	700
Butylbenzylphthalate	700	U	ug/kg	700
3,3-Dichlorobenzidine	1400	U	ug/kg	1400
Benzo (a) anthracene	87	J	ug/kg	700
Chrysene	130	J	ug/kg	700
Bis(2-Ethylhexyl) phthalate	700	U	ug/kg	700
Di-n-octylphthalate	700	U	ug/kg	700
Benzo (b) fluoranthene	140	J	ug/kg	700
Benzo (k) fluoranthene	100	J	ug/kg	700
Benzo (e) pyrene	100	J	ug/kg	700
Indeno (1,2,3-cd) pyrene	75	J	ug/kg	700
Dibenz (a,h) anthracene	700	U	ug/kg	700
Benzo (g,h,i) perylene	91	J	ug/kg	700
2-Picoline	3400	UJ	ug/kg	3400
Methyl methanesulfonate	700	U	ug/kg	700
Ethyl methanesulfonate	700	U	ug/kg	700
Acetophenone	700	U	ug/kg	700
N-Nitrosopiperidine	700	U	ug/kg	700
Phenyl-tert-butylamine	700	U	ug/kg	700
2,6-Dichlorophenol	3400	U	ug/kg	3400
N-Nitroso-di-n-butylamine	700	U	ug/kg	700
N-Nitrosodimethylamine	700	UJ	ug/kg	700
N-Nitrosopyrrolidine	700	U	ug/kg	700
Benzidine	3400	U	ug/kg	3400
1,2,4,5-Tetrachlorobenzene	3400	U	ug/kg	3400
Pentachlorobenzene	3400	U	ug/kg	3400
1-Naphthylamine	3400	U	ug/kg	3400
2-Naphthylamine	3400	U	ug/kg	3400
2,3,4,6-Tetrachlorophenol	3400	U	ug/kg	3400
Phenacetin	700	U	ug/kg	700
5-Aminobiphenyl	3400	U	ug/kg	3400
Pentachloronitrobenzene	3400	U	ug/kg	3400
Pronamide	700	U	ug/kg	700
p-(Dimethylamino)azobenzene	700	U	ug/kg	700
7,12-Dimethylbenz(a)Anthracene	700	U	ug/kg	700
3-Methylcholanthrene	3400	UJ	ug/kg	3400
Pyridine	700	U	ug/kg	700
N-Nitrosomethylethylamine	700	U	ug/kg	700
N-Nitrosomorpholine	700	U	ug/kg	700
o-Toluidine	700	U	ug/kg	700
Hexachloropropene	3400	U	ug/kg	3400
p-Phenylenediamine	3400	U	ug/kg	3400
Saffrole	70000	U	ug/kg	70000
Isosafrole	700	U	ug/kg	700
1,4-Naphthoquinone	700	U	ug/kg	700
1,3-Dinitrobenzene	700	U	ug/kg	700
5-Nitro-o-toluidine	700	U	ug/kg	700
1,3,5-Trinitrobenzene	700	U	ug/kg	700
4-Nitroquinoline-1-oxide	3400	U	ug/kg	3400
Methapyrilene	700	U	ug/kg	700
3,3-Dimethylbenzidine	3400	U	ug/kg	3400
Hexachlorophene	34000	U	ug/kg	34000

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SAMU 52 Surface Soil Data

Lab Sample Number: R9866017  
 Site: GROUP111  
 Locator: 52S00101  
 Collect Date: 05-MAY-95

VALUE QUAL UNITS DL

VALUE	QUAL	UNITS	DL
3400	U	ug/kg	3400
700	U	ug/kg	700
700	UJ	ug/kg	700
3400	U	ug/kg	3400
700	U	ug/kg	700

Aramite  
 2-Chlorophenol  
 3- & 4-Methylphenol (2)  
 Hexachlorocyclopentadiene  
 2-Acetylaminofluorene

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Surface Soil Data

Lab Sample Number: R9865017  
 Site: GROUP111  
 Locator: 52S00101  
 Collect Date: 05-MAY-95

VALUE QUAL UNITS DL

PESTICIDES/PCBs	ug/kg	DL
alpha-BHC	7.1 U	ug/kg
beta-BHC	14 U	ug/kg
delta-BHC	7.1 U	ug/kg
gamma-BHC (Lindane)	7.1 U	ug/kg
Heptachlor	7.1 U	ug/kg
Aldrin	7.1 U	ug/kg
Heptachlor epoxida	7.1 U	ug/kg
Endosulfan I	7.1 U	ug/kg
Dieldrin	7.1 U	ug/kg
4,4-DDE	350	ug/kg
Endrin	14 U	ug/kg
Endosulfan II	14 U	ug/kg
4,4-DDD	14 U	ug/kg
Endosulfan sulfate	14 U	ug/kg
4,4-DDT	790	ug/kg
Methoxychlor	29 U	ug/kg
Endrin aldehyde	14 U	ug/kg
Endrin ketone	14 U	ug/kg
Chlordane	71 U	ug/kg
Chlorobenzilate	210 U	ug/kg
Diallate	430 U	ug/kg
Toxaphene	350 U	ug/kg
Isodrin	7.1 U	ug/kg
Kepona	43 U	ug/kg
Aroclor-1016	350 U	ug/kg
Aroclor-1221	710 U	ug/kg
Aroclor-1232	710 U	ug/kg
Aroclor-1242	350 U	ug/kg
Aroclor-1248	350 U	ug/kg
Aroclor-1254	170 U	ug/kg
Aroclor-1260	170 U	ug/kg

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMMU 52 Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866017  
 GROUP111  
 S2S00101  
 05-MAY-95

VALUE QUAL UNITS DL

INORGANICS (SOIL)	mg/kg	VALUE	QUAL	UNITS	DL
Antimony	mg/kg	1.1	U	mg/kg	1.1
Arsenic	mg/kg	.31	J	mg/kg	.6
Barium	mg/kg	4.8	J	mg/kg	.23
Beryllium	mg/kg	.06	U	mg/kg	.06
Cadmium	mg/kg	.26	U	mg/kg	.26
Chromium	mg/kg	4.2	U	mg/kg	.36
Cobalt	mg/kg	.66	U	mg/kg	.66
Copper	mg/kg	1.4	UJ	mg/kg	1.4
Cyanide	mg/kg	.05	U	mg/kg	.05
Lead	mg/kg	3.6	J	mg/kg	.4
Mercury	mg/kg	.03	U	mg/kg	.03
Nickel	mg/kg	1.2	U	mg/kg	1.2
Selenium	mg/kg	.11	UJ	mg/kg	.11
Silver	mg/kg	.61	UJ	mg/kg	.61
Thallium	mg/kg	.13	U	mg/kg	.13
Tin	mg/kg	2.9	U	mg/kg	2.9
Vanadium	mg/kg	6.3	J	mg/kg	.26
Zinc	mg/kg	5.4	U	mg/kg	.63

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (B270) ANALYTICAL RUN.

**APPENDIX B-2**

**SUBSURFACE SOIL SAMPLE ANALYSES, SWMUS 20, 21, AND 52**

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
SUMUS20 and 21 Sub-Surface Soil Data

Lab Sample Number: R9866009  
Site: GROUP111  
Locator: 20800105  
Collect Date: 04-MAY-95

VALUE QUAL UNITS DL

R9866013  
GROUP111  
20800205  
05-MAY-95

R9866014  
GROUP111  
20800205D  
05-MAY-95

R9866011  
GROUP111  
20800305  
05-MAY-95

DL

VALUE

VALUE QUAL UNITS DL

VALUE QUAL UNITS DL

VALUE QUAL UNITS DL

DL

Chemical Name	Value	Qual	Units	DL	Value	Qual	Units	DL	Value	Qual	Units	DL
Chloroethane	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Bromoethane	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Vinyl chloride	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Chloroethene	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Methylene chloride	10	U	ug/kg	10	13	U	ug/kg	13	14	U	ug/kg	14
Acetone	12	U	ug/kg	12	15	U	ug/kg	15	14	U	ug/kg	14
Carbon disulfide	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethene (total)	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chloroform	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
2-Butene	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
1,1,1-Trichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Carbon tetrachloride	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromodichloromethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloropropane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
cis-1,3-Dichloropropene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Trichloroethene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Dibromochloromethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2-Trichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Benzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
trans-1,3-Dichloropropene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromoform	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
4-Methyl-2-pentanone	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
2-Hexanone	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Tetrachloroethene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Toluene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chlorobenzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Ethylbenzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Styrene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Xylenes (total)	1	J	ug/kg	1	1	J	ug/kg	1	1	J	ug/kg	1
Dichlorodifluoromethane	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Trichlorofluoromethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,3-Dichlorobenzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Acrolein	120	UJ	ug/kg	120	120	UJ	ug/kg	120	120	UJ	ug/kg	120
Iodoethane	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
1,4-Dichlorobenzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Acrylonitrile	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Dibromomethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichlorobenzene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740
2-Chloroethyl vinyl ether	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Ethyl methacrylate	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2,3-Trichloropropane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
trans-1,4-Dichloro-2-butene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Isobutyl alcohol	240	U	ug/kg	240	240	U	ug/kg	240	240	U	ug/kg	240
1,1,1,2-Tetrachloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dibromo-3-chloropropane	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
1,2-Dibromoethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMUs 20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866009  
 GROUP111  
 20800105  
 04-MAY-95

R9866013  
 GROUP111  
 20800205  
 05-MAY-95

R9866014  
 GROUP111  
 20800205D  
 05-MAY-95

R9866011  
 GROUP111  
 20800305  
 05-MAY-95

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,4-Dioxane	240	R	ug/kg	240	240	R	ug/kg	240	240	R	ug/kg	240
3-Chloropropene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Acetonitrile	120	U	ug/kg	120	120	U	ug/kg	120	120	U	ug/kg	120
Chloroprene	240	U	ug/kg	240	240	U	ug/kg	240	240	U	ug/kg	240
Methacrylonitrile	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Methyl methacrylate	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Pentachloroethane	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Propionitrile	120	U	ug/kg	120	120	U	ug/kg	120	120	U	ug/kg	120
Vinyl acetate	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMUs20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866007  
 GROUP111  
 21800104  
 04-MAY-95

R9866004  
 GROUP111  
 21800203  
 04-MAY-95

R9866002  
 GROUP111  
 21800303  
 04-MAY-95

VALUE QUAL UNITS DL VALUE QUAL UNITS DL VALUE QUAL UNITS DL

Chemical Name	Value	Qual	Units	DL	Value	Qual	Units	DL	Value	Qual	Units	DL
<b>VOLATILES</b>												
Chloroethane	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
Bromoethane	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
Vinyl chloride	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
Chloroethene	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
Methylene chloride	8 U	6 U	ug/kg	8	6 U	6 U	ug/kg	6	10 U	6 U	ug/kg	10
Acetone	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	14 U	6 U	ug/kg	14
Carbon disulfide	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
1,1-Dichloroethane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
1,1-Dichloroethene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
1,2-Dichloroethane (total)	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Chloroform	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
1,2-Dichloroethene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
2-Butanone	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
1,1,1-Trichloroethane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Carbon tetrachloride	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Bromodichloromethane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
1,2-Dichloropropane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
cis-1,3-Dichloropropene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Trichloroethene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Dibromochloromethane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
1,1,2-Trichloroethane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Benzene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
trans-1,3-Dichloropropene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Bromoform	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
4-Methyl-2-pentanone	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
2-Hexanone	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Tetrachloroethene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
1,1,2,2-Tetrachloroethane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Toluene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Chlorobenzene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Ethylbenzene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Styrene	1 U	6 U	ug/kg	1	3 U	6 U	ug/kg	3	1 U	6 U	ug/kg	1
Xylenes (total)	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
Dichlorodifluoroethane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
Trichlorofluoroethane	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6
1,3-Dichlorobenzene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	750 U	6 U	ug/kg	750
Acrolein	120 U	6 U	ug/kg	120	110 U	6 U	ug/kg	110	110 U	6 U	ug/kg	110
Iodomethane	12 U	6 U	ug/kg	12	11 U	6 U	ug/kg	11	11 U	6 U	ug/kg	11
1,4-Dichlorobenzene	6 U	6 U	ug/kg	6	6 U	6 U	ug/kg	6	750 U	6 U	ug/kg	750
Acrylonitrile	120 U	6 U	ug/kg	120	110 U	6 U	ug/kg	110	110 U	6 U	ug/kg	110

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMa20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866007  
 GROUP111  
 21800104  
 04-MAY-95

R9866004  
 GROUP111  
 21800203  
 04-MAY-95

R9866002  
 GROUP111  
 21800303  
 04-MAY-95

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Dibromomethane	6 U	ug/kg	6	6 U	ug/kg	6	6 U	ug/kg	6
1,2-Dichlorobenzene	750 U	ug/kg	750	750 U	ug/kg	750	6 U	ug/kg	6
2-Chloroethylvinyl ether	12 U	ug/kg	12	11 U	ug/kg	11	6 U	ug/kg	6
Ethyl methacrylate	6 U	ug/kg	6	6 U	ug/kg	6	11 U	ug/kg	11
1,2,3-Trichloropropane	6 U	ug/kg	6	6 U	ug/kg	6	6 U	ug/kg	6
trans-1,4-dichloro-2-butene	6 U	ug/kg	6	6 U	ug/kg	6	6 U	ug/kg	6
Isobutyl alcohol	250 U	ug/kg	250	220 U	ug/kg	220	6 U	ug/kg	6
1,1,2-Tetrachloroethane	6 U	ug/kg	6	6 U	ug/kg	6	230 UJ	ug/kg	230
1,2-Dibromo-3-chloropropane	12 U	ug/kg	12	11 U	ug/kg	11	6 U	ug/kg	6
1,2-Dibromoethane	6 U	ug/kg	6	6 U	ug/kg	6	11 U	ug/kg	11
1,4-Dioxane	250 R	ug/kg	250	220 R	ug/kg	220	6 U	ug/kg	6
3-Chloropropene	6 U	ug/kg	6	6 U	ug/kg	6	230 R	ug/kg	230
Acetonitrile	120 U	ug/kg	120	110 U	ug/kg	110	6 U	ug/kg	6
Chloroprene	250 U	ug/kg	250	220 U	ug/kg	220	110 U	ug/kg	110
Methacrylonitrile	6 U	ug/kg	6	6 U	ug/kg	6	230 U	ug/kg	230
Methyl methacrylate	12 U	ug/kg	12	11 U	ug/kg	11	6 U	ug/kg	6
Pentachloroethane	12 U	ug/kg	12	11 U	ug/kg	11	11 U	ug/kg	11
Propionitrile	120 U	ug/kg	120	110 U	ug/kg	110	110 U	ug/kg	110
Vinyl acetate	12 U	ug/kg	12	11 U	ug/kg	11	11 U	ug/kg	11

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
SUMS20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
Site  
Locator  
Collect Date:

R9866009  
GROUP111  
20800105  
04-MAY-95

R9866013  
GROUP111  
20800205  
05-MAY-95

R9866014  
GROUP111  
20800205D  
05-MAY-95

R9866011  
GROUP111  
20800305  
05-MAY-95

VALUE QVAL UNITS DL VALUE QVAL UNITS DL VALUE QVAL UNITS DL VALUE QVAL UNITS DL

ug/kg

Chemical Name	Value	QVAL	Units	DL												
M-Nitrosodimethylamine	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Phenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Aniline	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
bis(2-Chloroethyl) ether	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Benzyl Alcohol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2-Methylphenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
bis(2-Chloroisopropyl) ether	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
M-Nitroso-di-n-propylamine	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Hexachloroethane	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Nitrobenzene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Isophorone	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2-Nitrophenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2,4-Dimethylphenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Benzoic acid	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
Bis(2-Chloroethoxy) methane	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2,4-Dichlorophenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
1,2,4-Trichlorobenzene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Naphthalene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
4-Chloroaniline	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Hexachlorobutadiene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
4-Chloro-3-methylphenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2-Naphthalene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Hexachlorocyclopentadiene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2,4,6-Trichlorophenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Dimethylphthalate	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
2,4,5-Trichlorophenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2-Chloronaphthalene	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
2-Nitroaniline	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
Acenaphthylene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2,6-Dinitrotoluene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
3-Nitroaniline	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
Acenaphthene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2,4-Dinitrophenol	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
4-Nitrophenol	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
Dibenzofuran	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
2,4-Dinitrotoluene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Diethylphthalate	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
4-Chlorophenyl-phenylether	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Fluorene	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
4-Nitroaniline	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
4,6-Dinitro-2-methylphenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
N-Nitrosodiphenylamine (1)	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
1,2-Diphenylhydrazine	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
4-Bromophenyl-phenylether	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Hexachlorobenzene	4000	U	ug/kg	4000	3600	U	ug/kg	3600	3600	U	ug/kg	3600	4000	U	ug/kg	4000
Pentachlorophenol	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Phenanthrene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Anthracene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Di-n-Butylphthalate	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820
Fluoranthene	810	U	ug/kg	810	740	U	ug/kg	740	740	U	ug/kg	740	820	U	ug/kg	820

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SW4620 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866009  
 GROUP111  
 20800105  
 04-MAY-95

R9866013  
 GROUP111  
 20800205  
 05-MAY-95

R9866014  
 GROUP111  
 20800205D  
 05-MAY-95

R9866011  
 GROUP111  
 20800305  
 05-MAY-95

Chemical Name	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Pyrene	810	U	ug/kg	810	U	ug/kg	810	ug/kg	740	U	ug/kg	740	U
Butylbenzylphthalate	86	J	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
3,3-Dichlorobenzidine	1600	U	ug/kg	1600	U	ug/kg	1500	ug/kg	1500	U	ug/kg	1500	U
Benzo (a) anthracene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Chrysene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
bia(2-ethylhexyl) phthalate	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Di-n-octylphthalate	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Benzo (b) fluoranthene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Benzo (k) fluoranthene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Benzo (e) pyrene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Indeno (1,2,3-cd) pyrene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Dibenz (a,h) anthracene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Benzo (g,h,i) perylene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
2-Picoline	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	UJ	ug/kg	3600	U
Methyl methanesulfonate	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Ethyl methanesulfonate	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Acetophenone	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
N-Nitrosopiperidine	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Phenyl-tert-butylamine	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
2,6-Dichlorophenol	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
N-Nitroso-di-n-butylamine	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
N-Nitrosodiethylamine	810	UJ	ug/kg	810	UJ	ug/kg	740	ug/kg	740	UJ	ug/kg	740	UJ
N-Nitrosopyrrolidine	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Benizidine	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
1,2,4,5-Tetrachlorobenzene	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
Pentachlorobenzene	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
1-Naphthylamine	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
2-Naphthylamine	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
2,3,4,6-Tetrachlorophenol	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Phenacetin	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
4-Aminobiphenyl	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
Pentachloronitrobenzene	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
Propamide	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
p-(Dimethylamino)azobenzene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
7,12-Dimethylbenz(A)anthracene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
3-Methylcholanthrene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Pyridine	4000	UJ	ug/kg	4000	UJ	ug/kg	3600	ug/kg	3600	UJ	ug/kg	3600	UJ
N-Nitrosomethyl ethylamine	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
N-Nitrosomorpholine	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
o-Toluidine	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
p-Phenyl enediamine	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
Serfole	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
Isosafrole	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
1,4-Naphthoquinone	810	UJ	ug/kg	810	UJ	ug/kg	740	ug/kg	740	UJ	ug/kg	740	UJ
1,3-Dinitrobenzene	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
3-Nitro-o-toluidine	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
1,3,5-Trinitrobenzene	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
4-Nitroquinoline-1-oxide	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
Methpyrriene	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U
3,3-Dimethylbenzidine	810	U	ug/kg	810	U	ug/kg	740	ug/kg	740	U	ug/kg	740	U
Hexachlorophene	4000	U	ug/kg	4000	U	ug/kg	3600	ug/kg	3600	U	ug/kg	3600	U



US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMUs20 and 21 sub-Surface Soil Data

Lab Sample Number:  
 Site:  
 Locator:  
 Collect Date:

R9866007  
 GROUP111  
 21800104  
 04-MAY-95

R9866004  
 GROUP111  
 21800203  
 04-MAY-95

R9866002  
 GROUP111  
 21800303  
 04-MAY-95

Chemical Name	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS
<b>SEMI-VOLATILES</b>									
N-Nitrosodimethylamine	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Phenol	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Aniline	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
bis(2-Chloroethyl) ether	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Benzyl Alcohol	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2-Nethylphenol	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
bis(2-Chloroisopropyl) ether	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
N-Nitrosodi-n-propylamine	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Hexachloroethane	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Nitrobenzene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Isophorone	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2-Nitrophenol	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2,4-Dimethylphenol	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Benzoic acid	3600	3600 UJ	ug/kg	3600	3600 UJ	ug/kg	3600	3600 UJ	ug/kg
bis(2-Chloroethoxy) methane	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2,4-Dichlorophenol	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
1,2,4-Trichlorobenzene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Naphthalene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
4-Chloroaniline	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Hexachlorocyclopentadiene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
4-Chloro-3-methylphenol	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2-Methylnaphthalene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Hexachlorocyclopentadiene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2,4,6-Trichlorophenol	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Dimethylphthalate	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2,6,5-Trichlorophenol	3600	3600 U	ug/kg	3600	3600 U	ug/kg	3600	3600 U	ug/kg
2-Chloronaphthalene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2-Nitroaniline	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Acenaphthylene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2,6-Dinitrotoluene	3600	3600 U	ug/kg	3600	3600 U	ug/kg	3600	3600 U	ug/kg
3-Nitroaniline	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Acenaphthene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2,6-Dinitrophenol	3600	3600 UJ	ug/kg	3600	3600 UJ	ug/kg	3600	3600 UJ	ug/kg
Dibenzofuran	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
2,4-Dinitrotoluene	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Diethylphthalate	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
4-Chlorophenyl-phenylether	750	750 U	ug/kg	750	750 U	ug/kg	750	750 U	ug/kg
Fluorene	3600	3600 U	ug/kg	3600	3600 U	ug/kg	3600	3600 U	ug/kg
4-Nitroaniline	3600	3600 U	ug/kg	3600	3600 U	ug/kg	3600	3600 U	ug/kg

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866007  
 GROUP111  
 21800104  
 04-MAY-95

R9866004  
 GROUP111  
 21800203  
 04-MAY-95

R9866002  
 GROUP111  
 21800303  
 04-MAY-95

Chemical Name	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4,6-Dinitro-2-methylphenol	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
N-Nitrosodiphenylamine (1)	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
1,2-Diphenylhydrazine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
4-Bromophenyl-phenylether	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Hexachlorobenzene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Pentachlorophenol	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
Phenanthrene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Anthracene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Di-n-Butylphthalate	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Fluoranthene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Pyrene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Benzylbenzylphthalate	1500	U	ug/kg	1500	1500	U	ug/kg	1500	1500	U	ug/kg	1500
3,3-Dichlorobenzidine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Benzo (a) anthracene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Chrysene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
bis(2-Ethylhexyl) phthalate	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Di-n-octylphthalate	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Benzo (b) Fluoranthene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Benzo (k) Fluoranthene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Benzo (e) Pyrene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Indeno (1,2,3-cd) pyrene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Dibenz (a,h) anthracene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Benzo (g,h,i) perylene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
2-Picoline	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
Methyl methanesul fonate	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Ethyl methanesul fonate	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Acetophenone	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
N-Nitrosopyridine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Phenyl-tert-butylamine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
2,6-Dichlorophenol	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
N-Nitroso-di-n-butylamine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
N-Nitrosodiphenylamine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
N-Nitrosopyrrolidine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Benzidine	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
1,2,4,5-Tetrachlorobenzene	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
Pentachlorobenzene	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
1-Naphthylamine	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
2-Naphthylamine	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
2,3,4,6-Tetrachlorophenol	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Phenacetin	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
4-Aminobiphenyl	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
Pentachloronitrobenzene	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
Pronamide	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
p-(Dimethylamino)atobenzene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
7,12-Dimethylbenz(A)Anthracene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
3-Methylcholanthrene	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Pyridine	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
N-Nitrosomethylethylamine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
N-Nitrosomorpholine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
o-Toluidine	750	U	ug/kg	750	730	U	ug/kg	730	750	U	ug/kg	750
Hexachloropropene	3600	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
p-Phenylenediamine	36000	U	ug/kg	36000	36000	U	ug/kg	36000	36000	U	ug/kg	36000

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMMUs20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866007  
 GROUP111  
 21800104  
 04-MAY-95

R9866004  
 GROUP111  
 21800203  
 04-MAY-95

R9866002  
 GROUP111  
 21800303  
 04-MAY-95

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Safrole	3600 U	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
Isopentrole	3600 U	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
1,4-Naphthoquinone	75000 U	U	ug/kg	75000	75000	U	ug/kg	75000	75000	U	ug/kg	75000
1,3-Dinitrobenzene	750 UJ	U	ug/kg	750	750	U	ug/kg	750	750	U	ug/kg	750
5-Nitro-2-toluidine	750 U	U	ug/kg	750	750	U	ug/kg	750	750	U	ug/kg	750
1,3,5-Trinitrobenzene	750 U	U	ug/kg	750	750	U	ug/kg	750	750	U	ug/kg	750
4-Nitroquinoline-1-oxide	36000 U	U	ug/kg	36000	36000	UJ	ug/kg	36000	36000	UJ	ug/kg	36000
Methapyrillene	3600 U	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
3,3-Dimethylbenzidine	750 U	U	ug/kg	750	750	U	ug/kg	750	750	U	ug/kg	750
Hexachlorophene	36000 U	U	ug/kg	36000	36000	UJ	ug/kg	36000	36000	UJ	ug/kg	36000
Aramite	3600 U	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
2-Chlorophenol	750 U	U	ug/kg	750	750	U	ug/kg	750	750	U	ug/kg	750
3- & 4-Methylphenol (2)	750 U	U	ug/kg	750	750	U	ug/kg	750	750	U	ug/kg	750
Hexachloropropene	3600 U	U	ug/kg	3600	3600	U	ug/kg	3600	3600	U	ug/kg	3600
2-Acetylanthracene	750 UJ	UJ	ug/kg	750	750	UJ	ug/kg	750	750	UJ	ug/kg	750

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMS20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866009  
 GROUP111  
 20800105  
 04-MAY-95

R9866013  
 GROUP111  
 20800205  
 05-MAY-95

R9866014  
 GROUP111  
 20800205D  
 05-MAY-95

R9866011  
 GROUP111  
 20800305  
 05-MAY-95

DL

VALUE

QUAL UNITS

DL

VALUE

QUAL UNITS

DL

VALUE

QUAL UNITS

DL

VALUE

QUAL UNITS

DL

PESTICIDES/PCBs

PESTICIDES/PCBs	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
alpha-BHC		1.6	ug/kg		1.5	ug/kg		1.5	ug/kg	
beta-BHC		.83	ug/kg		.75	ug/kg		.75	ug/kg	
delta-BHC		.83	ug/kg		.75	ug/kg		.75	ug/kg	
gamma-BHC (Lindane)		.83	ug/kg		.75	ug/kg		.75	ug/kg	
Heptachlor		.83	ug/kg		.75	ug/kg		.75	ug/kg	
Aldrin		.83	ug/kg		.75	ug/kg		.75	ug/kg	
Heptachlor epoxide		.83	ug/kg		.75	ug/kg		.75	ug/kg	
Endosulfan I		.83	ug/kg		.75	ug/kg		.75	ug/kg	
Dieldrin		.83	ug/kg		.75	ug/kg		.75	ug/kg	
4,4'-DDE		.83	ug/kg		.75	ug/kg		.75	ug/kg	
Endrin		1.6	ug/kg		1.5	ug/kg		1.5	ug/kg	
Endosulfan II		1.6	ug/kg		1.5	ug/kg		1.5	ug/kg	
5,4-DOD		1.6	ug/kg		1.5	ug/kg		1.5	ug/kg	
Endosulfan sulfate		1.6	ug/kg		1.5	ug/kg		1.5	ug/kg	
4,4'-DOT		1.6	ug/kg		1.5	ug/kg		1.5	ug/kg	
Methoxychlor		3.3	ug/kg		3	ug/kg		3	ug/kg	
Endrin aldehyde		1.6	ug/kg		1.5	ug/kg		1.5	ug/kg	
Endrin ketone		1.6	ug/kg		1.5	ug/kg		1.5	ug/kg	
Chlordane		8.3	ug/kg		7.5	ug/kg		7.5	ug/kg	
Chlorobenzilate		25	ug/kg		22	ug/kg		22	ug/kg	
Diallate		49	ug/kg		45	ug/kg		45	ug/kg	
Toxaphene		41	ug/kg		37	ug/kg		37	ug/kg	
Isodrin		.83	ug/kg		.75	ug/kg		.75	ug/kg	
Kepona		49	ug/kg		45	ug/kg		45	ug/kg	
Aroclor-1016		41	ug/kg		37	ug/kg		37	ug/kg	
Aroclor-1221		83	ug/kg		75	ug/kg		75	ug/kg	
Aroclor-1232		83	ug/kg		75	ug/kg		75	ug/kg	
Aroclor-1242		41	ug/kg		37	ug/kg		37	ug/kg	
Aroclor-1248		41	ug/kg		37	ug/kg		37	ug/kg	
Aroclor-1254		20	ug/kg		18	ug/kg		18	ug/kg	
Aroclor-1260		20	ug/kg		18	ug/kg		18	ug/kg	

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-, 1,3-, AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMS20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866007  
 GROUP111  
 21800104  
 04-MAY-95

R9866004  
 GROUP111  
 21800203  
 04-MAY-95

R9866002  
 GROUP111  
 21800303  
 04-MAY-95

DL

VALUE

DL

VALUE

DL

VALUE

DL

VALUE

DL

VALUE

DL

PESTICIDES/PCBs

PESTICIDES/PCBs	VALUE	DL	QUAL UNITS	VALUE	DL	QUAL UNITS	VALUE	DL	QUAL UNITS
alpha-BHC	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
beta-BHC	1.5 U	1.5	ug/kg	1.4	1.4	ug/kg	1.5 U	1.4	ug/kg
delta-BHC	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
gamma-BHC (Lindane)	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
Heptachlor	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
Aldrin	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
Heptachlor epoxide	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
Endosulfan I	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
Dieldrin	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
4,4'-DDE	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
Endrin	1.5 U	1.5	ug/kg	1.4	1.4	ug/kg	1.5 U	1.4	ug/kg
Endosulfan II	1.5 U	1.5	ug/kg	1.4	1.4	ug/kg	1.5 U	1.4	ug/kg
4,4'-DDD	1.5 U	1.5	ug/kg	1.4	1.4	ug/kg	1.5 U	1.4	ug/kg
Endosulfan sulfate	1.5 U	1.5	ug/kg	1.4	1.4	ug/kg	1.5 U	1.4	ug/kg
4,4'-DDT	1.5 U	1.5	ug/kg	1.4	1.4	ug/kg	1.5 U	1.4	ug/kg
Methoxychlor	3.1 U	3.1	ug/kg	3	3	ug/kg	3.1 U	3	ug/kg
Endrin aldehyde	1.5 U	1.5	ug/kg	1.4	1.4	ug/kg	1.5 U	1.4	ug/kg
Endrin ketone	1.5 U	1.5	ug/kg	1.4	1.4	ug/kg	1.5 U	1.4	ug/kg
Chlordane	31	23	ug/kg	22	22	ug/kg	31	22	ug/kg
Chlorobenzilate	23 U	23	ug/kg	22	22	ug/kg	23 U	22	ug/kg
Diallate	45 U	45	ug/kg	44	44	ug/kg	45 U	44	ug/kg
Toxaphene	38 U	38	ug/kg	36	36	ug/kg	38 U	36	ug/kg
Isodrin	.76 U	.76	ug/kg	.74	.74	ug/kg	.76 U	.74	ug/kg
Kepon	45 U	45	ug/kg	44	44	ug/kg	45 U	44	ug/kg
Aroclor-1016	38 U	38	ug/kg	36	36	ug/kg	38 U	36	ug/kg
Aroclor-1221	76 U	76	ug/kg	74	74	ug/kg	76 U	74	ug/kg
Aroclor-1232	76 U	76	ug/kg	74	74	ug/kg	76 U	74	ug/kg
Aroclor-1242	38 U	38	ug/kg	36	36	ug/kg	38 U	36	ug/kg
Aroclor-1248	38 U	38	ug/kg	36	36	ug/kg	38 U	36	ug/kg
Aroclor-1254	18 U	18	ug/kg	18	18	ug/kg	18 U	18	ug/kg
Aroclor-1260	18 U	18	ug/kg	18	18	ug/kg	18 U	18	ug/kg

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMUs 20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site Locator  
 Collect Date:

R9866009  
 GROUP111  
 20800105  
 04-MAY-95

R9866013  
 GROUP111  
 20800205  
 05-MAY-95

R9866014  
 GROUP111  
 20800205D  
 05-MAY-95

R9866011  
 GROUP111  
 20800305  
 05-MAY-95

	VALUE	QUAL	UNITS	DL												
ANTIMONY	1.2	U	mg/kg		1.1	U	mg/kg		1.1	U	mg/kg		1.1	U	mg/kg	
ARSENIC	.49	J	mg/kg	.6	.6	J	mg/kg	.6	.69	J	mg/kg	.6	.6	J	mg/kg	.6
BERYLLIUM	2.8	J	mg/kg	.27	.25	J	mg/kg	.25	3.3	J	mg/kg	.25	2.5	J	mg/kg	.28
CADMIUM	.07	U	mg/kg	.07	.07	U	mg/kg	.07	.27	U	mg/kg	.07	.27	U	mg/kg	.075
CHROMIUM	.3	U	mg/kg	.3	.27	U	mg/kg	.27	.27	U	mg/kg	.27	.3	U	mg/kg	.3
COPPER	1.4	J	mg/kg	.42	.38	J	mg/kg	.38	1.2	J	mg/kg	.38	1.6	J	mg/kg	.43
COBALT	.75	UJ	mg/kg	.73	.69	U	mg/kg	.69	.69	U	mg/kg	.69	.75	UJ	mg/kg	.75
CYANIDE	.06	U	mg/kg	.06												
LEAD	1.6	J	mg/kg	.4	.4	J	mg/kg	.4	3.2	J	mg/kg	.4	1.4	J	mg/kg	.4
MERCURY	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.04	U	mg/kg	.04
NICKEL	1.4	U	mg/kg	1.4	1.3	U	mg/kg	1.3	1.3	U	mg/kg	1.3	1.4	U	mg/kg	1.4
SELENIUM	.12	U	mg/kg	.12	.11	U	mg/kg	.11	.11	U	mg/kg	.11	.13	U	mg/kg	.13
SILVER	.61	UJ	mg/kg	.61												
THALLIUM	.15	U	mg/kg	.15	.13	U	mg/kg	.13	.13	U	mg/kg	.13	.15	U	mg/kg	.15
TIN	3.3	U	mg/kg	3.3	3	U	mg/kg	3	3.2	UJ	mg/kg	3.2	3.4	U	mg/kg	3.4
VANADIUM	2	J	mg/kg	.3	.27	J	mg/kg	.27	2.1	J	mg/kg	.27	1.2	J	mg/kg	.3
ZINC	5.6	J	mg/kg	.52	.47	J	mg/kg	.47	4.1	J	mg/kg	.47	3.8	J	mg/kg	.53

INORGANICS (SOIL)

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SWOC (0270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMUs20 and 21 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866007  
 GROUP111  
 21800104  
 04-MAY-95

R9866004  
 GROUP111  
 21800203  
 04-MAY-95

R9866002  
 GROUP111  
 21800303  
 04-MAY-95

INORGANICS (SOIL)	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Antimony	1.1 U		mg/kg	1.1	1.1 U		mg/kg	1.1	1.1 U		mg/kg	1.1
Arsenic	.77 J		mg/kg	.6	.64 J		mg/kg	.6	.73 J		mg/kg	.6
Barium	6.2 J		mg/kg	.25	4.6 J		mg/kg	.24	3.1 J		mg/kg	.25
Beryllium	.07 U		mg/kg	.07	.07 U		mg/kg	.07	.07 U		mg/kg	.07
Cadmium	.27 U		mg/kg	.27	.27 U		mg/kg	.27	.27 U		mg/kg	.27
Chromium	.66 J		mg/kg	.39	1.8 J		mg/kg	.38	.57 J		mg/kg	.39
Cobalt	.7 U		mg/kg	.7	.69 U		mg/kg	.69	.71 U		mg/kg	.71
Copper	.93 UJ		mg/kg	.93	2.7 UJ		mg/kg	2.7	1.1 UJ		mg/kg	1.1
Cyanide	.14 J		mg/kg	1	.06 U		mg/kg	.06	.06 U		mg/kg	.06
Lead	3.6 J		mg/kg	.4	16.4 J		mg/kg	.4	.77 UJ		mg/kg	.77
Mercury	.03 U		mg/kg	.03	.03 U		mg/kg	.03	.03 U		mg/kg	.03
Nickel	1.3 U		mg/kg	1.3	1.3 U		mg/kg	1.3	1.3 U		mg/kg	1.3
Selenium	.11 UJ		mg/kg	.11	.11 U		mg/kg	.11	.11 UJ		mg/kg	.11
Silver	.61 UJ		mg/kg	.61	.61 UJ		mg/kg	.61	.61 UJ		mg/kg	.61
Thallium	.14 U		mg/kg	.14	.13 U		mg/kg	.13	.14 U		mg/kg	.14
Tin	3.1 U		mg/kg	3.1	3 U		mg/kg	3	3.1 U		mg/kg	3.1
Vanadium	2.2 J		mg/kg	.27	2.8 J		mg/kg	.27	1.9 J		mg/kg	.27
Zinc	2.8 UJ		mg/kg	2.8	13.2		mg/kg	.46	2.1 UJ		mg/kg	2.1

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866018  
 GROUP111  
 52800104  
 05-MAY-95

VALUE QUAL UNITS DL

Chemical Name	Value	Qual	Units	DL
VOLATILES				
Chloromethane	13 U		ug/kg	13
Bromomethane	13 U		ug/kg	13
Vinyl chloride	13 U		ug/kg	13
Chloroethene	13 U		ug/kg	13
Methylene chloride	30 U		ug/kg	30
Acetone	19 U		ug/kg	19
Carbon disulfide	6 U		ug/kg	6
1,1-Dichloroethane	6 U		ug/kg	6
1,1-Dichloroethene	6 U		ug/kg	6
1,2-Dichloroethene (total)	6 U		ug/kg	6
Chloroform	6 U		ug/kg	6
1,2-Dichloroethane	6 U		ug/kg	6
2-Butanone	7 U		ug/kg	13
1,1,1-Trichloroethane	6 U		ug/kg	6
Carbon tetrachloride	6 U		ug/kg	6
Bromodichloromethane	6 U		ug/kg	6
1,2-Dichloropropane	6 U		ug/kg	6
cis-1,3-Dichloropropene	6 U		ug/kg	6
Trichloroethene	6 U		ug/kg	6
Dibromochloromethane	6 U		ug/kg	6
1,1,2-Trichloroethane	6 U		ug/kg	6
Benzene	6 U		ug/kg	6
trans-1,3-Dichloropropene	6 U		ug/kg	6
Bromoform	6 U		ug/kg	6
4-Methyl-2-pentanone	13 U		ug/kg	13
2-Hexanone	13 U		ug/kg	13
Tetrachloroethene	6 U		ug/kg	6
1,1,2,2-Tetrachloroethane	6 U		ug/kg	6
Toluene	6 U		ug/kg	6
Chlorobenzene	6 U		ug/kg	6
Ethylbenzene	6 U		ug/kg	6
Styrene	2 U		ug/kg	6
Xylenes (total)	13 U		ug/kg	13
Dichlorodifluoromethane	6 U		ug/kg	6
Trichlorofluoromethane	6 U		ug/kg	6
1,3-Dichlorobenzene	6 U		ug/kg	6
Acrolein	130 UJ		ug/kg	130
Iodoethane	13 U		ug/kg	13
1,4-Dichlorobenzene	6 U		ug/kg	6
Acrylonitrile	130 U		ug/kg	130
Dibromomethane	6 U		ug/kg	6
1,2-Dichlorobenzene	6 U		ug/kg	6
2-Chloroethylvinyl ether	13 U		ug/kg	13
Ethyl methacrylate	6 U		ug/kg	6
1,2,3-Trichloropropene	6 U		ug/kg	6
trans-1,4-Dichloro-2-butene	6 U		ug/kg	6
Isobutyl alcohol	260 UJ		ug/kg	260
1,1,1,2-Tetrachloroethane	6 U		ug/kg	6
1,2-Dibromo-3-chloropropene	13 U		ug/kg	13
1,2-Dibromoethane	6 U		ug/kg	6

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Sub-Surface Soil Data

Lab Sample Number: R9866018  
 Site: GROUP111  
 Locator: 52800104  
 Collect Date: 05-MAY-95

VALUE QUAL UNITS DL

Chemical Name	Value	Qual	Units	DL
1,4-Dioxane	260	R	ug/kg	260
3-Chloropropene	6	U	ug/kg	6
Acetonitrile	130	U	ug/kg	130
Chloroprene	260	U	ug/kg	260
Methacrylonitrile	6	U	ug/kg	6
Methyl methacrylate	15	U	ug/kg	15
Pentachloroethane	15	U	ug/kg	15
Propionitrile	130	U	ug/kg	130
Vinyl acetate	15	U	ug/kg	15

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Sub-Surface Soil Data

Lab Sample Number: R9866018  
 Site: GROUP111  
 Locator: 52B00104  
 Collect Date: 05-MAY-95

VALUE QUAL UNITS DL

SEMI-VOLATILES	ug/kg	ug/kg	DL
n-Nitrodimethylamine	840 U	ug/kg	840
Phenol	840 U	ug/kg	840
Aniline	840 U	ug/kg	840
bis(2-Chloroethyl) ether	840 U	ug/kg	840
Benzyl Alcohol	840 U	ug/kg	840
2-Methylphenol	840 U	ug/kg	840
bis(2-Chloroisopropyl) ether	840 U	ug/kg	840
n-Nitroo-di-n-propylamine	840 U	ug/kg	840
Hexachloroethane	840 U	ug/kg	840
Nitrobenzene	840 U	ug/kg	840
Isophorone	840 U	ug/kg	840
2-Nitrophenol	840 U	ug/kg	840
2,4-Dimethylphenol	840 U	ug/kg	840
Benzoic acid	4100 U	ug/kg	4100
bis(2-Chloroethoxy) methane	840 U	ug/kg	840
2,4-Dichlorophenol	840 U	ug/kg	840
1,2,4-Trichlorobenzene	840 U	ug/kg	840
Naphthalene	840 U	ug/kg	840
4-Chloroaniline	840 U	ug/kg	840
Hexachlorobutadiene	840 U	ug/kg	840
4-Chloro-3-methylphenol	840 U	ug/kg	840
2-Methylnaphthalene	840 U	ug/kg	840
Hexachlorocyclopentadiene	840 U	ug/kg	840
2,4,6-Trichlorophenol	840 U	ug/kg	840
Dimethylphthalate	840 U	ug/kg	840
2,4,5-Trichlorophenol	4100 U	ug/kg	4100
2-Chloronaphthalene	840 U	ug/kg	840
2-Nitroaniline	4100 U	ug/kg	4100
Acenaphthylene	840 U	ug/kg	840
2,6-Dimethyltoluene	840 U	ug/kg	840
3-Nitroaniline	4100 U	ug/kg	4100
Acenaphthene	840 U	ug/kg	840
2,4-Dinitrophenol	4100 U	ug/kg	4100
4-Nitrophenol	4100 U	ug/kg	4100
Dibenzofuran	840 U	ug/kg	840
2,4-Dinitrotoluene	840 U	ug/kg	840
Diethylphthalate	840 U	ug/kg	840
4-Chlorophenyl-phenylether	840 U	ug/kg	840
Fluorene	840 U	ug/kg	840
4-Nitroaniline	4100 U	ug/kg	4100
4,6-Dinitro-2-methylphenol	4100 U	ug/kg	4100
n-Nitrosodiphenylamine (1)	840 U	ug/kg	840
1,2-Diphenylhydrazine	840 U	ug/kg	840
4-Bromophenyl-phenylether	840 U	ug/kg	840
Hexachlorobenzene	4100 U	ug/kg	4100
Pentachlorophenol	840 U	ug/kg	840
Phenanthrene	840 U	ug/kg	840
Anthracene	840 U	ug/kg	840
Di-n-Butylphthalate	840 U	ug/kg	840
Fluoranthene	840 U	ug/kg	840

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMU 52 Sub-Surface Soil Data

Lab Sample Number: R986018  
 Site: GROUP111  
 Locator: 52800104  
 Collect Date: 05-MAY-95

	VALUE	QUAL	UNITS	DL
Pyrene	840 U		ug/kg	840
Butylbenzylphthalate	840 U		ug/kg	840
3,3-Dichlorobenzidine	1700 U		ug/kg	1700
Benzo (a) anthracene	840 U		ug/kg	840
Chrysene	840 U		ug/kg	840
bis(2-Ethylhexyl) phthalate	840 U		ug/kg	840
Di-n-octylphthalate	840 U		ug/kg	840
Benzo (b) fluoranthene	840 U		ug/kg	840
Benzo (k) fluoranthene	840 U		ug/kg	840
Benzo (a) pyrene	840 U		ug/kg	840
Indeno (1,2,3-cd) pyrene	840 U		ug/kg	840
Dibenz (g,h) anthracene	840 U		ug/kg	840
Benzo (g,h,i) perylene	840 U		ug/kg	840
2-Picoline	4100 U		ug/kg	4100
Methyl methanesulfonate	840 U		ug/kg	840
Ethyl methanesulfonate	840 U		ug/kg	840
Acetophenone	840 U		ug/kg	840
N-Nitrosopiperidine	840 U		ug/kg	840
Phenyl-tert-Butylamine	4100 U		ug/kg	4100
2,6-Dichlorophenol	840 U		ug/kg	840
N-Nitrosodi-n-butylamine	840 U		ug/kg	840
N-Nitrosodimethylamine	840 U		ug/kg	840
N-Nitrosopyrrolidine	840 U		ug/kg	840
Benzidine	4100 U		ug/kg	4100
1,2,4,5-Tetrachlorobenzene	4100 U		ug/kg	4100
Pentachlorobenzene	4100 U		ug/kg	4100
1-Naphthylamine	4100 U		ug/kg	4100
2-Naphthylamine	4100 U		ug/kg	4100
2,3,6-Tetrachlorophenol	840 U		ug/kg	840
Phenacetin	840 U		ug/kg	840
4-Aminobiphenyl	4100 U		ug/kg	4100
Pentachloronitrobenzene	4100 U		ug/kg	4100
Pronamide	840 U		ug/kg	840
P-(Dimethylamino)azobenzene	840 U		ug/kg	840
7,12-Dimethylbenz(A)anthracene	840 U		ug/kg	840
3-Methylcholanthrene	840 U		ug/kg	840
Pyridine	4100 U		ug/kg	4100
N-Nitrosomethyl ethylamine	840 U		ug/kg	840
N-Nitrosomorpholine	840 U		ug/kg	840
o-Toluidine	840 U		ug/kg	840
Hexachloropropene	4100 U		ug/kg	4100
p-Phenylenediamine	4100 U		ug/kg	4100
Safrole	4100 U		ug/kg	4100
Isoafrrole	84000 U		ug/kg	84000
1,4-Naphthoquinone	840 U		ug/kg	840
1,3-Dinitrobenzene	840 U		ug/kg	840
5-Nitro-o-toluidine	840 U		ug/kg	840
1,3,5-Trinitrobenzene	840 U		ug/kg	840
4-Nitroquinoline-1-oxide	41000 U		ug/kg	41000
Methapyrillene	4100 U		ug/kg	4100
3,3-Dimethylbenzidine	840 U		ug/kg	840
Hexachlorophene	41000 U		ug/kg	41000

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMMU 52 Sub-Surface Soil Data

Lab Sample Number: R9866018  
 Site: GROUP111  
 Locator: 52B00104  
 Collect Date: 05-MAY-95

VALUE QUAL UNITS DL

Aramite	4100 U	ug/kg	4100
2-Chlorophenol	840 U	ug/kg	840
3- & 4-Methylphenol (2)	840 UJ	ug/kg	840
Hexachlorocyclopentadiene	4100 U	ug/kg	4100
2-Acetylaminofluorene	840 U	ug/kg	840

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (R270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866018  
 GROUP111  
 52800104  
 05-MAY-95

R9866018RE  
 GROUP111  
 52800104RE  
 05-MAY-95

PESTICIDES/PCBs	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
alpha-BHC	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
beta-BHC	1.6	R	ug/kg	1.6	1.6	UJ	ug/kg	1.6
delta-BHC	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
gamma-BHC (lindane)	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
Heptachlor	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
Aldrin	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
Heptachlor epoxide	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
Endosulfan I	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
Diieldrin	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
4,4'-DDE	1.4	R	ug/kg	1.4	1.4	J	ug/kg	.85
Endrin	1.6	R	ug/kg	1.6	1.6	UJ	ug/kg	1.6
Endosulfan II	1.6	R	ug/kg	1.6	1.6	UJ	ug/kg	1.6
4,4'-DDD	1.6	R	ug/kg	1.6	1.6	UJ	ug/kg	1.6
Endosulfan sulfate	1.6	R	ug/kg	1.6	1.6	UJ	ug/kg	1.6
4,4'-DDT	1.6	R	ug/kg	1.6	1.6	UJ	ug/kg	1.6
Methoxychlor	3.4	R	ug/kg	3.4	3.4	UJ	ug/kg	3.4
Endrin aldehyde	1.6	R	ug/kg	1.6	1.6	UJ	ug/kg	1.6
Endrin ketone	1.6	R	ug/kg	1.6	1.6	UJ	ug/kg	1.6
Chlordane	8.5	R	ug/kg	8.5	8.5	UJ	ug/kg	8.5
Chlorobenzilate	25	R	ug/kg	25	25	UJ	ug/kg	25
Diallate	51	R	ug/kg	51	51	UJ	ug/kg	51
Toxophene	42	R	ug/kg	42	42	UJ	ug/kg	42
Isodrin	.85	R	ug/kg	.85	.85	UJ	ug/kg	.85
Kepons	51	R	ug/kg	51	-	-	ug/kg	-
Aroclor-1016	42	R	ug/kg	42	42	UJ	ug/kg	42
Aroclor-1221	85	R	ug/kg	85	85	UJ	ug/kg	85
Aroclor-1232	85	R	ug/kg	85	85	UJ	ug/kg	85
Aroclor-1242	42	R	ug/kg	42	42	UJ	ug/kg	42
Aroclor-1248	42	R	ug/kg	42	42	UJ	ug/kg	42
Aroclor-1254	20	R	ug/kg	20	20	UJ	ug/kg	20
Aroclor-1260	20	R	ug/kg	20	20	UJ	ug/kg	20

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SNAU 52 Sub-Surface Soil Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9866018  
 GROUP111  
 52B00104  
 05-MAY-95

VALUE QUAL UNITS DL

INORGANICS (SOIL)

Element	Value	Qual	Units	DL
Antimony	1.3 U		mg/kg	1.3
Arsenic	.45 J		mg/kg	.6
Barium	2.6 J		mg/kg	.28
Beryllium	.08 J		mg/kg	.076
Cadmium	.3 U		mg/kg	.3
Chromium	1.4 J		mg/kg	.43
Cobalt	.78 U		mg/kg	.78
Copper	.72 UJ		mg/kg	.72
Cyanide	.06 U		mg/kg	.06
Lead	.76 UJ		mg/kg	.76
Mercury	.04 U		mg/kg	.04
Nickel	1.4 U		mg/kg	1.4
Selenium	.13 U		mg/kg	.13
Silver	.61 UJ		mg/kg	.61
Thallium	.15 U		mg/kg	.15
Tin	3.4 U		mg/kg	3.4
Vanadium	1.1 J		mg/kg	.3
Zinc	2.5 UJ		mg/kg	2.3

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

**APPENDIX B-3**

**GROUNDWATER SAMPLE ANALYSES, SWMUS 20, 21, AND 52**

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site Locator  
 Collect Date:

R9977006  
 GROUP111  
 20G00101  
 01-JUN-95

R9977004  
 GROUP111  
 20G00301  
 01-JUN-95

R9977012  
 GROUP111  
 20G00201  
 03-JUN-95

R9977005  
 GROUP111  
 20G003010  
 01-JUN-95

VALUE DL QVAL UNITS VALUE DL QVAL UNITS VALUE DL QVAL UNITS VALUE DL QVAL UNITS

ug/l

Chemical Name	Value	DL	QVAL	Units												
Chloroethane	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
Bromomethane	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
Vinyl chloride	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
Chloroethene	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
Methylene chloride	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Acetone	10 UJ	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l
Carbon disulfide	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,1-Dichloroethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,1-Dichloroethene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,2-Dichloroethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,2-Dichloroethene (total)	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Chloroform	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,2-Dichloroethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
2-Butanone	10 R	10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l
1,1,1-Trichloroethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Carbon tetrachloride	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Bromodichloromethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,2-Dichloropropane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
cis-1,3-Dichloropropene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Trichloroethene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Dibromochloromethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,1,2-Trichloroethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Benzene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
trans-1,3-Dichloropropene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Bromoform	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
4-Methyl-2-pentanone	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
2-Hexanone	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Tetrachloroethene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,1,2,2-Tetrachloroethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Toluene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Chlorobenzene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Ethylbenzene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Styrene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Xylenes (total)	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
Dichlorodifluoromethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Trichlorofluoromethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,3-Dichlorobenzene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
Acrolein	100 U	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l
Iodomethane	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
1,4-Dichlorobenzene	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
Acrylonitrile	100 U	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l
Dibromomethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,2-Dichlorobenzene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
2-Chloroethylvinyl ether	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
Ethyl methacrylate	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,2,3-Trichloropropane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
trans-1,4-Dichloro-2-butene	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
isobutyl alcohol	200 R	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l
1,1,1,2-Tetrachloroethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l
1,2-Dibromo-3-chloropropane	10 U	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l
1,2-Dibromoethane	5 U	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977006  
 GROUP111  
 20600101  
 01-JUN-95

R9977012  
 GROUP111  
 20600201  
 03-JUN-95

R9977004  
 GROUP111  
 20600301  
 01-JUN-95

R9977005  
 GROUP111  
 20600301D  
 01-JUN-95

|                     | VALUE | QUAL UNITS | DL   |
|---------------------|-------|------------|------|-------|------------|------|-------|------------|------|-------|------------|------|
| 1,4-Dioxane         | 200   | R          | ug/l |
| 3-Chloropropene     | 5     | U          | ug/l |
| Acetonitrile        | 100   | U          | ug/l |
| Chloroprene         | 200   | U          | ug/l |
| Methacrylonitrile   | 5     | U          | ug/l |
| Methyl methacrylate | 10    | U          | ug/l |
| Pentachloroethane   | 10    | U          | ug/l |
| Propionitrile       | 100   | U          | ug/l |
| Vinyl acetate       | 10    | U          | ug/l |

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.



US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977010  
 GROUP111  
 21600101  
 02-JUN-95

R9977008  
 GROUP111  
 21600201  
 02-JUN-95

R9977009  
 GROUP111  
 21600301  
 02-JUN-95

	VALUE	DL	QUAL UNITS	DL	VALUE	DL	QUAL UNITS	DL	VALUE	DL	QUAL UNITS	DL
Dibromomethane	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
1,2-Dichlorobenzene	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
2-Chloroethylvinyl ether	10 U	10	ug/l	10	10 U	10	ug/l	10	10 U	10	ug/l	10
Ethyl methacrylate	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
1,2,3-Trichloropropane	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
trans-1,4-Dichloro-2-butene	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
Isobutyl alcohol	200 R	200	ug/l	200	200 R	200	ug/l	200	200 R	200	ug/l	200
1,1,1,2-Tetrachloroethane	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
1,1,2,2-Tetrachloroethane	10 U	10	ug/l	10	10 U	10	ug/l	10	10 U	10	ug/l	10
1,2-Dibromo-3-chloropropane	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
1,2-Dibromoethane	200 R	200	ug/l	200	200 R	200	ug/l	200	200 R	200	ug/l	200
1,4-Dioxane	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
3-Chloropropene	100 U	100	ug/l	100	100 U	100	ug/l	100	100 U	100	ug/l	100
Acetonitrile	200 U	200	ug/l	200	200 U	200	ug/l	200	200 U	200	ug/l	200
Chloroprene	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
Methacrylonitrile	5 U	5	ug/l	5	5 U	5	ug/l	5	5 U	5	ug/l	5
Methyl methacrylate	10 U	10	ug/l	10	10 U	10	ug/l	10	10 U	10	ug/l	10
Pentachloroethane	10 U	10	ug/l	10	10 U	10	ug/l	10	10 U	10	ug/l	10
Propionitrile	100 U	100	ug/l	100	100 U	100	ug/l	100	100 U	100	ug/l	100
Vinyl acetate	10 U	10	ug/l	10	10 U	10	ug/l	10	10 U	10	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977006  
 GROUP111  
 20G00101  
 01-JUN-95

R9977012  
 GROUP111  
 20G00201  
 03-JUN-95

R9977004  
 GROUP111  
 20G00301  
 01-JUN-95

R9977005  
 GROUP111  
 20G00301D  
 01-JUN-95

Chemical Name	VALUE	QUAL	UNITS	DL												
SEMIVOLATILES																
M-Nitrodimethylamine	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Aniline	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzyl Alcohol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroisopropyl) ether	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
M-Nitrosodi-n-propylamine	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzoic acid	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
bis(2-Chloroethoxy) methane	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dimethylphthalate	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2,4,5-Trichlorophenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chloronaphthalene	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Nitroaniline	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
3-Nitroaniline	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4-Nitrophenol	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Dibenzofuran	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4,6-Dinitro-2-methylphenol	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
M-Nitrosodiphenylamine (1)	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Biphenylhydrazine	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	50 U	U	ug/l	50	50 U	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Phenanthrene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-Butylphthalate	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10 U	U	ug/l	10	10 U	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMDs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977006  
 GROUP111  
 20G00101  
 01-JUN-95

R9977012  
 GROUP111  
 20G00201  
 03-JUN-95

R9977004  
 GROUP111  
 20G00301  
 01-JUN-95

R9977005  
 GROUP111  
 20G003010  
 01-JUN-95

Chemical Name	VALUE	QUAL UNITS	DL									
Pyrene	10 U	ug/l	10									
Butylbenzylphthalate	10 U	ug/l	10									
3,3-Dichlorobenzidine	20 U	ug/l	20									
Benzo (a) anthracene	10 U	ug/l	10									
Chrysene	10 U	ug/l	10									
bis(2-Ethylhexyl) phthalate	2 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10									
Benzo (b) fluoranthene	10 U	ug/l	10									
Benzo (k) fluoranthene	10 U	ug/l	10									
Benzo (e) pyrene	10 U	ug/l	10									
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10									
Dibenz (a,h) anthracene	10 U	ug/l	10									
Benzo (g,h,i) perylene	10 U	ug/l	10									
2-Picoline	50 U	ug/l	50									
Methyl methanesulfonate	10 U	ug/l	10									
Ethyl methanesulfonate	10 U	ug/l	10									
Acetophenone	10 U	ug/l	10									
N-Nitrosopiperidine	10 U	ug/l	10									
Phenyl-tert-butylamine	50 U	ug/l	50									
2,6-Dichlorophenol	10 U	ug/l	10									
N-Nitroso-di-n-butylamine	10 U	ug/l	10									
N-Nitrosodimethylamine	10 U	ug/l	10									
N-Nitrosopyrrolidine	10 U	ug/l	10									
Benzidine	50 U	ug/l	50									
1,2,4,5-Tetrachlorobenzene	50 U	ug/l	50									
Pentachlorobenzene	50 U	ug/l	50									
1-Naphthylamine	50 U	ug/l	50									
2-Naphthylamine	50 U	ug/l	50									
2,3,4,6-Tetrachlorophenol	10 U	ug/l	10									
Phenacetin	10 U	ug/l	10									
4-Aminobiphenyl	50 U	ug/l	50									
Pentachloronitrobenzene	50 U	ug/l	50									
Pronamide	10 U	ug/l	10									
p-(Dimethylamino)azobenzene	10 U	ug/l	10									
7,12-Dimethylbenz(A)Anthracene	10 U	ug/l	10									
3-Methylcholanthrene	10 U	ug/l	10									
Pyridine	50 U	ug/l	50									
N-Nitrosomethyl ethylamine	10 U	ug/l	10									
N-Nitrosomorpholine	10 U	ug/l	10									
o-Toluidine	10 U	ug/l	10									
Hexachloropropene	50 U	ug/l	50									
p-Phenylenediamine	50 U	ug/l	50									
Safrole	1000 R	ug/l	1000									
Isocaprole	10 U	ug/l	10									
1,4-Naphthoquinone	10 U	ug/l	10									
1,3-Dinitrobenzene	10 U	ug/l	10									
5-Nitro-o-toluidine	10 U	ug/l	10									
1,3,5-Trinitrobenzene	50 U	ug/l	50									
4-Nitroquinoline-1-oxide	10 U	ug/l	10									
Methapyrene	50 U	ug/l	50									
3,3-Dimethylbenzidine	10 U	ug/l	10									
Hexachlorophene	500 R	ug/l	500									

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977006  
 GROUP111  
 20G00101  
 01-JUN-95

R9977012  
 GROUP111  
 20G00201  
 03-JUN-95

R9977004  
 GROUP111  
 20G00301  
 01-JUN-95

R9977005  
 GROUP111  
 20G00301D  
 01-JUN-95

|                           | VALUE | QUAL UNITS | DL |
|---------------------------|-------|------------|----|-------|------------|----|-------|------------|----|-------|------------|----|
| Aramite                   | 50 U  | ug/l       | 50 |
| 2-Chlorophenol            | 10 U  | ug/l       | 10 |
| 3- & 4-Methylphenol (2)   | 10 U  | ug/l       | 10 |
| Hexachlorocyclopentadiene | 50 U  | ug/l       | 50 |
| 2-Acetylaminofluorene     | 10 UJ | ug/l       | 10 |

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site Locator  
 Collect Date:

R9977010  
 GROUP111  
 21G00101  
 02-JUN-95

R9977008  
 GROUP111  
 21G00201  
 02-JUN-95

R9977009  
 GROUP111  
 21G00301  
 02-JUN-95

Chemical Name	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES												
N-Nitrosodimethylamine	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Phenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Aniline	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
bis(2-Chloroethyl) ether	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Benzyl Alcohol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2-Methylphenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
bis(2-Chloroisopropyl) ether	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Hexachloroethane	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Nitrobenzene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Isophorone	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2-Nitrophenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2,4-Dimethylphenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Benzoic acid	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
bis(2-Chloroethoxy) methane	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2,4-Dichlorophenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
1,2,4-Trichlorobenzene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Naphthalene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
4-Chloroaniline	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Hexachlorobutadiene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
4-Chloro-3-methylphenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2-Methylnaphthalene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Hexachlorocyclopentadiene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2,4,6-Trichlorophenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Dimethylphthalate	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2,4,5-Trichlorophenol	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
2-Chloronaphthalene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2-Nitroaniline	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
Acenaphthylene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2,6-Dinitrotoluene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
3-Nitroaniline	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
Acenaphthene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2,4-Dinitrophenol	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
4-Nitrophenol	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
Dibenzofuran	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
2,4-Dinitrotoluene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Diethylphthalate	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
4-Chlorophenyl-phenylether	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Fluorene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
4-Nitroaniline	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMDs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

	R9977010	R9977008	R9977009
	GROUP111	GROUP111	GROUP111
	21G00101	21G00201	21G00301
	02-JUN-95	02-JUN-95	02-JUN-95
	QUAL UNITS	QUAL UNITS	QUAL UNITS
	DL	DL	DL
	VALUE	VALUE	VALUE
	DL	DL	DL
	50 U	50 U	50 U
	ug/l	ug/l	ug/l
4,6-Dinitro-2-methylphenol	10 U	10 U	10 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U
1,2-Diphenylhydrazine	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U
Hexachlorobenzene	50 U	50 U	50 U
Pentachlorophenol	10 U	10 U	10 U
Phenanthrene	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U
Di-n-Butylphthalate	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U
Butylbenzylphthalate	20 U	20 U	20 U
3,3-Dichlorobenzidine	10 U	10 U	10 U
Benzo (a) anthracene	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U
bia(2-Ethylhexyl) phthalate	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U
Benzo (b) fluoranthene	10 U	10 U	10 U
Benzo (k) fluoranthene	10 U	10 U	10 U
Benzo (e) pyrene	10 U	10 U	10 U
Indeno (1,2,3-cd) pyrene	10 U	10 U	10 U
Dibenz (a,h) anthracene	10 U	10 U	10 U
Benzo (g,h,i) perylene	50 U	50 U	50 U
2-Picoline	10 U	10 U	10 U
Methyl methanesulfonate	10 U	10 U	10 U
Ethyl methanesulfonate	10 U	10 U	10 U
Acetophenone	10 U	10 U	10 U
N-Nitrosopiperidine	50 U	50 U	50 U
Phenyl-tert-butylamine	10 U	10 U	10 U
2,6-Dichlorophenol	10 U	10 U	10 U
N-Nitroso-di-n-butylamine	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U
N-Nitrosopyrrolidine	10 U	10 U	10 U
Benzidine	50 U	50 U	50 U
1,2,4,5-Tetrachlorobenzene	50 U	50 U	50 U
Pentachlorobenzene	50 U	50 U	50 U
1-Naphthylamine	50 U	50 U	50 U
2-Naphthylamine	10 U	10 U	10 U
2,3,4,6-Tetrachlorophenol	10 U	10 U	10 U
Phenacetin	50 U	50 U	50 U
4-Aminobiphenyl	10 U	10 U	10 U
Pentachloronitrobenzene	10 U	10 U	10 U
Pronamide	10 U	10 U	10 U
p-(O)methylamino)azobenzene	10 U	10 U	10 U
7,12-Dimethylbenz(A)anthracene	10 U	10 U	10 U
3-Methylcholanthrene	50 U	50 U	50 U
Pyridine	10 U	10 U	10 U
N-Nitrosomethyl ethylamine	10 U	10 U	10 U
N-Nitrosomorpholine	10 U	10 U	10 U
o-Toluidine	50 U	50 U	50 U
Hexachloropropene	500 U	500 U	500 U
p-Phenylene diamine	500 U	500 U	500 U

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SWMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977010  
 GROUP111  
 21G00101  
 02-JUN-95

R9977008  
 GROUP111  
 21G00201  
 02-JUN-95

R9977009  
 GROUP111  
 21G00301  
 02-JUN-95

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BaP	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
Benzo[a]fluoranthene	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
1,4-Naphthoquinone	1000 R	R	ug/l	1000	1000 R	R	ug/l	1000	1000 R	R	ug/l	1000
1,3-Dinitrobenzene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
5-Nitro-2-toluidine	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
1,3,5-Trinitrobenzene	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
4-Nitroquinoline-1-oxide	500 UJ	UJ	ug/l	500	500 UJ	UJ	ug/l	500	500 UJ	UJ	ug/l	500
Metapyrene	50 UJ	UJ	ug/l	50	50 UJ	UJ	ug/l	50	50 UJ	UJ	ug/l	50
3,3-Dimethylbenzidine	10 UJ	UJ	ug/l	10	10 UJ	UJ	ug/l	10	10 UJ	UJ	ug/l	10
Hexachlorobenzene	500 R	R	ug/l	500	500 R	R	ug/l	500	500 R	R	ug/l	500
Azani	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
2-Chlorophenol	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
3- & 4-Methylphenol (2)	10 U	U	ug/l	10	10 U	U	ug/l	10	10 U	U	ug/l	10
Hexachloropropene	50 U	U	ug/l	50	50 U	U	ug/l	50	50 U	U	ug/l	50
2-Acetylnaphthofluorene	10 UJ	UJ	ug/l	10	10 UJ	UJ	ug/l	10	10 UJ	UJ	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SUMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977006  
 GROUP111  
 20G00101  
 01-JUN-95

R9977004  
 GROUP111  
 20G00301  
 01-JUN-95

R9977012  
 GROUP111  
 20G00201  
 03-JUN-95

R9977005  
 GROUP111  
 20G00301D  
 01-JUN-95

| PESTICIDES/PCBs     | VALUE | QUAL | UNITS | DL  |
|---------------------|-------|------|-------|-----|-------|------|-------|-----|-------|------|-------|-----|-------|------|-------|-----|
| alpha-BHC           | .02   | U    | ug/l  | .02 |
| beta-BHC            | .04   | U    | ug/l  | .04 |
| delta-BHC           | .02   | U    | ug/l  | .02 |
| gamma-BHC (Lindane) | .02   | U    | ug/l  | .02 |
| Heptachlor          | .02   | U    | ug/l  | .02 |
| Aldrin              | .02   | U    | ug/l  | .02 |
| Heptachlor epoxide  | .02   | U    | ug/l  | .02 |
| Endosulfan I        | .02   | U    | ug/l  | .02 |
| Diieldrin           | .02   | U    | ug/l  | .02 |
| 4,4-DDE             | .04   | U    | ug/l  | .04 |
| Endrin              | .04   | U    | ug/l  | .04 |
| Endosulfan II       | .04   | U    | ug/l  | .04 |
| 4,4-DDB             | .04   | U    | ug/l  | .04 |
| Endosulfan sulfate  | .04   | U    | ug/l  | .04 |
| 4,4-DDT             | .08   | U    | ug/l  | .08 |
| Methoxychlor        | .04   | U    | ug/l  | .04 |
| Endrin aldehyde     | .04   | U    | ug/l  | .04 |
| Endrin ketone       | .04   | U    | ug/l  | .04 |
| Chlordane           | .2    | U    | ug/l  | .2  |
| Chlorobenzilate     | .5    | U    | ug/l  | .5  |
| Diallate            | 1     | U    | ug/l  | 1   |
| Toxophene           | 1     | U    | ug/l  | 1   |
| Iendrin             | .02   | U    | ug/l  | .02 |
| Kepons              | 1     | UJ   | ug/l  | 1   |
| Aroclor-1016        | 1     | U    | ug/l  | 1   |
| Aroclor-1221        | 2     | U    | ug/l  | 2   |
| Aroclor-1232        | 2     | U    | ug/l  | 2   |
| Aroclor-1242        | 1     | U    | ug/l  | 1   |
| Aroclor-1248        | 1     | U    | ug/l  | 1   |
| Aroclor-1254        | .5    | U    | ug/l  | .5  |
| Aroclor-1260        | .5    | U    | ug/l  | .5  |

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-, 1,3-, AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (B270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977010  
 GROUP111  
 21G00101  
 02-JUN-95

R9977008  
 GROUP111  
 21G00201  
 02-JUN-95

R9977009  
 GROUP111  
 21G00301  
 02-JUN-95

PESTICIDES/PCBs	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
alpha-BHC	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
beta-BHC	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
delta-BHC	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
gamma-BHC (lindane)	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
heptachlor	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Aldrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
heptachlor epoxide	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endosulfan I	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Dieldrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
4,4-DDE	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endrin	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endosulfan II	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
4,4-DDD	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endosulfan sulfate	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
4,4-DDE	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Methoxychlor	.08 U	ug/l	.08	.08 U	ug/l	.08	.08 U	ug/l	.08
Endrin aldehyde	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endrin ketone	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Chlordane	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Chlorobenzilate	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Diallate	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toxaphene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Isodrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Kepon	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1016	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1221	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1252	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1248	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1242	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1254	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Aroclor-1260	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5

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 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (B270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMDs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

Lab Sample Number:	Site	Locator	Collect Date:	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
R9977006	GROUP111	Z0G00101	01-JUN-95	.005 U	mg/l	.005	.005 U	mg/l	.005	.005 U	mg/l	.005
R9977012	GROUP111	Z0G00201	03-JUN-95	.0034 UJ	mg/l	.0034	.0034 UJ	mg/l	.0034	.0034 UJ	mg/l	.0034
R9977004	GROUP111	Z0G00301	01-JUN-95	.0099 J	mg/l	.0011	.0131 J	mg/l	.0011	.028 J	mg/l	.0011
R9977005	GROUP111	Z0G00301	01-JUN-95	.0003 U	mg/l	.0003	.0003 U	mg/l	.0003	.0003 U	mg/l	.0003
				.0012 U	mg/l	.0012	.0012 U	mg/l	.0012	.0012 U	mg/l	.0012
				61.4	mg/l	.0348	90.8	mg/l	.0348	86.9	mg/l	.0348
				.0017 U	mg/l	.0017	.0017 U	mg/l	.0017	.0017 U	mg/l	.0017
				.0031 U	mg/l	.0031	.0031 U	mg/l	.0031	.0031 U	mg/l	.0031
				.001 U	mg/l	.001	.001 U	mg/l	.001	.001 U	mg/l	.001
				.0027 UJ	mg/l	.0027	.0015 U	mg/l	.0015	.0027 UJ	mg/l	.0027
				136	mg/l	.0019	1.25	mg/l	.0019	.474	mg/l	.0019
				9.11	mg/l	.0198	5.13	mg/l	.0198	.0012 UJ	mg/l	.0012
				.0816	mg/l	.0005	.107	mg/l	.0005	24.5	mg/l	.0198
				.0001 U	mg/l	.0001	.0001 U	mg/l	.0001	129	mg/l	.0005
				.0057 U	mg/l	.0057	.0057 U	mg/l	.0057	.006 J	mg/l	.0057
				.0005 U	mg/l	.0005	.0005 U	mg/l	.0005	.00091 J	mg/l	.0005
				.0014 U	mg/l	.0014	.0014 U	mg/l	.0014	.0014 U	mg/l	.0014
				17.8	mg/l	.0195	10.4	mg/l	.0195	29.4	mg/l	.0195
				.0006 U	mg/l	.0006	.0006 U	mg/l	.0006	.0006 U	mg/l	.0006
				.0136 U	mg/l	.0136	.0136 U	mg/l	.0136	.0136 U	mg/l	.0136
				.004 J	mg/l	.0012	.0036 J	mg/l	.0012	.0018 J	mg/l	.0012
				.00537 UJ	mg/l	.00537	.00537 UJ	mg/l	.00537	.00537 UJ	mg/l	.00537

INORGANICS (WATER)

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Calcium
- Chromium
- Cobalt
- Copper
- Cyanide
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Nickel
- Selenium
- Silver
- Sodium
- Thallium
- Tin
- Vanadium
- Zinc

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 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SYOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMMUs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977010  
 GROUP111  
 21G00101  
 02-JUN-95

R9977008  
 GROUP111  
 21G00201  
 02-JUN-95

R9977009  
 GROUP111  
 21G00301  
 02-JUN-95

INORGANICS (WATER)

	mg/l	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Antimony		.005 U	mg/l	.005	.005 U	mg/l	.005	.005 U	mg/l	.005
Arsenic		.0018 UJ	mg/l	.0018	.0012 UJ	mg/l	.0012	.003 UJ	mg/l	.003
Barium		.0029 J	mg/l	.0011	.0032 J	mg/l	.0011	.0018 J	mg/l	.0011
Beryllium		.0003 U	mg/l	.0003	.0003 U	mg/l	.0003	.0003 U	mg/l	.0003
Cadmium		.0012 U	mg/l	.0012	.0012 U	mg/l	.0012	.0012 U	mg/l	.0012
Calcium		54.9	mg/l	.0346	66.9	mg/l	.0346	.38	mg/l	.0346
Chromium		.0017 U	mg/l	.0017	.0017 U	mg/l	.0017	.0017 U	mg/l	.0017
Cobalt		.0031 U	mg/l	.0031	.0031 U	mg/l	.0031	.0031 U	mg/l	.0031
Copper		.001 U	mg/l	.001	.001 U	mg/l	.001	.001 U	mg/l	.001
Cyanide		.0015 U	mg/l	.0015	.0015 U	mg/l	.0015	.0015 U	mg/l	.0015
Iron		.102	mg/l	.0019	.125	mg/l	.0019	.0546 J	mg/l	.0019
Lead		.0009 UJ	mg/l	.0009	.0004 U	mg/l	.0004	.0009 UJ	mg/l	.0009
Magnesium		16.1	mg/l	.0196	6.13	mg/l	.0196	1.43 J	mg/l	.0196
Manganese		.0479	mg/l	.0005	.0505	mg/l	.0005	.0153	mg/l	.0005
Mercury		.0001 U	mg/l	.0001	.0001 U	mg/l	.0001	.0001 U	mg/l	.0001
Nickel		.0057 U	mg/l	.0057	.0057 U	mg/l	.0057	.0057 U	mg/l	.0057
Selenium		.0005 U	mg/l	.0005	.0005 U	mg/l	.0005	.0005 U	mg/l	.0005
Silver		.0014 U	mg/l	.0014	.0014 U	mg/l	.0014	.0014 U	mg/l	.0014
Sodium		13.1	mg/l	.0195	13.1	mg/l	.0195	5.16	mg/l	.0195
Thallium		.0006 U	mg/l	.0006	.0006 U	mg/l	.0006	.0006 U	mg/l	.0006
Tin		.0136 U	mg/l	.0136	.0136 U	mg/l	.0136	.0136 U	mg/l	.0136
Vanadium		.0018 J	mg/l	.0012	.0021 J	mg/l	.0012	.0018 J	mg/l	.0012
Zinc		.00537 UJ	mg/l	.00537	.0058 UJ	mg/l	.0058	.00537 UJ	mg/l	.00537

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 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMDs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977006  
 GROUP111  
 20G00101  
 01-JUN-95

R9977012  
 GROUP111  
 20G00201  
 03-JUN-95

R9977004  
 GROUP111  
 20G00301  
 01-JUN-95

R9977010  
 GROUP111  
 21G00101  
 02-JUN-95

VALUE QUAL UNITS DL VALUE QUAL UNITS DL VALUE QUAL UNITS DL VALUE QUAL UNITS DL

GROUND WATER QUALITY  
 Alkalinity as CaCO3  
 Ammonia-N  
 Chloride  
 Hardness as CaCO3  
 Nitrate/Nitrite-N  
 Oil and Grease  
 Phosphorous-P, Total  
 Sulfate  
 Sulfide  
 Total Dissolved Solids  
 Total Kjeldahl Nitrogen  
 Total Organic Carbon

mg/l

201  
 .8  
 14  
 190  
 .14  
 5 U  
 .39  
 14.4  
 1 U  
 292  
 1  
 7.6

221  
 .8  
 16.8  
 257  
 .59  
 5 U  
 .33  
 30.9  
 1 U  
 311  
 1  
 10.3

282  
 1.1  
 22.3  
 329  
 .2  
 5 U  
 .33  
 80.3  
 1.6  
 463  
 1.3  
 7.5

209  
 1  
 11  
 206  
 .2  
 5 U  
 .18  
 22.2  
 1 U  
 283  
 1  
 6.6

COLOR  
 Color  
 pH  
 pH

units  
 units

10  
 7.41

40  
 7.09

10  
 7.55

10  
 7.76

U = NOT DETECTED R = RESULT IS REJECTED  
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 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2; 1,3; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SWOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group 111 Report  
 SMMs 20 and 21 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977008  
 GROUP111  
 21G00201  
 02-JUN-95

R9977009  
 GROUP111  
 21G00301  
 02-JUN-95

GROUND WATER QUALITY	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Alkalinity as CaCO3	199	mg/l	2	108	mg/l	2
Ammonia-N	1	mg/l	.3	.3	U	.3
Chloride	16.2	mg/l	1	3.66	mg/l	1
Hardness as CaCO3	194	mg/l	3	102	mg/l	3
Nitrate/Nitrite-N	1.23	mg/l	.25	.15	mg/l	.1
Oil and Grease	5	U	5	5	U	5
Phosphorus-P, Total	.17	mg/l	.1	.1	U	.1
Sulfate	9.56	mg/l	1	8.86	mg/l	1
Sulfide	1	mg/l	1	1	U	1
Total Dissolved Solids	275	mg/l	10	145	mg/l	10
Total Kjeldahl Nitrogen	1.1	mg/l	.3	.3	U	.3
Total Organic Carbon	6	mg/l	1	3.5	mg/l	1

COLOR	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Color	10	units	5	5	units	5
pH	7.53	units		7.89	units	

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Groundwater Data

Lab Sample Number: R9977013  
 Site: GROUP111  
 Locator: 52G00101  
 Collect Date: 03-JUN-95

VALUE QUAL UNITS DL

Chemical Name	Value	Qual	Units	DL
Chloromethane	10 U		ug/l	10
Bromomethane	10 U		ug/l	10
Vinyl chloride	10 U		ug/l	10
Chloroethene	5 U		ug/l	5
Methylene chloride	10 U		ug/l	10
Acetone	5 U		ug/l	5
Carbon disulfide	5 U		ug/l	5
1,1-Dichloroethane	5 U		ug/l	5
1,1-Dichloroethene	5 U		ug/l	5
1,2-Dichloroethene (total)	5 U		ug/l	5
Chloroform	5 U		ug/l	5
1,2-Dichloroethane	5 U		ug/l	5
2-Butanone	10 R		ug/l	10
1,1,1-Trichloroethane	5 U		ug/l	5
Carbon tetrachloride	5 U		ug/l	5
Bromodichloromethane	5 U		ug/l	5
1,2-Dichloropropane	5 U		ug/l	5
cis-1,3-Dichloropropene	5 U		ug/l	5
Trichloroethene	5 U		ug/l	5
Dibromochloromethane	5 U		ug/l	5
1,1,2-Trichloroethane	5 U		ug/l	5
Benzene	5 U		ug/l	5
trans-1,3-Dichloropropene	5 U		ug/l	5
Bromoform	5 U		ug/l	5
4-Methyl-2-pentanone	10 U		ug/l	10
2-Hexanone	10 U		ug/l	10
Tetrachloroethene	5 U		ug/l	5
1,1,2,2-Tetrachloroethane	5 U		ug/l	5
Toluene	5 U		ug/l	5
Chlorobenzene	5 U		ug/l	5
Ethylbenzene	5 U		ug/l	5
Styrene	5 U		ug/l	5
Xylenes (total)	5 U		ug/l	5
Dichlorodifluoromethane	10 U		ug/l	10
Trichlorofluoromethane	5 U		ug/l	5
1,3-Dichlorobenzene	5 U		ug/l	5
Acrolein	100 UJ		ug/l	100
Iodomethane	10 U		ug/l	10
1,4-Dichlorobenzene	5 U		ug/l	5
Acrylonitrile	100 U		ug/l	100
Dibromomethane	5 U		ug/l	5
1,2-Dichlorobenzene	5 U		ug/l	5
2-Chloroethylvinyl ether	10 U		ug/l	10
Ethyl methacrylate	5 U		ug/l	5
1,2,3-Trichloropropane	5 U		ug/l	5
trans-1,4-Dichloro-2-butene	5 U		ug/l	5
Isobutyl alcohol	200 R		ug/l	200
1,1,1,2-Tetrachloroethane	5 U		ug/l	5
1,2-Dibromo-3-chloropropane	10 U		ug/l	10
1,2-Dibromoethane	5 U		ug/l	5

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMWJ 52 Groundwater Data

Lab Sample Number: R9977013  
 Site: GROUP111  
 Locator: 52G00101  
 Collect Date: 03-JUN-95

VALUE QUAL UNITS DL

Compound	Value	Qual	Units	DL
1,4-Dioxane	200	R	ug/l	200
3-Chloropropene	5	U	ug/l	5
Acetonitrile	100	U	ug/l	100
Chloroprene	200	U	ug/l	200
Methacrylonitrile	5	U	ug/l	5
Methyl methacrylate	10	U	ug/l	10
Pentachloroethane	10	U	ug/l	10
Propionitrile	100	U	ug/l	100
Vinyl acetate	10	U	ug/l	10

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 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SWOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Groundwater Data

Lab Sample Number: R9977013  
 Site: GROUP111  
 Locator: 52600101  
 Collect Date: 03-JUN-95

VALUE QUAL UNITS DL

SEMI-VOLATILES	VALUE	QUAL	UNITS	DL
N-Nitrosodimethylamine	10 U		ug/l	10
Aniline	10 U		ug/l	10
bis(2-Chloroethyl) ether	10 U		ug/l	10
Benzyl Alcohol	10 U		ug/l	10
2-Methylphenol	10 U		ug/l	10
bis(2-Chloroisopropyl) ether	10 U		ug/l	10
N-Nitroso-di-n-propylamine	10 U		ug/l	10
Hexachloroethane	10 U		ug/l	10
Nitrobenzene	10 U		ug/l	10
Isophorone	10 U		ug/l	10
2-Nitrophenol	10 U		ug/l	10
2,4-Dimethylphenol	10 U		ug/l	10
Benzoic acid	50 U		ug/l	50
bis(2-Chloroethoxy) methane	10 U		ug/l	10
2,4-Dichlorophenol	10 U		ug/l	10
1,2,4-Trichlorobenzene	10 U		ug/l	10
Naphthalene	10 U		ug/l	10
4-Chloroaniline	10 U		ug/l	10
Hexachlorobutadiene	10 U		ug/l	10
4-Chloro-3-methylphenol	10 U		ug/l	10
2-Methylnaphthalene	10 U		ug/l	10
Hexachlorocyclopentadiene	10 U		ug/l	10
2,4,6-Trichlorophenol	10 U		ug/l	10
Dimethylphthalate	10 U		ug/l	10
2,4,5-Trichlorophenol	50 U		ug/l	50
2-Chloronaphthalene	10 U		ug/l	10
2-Nitroaniline	50 U		ug/l	50
Acenaphthylene	10 U		ug/l	10
2,6-Dinitrotoluene	50 U		ug/l	50
3-Nitroaniline	10 U		ug/l	10
Acenaphthene	10 U		ug/l	10
2,4-Dinitrophenol	50 U		ug/l	50
4-Nitrophenol	50 U		ug/l	50
Dibenzofuran	10 U		ug/l	10
2,4-Dinitrotoluene	10 U		ug/l	10
Diethylphthalate	10 U		ug/l	10
4-Chlorophenyl-phenylether	10 U		ug/l	10
Fluorene	10 U		ug/l	10
4-Nitroaniline	50 U		ug/l	50
4,6-Dinitro-2-methylphenol	50 U		ug/l	50
N-Nitrosodiphenylamine (1)	10 U		ug/l	10
1,2-Diphenylhydrazine	10 U		ug/l	10
4-Bromophenyl-phenylether	10 U		ug/l	10
Hexachlorobenzene	10 U		ug/l	10
Pentachlorophenol	50 U		ug/l	50
Phenanthrene	10 U		ug/l	10
Anthracene	10 U		ug/l	10
Di-n-Butylphthalate	10 U		ug/l	10
Fluoranthene	10 U		ug/l	10

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMD 52 Groundwater Data

Lab Sample Number:  
 Site  
 Locator  
 Collect Date:

R9977013  
 GROUP111  
 52G00101  
 03-JUN-95

VALUE QUAL UNITS DL

Chemical Name	Value	Qual	Units	DL
Pyrene	10 U		ug/l	10
Butylbenzylphthalate	10 U		ug/l	10
3,3-Dichlorobenzidine	20 U		ug/l	20
Benzo (a) anthracene	10 U		ug/l	10
Chrysene	10 U		ug/l	10
bis(2-Ethylhexyl) phthalate	10 U		ug/l	10
Di-n-octylphthalate	10 U		ug/l	10
Benzo (b) fluoranthene	10 U		ug/l	10
Benzo (k) fluoranthene	10 U		ug/l	10
Benzo (a) pyrene	10 U		ug/l	10
Indeno (1,2,3-cd) pyrene	10 U		ug/l	10
Dibenz (a,h) anthracene	10 U		ug/l	10
Benzo (g,h,i) perylene	10 U		ug/l	10
2-Picoline	50 U		ug/l	50
Methyl methanesulfonate	10 U		ug/l	10
Ethyl methanesulfonate	10 U		ug/l	10
Acetophenone	10 U		ug/l	10
N-Nitrosopiperidine	10 U		ug/l	10
Phenyl-tert-butylamine	50 U		ug/l	50
2,6-Dichlorophenol	10 U		ug/l	10
N-Nitroso-di-n-butylamine	10 U		ug/l	10
N-Nitrosodimethylamine	10 U		ug/l	10
N-Nitrosopyrrolidine	10 U		ug/l	10
Benzidine	50 U		ug/l	50
1,2,4,5-Tetrachlorobenzene	50 U		ug/l	50
Pentachlorobenzene	50 U		ug/l	50
1-Naphthylamine	50 U		ug/l	50
2-Naphthylamine	50 U		ug/l	50
2,3,4,6-Tetrachlorophenol	10 U		ug/l	10
Phenacetin	10 U		ug/l	10
4-Aminobiphenyl	50 U		ug/l	50
Pentachloronitrobenzene	50 U		ug/l	50
Pronamide	10 U		ug/l	10
P-(Dimethylamino)azobenzene	10 U		ug/l	10
1,12-Dimethylbenz(a)Anthracene	10 U		ug/l	10
3-Methylcholanthrene	10 U		ug/l	10
Pyridine	50 U		ug/l	50
N-Nitrosomethylethylamine	10 U		ug/l	10
N-Nitrosomorpholine	10 U		ug/l	10
o-Toluidine	50 U		ug/l	50
Hexachloropropene	50 U		ug/l	50
p-Phenylethylenediamine	500 U		ug/l	500
Safrole	50 U		ug/l	50
Isosafrole	50 U		ug/l	50
1,4-Naphthoquinone	1000 R		ug/l	1000
1,3-Dinitrobenzene	10 U		ug/l	10
5-Nitro-o-toluidine	10 U		ug/l	10
1,3,5-Trinitrobenzene	10 U		ug/l	10
4-Nitroquinoline-1-oxide	500 U		ug/l	500
Methapyrene	50 U		ug/l	50
3,3-Dimethylbenzidine	10 U		ug/l	10
Hexachlorophene	500 R		ug/l	500

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMU 52 Groundwater Data

Lab Sample Number: R9977013  
 Site: GROUP111  
 Locator: 52G00101  
 Collect Date: 03-JUN-95

VALUE QUAL UNITS DL

Compound Name	Value	Qual	Units	DL
Armalite	50 U		ug/l	50
2-Chlorophenol	10 U		ug/l	10
3- & 4-Methylphenol (2)	10 U		ug/l	10
Hexachloropropene	50 U		ug/l	50
2-Acetylaminofluorene	10 UJ		ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED  
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 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMW 52 Groundwater Data

Lab Sample Number: R9977013  
 Site: GROUP111  
 Locator: 52G00101  
 Collect Date: 03-JUN-95

VALUE QUAL UNITS DL

PESTICIDES/PCBs	VALUE	QUAL	UNITS	DL
alpha-BHC	.02 U		ug/l	.02
beta-BHC	.04 U		ug/l	.04
delta-BHC	.02 U		ug/l	.02
gamma-BHC (Lindane)	.02 U		ug/l	.02
Heptachlor	.02 U		ug/l	.02
Aldrin	.02 U		ug/l	.02
Heptachlor epoxide	.02 U		ug/l	.02
Endosulfan I	.02 U		ug/l	.02
Dieldrin	.02 U		ug/l	.02
4,4'-DDE	.02 U		ug/l	.02
Endrin	.04 U		ug/l	.04
Endosulfan II	.04 U		ug/l	.04
4,4'-DDD	.04 U		ug/l	.04
Endosulfan sulfate	.04 U		ug/l	.04
4,4'-DDT	.04 U		ug/l	.04
Methoxychlor	.08 U		ug/l	.08
Endrin aldehyde	.04 U		ug/l	.04
Endrin ketone	.04 U		ug/l	.04
Chlordane	.2 U		ug/l	.2
Chlorobenzilate	.5 U		ug/l	.5
Diallate	1 U		ug/l	1
Toxaphene	1 U		ug/l	1
Isodrin	.02 U		ug/l	.02
Kepon	1 U		ug/l	1
Aroclor-1016	1 U		ug/l	1
Aroclor-1221	2 U		ug/l	2
Aroclor-1232	2 U		ug/l	2
Aroclor-1242	1 U		ug/l	1
Aroclor-1248	1 U		ug/l	1
Aroclor-1254	.5 U		ug/l	.5
Aroclor-1260	.5 U		ug/l	.5

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (B270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SMW 52 Groundwater Data

Lab Sample Number: R9977013  
 Site: GROUP111  
 Locator: 52600101  
 Collect Date: 03-JUN-95

VALUE QUAL UNITS DL

INORGANICS (WATER)

Element	Value	Qual	Units	DL
Antimony	5 U		ug/l	5
Arsenic	2.5 UJ		ug/l	2.5
Barium	5.2 J		ug/l	1.1
Beryllium	.3 U		ug/l	.3
Cadmium	1.2 U		ug/l	1.2
Calcium	98700		ug/l	34.8
Chromium	1.7 U		ug/l	1.7
Cobalt	3.1 U		ug/l	3.1
Copper	1 U		ug/l	1
Cyanide	1.5 U		ug/l	1.5
Iron	223		ug/l	1.9
Lead	4 U		ug/l	4
Magnesium	21200		ug/l	19.8
Manganese	106		ug/l	.5
Mercury	1 U		ug/l	.1
Nickel	5.7 U		ug/l	5.7
Selenium	.5 U		ug/l	.5
Silver	1.4 U		ug/l	1.4
Sodium	15000		ug/l	19.5
Thallium	.6 U		ug/l	.6
Tin	13.6 U		ug/l	13.6
Vanadium	3.7 J		ug/l	1.2
Zinc	5.37 UJ		ug/l	5.37

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTIFICATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, RCRA Facility Assessment Group III Report  
 SAMU 52 Groundwater Data

Lab Sample Number: R9977013  
 Site: GROUP111  
 Locator: 52c00101  
 Collect Date: 03-JUN-95

VALUE QUAL UNITS DL

GROUND WATER QUALITY	VALUE	QUAL	UNITS	DL
Alkalinity as CaCO3	204		mg/l	2
Ammonia-N	5		mg/l	3
Chloride	23.3		mg/l	10
Hardness as CaCO3	345		mg/l	3
Nitrate/Nitrite-N	.56		mg/l	.1
Oil and Grease	5	U	mg/l	.5
Phosphorus-P, Total	.13		mg/l	.1
Sulfide	76.9		mg/l	10
Total Dissolved Solids	1	U	mg/l	1
Total Kjeldahl Nitrogen	440		mg/l	10
Total Organic Carbon	9		mg/l	.3
	9.7		mg/l	1

COLOR	VALUE	UNITS
Color	15	units
pH	7.55	units

U = NOT DETECTED R = RESULT IS REJECTED  
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED  
 THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

**APPENDIX C**  
**PARCCs REPORT**

## **PARCC CRITERIA EVALUATION REPORT**

**NAS Mayport, Mayport, Florida  
Remedial Investigation/Feasibility Study**

**Draft Report for SDGs M3014 and M3019  
September 13, 1995**

*Prepared for:*

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## 1.0 Introduction

Environmental Data Services, Inc. (EDS) performed data validation and evaluation of chemical analytical data from environmental samples which consisted of groundwater, surface soil, and soil borings. These samples were collected in the vicinity of Solid Waste Management Units (SWMUs) 20, 21 and 52, located at the U.S. Naval Station (NAVSTA) in Mayport, Florida. The purpose of the data validation was to assess the reliability of the analytical data and to create an updated database of valid analytical data which could be used for site characterization, risk assessment and remedial design.

The data validation was performed in accordance with the Naval Energy and Environmental Support (NEESA) document Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, 20.2-047B, June 1988 (NEESA). Other guidance documents used are the National Functional Guidelines for Organic Data Review, June 1991, and the Laboratory Data Validation Guidelines for Evaluating Inorganic Analyses, July 1988. This report summarizes the results of the data quality assessment according to the precision, accuracy, representativeness, completeness and comparability (PARCC) parameters relative to the project specific Data Quality Objectives (DQOs).

The data consisted of NEESA Level C data packages for the organic and inorganic analyses. CH2M Hill Quality Analytical Laboratories (QAL) analyzed all of the samples in their Redding, California and Montgomery, Alabama laboratories. The data validation was performed to assess data quality.

Data quality is dependent on field sampling procedures, analytical methods and instrumentation, and sample matrices. Field sampling procedures and laboratory analysis contain potential sources of uncertainty, error, or bias which can affect the overall quality of the data. Sampling errors can occur from inadequate equipment decontamination, improper sample collection techniques, improper filtering, improper preservation, and homogenization or non-homogenization of samples. Data quality can also be affected by analytical factors such appropriate analytical method, proper equipment maintenance, quality instrumentation and software.

Quality control samples are used to determine the effects of sampling procedures and evaluate laboratory contaminants, laboratory performance, and matrix effects. Quality control samples include trip blanks, equipment rinsate blanks, field source blanks, method blanks, laboratory control samples, surrogate spikes, matrix spike/matrix spike duplicates (MS/MSDs), laboratory duplicates and field duplicates.

Before conducting the PARCC evaluation, the data were validated according to the functional guidelines for organic and inorganic data (USEPA 1991 and 1988, respectively). Samples not meeting functional guideline acceptance criteria were qualified with a data quality flag, as specified below. The qualifiers used for this project are as follows:

### **Organic Data Qualifiers**

- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

### **Inorganic Data Qualifiers**

- U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- J - The associated value is an estimated quantity.
- R - The data are unusable. (Note: Analyte may or may not be present.)
- UJ - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

Following review and qualification of the data according to the functional guidelines, the data are then evaluated using PARCC criteria. PARCC criteria provide an evaluation of overall data useability. The following section defines the PARCC criteria in general terms, followed by a specific evaluation for each analysis; volatiles, semivolatiles, pesticides/PCBs, and metals.

### **Precision**

*Definition: Precision - Precision is a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation around the mean.*

Precision is defined by the Contract Laboratory Program (CLP) as the relative percent difference of matrix spike recoveries for two matrix spikes of the same sample (matrix spike and matrix spike duplicates recoveries, MS/MSD). Precision was assessed by comparing the results for field sample duplicates and laboratory sample duplicates to provide information on homogeneity of field sampling techniques, improper handling of samples, and on laboratory sample preparation and analysis.

The relative percent difference (RPD) was calculated for the MS and MSD samples, ABB sample and associated field duplicate, and ABB sample and associated laboratory duplicate sample. Precision was quantitatively measured as the difference of the two sample results divided by the mean and multiplied by 100 in order to be reported as a percentage. The RPD was calculated by the reviewer for each of the duplicate samples and compared to the Data Quality Objectives (DQOs) for this project. Poor precision can be caused by sample heterogeneity, improper sample collection or handling, inconsistent sample preparation, and improper instrument use. An RPD above the numerical QC limit indicates imprecision which indicates that the actual concentrations may be higher or lower than the reported result.

### **Accuracy**

*Definition: Accuracy - Accuracy is the degree of conformity of a measurement (or an average of measurements of the same parameter),  $X$ , with an accepted reference or true value,  $T$ , usually expressed as the difference of the two values,  $X-T$ , or the difference as a percentage of the reference or true value  $100(X-T)/T$ , and sometimes expressed as a ratio,  $X/T$ . Accuracy is a measurement of the bias in a system.*

Accuracy is defined by the CLP as a percent recovery for a spiked sample for analyses. MS/MSD samples, surrogate recovery samples, and LCS samples are used to evaluate the data for accuracy. Recoveries outside of acceptable QC limits may be due to matrix interference, instrumentation, analyst error, or poor recovery of some of the target compounds.

Accuracy was quantitatively measured as the concentration of the spiked analyte minus the concentration of the spiked compound in the original sample, divided by the true concentration of the spiked analyte and multiplied by 100 in order to be reported as a percentage.

Accuracy was evaluated based on the results of the matrix spike/matrix spike duplicate, laboratory control sample, and surrogate spike. The reviewer calculated the percent recovery value (%R) for each spiking compound and compared the results with the DQOs for this project. Spike recoveries outside the acceptable QC limits indicate a source of bias, where the reported results may be either higher or lower than reported.

### **Representativeness**

*Definition: Representativeness - Representativeness is the degree to which data accurately and precisely represent the true value of a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition intended to be characterized.*

Representativeness is evaluated using the QC blank sample results. QC blank samples are equipment rinsate blanks, field source blanks, trip blanks, laboratory method blanks for organic analyses and laboratory preparation blanks for inorganic analyses. The presence of target compounds in these QC blanks provide an estimate of bias to the samples due to either cross contamination in the field or laboratory.

Field QC results were used to evaluate representativeness. Positive detection of compounds in the field QC samples identify compounds that could have been introduced to the associated field samples during sample collection, transportation to the laboratory, or during analysis. Contamination should not be found in field QC samples.

Qualifications were made to the data based on field blank contamination when the sample results were below ten (10) times the maximum amount detected in the blank for compounds that are common laboratory contaminants and five (5) times the maximum amount detected in the blank for compounds that are not common contaminants. Samples that were qualified as estimated due to blank contamination were flagged by the data reviewer with a "U." Compounds that were qualified due to blank contamination that were reported below the method detection limit were raised to the detection limit and the laboratory qualifier was replaced by the reviewer with a "U."

Qualifications were made to the data based on blank contamination in the following order:

- laboratory method blank contamination;

Followed by the highest concentration of contaminant found in any of the following:

- field source blank contamination;
- trip blank contamination;
- equipment blank contamination;

Representativeness was also evaluated based on laboratory QC results. Laboratory method blanks were analyzed for the organic methods and preparation blanks were analyzed for inorganics. Positive detection of compounds in the laboratory QC samples identify compounds that could have been introduced to the associated field samples during sample extraction or preparation or during analysis. Contamination should not be found in laboratory QC samples. The detection of target compounds in the laboratory QC samples provides an estimate of bias to the associated samples due to cross contamination in the laboratory.

Qualifications were made to the data based on laboratory blank contamination when the sample results were below ten (10) times the maximum amount detected in the blank for compounds that are common laboratory contaminants and five (5) times the maximum amount detected in the blank for compounds that are not common contaminants. Samples that were qualified as estimated due to laboratory blank contamination were flagged by the data reviewer with a "U." Compounds that were qualified due to blank contamination that were reported below the method detection limit were raised to the detection limit and the laboratory qualifier was replaced by the reviewer with a "U."

### **Comparability**

*Definition: Comparability - Comparability is the confidence with which one data set can be compared to another. Comparability may be assessed by comparing sampling methodology, analytical methodology, and measurement units of reported data.*

The comparability parameter assessment relies almost exclusively on the results of the data validation process. Each data reviewer assessed the comparability parameter by determining whether or not the data was acquired by using standard operating procedures for sampling, standard analytical methods for analysis and by reporting analytical results in standard units.

Comparability also may be assessed by review of the analytical method practical quantitation limits. The DQOs for this project specify that the any compound detected between the detection limit and practical quantitation limit will be reported and qualified as estimated (J) flag.

## Completeness

*Definition: Completeness - Completeness is a measure of the amount of valid data expressed as a percentage obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions.*

Completeness is evaluated to determine if an acceptable level of data was obtained so that a project can be completed with valid usable data. Valid usable values are data that are not rejected (R qualifier) by comparison of the analytical procedures with Level C Data Validation Guidelines as specified by NEESA. Completeness is quantitatively measured as the total number of analytes in each sample, equipment rinsate, field and trip blanks and duplicate samples, minus the total number of rejected analytes divided by the total number of analytes. The completeness criterion should be defined to be consistent with the project data quality objectives.

## 2.0 Volatile Organic Compounds

A total of 2 SDGs are summarized in this report; SDG M3014 and SDG M3019. SDG M3014 was comprised of surface soil and soil borings while SDG M3019 consisted of groundwater samples. This section discusses the QC supporting documentation as defined by the PARCC criteria and evaluated based on the project specific DQOs.

### 2.1 Precision

MS/MSD samples and field duplicate samples were used to assess precision. MS/MSD samples were analyzed in both SDGs. The functional guidelines establishes RPD QC criteria limits for MS/MSD samples as follows:

#### MS/MSD Criteria

	Water	Soil/Sediment
	<u>RPD</u>	<u>RPD</u>
1,1-Dichloroethene	14	22
Trichloroethene	14	24
Benzene	11	21
Toluene	13	21
Chlorobenzene	13	21

MS/MSD analytical results for each SDG are presented in Appendix A. All RPDs were acceptable for the volatile organic analyses for both SDGs.

## Duplicate Samples

Field duplicate results are provided in Apprndix A. In summary, two field duplicates were analyzed in SDG M3014 while in SDG M3019 only one field duplicate was analyzed. For SDG M3014, total xylenes were detected in field duplicate 21S00101D while the original sample, 21S00101 was non-detect. Likewise, 2-butanone was detected in the original sample 20B00205 while the duplicate sample, 20B00205D was non-detect. The RPDs were not calculated (NC) for either pair since one of the two compounds were non-detect. There were no positive results reported for the field duplicate samples 20G00301 and 20G00301D in SDG M3019.

## 2.2 Accuracy

The percent recovery results of MS/MSDs and surrogate spikes are used to assess accuracy. MS/MSD recovery results are presented in Appendix A. Accuracy was assessed by calculating the percent recoveries of the five spiking compounds: 1,1-dichloroethene, trichloroethene, benzene, toluene, and chlorobenzene.

## MS/MSD Samples

The functional guidelines establishes % Recovery QC criteria limits for MS/MSD samples as follows:

### MS/MSD Criteria

	Water <u>%R</u>	Soil/Sediment <u>%R</u>
1,1-Dichloroethene	61-145	59-172
Trichloroethenc	71-120	62-137
Benzene	76-127	60-133
Toluene	76-125	59-139
Chlorobenzene	75-130	66-142

The percent recovery (%R) values for the MS/MSD samples were acceptable for both SDGs.

## Surrogate Spikes

Three surrogate compounds are used for spiking the volatile organic samples; bromofluorobenzene, 1,2-dichloroethane-d4, and toluene-d8. Surrogate spike recoveries for volatile organic analyses were compared to the QC acceptance criteria as specified in the Functional Guidelines. These criteria are summarized as follows:

## System Monitoring Compound Criteria

	Water <u>%R</u>	Soil/Sediment <u>%R</u>
Toluene-d <sub>8</sub> (TOL)	88-110	81-117
Bromofluorobenzene (BFB)	86-115	74-121
1,2-Dichloroethane-d <sub>4</sub> (DCE)	76-114	70-121

All surrogate recoveries met acceptance criteria for both SDGs.

### Initial and Continuing Calibration

Initial and continuing calibration results can be used to evaluate accuracy within an SDG. Relative response factors (RRFs), percent relative standard deviation (%RSD) and percent difference (%D) are the three parameters used to evaluate instrument calibration.

The RRF is a measure of relative response of an analyte compared to its internal standard. The %RSD is an expression of the linearity of instrument response and the %D is a comparison of the continuing calibration instrument response with its initial calibration response. The RRF is the most critical of the three parameters. This parameter can affect accuracy when it outside acceptable QC limits.

The %RSD, RRF, and %D values that exceeded QC acceptance criteria are summarized in Appendix D. For SDG M3014, 1,4-dioxane exceeded the 0.05 RRF QC acceptance criteria, therefore, 1,4-dioxane was rejected for all samples in this SDG. For SDG M3019, isobutyl alcohol, 1,4-dioxane, and 2-butanone exceeded the RRF QC acceptance criteria (<0.05). These compounds were rejected "R" for all samples in this SDG except for 2-butanone for sample 20Y005, where a positive result was reported for this compound and subsequently qualified as estimated "J."

There are also several %D and %RSD values that exceeded QC acceptance criteria (>25% and >30%, respectively). For SDG M3014, acrolein, bromomethane, and isobutyl alcohol exceeded the 25% D criteria. The associated samples were qualified as estimated "UJ" since they were all non-detects. For SDG M3019, acetone and acrolein exceeded the 25% D criteria and were qualified as estimated "UJ" for seven of the thirteen samples. Several compounds also exceeded the 30% RSD criteria for SDG M3019, however, there were no positive results reported for these compounds, therefore, no qualifications were required.

### Holding Times

All holding times were met for both SDGs.

## 2.3 Representativeness

Method blanks, equipment rinsate blanks, trip blanks, and field source blanks were used to evaluate representativeness for the volatile organic analyses. A summary of the contaminants found in these blanks can be found in Appendix B. The laboratory method blank was applied first to the samples, followed by the highest concentration of the equipment rinsate blank, trip blank, and field source blank.

Qualifications were made to the data based on blank contamination when the sample results were below ten (10) times the maximum amount detected in the blank for compounds that are common laboratory contaminants and five (5) times the maximum amount detected in the blank for compounds that are not common contaminants. Samples that were qualified as estimated due to blank contamination were flagged by the data reviewer with a "U." Compounds that were qualified due to blank contamination that were reported below the method detection limit were raised to the detection limit and the laboratory qualifier was replaced by the reviewer with a "U." If a sample result exceeded 5X or 10X the amount in the blank, the result was not amended.

The following summarizes the method blanks, equipment rinsate blanks, trip blanks, and field source blanks.

### Method Blanks

Method blanks were analyzed with each SDG for volatile organic compounds to identify contaminants that may have been introduced through analytical instrumentation or sample preparation. Acetone and methylene chloride were detected in the method blank associated with SDG M3014. Acetone was detected in the method blank associated with SDG M3019. All associated results for each blank were qualified as undetected "U."

### Equipment/Rinsate Blanks

Equipment rinsate blanks are used to evaluate contaminants that may have been introduced through the sampling equipment or laboratory handling of samples. There were no contaminants detected in rinsate blank 21R016 or 20R021 associated with SDGs M3014 and M3019, respectively.

### Trip Blanks

Trip blanks are used to evaluate contaminants that may have been introduced through storage, shipping, or site conditions. There were no contaminants detected in the two trip blanks 21T018 and 20T019 in SDG M3014. Contaminants were also not detected in trip blank 20T026 in SDG M3019, however, methylene chloride and acetone were detected in the additional two trip blanks 21T027 and 52T028 in this SDG. The

methylene chloride contamination did not affect any of the samples, since they were all non-detect, however, acetone was qualified as undetected "U" in two of the associated samples.

### Field Source Blanks

Field source blanks are used to evaluate contaminants that may have been introduced through site conditions. Field source blanks are typically prepared in the field (on-site) as opposed to a trip blank which is typically prepared at the laboratory and shipped with the cooler. There were no field source blanks in SDG M3014, however, for SDG M3019, chlorobenzene and 2-butanone were detected in the field source blank 20Y005. Chlorobenzene was not detected in the associated samples, therefore, no qualifications were required for this compound, however, 2-butanone was detected in the associated sample 20R021. This compound was qualified as undetected "U" for sample 20R021.

## **2.4 Comparability**

The laboratory used standard analytical methods for all of the analyses. The method detection limits were below the contract required quantitation limits. Overall, the comparability of the data is acceptable.

## **2.5 Completeness**

There were rejections of the data in both of the 2 SDGs that were analyzed for volatile organic compounds. In both SDGs, the data were rejected due to low RRF values (<0.05).

The percent of valid data for the volatile analysis for this project is 97.1%. The data quality objective for completeness for volatile organics for this project is 95%; therefore, the completeness for the volatile organic analyses was acceptable. There were 59 rejected compounds and 2006 total analyses for the volatile organics. A summary of the rejected compounds can be found in Appendix C.

### 3.0 Semivolatile Organic Compounds

A total of 2 SDGs are summarized in this report; SDG M3014 and SDG M3019. SDG M3014 was comprised of surface soil and soil borings while SDG M3019 consisted of groundwater samples. This section discusses the QC supporting documentation as defined by the PARCC criteria and evaluated based on the project specific DQOs.

#### 3.1 Precision

##### MS/MSD Samples

MS/MSD and field duplicates were used to assess precision. MS/MSD samples were analyzed in both SDGs M3014 and M3019. The functional guidelines establishes RPD QC criteria limits for MS/MSD samples as follows:

##### **MS/MSD CRITERIA**

	Water	Soil/Sediment
	<u>RPD</u>	<u>RPD</u>
Phenol	42	35
2-Chlorophenol	40	50
1,4-Dichlorobenzene	28	27
N-Nitroso-Di-n-propylamine	38	38
1,2,4-Trichlorobenzene	28	23
4-Chloro-3-methylphenol	42	33
Acenaphthene	31	19
4-Nitrophenol	50	50
2-4-Dinitrotoluene	38	47
Pentachlorophenol	50	47
Pyrene	31	36

MS/MSD analytical results for each SDG are presented in Appendix A. RPD results were acceptable for the semivolatile organic analyses for both SDGs.

##### Duplicate Samples

Two duplicate sample pairs were analyzed with SDG M3014 while one duplicate pair was analyzed for SDG M3019. These results are presented in Appendix A. There were no compounds detected in the duplicate samples for either SDG.

### 3.2 Accuracy

The percent recovery results of MS/MSDs and surrogate spikes are used to assess accuracy. MS/MSD recovery results are presented in Appendix A. Accuracy for MS/MSD samples was assessed by calculating the percent recoveries of eleven spiking compounds:

#### MS/MSD Samples

The functional guidelines establishes % Recovery QC criteria limits for MS/MSD samples as follows:

#### MS/MSD CRITERIA

	Water <u>%R</u>	Soil/Sediment <u>%R</u>
Phenol	12-89	26-90
2-Chlorophenol	27-123	25-102
1,4-Dichlorobenzene	36-97	28-104
N-Nitroso-Di-n-propylamine	41-116	41-126
1,2,4-Trichlorobenzene	39-98	38-107
4-Chloro-3-methylphenol	23-97	26-103
Acenaphthene	46-118	31-137
4-Nitrophenol	10-80	11-114
2,4-Dinitrotoluene	24-96	28-89
Pentachlorophenol	9-103	17-109
Pyrene	26-127	35-142

The percent recovery (%R) values for the MS/MSD samples listed below exceeded QC acceptance criteria.

<u>SDG No.</u>	<u>Compound</u>	<u>%R</u> <u>MS/MSD</u>	<u>QC</u> <u>Limits</u>
M3014	Phenol	95*/96*	26-90
M3014	2,4-Dinitrotoluene	92*/91*	28-89
M3019	Phenol	87/90*	12-89
M3019	4-Nitrophenol	86*/88*	10-80
M3019	Pentachlorophenol	101/104*	9-103

Percent recoveries that exceed QC limits indicate a potential high bias in associated sample results, however, there were no positive results reported for the above compounds in the associated samples, therefore, there was no affect on the data.

### Surrogate Spikes

Six surrogate compounds are used for spiking the semivolatile organic samples. Surrogate spike recoveries for semivolatile organic analyses were compared to the QC acceptance criteria as specified in the Functional Guidelines. These criteria are summarized as follows:

#### **Surrogate Recovery Limits**

	Water <u>%R</u>	Soil <u>%R</u>
NBZ (Nitrobenzene-d5)	35-114	23-120
FBP (2-Fluorobiphenyl)	43-116	30-115
TPH (Terphenyl-d14)	33-141	18-137
PHL (Phenol-d5)	10-94	24-113
2FP (2-Fluorophenol)	21-100	25-121
TBP (2,4,6-Tribromophenol)	10-123	19-122

For SDG M3014, Sample 21R016 had phenol-d5 and 2-fluorophenol recover high at 99% and 102%, respectively. High surrogate recoveries require qualification of positive results, however, there were no positive results reported for the acid fraction for this sample, therefore, no action has been taken.

For SDG M3019, samples 20G00101, 20G00201, 21G00101, 21G00201, 21G00301, and 52G00101 exhibited high percent recoveries for phenol-d5 and 2-fluorophenol. All positive results for these samples were qualified as estimated "J." This includes only one sample, 20G00101, for bis(2-ethylhexyl)phthalate.

### Initial and Continuing Calibration

The %RSD, RRF, and %D values that exceeded QC acceptance criteria are summarized in Appendix D. There were several compounds in the initial calibration that exceeded the 30% RSD for both SDGs, however, there were no positive results reported for any of these compounds, therefore, no qualifications were required. However, for the continuing calibration, 1,4-naphthoquinone and hexachlorophene exceeded the QC acceptance criteria for RRFs (<0.05) in SDG M3019. These compounds were rejected "R" by the reviewer and are unacceptable for use. There were no rejected compounds for SDG M3014 based on the continuing calibration. There are several %D values that exceeded QC acceptance criteria (>25%) for both SDGs. The data were qualified as estimated "UJ" for non-detects and "J" for positive results when the %D was exceeded.

### Holding Times

All holding times were met for both SDGs.

### **3.3 Representativeness**

Method blanks, equipment rinsate blanks, and field source blanks were used to evaluate representativeness for the semivolatile organic analyses. A summary of the contaminants found in these blanks can be found in Appendix B. The samples were qualified using the highest concentration of contamination from the equipment rinsate blank or the field source blank.

Qualifications were made to the data based on blank contamination when the sample results were below ten (10) times the maximum amount detected in the blank for compounds that are common laboratory contaminants and five (5) times the maximum amount detected in the blank for compounds that are not common contaminants. Samples that were qualified as estimated due to blank contamination were flagged by the data reviewer with a "U." Compounds that were qualified due to blank contamination that were reported below the method detection limit were raised to the detection limit and the laboratory qualifier was replaced by the reviewer with a "U." If a sample result exceeded 5X or 10X the amount in the blank, the result was not amended.

The following summarizes the method blanks, equipment rinsate blanks, trip blanks, and field source blanks.

#### Method Blanks

Method blanks were analyzed with each SDG for semivolatile organic compounds to identify contaminants that may have been introduced through analytical instrumentation or sample preparation. There were no contaminants found in any of the method blanks for either SDG.

#### Equipment/Rinsate Blanks

Equipment rinsate blanks are used to evaluate contaminants that may have been introduced through the sampling equipment or laboratory handling of samples. For SDG M3014, bis(2-ethylhexyl)phthalate was detected in the equipment rinsate blank 21R016. This caused bis(2-ethylhexyl)phthalate to be raised to the detection limit and qualified as undetected "U" for eight of the samples in this SDG. For SDG M3019, there were no compounds detected in equipment rinsate blank 20R021.

### Field Source Blanks

Field source blanks are used to evaluate contaminants that may have been introduced through site conditions. Field source blanks are typically prepared in the field (on-site) as opposed to a trip blank which is typically prepared at the laboratory and shipped with the cooler. There were no field source blanks associated with SDG M3014. There were no contaminants detected in field source blank 20Y005, associated with SDG M3019.

### **3.4 Comparability**

The laboratory used standard analytical methods for all of the analyses. The method detection limits were below the contract required quantitation limits. Overall, the comparability of the data is acceptable.

### **3.5 Completeness**

There were no rejections of the data for SDG M3014, however, the data were rejected in SDG M3019 due to continuing calibration deficiencies.

The semivolatile compounds were rejected in all cases due to a low RRF ( $<0.05$ ). Of the 3161 total analyses, 16 compounds were rejected. The percent of valid data for these semivolatile samples for this project is 99.5%. The data quality objective for completeness for this project is 95%; therefore, the completeness for this analysis was acceptable. A summary of rejected compounds can be found in Appendix C.

## **4.0 Pesticide/PCB Compounds**

A total of 2 SDGs are summarized in this report; SDG M3014 and SDG M3019. SDG M3014 was comprised of surface soil and soil borings while SDG M3019 consisted of groundwater samples. This section discusses the QC supporting documentation as defined by the PARCC criteria and evaluated based on the project specific DQOs.

### **4.1 Precision**

#### MS/MSD Samples

MS/MSD and field duplicates were used to assess precision. MS/MSD samples were analyzed in both SDGs. The functional guidelines establishes RPD QC criteria limits for MS/MSD samples as follows:

	<b>MS/MSD Criteria</b>	
	<b>Water</b>	<b>Soil</b>
	<b><u>RPD</u></b>	<b><u>RPD</u></b>
gamma-BHC (Lindane)	15	50
Heptachlor	20	31
Aldrin	22	43
Dieldrin	18	38
Endrin	21	45
4,4'-DDT	27	50

MS/MSD analytical results for each SDG are presented in Appendix A. All RPD results met QC acceptance criteria.

#### Duplicate Samples

Two duplicate sample pairs were analyzed with SDG M3014 and one duplicate pair was analyzed with SDG M3019. These results are presented in Appendix A. There were no positive results reported for the field duplicate set in SDG M3019. For SDG M3014, there were two duplicate sets. There were no positive results reported for one of the duplicate sets while the other set (21S00101/21S00101D) met the RPD QC limit of 35 for chlordane.

#### **4.2 Accuracy**

The percent recovery results of MS/MSDs and surrogate spikes are used to assess accuracy. MS/MSD recovery results are presented in Appendix A. Accuracy for MS/MSD samples was assessed by calculating the percent recoveries of six spiking compounds:

#### MS/MSD Samples

The functional guidelines establishes % Recovery QC criteria limits for MS/MSD samples as follows:

	<b>MS/MSD Criteria</b>	
	<b>Water</b>	<b>Soil/Sediment</b>
	<b><u>%R</u></b>	<b><u>%R</u></b>
gamma-BHC (Lindane)	56-123	46-127
Heptachlor	40-131	35-130
Aldrin	40-120	34-132
Dieldrin	52-126	31-134
Endrin	56-121	42-139
4,4'-DDT	38-127	23-134

The percent recovery (%R) values for the MS/MSD samples met QC acceptance criteria for both SDGs.

#### Surrogate Spikes

Two surrogate compounds, TCX and DCB, are used for spiking the pesticide/PCB samples. Surrogate spike recoveries for pesticide/PCB analyses were compared to the QC acceptance criteria specified for each SDG. Surrogates that exceeded QC acceptance criteria are summarized as follows:

For SDG M3014 pesticide/PCB analysis, samples 20B00305, 20B00205, 20B00205D, and 20S00501 had low % recoveries for TCX, therefore, all associated results were qualified as estimated "J" for positive results and "UJ" for non-detects.

For SDG M3014 kepone analysis, sample 52S00101 had a high % recovery of 109% for TCX. High surrogate recoveries require qualification of positive results, however, kepone was not detected in this sample, therefore, no qualifications were required.

For SDG M3019, all samples met QC acceptance criteria.

#### Initial and Continuing Calibration

The %RSD and %D QC exceedences and the compounds qualified based on those exceedences are summarized in Appendix D. For SDG M3014, the correlation coefficients were acceptable and no qualifications were required. For SDG M3019, the correlation coefficient for kepone exceeded the QC acceptance criteria ( $> 0.995$ ). All kepone results in this SDG were qualified as estimated "UJ" since all kepone results were non-detects. TCX and DCB also exceeded linearity criteria, however, since these are surrogate compounds, no qualifications were required.

There were several %D values that exceeded QC acceptance criteria ( $> 15\%$ ). For SDG M3014, chlorobenzilate, endrin aldehyde, dichlorobenzene, and kepone exceeded the 15% D criteria. Chlorobenzilate and endrin aldehyde did not require qualifications since these compounds met QC acceptance criteria on the other column (secondary and primary, respectively). Dichlorobenzene is a surrogate compound which also did not require qualifications, however, kepone exceeded the %D criteria. Nine samples were associated with this calibration and qualified as estimated "UJ" for kepone. For SDG M3019, endrin aldehyde and endosulfan II exceeded the 15%D criteria on the secondary column, however, the QC criteria were met for both compounds on the primary column, therefore, no qualifications were required.

## Holding Times

All holding times were met for SDG M3019, however, for SDG M3014, sample 21S00101D was extracted outside of holding times and qualified as estimated "J" for positive results and "UJ" for non-detects. Sample 52B00104RE was reextracted outside of holding times to confirm that carryover occurred during the original analysis. The results for this sample were qualified as estimated "J" for positive results and "UJ" for non-detects.

### **4.3 Representativeness**

Method blanks, equipment rinsate blanks, and field source blanks were used to evaluate representativeness for the pesticide/PCB analyses. A summary of the contaminants found in these blanks can be found below. The laboratory method blanks were used to assess the sample data. There were no contaminants found in either the equipment rinsate blanks or the field source blanks.

The following summarizes the method blanks, equipment rinsate blanks, trip blanks, and field source blanks.

#### Method Blanks

Method blanks were analyzed with each SDG for pesticide/PCB compounds to identify contaminants that may have been introduced through analytical instrumentation or sample preparation. There were no contaminants detected in any of the method blanks for either SDG.

#### Equipment/Rinsate Blanks

Equipment rinsate blanks are used to evaluate contaminants that may have been introduced through the sampling equipment or laboratory handling of samples. Both equipment rinsate blanks, 21R016 and 20R021 in SDGs M3014 and M3019, respectively, were free of contamination.

#### Field Source Blanks

Field source blanks are used to evaluate contaminants that may have been introduced through site conditions. Field source blanks are typically prepared in the field (on-site) as opposed to a trip blank which is typically prepared at the laboratory and shipped with the cooler. Field source blank 20Y005 in SDG M3019 was free of contamination. A field source blank was not analyzed with SDG M3014.

#### 4.4 Comparability

The laboratory used standard analytical methods for all of the analyses. The method detection limits were below the contract required quantitation limits. Overall, the comparability of the data is acceptable.

#### 4.5 Completeness

There were no rejections of the data in any of the SDGs for pesticide/PCB (including kepone) analyses. The percent of valid data for the pesticide/PCB compounds for this project is 100%. The data quality objective for completeness for this project is 95%; therefore, the completeness was acceptable. There are a total of 930 pesticide/PCB analyses.

### 5.0 Metals and Cyanide

A total of 2 SDGs are summarized in this report; SDG M3014 and SDG M3019. SDG M3014 was comprised of surface soil and soil borings while SDG M3019 consisted of groundwater samples. This section discusses the QC supporting documentation as defined by the PARCC criteria and evaluated based on the project specific DQOs.

#### 5.1 Precision

Metals and cyanide analyses are different from organic analyses in that no matrix spike duplicate sample is evaluated. A laboratory duplicate sample is analyzed instead. For duplicate analyte concentrations greater than 5X the CRDL, the relative percent difference (RPD) between the two reported results must be less than 20% for aqueous samples (35% for soil samples).

For duplicate analyte concentrations less than 5X the CRDL, the difference between the two reported results must be less than the CRDL value for aqueous samples, or less than 2X the CRDL value for soil samples. RPDs for samples with values less than the CRDL are not calculated.

##### Field Duplicates

Field duplicate criteria have been met and no action has been taken.

##### Laboratory Duplicates

Laboratory duplicate results met QC acceptance criteria and no action was taken.

## 5.2 Accuracy

### Matrix Spike Analysis

The matrix spike recovery QC limits are 75-125%. It should be noted that spike recovery limits do not apply when the sample concentration exceeds the spike concentration by a factor of four or more. MS analytical results for each SDG are presented in Appendix A. There were no %R exceedences for SDG M3019, however, lead exceeded the 75-125% QC criteria for SDG M3014. All positive results for lead were qualified as estimated "J." The matrix spike recovery of antimony was 139.6%. When the sample results are non-detect and matrix spike recovery is >125%, the reported results are acceptable, therefore, no qualifications were required for antimony.

### Initial and Continuing Calibration Results

All %RSDs and %Ds were within the QC limits for each SDG. The %RSD and %D values do not suggest any systematic analytical problem with either accuracy or precision.

## 5.3 Representativeness

Preparation blanks, equipment rinsate blanks, and field source blanks were analyzed for metals and cyanide to evaluate representativeness. Blank results are summarized in Appendix B.

The preparation blanks are used first to evaluate data quality, followed by the highest value of the equipment rinsate blanks or the field source blanks.

Sample results were qualified due to laboratory blanks that had target analytes where the absolute value of the reported results was greater than or equal to the corresponding IDL value; sample results were less than 5X the absolute value of the blank result. Samples that were qualified as estimated due to laboratory blank contamination were flagged by the data reviewer with a "UJ." Compounds that were qualified due to blank contamination that were reported below the blank concentration were raised to the concentration of the blank and the laboratory qualifier was replaced by the reviewer with a "UJ." The qualifier "UJ" in this case means that the compound is considered to be undetected and the value reported is an estimated detection limit because the compound was identified in the blank as well as in the sample. The laboratory QC samples are summarized in Appendix B.

### Preparation Blanks

Preparation blanks were analyzed for each SDG to identify target analytes that may have been introduced through the analytical instrumentation or sample preparation. Iron, zinc, lead, silver, tin, and mercury were detected in the preparation blanks. Preparation blanks were designated with the prefix "WTFN", "WTIC", "SOFN", "SOIC", and "SOHG." Each preparation blank prefix was followed by the preparation date. Preparation blank contamination is summarized in Appendix B. All associated sample results were qualified as estimated "UJ."

### Equipment Rinsate Blanks

Target analytes that were found in the equipment rinsate blanks through inadequate decontamination procedures or sampling equipment were applied to associated samples. Copper was detected in rinsate blank 21R016 with SDG M3014 and sodium was detected in rinsate blank 20R021, associated with SDG M3019. Associated samples were qualified as estimated "UJ" for sodium and copper.

### Field Source Blanks

Target analytes that were found in the field source blanks through background or on-site contamination were applied to associated samples. A field source blank was not analyzed with SDG M3014, however, arsenic and cyanide were detected in field source blank 20Y005 associated with SDG M3019. Associated samples were qualified as estimated "UJ" for arsenic and cyanide.

### Initial and Continuing Calibration Blanks

Per the project specific scope of services, initial and continuing calibration blanks were not used to qualify the sample data for this project.

## **5.4 Comparability**

The laboratory used standard analytical methods for all of the analyses. The method detection limits were below the CRDLs. Some samples were qualified due to blank contamination, which raised the detection limit for the blank contaminants in those samples. Overall, the comparability of the data is acceptable.

## 5.5 Completeness

There were no rejections of the data in either SDG M3014 or M3019. The percent of valid data for the inorganic compounds for this project is 100%. The data quality objective for completeness for this project is 95%; therefore, the completeness for this project was acceptable. There are a total of 572 inorganic analyses and 0 of these compounds were rejected.

**APPENDIX A**  
**Precision and Accuracy Tables**

Matrix Spike/Matrix Spike Duplicate Summary Table										
Matrix Spike Summary Table	Units	MS 21S00101 SDG No. M3014			Acceptable Range for %R	MSD 21S00101 SDG No. M3014			RPD	Acceptable Limit for RPD
		Un-spiked	Spiked	%R		Un-spiked	Spiked	%R		
VOCs (All criteria were met)										
SVOCs Phenol 2,4-Dinitrotoluene	ug/kg ug/kg	0 0	6540 3170	95 92	26-90 28-89	0 0	6580 3120	96 91	-1 1	35 47
Pest/PCBs (All criteria were met)										
Metals Lead	ug/kg	3.9090	9.2658	129.4	75-125	Not Applicable				

Matrix Spike/Matrix Spike Duplicate Summary Table										
Matrix Spike Summary Table	Units	MS 20G00301 SDG No. M3019			Acceptable Range for %R	MSD 20G00301 SDG No. M3019			RPD	Acceptable Limit for RPD
		Un-spiked	Spiked	%R		Un-spiked	Spiked	%R		
VOCs (All criteria were met)										
SVOCs 4-Nitrophenol Phenol Pentachlorophenol	ug/l ug/l ug/l	0 - -	171 - -	86 - -	10-80 12-89 9-103	0 0 0	176 181 208	88 90 104	2 3 3	50 42 50
Pest/PCBs (All criteria were met)										
Metals (All criteria were met)										

Volatile Field Duplicate Summary Table SDG No. M3014			
Compound	21S00101 ug/kg	21S00101D ug/kg	RPD
Xylenes (total)	5U	1J	NC

Volatile Field Duplicate Summary Table SDG No. M3014			
Compound	20B00205 ug/kg	20B00205D ug/kg	RPD
2-Butanone	4J	12U	NC

Volatile Field Duplicate Summary Table SDG No. M3019			
Compound	20G00301 ug/l	20G00301D ug/l	RPD
None	--	--	--

Semivolatile Field Duplicate Summary Table SDG No. M3014			
Compound	20B00205 ug/kg	20B00205D ug/kg	RPD
None	--	--	--

Semivolatile Field Duplicate Summary Table SDG No. M3014			
Compound	21S00101 ug/kg	21S00101D ug/kg	RPD
None	--	--	--

Semivolatile Field Duplicate Summary Table SDG No. M3019			
Compound	20G00301 ug/l	20G00301D ug/l	RPD
None	--	--	--

Pesticide/PCB Field Duplicate Summary Table SDG No. M3014			
Compound	20B00205 ug/kg	20B00205D ug/kg	RPD
None	--	--	--

Pesticide/PCB Field Duplicate Summary Table SDG No. M3014			
Compound	21S00101 ug/kg	21S00101D ug/kg	RPD
Chlordane	240	180	29

Pesticide/PCB Field Duplicate Summary Table SDG No. M3019			
Compound	20G00301 ug/l	20G00301D ug/l	RPD
None	--	--	--

Inorganic Field Duplicate Summary Table SDG No. M3014			
Compound	20B00205 ug/kg	20B00205D ug/kg	RPD
All criteria were met	--	--	--

Inorganic Field Duplicate Summary Table SDG No. M3014			
Compound	21S00101 ug/kg	21S00101D ug/kg	RPD
All criteria were met	--	--	--

Inorganic Field Duplicate Summary Table SDG No. M3019			
Compound	20G00301 ug/l	20G00301D ug/l	RPD
All criteria were met	--	--	--

**APPENDIX B**  
**Representativeness Tables**

Volatile Laboratory Blank Summary Table  
SDG No. M3014

Blank ID/Date Analyzed	Affected Analyte	Conc. ug/kg or ug/l	Action Level ** ug/kg or ug/l	Affected Sample	Lab Conc ug/kg or ug/l	Lab Qual	EDS Conc ug/kg or ug/l	EDS Qual
VBLKGC 5/12/95	None Found	--	--	--	--	--	--	--
VBLKGD 5/12/95	Methylene Chloride	7	70	21S00301	8	B	8	U
VBLKGD 5/12/95	Acetone	12	120	21S00301	8	JB	11	U
VBLKGH 5/16/95	Methylene Chloride	4J	40	21B00303 21S00201	10 5	B JB	10 5	U U
VBLKGH 5/16/95	Acetone	8J	80	21B00303 21S00201	14 6	B JB	14 11	U U
VBLKGJ 5/16/95	Methylene Chloride	1J	10	21B00203 21S00101 21S00101D 21B00104 20S00101 20B00105 20S00301 20B00305 20S00201 20B00205 20B00205D 20S00501 20S00401	6 6 5 8 16 10 12 10 10 13 14 11 12	B B JB B B B B B B B B B B	6 6 5 8 16 10 12 10 10 13 14 11 12	U U U U U U U U U U U U U U
VBLKGJ 5/16/95	Acetone	8J	80	21B00203 21S00101 21S00101D 21B00104 20B00105 20B00305 20S00201 20B00205 20B00205D 20S00501 20S00401	4 3 5 10 11 10 5 15 14 6 10	JB JB JB JB JB JB JB B B JB JB	11 10 10 12 12 12 10 15 14 10 11	U U U U U U U U U U U U
VBLKGN 5/17/95	Methylene Chloride	9	90	52S00101 52B00104	18 30	B B	18 30	U U

VBLKGN 5/17/95	Acetone	5J	50	52S00101 52B00104	18 19	B B	18 19	U U
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Volatile Field Blank Summary Table SDG No. M3014								
Blank ID/Date Analyzed	Affected Analyte	Conc. ug/l	Action Level ** ug/l	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
21T018 5/12/95	None Found	--	--	--	--	--	--	--
21R016 5/12/95	None Found	--	--	--	--	--	--	--
20T019 5/12/95	None Found	--	--	--	--	--	--	--

Volatile Laboratory Blank Summary Table SDG No. M3019								
Blank ID/Date Analyzed	Affected Analyte	Conc. ug/l	Action Level ** ug/l	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
V0612W01- BLK 6/12/95	Acetone	2J	20	20G00101	2	BJ	10	U
				20G00301	2	BJ	10	U
				20G00301D	2	BJ	10	U
				20R021	3	BJ	10	U
				20Y005	5	BJ	10	U
V0612W02- BLK 6/13/95	None Found	--	--	--	--	--	--	--

Volatile Field Blank Summary Table SDG No. M3019								
Blank ID/Date Analyzed	Affected Analyte	Conc. ug/l	Action Level ** ug/l	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
20T026 6/12/95	None Found	--	--	--	--	--	--	--
20Y005 6/12/95	2-Butanone	8J	80	20R021	7	J	10	U

20Y005 6/12/95	Chlorobenzene	1J	5	None Found	--	--	--	--
20R021 6/12/95	None Found	--	--	--	--	--	--	--
21T027 6/12/95	Methylene Chloride	1J	10	None-All associated samples non-detect	--	--	--	--
52T028 6/13/95	Acetone	3J	30	20G00201 52G00101	3 4	J J	10 10	U U

**Semivolatiles Laboratory Blank Summary Table**  
SDG No. M3014

Blank ID/ Date Analyzed	Affected Analyte	Conc. ug/l or ug/kg	Action Level** ug/l or ug/kg	Affected Sample	Lab Conc ug/l or ug/kg	Lab Qual	EDS Conc ug/l or ug/kg	EDS Qual
R0509WC1- BLK 6/6/95	None Found	--	--	--	--	--	--	--
R0515SA1- BLK 5/28/95	None Found	--	--	--	--	--	--	--
R0515SA2- BLK 5/30/95	None Found	--	--	--	--	--	--	--

**Semivolatiles Field Blank Summary Table**  
SDG No. M3014

Blank ID/ Date Analyzed	Affected Analyte	Conc. ug/L	Action Level** ug/kg	Affected Sample	Lab Conc ug/kg	Lab Qual	EDS Conc ug/kg	EDS Qual
21R016 6/6/95	Bis(2-ethylhexyl) phthalate	3J	999	21S00201	70	J	670	U
				21B00203	150	J	730	U
				20S00101	280	J	730	U
				20S00301	280	J	670	U
				20S00201	280	J	680	U
				20B00205	250	J	740	U
				20B00205D	130	J	740	U
				20S00401	75	J	720	U

Semivolatile Laboratory Blank Summary Table SDG No. M3019								
Blank ID/ Date Analyzed	Affected Analyte	Conc. ug/l or ug/kg	Action Level** ug/l or ug/kg	Affected Sample	Lab Conc ug/l or ug/kg	Lab Qual	EDS Conc ug/l or ug/kg	EDS Qual
R0606WA2- BLK 6/22/95	None Found	--	--	--	--	--	--	--

Semivolatile Field Blank Summary Table SDG No. M3019								
Blank ID/ Date Analyzed	Affected Analyte	Conc. ug/l	Action Level** ug/l	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
20Y005 6/21/95	None Found	--	--	--	--	--	--	--
20R021 6/21/95	None Found	--	--	--	--	--	--	--

Inorganic Laboratory Blank Summary Table SDG No. M3014								
Blank ID/ Date	Affected Analyte	Absolute Conc. mg/kg or ug/l	Action Level mg/kg or ug/l	Affected Sample	Lab Conc mg/kg or ug/l	Lab Qual	EDS Conc mg/kg of ug/l	EDS Qual
WTIC 0518-1	Silver	2.48	--	21R016	1.4	U	2.48	UJ
WTIC 0518-1	Zinc	4.39	21.95	21R016	4.9	B	4.9	UJ
WTFN 0518-1	Lead	0.4	2.0	21R016	0.7	B	0.7	UJ
SOIC 0518-1	Silver	0.61	--	21S00301	0.30	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	21B00303	0.32	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	21S00201	0.28	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	21B00203	0.31	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	21S00101	0.29	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	21S00101D	0.29	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	21B00104	0.32	U	0.61	UJ

SOIC 0518-1	Silver	0.61	--	20S00101	0.31	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	21B00105	0.34	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	20S00301	0.28	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	20B00305	0.35	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	20S00201	0.29	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	20B00205	0.31	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	20B00205D	0.31	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	20S00501	0.29	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	20S00401	0.30	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	52S00101	0.30	U	0.61	UJ
SOIC 0518-1	Silver	0.61	--	52B00104	0.35	U	0.61	UJ
SOIC 0518-1	Zinc	0.56	2.82	21B00303	2.1	B	2.1	UJ
SOIC 0518-1	Zinc	0.56	2.82	21B00104	2.8	B	2.8	UJ
SOIC 0518-1	Zinc	0.56	2.82	52B00104	2.3	B	2.3	UJ
SOIC 0518-1	Tin	2.86	14.3	21S00201	3.0	B	3.0	UJ
SOIC 0518-1	Tin	2.86	14.3	20S00101	8.4	B	8.4	UJ
SOIC 0518-1	Tin	2.86	14.3	20S00301	6.4	B	6.4	UJ
SOIC 0518-1	Tin	2.86	14.3	20B00205D	3.2	B	3.2	UJ
SOIC 0518-1	Tin	2.86	14.3	20S00501	3.5	B	3.5	UJ
SOFN 0517-1	Lead	0.24	1.2	21S00301	0.79	-	0.79	UJ
SOFN 0517-1	Lead	0.24	1.2	21B00303	0.77	-	0.77	UJ
SOFN 0517-1	Lead	0.24	1.2	52B00104	0.76	-	0.76	UJ
SOHG 0531-1	Mercury	0.31	0.16	20S00301	0.03	B	0.03	UJ

Inorganic Field Blank Summary Table SDG No. M3014								
Blank ID/ Date	Affected Analyte	Absolute Conc. mg/kg	Action Level mg/kg	Affected Sample	Lab Conc mg/kg	Lab Qual	EDS Conc mg/kg	EDS Qual
21R016	Copper	0.72	3.6	21S00301	2.1	B	2.1	UJ
21R016	Copper	0.72	3.6	21B00303	1.1	B	1.1	UJ

21R016	Copper	0.72	3.6	21S00201	2.8	B	2.8	UJ
21R016	Copper	0.72	3.6	21B00203	2.7	B	2.7	UJ
21R016	Copper	0.72	3.6	21S00101	1.3	B	1.3	UJ
21R016	Copper	0.72	3.6	21S00101D	1.0	B	1.0	UJ
21R016	Copper	0.72	3.6	21B00104	0.93	B	0.93	UJ
21R016	Copper	0.72	3.6	21B00105	0.73	B	0.73	UJ
21R016	Copper	0.72	3.6	20B00305	0.75	B	0.75	UJ
21R016	Copper	0.72	3.6	20B00205	0.57	B	0.72	UJ
21R016	Copper	0.72	3.6	20B00205D	0.57	B	0.72	UJ
21R016	Copper	0.72	3.6	20S00501	1.7	B	1.7	UJ
21R016	Copper	0.72	3.6	20S00401	1.4	B	1.4	UJ
21R016	Copper	0.72	3.6	52S00101	1.4	B	1.4	UJ
21R016	Copper	0.72	3.6	52B00104	0.40	B	0.72	UJ

Inorganic Laboratory Blank Summary Table SDG No. M3019								
Blank ID/ Date	Affected Analyte	Absolute Conc. ug/l	Action Level ug/l	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
WTIC 0612-1	Iron	10.87	54.4	20Y005	4.8	B	10.9	UJ
				20R021	7.2	B	10.9	UJ
WTIC 0612-1	Zinc	5.37	26.8	20Y005	4.4	B	5.37	UJ
				20R021	3.7	B	5.37	UJ
				20G00301	3.8	B	5.37	UJ
				20G00301D	3.5	B	5.37	UJ
				20G00101	5.0	B	5.37	UJ
				21G00201	5.8	B	5.8	UJ
				21G00301	3.7	B	5.37	UJ
				21G00101	3.2	B	5.37	UJ
				20G00201	4.2	B	5.37	UJ
				52G00101	4.4	B	5.37	UJ
WTFN 0612-1	Lead	0.90	4.5	20Y005	0.8	B	0.9	UJ
				20R021	0.5	B	0.9	UJ
				20G00301	1.2	B	1.2	UJ
				20G00101	0.5	B	0.9	UJ
				21G00301	0.5	B	0.9	UJ
				21G00101	0.4	B	0.9	UJ

Inorganic Field Blank Summary Table SDG No. M3019								
Blank ID	Affected Analyte	Absolute Conc. ug/l	Action Level ug/l	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
20Y005	Arsenic	0.8	4.0	20G00101	2.3	B	2.3	UJ
				21G00201	1.2	B	1.2	UJ
				21G00301	3.0	B	3.0	UJ
				21G00101	1.8	B	1.8	UJ
				20G00201	3.4	B	3.4	UJ
				52G00101	2.5	B	2.5	UJ
20Y005	Cyanide	2.7	13.5	20G00301	2.0	B	2.7	UJ
				20G00301D	4.0	B	4.0	UJ
				20G00101	2.0	B	2.7	UJ
				20R021	2.0	B	2.7	UJ
20R021	Sodium	38.2	191	20Y005	33.0	B	38.2	UJ

**APPENDIX C**  
**Completeness Tables**

Summary of Rejected Compounds SDG No. M3014				
Analyses	Rejected Compounds	No. of Compounds Rejected	Rejection Explanation	Total No. of Analyses
Volatiles	1,4-Dioxane	21	RRF < 0.05	1239
Semivolatiles	None	--	--	2071
Pest/PCBs	None	--	--	620
Inorganic	None	--	--	342

Summary of Rejected Compounds SDG No. M3019				
Analyses	Rejected Compounds	No. of Compounds Rejected	Rejection Explanation	Total No. of Analyses
Volatiles	Isobutyl Alcohol	13	RRF < 0.05	767
	1,4-Dioxane	13	RRF < 0.05	
	2-Butanone	12	RRF < 0.05	
Semivolatiles	1,4-Naphthoquinone	10	RRF < 0.05	1090
	Hexachlorophene	6	RRF < 0.05	
Pest/PCBs	None	--	--	310
Inorganic	None	--	--	230

**APPENDIX D**  
**Calibration Tables**

Volatile Initial Calibration Summary Table SDG No. M3014								
ICAL Date and File/Batch Numbers of Stds.	Affected Analyte	% RSD	RRF	Affected Sample	Lab Conc ug/l or ug/kg	Lab Qual	EDS Conc ug/l or ug/kg	EDS Qual
EV01201012.D- EV01601016.D 4/12/95	1,4-Dioxane	13.9	0.003	21T018	200	U	200	R
				21R016	200	U	200	R
				20T019	200	U	200	R
CSVH034704.D- CSVH034708.D 4/12/95	1,4-Dioxane	9.1	0.004	21S00301	210	U	210	R
				21B00303	230		230	
				21S00201	210		210	
				21B00203	220		220	
				21S00101	210		210	
				21S00101D	210		210	
				21B00104	230		230	
				20S00101	220		220	
				20B00105	240		240	
				20S00301	210		210	
				20B00305	240		240	
				20S00201	210		210	
				20B00205	240		240	
				20B00205D	230		230	
				20S00501	210		210	
20S00401	210	210						
52S00101	210	210						
52B00104	260	260						

Volatile Continuing Calibration Summary Table SDG No. M3014								
CCAL Date and File/Batch Numbers of Stds.	Affected Analyte	%D	RRF	Affected Sample	Lab Conc ug/l or ug/kg	Lab Qual	EDS Conc ug/l or ug/kg	EDS Qual
EV02501025.D 5/12/95	Acrolein	32.0	0.178	21T018	100	U	100	UJ
				21R016	100	U	100	UJ
				20T019	100	U	100	UJ

EV02601026.D 5/12/95	1,4-Dioxane	4.8	0.003	None-All samples previously qualified due to initial calibration	--	--	--	--
CSVH035117.D 5/12/95	Bromomethane	25.3	1.870	21S00301	11	U	11	UJ
CSVH035117.D 5/12/95	Acrolein	29.6	0.175	21S00301	110	U	110	UJ
CS9H037118.D 5/12/95	Isobutyl Alcohol	26.2	0.080	21S00301	210	U	210	UJ
CS9H037118.D 5/12/95	1,4-Dioxane	15.1	0.005	None-All samples previously qualified due to initial calibration	--	--	--	--
CSVH035151.D 5/16/95	Acrolein	25.8	0.185	21B00303 21S00201	110 110	U U	110 110	UJ UJ
CS9H035152.D 5/16/95	Isobutyl Alcohol	30.0	0.082	21B00303 21S00201	230 210	U U	230 210	UJ UJ
CS9H035152.D 5/16/95	1,4-Dioxane	19.2	0.005	None-All samples previously qualified due to initial calibration	--	--	--	--
CSVH035166.D 5/16/95	Acrolein	29.9	0.174	21B00203 21S00101 21S00101D 21B00104 20S00101 20B00105 20S00301 20B00305 20S00201 20B00205 20B00205D 20S00501 20S00401	110 100 100 120 110 120 100 120 100 120 120 100 120 120 100 100 110	U U U U U U U U U U U U U U U U U	110 100 100 120 110 120 100 120 100 120 120 100 120 120 100 100 110	UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ

CS9H035167.D 5/16/95	1,4-Dioxane	16.5	0.005	None-All samples previously qualified due to initial calibration	--	--	--	--
CSVH035188.D 5/17/95	Acrolein	30.5	0.173	52S00101 52B00104	100 130	U U	100 130	UJ UJ
CS9H035189.D 5/17/95	Isobutyl Alcohol	29.9	0.082	52S00101 52B00104	210 260	U U	210 260	UJ UJ
CS9H035189.D 5/17/95	1,4-Dioxane	20.4	0.005	None-All samples previously qualified due to initial calibration	--	--	--	--

Volatile Initial Calibration Summary Table SDG No. M3019								
ICAL Date and File/Batch Numbers of Stds.	Affected Analyte	% RSD	RRF	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
95M2V02938- 95M2V02942 6/8/95	Isobutyl Alcohol	23.4	0.019	20T026	200	U	200	R
				20Y005	200	U	200	R
				20R021	200	U	200	R
				20G00301	200	U	200	R
				20G00301D	200	U	200	R
				20G00101	200	U	200	R
				21T027	200	U	200	R
				21G00201	200	U	200	R
				21G00301	200	U	200	R
				21G00101	200	U	200	R
				52T028	200	U	200	R
				20G00201	200	U	200	R
				52G00101	200	U	200	R

95M2V02938- 95M2V02942 6/8/95	1,4-Dioxane	14.9	0.003	20T026	200	U	200	R
				20Y005	200	U	200	R
				20R021	200	U	200	R
				20G00301	200	U	200	R
				20G00301D	200	U	200	R
				20G00101	200	U	200	R
				21T027	200	U	200	R
				21G00201	200	U	200	R
				21G00301	200	U	200	R
				21G00101	200	U	200	R
				52T028	200	U	200	R
				20G00201	200	U	200	R
				52G00101	200	U	200	R
95M2V02950- 95M2V02956 6/9/95	2-Butanone	10.4	0.042	20T026	10	U	10	R
				20Y005	8	J	8	J
				20R021	10	U	10	R
				20G00301	10	U	10	R
				20G00301D	10	U	10	R
				20G00101	10	U	10	R
				21T027	10	U	10	R
				21G00201	10	U	10	R
				21G00301	10	U	10	R
				21G00101	10	U	10	R
				52T028	10	U	10	R
				20G00201	10	U	10	R
				52G00101	10	U	10	R

Volatile Continuing Calibration Summary Table SDG No. M3019								
CCAL Date and File/Batch Numbers of Stds.	Affected Analyte	%D	RRF	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
95M2V02977 6/12/95	Isobutyl Alcohol	5.3	0.018	None-All samples previously qualified due to initial calibration results				
95M2V02977 6/12/95	1,4-Dioxane	33.3	0.002	None-All samples previously qualified due to initial calibration results				
95M2V02978 6/12/95	Acetone	47.0	1.120	20G00301	10	U	10	UJ
				20Y005	10	U	10	UJ
				20R021	10	U	10	UJ
				20G00301D	10	U	10	UJ
				20G00101	10	U	10	UJ
				20T026	10	U	10	UJ
				21T027	10	U	10	UJ

95M2V02978 6/12/95	2-Butanone	16.7	0.049	None-All samples previously qualified due to initial calibration results				
95M2V02997 6/12/95	Isobutyl Alcohol	21.0	0.023	None-All samples previously qualified due to initial calibration results				
95M2V02997 6/12/95	1,4-Dioxane	33.3	0.004	None-All samples previously qualified due to initial calibration results				
95M2V02998 6/12/95	2-Butanone	16.7	0.035	None-All samples previously qualified due to initial calibration results				
95M2V02998 6/12/95	Acrolein	25.6	0.058	21G00201	100	U	100	UJ
				21G00301	100	U	100	UJ
				21G00101	100	U	100	UJ
				52T028	100	U	100	UJ
				20G00201	100	U	100	UJ
				52G00101	100	U	100	UJ

Semivolatile Continuing Calibration Summary Table SDG No. 3014								
CCAL Date and File/Batch Numbers of Stds.	Affected Analyte	% D	RRF	Affected Samples	Lab Value ug/l or ug/kg	Lab Qual	EDS Value ug/l or ug/kg	EDS Qual
95M4BN2622 5/28/95	Benzoic Acid	25.2	0.172	21S00301	3400	U	3400	UJ
				21B00303	3600	U	3600	UJ
				21S00201	3300	U	3300	UJ
				21B00203	3600	U	3600	UJ
				21S00101	3300	U	3300	UJ
				21S00101D	3300	U	3300	UJ
95M4BN2622 5/28/95	Benzidine	50.9	0.137	21S00301	3400	U	3400	UJ
				21B00303	3600	U	3600	UJ
				21S00201	3300	U	3300	UJ
				21B00203	3600	U	3600	UJ
				21S00101	3300	U	3300	UJ
				21S00101D	3300	U	3300	UJ
95M4BN2623 5/28/95	4-Nitroquinoline- 1-oxide	26.5	0.061	21S00301	3400	U	3400	UJ
				21B00303	3600	U	3600	UJ
				21S00201	3300	U	3300	UJ
				21B00203	3600	U	3600	UJ
				21S00101	3300	U	3300	UJ
				21S00101D	3300	U	3300	UJ

95M4BN2623 5/28/95	2-Acetylamino fluorene	40.9	0.231	21S00301	710	U	710	UJ
				21B00303	750	U	750	UJ
				21S00201	670	U	670	UJ
				21B00203	730	U	730	UJ
				21S00101	680	U	680	UJ
				21S00101D	690	U	690	UJ
95M4BN2623 5/28/95	Hexachlorophene	27.5	0.121	21S00301	34000	U	34000	UJ
				21B00303	36000	U	36000	UJ
				21S00201	33000	U	33000	UJ
				21B00203	36000	U	36000	UJ
				21S00101	33000	U	33000	UJ
				21S00101D	33000	U	33000	UJ
95M4BN2637 5/30/95	4-Nitrophenol	42.8	0.197	21B00104	3600	U	3600	UJ
				20S00101	3500	U	3500	UJ
				20B00105	4000	U	4000	UJ
				20S00301	3300	U	3300	UJ
				20B00305	4000	U	4000	UJ
				20S00201	3300	U	3300	UJ
95M4BN2638 5/30/95	Pyridine	41.3	1.058	21B00104	3600	U	3600	UJ
				20S00101	3500	U	3500	UJ
				20B00105	4000	U	4000	UJ
				20S00301	3300	U	3300	UJ
				20B00305	4000	U	4000	UJ
				20S00201	3300	U	3300	UJ
95M4BN2638 5/30/95	N-nitroso diethylamine	25.2	0.696	21B00104	750	U	750	UJ
				20S00101	730	U	730	UJ
				20B00105	810	U	810	UJ
				20S00301	670	U	670	UJ
				20B00305	820	U	820	UJ
				20S00201	680	U	680	UJ
95M4BN2638 5/30/95	1,3- Dinitrobenzene	26.3	0.149	21B00104	750	U	750	UJ
				20S00101	730	U	730	UJ
				20B00105	810	U	810	UJ
				20S00301	670	U	670	UJ
				20B00305	820	U	820	UJ
				20S00201	680	U	680	UJ
				20B00205	740	U	740	UJ

95M4BN2638 5/30/95	2-Acetylamino fluorene	43.7	0.220	21B00104	750	U	750	UJ
				20S00101	730	U	730	UJ
				20B00105	810	U	810	UJ
				20S00301	670	U	670	UJ
				20B00305	820	U	820	UJ
				20S00201	680	U	680	UJ
				20B00205	740	U	740	UJ
95M4BN2667 6/1/95	Pyridine	34.7	1.435	20B00205D	3600	U	3600	UJ
				20S00501	3300	U	3300	UJ
				20S00401	3500	U	3500	UJ
				52S00101	3400	U	3400	UJ
				52B00104	4100	U	4100	UJ
95M4BN2667 6/1/95	3 & 4 Methylphenol	26.7	1.479	20B00205D	740	U	740	UJ
				20S00501	690	U	690	UJ
				20S00401	720	U	720	UJ
				52S00101	700	U	700	UJ
				52B00104	840	U	840	UJ
95M4BN2668 6/1/95	2-Picoline	42.8	1.121	20B00205D	3600	U	3600	UJ
				20S00501	3300	U	3300	UJ
				20S00401	3500	U	3500	UJ
				52S00101	3400	U	3400	UJ
				52B00104	4100	U	4100	UJ
95M4BN2668 6/1/95	N-nitroso diethylamine	32.6	0.737	20B00205D	740	U	740	UJ
				20S00501	690	U	690	UJ
				20S00401	720	U	720	UJ
				52S00101	700	U	700	UJ
				52B00104	840	U	840	UJ
95M4BN2730 6/6/95	Bis(2- chloroisopropyl) ether	34.0	1.275	21R016	10	U	10	UJ
95M4BN2730 6/6/95	N-nitroso dimethylamine	31.8	0.580	21R016	10	U	10	UJ
95M4BN2730 6/6/95	Benzoic Acid	27.4	0.167	21R016	50	U	50	UJ
95M4BN2731 6/6/95	N-nitrosomethyl ethylamine	31.2	0.389	21R016	10	U	10	UJ
95M4BN2731 6/6/95	Methyl methanesulfonate	29.9	0.270	21R016	10	U	10	UJ
95M4BN2731 6/6/95	Ethyl methanesulfonate	26.5	0.492	21R016	10	U	10	UJ
95M4BN2731 6/6/95	N- nitrosomorpholine	25.6	0.200	21R016	10	U	10	UJ

95M4BN2731 6/6/95	Phenyl-tert-butylamine	44.2	0.686	21R016	50	U	50	UJ
95M4BN2731 6/6/95	Methapyrilene	25.8	0.259	21R016	50	U	50	UJ
95M4BN2731 6/6/95	2-Acetylamino fluorene	27.9	0.282	21R016	10	U	10	UJ
95M4BN2732 6/6/95	p-Phenylenediamine	34.9	0.576	21R016	500	U	500	UJ

Semivolatile Continuing Calibration Summary Table SDG No. 3019								
CCAL Date and File/Batch Numbers of Stds.	Affected Analyte	% D	RRF	Affected Samples	Lab Value ug/l	Lab Qual	EDS Value ug/l	EDS Qual
95M4BN2975 6/21/95	Indeno(1,2,3-cd)pyrene	40.4	1.702	20Y005	10	U	10	UJ
				20R021	10	U	10	UJ
				20G00301	10	U	10	UJ
				20G00301D	10	U	10	UJ
95M4BN2975 6/21/95	Dibenz(a,h)anthracene	41.2	1.452	20Y005	10	U	10	UJ
				20R021	10	U	10	UJ
				20G00301	10	U	10	UJ
				20G00301D	10	U	10	UJ
95M4BN2975 6/21/95	Benzo(g,h,i)perylene	40.4	1.301	20Y005	10	U	10	UJ
				20R021	10	U	10	UJ
				20G00301	10	U	10	UJ
				20G00301D	10	U	10	UJ
95M4BN2976 6/21/95	Methyl methanesulfonate	78.4	0.083	20Y005	10	U	10	UJ
				20R021	10	U	10	UJ
				20G00301	10	U	10	UJ
				20G00301D	10	U	10	UJ
95M4BN2976 6/21/95	Phenyl-tert-butylamine	36.6	0.779	20Y005	50	U	50	UJ
				20R021	50	U	50	UJ
				20G00301	50	U	50	UJ
				20G00301D	50	U	50	UJ
95M4BN2976 6/21/95	2,6-Dichlorophenol	38.8	0.311	20Y005	10	U	10	UJ
				20R021	10	U	10	UJ
				20G00301	10	U	10	UJ
				20G00301D	10	U	10	UJ

95M4BN2976 6/21/95	Safrole	38.8	0.311	20Y005	50	U	50	UJ
				20R021	50	U	50	UJ
				20G00301	50	U	50	UJ
				20G00301D	50	U	50	UJ
95M4BN2976 6/21/95	1,4- Naphthoquinone	21.0	0.045	20Y005	1000	U	1000	R
				20R021	1000	U	1000	R
				20G00301	1000	U	1000	R
				20G00301D	1000	U	1000	R
95M4BN2976 6/21/95	1-Naphthylamine	36.2	0.485	20Y005	50	U	50	UJ
				20R021	50	U	50	UJ
				20G00301	50	U	50	UJ
				20G00301D	50	U	50	UJ
95M4BN2976 6/21/95	2-Naphthylamine	33.9	0.556	20Y005	50	U	50	UJ
				20R021	50	U	50	UJ
				20G00301	50	U	50	UJ
				20G00301D	50	U	50	UJ
95M4BN2976 6/21/95	4-Aminobiphenyl	27.4	0.499	20Y005	50	U	50	UJ
				20R021	50	U	50	UJ
				20G00301	50	U	50	UJ
				20G00301D	50	U	50	UJ
95M4BN2976 6/21/95	Methapyrilene	50.1	0.174	20Y005	50	U	50	UJ
				20R021	50	U	50	UJ
				20G00301	50	U	50	UJ
				20G00301D	50	U	50	UJ
95M4BN2976 6/21/95	3,3'- Dimethylbenzidine	37.6	0.221	20Y005	10	U	10	UJ
				20R021	10	U	10	UJ
				20G00301	10	U	10	UJ
				20G00301D	10	U	10	UJ
95M4BN2976 6/21/95	2-Acetylamino fluorene	29.2	0.277	20Y005	10	U	10	UJ
				20R021	10	U	10	UJ
				20G00301	10	U	10	UJ
				20G00301D	10	U	10	UJ
95M4BN2976 6/21/95	Hexachlorophene	44.9	0.092	20Y005	500	U	500	UJ
				20R021	500	U	500	UJ
				20G00301	500	U	500	UJ
				20G00301D	500	U	500	UJ
95M4BN2977 6/21/95	p- Phenylenediamine	31.4	0.607	20Y005	500	U	500	UJ
				20R021	500	U	500	UJ
				20G00301	500	U	500	UJ
				20G00301D	500	U	500	UJ

95M4BN2990 6/21/95	Benzidine	48.0	0.141	20G00101	50	U	50	UJ
				21G00201	50	U	50	UJ
				21G00301	50	U	50	UJ
				21G00101	50	U	50	UJ
				20G00201	50	U	50	UJ
				52G00101	50	U	50	UJ
95M4BN2991 6/21/95	Methyl methanesulfonate	33.0	0.258	20G00101	10	U	10	UJ
				21G00201	10	U	10	UJ
				21G00301	10	U	10	UJ
				21G00101	10	U	10	UJ
				20G00201	10	U	10	UJ
				52G00101	10	U	10	UJ
95M4BN2991 6/21/95	Phenyl-tert- butylamine	33.8	0.814	20G00101	50	U	50	UJ
				21G00201	50	U	50	UJ
				21G00301	50	U	50	UJ
				21G00101	50	U	50	UJ
				20G00201	50	U	50	UJ
				52G00101	50	U	50	UJ
95M4BN2991 6/21/95	1,4- Naphthoquinone	21.0	0.045	20G00101	1000	U	1000	R
				21G00201	1000	U	1000	R
				21G00301	1000	U	1000	R
				21G00101	1000	U	1000	R
				20G00201	1000	U	1000	R
				52G00101	1000	U	1000	R
95M4BN2991 6/21/95	4-Nitroquinoline-1- oxide	32.5	0.056	20G00101	500	U	500	UJ
				21G00201	500	U	500	UJ
				21G00301	500	U	500	UJ
				21G00101	500	U	500	UJ
				20G00201	500	U	500	UJ
				52G00101	500	U	500	UJ
95M4BN2991 6/21/95	Methapyrilene	59.6	0.141	20G00101	50	U	50	UJ
				21G00201	50	U	50	UJ
				21G00301	50	U	50	UJ
				21G00101	50	U	50	UJ
				20G00201	50	U	50	UJ
				52G00101	50	U	50	UJ
95M4BN2991 6/21/95	3,3'- Dimethylbenzidine	41.2	0.208	20G00101	10	U	10	UJ
				21G00201	10	U	10	UJ
				21G00301	10	U	10	UJ
				21G00101	10	U	10	UJ
				20G00201	10	U	10	UJ
				52G00101	10	U	10	UJ

95M4BN2991 6/21/95	2-Acetylamino fluorene	30.7	0.271	20G00101	10	U	10	UJ
				21G00201	10	U	10	UJ
				21G00301	10	U	10	UJ
				21G00101	10	U	10	UJ
				20G00201	10	U	10	UJ
				52G00101	10	U	10	UJ
95M4BN2991 6/21/95	Hexachlorophene	99.4	0.004	20G00101	500	U	500	R
				21G00201	500	U	500	R
				21G00301	500	U	500	R
				21G00101	500	U	500	R
				20G00201	500	U	500	R
				52G00101	500	U	500	R
95M4BN2992 6/22/95	p- Phenylenediamine	40.8	0.524	20G00101	500	U	500	UJ
				21G00201	500	U	500	UJ
				21G00301	500	U	500	UJ
				21G00101	500	U	500	UJ
				20G00201	500	U	500	UJ
				52G00101	500	U	500	UJ

Pesticide/PCB Continuing Calibration Summary Table SDG No. M3014							
CCAL Date and Time	Affected Analyte	%D	Affected Sample	Lab Conc ug/kg	Lab Qual	EDS Conc ug/kg	EDS Qual
5/31/95 09:37	Chlorobenzilate	17.4	None-Secondary Column Okay	--	--	--	--
5/31/95 09:37	Endrin Aldehyde	21.3	None-Primary Column Okay	--	--	--	--
5/30/95 21:57	Dichloro benzene	16.3	None-Surrogate Compound	--	--	--	--
5/31/95 17:41	Kepone	17.1	21B00104	45	U	45	UJ
			20S00101	44	U	44	UJ
			20B00105	49	U	49	UJ
			20S00301	41	U	41	UJ
			20B00305	50	U	50	UJ
			20S00201	41	U	41	UJ
			20B00205	45	U	45	UJ
			20B00205D	45	U	45	UJ
20S00501	42	U	42	UJ			

**Pesticide/PCB Continuing Calibration Summary Table**  
SDG No. M3019

CCAL Date and Time	Affected Analyte	%D	Affected Sample	Lab Conc ug/l	Lab Qual	EDS Conc ug/l	EDS Qual
6/21/95 19:02	Endrin Aldehyde	23.9	None-Acceptable on the primary column				
6/22/95 07:23	Endrin Aldehyde	24.6	None-Acceptable on the primary column				
6/22/95 19:36	Endrin Aldehyde	24.8	None-Acceptable on the primary column				
6/22/95 19:36	Endosulfan II	15.6	None-Acceptable on the primary column				

**APPENDIX E**  
**PARCC Criteria Evaluation Summary Table**

PARCC Criteria Summary Table					
SDG Number	Precision	Accuracy	Representativeness	Completeness	Comparability
M3014	Acceptable	Acceptable w/qualifications	Acceptable w/qualifications	Acceptable	Acceptable
M3019	Acceptable	Acceptable w/qualifications	Acceptable w/qualifications	Acceptable	Acceptable

**APPENDIX D**

**RESPONSE TO REGULATORY COMMENTS**

## 1.0 INTRODUCTION

ABB Environmental Services, Inc, (ABB-ES) under the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract, No. N62467-89-D-0317, is conducting a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) on behalf of the U.S. Navy at U.S. Naval Station (NAVSTA) Mayport, Florida. This investigation is being conducted in accordance with the Hazardous and Solid Waste Amendment (HSWA) permit No. FL9-170-024-260, issued by the U.S. Environmental Protection Agency (USEPA) on March 25, 1988 and revised and reissued June 15, 1993.

The purpose of this document is to respond to comments by the Florida Department of Environmental Protection (FDEP) and U.S. Environmental Protection Agency (USEPA) concerning the report entitled *Resource Conservation and Recovery Act (RCRA) Facility Assessment Sampling Visit Report (RFA/SV), Group III Solid Waste Management Units (SWMUs)*, NAVSTA Mayport, Florida (ABB-ES, 1996a). The following provides a listing of the correspondence received from the FDEP and USEPA.

- July 15, 1996, Correspondence from James H. Cason, P.G. Remedial Project Manager, FDEP, to Mr. David Driggers, Department of the Navy, Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Subject: Review of RCRA Facility Assessment Sampling Visit Report, Group III Solid Waste Management Units, NAVSTA Mayport.
- January 27, 1997, Correspondence from Martha Berry, Remedial Project Manager, Federal Facilities Branch, Region IV, USEPA, Subject: Draft Group III RFI Report for Naval Station Mayport, ABB Environmental, March, 1996.

The following chapters of this response to comments provide point-by-point responses to FDEP and USEPA comments. The report is organized to include:

- Chapter 2.0 contains responses to comments made in correspondence dated July 15, 1996 from the FDEP concerning the RFA/SV report for Group III SWMUs, NAVSTA Mayport, Florida.
- Chapter 3.0 contains responses to comments made in correspondence dated January 27, 1997, from USEPA concerning the RFA/SV report for Group III SWMUs, NAVSTA Mayport, Florida.

## 2.0 RESPONSE TO COMMENTS BY FDEP

Below are responses to comments in memoranda dated July 15, 1996 from FDEP to SOUTHNAVFACENGCOM.

2.1 Comment 1. There seems to be conflicting information regarding the groundwater flow direction and the placement of monitoring wells at SWMUs 20 and 21. On page 2-12, the flow direction is stated as northeast, north and northwest. Figure 2-3 shows (if I interpret it correctly) it as flowing in a westerly direction. I also do not see the rationale for the extreme curves on the bottoms of the 5 and 6 foot contours. I think the 9.5 foot contour should be moved to the right or even omitted as was done with the data between 4.0 and 5.0 on the left of Figure 2-3: if the 9.5 foot contour is retained, it should have the same general shape as the other (1 foot) contours. I think we are trying to get too "fine" in our interpretation as placement of the contour. Additionally, the monitoring well listed as MPT-21-MW03S, located on the 8 foot contour, should be labeled MPT-20-MW03S. Finally, the hydraulic positions listed in Table 2-2 should be confirmed.

The potentiometric surface contours shown on Figure 2-3 will be modified to be consistent with the potentiometric surface contours shown on Plate 1 in the RCRA Facility Investigation report (ABB-ES, 1996b). Based on this revision to Figure 2-3, the groundwater flow direction could be interpreted to be toward the northwest at SWMUs 20 and 21 and to the west at Building 191. Uncertainties associated with this revisions are the golf course is a recharge area, and the groundwater flow direction at the Naval Exchange Gasoline Station (approximately 600 feet to the east of SWMUs 20 and 21) is toward the east. The hydraulic positions listed in Table 2-2 will be made to be consistent with the revision to Figure 2-3.

2.2 Comment 2. Having corrected Figure 2-3 and referring to Figure 2-2, is the placement of monitoring well MPT-20-MW01S consistent with either the physical location of SWMU 20 (the northwesterly of two locations) or at least downgradient hydraulically from it? The indicated location is south of the O/W line, not next to the southeastern corner of Building 1277A as proposed in the workplan. Assuming soil excavation during construction of the O/W line is the well placed in the optimum location to properly evaluate SWMU 20? If not, how and why is it located where it is. Apply this same general questioning to monitoring well MPT-20-MW03S. Is it located in the optimum location?

Monitoring well MPT-20-MW01S is located as close to the source area as possible based on building overhangs and utilities. The locations shown for monitoring wells MPT-20-MW01S, MPT-20-MW02S are incorrect in Figure 2-2 and will be revised for the final report.

Monitoring well MPT-20-MW03S was located as close as practical to the oil/water separator. The well was located in the field as close as possible to the location proposed in the Group III RFA/SV Workplan (ABB-ES, 1994). The location was selected to be hydraulically downgradient from monitoring well MPT-20-MW01S and the line to the oil water separator (Figures 2-2 and 2-3).

Oil water separators (SWMU 54) are being assessed under the Florida Administrative Code 62-761 and 62-770 (Please refer to Appendix A of the RCRA Facility

Assessment Sampling Visit Workplan, Group IV SWMUs 47, 53, 54 and 55 and Areas of Concern A and B, NAVSTA, Mayport, Florida (ABB-ES, 1995).

Monitoring well MPT-21-MW01S was located slightly to the west of the area described in the RCRA Facility Assessment (A.T. Kearney, 1989) to be the SWMU. The location was shifted because of the presence of a hydraulic lift at the site (former scrap area, Figure 2-2) of the SWMU. The hydraulic lift was not mentioned in the RFA conducted by A.T. Kearney (1989). Monitoring well MPT-21-MW01S is likely at or hydraulically downgradient from the area described in the RFA (A.T. Kearney, 1989) to be the scrap storage area.

The items described in the visual site inspection conducted in 1989 (A.T. Kearney, 1989), are no longer present. Renovations (1991) of pavement and drainage at the site modified the conditions observed by A.T. Kearney. The actual size of SWMUs 20 and 21 are a best guess based on A.T. Kearney's descriptions, which did not include a site map.

Soil boring and monitoring well locations were selected during a NAVSTA Mayport Partnering Team meeting. The locations were selected to be representative of a SWMU (monitoring wells MPT-20-MW01S and MPT-21-MW01S) or where current and past surface water drainage discharge (monitoring wells MPT-20-MW02S, MPT-20-MW03S, MPT-21-MW02S and MPT-21-MW03S). Rationale for the placement of the monitoring wells was described in section 2.2.2 of the Group III RFA/SV Report (ABB-ES, 1996a).

2.3 Comment 3. Page 2-27, Table 2-9: The reference for FDEP has a typographical error "Department should replace "Depart."

Typographical errors will be corrected in the revised Group III RFI report.

2.4 Comment 4. Figure 3-2: Why was the oil-water separator (and associated piping) at SWMU 52 not included in the assessment? Reference to Figure 3-2 in the proposed workplan does not show the separator or the associated line; was this information not available? Additional sampling should be accomplished at this location.

The oil water separator at SWMU 52 is part of Group IV, SWMU 54 Oil/Water Separators. A request was made by the Navy in correspondence dated August 14, 1995 to transfer management and assessment of SWMU 54 to Florida Administrative Code 62-761 and if a release is found to FAC 62-770. This correspondence is provided in Appendix A of the Resource Conservation and Recovery Act Facility Assessment Sampling Visit Workplan for Group IV SWMUs, NAVSTA Mayport, Florida (ABB-ES, 1995).

2.5 Comment 5. Subsection 2.3.2, page 12: Why were the groundwater depths at the SWMUs "measured by separate field teams" on July 19, 1995? If inconsequential, no response required.

The measurement of water levels at monitoring wells and piezometers at the three SWMU groups at NAVSTA Mayport requires two or three teams 1 to 2 days to complete. This data is used to determine groundwater flow directions on a facility wide basis. The description of the three separate field teams is inconsequential to the data presented in Table 2-1 and Figure 2-3. The water level data were collected over a 67 minute period on July 19, 1995 (Table 2-1).

2.6 Comment 6. Subsection 3.4.1, page 3-22, paragraph 2: Please explain or correct the discussion concerning the "concentrate ion". I think you meant "concentration".

Typographical errors will be corrected in the revised Group III RFI report.

### 3.0 RESPONSE TO COMMENTS BY USEPA

Below are responses to comments in memoranda dated January 27, 1997, from USEPA to SOUTHNAVFACENGCOM.

3.1 Comment 1. Two factors raise questions about whether or not data from the Hobby Shop Area (SWMUs 20 and 21) is adequate for characterization of potential releases from these SWMUs. They are as follows:

- None of the soil samples for SWMUs 20 and 21 were collected from within the approximate areas of the SWMUs as depicted in Figure 2-2.
- A potentiometric surface map (Figure 2-3) suggest that the majority of the ground water monitoring wells at SWMUs 20 and 21 may not be in a position to detect potential releases to groundwater from these SWMUs.

Please either explain how the RFA activities at SWMUs 20 and 21 were adequate to characterize potential releases from these SWMUs or propose additional sampling activities.

Please refer to the response provided to FDEP's comment in Section 2.2 Comment 2.

3.2 Comment 2. Subsection 2.2.1, Soil Sampling and Figure 2-2: The first bullet on page 2-11 describes the soil characteristics at boring MPT-20-MW01S, but does not mention the presence of fill material shown in the boring logs at the 0 to 3 feet below ground surface (BGS) interval nor does it mention the concrete debris observed at the 3 to 4 ft. bgs interval. Please explain the significance, if any, of the material described in the boring logs.

The majority of land surface at NAVSTA Mayport was constructed using fill obtained from the dredging of NAVSTA Mayport. Inert debris was typically left in place and covered with the dredge material.

3.3 Comment 3. Section 3.5 Conclusions and Recommendations: While explanations provided in this chapter for the detection of other constituents (e.g. arsenic), detected at concentrations greater than various benchmarks (e.g. Region III RBCs), this chapter does not address the potential source of benzo(a)pyrene. Please discuss whether or not SWMU 52 was a potential source of this constituent or identify other potential sources.

Benzo(a)pyrene was detected in the surface soil sample collected at SWMU 52 at concentrations that exceed the FDEP residential soil cleanup goal, but not the industrial goal (FDEP, 1995). Benzo(a)pyrene is a petroleum related compound. SWMU 52 is at the Public Works Department (PWD) Service Station Area, where vehicle maintenance is conducted. It is not known whether or not the detection of benzo(a)pyrene is related to past or current activities at the site.

## REFERENCES

- ABB-ES, 1994, Resource Conservation and Recovery Act (RCRA) Facility Assessment Sampling Visit Workplan, Group III Solid Waste Management Units (SWMUs), U.S. Naval Station (NAVSTA), Mayport, Florida prepared for Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOC), North Charleston, South Carolina, March.
- ABB-ES, 1995, RCRA Facility Assessment Sampling Visit Workplan, Group IV SWMUs 47, 53, 54 and 55 and Areas of Concern A and B, NAVSTA, Mayport, Florida, prepared for SOUTHNAVFACENGCOC, North Charleston, South Carolina, November.
- ABB-ES, 1996a, RCRA Facility Assessment Sampling Visit Report, SWMU Group III, NAVSTA Mayport (Draft), prepared for SOUTHNAVFACENGCOC, North Charleston, South Carolina, February.
- ABB-ES, 1996b, RCRA Facility Investigation, Group III SWMUs, NAVSTA Mayport (Volumes I and II) (Draft), prepared for SOUTHNAVFACENGCOC, North Charleston, South Carolina, March.
- FDEP, 1995, Memorandum from John M. Ruddell, Director, Division of Waste Management to District Directors, Waste Program Administrators, Subject: Soil Cleanup Goals for Florida, Division of Waste management, Tallahassee, Florida, September 29.
- A.T. Kearney, Inc., 1989, RCRA Facility Assessment of the Naval Station Mayport, Jacksonville, Florida (Draft): prepared for U.S. Environmental Protection Agency (USEPA), September.

August 14, 1997

Commanding Officer  
Attn: David Driggers, Code 1852  
SouthNavFacEngCom  
2155 Eagle Drive  
North Charleston SC 29418

SUBJECT: Final Resource Conservation and Recovery Act  
Facility Assessment Sampling Visit Report  
Group III Solid Waste Management Units 20, 21 and 52  
U.S. Naval Station, Mayport, Florida  
Navy CLEAN District I, CTO #0028  
Contract No. N62467-89-D-0317

Dear David:

Enclosed please find two copies of the Final Resource Conservation and Recovery Act Facility Assessment Sampling Visit Report (RFA/SV), Group III Solid Waste Management Units 20, 21 and 52, U.S. Naval Station, Mayport, Florida.

Please insert Appendices A through C from the draft Group II RFA/SV Report into the final report.

The document will also be submitted to the U.S. Environmental Protection Agency and Florida Department of Environmental Protection on behalf of Southern Division, Naval Facilities Engineering Command for Naval Station Mayport.

Sincerely,

ABB Environmental Services, Inc.

Terry Hansen, P.G.  
Project Manager

enclosure (2 copies)

cc: Cheryl Mitchell, NAVSTA Mayport (two copies)  
Martha Berry, USEPA (two copies)  
Jim Cason, FDEP (two copies)  
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