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INTERIM MEASURE PERFORMANCE SPECIFICATIONS FOR GROUP 3 SOLID WASTE
MANAGEMENT UNIT 23, 24 AND 25 NS MAYPORT FL
9/1/1997
ABB ENVIRONMENTAL SERVICES

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**INTERIM MEASURE PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25**

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

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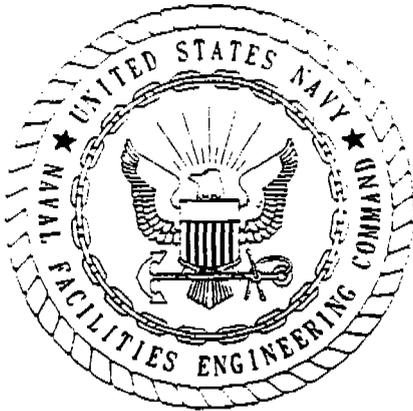
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September 1997

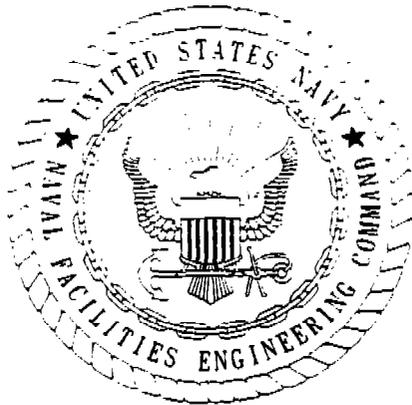


This document, Interim Measure Performance Specifications, Group III SWMUs 23, 24, and 25, U.S. Naval Station, Mayport, Florida, has been prepared under the direction of a Florida Registered Professional Geologist. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures. 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 to provide information for evaluating the applicability of interim measures at the subject sites at U.S. Naval Station, Mayport, Florida, and should not be construed to apply to any other purpose or site.

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CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

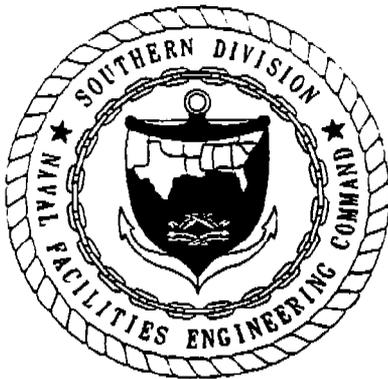
The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/028 are complete and accurate and comply with all requirements of this contract.

DATE: September 17, 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, establish the means to assess and cleanup 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 Naval 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 IR program.

The IR program is conducted in several stages:

- 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 in order 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 cleanup 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 to facilities generating or handling hazardous waste.

This program is conducted in three stages:

- The RCRA Facility Assessment identifies solid waste management units, evaluates the potential for releases of contaminants, and determines the need for future investigations.
- The RCRA Facility Investigation 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 NACIP program and IR program following Superfund guidelines. In 1988, in coordination with the U.S. Environmental Protection Agency and the Florida Department of Environmental Regulation (FDER), the hazardous waste investigations were formalized under the RCRA program.

Mayport is conducting the cleanup at their facility by working through the Southern Division, Naval Facilities Engineering Command. The U.S. Environmental Protection Agency and the Florida Department of Environmental Protection (formerly FDER) oversee the Navy environmental program at NAVSTA Mayport. 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

ABB Environmental Services, Inc., has been contracted by the Department of the Navy, Southern Division, Naval Facilities Engineering Command to conduct a Resource Conservation and Recovery Act facility investigation (RFI) for solid waste management units (SWMUs) at U.S. Naval Station Mayport, in Mayport, Florida. The RFI is being conducted in accordance with the Hazardous and Solid Waste Amendment permit No. FL9 170 024 260, issued by the U.S. Environmental Protection Agency on March 25, 1988, and revised and reissued on June 15, 1993.

The Interim Measure (IM) Performance Specifications report presents findings and conclusions of additional field activities conducted at four sites: (1) SWMU 23, Jacksonville Shipyard Inc.; (2) SWMU 24, North Florida Shipyard, Inc.; (3) SWMU 25, Atlantic Marine, Inc.; and (4) the former Target Range Backstop (the Shipyard Area). Additionally, the report presents the IM activities proposed to mitigate possible adverse risk to human health, if any, posed by the detected chemicals. Current and future use of the Shipyard area is anticipated to remain industrial for the foreseeable future. Below is a summary of the findings and recommendations for each of the sites.

SWMU 23. The four areas assessed at SWMU 23 include west of Building 14, north of Building 54, south of Building 55, and south of Building 57.

West of Building 14 Arsenic, copper, and lead were detected in surface and subsurface soil samples at concentrations less than the Florida Department of Environmental Protection (FDEP) soil cleanup goals (FDEP, 1995a; FDEP 1995b; and FDEP 1996). An IM is not recommended for this part of SWMU 23.

North of Building 54 Arsenic was detected in four surface soil samples at concentrations exceeding the FDEP industrial soil cleanup goals. An IM is recommended for this part of SWMU 23.

South of Building 55 Arsenic was detected in two surface soil samples at concentrations exceeding the FDEP industrial soil cleanup goals. An IM is recommended for this part of SWMU 23.

South of Building 57 Beryllium was detected in surface and subsurface soil samples at concentrations exceeding the FDEP industrial soil cleanup goals. An IM is recommended for this part of SWMU 23.

SWMU 24. Benzo(a)pyrene and arsenic were detected in surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals. Beryllium was detected in surface and subsurface soil samples at concentrations exceeding the FDEP industrial soil cleanup goals. An IM is recommended for SWMU 24.

SWMU 25. Aldrin and dieldrin were detected in surface and subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals. A likely source of aldrin and dieldrin is the pre- or posttreatment of the building foundation for termites. Because it is likely that aldrin and dieldrin were applied legally as a termiticide under the Federal Insecticide, Fungicide, and Rodenticide Act as amended by the Federal Pesticide Control Act of 1972, an IM is not recommended for this site.

Former Target Range Backstop. Benzo(a)pyrene was detected in a surface soil sample at a concentration that exceeded the FDEP industrial soil cleanup goal. This compound and other semivolatile organic compounds were detected in a duplicate but not in the corresponding environmental sample. It is likely that the sample results were biased by either the vehicle emissions or pieces of asphalt in the sample. An IM does not appear to be warranted for the former target range area.

Exposure associated with chemicals in surface and subsurface soil to terrestrial receptors were not evaluated. Terrestrial ecological receptors are not expected to occur in the vicinity of the Shipyard Area because the site is located in an industrialized area.

Should usage of the Shipyard Area change from industrial, the site conditions should be evaluated to assess whether or not the usage is compatible with the chemicals detected and IM activities that are conducted.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
CFR	Code of Federal Regulations
DQOs	data quality objectives
FDEP	Florida Department of Environmental Protection
GIR	general information report
IM	interim measure
mg/kg	milligrams per kilogram
µg/kg	micrograms per kilogram
µg/l	micrograms per liter
NAVSTA	Naval Station
NEESA	Naval Energy and Environmental Support Activity
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act Facility Investigation
SOUTHNAV- FACENCOM	Southern Division, Naval Facilities Engineering Command
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
SS	surface soil sample
TCLP	Toxicity Characteristic Leaching Procedure
™	Trademark
USEPA	U.S. Environmental Protection Agency

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), has been contracted under the Comprehensive Long-term Environmental Action, Navy Contract No. N62467-89-D-0317 by the Department of the Navy, Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to conduct a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Units (SWMUs) at U.S. Naval Station (NAVSTA) Mayport, Mayport, Florida (Figure 1-1). The RFI is being conducted in accordance with the Hazardous and Solid Waste Amendment permit No. FL9 170 024 260, issued by the U.S. Environmental Protection Agency (USEPA) on March 25, 1988, and revised and reissued on June 15, 1993.

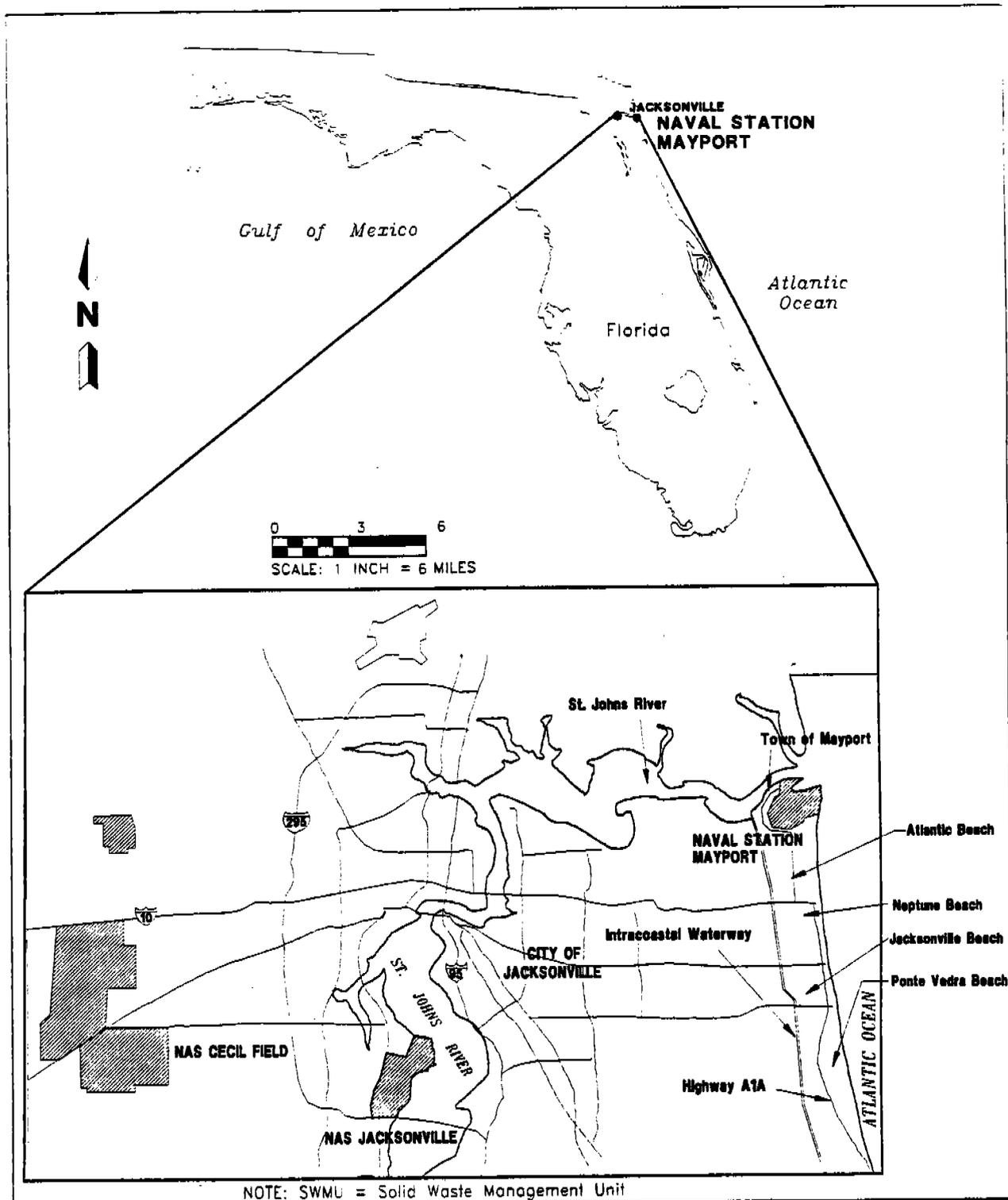
This Interim Measure (IM) Performance Specifications report presents findings and conclusions of additional field activities conducted at SWMU 23, Jacksonville Shipyard, Inc.; SWMU 24, North Florida Shipyard, Inc.; SWMU 25, Atlantic Marine, Inc.; and the former Target Range Backstop (the Shipyard Area) (Figure 1-2). Additionally, this report presents the IM activities proposed to mitigate possible adverse risk to human health, if any, posed by the detected chemicals.

Exposure associated with chemicals in surface and subsurface soil to terrestrial receptors were not evaluated. Terrestrial ecological receptors are not expected to occur in the vicinity of the Shipyard Area because the site is located in an industrialized area.

Current and future use of the Shipyard Area is anticipated to remain industrial for the foreseeable future. Should usage of the Shipyard Area change from industrial, the site conditions should be evaluated to assess whether or not the usage is compatible with the chemicals detected and IM activities that are conducted.

1.1 BACKGROUND. The Group III RFI for NAVSTA Mayport (ABB-ES, 1996) contained recommendations for conducting additional sampling and evaluating whether or not an IM was required at SWMU 23, SWMU 24, SWMU 25, and the former Target Range Backstop. The IM activities were recommended to eliminate "hot spots" where semivolatile organic compounds (SVOCs), pesticides, and inorganics were detected at concentrations exceeding the Florida Department of Environmental Protection (FDEP) soil cleanup goals (FDEP, 1995a; FDEP, 1995b; and 1996).

1.2 REPORT CONTENTS. Chapter 2.0 contains a description of additional sampling activities at SWMUs 23, 24, 25, and the former Target Range Backstop, and Chapter 3.0 presents findings from the sampling activities at these sites. Chapter 4.0 contains an evaluation of whether or not an IM is warranted at the sites and a brief discussion of applicable remedial alternatives to be considered. Chapter 5.0 presents a summary of the findings and evaluation and recommendations for IM activities.



**FIGURE 1-1
FACILITY LOCATION MAP**



**INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25**

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

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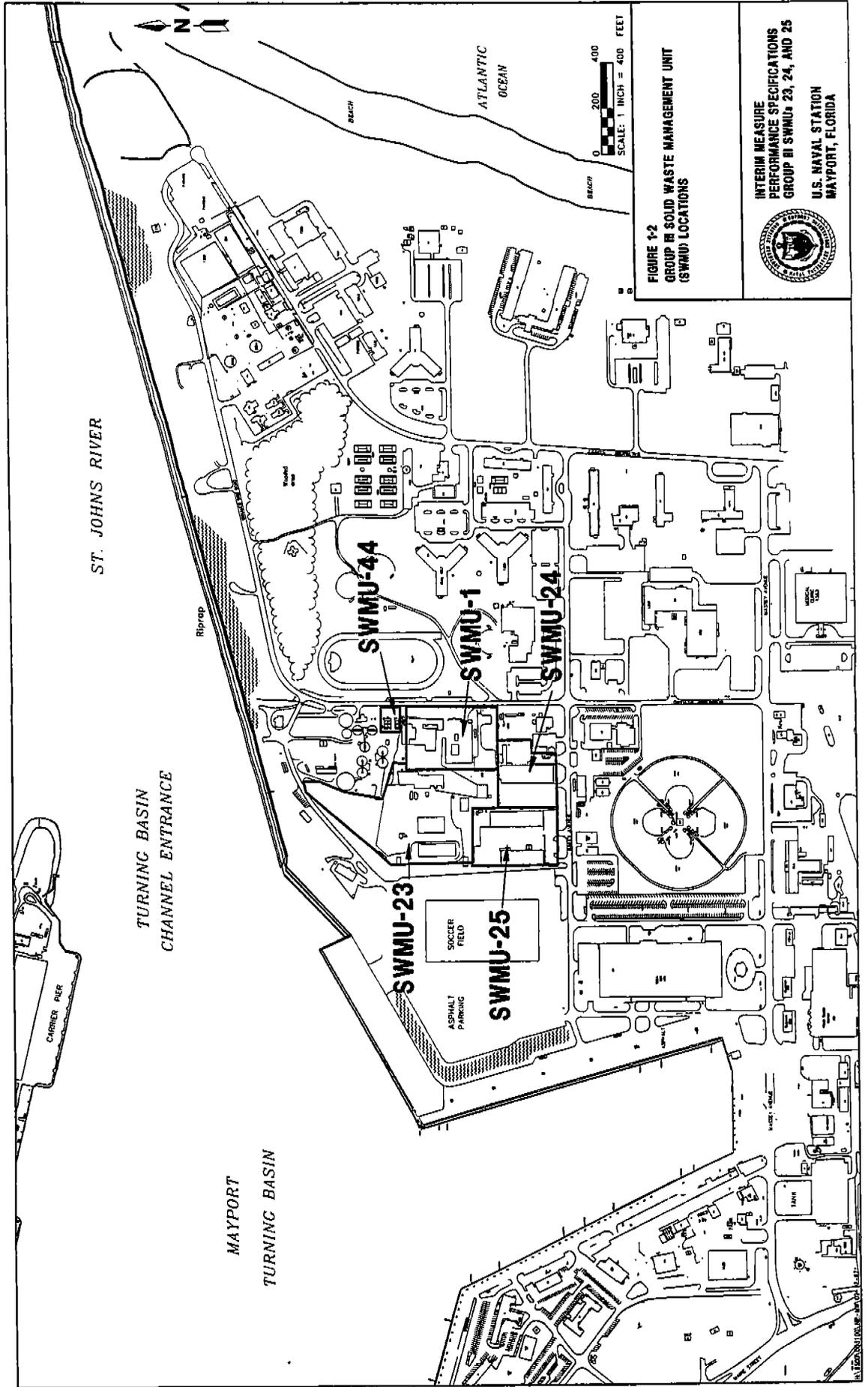


FIGURE 1-2
GROUP III SOLID WASTE MANAGEMENT UNIT
(SWMU) LOCATIONS

INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMU: 23, 24, AND 25
U.S. NAVAL STATION
MAYPORT, FLORIDA



2.0 SOIL SAMPLING AND ANALYTICAL PROGRAM

Below is a description of additional soil sampling activities that were conducted at SWMUs 23, 24, and 25 for the IM performance specifications, the analytical methodologies, and data management.

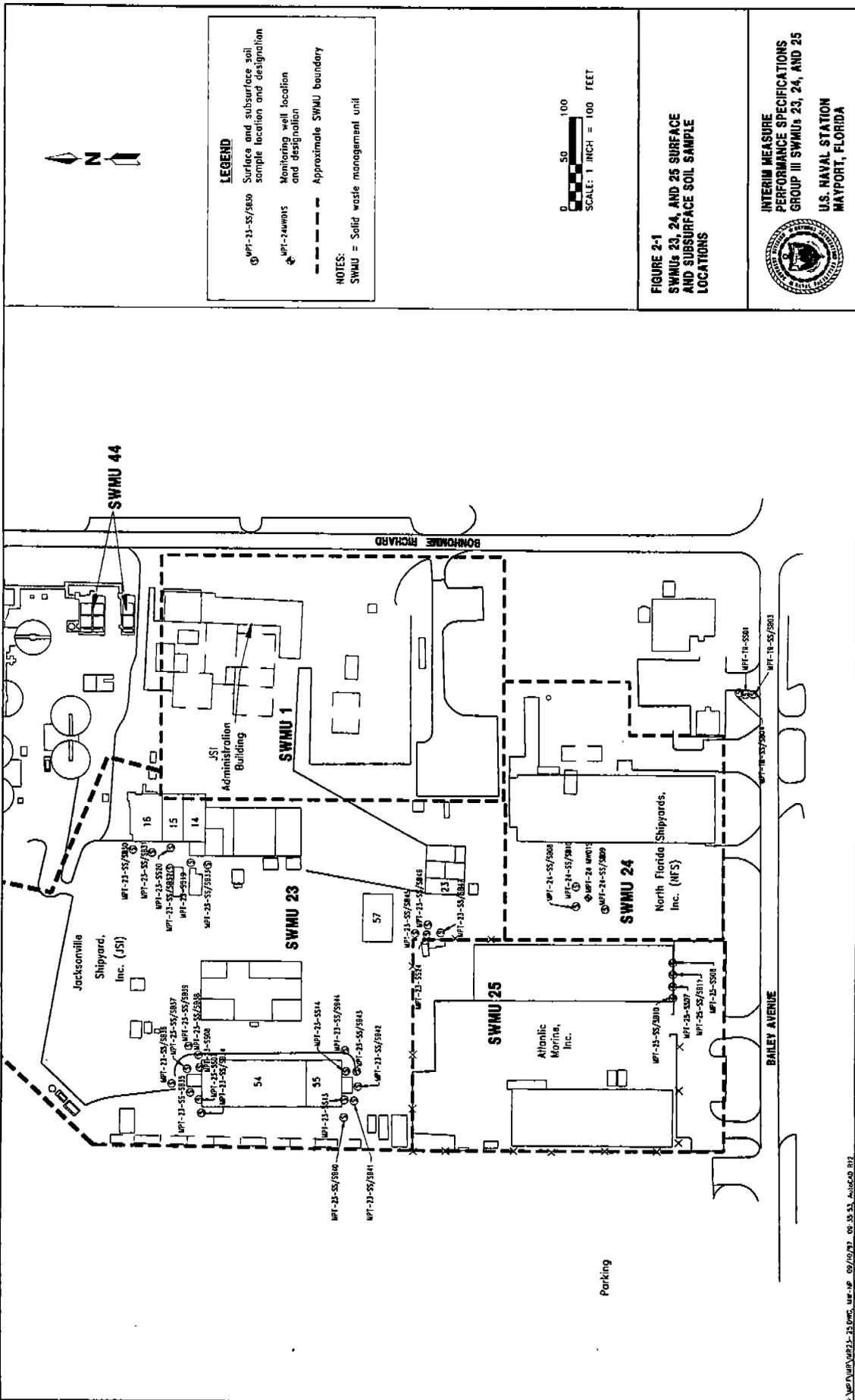
2.1 SWMU 23. Additional surface and subsurface soil samples were collected from four areas at SWMU 23, including west of Building 14, north of Building 54, south of Building 55, and south of Building 57 (Figure 2-1). Surface and subsurface soil samples are denoted by the letters "SS" and "BS," respectively, in the sample location identifier. Below is the rationale for collecting the additional surface and subsurface soil samples at the four locations.

2.1.1 West of Building 14 Arsenic, copper, and lead were detected at concentrations that exceed the FDEP residential soil cleanup goals at sampling locations MPT-23-SS20 (Figure 2-1). The concentration of arsenic (3.2 milligrams per kilogram [mg/kg]) approached but did not exceed the FDEP industrial soil cleanup goal (3.7 mg/kg). Part of the building near the sampling locations was used as a machine shop. Surface and subsurface soil samples were collected from four additional locations (MPT-23-SS/SB30 through MPT-23-SS/SB33) for assessment of whether or not the analytical results from sampling location MPT-23-SS20 represent a hot spot or a larger impacted area and if an IM is warranted. The samples were analyzed only for inorganics (USEPA Methods 6000, 7000, and 9000).

2.1.2 North of Building 54 Arsenic was detected at concentrations exceeding the FDEP industrial soil cleanup goal, and beryllium was detected at concentrations exceeding the FDEP residential soil cleanup goal at sampling locations MPT-23-SS07 and MPT-23-SS08 (Figure 2-1). Building 54 was used as a machine shop. Surface and subsurface soil samples were collected from six additional locations (MPT-23-SS/BS34 through MPT-23-SS/BS39) for assessment of whether or not the analytical results from sampling locations MPT-23-SS07 and MPT-23-SS08 represent a hot spot or a larger impacted area and if an IM is warranted. The samples were analyzed only for inorganics (USEPA Methods 6000, 7000, and 9000).

2.1.3 South of Building 55 Arsenic was detected at concentrations exceeding the FDEP industrial soil cleanup goal, and benzo(a)pyrene and beryllium were detected at concentrations exceeding the FDEP residential soil cleanup goal at sampling locations MPT-23-SS13 and MPT-23-SS14 (Figure 2-1). One sample, MPT-23-SS14, contained benzo(a)pyrene at a concentration (430 micrograms per kilogram [$\mu\text{g}/\text{kg}$]) that approached but did not exceed the FDEP industrial soil cleanup goal (500 $\mu\text{g}/\text{kg}$). Building 55 was used as a machine shop. Surface and subsurface soil samples were collected from six additional locations (MPT-23-SS/BS34 through MPT-23-SS/BS39) for assessment of whether or not the analytical results from sampling locations MPT-23-SS13 and MPT-23-SS14 represent a hot spot or a larger impacted area and if an IM is warranted. The samples were analyzed only for SVOCs (USEPA Method 8100) and inorganics (USEPA Method 6000, 7000, and 9000).

2.1.4 South of Building 57 Beryllium was detected at a concentration exceeding the FDEP industrial soil cleanup goal, and arsenic was detected at a concentration exceeding the FDEP residential soil cleanup goal at sampling locations MPT-23-SS24 (Figure 2-1). Abrasive blasting (Black Beauty™) was conducted in the vicinity of Building 57, and welding activities occurred near Building 23.



Surface and subsurface soil samples were collected from three additional locations (MPT-23-SS/BS45 through MPT-23-SS/BS47) for assessment of whether or not the analytical results from sampling location MPT-23-SS24 represent a hot spot or a larger impacted area and if an IM is warranted. The samples were analyzed only for inorganics (USEPA Methods 6000, 7000, 9000).

2.2 SWMU 24. A surface soil sample collected at the location of monitoring well MPT-24-MW01S contained dibenz(a,h)anthracene and arsenic at concentrations that exceed the FDEP residential soil cleanup goals and benzo(a)pyrene and beryllium at concentrations that exceed FDEP industrial soil cleanup goals (Figure 2-1). A subsurface soil sample collected from 6 to 7 feet beneath the land surface at the same location contained benzo(a)pyrene and beryllium at concentrations that exceed FDEP residential soil cleanup goals. The monitoring well was located near an area that, based on a review of aerial photographs, had disturbed vegetation (ABB-ES, 1996). Surface and subsurface soil samples were collected from three additional locations (MPT-24-SS/BS08 through MPT-23-SS/BS10) for assessment of whether or not the analytical results from sampling location MPT-24-MW01 represent a hot spot or a larger impacted area and if an IM is warranted. The samples were analyzed only for SVOCs (USEPA Method 8270) and inorganics (USEPA Methods 6000, 7000, and 9000).

2.3 SWMU 25. A surface soil sample, MPT-25-SS07, collected at SWMU 25 contained dieldrin at concentrations exceeding the FDEP industrial soil cleanup goal (Figure 2-1). Two surface soil samples were collected during the RFI (ABB-ES, 1996) from this location because of the presence of an oil-water separator. Surface and subsurface soil samples were collected from two additional locations (MPT-25-SS/BS10 and MPT-23-SS/BS11) for assessment of whether or not the analytical results from sampling location MPT-25-SS07 represent a hot spot or a larger impacted area and if an IM is warranted. The samples were analyzed only for pesticides (USEPA Method 8080).

2.4 FORMER TARGET RANGE BACKSTOP. A small arms weapons target range backstop was identified during review of historic aerial photographs and site maps for the RFI at Group III (ABB-ES, 1996). A duplicate of surface soil sample MPT-TR-SS01 collected at the former location for the target range backstop contained benzo(a)pyrene and dibenz(a,h)anthracene at concentrations that exceed their respective FDEP industrial soil cleanup goals (Figure 2-1). The SVOCs detected in the duplicate were indicated, if present, to be at concentrations less than the detection limits in the corresponding environmental sample. Surface and subsurface soil samples were collected from two additional locations (MPT-TR-SS/BS03 and MPT-TR-SS/BS04) for assessment of whether or not the analytical results from sampling location MPT-TR-SS01 represent a hot spot or a larger impacted area and if an IM is warranted. The samples were analyzed only for SVOCs (USEPA Method 8100).

2.5 ANALYTICAL PROGRAM AND DATA MANAGEMENT. Below is a description of the analytical program and data management for the sampling event.

Analytical Program. The environmental samples were collected and analyzed by off-site laboratories using SW-846 methodology (USEPA, 1986a) for analysis of

SVOCs, pesticides, and metals. The laboratory analytical program is described in more detail in Section 2.2 of the NAVSTA Mayport General Information Report (GIR) (ABB-ES, 1995). Analytical results obtained for the environmental samples were submitted as Naval Energy and Environmental Support Activity (NEESA) Level C (USEPA Level III) analytical packages for SVOCs, pesticides, and metals. A summary of the analytical results is provided in Appendix A.

Individual analytical results in the analytical packages were reviewed relative to the following criteria:

- Data quality objectives (DQOs) and the Quality Assurance Project Plan 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, 1990a)

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

Data validation summaries are provided in Appendix B. Overall, the data generated during the sampling event meet established DQOs and are acceptable for use in site characterization, risk assessment, and evaluation of corrective measures.

Data Management. Subsets of the complete analytical data set were used to evaluate analytes detected at each SWMU. The following process was used to develop the final data sets:

1. The validated Group III data were compiled in electronic form.
2. Any detection, including estimated concentrations ("J" qualifiers) below the contract-required quantitation limits for organics and contract-required detection limits for inorganics, and the method detection limits were included in the data set.
3. Sample records rejected by the validators (i.e., "R" qualifiers) were not included in the final data set.
4. Quality control samples were not included in the final data set.
5. Some samples were reanalyzed by the laboratory. However, based on validator recommendations, the appropriate results were used in the final data set.
6. In cases where samples were diluted to quantify specific compounds (DL suffix on sample identification), the dilution recommended by the data validator was used in the final data set.

Minimum concentrations, maximum concentrations, average concentrations, and frequencies of detection were calculated for detected analytes using standard statistical methods. However, because environmental and associated duplicate samples represent only one sampling location, duplicate results were averaged before these statistics were calculated. The following guidelines were used to calculate average values for the environmental and duplicate sample pairs:

- For target analytes detected in both the environmental and associated duplicate sample (i.e., "nonqualified positive detection" or "J" qualifier), the detected values were used to calculate the average value.
- For target analytes detected only in either the environmental or duplicate sample (i.e., one sample with a nonqualified positive detection or a "J" qualifier and the other a nondetection with a "U" or "UJ" qualifier), the average was calculated by using the detected value and one-half the value of the "U" or "UJ" qualified sample.

The analytical data for surface and subsurface soil samples collected during the sampling event for the IM performance specifications and previous data collected during the Group III RFI field investigations and used in this report were screened against background data (ABB-ES, 1995) and Florida soil cleanup goals (FDEP, 1995a; FDEP, 1995b; and 1996) for the purposes of assessing the nature and distribution of a detected chemical. Background screening values and benchmark values for analytes detected in NAVSTA Mayport background samples are presented in the NAVSTA Mayport GIR (ABB-ES, 1995). The data were compared only to the FDEP human health-based screening values because the current use of the site is industrial, and the assumption is that this use will not change in the foreseeable future. In the future, the SWMU 23 site area may be used to support shore facilities for a nuclear powered aircraft carrier. Therefore, human contact with the chemicals detected in surface and subsurface soil is the only exposure pathway assessed. Chemicals present in the soil samples at concentrations less than the FDEP industrial soil cleanup goals (FDEP, 1995a; FDEP, 1995b; and 1996) are assumed to be compatible with the current and future site use.

3.0 FINDINGS

Below is an assessment of the additional and existing soil sample analytical results for the areas identified in Chapter 2.0 of this report for SWMUs 23, 24, and 25. Photographs of the areas sampled are provided in Appendix C.

3.1 SWMU 23. Additional surface and subsurface soil samples were collected from four areas at SWMU 23, including west of Building 14, north of Building 54, south of Building 55, and south of Building 57 (Figure 2-1). Below is an assessment of analytical results from the additional and existing surface and subsurface soil samples.

3.1.1 West of Building 14 Inorganic analytes detected in the surface and subsurface soil samples are provided in Tables 3-1 and 3-2, respectively. Arsenic, copper, and lead were detected in surface soil samples at concentrations exceeding the FDEP residential soil cleanup goal, but not the industrial soil cleanup goal (Table 3-3). Three samples contained arsenic at concentrations exceeding the FDEP residential soil cleanup goal (Figure 3-1). One sample (MPT-23-SS20) contained copper and lead at concentrations exceeding the FDEP residential soil cleanup goal. Arsenic was detected in one subsurface soil sample at concentrations exceeding the FDEP residential soil cleanup goal, but not the industrial soil cleanup goal (Table 3-4 and Figure 3-2).

3.1.2 North of Building 54 Inorganic analytes detected in the surface and subsurface soil samples are provided in Tables 3-5 and 3-6, respectively. Arsenic and beryllium were detected in surface soil samples at concentrations exceeding the FDEP soil cleanup goals (Table 3-7). Arsenic was detected in four samples at concentrations exceeding the industrial soil cleanup goals and in two surface soil samples at concentrations exceeding the residential goal (Figure 3-3). Beryllium was detected at concentrations exceeding the FDEP residential soil cleanup goal, but not the industrial soil cleanup goal. Arsenic was detected in three subsurface soil samples at concentrations exceeding the FDEP residential soil cleanup goal, but not the industrial soil cleanup goal (Table 3-8 and Figure 3-4).

Two of the surface soil samples (MPT-23-SS07 and MPT-23-SS08) that contained arsenic at concentrations exceeding the industrial goal were collected from beneath a gunite (concrete) pad sampling location, and the other two samples (MPT-23-SS34 and MPT-23-SS38) were collected at locations adjacent to the east and west sides of the gunite pad (Figure 3-3).

3.1.3 South of Building 55 Organic and inorganic analytes detected in surface soil samples collected south of Building 55 are provided in Table 3-9, and inorganic analytes detected in subsurface soil samples are provided in Table 3-10. Semivolatile organic analytes were not detected in the subsurface soil samples.

Benzo(a)pyrene, arsenic, and beryllium were detected in surface soil samples at concentrations exceeding the FDEP soil cleanup goals (Table 3-11). Benzo(a)pyrene was detected in two surface soil samples (MPT-23-SS13 and MPT-23-SS14) at concentrations exceeding the FDEP residential soil cleanup goals, but not the

Table 3-1
Inorganic Analytes Detected in Surface Soil Samples
Collected West of Building 14 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	M8775	M8775	M8775	MB277	MB277	MB277	MB277	MB277	MB277
Sample Location:	MPT-23-SS19	MPT-23-SS20	MPT-23-SS30	MPT-23-SS30	MPT-23-SS31	MPT-23-SS32	MPT-23-SS32	MPT-23-SS33	MPT-23-SS33
Sample Number:	23S01901	23S02001	23S03001	23S03001DUP	23S03101	23S03201	23S03201	23S03301	23S03301
Date Sampled:	07-APR-95	07-APR-95	26-JUN-96						
Sample Depth (ft bis):	0 to 1								
Inorganic Analytes (mg/kg)									
Antimony	0.73 J	6.9 J	0.9 J	0.81 J	2.3	1.0 J	1.5	0.82 J	1.5
Arsenic	0.35 J	3.2	0.83 J	0.73 J	0.92 J	0.49 J	0.82 J	13.4 J	0.82 J
Barium	14.2 J	13.9 J	20.7 J	28.1 J	22.2 J	8.2 J	13.4 J	0.06 J	13.4 J
Beryllium	0.06 J	0.1 J	0.12 J	0.16 J	0.09 J	0.08 J	0.06 J	2.6	0.06 J
Cadmium	1.3	6.3	--	--	1.8	--	2.6	21	2.6
Chromium	8.2	9.4	6.5	10.2	11.6	4.9	21	0.7 J	11.6
Cobalt	--	2.6 J	--	0.64 J	1.1 J	0.79 J	0.7 J	47.3 J	1.1 J
Copper	40.4	2,930	13.7 J	17.7 J	41.7 J	18.8 J	47.3 J	19.9 J	41.7 J
Lead	47	831	48.2 J	28.9 J	39 J	23.8 J	19.9 J	--	39 J
Mercury	0.27	0.09	--	--	--	--	--	5.0 J	--
Nickel	9.7	55.6	3.5 J	5.2 J	7.9 J	3.3 J	5.0 J	8.6 J	7.9 J
Silver	--	5.2	0.81 J	--	--	1.6 J	8.6 J	3.4 J	--
Tin	10 J	196	--	--	--	--	3.4 J	3.6 J	--
Vanadium	3.1 J	4.9	4.4 J	6 J	4.4 J	3.2 J	3.6 J	149	4.4 J
Zinc	124	5,910	59.9	80.8	147	52.1	149	--	52.1

Notes: SWMU = solid waste management unit.
 DUP = duplicate.
 ft bis = feet below land surface.
 mg/kg = milligrams per kilogram.
 J = estimated value.
 -- = concentration of analyte, if present, was less than detection limit.

**Table 3-2
Inorganic Analytes Detected in Subsurface Soil Samples
Collected West of Building 14 at SWMU 23**

Interim Measure Performance Specifications
Group III SWMUs 23, 24, and 25
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	MB277	MB277	MB277	MB277
Sample Location:	MPT-23-SB30	MPT-23-SB31	MPT-23-SB32	MPT-23-SB33
Sample Number:	23B03002	23B03102	23B03202	23B03302
Date Sampled:	26-JUN-96	26-JUN-96	26-JUN-96	26-JUN-96
Sample Depth (ft bls):	1 to 2	1 to 2	1 to 2	1 to 2
<u>Inorganic Analytes (mg/kg)</u>				
Antimony	0.74 J	1.3	-	0.89 J
Arsenic	0.79 J	0.6 J	0.91 J	0.6 J
Barium	47.5	9.1 J	11.6 J	7.7 J
Beryllium	0.07 J	0.07 J	0.15 J	0.05 J
Cadmium	-	-	-	0.75 J
Chromium	6.4	4.2	9.3	4.8
Cobalt	0.7 J	-	0.78 J	-
Copper	7.4 J	13.1 J	11.7 J	14.2 J
Lead	15.9 J	16.5 J	14.3 J	5.7 J
Nickel	1.9 J	-	3.9 J	-
Silver	-	-	-	1.2 J
Thallium	0.21 J	-	-	-
Vanadium	10.7 J	3.7 J	9.7 J	1.7 J
Zinc	54.1	58.5	50.2	29.3
Cyanide	0.32 J	-	-	-
<p>Notes: SWMU = solid waste management unit. ft bls = feet below land surface. mg/kg = milligrams per kilogram. J = estimated value. - = concentration of analyte, if present, was less than detection limit.</p>				

Table 3-3
Summary of Chemicals Detected in Surface Soil Samples
Collected West of Building 14 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (mg/kg)									
Antimony	6/6	NA	0.73 to 6.9	2.2	ND	26	220	0/6	0/6
Arsenic	6/6	NA	0.35 to 3.2	1.1	ND	0.8	3.7	3/6	0/6
Barium	6/6	NA	8.2 to 24.4	16.1	5.6	52,000	84,000	0/6	0/6
Beryllium	6/6	NA	0.06 to 0.14	0.09	0.16	0.2	1.0	0/6	0/6
Cadmium	4/6	0.56 to 0.76	1.3 to 6.3	3	2	37	600	0/6	0/6
Chromium	6/6	NA	4.9 to 21	10.6	2.6	290	430	0/6	0/6
Cobalt	4/6	0.57 to 1.1	0.475 to 2.6	1.1	ND	4,700	110,000	0/6	0/6
Copper	6/6	NA	15.7 to 2,930	516	2.2	2,900	7,200	1/6	0/6
Lead	6/6	NA	19.9 to 831	167	ND	500	1,000	1/6	0/6
Mercury	2/6	0.031 to 0.25	0.09 to 0.27	0.18	ND	23	480	0/6	0/6
Nickel	6/6	NA	3.3 to 55.6	14.3	ND	1,500	26,000	0/6	0/6
Silver	4/6	0.23 to 0.58	0.42 to 8.6	4	ND	390	9,000	0/6	0/6
Tin	3/6	1.7 to 3.1	3.4 to 196	69.8	ND	44,000	670,000	0/6	0/6
Vanadium	6/6	NA	3.1 to 5.2	4.1	4	490	4,800	0/6	0/6
Zinc	6/6	NA	52.1 to 5,910	1,075	2.6	23,000	560,000	0/6	0/6

See notes at end of table.

Table 3-3 (Continued)
Summary of Chemicals Detected in Surface Soil Samples
Collected West of Building 14 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

¹ Frequency of detection is the number of sample locations where an analyte was detected, divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-23-SS19, MPT-23-SS20, MPT-23-SS30, MPT-23-SS31, MPT-23-SS32, and MPT-23-SS33 were used in this table. The detection of an analyte in either sample 23S03001 or duplicate 23S03001DUP was used to represent a value for sample location MPT-23-SS30.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-23-SS19, MPT-23-SS20, MPT-23-SS30, MPT-23-SS31, MPT-23-SS32, and MPT-23-SS33) in which the analyte was detected. The value used for sample location MPT-23-SS30 is the average of sample 23S03001 and duplicate 23S03001DUP. The mean does not include those samples with "R", "U", or "UJ" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995. The average concentration for an analyte detected in sample 23S03001 and duplicate 23S03001DUP was used to represent a value for sample location MPT-23-SS30.

⁶ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.

⁷ The value is the average of a sample and its duplicate. One-half of the contract-required quantification limit/contract-required detection limit is used as a surrogate concentration for the nondetected concentration of a sample and associated duplicate having one nondetect value.

⁸ The value is based on the hexavalent form of chromium.

⁹ FDEP, 1995, Memorandum, Lilia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE., Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.
 mg/kg = milligrams per kilogram.
 NA = not applicable, analyte detected in each sample.
 ND = analyte not detected in background surface soil samples (GIR; ABB-ES, 1995).

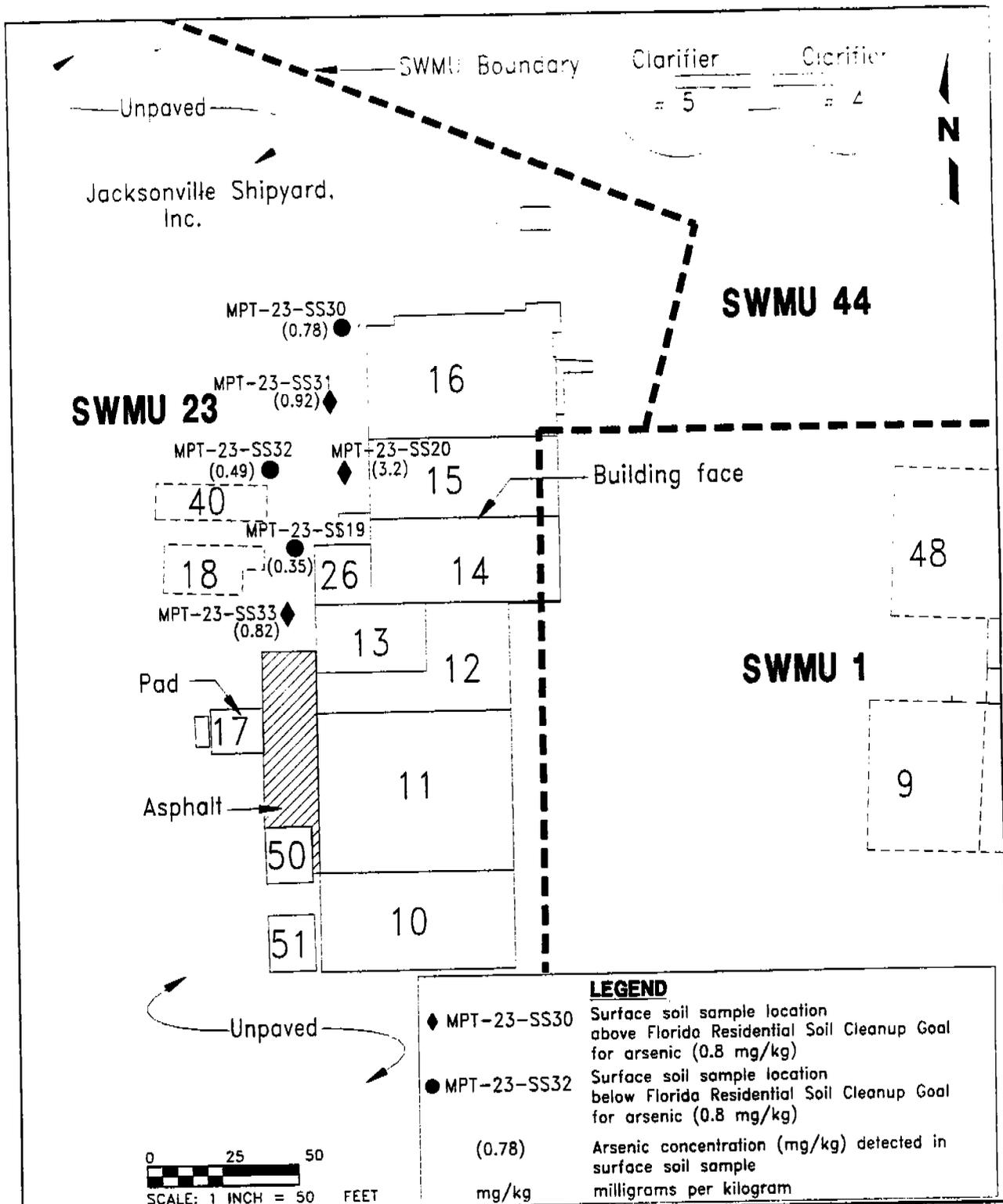
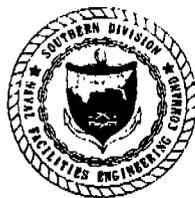


FIGURE 3-1
ARSENIC DETECTED IN SURFACE
SOIL SAMPLES COLLECTED WEST OF BUILDING
14 AT SOLID WASTE MANAGEMENT
UNIT (SWMU) 23



INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25

U.S. NAVAL STATION
MAYPORT, FLORIDA

Table 3-4
Summary of Chemicals Detected in Subsurface Soil Samples
Collected West of Building 14 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (mg/kg)									
Antimony	3/4	0.59 to 0.59	0.74 to 1.3	0.98	ND	26	0/4	220	0/4
Arsenic	4/4	NA	0.6 to 0.91	0.73	ND	70.8	1/4	^a 3.7	0/4
Barium	4/4	NA	7.7 to 47.5	19	5.6	52,000	0/4	84,000	0/4
Beryllium	4/4	NA	0.05 to 0.15	0.09	0.16	0.2	0/4	1.0	0/4
Cadmium	1/4	0.71 to 0.85	0.75	0.75	2	37	0/4	600	0/4
Chromium	4/4	NA	4.2 to 9.3	6.2	2.6	^b 290	0/4	^b 430	0/4
Cobalt	2/4	0.53 to 0.64	0.7 to 0.78	0.74	ND	4,700	0/4	110,000	0/4
Copper	4/4	NA	7.4 to 14.2	11.6	2.2	^b 2,900	0/4	^b 72,000	0/4
Lead	4/4	NA	5.7 to 16.5	13.1	ND	500	0/4	1,000	0/4
Nickel	2/4	1 to 1.4	1.9 to 3.9	2.9	ND	1,500	0/4	26,000	0/4
Silver	1/4	0.47 to 0.56	1.2	1.2	ND	390	0/4	9,000	0/4
Thallium	1/4	0.17 to 0.2	0.21	0.21	1.8	NS	0/4	NS	0/4
Vanadium	4/4	NA	1.7 to 10.7	6.5	4	490	0/4	4,800	0/4
Zinc	4/4	NA	29.3 to 58.5	48	2.6	23,000	0/4	560,000	0/4
Cyanide	1/4	0.09 to 0.11	0.32	0.32	ND	1,600	0/4	40,000	0/4

See notes at end of table.

Table 3-4 (Continued)
Summary of Chemicals Detected in Subsurface Soil Samples
Collected West of Building 14 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

¹ Frequency of detection is the number of sample locations where an analyte was detected, divided by the total number of sample locations analyzed (excluding rejected values). Sampling locations MPT-23-SB30, MPT-23-SB31, MPT-23-SB32 and MPT-23-SB33 were used in this table.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-23-SB30, MPT-23-SB31, MPT-23-SB32 and MPT-23-SB33) in which the analyte was detected. It does not include those samples with "R", "U", or "UJ" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁶ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.

⁷ The value is based on the hexavalent form of chromium.

⁸ FDEP, 1995, Memorandum, Ligia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE.; Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.

mg/kg = milligrams per kilogram.

ND = analyte not detected in background subsurface soil samples (GIR; ABB-ES, 1995).

NA = not applicable, analyte detected in each sample.

NS = no screening concentration available for the analyte.

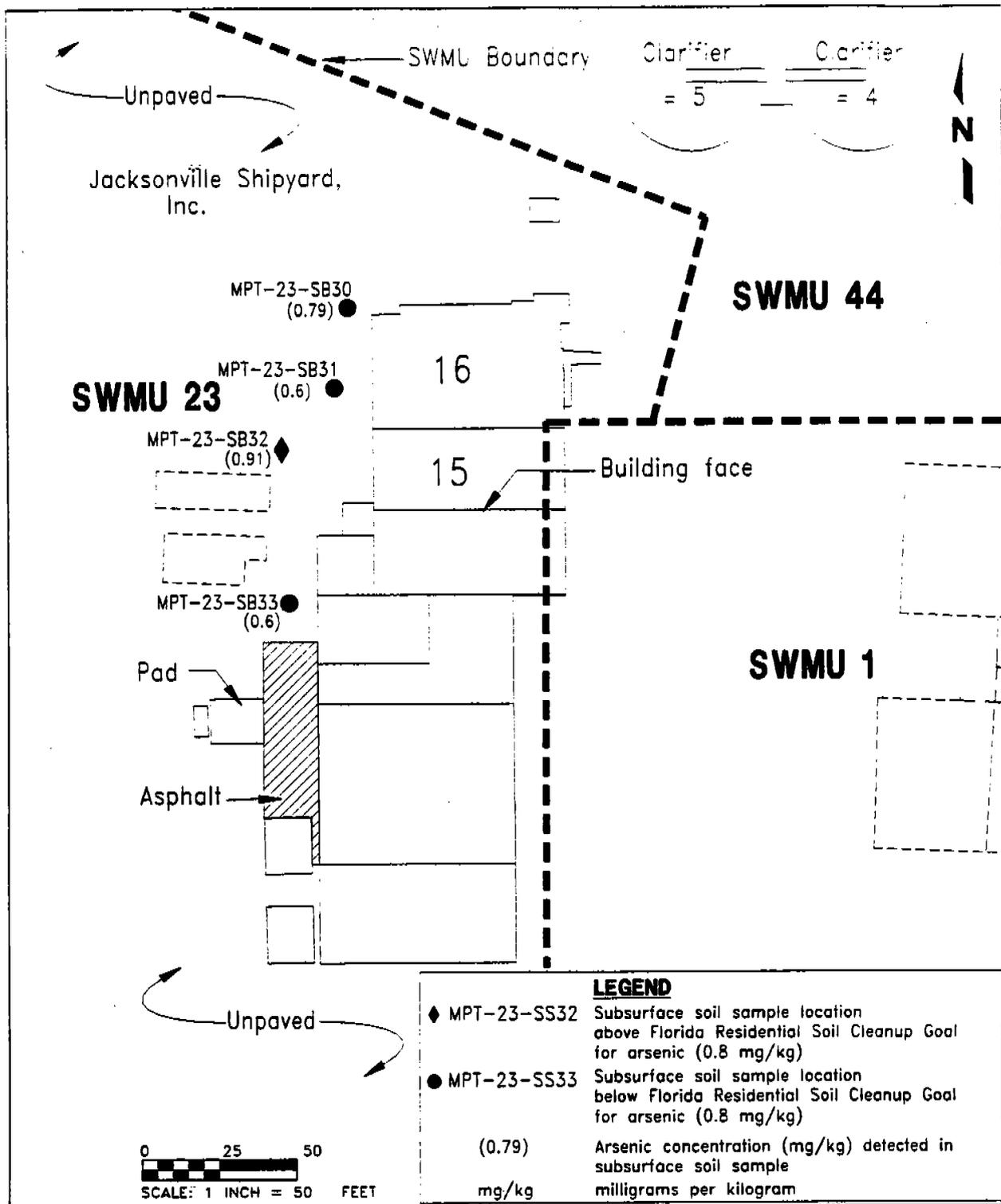


FIGURE 3-2
ARSENIC DETECTED IN SUBSURFACE SOIL
SAMPLES COLLECTED WEST OF BUILDING
14 AT SOLID WASTE MANAGEMENT
UNIT (SWMU) 23



INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25

U.S. NAVAL STATION
MAYPORT, FLORIDA

H. /MPT/IMR/SWMUS/NP-NW/02-27-97

**Table 3-5
Inorganic Analytes Detected in Surface Soil Samples
Collected North of Building 54 at SWMU 23**

Interim Measure Performance Specifications
Group III SWMUs 23, 24, and 25
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	R9743	R9743	R9743	R9743	R9743	MB277	MB277	MB277	MB277
Sample Location:	MPT-23-SS07	MPT-23-SS08	MPT-23-SS08	MPT-23-SS08	MPT-23-SS08	MPT-23-SS34	MPT-23-SS34	MPT-23-SS34	MPT-23-SS35
Sample Number:	23S00701	23S00801	23S00801	23S00801	23S00801	23S03401	23S03401	23S03401	23S03501
Date Sampled:	05-APR-95	05-APR-95	05-APR-95	05-APR-95	05-APR-95	26-JUN-96	26-JUN-96	26-JUN-96	26-JUN-96
Sample Depth (ft bis):	0 to 1								
Inorganic Analytes (mg/kg)									
Antimony	--	--	--	--	--	--	0.74 J	--	1.2
Arsenic	7.2 J	4.5 J	6.9 J	6.9 J	6.9 J	7.1 J	3.3 J	3.3 J	1.4 J
Barium	97.6	79.6	78.8	78.8	78.8	24.3 J	18.4 J	18.4 J	45.6
Beryllium	0.43 J	0.29 J	0.44 J	0.44 J	0.44 J	0.14 J	0.12 J	0.12 J	0.13 J
Cadmium	--	3 J	2.9 J	2.9 J	2.9 J	--	--	--	1.5
Chromium	8.3 J	10.9 J	12.1 J	12.1 J	12.1 J	5.8	4.8	4.8	29.5
Cobalt	1.9 J	1.9 J	1.6 J	1.6 J	1.6 J	0.96 J	--	--	1.9 J
Copper	25.4 J	39.4 J	40.5 J	40.5 J	40.5 J	9.9 J	30.2 J	30.2 J	129 J
Lead	32.3 J	28.9 J	90.5 J	90.5 J	90.5 J	18.7 J	18.3 J	18.3 J	38.8 J
Nickel	6.0 J	7.1 J	13.3	13.3	13.3	2.0 J	2.0 J	2.0 J	20.1
Silver	--	--	--	--	--	--	--	--	--
Thallium	0.14 J	0.14 J	0.19 J	0.19 J	0.19 J	0.22 J	--	--	--
Tin	--	--	2.6 J	2.6 J	2.6 J	--	--	--	9.6 J
Vanadium	12.5	11.4 J	12.7	12.7	12.7	6.4 J	5.4 J	5.4 J	5.8 J
Zinc	53.9 J	62.3 J	115 J	115 J	115 J	46.1	45.1	45.1	145
Cyanide	0.11 J	0.22 J	0.15 J	0.15 J	0.15 J	--	--	--	--

See notes at end of table.

Table 3-5 (Continued)
Inorganic Analytes Detected in Surface Soil Samples
Collected North of Building 54 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	MB277	MB277	MB277	MB278
Sample Location:	MPT-23-SS36	MPT-23-SS37	MPT-23-SS38	MPT-23-SS39
Sample Number:	23S03601	23S03701	23S03801	23S03901
Date Sampled:	26-JUN-96	26-JUN-96	26-JUN-96	26-JUN-96
Sample Depth (ft bis):	0 to 1	0 to 1	0 to 1	0 to 1
Inorganic Analytes (mg/kg)				
Antimony	0.77 J	0.84 J	0.56 J	--
Arsenic	0.85 J	0.69 J	4.3 J	0.66 J
Barium	24.6 J	9 J	33.5 J	14.8 J
Beryllium	0.09 J	0.05 J	0.25 J	0.29 J
Cadmium	--	--	--	--
Chromium	5.4	4.3	20.5	5.7
Cobalt	0.75 J	4.1 J	1.5 J	1.4 J
Copper	74.9 J	91 J	19.6 J	7.3
Lead	15.3 J	6.7 J	21.1 J	7.6 J
Nickel	6.9 J	587	18.4	3 J
Silver	--	--	--	--
Thallium	--	--	--	--
Tin	--	2.8 J	--	--
Vanadium	4 J	3.9 J	8.3 J	5.7 J
Zinc	45.6	89.9	61.5	25.4
Cyanide	--	--	0.2 J	--

Notes: SWMU = solid waste management unit.
 ft bis = feet below land surface.
 mg/kg = milligrams per kilogram.
 -- = concentration of analyte, if present, was less than the detection limit.
 J = estimated value.

**Table 3-7
Summary of Chemicals Detected in Surface Soil Samples
Collected North of Building 54 at SWMU 23**

Interim Measure Performance Specifications
Group III SWMUs 23, 24, and 25
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (mg/kg)									
Antimony	5/8	0.305 to 1.2	⁰ 0.5225 to 1.2	0.78	ND	26	0/8	220	0/8
Arsenic	8/8	NA	0.66 to 7.2	3.3	ND	⁷ 0.8	6/8	⁷ 3.7	4/8
Barium	8/8	NA	9 to 97.6	40.7	5.6	52,000	0/8	84,000	0/8
Beryllium	8/8	NA	0.05 to 0.43	0.22	0.16	0.2	4/8	1.0	0/8
Cadmium	2/8	0.3 to 0.76	1.5 to ² 2.95	2.2	2	37	0/8	600	0/8
Chromium	8/8	NA	4.3 to 29.5	11.3	2.6	⁸ 290	0/8	⁸ 430	0/8
Cobalt	8/8	NA	⁹ 0.6175 to 4.1	1.7	ND	4,700	0/8	110,000	0/8
Copper	8/8	NA	7.3 to 129	50.9	2.2	⁹ 2,900	0/8	⁹ 7,200	0/8
Lead	8/8	NA	6.7 to ⁹ 59.7	25	ND	500	0/8	1,000	0/8
Nickel	8/8	NA	² 2 to 587	81.7	ND	1,500	0/8	26,000	0/8
Thallium	3/8	0.085 to 0.6	0.14 to ⁰ 0.165	0.15	1.8	NS	0/8	NS	0/8
Tin	3/8	2 to 2.7	⁰ 1.875 to 9.6	4.8	ND	44,000	0/8	670,000	0/8
Vanadium	8/8	NA	3.9 to 12.5	7.3	4	490	0/8	4,800	0/8
Zinc	8/8	NA	25.4 to 145	69.4	2.6	23,000	0/8	560,000	0/8
Cyanide	3/8	0.09 to 1	0.11 to 0.2	0.17	ND	1,600	0/8	40,000	0/8

See notes at end of table.

Table 3-7 (Continued)
Summary of Chemicals Detected in Surface Soil Samples
Collected North of Building 54 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

1 Frequency of detection is the number of sample locations where an analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-23-SS07, MPT-23-SS08, MPT-23-SS34, MPT-23-SS35, MPT-23-SS36, MPT-23-SS37, MPT-23-SS38, and MPT-23-SS39 were used to make this table. The detection of an analyte in either sample 23S00801DUP or duplicate 23S00801DUP was used to represent a value for sample location MPT-23-SS08.

2 The mean of detected concentrations is the arithmetic mean of all samples (MPT-23-SS07, MPT-23-SS08, MPT-23-SS34, MPT-23-SS35, MPT-23-SS36, MPT-23-SS37, MPT-23-SS38, and MPT-23-SS39) in which the analyte was detected. The value used for sample location MPT-23-SS08 is the average of sample 23S00801 and associated duplicate 23S00801DUP. The mean does not include those samples with "R", "U", or "UJ" validation qualifiers.

3 The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

4 Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

5 Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995.

6 The average concentration for an analyte detected in sample 23S00801 and duplicate 23S00801DUP was used to represent a value for sample location MPT-23-SS08. The average concentration for an analyte detected in sample 23S00801 and its duplicate. For duplicate samples having one nondetect value, one-half of the contract-required quantification limit/contract-required detection limit is used as a surrogate concentration for the nondetected concentration.

7 The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.

8 The value is based on the hexavalent form of chromium.

9 FDEP, 1995, Memorandum, Ligia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE: Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.

mg/kg = milligrams per kilogram.

ND = analyte not detected in any background surface soil samples (GIR, ABB-ES, 1995).

NA = not applicable, analyte detected in each sample.

NS = no screening concentration available for the analyte.

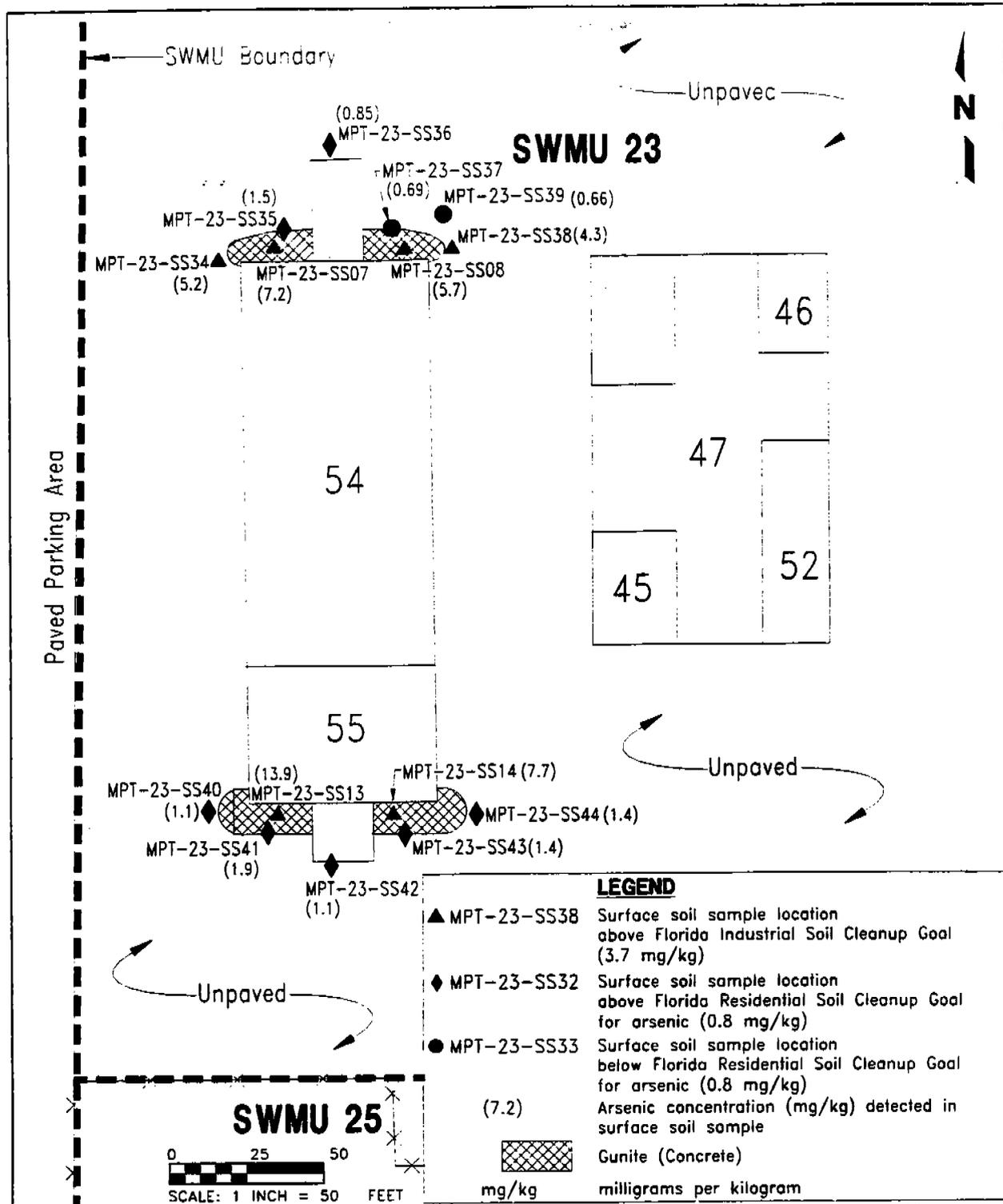


FIGURE 3-3
ARSENIC DETECTED IN SURFACE SOIL SAMPLES
COLLECTED NORTH OF BUILDING 54
AND SOUTH OF BUILDING 55 AT
SOLID WASTE MANAGEMENT UNIT (SWMU) 23



INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25

U.S. NAVAL STATION
MAYPORT, FLORIDA

H:/MPT/IMR/SWMUS/NP-MW/02-27-97

Table 3-8
Summary of Chemicals Detected in Subsurface Soil Samples
Collected North of Building 54 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (mg/kg)									
Antimony	2/6	0.54 to 0.67	0.75 to 0.8	0.78	ND	26	0/6	220	0/6
Arsenic	6/6	NA	0.56 to 1.2	0.9	ND	^a 0.8	3/6	^b 3.7	0/6
Barium	6/6	NA	3.1 to 9.3	6.5	5.6	52,000	0/6	84,000	0/6
Beryllium	6/6	NA	0.06 to 0.14	0.1	0.16	0.2	0/6	1.0	0/6
Chromium	6/6	NA	2.1 to 5.7	3.7	2.6	^c 290	0/6	^d 430	0/6
Cobalt	3/6	0.5 to 0.64	0.73 to 1.1	0.87	ND	4,700	0/6	110,000	0/6
Copper	5/6	2.3	3.5 to 72.7	20.3	2.2	^e 2,900	0/6	^f 7,200	0/6
Lead	6/6	NA	1.5 to 13.6	6.7	ND	500	0/6	1,000	0/6
Nickel	5/6	1 to 1.2	1.5 to 104	22.4	ND	1,500	0/6	26,000	0/6
Thallium	1/6	0.17 to 0.21	0.22	0.22	1.8	NS	0/6	NS	0/6
Vanadium	6/6	NA	2.3 to 5.9	4.1	4	490	0/6	4,800	0/6
Zinc	6/6	NA	11.4 to 42.5	26.9	2.6	23,000	0/6	560,000	0/6

See notes at end of table.

Table 3-8 (Continued)
Summary of Chemicals Detected in Subsurface Soil Samples
Collected North of Building 54 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-23-SB34, MPT-23-SB35, MPT-23-SB36, MPT-23-SB37, MPT-23-SB38, and MPT-23-SB39 were used to make this table. The detection of an analyte in either sample 23B03402 or duplicate 23B03402DUP was used to represent a value for sample location MPT-23-SB34.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-23-SB34, MPT-23-SB35, MPT-23-SB36, MPT-23-SB37, MPT-23-SB38, and MPT-23-SB39) in which the analyte was detected. The value used for sample location MPT-23-SB34 is the average of sample 23B03402 and associated duplicate 23B03402DUP. The mean does not include those samples with "R", "U", or "UJ" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1.1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995. The average concentration for an analyte detected in sample 23B03402 and duplicate 23B03402DUP was used to represent a value for sample location MPT-23-SB34.

⁶ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.

⁷ The value is based on the hexavalent form of chromium.

⁸ FDEP, 1995, Memorandum, Ligia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE; Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.

mg/kg = milligrams per kilogram.

ND = analyte not detected in background subsurface soil samples (GIR; ABB-ES, 1995).

NA = not applicable, analyte detected in each sample.

NS = no screening concentration available for the analyte.

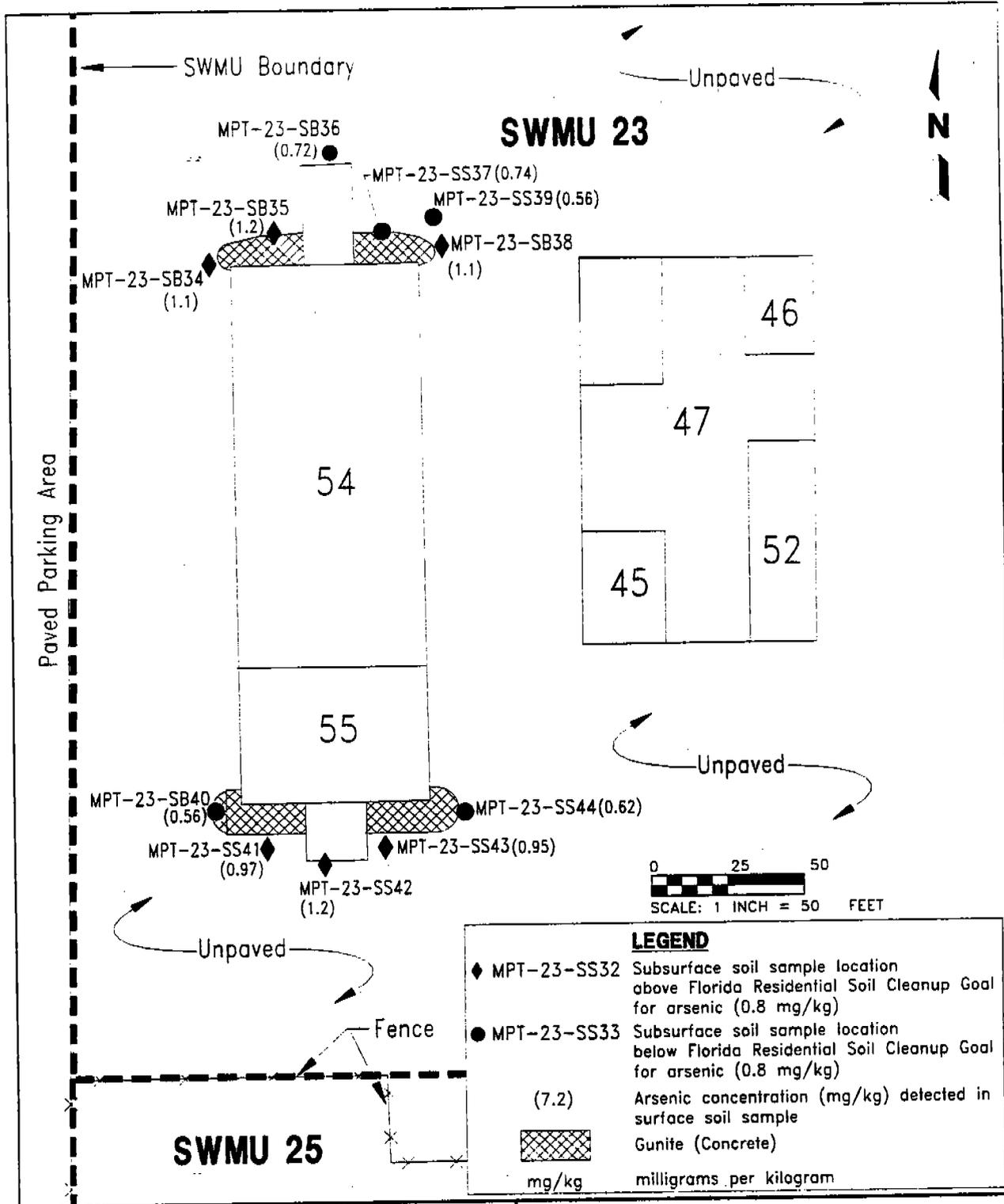


FIGURE 3-4
ARSENIC DETECTED IN SUBSURFACE SOIL SAMPLES
COLLECTED NORTH OF BUILDING 54
AND SOUTH OF BUILDING 55 AT
SOLID WASTE MANAGEMENT UNIT (SWMU) 23



INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25

U.S. NAVAL STATION
MAYPORT, FLORIDA

11- /MPT/IMR/FIGD/NP-MW/02-27-97

Table 3-9
Organic and Inorganic Analytes Detected in Surface Soil Samples
Collected South of Building 55 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	R9743	R9743	MB278										
Sample Location:	MPT-23-SS13	MPT-23-SS14	MPT-23-SS40	MPT-23-SS41	MPT-23-SS42	MPT-23-SS43	MPT-23-SS44						
Sample Number:	23S01301	23S01401	23S04001	23S04101	23S04201	23S04301	23S04401						
Date Sampled:	07-APR-95	07-APR-95	26-JUN-96										
Sample Depth (ft bis):	0 to 1												
Semi-volatile Organic Compounds (µg/kg)													
Phenanthrene	--	96 J	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	210 J	330 J	--	--	--	--	--	--	--	--	--	--	--
Pyrene	240 J	520 J	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	160 J	330 J	--	--	--	--	--	--	--	--	--	--	--
Chrysene	220 J	440 J	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	240 J	450 J	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	220 J	500 J	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	160 J	430 J	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	130 J	270 J	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	--	96 J	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	190 J	340 J	--	--	--	--	--	--	--	--	--	--	--
Inorganic Analytes (mg/kg)													
Antimony	1.5 J	--	--	--	0.68 J	--	--	--	--	--	--	--	--
Arsenic	13.9 J	7.7 J	1.1 J	1.9 J	1.1 J	1.4 J	1.1 J	1.8 J					
Barium	107	90.7	7.2 J	13 J	50.5	15.8 J	13.4 J	13.7 J					
Beryllium	0.51 J	0.64 J	0.07 J	0.11 J	0.3 J	0.08 J	0.09 J	0.12 J					
Cadmium	1.4 J	0.75 J	--	--	--	--	--	--	--	--	--	--	--
Chromium	38.6 J	16.3 J	3.5	5.7	10.0	6.0	5.4	5.4	5.4	5.4	5.4	5.4	5.1
Cobalt	--	--	--	1.0 J	2.0 J	0.9 J	0.85 J	0.85 J	0.85 J	0.85 J	0.85 J	0.85 J	0.88 J
Copper	456 J	38.9 J	--	22.8	40.2	8.7	4.3 J	2.8 J					
Lead	82.9 J	37.3 J	4.9 J	14.7 J	40.8 J	19.6 J	8.7 J	8.7 J	8.7 J	8.7 J	8.7 J	8.7 J	5.2 J
Mercury	0.04 J	--	0.04 J	--	--	--	--	--	--	--	--	--	--

See notes at end of table.

Table 3-9 (Continued)
Organic and Inorganic Analytes Detected in Surface Soil Samples
Collected South of Building 55 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	R9743	R9743	MB278							
Sample Location:	MPT-23-SS13	MPT-23-SS14	MPT-23-SS40	MPT-23-SS41	MPT-23-SS42	MPT-23-SS43	MPT-23-SS44	MPT-23-SS44	MPT-23-SS44	MPT-23-SS44
Sample Number:	23S01301	23S01401	23S04001	23S04101	23S04201	23S04301	23S04401	23S04401	23S04401	23S04401DUP
Date Sampled:	07-APR-95	07-APR-95	26-JUN-96							
Sample Depth (ft bis):	0 to 1									
Inorganic Analytes (mg/kg) (Continued)										
Nickel	81.3	12.2	--	14.1	21.4	3.8 J	--	--	--	--
Thallium	--	--	--	0.23 J	--	--	--	--	--	--
Tin	31.9	3.2 J	--	--	--	--	--	--	--	--
Vanadium	16.4	17.9	3.8 J	5.7 J	6.9 J	5.9 J	7.5 J	7.5 J	6.3 J	6.3 J
Zinc	161 J	55.9 J	28.2	37.7	108	26.8	21.2	21.2	12.4	12.4
Cyanide	0.21 J	0.16 J	--	--	--	--	--	--	--	--

Notes: SWMU = solid waste management unit.
 DUP = duplicate.
 ft bis = feet below land surface.
 µg/kg = micrograms per kilogram.
 -- = concentration of analyte, if present, was less than detection limit.
 J = estimated value.
 mg/kg = milligrams per kilogram.

Table 3-11
Summary of Chemicals Detected in Surface Soil Samples
Collected South of Building 55 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Semivolatile Organic Compounds (µg/kg)									
Benzo(a)anthracene	2/7	50 to 850	160 to 330	245	ND	1,400	0/7	4,900	0/7
Benzo(a)pyrene	2/7	50 to 850	160 to 430	295	ND	100	2/7	500	0/7
Benzo(b)fluoranthene	2/7	52 to 850	240 to 450	345	ND	1,400	0/7	5,000	0/7
Benzo(g,h,i)perylene	2/7	50 to 850	190 to 340	265	ND	14,000	0/7	50,000	0/7
Benzo(k)fluoranthene	2/7	50 to 850	220 to 500	360	ND	14,000	0/7	48,000	0/7
Chrysene	2/7	50 to 850	220 to 440	330	ND	140,000	0/7	500,000	0/7
Fluoranthene	2/7	50 to 850	210 to 330	270	ND	2,900,000	0/7	48,000,000	0/7
Indeno(1,2,3-cd)pyrene	2/7	50 to 850	130 to 270	200	ND	1,400	0/7	5,000	0/7
Phenanthrene	1/7	50 to 850	96 to 96	96	ND	1,700,000	0/7	21,000,000	0/7
Pyrene	2/7	50 to 850	240 to 520	380	ND	2,200,000	0/7	41,000,000	0/7
Inorganic Analytes (mg/kg)									
Antimony	2/7	0.52 to 5	0.68 to 1.5	1.1	ND	26	0/7	220	0/7
Arsenic	7/7	NA	1.1 to 13.9	4.1	ND	0.8	7/7	3.7	2/7
Barium	7/7	NA	7.2 to 107	42.5	5.6	52,000	0/7	84,000	0/7
Beryllium	7/7	NA	0.07 to 0.64	0.26	0.16	0.2	3/7	1.0	0/7
Cadmium	2/7	0.32 to 0.87	0.75 to 1.4	1.1	2	37	0/7	600	0/7
Chromium	7/7	NA	3.5 to 38.6	12.2	2.6	290	0/7	1,430	0/7

See notes at end of table.

Table 3-11 (Continued)
Summary of Chemicals Detected in Surface Soil Samples
Collected South of Building 55 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (Continued)									
Cobalt	4/7	0.51 to 3.9	^a 0.865 to 2	1.2	ND	4,700	0/7	110,000	0/7
Copper	6/7	0.24 to 2.5	^a 3.55 to 456	95	ND	^a 2,900	0/7	^a 7,200	0/7
Lead	7/7	NA	4.9 to 82.9	29.6	ND	500	0/7	1,000	0/7
Mercury	2/7	0.03 to 0.1	0.04 to 0.04	0.04	ND	23	0/7	480	0/7
Nickel	5/7	1.1 to 1.4	3.8 to 81.3	26.6	ND	1,500	0/7	26,000	0/7
Thallium	1/7	0.15 to 0.21	0.23	0.23	1.8	NS	0/7	NS	0/7
Tin	2/7	2.4 to 3.1	3.2 to 31.9	17.6	ND	44,000	0/7	670,000	0/7
Vanadium	7/7	NA	3.8 to 17.9	9.1	4	490	0/7	4,800	0/7
Zinc	7/7	NA	^a 16.8 to 161	62.1	2.6	23,000	0/7	560,000	0/7
Cyanide	2/7	0.09 to 1	0.16 to 0.21	0.19	ND	1,600	0/7	40,000	0/7

See notes at end of table.

Table 3-11 (Continued)
Summary of Chemicals Detected in Surface Soil Samples
Collected South of Building 55 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

¹ Frequency of detection is the number of samples locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-23-SS13, MPT-23-SS14, MPT-23-SS40, MPT-23-SS41, MPT-23-SS42, MPT-23-SS43, and MPT-23-SS44 were used to make this table. The detection of an analyte in either sample 23S04401 or duplicate 23S04401DUP was used to represent a value for sampling location MPT-23-SS44.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-23-SS14, MPT-23-SS40, MPT-23-SS41, MPT-23-SS42, MPT-23-SS43, and MPT-23-SS44) is the average of in which the analyte was detected. The value used for sampling location MPT-23-SS44 is the average of sample 23S04401 and associated duplicate 23S04401DUP. The mean does not include those samples with "R", "U", or "UJ" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995. The average concentration for an analyte detected in sample 23S04401 and duplicate 23S04401DUP was used to represent a value for sampling location MPT-23-SS44.

⁶ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.

⁷ The value is based on the hexavalent form of chromium.

⁸ The value is the average of a sample and its duplicate. For duplicate samples having one nondetect value, one-half of the contract-required quantification limit/contract-required detection limit is used as a surrogate concentration for the nondetected concentration.

⁹ FDEP, 1995, Memorandum, Ligia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE., Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.

µg/kg = micrograms per kilogram.

ND = analyte not detected in background surface soil samples (GIR: ABB-ES, 1995).

mg/kg = milligrams per kilogram.

NA = not applicable, analyte detected in each sample.

NS = no screening concentration available for the analyte.

industrial goal. Arsenic was detected in two surface soil samples at concentrations exceeding the industrial soil cleanup goal and in five samples at concentrations exceeding the residential goal (Figure 3-3). Beryllium was detected in three samples at concentrations exceeding the FDEP residential soil cleanup goal, but not the industrial soil cleanup goal.

Arsenic and beryllium were detected in subsurface soil samples at concentrations that exceed FDEP soil cleanup goals (Table 3-12). Arsenic was detected in three samples at concentrations exceeding the FDEP residential soil cleanup goal, but not the industrial goal (Figure 3-4). Beryllium was detected in one sample (MPT-23-SB44) at a concentration that exceeds the FDEP residential soil cleanup goal, but not the industrial soil cleanup goal.

3.1.4 South of Building 57 Inorganic analytes detected in the surface and subsurface soil samples are provided in Tables 3-13 and 3-14, respectively. Arsenic and beryllium were detected in surface (Table 3-15) and subsurface soil samples (Table 3-16) at concentrations exceeding FDEP soil cleanup goals. Arsenic was detected in three surface soil samples at concentrations exceeding the FDEP residential soil cleanup goal (Figure 3-5), but did not exceed the industrial soil cleanup goal. Arsenic was detected in each of the three subsurface soil samples at concentrations exceeding the FDEP residential soil cleanup goal, but did not exceed the industrial soil cleanup goal (Figure 3-6).

Beryllium was detected in two surface soil samples (MPT-23-SS24 and MPT-23-SS47) at concentrations exceeding the industrial FDEP soil cleanup goals and in two samples exceeding the residential soil cleanup goal (Figure 3-7). Two of the subsurface soil samples (MPT-23-SB45 and MPT-23-SB47) also contained beryllium at concentrations exceeding the industrial FDEP soil cleanup goals (Figure 3-8).

The occurrence of beryllium in the surface soil samples is likely associated with the Black Beauty™ that occurs at the area sampled. Please refer to the picture for this site area in Appendix C. Black Beauty™ was observed to be part of the matrix of both the surface and subsurface soil samples.

3.2 SWMU 24. Organic and inorganic analytes detected in surface and subsurface soil samples collected at SWMU 24 are provided in Tables 3-17 and 3-18. Dibenz(a,h)anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, arsenic, and beryllium were detected in surface soil samples at concentrations exceeding FDEP soil cleanup goals (Table 3-19). Benzo(a)pyrene, arsenic, and beryllium were detected in subsurface soil samples at concentrations exceeding FDEP soil cleanup goals (Table 3-20).

The SVOCs (dibenz(a,h)anthracene, benzo(a)anthracene, and benzo(b)fluoranthene) were detected in surface soil samples at concentrations that exceed the FDEP residential soil cleanup goals, but did not exceed the industrial soil cleanup goals. Benzo(a)pyrene was detected in surface soil samples from locations MPT-24-MW01S and MPT-24-SS08 at concentrations that exceed the FDEP industrial soil cleanup goals.

Benzo(a)pyrene was detected in one subsurface soil sample (MPT-24-SB08) at a concentration that exceeded the FDEP residential soil cleanup goal, but did not exceed the industrial soil cleanup goal.

Table 3-12
Summary of Chemicals Detected in Subsurface Soil Samples
Collected South of Building 55 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (mg/kg)									
Arsenic	5/5	NA	⁶ 0.56 to 1.2	0.86	ND	⁷ 0.8	3/5	⁸ 3.7	0/5
Barium	5/5	NA	⁶ 3.85 to 13.5	6.9	5.6	52,000	0/5	84,000	0/5
Beryllium	4/5	0.027 to 0.03	0.03 to 0.22	0.09	0.16	0.2	1/5	1.0	0/5
Chromium	5/5	NA	⁶ 2.05 to 6.9	3.5	2.6	⁹ 290	0/5	⁹ 430	0/5
Cobalt	1/5	0.52 to 0.62	1.4	1.4	ND	4,700	0/5	110,000	0/5
Copper	3/5	0.25 to 1.6	4.3 to 15	8	2.2	⁹ 2,900	0/5	⁹ 7,200	0/5
Lead	5/5	NA	⁶ 1.6 to 51.5	16	ND	500	0/5	1,000	0/5
Mercury	1/5	0.028 to 0.03	0.09	0.09	ND	23	0/5	480	0/5
Nickel	3/5	1.1 to 1.4	1.3 to 4.2	2.7	ND	1,500	0/5	26,000	0/5
Thallium	3/5	0.16 to 0.2	⁶ 0.1425 to 0.18	0.16	1.8	NS	0/5	NS	0/5
Tin	1/5	2.5 to 2.9	11.1	11.1	ND	44,000	0/5	670,000	0/5
Vanadium	5/5	NA	2.1 to 5.4	2.9	4	490	0/5	4,800	0/5
Zinc	5/5	NA	⁷ 7 to 54.7	20.2	26	23,000	0/5	560,000	0/5
Cyanide	1/5	0.09 to 0.11	3.9 to 3.9	3.9	ND	1,600	0/5	40,000	0/5

See notes at end of table.

Table 3-12 (Continued)
Summary of Chemicals Detected in Subsurface Soil Samples
Collected South of Building 55 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-23-SB40, MPT-23-SB41, MPT-23-SB42, MPT-23-SB43, and MPT-23-SB44 were used to make this table. The detection of an analyte in either sample 23B04002 or duplicate 23B04002DUP was used to represent a value for sample location MPT-23-SB40.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-23-SB40, MPT-23-SB41, MPT-23-SB42, MPT-23-SB43, and MPT-23-SB44) in which the analyte was detected. The value used for sample location MPT-23-SB40 is the average of sample 23B04002 and associated duplicate 23B04002DUP. The mean does not include those samples with "R", "U", or "UJ" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁶ The average concentration for an analyte detected in sample 23B04002 and duplicate 23B04002DUP was used to represent a value for sample location MPT-23-SB40.

⁷ The value is the average of a sample and its duplicate. For duplicate samples having one nondetect value, one-half of the contract-required quantification limit/contract-required detection limit is used as a surrogate concentration for the nondetected concentration.

⁸ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.

⁹ The value is based on the hexavalent form of chromium.

¹⁰ FDEP, 1995, Memorandum, Ugia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE.; Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.
 mg/kg = milligrams per kilogram.
 NA = not applicable, analyte detected in each sample.
 ND = analyte not detected in background subsurface soil samples (GIR; ABB-ES, 1995).
 NS = no screening concentration available.

**Table 3-13
Inorganic Analytes Detected in Surface Soil Samples
Collected South of Building 57 at SWMU 23**

Interim Measure Performance Specifications
Group III SWMUs 23, 24, and 25
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	M8775	MB278	MB278	MB278
Sample Location:	MPT-23-SS24	MPT-23-SS45	MPT-23-SS46	MPT-23-SS47
Sample Number:	23S02401	23S04501	23S04601	23S04701
Date Sampled:	07-APR-95	26-JUN-96	26-JUN-96	26-JUN-96
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1	0 to 1
<u>Inorganic Analytes (mg/kg)</u>				
Antimony	3.2 J	-	0.83 J	1.2
Arsenic	0.88 J	0.75 J	1.5 J	1.7 J
Barium	126	40.7 J	30.5 J	142
Beryllium	1.9	0.54 J	0.37 J	2
Cadmium	1.5	1.7	-	0.95 J
Chromium	28.3	8.9	10.4	30.7
Cobalt	8.4 J	2.3 J	2.1 J	9 J
Copper	52.5	18.2	19.6	75.9
Lead	41.8	24.4 J	49.2 J	88.6 J
Nickel	19.3	5.6 J	4.2 J	25.4
Thallium	-	-	0.65 J	-
Tin	4.5 J	-	-	8.8 J
Vanadium	23.4	7.7 J	9.6 J	25.4
Zinc	301	171	115	361
<p>Notes: SWMU = solid waste management unit. ft bls = feet below land surface. mg/kg = milligrams per kilogram. J = estimated value - = concentration of analyte, if present, was less than detection limit.</p>				

**Table 3-14
Inorganic Analytes Detected in Subsurface Soil Samples
Collected South of Building 57 at SWMU 23**

Interim Measure Performance Specifications
Group III SWMUs 23, 24, and 25
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	MB278	MB278	MB278
Sample Location:	MPT-23-SB45	MPT-23-SB46	MPT-23-SB47
Sample Number:	23B04502	23B04602	23B04702
Date Sampled:	26-JUN-96	26-JUN-96	26-JUN-96
Sample Depth (ft bls):	1 to 2	1 to 2	1 to 2
<u>Inorganic Analytes (mg/kg)</u>			
Antimony	1.3	2.5	1.3
Arsenic	0.86 J	0.98 J	1.4 J
Barium	42.1 J	10.2 J	100
Beryllium	1.5	0.19 J	3.1
Chromium	16.5	14.2	36.1
Cobalt	5.7 J	1.1 J	10.2 J
Copper	310	14	605
Lead	158 J	56.7 J	273 J
Mercury	-	-	0.06 J
Nickel	30	3.5 J	57.1
Tin	47.7	-	87.8
Vanadium	10.2 J	7.2 J	12.8
Zinc	751	192	1,550
Notes: SWMU = solid waste management unit. ft bls = feet below land surface. mg/kg = milligrams per kilogram. J = estimated value - = concentration of analyte, if present, was less than detection limit.			

Table 3-15
Summary of Chemicals Detected in Surface Soil Samples
Collected South of Building 57 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentration ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (mg/kg)									
Antimony	3/4	0.45 to 0.55	0.83 to 3.2	1.7	ND	26	0/4	220	0/4
Arsenic	4/4	NA	0.75 to 1.7	1.2	ND	⁶ 0.8	3/4	⁶ 3.7	0/4
Barium	4/4	NA	30.5 to 142	84.8	5.6	52,000	0/4	84,000	0/4
Beryllium	4/4	NA	0.37 to 2	1.2	0.16	0.2	4/4	1.0	2/4
Cadmium	3/4	0.54 to 0.72	0.95 to 1.7	1.4	2	37	0/4	600	0/4
Chromium	4/4	NA	8.9 to 30.7	19.6	2.6	⁷ 290	0/4	⁷ 430	0/4
Cobalt	4/4	NA	2.1 to 9	5.4	ND	4,700	0/4	110,000	0/4
Copper	4/4	NA	18.2 to 75.9	41.6	2.2	⁸ 2,900	0/4	⁸ 7,200	0/4
Lead	4/4	NA	24.4 to 88.6	51	ND	500	0/4	1,000	0/4
Nickel	4/4	NA	4.2 to 25.4	13.6	ND	1,500	0/4	28,000	0/4
Thallium	1/4	0.16 to 0.36	0.65	0.65	1.8	NS	0/4	NS	0/4
Tin	2/4	1.6 to 2.6	4.5 to 8.8	6.7	ND	44,000	0/4	670,000	0/4
Vanadium	4/4	0.35 to 0.39	7.7 to 25.4	16.5	4	490	0/4	4,800	0/4
Zinc	4/4	NA	115 to 361	237	2.6	23,000	0/4	560,000	0/4

See notes at end of table.

Table 3-15 (Continued)
Summary of Chemicals Detected in Surface Soil Samples
Collected South of Building 57 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-23-SS24, MPT-23-SS45, MPT-23-SS46, and MPT-23-SS47 were used to make this table.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-23-SS24, MPT-23-SS45, MPT-23-SS46, and MPT-23-SS47) in which the analyte was detected. The mean does not include those samples with "R", "U", or "UU" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁶ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.

⁷ The value is based on the hexavalent form of chromium.

⁸ FDEP, 1995, Memorandum, Uglia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE., Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.
 mg/kg = milligrams per kilogram.
 ND = analyte not detected in background surface soil samples (GIR, ABB-ES, 1995).
 NA = not applicable, analyte detected in each sample.
 NS = no screening concentration available.

Table 3-16
Summary of Chemicals Detected in Subsurface Soil Samples
Collected South of Building 57 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (mg/kg)									
Antimony	3/3	NA	1.3 to 2.5	1.7	ND	26	0/3	220	0/3
Arsenic	3/3	NA	0.86 to 1.4	1.1	ND	0.8	3/3	3.7	0/3
Barium	3/3	NA	10.2 to 100	50.8	5.6	52,000	0/3	84,000	0/3
Beryllium	3/3	NA	0.19 to 3.1	1.6	0.16	0.2	2/3	1.0	2/3
Chromium	3/3	NA	14.2 to 36.1	22.3	2.6	290	0/3	7430	0/3
Cobalt	3/3	NA	1.1 to 10.2	5.7	ND	4,700	0/3	110,000	0/3
Copper	3/3	NA	14 to 605	310	2.2	2,900	0/3	7,200	0/3
Lead	3/3	NA	56.7 to 273	163	ND	500	0/3	1,000	0/3
Mercury	1/3	0.029 to 0.03	0.06	0.06	ND	23	0/3	480	0/3
Nickel	3/3	NA	3.5 to 57.1	30.2	ND	1,500	0/3	26,000	0/3
Tin	2/3	2.5	47.7 to 87.8	67.8	ND	44,000	0/3	670,000	0/3
Vanadium	3/3	NA	7.2 to 12.8	10.1	4	490	0/3	4,800	0/3
Zinc	3/3	NA	192 to 1,550	831	2.6	23,000	0/3	560,000	0/3

See notes at end of table.

Table 3-16 (Continued)
Summary of Chemicals Detected in Subsurface Soil Samples
Collected South of Building 57 at SWMU 23

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

- ¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-23-SB45, MPT-23-SB48, and MPT-23-SB47 were used in this table.
- ² The mean of detected concentrations is the arithmetic mean of all samples (MPT-23-SB45, MPT-23-SB48, and MPT-23-SB47) in which the analyte was detected. The mean does not include those samples with "R", "U", or "UJ" validation qualifiers.
- ³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).
- ⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.
- ⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995.
- ⁶ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.
- ⁷ The value is based on the hexavalent form of chromium.
- ⁸ FDEP, 1995, Memorandum, Ligia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE., Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.

mg/kg = milligrams per kilogram

NA = not applicable, analyte detected in each sample.

ND = analyte not detected in background subsurface soil samples (GIR; ABB-ES, 1995).

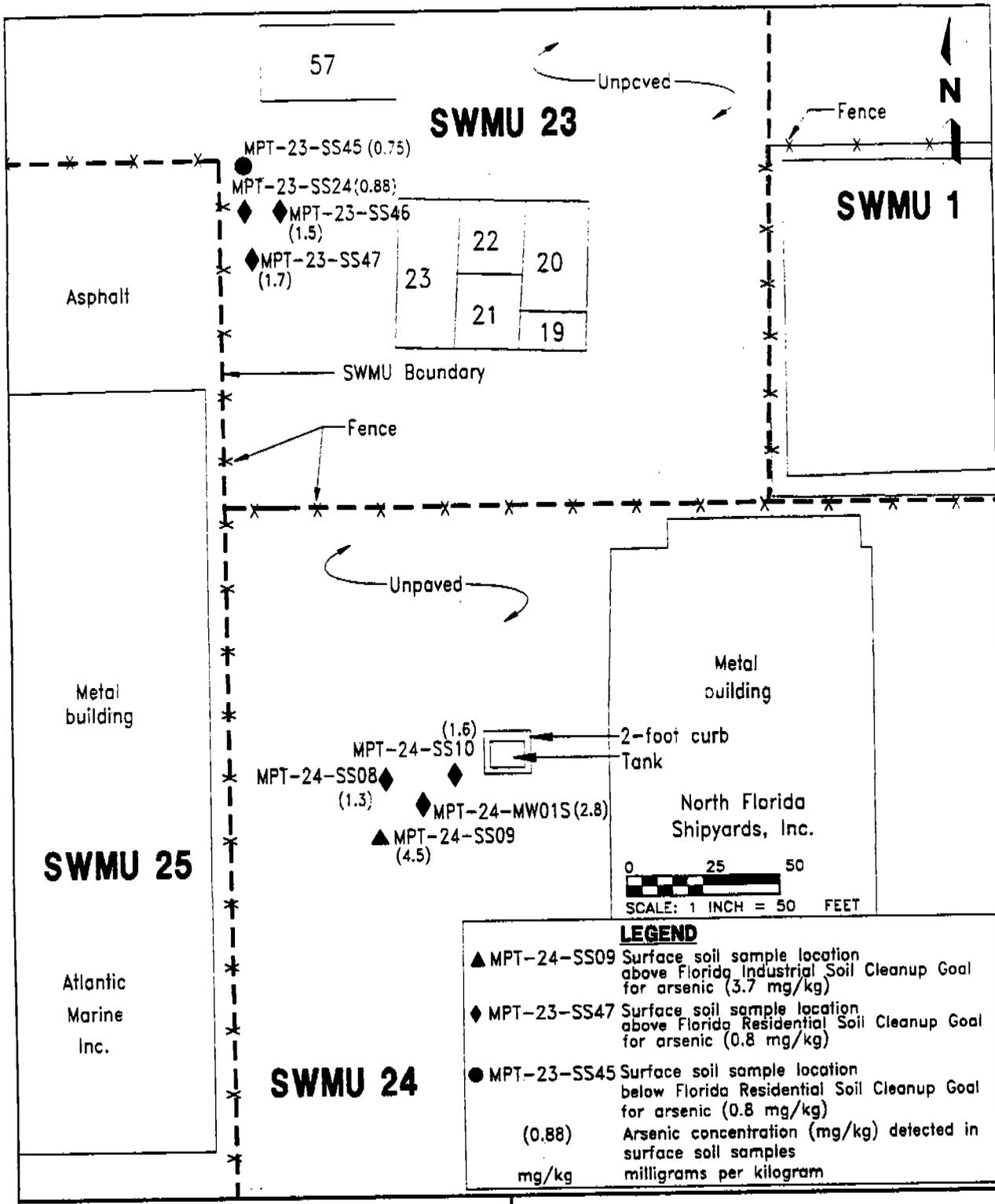


FIGURE 3-5
ARSENIC DETECTED IN SURFACE SOIL SAMPLES
COLLECTED SOUTH OF BUILDING 57
AT SWMU 23, AND AT NORTH FLORIDA
SHOPYARDS INC., SWMU 24



INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25

U.S. NAVAL STATION
MAYPORT, FLORIDA

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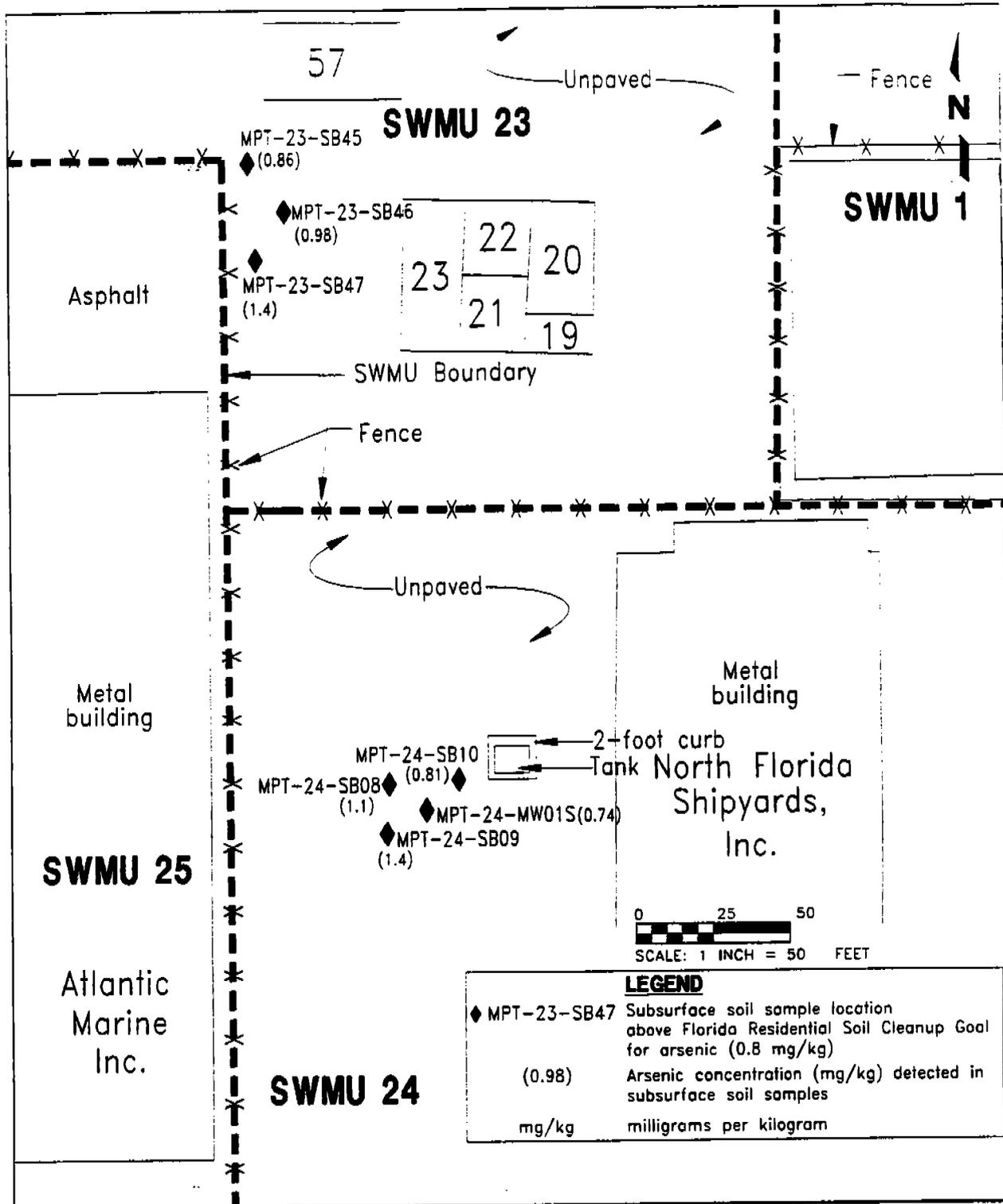


FIGURE 3-6
ARSENIC DETECTED IN SUBSURFACE SOIL SAMPLES
COLLECTED SOUTH OF BUILDING 57
AT SWMU 23, AND AT NORTH FLORIDA
SHOPYARDS INC., SWMU 24



INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25

U.S. NAVAL STATION
MAYPORT, FLORIDA

14- /MPT/IMR/FIGD-1/NP-MW/02-27-97

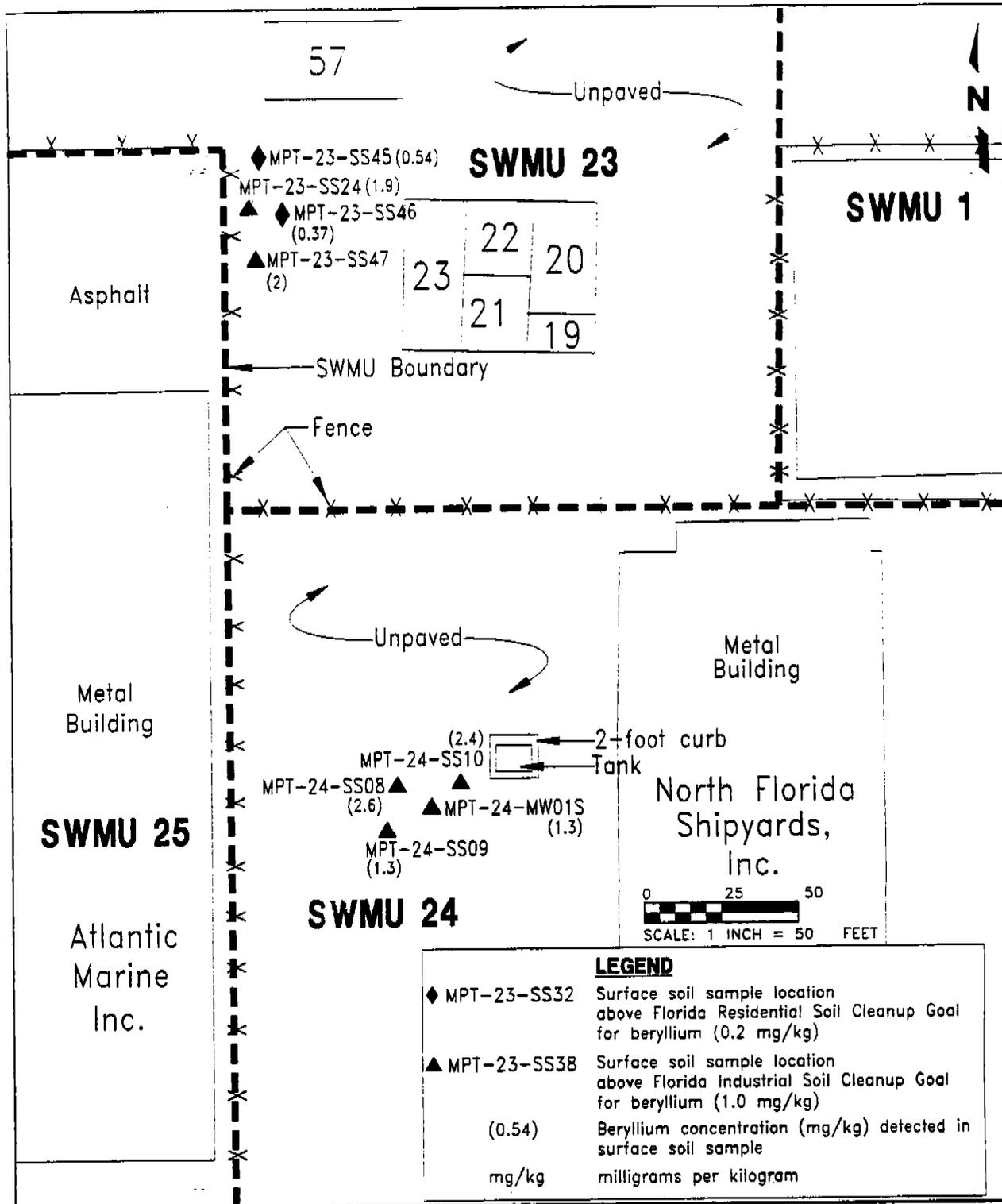
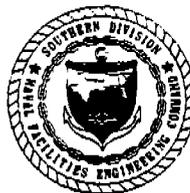


FIGURE 3-7
BERYLLIUM DETECTED IN SURFACE SOIL
SAMPLES COLLECTED SOUTH OF BUILDING 57 AT
SWMU 23 AND AT NORTH FLORIDA
SHIPYARDS INC., SWMU 24



INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25

U.S. NAVAL STATION
MAYPORT, FLORIDA

H- /MPT/IMR/FIGG/NP-MW/02-27-97

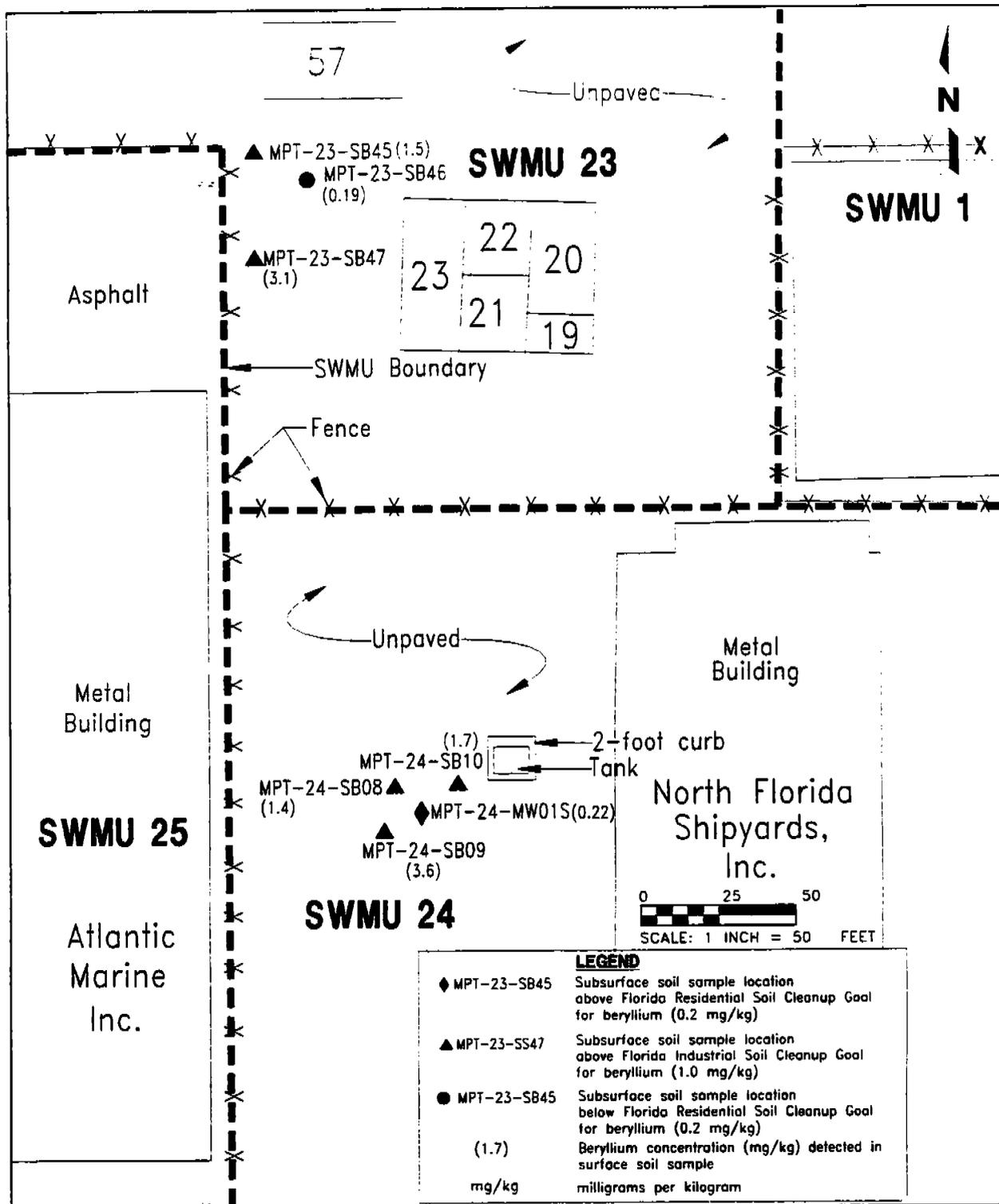


FIGURE 3-8
BERYLLIUM DETECTED IN SUBSURFACE SOIL
SAMPLES COLLECTED SOUTH OF BUILDING 57 AT
SWMU 23 AND AT NORTH FLORIDA
SHIPYARDS INC., SWMU 24



INTERIM MEASURE
PERFORMANCE SPECIFICATIONS
GROUP III SWMUs 23, 24, AND 25

U.S. NAVAL STATION
MAYPORT, FLORIDA

Table 3-17
Organic and Inorganic Analytes Detected in Surface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	MB985	MB280	MB280	MB280	MB280	MB280	MB280	MB280
Sample Location:	MPT-24-MW01S	MPT-24-MW01S	MPT-24-SS08	MPT-24-SS08	MPT-24-SS08	MPT-24-SS09	MPT-24-SS10	
Location Number:	24S00701	24S00701DUP	24S00801	24S00801DUP	24S00801DUP	24S00901	24S01001	
Date Sampled:	19-MAY-95	19-MAY-95	27-JUN-96	27-JUN-96	27-JUN-96	27-JUN-96	27-JUN-96	
Sample Depth (ft bis):	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	
Semivolatile Organic Compounds (µg/kg)								
Naphthalene	--	--	--	--	--	--	2,300	
2-Methylnaphthalene	--	--	--	--	--	--	6,300	
Acenaphthene	--	--	320 J	250 J	59 J	58 J	--	
Fluorene	--	--	260 J	220 J	570	130 J	240 J	
Phenanthrene	760 J	650 J	2,500	650 J	200 J	800	340 J	
Anthracene	180 J	--	730	--	740	400	210 J	
Di-n-Butylphthalate	--	--	--	--	--	440	270 J	
Fluoranthene	1,000 J	1,200 J	3,800	3,700	800	400	--	
Pyrene	870 J	1,000 J	4,400	4,300	740	400	620 J	
Benzo(a)anthracene	600 J	580 J	2,200	2,100	400	340 J	240 J	
Chrysene	720 J	640 J	2,300	2,200	440	370	200 J	
bis(2-Ethylhexyl)phthalate	640 J	670 J	--	--	--	350 J	250 J	
Di-n-octylphthalate	--	--	--	--	--	160 J	230 J	
Benzo(b)fluoranthene	570 J	520 J	1,500	1,400	340 J	59 J	300 J	
Benzo(k)fluoranthene	560 J	570 J	1,600	1,600	370	--	--	
Benzo(a)pyrene	500 J	510 J	1,800	1,800	350 J	--	--	
Indeno(1,2,3-cd)pyrene	410 J	350 J	1,100	1,100	160 J	--	--	
Dibenz(a,h)anthracene	270 J	--	420 J	400 J	59 J	--	--	
Benzo(g,h,i)perylene	400 J	330 J	1,200	1,200	170 J	--	--	

See notes at end of table.

Table 3-17 (Continued)
Organic and Inorganic Analytes Detected in Surface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	MB985	MB985	MB280	MB280	MB280	MB280	MB280
Sample Location:	MPT-24-MW01S	MPT-24-MW01S	MPT-24-SS08	MPT-24-SS08	MPT-24-SS08	MPT-24-SS09	MPT-24-SS10
Location Number:	24S00701	24S00701DUP	24S00801	24S00801DUP	24S00801DUP	24S00901	24S01001
Date Sampled:	19-MAY-95	19-MAY-95	27-JUN-96	27-JUN-96	27-JUN-96	27-JUN-96	27-JUN-96
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Inorganic Analytes (mg/kg)							
Antimony	--	1.3	5.6 J	2.1 J	4.6 J	2.1 J	2.1 J
Arsenic	2.7	2.8	1.2 J	1.4 J	4.5 J	1.6 J	1.6 J
Barium	95.8	120	91.2	92.2	105	126	126
Beryllium	1.2	1.3	2.2	3.0	1.3	2.4	2.4
Cadmium	0.93 J	1.0 J	--	--	0.93 J	0.73 J	0.73 J
Chromium	37.4	44.1	31.5 J	40.2 J	35.5 J	34.6 J	34.6 J
Cobalt	14	18	16.4	25.4	11.9	18.4	18.4
Copper	411	449	1,070 J	923 J	567 J	622 J	622 J
Lead	109	93.1	194	189	214	304	304
Mercury	0.24 J	0.1 J	0.03 J	0.03 J	0.03 J	0.06 J	0.06 J
Nickel	18.1	20.4	53	57.3	24.3	47.7	47.7
Selenium	0.54 J	0.67 J	--	--	--	--	--
Tin	9.2 J	9.6 J	82.7 J	78.1 J	31.5 J	54.6 J	54.6 J
Vanadium	19.6	22.6	12.7	15.6	13.1	23.3	23.3
Zinc	1,450	1,430	2,420	3,130	1,650	2,030	2,030

Notes: SWMU = solid waste management unit. mg/kg = milligrams per kilogram.
 DUP = duplicate. -- = concentration of analyte, if present, was less than detection limit.
 ft bls = feet below land surface. J = estimated value.
 µg/kg = micrograms per kilogram.

Table 3-18
Organic and Inorganic Analytes Detected in Subsurface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	M8994	MB280	MB280	MB280
Sample Location:	MPT-24-MW01S	MPT-24-SB08	MPT-24-SB09	MPT-24-SB010
Sample Number:	24B00707	24B00802	24B00902	24B01002
Date Sampled:	19-MAY-95	27-JUN-96	27-JUN-96	27-JUN-96
Sample Depth (ft bis):	6 to 7	1 to 2	1 to 2	1 to 2
Semivolatile Organic Compounds (µg/kg)				
Naphthalene	-	-	-	48,000
2-Methylnaphthalene	-	-	-	81,000
N-Nitrosodiphenylamine (1)	-	-	38 J	-
Phenanthrene	-	190 J	-	-
Anthracene	-	54 J	-	-
Fluoranthene	-	310 J	-	-
Pyrene	-	350 J	-	-
Benzo(a)anthracene	-	170 J	-	-
Chrysene	-	190 J	-	-
Bis(2-Ethylhexyl)phthalate	60 J	-	-	-
Benzo(b)fluoranthene	-	130 J	-	-
Benzo(k)fluoranthene	-	130 J	-	-
Benzo(a)pyrene	-	150 J	-	-
Indeno(1,2,3-cd)pyrene	-	110 J	-	-
Dibenz(a,h)anthracene	-	38 J	-	-
Benzo(g,h,i)perylene	-	120 J	-	-
Inorganic Analytes (mg/kg)				
Antimony	0.59 J	1.6 J	2.8 J	1.4 J
Arsenic	0.74 J	1.1 J	1.4 J	0.81 J
Barium	4.7 J	51.1	74.8	40.5 J
Beryllium	0.22 J	1.4	3.6	1.7
Cadmium	-	0.78 J	-	0.92 J
Chromium	3.2	21.1 J	29.6 J	24.6 J
Cobalt	-	6.7 J	12.6	6.7 J
Copper	22.5	348 J	815 J	308 J
Lead	16.9	74.4	285	171
Mercury	-	0.04 J	0.03 J	0.05 J
Nickel	3.9 J	29.3	88.1	35.1
See notes at end of table.				

Table 3-18 (Continued)
Organic and Inorganic Analytes Detected in Subsurface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	M8994	MB280	MB280	MB280
Sample Location:	MPT-24-MW01S	MPT-24-SB08	MPT-24-SB09	MPT-24-SB010
Sample Number:	24B00707	24B00802	24B00902	24B01002
Date Sampled:	19-MAY-95	27-JUN-96	27-JUN-96	27-JUN-96
Sample Depth (ft bls):	6 to 7	1 to 2	1 to 2	1 to 2

Inorganic Analytes (mg/kg) (Continued)				
Nickel	3.9 J	29.3	88.1	35.1
Selenium	0.44 J	-	-	-
Tin	62	40.7 J	133 J	48.1 J
Vanadium	1.7 J	10.9 J	13.1	10.1 J
Zinc	56.6	1,000	1,830	1,710

Notes: SWMU = solid waste management unit.
 ft bls = feet below land surface.
 µg/kg = micrograms per kilogram.
 -- = concentration of analyte, if present, was less than detection limit.
 J = estimated value.
 mg/kg = milligrams per kilogram.

Table 3-19
Summary of Chemicals Detected in Surface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Semi-volatile Organic Compounds (µg/kg)									
Dibenz(a,h)anthracene	3/4	350 to 1,800	59 to ^a 410	235	ND	100	2/4	500	0/4
2-Methylnaphthalene	1/4	350 to 1,800	6,300	6,300	ND	960,000	0/4	8,800,000	0/4
Acenaphthene	2/4	350 to 1,800	59 to ^a 285	172	ND	2,800,000	0/4	30,000,000	0/4
Anthracene	3/4	350 to 1,800	130 to ^a 690	453	ND	20,000,000	0/4	300,000,000	0/4
Benzo(a)anthracene	4/4	NA	210 to ^a 2,150	838	ND	1,400	1/4	4,900	0/4
Benzo(a)pyrene	4/4	NA	250 to ^a 1,800	726	NA	100	4/4	500	2/4
Benzo(b)fluoranthene	4/4	NA	240 to ^a 1,450	644	ND	1,400	1/4	5,000	0/4
Benzo(g,h,i)perylene	4/4	NA	170 to ^a 1,200	509	ND	14,000	0/4	50,000	0/4
Benzo(k)fluoranthene	4/4	NA	200 to ^a 1,600	684	ND	14,000	0/4	48,000	0/4
Chrysene	4/4	NA	270 to ^a 2,250	910	ND	140,000	0/4	500,000	0/4
Di-n-butylphthalate	1/4	350 to 1,800	200	200	ND	7,300,000	0/4	140,000,000	0/4
Di-n-octylphthalate	1/4	350 to 1,800	620	620	ND	15,000,000	0/4	32,000,000	0/4
Fluoranthene	4/4	NA	340 to ^a 3,750	1,498	ND	2,900,000	0/4	48,000,000	0/4
Fluorene	2/4	350 to 1,800	58 to ^a 240	149	ND	2,400,000	0/4	30,000,000	0/4
Indeno(1,2,3-cd)pyrene	4/4	NA	160 to ^a 1,100	468	ND	1,400	0/4	5,000	0/4
Naphthalene	1/4	350 to 1,800	2,300	2,300	ND	1,300,000	0/4	12,000,000	0/4
Phenanthrene	4/4	NA	240 to ^a 2,400	979	ND	1,700,000	0/4	21,000,000	0/4
Pyrene	4/4	NA	410 to ^a 4,350	1,609	ND	2,200,000	0/4	41,000,000	0/4
bis(2-Ethylhexyl) phthalate	1/4	705 to 1,800	^a 655	655	ND	48,000	0/4	110,000	0/4

See notes at end of table.

Table 3-19 (Continued)
Summary of Chemicals Detected in Surface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Inorganic Analytes (mg/kg)									
Antimony	4/4	NA	⁶ 0.7625 to 4.6	2.8	ND	26	0/4	220	0/4
Arsenic	4/4	NA	⁶ 1.3 to 4.5	2.5	ND	⁷ 0.8	4/4	⁷ 3.7	1/4
Barium	4/4	NA	⁹ 1.7 to 126	108	5.6	52,000	0/4	84,000	0/4
Beryllium	4/4	NA	⁶ 1.25 to ² 2.6	1.9	0.16	0.2	4/4	1.0	4/4
Cadmium	3/4	0.62 to 0.7	0.73 to ⁶ 0.985	0.88	2	37	0/4	600	0/4
Chromium	4/4	NA	34.6 to ⁶ 40.75	36.7	2.6	⁸ 290	0/4	⁹ 430	0/4
Cobalt	4/4	NA	11.9 to ⁶ 20.9	16.5	ND	4,700	0/4	110,000	0/4
Copper	4/4	NA	⁶ 430 to ⁹ 996.5	654	2.2	⁶ 2,900	0/4	⁹ 7,200	0/4
Lead	4/4	NA	⁶ 101.05 to 304	203	ND	500	0/4	1,000	0/4
Mercury	4/4	NA	⁶ 0.03 to ⁶ 0.17	0.07	ND	23	0/4	480	0/4
Nickel	4/4	NA	⁶ 19.25 to ⁵ 55.15	36.6	ND	1,500	0/4	26,000	0/4
Selenium	1/4	0.23 to 0.27	⁶ 0.605	0.61	1.36	390	0/4	9,900	0/4
Tin	4/4	NA	⁶ 9.4 to ⁸ 80.4	44	ND	44,000	0/4	670,000	0/4
Vanadium	4/4	NA	13.1 to 23.3	17.9	4	480	0/4	4,800	0/4
Zinc	4/4	NA	⁶ 1,440 to ² 2,775	1,974	2.6	23,000	0/4	560,000	0/4

See notes at end of table.

Table 3-19 (Continued)
Summary of Chemicals Detected in Surface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). The values for sampling location MPT-24-MW01S is the averages of sample 24S00701 and associated duplicate 24S00701DUP. The detection of an analyte in either sample 24S00801 or duplicate 24S00801DUP was used to represent sampling location MPT-24-SS08.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-24-MW01S, MPT-24-SS08, MPT-24-SS09, and MPT-24-SS10) in which the analyte was detected. Sampling locations MPT-24-MW01S, MPT-24-SS08, MPT-24-SS09, and MPT-24-SS10 were used to make this table. The values for sampling location MPT-24-MW01S is the averages of sample 24S00701 and associated duplicate 24S00701DUP. The values for sampling location MPT-24-SS08 is the averages of sample 24S00801 and associated duplicate 24S00801DUP. The values for sampling location MPT-24-SS09 is the averages of samples with "R", "U", or "UJ" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995. The average concentration for an analyte detected in sample 24S00801 and duplicate 24S00801DUP was used to represent sampling location MPT-24-SS08.

⁶ The value is the average of a sample and its duplicate. For duplicate samples having one nondetect value, one-half of the contract-required quantification limit/contract-required detection limit is used as a surrogate concentration for the nondetected concentration.

⁷ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.

⁸ The value is based on the hexavalent form of chromium.

⁹ FDEP, 1995, Memorandum, Ligia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE., Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.
 µg/kg = micrograms per kilogram.
 ND = analyte not detected in background surface soil samples (GIR; ABB-ES, 1995).
 NA = not applicable, analyte detected in each sample.
 mg/kg = milligrams per kilogram.

Table 3-20
Summary of Chemicals Detected in Subsurface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Semi-volatile Organic Compounds (µg/kg)									
Dibenz(a,h)anthracene	1/4	350 to 18,000	38	38	ND	100	0/4	500	0/4
N-Nitrosodiphenylamine	1/4	350 to 18,000	38	38	ND	73,000	0/4	130,000	0/4
2-Methylnaphthalene	1/4	350 to 18,000	81,000	81,000	ND	960,000	0/4	8,800,000	0/4
Anthracene	1/4	350 to 18,000	54	54	ND	20,000,000	0/4	300,000,000	0/4
Benzo(a)anthracene	1/4	350 to 18,000	170	170	ND	1,400	0/4	4,900	0/4
Benzo(a)pyrene	1/4	350 to 18,000	150	150	ND	100	1/4	500	0/4
Benzo(b)fluoranthene	1/4	350 to 18,000	130	130	ND	1,400	0/4	5,000	0/4
Benzo(g,h,i)perylene	1/4	350 to 18,000	120	120	ND	14,000	0/4	50,000	0/4
Benzo(k)fluoranthene	1/4	350 to 18,000	130	130	ND	14,000	0/4	48,000	0/4
Chrysene	1/4	350 to 18,000	190	190	ND	140,000	0/4	500,000	0/4
Fluoranthene	1/4	350 to 18,000	310	310	ND	2,900,000	0/4	48,000,000	0/4
Indeno(1,2,3-cd)pyrene	1/4	350 to 18,000	110	110	ND	1,400	0/4	5,000	0/4
Naphthalene	1/4	350 to 18,000	48,000	48,000	ND	1,300,000	0/4	12,000,000	0/4
Phenanthrene	1/4	350 to 18,000	190	190	ND	1,700,000	0/4	21,000,000	0/4
Pyrene	1/4	350 to 18,000	350	350	ND	2,200,000	0/4	41,000,000	0/4
Bis(2-Ethylhexyl)phthalate	1/4	370 to 18,000	60	60	ND	2,200,000	0/4	41,000,000	0/4

See notes at end of table.

Table 3-20 (Continued)
Summary of Chemicals Detected in Subsurface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
<u>Inorganic Analytes (mg/kg)</u>									
Antimony	4/4	NA	1.4 to 2.8	1.6	ND	26	0/4	220	0/4
Arsenic	4/4	NA	0.74 to 1.4	1	ND	^a 0.8	3/4	^a 3.7	0/4
Barium	4/4	NA	4.7 to 74.8	42.8	5.6	52,000	0/4	84,000	0/4
Beryllium	4/4	NA	0.22 to 3.6	1.7	0.16	0.2	4/4	1.0	3/4
Cadmium	2/4	0.65 to 0.74	0.78 to 0.92	0.85	2	37	0/4	600	0/4
Chromium	4/4	NA	3.2 to 29.6	19.6	2.6	^b 290	0/4	^b 430	0/4
Cobalt	3/4	0.53 to 0.83	6.7 to 12.6	8.7	ND	4,700	0/4	110,000	0/4
Copper	4/4	NA	22.5 to 815	373	ND	^a 2,900	0/4	^a 7,200	0/4
Lead	4/4	NA	16.9 to 285	137	ND	500	0/4	1,000	0/4
Mercury	3/4	0.029 to 0.07	0.03 to 0.05	0.04	ND	23	0/4	480	0/4
Nickel	4/4	NA	3.9 to 88.1	39.1	ND	1,500	0/4	26,000	0/4
Selenium	1/4	0.25 to 0.28	0.44	0.44	1.36	390	0/4	9,900	0/4
Tin	4/4	NA	40.7 to 133	71	ND	44,000	0/4	670,000	0/4
Vanadium	4/4	NA	1.7 to 13.1	9	4	490	0/4	4,800	0/4
Zinc	4/4	NA	56.6 to 1,830	1,149	2.6	23,000	0/4	560,000	0/4

See notes at end of table.

Table 3-20 (Continued)
Summary of Chemicals Detected in Subsurface Soil Samples
Collected at the North Florida Shipyard, SWMU 24

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

- ¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-24-MW01S, MPT-24-SS08, MPT-24-SS09, and MPT-24-SS10 were used to make this table.
- ² The mean of detected concentrations is the arithmetic mean of all samples (MPT-24-MW01S, MPT-24-SS08, MPT-24-SS09, and MPT-24-SS10) in which the analyte was detected. The mean does not include those samples with "R", "U", or "UJ" validation qualifiers.
- ³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1.1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).
- ⁴ Values are from Florida Department of Environmental Protection (FDEP) memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.
- ⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995.
- ⁶ The value is based on arsenic as a carcinogen. The value is from FDEP memoranda titled "Applicability of Soil Cleanup Goals for Florida" dated January 19, 1996.
- ⁷ The value is based on the hexavalent form of chromium.
- ⁸ FDEP, 1995, Memorandum, Ligia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup RE.; Soil Cleanup Goals for the Military Sites, April, 1995.

Notes: SWMU = solid waste management unit.
 µg/kg = micrograms per kilogram.
 ND = analyte not detected in background subsurface soil samples (GIR; ABB-ES, 1995).
 NA = not applicable, analyte detected in each sample.
 mg/kg = milligrams per kilogram.

Arsenic was detected in one surface soil sample (MPT-24-SS09) at a concentration that exceeded the FDEP industrial soil cleanup goal and in three other samples (MPT-24-MW01S, MPT-24-SS08, and MPT-24-SS10) at concentrations that exceed the FDEP residential soil cleanup goals (Figure 3-5). Arsenic was detected in three subsurface soil samples at concentrations that exceed the FDEP residential soil cleanup goal, but not the industrial soil cleanup goal (Figure 3-6).

Beryllium was detected in each of the four surface soil samples and three subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goal (Figures 3-7 and 3-8). Pictures of the area sampled at SWMU 24 are provided in Appendix C.

3.3 SWMU 25. Pesticides detected in surface and subsurface soil samples collected at SWMU 25 are provided in Tables 3-21 and 3-22. Aldrin and dieldrin were detected in surface and subsurface soil samples at concentrations that exceed FDEP soil cleanup goals (Tables 3-23 and 3-24). Aldrin was detected in surface and subsurface soil samples collected at sample location MPT-25-SS10. Aldrin was detected in the surface soil sample at a concentration that exceeded the FDEP industrial soil cleanup goal and in the subsurface soil sample at a concentration that exceeded the residential soil cleanup goal.

Dieldrin was detected in two of the surface (Figure 3-9) and subsurface soil samples (Figure 3-10) (MPT-25-SS/SB07 and MPT-25-SS/SB10) at concentrations that exceed the FDEP industrial soil cleanup goal. Pictures of the area sampled at SWMU 25 are provided in Appendix C.

3.4 FORMER TARGET RANGE BACKSTOP. SVOCs detected in surface soil samples collected at the former Target Range Backstop location are provided in Table 3-25. SVOCs were not detected in the subsurface soil samples. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were detected in a surface soil sample (MPT-TR-SS01) at concentrations that exceed the FDEP soil cleanup goals (Table 3-26 and Figure 2-1). Benzo(a)anthracene and benzo(b)fluoranthene were detected at concentrations that exceed the FDEP residential soil cleanup goal. Benzo(a)pyrene was detected at a concentration that exceeded the FDEP industrial soil cleanup goal. The three SVOCs were detected in a duplicate (TRSS00101DUP) but not in the corresponding environmental sample (TRSS0101) (Table 3-25). Pictures of the area sampled at the former Target Range Backstop are provided in Appendix C.

**Table 3-21
Pesticides Detected in Surface Soil Samples
Collected at Atlantic Marine Inc., SWMU 25**

Interim Measure Performance Specifications
Group III SWMUs 23, 24, and 25
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	M8793	M8793	MB279	MB279	MB279
Sample Location:	MPT-25-SS06	MPT-25-SS07	MPT-25-SS10	MPT-25-SS10	MPT-25-SS11
Sample Number:	25S00601	25S00701	25S01001	25S011001DUP	25S01101
Date Sampled:	10-APR-95	10-APR-95	27-JUN-96	27-JUN-96	27-JUN-96
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Pesticides ($\mu\text{g}/\text{kg}$)					
Aldrin	-	-	200	520	-
Chlordane	24 J	-	-	-	-
Dieldrin	2.3 J	2.200	2.500	3.100	86
Notes: SWMU = solid waste management unit. ft bls = feet below land surface. $\mu\text{g}/\text{kg}$ = microgram per kilogram. - = concentration of analyte, if present, was less than detection limit. J = estimated value					

Table 3-22
Pesticides Detected in Subsurface Soil Samples
Collected at Atlantic Marine, Inc., SWMU 25

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	MB279	MB279	MB279
Sample Location:	MPT-25-SB07	MPT-25-SB10	MPT-25-SB11
Sample Number:	25B00702	25B01002	25B01102
Date Sampled:	10-APR-95	27-JUN-96	27-JUN-96
Sample Depth (ft bls):	1 to 2	1 to 2	1 to 2
Pesticides ($\mu\text{g}/\text{kg}$)			
Aldrin	-	79	-
Dieldrin	3,000	890	43
Notes: SWMU = solid waste management unit. ft bls = feet below land surface. $\mu\text{g}/\text{kg}$ = micrograms per kilogram. - = concentration of analyte, if present, was less than detection limit.			

Table 3-23
Summary of Pesticides Detected in Surface Soil Samples
Collected at Atlantic Marine, Inc., SWMU 25

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
<u>Pesticides (ug/kg)</u>									
Aldrin	1/4	1.8 to 145	*360	*360	ND	60	1/4	200	1/4
Chlordane	1/4	18 to 1,450	24	24	ND	800	0/4	3,000	0/4
Dieldrin	4/4	NA	2.3 to *2,800	1,272	ND	70	3/4	300	2/4

¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-25-SS06, MPT-25-SS07, MPT-25-SS10, and MPT-25-SS11 were used to make this table.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-25-SS07, MPT-25-SS10, and MPT-25-SS11) in which the analyte was detected. It does not include those samples with "R", "U", or "UU" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995. The average concentration for an analyte detected in sample 25S01001 and duplicate 25S01001DUP was used to represent a value for sample location MPT-25-SS10.

⁶ The value is the average of a sample and its duplicate. For duplicate samples having one nondetect value, one-half of the contract-required quantification limit/contract-required detection limit is used as a surrogate concentration for the nondetect value.

Notes: SWMU = solid waste management unit.

ug/kg = micrograms per kilogram.

ND = analyte not detected in background surface soil samples (GIR; ABB-ES, 1995).

NA = not applicable, analyte detected in each sample.

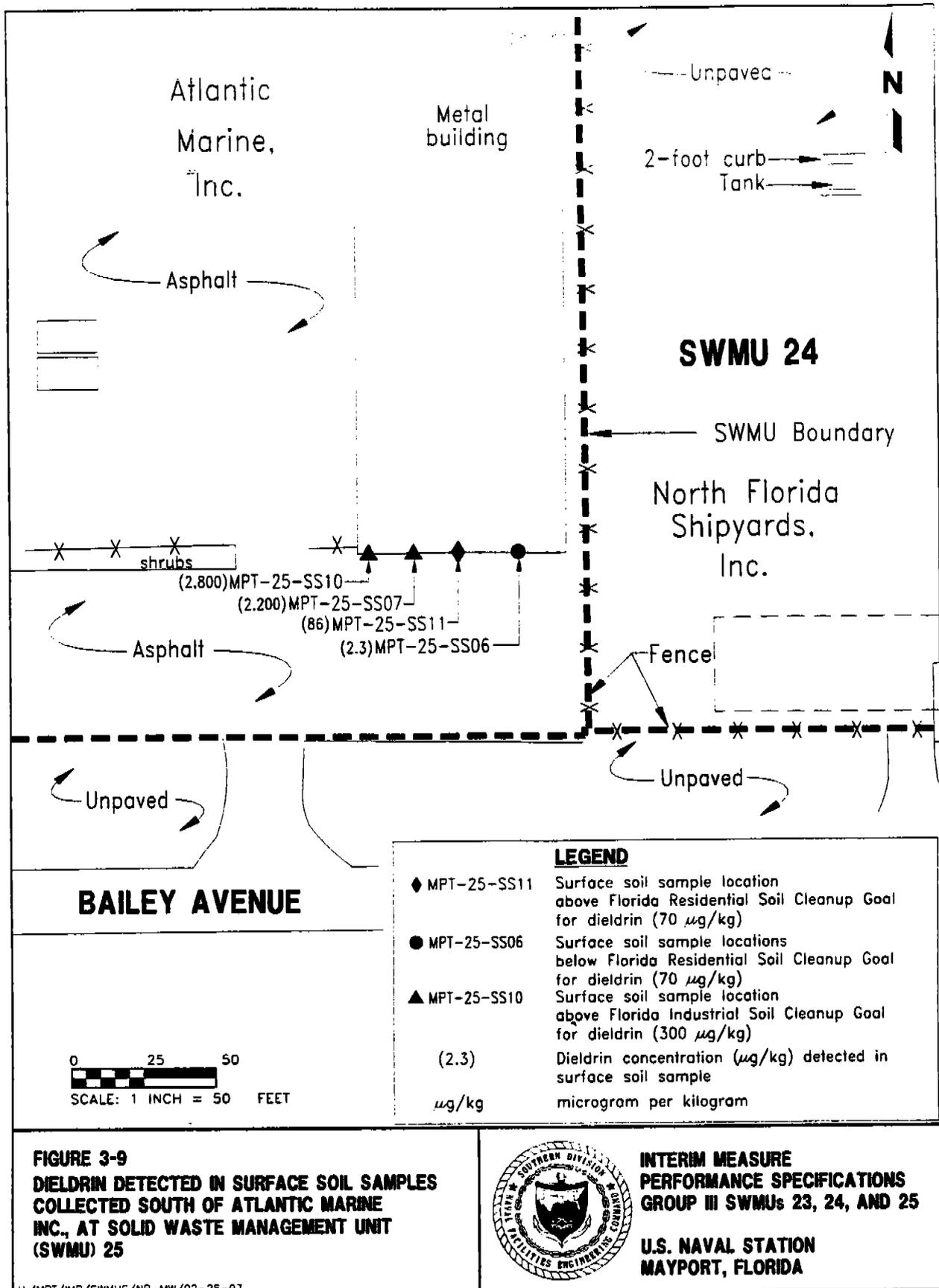
Table 3-24
Summary of Pesticides Detected in Subsurface Soil Samples
Collected at Atlantic Marine, Inc., SWMU 25

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Pesticides and PCBs (µg/kg)									
Aldrin	1/3	3.6 to 150	79	79	ND	60	1/3	200	0/3
Dieldrin	3/3	NA	43 to 3,000	1,311	ND	70	2/3	300	2/3

¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-25-SB07, MPT-25-SB10, and MPT-25-SB11 were used to make this table.
² The mean of detected concentrations is the arithmetic mean of all samples (MPT-25-SB07, MPT-25-SB10, and MPT-25-SB11) in which the analyte was detected. The mean does not include those samples with "R", "U", or "UU" validation qualifiers.
³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).
⁴ Values are from Florida Department of Environmental Protection memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.
⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995.

Notes: SWMU = solid waste management unit.
 PCB = polychlorinated biphenyls.
 µg/kg = micrograms per kilogram.
 ND = analyte not detected in background subsurface soil samples (GIR; ABB-ES, 1995).
 NA = not applicable, analyte detected in each sample.



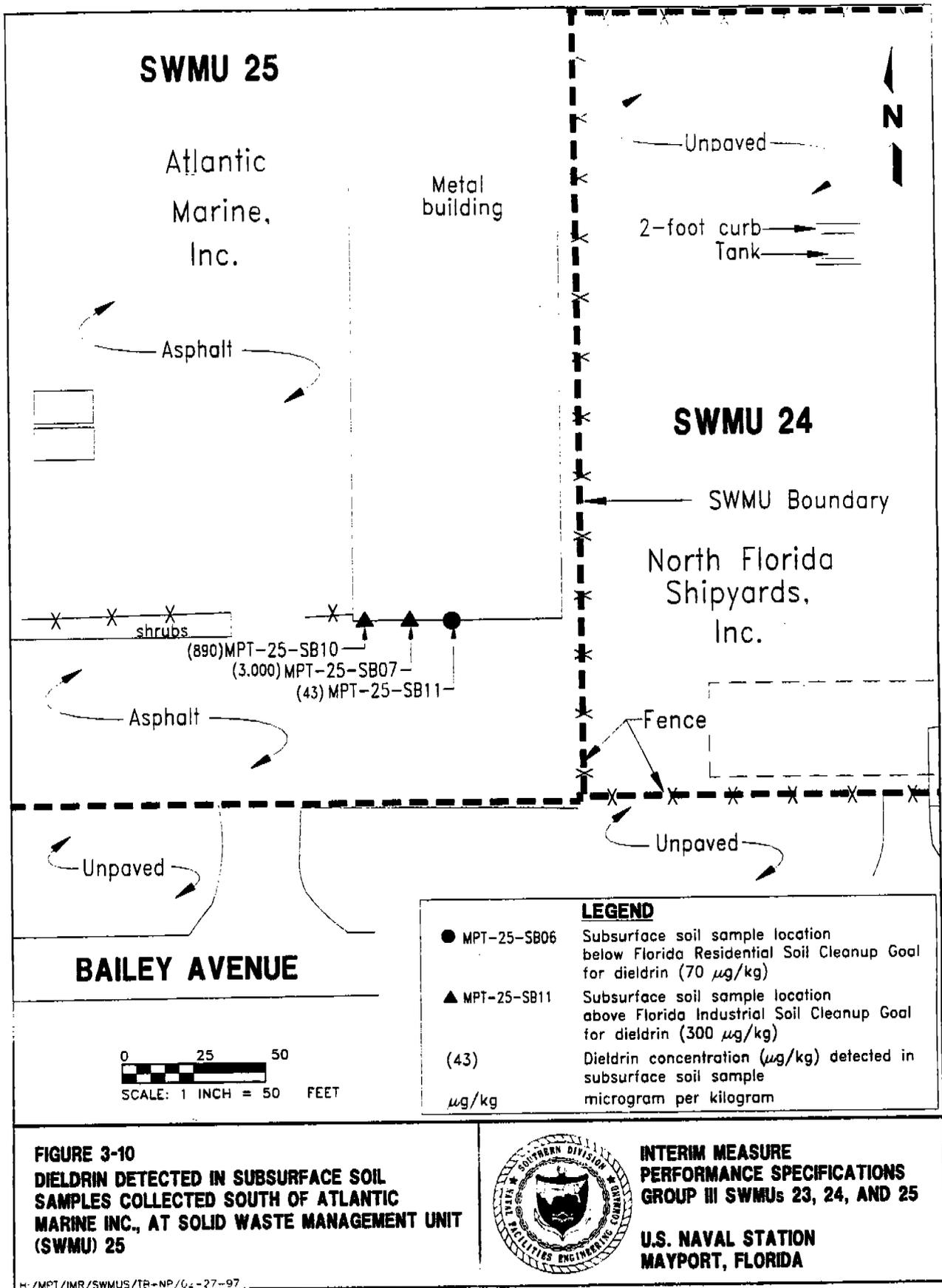


Table 3-25
Semivolatile Organic Analytes Detected in Surface Soil Samples
Collected at the Former Target Range Backstop

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

Analytical Batch Number:	RA082	RA082	MB280	MB280	MB280
Sample Location:	MPT-TR-SS01	MPT-TR-SS01	MPT-TR-SS03	MPT-TR-SS04	MPT-TR-SS04
Sample Number:	TRS00101	TRS00101DUP	TRS00301	TRS00401	TRS00401DUP
Date Sampled:	27-JUN-95	27-JUN-95	27-JUN-96	27-JUN-96	27-JUN-96
Sample Depth (ft bls):	0 to 1				
Semivolatile Organic Compounds ($\mu\text{g}/\text{kg}$)					
Acenaphthene	-	330 J	-	-	-
Dibenzofuran	-	85 J	-	-	-
Fluorene	-	240 J	-	-	-
Phenanthrene	-	3,800	-	-	-
Anthracene	-	740	-	-	-
Fluoranthene	-	10,000	-	-	-
Pyrene	-	7,600	-	-	-
Benzo(a)anthracene	-	4,200	-	-	-
Chrysene	-	4,600	-	-	-
Benzo(b)fluoranthene	-	4,800	-	-	-
Benzo(k)fluoranthene	-	4,300	-	-	-
Benzo(a)pyrene	-	4,200	-	-	-
Indeno(1,2,3-cd)pyrene	-	1,700	-	-	-
Benzo(g,h,i)perylene	-	1,800	-	-	-
Notes: SWMU = solid waste management unit. DUP = duplicate. ft bls = feet below land surface. $\mu\text{g}/\text{kg}$ = micrograms per kilogram. - = concentration of analyte, if present, was less than detection limit. J = estimated value.					

Table 3-26
Summary of Semivolatile Organics Detected in Surface Soil Samples
Collected at the Former Target Range Backstop

Interim Measure Performance Specifications
Group III SWMUs 23, 24, and 25
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection ¹	Reporting Limit Range	Detected Concentration Range	Mean of Detected Concentrations ²	Background Screening Concentration ³	Florida Soil Cleanup Goals (Residential) ⁴	Frequency Above Residential Soil Cleanup Goals ⁵	Florida Soil Cleanup Goals (Industrial) ⁴	Frequency Above Industrial Soil Cleanup Goals ⁵
Semivolatile Organic Compounds (µg/kg)									
Acenaphthene	1/3	100 to 690	⁶ 337	338	ND	2,800,000	0/3	30,000,000	0/3
Anthracene	1/3	100 to 690	⁶ 542	543	ND	20,000,000	0/3	300,000,000	0/3
Benzo(a)anthracene	1/3	100 to 690	⁶ 2,272	2,273	ND	1,400	1/3	4,900	0/3
Benzo(a)pyrene	1/3	100 to 690	⁶ 2,272	2,273	ND	100	1/3	500	1/3
Benzo(b)fluoranthene	1/3	100 to 690	⁶ 2,572	2,573	ND	1,400	1/3	5,000	0/3
Benzo(g,h,i)perylene	1/3	100 to 690	⁶ 1,072	1,073	ND	14,000	0/3	50,000	0/3
Benzo(k)fluoranthene	1/3	100 to 690	⁶ 2,322	2,323	ND	14,000	0/3	48,000	0/3
Chrysene	1/3	100 to 690	⁶ 2,472	2,473	ND	140,000	0/3	500,000	0/3
Dibenzofuran	1/3	690	⁶ 215	215	ND	240,000	0/3	3,500,000	0/3
Fluoranthene	1/3	100 to 690	⁶ 5,172	5,173	ND	2,900,000	0/3	48,000,000	0/3
Fluorene	1/3	100 to 690	⁶ 292	293	ND	2,400,000	0/3	30,000,000	0/3
Indeno(1,2,3-cd)pyrene	1/3	100 to 690	⁶ 1,022	1,023	ND	1,400	0/3	5,000	0/3
Phenanthrene	1/3	100 to 690	⁶ 2,072	2,073	ND	1,700,000	0/3	21,000,000	0/3
Pyrene	1/3	100 to 690	⁶ 3,972	3,973	ND	2,200,000	0/3	41,000,000	0/3

See notes at end of table.

Table 3-26 (Continued)
Summary of Semivolatile Organics Detected in Surface Soil Samples
Collected at the Former Target Range Backstop

Interim Measure Performance Specifications
 Group III SWMUs 23, 24, and 25
 U.S. Naval Station
 Mayport, Florida

¹ Frequency of detection is the number of sample locations where the analyte was detected divided by the total number of sample locations analyzed (excluding rejected values, "R" qualifier). Sampling locations MPT-TR-SS01, MPT-TR-SS03, and MPT-TR-SS04 were used to make this table. The detection of an analyte in either sample TRS00101 or duplicate TRS00101DUP was used to represent a value for sampling location MPT-TR-SS01. The detection of an analyte in either sample TRS00401 or duplicate TRS00401DUP was used to represent a value for sampling location MPT-TR-SS04.

² The mean of detected concentrations is the arithmetic mean of all samples (MPT-TR-SS01, MPT-TR-SS03, and MPT-TR-SS04) in which the analyte was detected. The value for sampling location MPT-TR-SS01 is the average of sample TRS00101 and associated duplicate TRS00101DUP. The value for sampling location MPT-TR-SS04 is the average of sample TRS00401 and associated duplicate TRS00401DUP. The mean does not include those samples with "R", "U", or "UJ" validation qualifiers.

³ The background screening value is twice the average of detected concentrations for inorganic analytes in background samples. The samples included in the background data set are identified in Table D-1-1 of Appendix D-1 to the Resource Conservation and Recovery Act Facility Investigation General Information Report (GIR) (ABB-ES, 1995).

⁴ Values are from Florida Department of Environmental Protection memoranda titled, "Soil Cleanup Goals for Florida" dated September 29, 1995.

⁵ Frequency of detection is the number of samples in which the analyte was detected at concentrations exceeding the "Soil Cleanup Goals for Florida" dated September 29, 1995. The average concentration for an analyte detected in sample TRS00101 and duplicate TRS00101DUP was used to represent a value for sampling location MPT-TR-SS01. The average concentration for an analyte detected in sample TRS00401 or duplicate TRS00401DUP was used to represent a value for sampling location MPT-TR-SS04.

⁶ The value is the average of a sample and its duplicate. For duplicate samples having one nondetect value, one-half of the contract-required quantification limit/contract-required detection limit is used as a surrogate concentration for the nondetected concentration.

Notes: SWMU = solid waste management unit.

µg/kg = micrograms per kilogram.

ND = analyte not detected in background surface soil samples (GIR, ABB-ES, 1995).

4.0 IM PERFORMANCE SPECIFICATIONS

This chapter provides an evaluation of whether or not an IM is warranted at the sites and a brief discussion of applicable remedial alternatives to be considered.

4.1 SWMU 23. Below is an evaluation of the four areas at SWMU 23, including west of Building 14, north of Building 54, south of Building 55, and south of Building 57.

4.1.1 West of Building 14 Arsenic, copper, and lead were detected in surface soil samples at concentrations that exceed FDEP residential soil cleanup goals, and arsenic was detected in a subsurface soil sample at a concentration that exceeds its FDEP residential soil cleanup goal. The analytical data for this part of SWMU 23 suggest that arsenic, copper, and lead are present in surface and subsurface soil at concentrations less than the FDEP industrial soil cleanup goals. This is consistent with the current and future industrial use of this part of SWMU 23; therefore, an IM for this part of SWMU 23 does not appear to be warranted.

4.1.2 North of Building 54 Arsenic was detected in four surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goal. Two of the surface soil samples, MPT-23-SS07 and MPT-23-SS08, were collected from beneath a concrete pad, and the other two samples (MPT-23-SS34 and MPT-23-SS38) were collected at locations adjacent to the west and east sides of the pad (Figure 3-3). Subsurface soil samples MPT-23-SB34 and MPT-23-SB38 contained arsenic at concentrations that exceeded the FDEP residential soil cleanup goals, but were less than the industrial soil cleanup goal (Figure 3-4). Four of the other surface and subsurface soil sample pairs (MPT-23-SS/SB35, MPT-23-SS/SB36, MPT-23-SS/SB37 and MPT-23-SS/SB39) contained arsenic at concentrations slightly above or less than the FDEP residential soil cleanup goal (Figures 3-3 and 3-4). Interpretation of the data suggests that soil containing arsenic at concentrations exceeding the FDEP industrial soil cleanup goal is limited to the upper 1 foot of soil in the area beneath the concrete pad and near the sides of the pad. Uncertainties of this interpretation are that subsurface soil samples were not collected at the location of surface soil samples MPT-23-SS07 and MPT-23-SS08, and surface and subsurface soil samples have not been collected adjacent to sampling locations MPT-23-SB34 and MPT-23-SB38.

Detection of arsenic in surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals is not consistent with the current and future use of this part of SWMU 23. Therefore, an IM appears to be warranted at locations where arsenic exceeds the FDEP industrial soil cleanup goal. The target soil cleanup goal recommended for arsenic in surface and subsurface soil is the FDEP industrial soil cleanup goal of 3.7 mg/kg.

Currently, the concrete pad, which could be considered an institutional control, minimizes exposure to soil at sampling locations MPT-23-SS07 and MPT-23-SS08. However, there is the potential for exposure to surface soil at sampling locations MPT-23-SB34 and MPT-23-SB38.

Assuming the institutional control was not present, it appears that a small volume of soil below and adjacent to the concrete pad requires remediation. Therefore, it is suggested that the soil be excavated and properly disposed of. In addition, limited testing only for arsenic should be conducted to determine the volume of soil requiring excavation and removal. A soil sample should also be collected and analyzed for Appendix IX metals by the Toxicity Characteristic Leaching Procedure (TCLP) to document whether or not the material would be characterized as hazardous waste. This would also be used to select the disposal alternative, either an RCRA Subtitle D sanitary landfill or Subtitle C hazardous waste landfill. Testing of the excavation subgrade and sidewalls should also be conducted to confirm and document that the remaining soil does not contain arsenic at concentrations that exceed the FDEP industrial soil cleanup goal. After analytical results indicate that the site meets the cleanup objectives, structural backfill from a clean off-site source should be placed in the excavation. Backfill should be compacted to 85 percent of standard Proctor in open areas and 95 percent in areas within 10 feet of building foundations.

Distinct operational areas should be designated for staging, storage, and transport of the excavated soil and for equipment decontamination. Environmental controls should also be implemented to prevent leaching of chemicals from the excavated material and fugitive dust emissions. Surface water runoff and runoff from the site should also be controlled. Soil, concrete, or any other debris should be managed under the RCRA Land Disposal Restrictions for Newly Listed Waste and Hazardous Debris (40 Code of Federal Regulations [CFR] part 268.45).

Solidification, stabilization and capping, or institutional control (paving) could also be considered; however, plans for future use of the area are not available. Therefore, it is not known if solidification, stabilization and capping, or institutional control would be an adequate long-term solution.

4.1.3 South of Building 55 Arsenic was detected in two surface soil samples (MPT-23-SS13 and MPT-23-SS14) at concentrations that exceed the FDEP industrial soil cleanup goal (Figure 3-3). The two samples were collected from beneath a concrete pad. The other surface and subsurface soil samples adjacent to the concrete pad contained arsenic at concentrations that were less than the FDEP industrial soil cleanup goal. Interpretation of the data suggests that soil containing arsenic at concentrations exceeding the FDEP industrial soil cleanup goal is limited to the upper 1 foot of soil in the area beneath the concrete pad. An uncertainty of this interpretation is that subsurface soil samples were not collected at the location of surface soil samples MPT-23-SS13 and MPT-23-SS17.

Detection of arsenic in surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals is not consistent with the current and future use of this part of SWMU 23. Therefore, an IM appears to be warranted at locations where arsenic exceeds the FDEP industrial soil cleanup goal. The target soil cleanup goal recommended for arsenic in surface and subsurface soil is the FDEP industrial soil cleanup goal of 3.7 mg/kg.

Currently, the concrete pad, which could be considered an institutional control, minimizes exposure to soil at sampling locations MPT-23-SS13 and MPT-23-SS14. Assuming the institutional control was not present, it appears that a small volume of soil below and adjacent to the concrete pad requires remediation. Therefore, it is suggested that the soil be excavated and properly disposed of. In addition, limited testing for only arsenic should be conducted to determine

the volume of soil requiring excavation and removal. A soil sample should also be collected and analyzed for Appendix IX metals by the TCLP to document whether or not the material would be characterized as hazardous waste. This would also be used to select the disposal alternative, either an RCRA Subtitle D sanitary landfill or Subtitle C hazardous waste landfill. Testing of the excavation subgrade and sidewalls should also be conducted to confirm and document that the remaining soil does not contain arsenic at concentrations that exceed the FDEP industrial soil cleanup goal. After analytical results indicate that the site meets the cleanup objectives, structural backfill from a clean off-site source should be placed in the excavation. Backfill should be compacted to 85 percent of standard Proctor in open areas and 95 percent in areas within 10 feet of building foundations.

Distinct operational areas should be designated for staging, storage, and transport of the excavated soil and for equipment decontamination. Environmental controls should also be implemented to prevent leaching of chemicals from the excavated material and fugitive dust emissions. Surface water runoff and runoff from the site should also be controlled. Soil, concrete, or any other debris should be managed under the RCRA Land Disposal Restrictions for Newly Listed Waste and Hazardous Debris (40 CFR part 268.45).

Solidification, stabilization and capping, or institutional control (paving) could also be considered; however, plans for future use of the area are not available. Therefore, it is not known if solidification, stabilization and capping, or institutional control would be an adequate long-term solution.

4.1.4 South of Building 57 Beryllium was detected in two surface soil samples (MPT-23-SS24 and MPT-23-SS47) at concentrations exceeding the industrial FDEP soil cleanup goals and in two samples exceeding the residential soil cleanup goal (Figure 3-7). Two of the subsurface soil samples (MPT-23-SB45 and MPT-23-SB47) also contained beryllium at concentrations exceeding the residential and industrial FDEP soil cleanup goals (Figure 3-8).

The occurrence of beryllium in the surface soil samples is likely associated with the Black Beauty™ that occurs at the area sampled (see photographs in Appendix C). Black Beauty™ was observed to be part of the matrix of both the surface and subsurface soil samples. Interpretation of the data and observations of the site area suggest that soil and/or Black Beauty™ residue containing beryllium at concentrations exceeding the FDEP industrial soil cleanup goal is located in an area bound to the north by Building 57, to the east by Building 23, to the south by SWMU 24, and to the west by SWMU 25.

Detection of beryllium in surface and subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals is not consistent with the current and future use of this part of SWMU 23. Therefore, an IM appears to be warranted at locations where beryllium exceeds the FDEP industrial soil cleanup goal. The target soil cleanup goal recommended for beryllium in surface and subsurface soil is the FDEP industrial soil cleanup goal of 1.0 mg/kg.

It is suggested that the soil be excavated and properly disposed of. In addition, limited testing for only beryllium should be conducted to determine the volume of soil requiring excavation and removal. A soil sample should also be collected and analyzed for Appendix IX metals by the TCLP to document whether or not the material would be characterized as hazardous waste. This would also be

used to select the disposal alternative, either an RCRA Subtitle D sanitary landfill or Subtitle C hazardous waste landfill. Testing of the excavation subgrade and sidewalls should also be conducted to confirm and document that the remaining soil does not contain beryllium at concentrations that exceed the FDEP industrial soil cleanup goal. After analytical results indicate that the site meets the cleanup objectives, structural backfill from a clean off-site source should be placed in the excavation. Backfill should be compacted to 85 percent of standard Proctor in open areas and 95 percent in areas within 10 feet of building foundations.

Distinct operational areas should be designated for staging, storage, and transport of the excavated soil and for equipment decontamination. Environmental controls should also be implemented to prevent leaching of chemicals from the excavated material and fugitive dust emissions. Surface water runoff and runoff from the site should also be controlled. Soil, concrete, or any other debris should be managed under the RCRA Land Disposal Restrictions for Newly Listed Waste and Hazardous Debris (40 CFR part 268.45).

Solidification, stabilization and capping, or institutional control (paving) could also be considered; however, plans for future use of the area are not available. Therefore, it is not known if solidification, stabilization and capping, or institutional control would be an adequate long-term solution.

4.2 SWMU 24. Benzo(a)pyrene was detected in surface soil samples from locations MPT-24-MW01S and MPT-24-SS08 at concentrations that exceed the FDEP industrial soil cleanup goals. Arsenic was detected in one surface soil sample (MPT-24-SS09) at a concentration that exceeds the FDEP industrial soil cleanup goal and in three other samples (MPT-24-MW01S, MPT-24-SS08 and MPT-24-SS10) at concentrations that exceed the FDEP residential soil cleanup goals (Figure 3-5). Beryllium was detected in each of the four surface soil samples and three subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goal (Figures 3-7 and 3-8). Pictures of the area sampled at SWMU 25 are provided in Appendix C.

Analytical results of a groundwater sample collected on June 7, 1995, from monitoring well MPT-24-MW01S for the Group III RFI suggest that SVOCs and beryllium, if present, were at concentrations less than the detection limit (ABB-ES, 1995). Arsenic was detected in the groundwater sample (3.4 micrograms per liter, [$\mu\text{g}/\text{l}$]), at concentrations substantially less than the Florida groundwater guidance concentration (50 $\mu\text{g}/\text{l}$) (ABB-ES, 1995). Therefore, there does not appear to have been an impact to groundwater quality by benzo(a)pyrene, arsenic, and beryllium.

Detection of benzo(a)pyrene, arsenic, and beryllium in surface and subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals is not consistent with the current and future use of this part of SWMU 23. Therefore, an IM appears to be warranted at locations where these analytes exceed the FDEP industrial soil cleanup goal. The target soil cleanup goals for benzo(a)pyrene, arsenic, and beryllium in surface and subsurface soil are the FDEP industrial soil cleanup goals of 500 $\mu\text{g}/\text{kg}$, 3.7 and 1.0 $\mu\text{g}/\text{kg}$, respectively.

The horizontal and vertical extent of soil that contains benzo(a)pyrene, arsenic, and beryllium at concentrations that exceed the FDEP industrial soil cleanup

goals has not been completely defined. Additional sampling specific for these chemicals should be conducted to adequately define the area for an IM.

Options for an IM at SWMU 24 include the following: solidification, stabilization and capping; excavation and disposal; and institutional control (capping). The SWMU 24 site is active; therefore, staging of any IM activity should be planned in such a manner as to minimize disruption to North Florida Shipyard, Inc. Below are actions that should be considered for each option.

Solidification, Stabilization, and Capping. Solidification and stabilization describe the process where waste is constructed into a monolithic block with structural integrity. The chemicals in the waste are mechanically bound within the solidified matrix. The objective of stabilization is to limit the solubility and mobility of chemicals. Capping further minimizes infiltration of precipitation or surface water runoff from the monolithic block.

Bench-scale testing should be conducted of soil samples to select and determine optimum mixture of the solidification and stabilization materials and soil. Distinct operational areas should be designated for staging, storage, and mixing of the excavated soil and for equipment decontamination. Environmental controls should also be implemented to prevent leaching of chemicals from the excavated material and fugitive dust emissions. Surface water runoff and runoff from the site should also be controlled. Concrete or any other debris should be managed under the RCRA Land Disposal Restrictions for Newly Listed Waste and Hazardous Debris (40 CFR part 268.45). The cap (asphalt or concrete pavement) should be capable of supporting heavy-wheel loads from tractor trailers, delivery trucks, rolloff containers, and heavy lifting vehicles. North Florida Shipyard, Inc., should be contacted to determine types of vehicles that access the area. Concrete paving should have adequate joint seals to minimize the infiltration of water through the construction joints. Stormwater management should consider utilizing the existing stormwater system. Environmental controls should be implemented during preparation of the pavement subgrade to minimize the generation of fugitive dust.

Excavation and Disposal. The volume of soil requiring disposal should be determined. A soil sample should also be collected and analyzed for Appendix IX metals by the TCLP to document whether or not the material would be characterized as hazardous waste. This would also be used to select the disposal alternative, either RCRA Subtitle D sanitary landfill or Subtitle C hazardous waste landfill. Testing of the excavation subgrade and sidewalls should also be conducted to confirm and document that the remaining soil does not contain benzo(a)pyrene, beryllium, and arsenic at concentrations that exceed the FDEP industrial soil cleanup goal. After analytical results indicate that the site meets the cleanup objectives, structural backfill from a clean off-site source should be placed in the excavation. Backfill should be compacted to 85 percent of standard Proctor in open areas and 95 percent in areas within 10 feet of building foundations or beneath pavement.

Distinct operational areas should be designated for staging, storage, and transport of the excavated soil and for equipment decontamination. Environmental controls should also be implemented to prevent leaching of chemicals from the excavated material and fugitive dust emissions. Surface water runoff and runoff from the site should also be controlled. Soil, concrete, or any other debris

should be managed under the RCRA Land Disposal Restrictions for Newly Listed Waste and Hazardous Debris (40 CFR part 268.45).

Institutional Control. Institutional controls consisting of asphalt or concrete pavement should be capable of supporting heavy-wheel loads from tractor trailers, delivery trucks, rolloff containers, and heavy lifting vehicles. North Florida Shipyard, Inc., should be contacted to determine types of vehicles that access the area. Concrete paving should have adequate joint seals to minimize the infiltration of water through the construction joints. Stormwater management should consider utilizing the existing stormwater system. Environmental controls should be implemented during preparation of the pavement subgrade to minimize the generation of fugitive dust.

4.3 SWMU 25. Dieldrin was detected in two of the surface (Figure 3-9) and subsurface soil samples (Figure 3-10) (MPT-25-SS/SB07 and MPT-25-SS/SB10) at concentrations that exceed the FDEP industrial soil cleanup goal. Pictures of the area sampled at SWMU 25 are provided in Appendix C. A likely source for the aldrin and dieldrin is pre- and/or posttreatment of the building foundation for termites. The building was constructed in 1981. Documentation of the termite treatment of the building is not available. However, general specifications for termite treatment of a nearby concrete block building located at the corner of Bailey Avenue and Bonhomme Richard Street are provided in Appendix D.

The U.S. Department of Agriculture canceled in 1970 the registration for aldrin and dieldrin and in 1972 restricted their use to a termiticide, the dipping of nonplant roots and tops, and mothproofing (USEPA, 1980). In 1974, the manufacturer voluntarily restricted the use of aldrin and dieldrin to termiticide, and USEPA issued a final decision canceling all uses except as a termiticide, (USEPA, 1986b). In 1987, the manufacturer voluntarily canceled the use of aldrin and dieldrin as a termiticide (USEPA 1989), and USEPA also responded by canceling the use of both chemicals (USEPA, 1990b).

The information in this paragraph was obtained from the Toxicological Profile for Aldrin/Dieldrin prepared for the U.S. Department of Health and Human Services, Public Health Service by Clement International Corporation, 1991. Aldrin is readily converted by epoxidation in aerobic and biologically active soil to dieldrin, which is more persistent in the environment. Dieldrin adsorbs to soils and partitions to biota and slowly volatilizes from soil to the atmosphere. Dieldrin is transported in the particulate phase of surface water runoff and in the atmosphere. In deep subsurface soil, dieldrin is adsorbed to particulates and does not leach to groundwater. Dieldrin is persistent in environmental media and is resistant to biodegradation and abiotic transformation.

Because it is likely that aldrin and dieldrin were applied legally as a termiticide under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended by the Federal Pesticide Control Act of 1972, an IM is not recommended for this site. Additionally, the fate of aldrin may be the transformation to dieldrin, and dieldrin is likely to slowly volatilize to the atmosphere and/or remain strongly adsorbed to soil. Therefore, it is unlikely that an adverse impact to groundwater will occur by aldrin or dieldrin.

4.4 FORMER TARGET RANGE BACKSTOP. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were detected in a surface soil sample (MPT-TR-SS01) at concentrations that exceed the FDEP soil cleanup goals (Table 3-26 and Figure 2-1). Only benzo(a)pyrene was detected at a concentration that exceeds the FDEP industrial soil cleanup goal. The three SVOCs were detected in a duplicate (TRSS00101DUP), but not in the corresponding environmental sample (TRSS0101) (Table 3-25). The analytes detected in the duplicate, if present, were not detected at concentrations above the detection limit in the other samples collected from this area (Table 3-25). The surface soil samples were collected in a sandy area located adjacent to a paved road in an area where vehicles are routinely parked. No staining of the surface soil or stressed vegetation was evident during either of the two sampling events. Pictures of the area sampled at the former Target Range Backstop are provided in Appendix C.

The detection of benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene in a duplicate, but not in the corresponding environmental sample, suggests the following:

- the chemicals are a heterogenous mixture in the soil,
- the soil collected for the sample and duplicate was not thoroughly mixed,
- the soil collected for the sample and duplicate contained chemicals resulting from vehicle emissions that were not homogenous in the samples, and
- the soil collected for the sample and duplicate contained small pieces of asphalt, which were not homogenous in the samples.

It is likely that the sample results were biased by either the vehicle emissions or pieces of asphalt in the sample. Analytical results from the surface soil samples do not suggest that the SVOCs were present either as a hot spot or over a larger area. Therefore, an IM does not appear to be warranted for the former Target Range Backstop area.

5.0 SUMMARY AND RECOMMENDATIONS

This chapter presents a summary of the findings for each site assessed and recommendations for whether or not an IM activity is warranted for the site.

5.1 SWMU 23. Below is a summary of the evaluation and recommendations for the four areas at SWMU 23, including west of Building 14, north of Building 54, south of Building 55, and south of Building 57.

5.1.1 West of Building 14 Analytical data for this part of SWMU 23 suggest that arsenic, copper, and lead are present in surface and subsurface soil at concentrations less than the FDEP industrial soil cleanup goals (Figures 3-1 and 3-2). This is consistent with the current and future industrial use of this part of SWMU 23; therefore, an IM for this part of SWMU 23 does not appear to be warranted.

5.1.2 North of Building 54 Arsenic was detected in four surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goal (Figures 3-3 and 3-4). Analytical data suggest soil containing arsenic at concentrations exceeding the FDEP industrial soil cleanup goal is limited to the upper 1 foot of soil in the area beneath the concrete pad and near the sides of the pad. Detection of arsenic in surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals is not consistent with the current and future use of this part of SWMU 23. Therefore, an IM appears to be warranted at locations where arsenic exceeds the FDEP industrial soil cleanup goal.

5.1.3 South of Building 55 Arsenic was detected in two surface soil samples (MPT-23-SS13 and MPT-23-SS14) at concentrations that exceed the FDEP industrial soil cleanup goal (Figures 3-3 and 3-4). Analytical data suggest that soil containing arsenic at concentrations exceeding the FDEP industrial soil cleanup goal may be limited to the upper 1 foot of soil in the area beneath the concrete pad. Detection of arsenic in surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals is not consistent with the current and future use of this part of SWMU 23. Therefore, an IM appears to be warranted at locations where arsenic exceeds the FDEP industrial soil cleanup goal. The data suggest that soil containing arsenic at concentrations exceeding the FDEP industrial soil cleanup goal may be limited to the upper 1 foot of soil in the area beneath the concrete pad.

5.1.4 South of Building 57 Beryllium was detected in two surface and subsurface soil samples at concentrations exceeding FDEP industrial soil cleanup goals (Figures 3-7 and 3-8). The occurrence of beryllium in the surface soil samples is likely associated with the Black Beauty™ that occurs at the area sampled (see photographs in Appendix C). Detection of beryllium in surface and subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals is not consistent with the current and future use of this part of SWMU 23. Therefore, an IM appears to be warranted at locations where beryllium exceeds the FDEP industrial soil cleanup goal.

5.2 SWMU 24. Benzo(a)pyrene was detected in surface soil samples from locations MPT-24-MW01S and MPT-24-SS08 at concentrations that exceed the FDEP industrial

soil cleanup goals. Arsenic was detected in one surface soil sample at a concentration that exceeds the FDEP industrial soil cleanup goal (Figure 3-5). Beryllium was detected in four surface soil samples and three subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goal (Figures 3-7 and 3-8). Detection of benzo(a)pyrene, arsenic, and beryllium in surface and subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goals is not consistent with the current and future use of this part of SWMU 23. Therefore, an IM appears to be warranted at locations where these analytes exceed FDEP industrial soil cleanup goals.

5.3 SWMU 25. Aldrin was detected in the surface soil sample at a concentration that exceeds the FDEP industrial soil cleanup goal (Table 3-23). Dieldrin was detected in two of the surface and subsurface soil samples at concentrations that exceed the FDEP industrial soil cleanup goal (Figures 3-9 and 3-10). A likely source for the aldrin and dieldrin is pre- and/or posttreatment of the building foundation for termites. The building was constructed in 1981. Because it is likely that aldrin and dieldrin were applied legally as a termiticide under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended by the Federal Pesticide Control Act of 1972, an IM is not recommended for this site.

5.4 FORMER TARGET RANGE BACKSTOP. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were detected in a surface soil sample (MPT-TR-SS01) at concentrations that exceed the FDEP soil cleanup goals (Table 3-26 and Figure 2-1). Only benzo(a)pyrene was detected at a concentration that exceeded the FDEP industrial soil cleanup goal. The three SVOCs were detected in a duplicate (TRSS00101DUP), but not in the corresponding environmental sample (TRSS0101) (Table 3-25). It is likely that the sample results were biased by either the vehicle emissions or pieces of asphalt in the sample. Analytical results from the surface soil samples do not suggest that the SVOCs were present either as a hot spot or over a larger area. Therefore, an IM does not appear to be warranted for the former target range area.

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APPENDIX A
ANALYTICAL RESULTS

Naval Station Mayport, Mayport, Florida
West of Building 14, SMMU 23 Surface Soil Data

Lab Sample Number: MB775001
Site: GROUP111
Locator: 23S01901
Collect Date: 07-APR-95

MB775002
GROUP111
23S02001
07-APR-95

MB277003
GROUP111
23S03001
26-JUN-96

MB277004
GROUP111
23S03001D
26-JUN-96

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
ANTIMONY	.73	J	mg/kg	.47	6.9	J	mg/kg	.48	.9	J	mg/kg	0	.81	J	mg/kg	.54
ARSENIC	.35	J	mg/kg	.17	3.2	J	mg/kg	.17	.83	J	mg/kg	0	.73	J	mg/kg	.2
BARIUM	14.2	J	mg/kg	.12	13.9	J	mg/kg	.13	20.7	J	mg/kg	0	28.1	J	mg/kg	.074
BERYLLIUM	.06	J	mg/kg	.028	.1	J	mg/kg	.029	.12	J	mg/kg	0	.16	J	mg/kg	.027
CADMIUM	1.3	J	mg/kg	.56	6.3	J	mg/kg	.57	.82	U	mg/kg	.82	.69	U	mg/kg	.69
CHROMIUM	8.2	J	mg/kg	.52	9.4	J	mg/kg	.54	6.5	J	mg/kg	0	10.2	J	mg/kg	.46
COBALT	1.1	U	mg/kg	1.1	2.6	J	mg/kg	1.1	.62	U	mg/kg	.62	.64	J	mg/kg	.52
COPPER	40.4	J	mg/kg	.54	2930	J	mg/kg	.55	13.7	J	mg/kg	0	17.7	J	mg/kg	.25
CYANIDE	.11	U	mg/kg	.11	.11	U	mg/kg	.11	.11	U	mg/kg	.11	.47	J	mg/kg	.092
LEAD	.47	J	mg/kg	1.4	831	J	mg/kg	28.1	48.2	J	mg/kg	0	28.9	J	mg/kg	.16
MERCURY	.27	J	mg/kg	.031	.09	J	mg/kg	.033	.08	UJ	mg/kg	.08	.08	UJ	mg/kg	.08
NICKEL	9.7	J	mg/kg	1.1	55.6	J	mg/kg	1.2	3.5	J	mg/kg	1	5.2	J	mg/kg	1.2
SELENIUM	.24	U	mg/kg	.24	.25	U	mg/kg	.25	.31	UJ	mg/kg	.31	.83	UJ	mg/kg	.83
SILVER	.51	U	mg/kg	.51	5.2	J	mg/kg	.52	.61	J	mg/kg	0	.46	U	mg/kg	.46
THALLIUM	.38	U	mg/kg	.38	.39	U	mg/kg	.39	.2	U	mg/kg	2.2	.17	J	mg/kg	.17
TIN	10	J	mg/kg	1.7	196	J	mg/kg	1.7	2.9	U	mg/kg	2.9	2.5	U	mg/kg	2.5
VANADIUM	3.1	J	mg/kg	.41	4.9	J	mg/kg	.42	4.4	J	mg/kg	0	6	J	mg/kg	.36
ZINC	124	J	mg/kg	.15	5910	J	mg/kg	.15	59.9	J	mg/kg	0	80.8	J	mg/kg	.21

INORGANICS (SOIL)

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.

Naval Station Mayport, Mayport, Florida
West of Building 14, SWMU 23 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB277006
GROUP111
23S03101
26-JUN-96

MB277008
GROUP111
23S03201
26-JUN-96

MB277010
GROUP111
23S03301
26-JUN-96

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (SOIL)												
Antimony	2.3	J	mg/kg	0	1	J	mg/kg	0	1.5	J	mg/kg	0
Arsenic	.92	J	mg/kg	0	.49	J	mg/kg	0	.82	J	mg/kg	0
Barium	22.2	J	mg/kg	0	8.2	J	mg/kg	0	13.4	J	mg/kg	0
Beryllium	.09	J	mg/kg	0	.08	J	mg/kg	0	.06	J	mg/kg	0
Cadmium	1.8	J	mg/kg	0	.69	U	mg/kg	0	2.6	J	mg/kg	0
Chromium	11.6	J	mg/kg	0	4.9	J	mg/kg	0	21	J	mg/kg	0
Cobalt	1.1	J	mg/kg	0	.79	J	mg/kg	0	.7	J	mg/kg	0
Copper	41.7	J	mg/kg	0	18.8	J	mg/kg	0	47.3	J	mg/kg	0
Cyanide	.12	U	mg/kg	.12	.09	J	mg/kg	.09	.12	U	mg/kg	.12
Lead	39	J	mg/kg	0	23.8	J	mg/kg	0	19.9	J	mg/kg	0
Mercury	.25	UJ	mg/kg	.25	.08	UJ	mg/kg	.08	.08	UJ	mg/kg	.08
Nickel	7.9	J	mg/kg	1	3.3	J	mg/kg	1	5	J	mg/kg	1
Selenium	.33	UJ	mg/kg	.33	.26	UJ	mg/kg	.26	.68	UJ	mg/kg	.68
Silver	.58	U	mg/kg	.58	1.6	J	mg/kg	0	8.6	J	mg/kg	0
Thallium	.21	U	mg/kg	.21	.17	U	mg/kg	.17	.21	U	mg/kg	.21
Tin	3.1	U	mg/kg	3.1	2.5	U	mg/kg	2.5	3.4	J	mg/kg	3
Vanadium	4.4	J	mg/kg	0	3.2	J	mg/kg	0	3.6	J	mg/kg	0
Zinc	147	J	mg/kg	0	52.1	J	mg/kg	0	149	J	mg/kg	0

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.

Naval Station Mayport, Mayport, Florida
West of Building 14, SSMU 23 Subsurface Soil data

Lab Sample Number:
Site
Locator
Collect Date:

MB277005
GROUP III
23803002
26-JUN-96

MB277007
GROUP III
23803102
26-JUN-96

MB277009
GROUP III
23803202
26-JUN-96

MB277011
GROUP III
23803302
26-JUN-96

INORGANICS (SOIL)

	MB277005	MB277007	MB277009	MB277011
	VALUE	VALUE	VALUE	VALUE
	QUAL	QUAL	QUAL	QUAL
	UNITS	UNITS	UNITS	UNITS
	DL	DL	DL	DL
	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	.74 J	1.3	.59 U	.89 J
Arsenic	.79 J	.6 J	.91 J	.6 J
Barium	47.5	9.1 J	11.6 J	7.7 J
Beryllium	.07 J	.07 J	.15 J	.05 J
Cadmium	.71 U	.85 U	.76 U	.75 J
Chromium	6.4	4.2	9.3 J	4.8
Cobalt	.7 J	.64 U	.78 J	.53 U
Copper	7.4 J	13.1 J	11.7 J	14.2 J
Cyanide	.32 J	.11 U	.1 U	.09 U
Lead	15.9 J	16.5 J	14.3 J	5.7 J
Mercury	.08 UJ	.08 UJ	.08 UJ	.08 UJ
Nickel	1.9 J	1.4	3.9 J	1.2 U
Selenium	.47 U	.52 UJ	.29 UJ	.68 UJ
Silver	.21 J	.56 U	.51 U	1.2 J
Thallium	2.5 U	.2 U	.18 U	.17 U
Tin	10.7 J	3 U	2.7 U	2.5 U
Vanadium	54.1	3.7 J	9.7 J	1.7 J
Zinc		58.5	50.2	29.3

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.

Naval Station Mayport, Mayport, Florida
North of Building 54, SMMU 23 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB277012
GROUP111
23S03401
26-JUN-96

R9743009
GROUP111
23S008010
05-APR-95

R9743008
GROUP111
23S00801
05-APR-95

R9743007
GROUP111
23S00701
05-APR-95

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (SOIL)																
Antimony	1.1	U	mg/kg	1.1	1.2	U	mg/kg	1.2	1.2	U	mg/kg	1.2	1.2	U	mg/kg	1.2
Arsenic	7.2	J	mg/kg	.7	4.5	J	mg/kg	.7	6.9	J	mg/kg	.7	7.1	J	mg/kg	0
Barium	97.6	J	mg/kg	.091	79.6	J	mg/kg	.093	78.8	J	mg/kg	.093	24.3	J	mg/kg	0
Beryllium	.43	J	mg/kg	.045	.29	J	mg/kg	.046	.44	J	mg/kg	.047	.14	J	mg/kg	0
Cadmium	.3	UJ	mg/kg	.3	3	J	mg/kg	.3	2.9	J	mg/kg	.3	.79	U	mg/kg	.79
Chromium	8.3	J	mg/kg	.48	10.9	J	mg/kg	.49	12.1	J	mg/kg	.49	5.8	J	mg/kg	0
Cobalt	1.9	J	mg/kg	.61	1.9	J	mg/kg	.63	1.6	J	mg/kg	.63	.96	J	mg/kg	0
Copper	25.4	J	mg/kg	.34	39.4	J	mg/kg	.35	40.5	J	mg/kg	.35	9.9	J	mg/kg	0
Cyanide	.11	J	mg/kg	1	.22	J	mg/kg	1	.15	J	mg/kg	1	.11	U	mg/kg	.11
Lead	32.3	J	mg/kg	2.5	28.9	J	mg/kg	2.5	90.5	J	mg/kg	5	18.7	J	mg/kg	0
Mercury	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.08	UJ	mg/kg	.08
Nickel	6	J	mg/kg	1.2	7.1	J	mg/kg	1.2	13.3	J	mg/kg	1.2	2	J	mg/kg	1
Selenium	.14	U	mg/kg	.14	.14	U	mg/kg	.14	.14	UJ	mg/kg	.14	.68	UJ	mg/kg	.68
Silver	.52	U	mg/kg	.52	.53	U	mg/kg	.53	.54	U	mg/kg	.54	.53	U	mg/kg	.53
Thallium	.14	J	mg/kg	.6	.14	J	mg/kg	.6	.19	J	mg/kg	.6	.22	J	mg/kg	0
Tin	2.2	U	mg/kg	2.2	2.3	U	mg/kg	2.3	2.6	J	mg/kg	2.3	2.8	U	mg/kg	2.8
Vanadium	12.5	J	mg/kg	.34	11.4	J	mg/kg	.35	12.7	J	mg/kg	.35	6.4	J	mg/kg	0
Zinc	53.9	J	mg/kg	.27	62.3	J	mg/kg	.28	115	J	mg/kg	.28	46.1	J	mg/kg	0

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.

Naval Station Mayport, Mayport, Florida
North of Building 54, SWMU 23 Surface Soil Data

Lab Sample Number: MB277013
Site GROUP111
Locator 23S03401D
Collect Date: 26-JUN-96

MB277015
GROUP111
23S03501
26-JUN-96

MB277017
GROUP111
23S03601
26-JUN-96

MB277019
GROUP111
23S03701
26-JUN-96

INORGANICS (SOIL)

	VALUE	QUAL	UNITS	DL												
Antimony	.74	J	mg/kg	0	1.2	J	mg/kg	0	.77	J	mg/kg	0	.84	J	mg/kg	0
Arsenic	3.3	J	mg/kg	0	1.4	J	mg/kg	0	.85	J	mg/kg	0	.69	J	mg/kg	0
Barium	18.4	J	mg/kg	0	45.6	J	mg/kg	0	24.6	J	mg/kg	0	.9	J	mg/kg	0
Beryllium	.12	J	mg/kg	0	.13	J	mg/kg	0	.09	J	mg/kg	0	.05	J	mg/kg	0
Cadmium	.73	U	mg/kg	.73	1.5	U	mg/kg	0	.71	U	mg/kg	.71	.69	U	mg/kg	.69
Chromium	4.8	U	mg/kg	0	29.5	U	mg/kg	0	5.4	U	mg/kg	0	4.3	U	mg/kg	0
Cobalt	.55	U	mg/kg	.55	1.9	J	mg/kg	0	.75	J	mg/kg	0	4.1	J	mg/kg	0
Copper	30.2	J	mg/kg	0	129	J	mg/kg	0	74.9	J	mg/kg	0	91	J	mg/kg	0
Cyanide	.1	U	mg/kg	.1	.09	U	mg/kg	.09	.09	U	mg/kg	.09	.09	U	mg/kg	.09
Lead	18.3	J	mg/kg	0	38.8	J	mg/kg	0	15.3	J	mg/kg	0	6.7	J	mg/kg	0
Mercury	.08	UJ	mg/kg	.08	.08	UJ	mg/kg	.08	.09	UJ	mg/kg	.09	.1	UJ	mg/kg	.1
Nickel	2	J	mg/kg	0	20.1	J	mg/kg	0	6.9	J	mg/kg	0	587	J	mg/kg	0
Selenium	.73	UJ	mg/kg	.73	.68	UJ	mg/kg	.68	.68	UJ	mg/kg	.68	.26	UJ	mg/kg	.26
Silver	.48	U	mg/kg	.48	.46	U	mg/kg	.46	.47	U	mg/kg	.47	.46	U	mg/kg	.46
Thallium	.17	U	mg/kg	.17	.16	U	mg/kg	.16	.17	U	mg/kg	.17	.17	U	mg/kg	.17
Tin	2.6	U	mg/kg	2.6	9.6	J	mg/kg	0	2.5	U	mg/kg	2.5	2.8	J	mg/kg	2
Vanadium	5.4	J	mg/kg	0	5.8	J	mg/kg	0	4	J	mg/kg	0	3.9	J	mg/kg	0
Zinc	45.1	U	mg/kg	0	145	U	mg/kg	0	45.6	U	mg/kg	0	89.9	U	mg/kg	0

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.

Naval Station Mayport, Mayport, Florida
North of Building 54, SMMU 23 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB277021
GROUP111
23S03801
26-JUN-96

MB278002
GROUP111
23S03901
26-JUN-96

INORGANICS (SOIL)	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Antimony	.58	J	mg/kg	0	.52	U	mg/kg	.52
Arsenic	4.3	J	mg/kg	0	.66	J	mg/kg	.19
Barium	33.5	J	mg/kg	0	14.8	J	mg/kg	-.071
Beryllium	.25	J	mg/kg	0	.29	J	mg/kg	-.027
Cadmium	.69	U	mg/kg	.69	.67	U	mg/kg	.67
Chromium	20.5	J	mg/kg	0	5.7	J	mg/kg	.45
Cobalt	1.5	J	mg/kg	0	1.4	J	mg/kg	.51
Copper	19.6	J	mg/kg	0	7.3	J	mg/kg	.24
Cyanide	.2	J	mg/kg	0	.09	U	mg/kg	.09
Lead	21.1	J	mg/kg	0	7.6	J	mg/kg	.15
Mercury	.08	UJ	mg/kg	.08	.03	U	mg/kg	.03
Nickel	18.4	J	mg/kg	1	3	J	mg/kg	1.1
Selenium	.26	UJ	mg/kg	.26	.25	UJ	mg/kg	.25
Silver	.46	U	mg/kg	.46	.45	U	mg/kg	.45
Thallium	.16	U	mg/kg	.16	.16	U	mg/kg	.16
Tin	2.5	U	mg/kg	2.5	2.4	U	mg/kg	2.4
Vanadium	8.3	J	mg/kg	0	5.7	J	mg/kg	.35
Zinc	61.5	J	mg/kg	0	25.4	J	mg/kg	.2

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.

Naval Station, Mayport, Mayport, Florida
North of Building 54, SMMU 23 Subsurface Soil Data

INORGANICS (SOIL)	MB277014			MB277016			MB277018			MB277020		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Antimony	.55 U	mg/kg		0	.63 U	mg/kg		.63	.67 U	mg/kg		.67
Arsenic	1.1 J	mg/kg		0	.72 J	mg/kg		0	.74 J	mg/kg		0
Barium	8.7 J	mg/kg		0	6.8 J	mg/kg		0	4.2 J	mg/kg		0
Beryllium	.1 J	mg/kg		0	.14 J	mg/kg		0	.06 J	mg/kg		0
Cadmium	.71 U	mg/kg		.71	.82 U	mg/kg		.82	.87 U	mg/kg		.87
Chromium	3.8 U	mg/kg		0	5.7 U	mg/kg		0	3.2 U	mg/kg		0
Cobalt	3.5 J	mg/kg		0	.78 J	mg/kg		0	1.1 J	mg/kg		0
Copper	10.8 J	mg/kg		0	14.2 J	mg/kg		0	72.7 J	mg/kg		0
Cyanide	.09 U	mg/kg		.09	.11 U	mg/kg		.11	.12 U	mg/kg		.12
Lead	10.8 J	mg/kg		0	3.9 J	mg/kg		0	3.2 J	mg/kg		0
Mercury	.03 U	mg/kg		.03	.09 UJ	mg/kg		.09	.11 UJ	mg/kg		.11
Nickel	1.7 J	mg/kg		1	3 J	mg/kg		1	104	mg/kg		1
Selenium	.72 UJ	mg/kg		.68	.68 UJ	mg/kg		.68	.33 UJ	mg/kg		.33
Silver	.47 U	mg/kg		.47	.54 U	mg/kg		.54	.58 U	mg/kg		.58
Thallium	.17 U	mg/kg		.17	.2 U	mg/kg		.2	.21 U	mg/kg		.21
Tin	2.5 U	mg/kg		2.5	2.9 U	mg/kg		2.9	3.1 U	mg/kg		3.1
Vanadium	3.5 J	mg/kg		0	5.9 J	mg/kg		0	3.2 J	mg/kg		0
Zinc	20.6	mg/kg		0	33.5	mg/kg		0	42.5	mg/kg		0

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.

Naval Station Mayport, Mayport, Florida
 North of Building 54, SSMU 23 Subsurface Soil Data

Lab Sample Number: MB277022
 Site: GROUP III
 Locator: 23B03802
 Collect Date: 26-JUN-96

MB278003
 GROUP III
 23B03902
 26-JUN-96

VALUE QUAL UNITS DL VALUE QUAL UNITS DL

INORGANICS (SOIL)

Element	Value	Qual	Units	DL	Value	Qual	Units	DL
Antimony	.8	J	mg/kg	0	.54	U	mg/kg	.54
Arsenic	1.1	J	mg/kg	0	.56	J	mg/kg	.2
Barium	9.3	J	mg/kg	0	3.1	J	mg/kg	.074
Beryllium	.1	J	mg/kg	0	.07	J	mg/kg	.028
Cadmium	.84	U	mg/kg	.84	.7	U	mg/kg	.7
Chromium	3.6	U	mg/kg	0	2.1	U	mg/kg	.47
Cobalt	.64	U	mg/kg	.64	.53	U	mg/kg	.53
Copper	3.7	J	mg/kg	0	2.3	UJ	mg/kg	2.3
Cyanide	.11	U	mg/kg	.11	.09	U	mg/kg	.09
Lead	7.4	J	mg/kg	0	1.5	J	mg/kg	.16
Mercury	.08	UJ	mg/kg	.08	.03	U	mg/kg	.03
Nickel	1.5	J	mg/kg	1	1.2	U	mg/kg	1.2
Selenium	.32	UJ	mg/kg	.32	.27	UJ	mg/kg	.27
Silver	.56	U	mg/kg	.56	.47	U	mg/kg	.47
Thallium	.2	U	mg/kg	.2	.22	J	mg/kg	.17
Tin	3	U	mg/kg	3	2.5	U	mg/kg	2.5
Vanadium	5	J	mg/kg	0	2.3	J	mg/kg	.36
Zinc	26.2		mg/kg	0	11.4		mg/kg	.21

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.

Naval Station Mayport, Mayport, Florida
South of Building 55, SMMU 23 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

R9743016
GROUP III
23S01301
07-APR-95

R9743017
GROUP III
23S01401
07-APR-95

MB278004
GROUP III
23S04001
26-JUN-96

MB278007
GROUP III
23S04101
26-JUN-96

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

Naval Station Mayport, Mayport, Florida
South of Building 55, SMMU 23 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

R9743016
GROUP III
23S01301
07-APR-95

R9743017
GROUP III
23S01401
07-APR-95

MB278004
GROUP III
23S04001
26-JUN-96

MB278007
GROUP III
23S04101
26-JUN-96

Chemical Name	VALUE	DL	QUAL UNITS	DL	VALUE	DL	QUAL UNITS	DL	VALUE	DL	QUAL UNITS
Pyrene	240 J	850	ug/kg	850	520 J	3900 U	ug/kg	3900 U	130 U	800	ug/kg
Butylbenzylphthalate	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
3,3-Dichlorobenzidine	1700 U	1700	ug/kg	1700	1600 U	1600 U	ug/kg	1600 U	1600	1600	ug/kg
Benzo (a) anthracene	160 J	850	ug/kg	850	330 J	800	ug/kg	800	130 U	800	ug/kg
Chrysene	220 J	850	ug/kg	850	440 J	800	ug/kg	800	130 U	800	ug/kg
bis(2-Ethylhexyl) phthalate	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
Di-n-octylphthalate	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
Benzo (b) fluoranthene	240 J	850	ug/kg	850	450 J	800	ug/kg	800	130 U	800	ug/kg
Benzo (k) fluoranthene	220 J	850	ug/kg	850	500 J	800	ug/kg	800	130 U	800	ug/kg
Benzo (a) pyrene	160 J	850	ug/kg	850	430 J	800	ug/kg	800	130 U	800	ug/kg
Indeno (1,2,3-cd) pyrene	130 J	850	ug/kg	850	270 J	800	ug/kg	800	130 U	800	ug/kg
Dibenzo (a,h) anthracene	850 U	850	ug/kg	850	96 J	800	ug/kg	800	130 U	800	ug/kg
Benzo (g,h,i) perylene	190 J	850	ug/kg	850	340 J	800	ug/kg	800	260 UJ	800	ug/kg
2-Picoline	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
Methyl methanesulphonate	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
Ethyl methanesulphonate	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
Acetophenone	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
N-Nitrosopiperidine	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
Phenyl-tert-butylamine	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
2,6-Dichlorophenol	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
N-Nitroso-di-n-butylamine	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
N-Nitrosodimethylamine	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
N-Nitrosopyrrolidine	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
Benzidine	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
1,2,4,5-Tetrachlorobenzene	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
Pentachlorobenzene	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
1-Naphthylamine	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
2-Naphthylamine	4100 UJ	4100	ug/kg	4100	3900 UJ	3900 UJ	ug/kg	3900 UJ	3900	3900	ug/kg
2,3,4,6-Tetrachlorophenol	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
Phenacetin	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
4-Aminobiphenyl	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
Pentachloronitrobenzene	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
Prothimide	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
p-Dimethylaminobenzene	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
7,12-Dimethylbenz(A)Anthracene	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
3-Methylcholanthrene	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
Pyridine	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
N-Nitrosomethyl ethylamine	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
N-Nitrosomorpholine	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
o-Toluidine	850 U	850	ug/kg	850	800 U	800 U	ug/kg	800 U	800	800	ug/kg
Hexachloropropene	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
p-Phenylenediamine	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
Safrole	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
Isosafrole	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
1,4-Naphthoquinone	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
1,3-Dinitrobenzene	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
5-Nitro-o-toluidine	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
1,3,5-Trinitrobenzene	4100 R	4100	ug/kg	4100	3900 R	3900 R	ug/kg	3900 R	3900	3900	ug/kg
4-Nitroquinoline-1-oxide	4100 UJ	4100	ug/kg	4100	3900 UJ	3900 UJ	ug/kg	3900 UJ	3900	3900	ug/kg
Methapyrene	850 UJ	850	ug/kg	850	800 UJ	800 UJ	ug/kg	800 UJ	800	800	ug/kg
3,3-Dimethylbenzidine	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg
Hexachlorophene	4100 U	4100	ug/kg	4100	3900 U	3900 U	ug/kg	3900 U	3900	3900	ug/kg

Naval Station Mayport, Mayport, Florida
South of Building 55, SWMU 23 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

R9743016
GROUP111
23S01301
07-APR-95

R9743017
GROUP111
23S01401
07-APR-95

MB278004
GROUP111
23S04001
26-JUN-96

MB278007
GROUP111
23S04101
26-JUN-96

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Aramite	4100 R	U	ug/kg	4100	3900 R	U	ug/kg	3900								
2-Chlorophenol	850 U	U	ug/kg	850	800 U	U	ug/kg	800								
3- & 4-Methylphenol (2)	850 U	U	ug/kg	850	800 U	U	ug/kg	800								
Hexachlorocyclopene	4100 U	U	ug/kg	4100	3900 U	U	ug/kg	3900								
2-Acetylaminofluorene	850 UJ	UJ	ug/kg	850	800 UJ	UJ	ug/kg	800								
INORGANICS (SOIL)																
Antimony	1.5 J	J	mg/kg	5	1.2 U	U	mg/kg	1.2								
Arsenic	13.9 J	J	mg/kg	.7	7.7 J	J	mg/kg	.7								
Barium	107		mg/kg	1	90.7		mg/kg	.098								
Beryllium	.51 J	J	mg/kg	.051	.64 J	J	mg/kg	.049								
Cadmium	1.4 J	J	mg/kg	.33	.75 J	J	mg/kg	.32								
Chromium	38.6 J	J	mg/kg	.54	16.3 J	J	mg/kg	.51								
Cobalt	3.9 UJ	UJ	mg/kg	3.9	2.5 UJ	UJ	mg/kg	2.5								
Copper	456 J	J	mg/kg	.38	38.9 J	J	mg/kg	.37								
Cyanide	.21 J	J	mg/kg	1	.16 J	J	mg/kg	1								
Lead	82.9 J	J	mg/kg	5	37.3 J	J	mg/kg	2.5								
Mercury	.04 J	J	mg/kg	.1	.03 U	U	mg/kg	.03								
Nickel	81.3 UJ	UJ	mg/kg	1.3	12.2		mg/kg	1.3								
Selenium	.15 UJ	UJ	mg/kg	.15	.15 UJ	UJ	mg/kg	.15								
Silver	.59 U	U	mg/kg	.59	.56 U	U	mg/kg	.56								
Thallium	.15 U	U	mg/kg	.15	.15 U	U	mg/kg	.15								
Tin	31.9		mg/kg	2.5	3.2 J	J	mg/kg	2.4								
Vanadium	16.4		mg/kg	.38	17.9		mg/kg	.37								
Zinc	161 J	J	mg/kg	.31	55.9 J	J	mg/kg	.29								

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.

Naval Station Mayport, Mayport, Florida
 South of Building 55, SWMU 23 Surface Soil Data

Lab Sample Number:
 Site
 Locator
 Collect Date:

MB278009
 GROUP III
 23S04201
 26-JUN-96

MB278011
 GROUP III
 23S04301
 26-JUN-96

MB278013
 GROUP III
 23S04401
 26-JUN-96

MB278014
 GROUP III
 23S04401D
 26-JUN-96

Chemical Name	MB278009	MB278011	MB278013	MB278014
	DL	DL	DL	DL
	QUAL UNITS	QUAL UNITS	QUAL UNITS	QUAL UNITS
	VALUE	VALUE	VALUE	VALUE
	DL	DL	DL	DL
	QUAL UNITS	QUAL UNITS	QUAL UNITS	QUAL UNITS
	VALUE	VALUE	VALUE	VALUE
SEMIVOLATILES				
N-Nitrosodimethylamine	ug/kg	ug/kg	ug/kg	ug/kg
Phenol	-	-	-	-
Aniline	ug/kg	ug/kg	ug/kg	ug/kg
bis(2-Chloroethyl) ether	ug/kg	ug/kg	ug/kg	ug/kg
Benzyl Alcohol	ug/kg	ug/kg	ug/kg	ug/kg
2-Methylphenol	ug/kg	ug/kg	ug/kg	ug/kg
bis(2-Chloroisopropyl) ether	ug/kg	ug/kg	ug/kg	ug/kg
N-Nitroso-di-n-propylamine	ug/kg	ug/kg	ug/kg	ug/kg
Hexachloroethane	ug/kg	ug/kg	ug/kg	ug/kg
Nitrobenzene	ug/kg	ug/kg	ug/kg	ug/kg
Isophorone	ug/kg	ug/kg	ug/kg	ug/kg
2-Nitrophenol	ug/kg	ug/kg	ug/kg	ug/kg
2,4-Dimethylphenol	ug/kg	ug/kg	ug/kg	ug/kg
Benzoic acid	ug/kg	ug/kg	ug/kg	ug/kg
bis(2-Chloroethoxy) methane	ug/kg	ug/kg	ug/kg	ug/kg
2,4-Dichlorophenol	ug/kg	ug/kg	ug/kg	ug/kg
1,2,4-Trichlorobenzene	ug/kg	ug/kg	ug/kg	ug/kg
Naphthalene	50 U	50	52	54 U
4-Chloroaniline	ug/kg	ug/kg	ug/kg	ug/kg
Hexachlorobutadiene	ug/kg	ug/kg	ug/kg	ug/kg
4-Chloro-3-methylphenol	ug/kg	ug/kg	ug/kg	ug/kg
2-Methylnaphthalene	50 U	50	52	54 U
Hexachlorocyclopentadiene	ug/kg	ug/kg	ug/kg	ug/kg
2,4,6-Trichlorophenol	ug/kg	ug/kg	ug/kg	ug/kg
Dimethylphthalate	ug/kg	ug/kg	ug/kg	ug/kg
2,4,5-Trichlorophenol	ug/kg	ug/kg	ug/kg	ug/kg
2-Chloronaphthalene	ug/kg	ug/kg	ug/kg	ug/kg
2-Nitroaniline	ug/kg	ug/kg	ug/kg	ug/kg
Acenaphthylene	50 U	50	52	54 U
2,6-Dinitrotoluene	ug/kg	ug/kg	ug/kg	ug/kg
3-Nitroaniline	ug/kg	ug/kg	ug/kg	ug/kg
Acenaphthene	50 U	50	52	54 U
2,4-Dinitrophenol	ug/kg	ug/kg	ug/kg	ug/kg
4-Nitrophenol	ug/kg	ug/kg	ug/kg	ug/kg
Dibenzofuran	ug/kg	ug/kg	ug/kg	ug/kg
2,4-Dinitrotoluene	ug/kg	ug/kg	ug/kg	ug/kg
Diethylphthalate	ug/kg	ug/kg	ug/kg	ug/kg
4-Chlorophenyl-phenylether	ug/kg	ug/kg	ug/kg	ug/kg
Fluorene	50 U	50	52	54 U
4-Nitroaniline	ug/kg	ug/kg	ug/kg	ug/kg

Naval Station Mayport, Mayport, Florida
South of Building 55, SMMU 23 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB278014
GROUP111
23S04401D
26-JUN-96

MB278013
GROUP111
23S04401
26-JUN-96

MB278011
GROUP111
23S04301
26-JUN-96

MB278009
GROUP111
23S04201
26-JUN-96

Chemical Name	MB278014	MB278013	MB278011	MB278009
	QUAL	QUAL	QUAL	QUAL
	UNITS	UNITS	UNITS	UNITS
	DL	DL	DL	DL
	VALUE	VALUE	VALUE	VALUE
4,6-Dinitro-2-methylphenol	ug/kg	ug/kg	ug/kg	ug/kg
N-Nitrosodiphenylamine	ug/kg	ug/kg	ug/kg	ug/kg
1,2-Diphenylhydrazine	ug/kg	ug/kg	ug/kg	ug/kg
4-Bromophenyl phenylether	ug/kg	ug/kg	ug/kg	ug/kg
Hexachlorobenzene	ug/kg	ug/kg	ug/kg	ug/kg
Pentachlorophenol	ug/kg	ug/kg	ug/kg	ug/kg
Phenanthrene	54 U	54 U	52 U	50 U
Anthracene	54 U	54 U	52 U	50 U
Di-n-Butylphthalate	54 U	54 U	52 U	50 U
Fluoranthene	54 U	54 U	52 U	50 U
Pyrene	54 U	54 U	52 U	50 U
Butylbenzylphthalate	54 U	54 U	52 U	50 U
3,3-Dichlorobenzidine	54 U	54 U	52 U	50 U
Benzo (a) anthracene	54 U	54 U	52 U	50 U
Chrysene	54 U	54 U	52 U	50 U
Bis(2-Ethylhexyl) phthalate	54 U	54 U	52 U	50 U
Di-n-octylphthalate	54 U	54 U	52 U	50 U
Benzo (b) fluoranthene	54 U	54 U	52 U	50 U
Benzo (k) fluoranthene	54 U	54 U	110 UJ	50 U
Benzo (a) pyrene	54 U	54 U	52 U	50 U
Indeno (1,2,3-cd) pyrene	54 U	54 U	52 U	50 U
Dibenzo (a,h) anthracene	54 U	54 U	52 U	50 U
Benzo (g,h,i) perylene	54 U	54 U	52 U	50 U
2-Picoline	ug/kg	ug/kg	ug/kg	ug/kg
Methyl methanesulfonate	ug/kg	ug/kg	ug/kg	ug/kg
Ethyl methanesulfonate	ug/kg	ug/kg	ug/kg	ug/kg
Acetophenone	ug/kg	ug/kg	ug/kg	ug/kg
N-Nitrosopiperidine	ug/kg	ug/kg	ug/kg	ug/kg
Phenyl-tert-butylamine	ug/kg	ug/kg	ug/kg	ug/kg
2,6-Dichlorophenol	ug/kg	ug/kg	ug/kg	ug/kg
N-Nitroso-di-n-butylamine	ug/kg	ug/kg	ug/kg	ug/kg
N-Nitrosodiethylamine	ug/kg	ug/kg	ug/kg	ug/kg
N-Nitrosopyrrolidine	ug/kg	ug/kg	ug/kg	ug/kg
Benzidine	ug/kg	ug/kg	ug/kg	ug/kg
1,2,4,5-Tetrachlorobenzene	ug/kg	ug/kg	ug/kg	ug/kg
Pentachlorobenzene	ug/kg	ug/kg	ug/kg	ug/kg
1-Naphthylamine	ug/kg	ug/kg	ug/kg	ug/kg
2-Naphthylamine	ug/kg	ug/kg	ug/kg	ug/kg
2,3,4,6-Tetrachlorophenol	ug/kg	ug/kg	ug/kg	ug/kg
Phenacetin	ug/kg	ug/kg	ug/kg	ug/kg
4-Aminobiphenyl	ug/kg	ug/kg	ug/kg	ug/kg
Pentachloronitrobenzene	ug/kg	ug/kg	ug/kg	ug/kg
Pronamide	ug/kg	ug/kg	ug/kg	ug/kg
p-Dimethylaminoazobenzene	ug/kg	ug/kg	ug/kg	ug/kg
7,12-Dimethylbenz(A)Anthracene	ug/kg	ug/kg	ug/kg	ug/kg
3-Methylcholanthrene	ug/kg	ug/kg	ug/kg	ug/kg
Pyridine	ug/kg	ug/kg	ug/kg	ug/kg
N-Nitrosomethyl ethylamine	ug/kg	ug/kg	ug/kg	ug/kg
N-Nitrosomorpholine	ug/kg	ug/kg	ug/kg	ug/kg
o-Toluidine	ug/kg	ug/kg	ug/kg	ug/kg
Hexachloropropene	ug/kg	ug/kg	ug/kg	ug/kg
p-Phenylenediamine	ug/kg	ug/kg	ug/kg	ug/kg

Naval Station Mayport, Mayport, Florida
South of Building 55, SMU 23 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB278009
GROUP111
23S04201
26-JUN-96

MB278011
GROUP111
23S04301
26-JUN-96

MB278013
GROUP111
23S04401
26-JUN-96

MB278014
GROUP111
23S04401D
26-JUN-96

	VALUE	QUAL	UNITS	DL												
Safrole	.68 J		ug/kg		.53 U		ug/kg		.55 U		ug/kg		.55 U		ug/kg	
Isosafrole	1.1 J		ug/kg		1.4 J		ug/kg		1.1 J		ug/kg		1.8 J		ug/kg	
1,4-Naphthoquinone	50.5		ug/kg		15.6 J		ug/kg		13.4 J		ug/kg		13.7 J		ug/kg	
1,3-Dinitrobenzene	.3 J		ug/kg		.08 J		ug/kg		.09 J		ug/kg		.12 J		ug/kg	
5-Nitro-o-toluidine	.67 U		ug/kg		.69 U		ug/kg		.72 U		ug/kg		.72 U		ug/kg	
1,3,5-Trinitrobenzene	10		ug/kg		6		ug/kg		5.4		ug/kg		5.1		ug/kg	
4-Nitroquinoline-1-oxide	2 J		ug/kg		.9 J		ug/kg		.85 J		ug/kg		.88 J		ug/kg	
Methapyrene	40.2		ug/kg		8.7		ug/kg		4.3 J		ug/kg		2.8 J		ug/kg	
3,3-Dimethylbenzidine	.09 U		ug/kg		.09 U		ug/kg		1 U		ug/kg		1 U		ug/kg	
Hexachlorophene	40.8 J		ug/kg		19.6 J		ug/kg		8.7 J		ug/kg		5.2 J		ug/kg	
Aramite	.03 U		ug/kg													
2-Chlorophenol	21.4		ug/kg		3.8 J		ug/kg		1.2 U		ug/kg		1.2 U		ug/kg	
3- & 4-Methylphenol (2)	.25 U		ug/kg		.26 U		ug/kg		.27 U		ug/kg		.27 U		ug/kg	
Hexachloropropene	.45 U		ug/kg		.46 U		ug/kg		.48 U		ug/kg		.48 U		ug/kg	
2-Acetylaminofluorene	.16 U		ug/kg		.17 U		ug/kg		.17 U		ug/kg		.17 U		ug/kg	
	2.4 U		ug/kg		2.5 U		ug/kg		2.6 U		ug/kg		2.6 U		ug/kg	
	6.9 J		ug/kg		5.9 J		ug/kg		7.5 J		ug/kg		6.3 J		ug/kg	
	108		ug/kg		26.8		ug/kg		21.2		ug/kg		12.4		ug/kg	
INORGANICS (SOIL)																
Antimony	.52		mg/kg		.53		mg/kg		.55		mg/kg		.55		mg/kg	
Arsenic	.19		mg/kg		.2		mg/kg		.21		mg/kg		.21		mg/kg	
Barium	50.5		mg/kg		.073		mg/kg		.076		mg/kg		.076		mg/kg	
Beryllium	.3 J		mg/kg		.027		mg/kg		.028		mg/kg		.028		mg/kg	
Cadmium	.67 U		mg/kg		.69		mg/kg		.72		mg/kg		.72		mg/kg	
Chromium	10		mg/kg		6		mg/kg		5.4		mg/kg		5.1		mg/kg	
Cobalt	2 J		mg/kg		.9 J		mg/kg		.85 J		mg/kg		.88 J		mg/kg	
Copper	40.2		mg/kg		8.7		mg/kg		4.3 J		mg/kg		2.8 J		mg/kg	
Lead	.09 U		mg/kg		.09 U		mg/kg		1 U		mg/kg		1 U		mg/kg	
Cyanide	40.8 J		mg/kg		19.6 J		mg/kg		8.7 J		mg/kg		5.2 J		mg/kg	
Mercury	.03 U		mg/kg													
Nickel	21.4		mg/kg		3.8 J		mg/kg		1.2 U		mg/kg		1.2 U		mg/kg	
Selenium	.25 U		mg/kg		.26 U		mg/kg		.27 U		mg/kg		.27 U		mg/kg	
Silver	.45 U		mg/kg		.46 U		mg/kg		.48 U		mg/kg		.48 U		mg/kg	
Thallium	.16 U		mg/kg		.17 U		mg/kg		.17 U		mg/kg		.17 U		mg/kg	
Tin	2.4 U		mg/kg		2.5 U		mg/kg		2.6 U		mg/kg		2.6 U		mg/kg	
Vanadium	6.9 J		mg/kg		5.9 J		mg/kg		7.5 J		mg/kg		6.3 J		mg/kg	
Zinc	108		mg/kg		26.8		mg/kg		21.2		mg/kg		12.4		mg/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.

Naval Station Mayport, Mayport, Florida
South of Building 55, SMMU 23 Subsurface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB278005
GROUP III
23804002
26-JUN-96

MB278006
GROUP III
23804002D
26-JUN-96

MB278008
GROUP III
23804102
26-JUN-96

MB278010
GROUP III
23804202
26-JUN-96

SEMIVOLATILES	ug/kg	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
N-Nitrosodimethylamine	-		-	ug/kg		-	ug/kg		-	ug/kg	
Phenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
Aniline	-		-	ug/kg		-	ug/kg		-	ug/kg	
bis(2-Chloroethyl) ether	-		-	ug/kg		-	ug/kg		-	ug/kg	
Benzyl Alcohol	-		-	ug/kg		-	ug/kg		-	ug/kg	
2-Methylphenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
bis(2-Chloroisopropyl) ether	-		-	ug/kg		-	ug/kg		-	ug/kg	
N-Nitroso-di-n-propylamine	-		-	ug/kg		-	ug/kg		-	ug/kg	
Hexachloroethane	-		-	ug/kg		-	ug/kg		-	ug/kg	
Nitrobenzene	-		-	ug/kg		-	ug/kg		-	ug/kg	
Isophorone	-		-	ug/kg		-	ug/kg		-	ug/kg	
2-Nitrophenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
2,4-Dimethylphenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
Benzoic acid	-		-	ug/kg		-	ug/kg		-	ug/kg	
bis(2-Chloroethoxy) methane	-		-	ug/kg		-	ug/kg		-	ug/kg	
2,4-Dichlorophenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
1,2,4-Trichlorobenzene	52 U	52	54	ug/kg	54	310 U	ug/kg	310	260 U	ug/kg	260
Naphthalene	-		-	ug/kg		-	ug/kg		-	ug/kg	
4-Chloroaniline	-		-	ug/kg		-	ug/kg		-	ug/kg	
Hexachlorobutadiene	-		-	ug/kg		-	ug/kg		-	ug/kg	
4-Chloro-3-methylphenol	52 U	52	54	ug/kg	54	310 U	ug/kg	310	260 U	ug/kg	260
2-Methylnaphthalene	-		-	ug/kg		-	ug/kg		-	ug/kg	
Hexachlorocyclopentadiene	-		-	ug/kg		-	ug/kg		-	ug/kg	
2,4,6-Trichlorophenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
Dimethylphthalate	-		-	ug/kg		-	ug/kg		-	ug/kg	
2,4,5-Trichlorophenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
2-Chloronaphthalene	-		-	ug/kg		-	ug/kg		-	ug/kg	
2-Nitroaniline	52 U	52	54	ug/kg	54	310 U	ug/kg	310	260 U	ug/kg	260
Acenaphthylene	-		-	ug/kg		-	ug/kg		-	ug/kg	
2,6-Dinitrotoluene	52 U	52	54	ug/kg	54	310 U	ug/kg	310	260 U	ug/kg	260
3-Nitroaniline	-		-	ug/kg		-	ug/kg		-	ug/kg	
Acenaphthene	-		-	ug/kg		-	ug/kg		-	ug/kg	
2,4-Dinitrophenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
4-Nitrophenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
Dibenzofuran	-		-	ug/kg		-	ug/kg		-	ug/kg	
2,4-Dinitrotoluene	-		-	ug/kg		-	ug/kg		-	ug/kg	
Diethylphthalate	-		-	ug/kg		-	ug/kg		-	ug/kg	
4-Chlorophenyl-phenylether	52 U	52	54	ug/kg	54	310 U	ug/kg	310	260 U	ug/kg	260
Fluorene	-		-	ug/kg		-	ug/kg		-	ug/kg	
4-Nitroaniline	-		-	ug/kg		-	ug/kg		-	ug/kg	
4,6-Dinitro-2-methylphenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
N-Nitrosodiphenylamine	-		-	ug/kg		-	ug/kg		-	ug/kg	
1,2-Diphenylhydrazine	-		-	ug/kg		-	ug/kg		-	ug/kg	
4-Bromophenyl-phenylether	-		-	ug/kg		-	ug/kg		-	ug/kg	
Hexachlorobenzene	-		-	ug/kg		-	ug/kg		-	ug/kg	
Pentachlorophenol	-		-	ug/kg		-	ug/kg		-	ug/kg	
Phenanthrene	52 U	52	54	ug/kg	54	310 U	ug/kg	310	260 U	ug/kg	260
Anthracene	52 U	52	54	ug/kg	54	310 U	ug/kg	310	260 U	ug/kg	260
Di-n-Butylphthalate	-		-	ug/kg		-	ug/kg		-	ug/kg	
Fluorethane	52 U	52	54	ug/kg	54	310 U	ug/kg	310	260 U	ug/kg	260

Naval Station Mayport, Mayport, Florida
South of Building 55, SMMU 23 Subsurface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB278005
GROUP111
23804002
26-JUN-96

MB278006
GROUP111
23804002D
26-JUN-96

MB278008
GROUP111
23804102
26-JUN-96

MB278010
GROUP111
23804202
26-JUN-96

	VALUE	QUAL	UNITS	DL												
Aramids			ug/kg				ug/kg				ug/kg					ug/kg
2-Chlorophenol			ug/kg				ug/kg				ug/kg					ug/kg
3- & 4-Methylphenol (2)			ug/kg				ug/kg				ug/kg					ug/kg
Hexachloropropene			ug/kg				ug/kg				ug/kg					ug/kg
2-Acetylaminofluorene			ug/kg				ug/kg				ug/kg					ug/kg
INORGANICS (SOIL)																
Antimony			mg/kg				mg/kg				mg/kg					mg/kg
Arsenic			mg/kg				mg/kg				mg/kg					mg/kg
Barium			mg/kg				mg/kg				mg/kg					mg/kg
Beryllium			mg/kg				mg/kg				mg/kg					mg/kg
Cadmium			mg/kg				mg/kg				mg/kg					mg/kg
Chromium			mg/kg				mg/kg				mg/kg					mg/kg
Cobalt			mg/kg				mg/kg				mg/kg					mg/kg
Copper			mg/kg				mg/kg				mg/kg					mg/kg
Cyanide			mg/kg				mg/kg				mg/kg					mg/kg
Lead			mg/kg				mg/kg				mg/kg					mg/kg
Mercury			mg/kg				mg/kg				mg/kg					mg/kg
Nickel			mg/kg				mg/kg				mg/kg					mg/kg
Selenium			mg/kg				mg/kg				mg/kg					mg/kg
Silver			mg/kg				mg/kg				mg/kg					mg/kg
Thallium			mg/kg				mg/kg				mg/kg					mg/kg
Tin			mg/kg				mg/kg				mg/kg					mg/kg
Vanadium			mg/kg				mg/kg				mg/kg					mg/kg
Zinc			mg/kg				mg/kg				mg/kg					mg/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 SIOC (8270) ANALYTICAL RUN.

Naval Station Mayport, Mayport, Florida
South of Building 55, SMMU 23 Subsurface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB278012
GROUP111
23804302
26-JUN-96

MB278015
GROUP111
23804402
26-JUN-96

DL

QUAL UNITS

VALUE

DL

QUAL UNITS

VALUE

DL

QUAL UNITS

VALUE

SEMIVOLATILES

Chemical Name	ug/kg	DL	QUAL UNITS	VALUE	DL	QUAL UNITS	VALUE
N-Nitrosodimethylamine	-	-	-	-	-	-	-
Phenol	-	-	-	-	-	-	-
Aniline	-	-	-	-	-	-	-
bis(2-Chloroethyl) ether	-	-	-	-	-	-	-
Benzyl Alcohol	-	-	-	-	-	-	-
2-Methylphenol	-	-	-	-	-	-	-
bis(2-Chloroisopropyl) ether	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	-	-	-	-	-	-	-
Hexachloroethane	-	-	-	-	-	-	-
Nitrobenzene	-	-	-	-	-	-	-
Isophorone	-	-	-	-	-	-	-
2-Nitrophenol	-	-	-	-	-	-	-
2,4-Dimethylphenol	-	-	-	-	-	-	-
Benzoic acid	-	-	-	-	-	-	-
bis(2-Chloroethoxy) methane	-	-	-	-	-	-	-
2,4-Dichlorophenol	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	-	-	-	-	-	-	-
Naphthalene	260 U	260	ug/kg	52 U	52	ug/kg	52
4-Chlorobiphenyl	-	-	-	-	-	-	-
Hexachlorobutadiene	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-	-
2-Methylnaphthalene	260 U	260	ug/kg	52 U	52	ug/kg	52
Hexachlorocyclopentadiene	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	-	-	-	-	-	-	-
Dimethylphthalate	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	-	-	-	-	-	-	-
2-Chloronaphthalene	-	-	-	-	-	-	-
2-Nitroaniline	-	-	-	-	-	-	-
Acenaphthylene	260 U	260	ug/kg	52 U	52	ug/kg	52
2,6-Dinitrotoluene	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-	-	-	-
Acenaphthene	260 U	260	ug/kg	52 U	52	ug/kg	52
2,4-Dinitrophenol	-	-	-	-	-	-	-
4-Nitrophenol	-	-	-	-	-	-	-
Dibenzofuran	-	-	-	-	-	-	-
2,4-Dinitrotoluene	-	-	-	-	-	-	-
Diethylphthalate	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	-	-	-	-	-	-	-
Fluorene	260 U	260	ug/kg	52 U	52	ug/kg	52
4-Nitroaniline	-	-	-	-	-	-	-

Naval Station Mayport, Mayport, Florida
 South of Building 55, SWMU 23 subsurface soil Data

Lab Sample Number:
 Site
 Locator
 Collect Date:

MB278012
 GROUP III
 23804302
 26-JUN-96

MB278015
 GROUP III
 23804402
 26-JUN-96

Chemical Name	MB278012 VALUE	MB278012 QUAL	MB278012 UNITS	DL	VALUE	QUAL	UNITS	DL
4,6-Dinitro-2-methylphenol	-	-	ug/kg		-	-	ug/kg	
N-Nitrosodiphenylamine	-	-	ug/kg		-	-	ug/kg	
1,2-Diphenylhydrazine	-	-	ug/kg		-	-	ug/kg	
4-Bromophenyl phenylether	-	-	ug/kg		-	-	ug/kg	
Hexachlorobenzene	-	-	ug/kg		-	-	ug/kg	
Pentachlorophenol	-	-	ug/kg		-	-	ug/kg	
Phenanthrene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Anthracene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Di-n-Butylphthalate	-	-	ug/kg		-	-	ug/kg	
Fluoranthene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Pyrene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Butylbenzylphthalate	-	-	ug/kg		-	-	ug/kg	
3,3-Dichlorobenzidine	-	-	ug/kg		-	-	ug/kg	
Benzo (a) anthracene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Chrysene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
bis(2-Ethylhexyl) phthalate	-	-	ug/kg		-	-	ug/kg	
Di-n-octylphthalate	-	-	ug/kg		-	-	ug/kg	
Benzo (b) fluoranthene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Benzo (k) fluoranthene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Benzo (a) pyrene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Indeno (1,2,3-cd) pyrene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Dibenzo (a,h) anthracene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
Benzo (g,h,i) perylene	260 U	-	ug/kg	260	52 U	-	ug/kg	52
2-Picoline	-	-	ug/kg		-	-	ug/kg	
Methyl methanesulfonate	-	-	ug/kg		-	-	ug/kg	
Ethyl methanesulfonate	-	-	ug/kg		-	-	ug/kg	
Acetophenone	-	-	ug/kg		-	-	ug/kg	
N-Nitrosopiperidine	-	-	ug/kg		-	-	ug/kg	
Phenyl-tert-butylamine	-	-	ug/kg		-	-	ug/kg	
2,6-Dichlorophenol	-	-	ug/kg		-	-	ug/kg	
N-Nitroso-di-n-butylamine	-	-	ug/kg		-	-	ug/kg	
N-Nitrosodimethylamine	-	-	ug/kg		-	-	ug/kg	
N-Nitrosopyrrolidine	-	-	ug/kg		-	-	ug/kg	
Benzidine	-	-	ug/kg		-	-	ug/kg	
1,2,4,5-Tetrachlorobenzene	-	-	ug/kg		-	-	ug/kg	
Pentachlorobenzene	-	-	ug/kg		-	-	ug/kg	
1-Naphthylamine	-	-	ug/kg		-	-	ug/kg	
2-Naphthylamine	-	-	ug/kg		-	-	ug/kg	
2,3,4,6-Tetrachlorophenol	-	-	ug/kg		-	-	ug/kg	
Phenacetin	-	-	ug/kg		-	-	ug/kg	
4-Aminobiphenyl	-	-	ug/kg		-	-	ug/kg	
Pentachloronitrobenzene	-	-	ug/kg		-	-	ug/kg	
Pronamide	-	-	ug/kg		-	-	ug/kg	
p-Dimethylaminoazobenzene	-	-	ug/kg		-	-	ug/kg	
7,12-Dimethylbenz(A)Anthracene	-	-	ug/kg		-	-	ug/kg	
3-Methylcholanthrene	-	-	ug/kg		-	-	ug/kg	
Pyridine	-	-	ug/kg		-	-	ug/kg	
N-Nitrosomethyl ethylamine	-	-	ug/kg		-	-	ug/kg	
N-Nitrosomorpholine	-	-	ug/kg		-	-	ug/kg	
o-Toluidine	-	-	ug/kg		-	-	ug/kg	
Hexachloropropene	-	-	ug/kg		-	-	ug/kg	
p-Phenylenediamine	-	-	ug/kg		-	-	ug/kg	

Naval Station Mayport, Mayport, Florida
 South of Building 55, SIMU 23 Subsurface Soil Data

Lab Sample Number: MB278012
 Site: GROUP111
 Locator: 23804302
 Collect Date: 26-JUN-96

MB278015
 GROUP111
 23804402
 26-JUN-96

VALUE QVAL UNITS DL VALUE QVAL UNITS DL

Compound	VALUE	QVAL	UNITS	DL	VALUE	QVAL	UNITS	DL
Safrole			ug/kg				ug/kg	
Isosafrole			ug/kg				ug/kg	
1,4-Naphthoquinone			ug/kg				ug/kg	
1,3-Dinitrobenzene			ug/kg				ug/kg	
5-Nitro-o-toluidine			ug/kg				ug/kg	
1,3,5-Trinitrobenzene			ug/kg				ug/kg	
4-Nitroquinoline-1-oxide			ug/kg				ug/kg	
Methapyrene			ug/kg				ug/kg	
3,3-Dimethylbenzidine			ug/kg				ug/kg	
Hexachlorophene			ug/kg				ug/kg	
Aramite			ug/kg				ug/kg	
2-Chlorophenol			ug/kg				ug/kg	
3- & 4-Methylphenol (2)			ug/kg				ug/kg	
Hexachloropropene			ug/kg				ug/kg	
2-Acetylaminofluorene			ug/kg				ug/kg	
INORGANICS (SOIL)								
Antimony	.53	U	mg/kg	.53	.53	U	mg/kg	.53
Arsenic	.95	J	mg/kg	.2	.62	J	mg/kg	.2
Barium	4.8	J	mg/kg	.073	13.5	J	mg/kg	.073
Beryllium	.03	J	mg/kg	.027	.22	J	mg/kg	.027
Cadmium	.69	U	mg/kg	.69	.69	U	mg/kg	.69
Chromium	2.1	J	mg/kg	.46	6.9	U	mg/kg	.46
Cobalt	.52	U	mg/kg	.52	1.4	J	mg/kg	.52
Copper	1.6	UJ	mg/kg	1.6	15		mg/kg	.25
Lead	.09	U	mg/kg	.09	.09	U	mg/kg	.09
Mercury	5.4	J	mg/kg	.16	51.5	J	mg/kg	.16
Nickel	.09	J	mg/kg	.028	.03	U	mg/kg	.03
Selenium	1.1	U	mg/kg	1.1	4.2	J	mg/kg	1.2
Silver	.26	UJ	mg/kg	.26	.26	UJ	mg/kg	.26
Tin	.46	U	mg/kg	.46	.46	U	mg/kg	.46
Thallium	.16	J	mg/kg	.16	.17	U	mg/kg	.17
Titanium	2.5	U	mg/kg	2.5	11.1		mg/kg	2.5
Vanadium	2.1	J	mg/kg	.35	5.4	J	mg/kg	.35
Zinc	7.5		mg/kg	.21	54.7		mg/kg	.21

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.

Naval Station Mayport, Mayport, Florida
 South of Building 57, SNAU 23 Surface Soil Date

Lab Sample Number:
 Site
 Locator
 Collect Date:

MB775003
 GROUP111
 23S02401
 07-APR-95

MB278016
 GROUP111
 23S04501
 26-JUN-96

MB278018
 GROUP111
 23S04601
 26-JUN-96

MB278020
 GROUP111
 23S04701
 26-JUN-96

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (SOIL)																
Antimony	3.2	J	mg/kg	.65	.53	U	mg/kg		.83	J	mg/kg		1.2	J	mg/kg	
Arsenic	.88	J	mg/kg	.16	.2	J	mg/kg		1.5	J	mg/kg		1.7	J	mg/kg	
Barium	126	J	mg/kg	.12	.073	J	mg/kg		30.5	J	mg/kg		142	J	mg/kg	
Beryllium	1.9	J	mg/kg	.027	.027	J	mg/kg		.37	J	mg/kg		2	J	mg/kg	
Cadmium	1.5	J	mg/kg	.54	.69	J	mg/kg		.72	U	mg/kg		.95	J	mg/kg	
Chromium	28.3	J	mg/kg	.5	.46	J	mg/kg		10.4	J	mg/kg		30.7	J	mg/kg	
Cobalt	8.4	J	mg/kg	.1	.52	J	mg/kg		2.1	J	mg/kg		9	J	mg/kg	
Copper	52.5	J	mg/kg	.52	.25	J	mg/kg		15.6	J	mg/kg		75.9	J	mg/kg	
Cyanide	.11	U	mg/kg	.11	.09	U	mg/kg		.1	U	mg/kg		.09	U	mg/kg	
Lead	41.8	J	mg/kg	2.6	.47	J	mg/kg		49.2	J	mg/kg		88.6	J	mg/kg	
Mercury	.03	U	mg/kg	.03	.03	U	mg/kg		.03	U	mg/kg		.03	U	mg/kg	
Nickel	19.3	J	mg/kg	1.1	1.2	J	mg/kg		4.2	J	mg/kg		25.4	J	mg/kg	
Selenium	.49	U	mg/kg	.23	.26	UJ	mg/kg		.27	UJ	mg/kg		.26	UJ	mg/kg	
Silver	.36	U	mg/kg	.49	.46	U	mg/kg		.48	U	mg/kg		.45	U	mg/kg	
Thallium	4.5	J	mg/kg	.36	.17	U	mg/kg		.65	J	mg/kg		.16	U	mg/kg	
Tin	23.4	J	mg/kg	1.6	2.5	U	mg/kg		2.6	U	mg/kg		8.8	J	mg/kg	
Vanadium	301	J	mg/kg	.39	.36	J	mg/kg		9.6	J	mg/kg		25.4	J	mg/kg	
Zinc			mg/kg	.14	.21	J	mg/kg		115	J	mg/kg		361	J	mg/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.

Naval Station Mayport, Mayport, Florida
 South of Building 57, SIMU 23 Subsurface Soil Data

Lab Sample Number:
 Site
 Locator
 Collect Date:

MB278017
 GROUP111
 23804502
 26-JUN-96

MB278019
 GROUP111
 23804602
 26-JUN-96

MB278021
 GROUP111
 23804702
 26-JUN-96

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (SOIL)												
Antimony	1.3	J	mg/kg	.54	2.5	J	mg/kg	.55	1.3	J	mg/kg	.54
Arsenic	.86	J	mg/kg	.2	.98	J	mg/kg	.2	1.4	J	mg/kg	.2
Barium	42.1	J	mg/kg	.074	10.2	J	mg/kg	.075	100	J	mg/kg	.074
Beryllium	1.5	J	mg/kg	.028	.19	J	mg/kg	.028	3.1	J	mg/kg	.028
Cadmium	.7	U	mg/kg	.7	.71	U	mg/kg	.71	.7	U	mg/kg	.7
Chromium	16.5	J	mg/kg	.46	14.2	J	mg/kg	.47	36.1	J	mg/kg	.47
Cobalt	5.7	J	mg/kg	.53	1.1	J	mg/kg	.54	10.2	J	mg/kg	.53
Copper	310	J	mg/kg	.25	14	J	mg/kg	.26	605	J	mg/kg	.25
Cyanide	.09	U	mg/kg	.09	.09	U	mg/kg	.09	.09	U	mg/kg	.09
Lead	158	J	mg/kg	.4	56.7	J	mg/kg	.4	273	J	mg/kg	.4
Mercury	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.06	J	mg/kg	.029
Nickel	30	J	mg/kg	1.2	3.5	J	mg/kg	1.2	57.1	J	mg/kg	1.2
Selenium	.26	UJ	mg/kg	.26	.27	UJ	mg/kg	.27	.27	UJ	mg/kg	.27
Silver	.46	U	mg/kg	.46	.47	U	mg/kg	.47	.47	U	mg/kg	.47
Thallium	.17	U	mg/kg	.17	.17	U	mg/kg	.17	.17	U	mg/kg	.17
Tin	47.7	J	mg/kg	2.5	2.5	U	mg/kg	2.5	87.8	J	mg/kg	2.5
Vanadium	10.2	J	mg/kg	.36	7.2	J	mg/kg	.36	12.8	J	mg/kg	.36
Zinc	751	J	mg/kg	.21	192	J	mg/kg	.21	1550	J	mg/kg	.21

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.

Naval Station Mayport, Mayport, Florida
North Florida Shipyard Inc., SMMU 24 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB280003
GROUP III
24S00801D
27-JUN-96

MB280002
GROUP III
24S00801
27-JUN-96

MB280002
GROUP III
24S00801
27-JUN-96

MB280002
GROUP III
24S00801
27-JUN-96

| Chemical Name | DL | VALUE | QUAL UNITS |
|--------------------------------|--------|--------|------------|--------|--------|------------|--------|--------|------------|--------|--------|------------|
| Pyrene | 1800 | 1800 | ug/kg |
| Butylbenzylphthalate | 1800 | 1800 | ug/kg |
| 3,3-Dichlorobenzidine | 3600 | 3600 | ug/kg |
| Benzo (a) anthracene | 1800 | 1800 | ug/kg |
| Chrysene | 1800 | 1800 | ug/kg |
| bis(2-Ethylhexyl) phthalate | 1800 | 1800 | ug/kg |
| Di-n-octylphthalate | 1800 | 1800 | ug/kg |
| Benzo (b) fluoranthene | 1800 | 1800 | ug/kg |
| Benzo (k) fluoranthene | 1800 | 1800 | ug/kg |
| Benzo (a) pyrene | 1800 | 1800 | ug/kg |
| Indeno (1,2,3-cd) pyrene | 1800 | 1800 | ug/kg |
| Dibenzo (a,h) anthracene | 1800 | 1800 | ug/kg |
| Benzo (g,h,i) perylene | 1800 | 1800 | ug/kg |
| 2-Picoline | 8900 | 8900 | ug/kg |
| Methyl methanesulfonate | 1800 | 1800 | ug/kg |
| Ethyl methanesulfonate | 1800 | 1800 | ug/kg |
| Acetophenone | 1800 | 1800 | ug/kg |
| N-Nitrosopiperidine | 1800 | 1800 | ug/kg |
| Phenyl-tert-butylamine | 1800 | 1800 | ug/kg |
| 2,6-Dichlorophenol | 1800 | 1800 | ug/kg |
| N-Nitroso-di-n-butylamine | 1800 | 1800 | ug/kg |
| N-Nitrosodimethylamine | 1800 | 1800 | ug/kg |
| N-Nitrosopyrrolidine | 1800 | 1800 | ug/kg |
| Benzidine | 8900 | 8900 | ug/kg |
| 1,2,4,5-Tetrachlorobenzene | 8900 | 8900 | ug/kg |
| Pentachlorobenzene | 8900 | 8900 | ug/kg |
| 1-Naphthylamine | 8900 | 8900 | ug/kg |
| 2-Naphthylamine | 8900 | 8900 | ug/kg |
| 2,3,4,6-Tetrachlorophenol | 1800 | 1800 | ug/kg |
| Phenacetin | 1800 | 1800 | ug/kg |
| 4-Aminobiphenyl | 8900 | 8900 | ug/kg |
| Pentachloronitrobenzene | 8900 | 8900 | ug/kg |
| Pronamide | 1800 | 1800 | ug/kg |
| p-Dimethylaminobenzene | 1800 | 1800 | ug/kg |
| 7,12-Dimethylbenz(A)Anthracene | 1800 | 1800 | ug/kg |
| 3-Methylcholanthrene | 1800 | 1800 | ug/kg |
| Pyridine | 8900 | 8900 | ug/kg |
| N-Nitrosomethylethylamine | 1800 | 1800 | ug/kg |
| N-Nitrosomorpholine | 1800 | 1800 | ug/kg |
| o-Toluidine | 1800 | 1800 | ug/kg |
| Hexachloropropene | 8900 | 8900 | ug/kg |
| p-Phenylenediamine | 8900 | 8900 | ug/kg |
| Safrole | 8900 | 8900 | ug/kg |
| Isosafrole | 180000 | 180000 | ug/kg |
| 1,4-Naphthoquinone | 1800 | 1800 | ug/kg |
| 1,3-Dinitrobenzene | 1800 | 1800 | ug/kg |
| 5-Nitro-o-toluidine | 1800 | 1800 | ug/kg |
| 1,3,5-Trinitrobenzene | 89000 | 89000 | ug/kg |
| 4-Nitroquinoline-1-oxide | 8900 | 8900 | ug/kg |
| Methapyrene | 1800 | 1800 | ug/kg |
| 3,3-Dimethylbenzidine | 89000 | 89000 | ug/kg |
| Hexachlorobiphenyl | 89000 | 89000 | ug/kg |

Naval Station Mayport, Mayport, Florida
 North Florida Shipyard Inc., SMMU 24 Surface Soil Data

Lab Sample Number:
 Site
 Locator
 Collect Date:

MB985001
 GROUP III
 24S00701
 19-MAY-95

MB985002
 GROUP III
 24S00701D
 19-MAY-95

MB280002
 GROUP III
 24S00801
 27-JUN-96

MB280003
 GROUP III
 24S00801D
 27-JUN-96

	VALUE	QUAL UNITS	DL									
Aramite	8900 U	ug/kg	8900	8900 U	ug/kg	8900	3500 U	ug/kg	3500	3500 U	ug/kg	3500
2-Chlorophenol	1800 U	ug/kg	1800	1800 U	ug/kg	1800	710 U	ug/kg	710	700 U	ug/kg	700
3, 4-Methylphenol (2)	1800 U	ug/kg	1800	1800 U	ug/kg	1800	710 U	ug/kg	710	700 U	ug/kg	700
Hexachloropropene	8900 U	ug/kg	8900	8900 U	ug/kg	8900	3500 U	ug/kg	3500	3500 U	ug/kg	3500
2-Acetylaminofluorene	1800 U	ug/kg	1800	1800 U	ug/kg	1800	710 U	ug/kg	710	700 U	ug/kg	700
INORGANICS (SOIL)												
Antimony	.45	mg/kg	.45	1.3	mg/kg	.45	5.6 J	mg/kg	.54	2.1 J	mg/kg	.54
Arsenic	2.7	mg/kg	.16	2.8	mg/kg	.16	1.2 J	mg/kg	.12	1.4 J	mg/kg	.2
Barium	95.8	mg/kg	.086	120	mg/kg	.086	91.2	mg/kg	.075	92.2	mg/kg	.074
Beryllium	1.2	mg/kg	.03	1.3	mg/kg	.03	2.2	mg/kg	.028	3	mg/kg	.028
Cadmium	.93 J	mg/kg	.62	1 J	mg/kg	.62	7 U	mg/kg	.7	.7 U	mg/kg	.7
Chromium	37.4	mg/kg	1.3	44.1	mg/kg	1.3	31.5 J	mg/kg	.47	40.2 J	mg/kg	.47
Cobalt	14	mg/kg	.8	16	mg/kg	.79	16.4	mg/kg	.53	25.4	mg/kg	.53
Copper	411	mg/kg	.34	449	mg/kg	.34	1070 J	mg/kg	.25	923 J	mg/kg	.25
Cyanide	.22 UJ	mg/kg	.22	.11 U	mg/kg	.22	.09 R	mg/kg	.09	.09 R	mg/kg	.09
Lead	109	mg/kg	6.6	93.1	mg/kg	2.6	194	mg/kg	.8	189	mg/kg	1.6
Mercury	.24 J	mg/kg	.067	.1 J	mg/kg	.067	.03 J	mg/kg	.029	.03 J	mg/kg	.027
Nickel	18.1	mg/kg	1.5	20.4	mg/kg	1.5	53	mg/kg	1.2	57.3	mg/kg	1.2
Selenium	.54 J	mg/kg	.23	.67 J	mg/kg	.23	.27 UJ	mg/kg	.27	.26 UJ	mg/kg	.26
Silver	.39 U	mg/kg	.39	.39 U	mg/kg	.39	.47 U	mg/kg	.47	.47 U	mg/kg	.47
Thallium	.36 U	mg/kg	.36	.36 U	mg/kg	.36	.17 UJ	mg/kg	.17	.17 UJ	mg/kg	.17
Tin	9.2 J	mg/kg	1.9	9.6 J	mg/kg	1.9	82.7 J	mg/kg	2.5	78.1 J	mg/kg	2.5
Vanadium	19.6	mg/kg	.43	22.6	mg/kg	.43	12.7	mg/kg	.36	15.6	mg/kg	.36
Zinc	1450	mg/kg	.3	1430	mg/kg	.3	2420	mg/kg	.21	3130	mg/kg	.21

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.

Naval Station Mayport, Mayport, Florida
 North Florida Shipyard Inc., SMMU 24 Surface Soil Data

Lab Sample Number: MB280005
 Site: GROUP111
 Locator: 24S01001
 Collect Date: 27-JUN-96

MB280007
 GROUP111
 24S01001
 27-JUN-96

VALUE QUAL UNITS DL VALUE QUAL UNITS DL

SEM(VOLATILES)	ug/kg	VALUE	QUAL	UNITS	DL	ug/kg	VALUE	QUAL	UNITS	DL
N-Nitrosodimethylamine	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Phenol	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Aniline	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
bis(2-Chloroethyl) ether	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Benzyl Alcohol	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2-Methylphenol	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
bis(2-Chloroisopropyl) ether	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
N-Nitroso-di-n-propylamine	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Hexachloroethane	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Nitrobenzene	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Isophorone	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2-Nitrophenol	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2,4-Dimethylphenol	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Benzoic acid	1700 U	1700	U	ug/kg	1700	8800	U	ug/kg	8800	8800
bis(2-Chloroethoxy) methane	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2,4-Dichlorophenol	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
1,2,4-Trichlorobenzene	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Naphthalene	350 U	350	U	ug/kg	350	2300	U	ug/kg	2300	1800
4-Chloroaniline	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Hexachlorobutadiene	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
4-Chloro-3-methylphenol	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2-Methylnaphthalene	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Hexachlorocyclopentadiene	350 U	350	U	ug/kg	350	6300	U	ug/kg	6300	1800
2,4,6-Trichlorophenol	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Dimethylphthalate	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2,4,5-Trichlorophenol	1700 U	1700	U	ug/kg	1700	8800	U	ug/kg	8800	8800
2-Chloronaphthalene	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2-Nitroaniline	350 U	350	U	ug/kg	350	8800	U	ug/kg	8800	8800
Acenaphthylene	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2,6-Dinitrotoluene	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
3-Nitroaniline	1700 U	1700	U	ug/kg	1700	8800	U	ug/kg	8800	8800
Acenaphthene	59 J	59	J	ug/kg	59	1800	U	ug/kg	1800	1800
2,4-Dinitrophenol	1700 U	1700	U	ug/kg	1700	8800	U	ug/kg	8800	8800
4-Nitrophenol	1700 U	1700	U	ug/kg	1700	8800	U	ug/kg	8800	8800
Dibenzofuran	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
2,4-Dinitrotoluene	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Diethylphthalate	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
4-Chlorophenyl-phenylether	350 U	350	U	ug/kg	350	1800	U	ug/kg	1800	1800
Fluorene	58 J	58	J	ug/kg	58	1800	U	ug/kg	1800	1800
4-Nitroaniline	1700 U	1700	U	ug/kg	1700	8800	U	ug/kg	8800	8800

Naval Station Mayport, Mayport, Florida
 North Florida Shipyard Inc., SSMU 24 Surface Soil Data

Lab Sample Number:
 Site
 Locator
 Collect Date:

MB280005
 GROUP111
 24S00901
 27-JUN-96

MB280007
 GROUP111
 24S01001
 27-JUN-96

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4,6-Dinitro-2-methylphenol	1700	U	ug/kg	1700	8800	U	ug/kg	8800
N-Nitrosodiphenylamine	350	U	ug/kg	350	1800	U	ug/kg	1800
1,2-Diphenylhydrazine	350	U	ug/kg	350	1800	U	ug/kg	1800
4-Bromophenyl-phenylether	350	U	ug/kg	350	1800	U	ug/kg	1800
Hexachlorobenzene	350	U	ug/kg	350	1800	U	ug/kg	1800
Pentachlorophenol	1700	U	ug/kg	1700	8800	U	ug/kg	8800
Phenanthrene	570	U	ug/kg	350	240	J	ug/kg	1800
Anthracene	130	J	ug/kg	350	1800	U	ug/kg	1800
Di-n-Butylphthalate	200	J	ug/kg	350	1800	U	ug/kg	1800
Fluoranthene	800	U	ug/kg	350	340	J	ug/kg	1800
Pyrene	740	U	ug/kg	350	410	J	ug/kg	1800
Butylbenzylphthalate	350	U	ug/kg	350	1800	U	ug/kg	1800
3,3-Dichlorobenzidine	700	U	ug/kg	700	3500	U	ug/kg	3500
Benzo (a) anthracene	400	U	ug/kg	350	210	J	ug/kg	1800
Chrysene	440	U	ug/kg	350	270	J	ug/kg	1800
bis(2-Ethylhexyl) phthalate	890	U	ug/kg	890	1800	U	ug/kg	1800
Di-n-octylphthalate	350	U	ug/kg	350	620	J	ug/kg	1800
Benzo (b) fluoranthene	340	J	ug/kg	350	240	J	ug/kg	1800
Benzo (k) fluoranthene	370	U	ug/kg	350	200	J	ug/kg	1800
Benzo (a) pyrene	350	J	ug/kg	350	250	J	ug/kg	1800
Indeno (1,2,3-cd) pyrene	160	J	ug/kg	350	230	J	ug/kg	1800
Dibenzo (a,h) anthracene	59	J	ug/kg	350	1800	U	ug/kg	1800
Benzo (g,h,i) perylene	170	J	ug/kg	350	300	J	ug/kg	1800
2-Picoline	1700	U	ug/kg	1700	8800	U	ug/kg	8800
Methyl methanesulfonate	350	U	ug/kg	350	1800	U	ug/kg	1800
Ethyl methanesulfonate	350	U	ug/kg	350	1800	U	ug/kg	1800
Acetophenone	350	U	ug/kg	350	1800	U	ug/kg	1800
N-Nitrosopiperidine	350	U	ug/kg	350	1800	U	ug/kg	1800
Phenyl-tert-butylamine	1700	U	ug/kg	1700	8800	U	ug/kg	8800
2,6-Dichlorophenol	350	U	ug/kg	350	1800	U	ug/kg	1800
N-Nitroso-di-n-butylamine	350	U	ug/kg	350	1800	U	ug/kg	1800
N-Nitrosodiphenylamine	350	U	ug/kg	350	1800	U	ug/kg	1800
N-Nitrosopyrrolidine	350	U	ug/kg	350	1800	U	ug/kg	1800
Benzenidine	1700	U	ug/kg	1700	8800	U	ug/kg	8800
1,2,4,5-Tetrachlorobenzene	1700	U	ug/kg	1700	8800	U	ug/kg	8800
Pentachlorobenzene	1700	U	ug/kg	1700	8800	U	ug/kg	8800
1-Naphthylamine	1700	U	ug/kg	1700	8800	U	ug/kg	8800
2-Naphthylamine	1700	U	ug/kg	1700	8800	U	ug/kg	8800
2,3,4,6-Tetrachlorophenol	350	U	ug/kg	350	1800	U	ug/kg	1800
Phenacetin	350	U	ug/kg	350	1800	U	ug/kg	1800
4-Aminobiphenyl	1700	U	ug/kg	1700	8800	U	ug/kg	8800
Pentachloronitrobenzene	1700	U	ug/kg	1700	8800	U	ug/kg	8800
Pronamide	350	U	ug/kg	350	1800	U	ug/kg	1800
p-Dimethylaminobenzene	350	U	ug/kg	350	1800	U	ug/kg	1800
7,12-Dimethylbenz(A)Anthracene	350	U	ug/kg	350	1800	U	ug/kg	1800
3-Methylcholanthrene	350	U	ug/kg	350	1800	U	ug/kg	1800
Pyridine	1700	U	ug/kg	1700	8800	U	ug/kg	8800
N-Nitrosomethylethylamine	350	U	ug/kg	350	1800	U	ug/kg	1800
N-Nitrosomorpholine	350	U	ug/kg	350	1800	U	ug/kg	1800
o-Toluidine	350	U	ug/kg	350	1800	U	ug/kg	1800
Hexachloropropene	1700	U	ug/kg	1700	8800	U	ug/kg	8800
p-Phenylethylamine	17000	UJ	ug/kg	17000	88000	UJ	ug/kg	88000

Naval Station Mayport, Mayport, Florida
 North Florida Shipyard Inc., SSMU 24 Surface Soil Data

Lab Sample Number:
 Site
 Locator
 Collect Date:

MB280005
 GROUP111
 24S00901
 27-JUN-96

MB280007
 GROUP111
 24S01001
 27-JUN-96

Chemical Name	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Safrole	1700 U	U	ug/kg	1700	8800 U	U	ug/kg	8800
Isosafrole	1700 U	U	ug/kg	1700	8800 U	U	ug/kg	8800
1,4-Naphthoquinone	35000 U	U	ug/kg	35000	180000 U	U	ug/kg	180000
1,3-Dinitrobenzene	350 U	U	ug/kg	350	1800 U	U	ug/kg	1800
5-Nitro-o-toluidine	350 U	U	ug/kg	350	1800 U	U	ug/kg	1800
1,3,5-Trinitrobenzene	350 U	U	ug/kg	350	1800 U	U	ug/kg	1800
4-Nitroquinoline-1-oxide	17000 U	U	ug/kg	17000	88000 U	U	ug/kg	88000
Methapyrene	1700 U	U	ug/kg	1700	8800 U	U	ug/kg	8800
3,3-Dimethylbenzidine	350 U	U	ug/kg	350	1800 U	U	ug/kg	1800
Hexachlorophene	17000 R	R	ug/kg	17000	88000 U	U	ug/kg	88000
Aramite	1700 U	U	ug/kg	1700	8800 U	U	ug/kg	8800
2-Chlorophenol	350 U	U	ug/kg	350	1800 U	U	ug/kg	1800
3- & 4-Methylphenol (2)	350 U	U	ug/kg	350	1800 U	U	ug/kg	1800
Hexachloropropene	1700 U	U	ug/kg	1700	8800 U	U	ug/kg	8800
2-Acetylamino-fluorene	350 U	U	ug/kg	350	1800 U	U	ug/kg	1800
INORGANICS (SOIL)								
Antimony	4.6 J	J	mg/kg	.54	2.1 J	J	mg/kg	.54
Arsenic	4.5 J	J	mg/kg	.2	1.6 J	J	mg/kg	.2
Barium	105		mg/kg	.074	126		mg/kg	.075
Beryllium	1.3		mg/kg	.027	2.4		mg/kg	.028
Cadmium	.93 J	J	mg/kg	.69	.73 J	J	mg/kg	.7
Chromium	35.5 J	J	mg/kg	.46	34.6 J	J	mg/kg	.47
Cobalt	11.9		mg/kg	.53	18.4		mg/kg	.53
Copper	567 J	J	mg/kg	.25	622 J	J	mg/kg	.26
Cyanide	.09 R	R	mg/kg	.09	.09 R	R	mg/kg	.09
Lead	214		mg/kg	7.9	304		mg/kg	8
Mercury	.03 J	J	mg/kg	.028	.06 J	J	mg/kg	.029
Nickel	24.3		mg/kg	1.2	47.7		mg/kg	1.2
Selenium	.26 UJ	UJ	mg/kg	.26	.27 UJ	UJ	mg/kg	.27
Silver	.46 U	U	mg/kg	.46	.47 U	U	mg/kg	.47
Thallium	.17 UJ	UJ	mg/kg	.17	.17 UJ	UJ	mg/kg	.17
Tin	31.5 J	J	mg/kg	2.5	54.6 J	J	mg/kg	2.5
Vanadium	13.1		mg/kg	.36	23.3		mg/kg	.36
Zinc	1650		mg/kg	.21	2030		mg/kg	.21

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 SIOC (8270) ANALYTICAL RUN.

Naval Station Mayport, Mayport, Florida
North Florida Shipyard Inc., SIMU 24 Subsurface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB280003
GROUP III
24800707
19-MAY-95

MB280004
GROUP III
24800802
27-JUN-96

MB280006
GROUP III
24800902
27-JUN-96

MB280008
GROUP III
24801002
27-JUN-96

Chemical Name	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES													
N-Nitrosodimethylamine	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Aniline	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
bis(2-Chloroethyl) ether	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Benzyl Alcohol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2-Methylphenol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
bis(2-Chloroisopropyl) ether	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
N-Nitroso-dl-n-propylamine	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Hexachloroethane	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Nitrobenzene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Isophorone	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2-Nitrophenol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2,4-Dimethylphenol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Benzoic acid	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
bis(2-Chloroethoxy) methane	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2,4-Dichlorophenol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
1,2,4-Trichlorobenzene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Naphthalene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
4-Chloroaniline	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Hexachlorobutadiene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
4-Chloro-3-methylphenol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2-Methylnaphthalene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Hexachlorocyclopentadiene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2,4,6-Trichlorophenol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Dimethylphthalate	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2,4,5-Trichlorophenol	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
2-Chloronaphthalene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2-Nitroaniline	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
Acenaphthylene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2,6-Dinitrotoluene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
3-Nitroaniline	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
Acenaphthene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2,4-Dinitrophenol	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
4-Nitrophenol	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
Dibenzofuran	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
2,4-Dinitrotoluene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Diethylphthalate	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
4-Chlorophenyl-phenylether	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Fluorene	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
4-Nitroaniline	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
4,6-Dinitro-2-methylphenol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
N-Nitrosodiphenylamine	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
1,2-Diphenylhydrazine	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
4-Bromophenyl-phenylether	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Hexachlorobenzene	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	90000
Pentachlorophenol	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Phenanthrene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Anthracene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Di-n-Butylphthalate	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000
Fluoranthene	370	370	U	ug/kg	370	370	U	ug/kg	370	370	U	ug/kg	18000

Naval Station Mayport, Mayport, Florida
North Florida Shipyard Inc., SWMU 24 Subsurface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB985003
GROUP111
24800707
19-MAY-95

MB280004
GROUP111
24800802
27-JUN-96

MB280006
GROUP111
24800902
27-JUN-96

MB280008
GROUP111
24801002
27-JUN-96

Chemical	MB985003 VALUE	MB985003 QUAL	MB985003 UNITS	MB985003 DL	MB280004 VALUE	MB280004 QUAL	MB280004 UNITS	MB280004 DL	MB280006 VALUE	MB280006 QUAL	MB280006 UNITS	MB280006 DL	MB280008 VALUE	MB280008 QUAL	MB280008 UNITS	MB280008 DL
Pyrene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Butylbenzylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
3,3-Dichlorobenzidine	750	U	ug/kg	750	750	U	ug/kg	750	710	U	ug/kg	710	36000	U	ug/kg	36000
Benzo (a) anthracene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Chrysene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Bis(2-Ethylhexyl) phthalate	60	J	ug/kg	370	370	U	ug/kg	370	1600	U	ug/kg	1600	18000	U	ug/kg	18000
Di-n-octylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Benzo (b) fluoranthene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Benzo (k) fluoranthene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Benzo (a) pyrene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Indeno (1,2,3-cd) pyrene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Dibenzo (a,h) anthracene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Benzo (g,h,i) perylene	370	U	ug/kg	370	370	J	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
2-Picoline	1800	U	ug/kg	1800	1800	J	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Methyl methanesulfonate	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Ethyl methanesulfonate	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Acetophenone	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
N-Nitrosopiperidine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Phenyl-tert-butylamine	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
2,6-Dichlorophenol	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
N-Nitroso-di-n-butylamine	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
N-Nitrosodimethylamine	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
N-Nitrosopyrrolidine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Benzidine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
1,2,4,5-Tetrachlorobenzene	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Pentachlorobenzene	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
1-Naphthylamine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
2-Naphthylamine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
2,3,4,6-Tetrachlorophenol	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Phenacetin	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
4-Aminobiphenyl	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Pentachloronitrobenzene	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Pronamide	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
p-Dimethylaminoazobenzene	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
7,12-Dimethylbenz(A)Anthracene	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
3-Methylcholanthrene	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Pyridine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
N-Nitrosomethylethylamine	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
N-Nitrosomorpholine	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
o-Toluidine	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
Hexachloropropene	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
p-Phenylenediamine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Saffrole	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Isosafrole	3700	U	ug/kg	3700	3700	U	ug/kg	3700	3500	U	ug/kg	3500	180000	U	ug/kg	180000
1,4-Naphthoquinone	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
1,3-Dinitrobenzene	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
5-Nitro-o-toluidine	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
1,3,5-Trinitrobenzene	1800	R	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
4-Nitroquinoline-1-oxide	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Methapyrilene	370	U	ug/kg	370	370	U	ug/kg	370	350	U	ug/kg	350	18000	U	ug/kg	18000
3,3-Dimethylbenzidine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000
Hexachlorophene	1800	U	ug/kg	1800	1800	U	ug/kg	1800	1800	U	ug/kg	1800	90000	U	ug/kg	90000

Naval Station Mayport, Mayport, Florida
North Florida Shipyard Inc., SIMU 24 Subsurface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

Lab Sample Number:	MB280008	MB280006	MB280004	MB280003
Site	GROUP111	GROUP111	GROUP111	GROUP111
Locator	24801002	24800902	24800802	24800707
Collect Date:	27-JUN-96	27-JUN-96	27-JUN-96	19-MAY-95
QUAL UNITS	QUAL UNITS	QUAL UNITS	QUAL UNITS	QUAL UNITS
DL	DL	DL	DL	DL
VALUE	VALUE	VALUE	VALUE	VALUE
Aramite	90000 U	1800 U	1800 U	1800 U
2-Chlorophenol	18000 U	350 U	370 U	370 U
3- & 4-Methylphenol (2)	18000 U	350 U	370 U	370 U
Hexachloropropene	90000 U	1800 U	1800 U	1800 U
2-Acetylaminofluorene	18000 U	350 U	370 U	370 U
mg/kg				
INORGANICS (SOIL)				
Antimony	1.4 J	2.8 J	1.6 J	.59 J
Arsenic	.81 J	1.4 J	1.1 J	.74 J
Barium	40.5 J	74.8	51.1	4.7 J
Beryllium	1.7	3.6	1.4	.22 J
Cadmium	.92 J	7 U	.78 J	.65 U
Chromium	24.6 J	29.6 J	21.1 J	3.2
Cobalt	6.7 J	12.6	6.7 J	.83
Copper	308 J	815 J	348 J	.36
Cyanide	.1 R	.09 R	.1 R	.11 U
Lead	171	285	74.4	16.9
Mercury	.05 J	.03 J	.04 J	.07
Nickel	35.1	88.1	29.3	1.6
Selenium	.27 UJ	.26 UJ	.28 UJ	.25
Silver	.48 U	.47 U	.5 U	.41
Thallium	.17 UJ	.17 UJ	.18 UJ	.38 U
Tin	48.1 J	133 J	40.7 J	.62
Vanadium	10.1 J	13.1	10.9 J	.45
Zinc	1710	1830	1000	56.6
mg/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.

Naval Station Mayport, Mayport, Florida
Atlantic Marine Inc., SSMU 25 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

M8793002
GROUP111
25S00601
10-APR-95

M8793003
GROUP111
25S00701
10-APR-95

M8279003
GROUP111
25S01001
27-JUN-96

M8279004
GROUP111
25S01001D
27-JUN-96

PESTICIDES/PCBs	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
alpha-BHC	1.8	U	ug/kg	1.8	73	U	ug/kg	73	140	U	ug/kg	140	150	U	ug/kg	150
beta-BHC	3.5	U	ug/kg	3.5	140	U	ug/kg	140	280	U	ug/kg	280	290	U	ug/kg	290
delta-BHC	1.8	U	ug/kg	1.8	73	U	ug/kg	73	140	U	ug/kg	140	150	U	ug/kg	150
gamma-BHC (Lindane)	1.8	U	ug/kg	1.8	73	U	ug/kg	73	140	U	ug/kg	140	150	U	ug/kg	150
Heptachlor	1.8	U	ug/kg	1.8	73	U	ug/kg	73	200	U	ug/kg	200	150	U	ug/kg	150
Aldrin	1.8	U	ug/kg	1.8	73	U	ug/kg	73	140	U	ug/kg	140	150	U	ug/kg	150
Heptachlor epoxide	1.8	U	ug/kg	1.8	73	U	ug/kg	73	140	U	ug/kg	140	150	U	ug/kg	150
Endosulfan I	1.8	U	ug/kg	1.8	73	U	ug/kg	73	140	U	ug/kg	140	150	U	ug/kg	150
Dieldrin	2.3	J	ug/kg	1.8	73	U	ug/kg	73	2500	U	ug/kg	2500	3100	U	ug/kg	3100
4,4-DDE	1.8	U	ug/kg	1.8	73	U	ug/kg	73	140	U	ug/kg	140	150	U	ug/kg	150
Endosulfan II	3.5	U	ug/kg	3.5	140	U	ug/kg	140	280	U	ug/kg	280	290	U	ug/kg	290
4,4-DDD	3.5	U	ug/kg	3.5	140	U	ug/kg	140	280	U	ug/kg	280	290	U	ug/kg	290
Endosulfan sulfate	3.5	U	ug/kg	3.5	140	U	ug/kg	140	280	U	ug/kg	280	290	U	ug/kg	290
4,4-DDT	3.5	U	ug/kg	3.5	140	U	ug/kg	140	280	U	ug/kg	280	290	U	ug/kg	290
Methoxychlor	7.2	U	ug/kg	7.2	290	U	ug/kg	290	590	U	ug/kg	590	610	U	ug/kg	610
Endrin aldehyde	3.5	U	ug/kg	3.5	140	U	ug/kg	140	280	U	ug/kg	280	290	U	ug/kg	290
Endrin ketone	3.5	U	ug/kg	3.5	140	U	ug/kg	140	280	U	ug/kg	280	290	U	ug/kg	290
Chlordane	3.5	U	ug/kg	3.5	140	U	ug/kg	140	280	U	ug/kg	280	290	U	ug/kg	290
Chlorobenzilate	24	J	ug/kg	18	730	U	ug/kg	730	1400	U	ug/kg	1400	1500	U	ug/kg	1500
Diallate	110	U	ug/kg	110	2200	U	ug/kg	2200	4300	U	ug/kg	4300	4500	U	ug/kg	4500
Toxaphene	88	U	ug/kg	88	3600	U	ug/kg	3600	8700	U	ug/kg	8700	9000	U	ug/kg	9000
Isodrin	1.8	U	ug/kg	1.8	73	U	ug/kg	73	7200	U	ug/kg	7200	7400	U	ug/kg	7400
Kepon	110	UJ	ug/kg	110	220	UJ	ug/kg	220	140	U	ug/kg	140	150	U	ug/kg	150
Aroclor-1016	88	U	ug/kg	88	3600	U	ug/kg	3600	-	-	-	-	-	-	-	-
Aroclor-1221	180	U	ug/kg	180	7300	U	ug/kg	7300	-	-	-	-	-	-	-	-
Aroclor-1232	180	U	ug/kg	180	7300	U	ug/kg	7300	-	-	-	-	-	-	-	-
Aroclor-1242	88	U	ug/kg	88	3600	U	ug/kg	3600	-	-	-	-	-	-	-	-
Aroclor-1248	88	U	ug/kg	88	3600	U	ug/kg	3600	-	-	-	-	-	-	-	-
Aroclor-1254	45	U	ug/kg	45	1800	U	ug/kg	1800	-	-	-	-	-	-	-	-
Aroclor-1260	45	U	ug/kg	45	1800	U	ug/kg	1800	-	-	-	-	-	-	-	-

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.

Naval Station Mayport, Mayport, Florida
Atlantic Marine Inc., SMMU 25 Surface Soil Data

Lab Sample Number: MB279006
 Site: GROUP III
 Locator: 25S01101
 Collect Date: 27-JUN-96

VALUE QUAL UNITS DL

PESTICIDES/PCBS	VALUE	QUAL	UNITS	DL
alpha-BHC	6	U	ug/kg	6
beta-BHC	12	U	ug/kg	12
delta-BHC	6	U	ug/kg	6
gamma-BHC (Lindane)	6	U	ug/kg	6
Heptachlor	6	U	ug/kg	6
Aldrin	6	U	ug/kg	6
Heptachlor epoxide	6	U	ug/kg	6
Endosulfan I	6	U	ug/kg	6
Dieldrin	6	U	ug/kg	6
4,4-DDE	86	U	ug/kg	6
Endrin	6	U	ug/kg	6
Endosulfan II	12	U	ug/kg	12
4,4-DDD	12	U	ug/kg	12
Endosulfan sulfate	12	U	ug/kg	12
4,4-DDT	12	U	ug/kg	12
Methoxychlor	24	U	ug/kg	24
Endrin aldehyde	12	U	ug/kg	12
Endrin ketone	12	U	ug/kg	12
Chlordane	60	U	ug/kg	60
Chlorobenzilate	180	U	ug/kg	180
Diallate	360	U	ug/kg	360
Toxaphene	290	U	ug/kg	290
Isodrin	6	U	ug/kg	6
Kepon	-	-	ug/kg	-
Aroclor-1016	-	-	ug/kg	-
Aroclor-1221	-	-	ug/kg	-
Aroclor-1232	-	-	ug/kg	-
Aroclor-1242	-	-	ug/kg	-
Aroclor-1248	-	-	ug/kg	-
Aroclor-1254	-	-	ug/kg	-
Aroclor-1260	-	-	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.

Naval Station Mayport, Mayport, Florida
Atlantic Marine Inc., SHMU 25 Subsurface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

MB279002
GROUP III
25B00702
27-JUN-96

MB279005
GROUP III
25B01002
27-JUN-96

MB279007
GROUP III
25B01102
27-JUN-96

PESTICIDES/PCBs	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
alpha-BHC	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
beta-BHC	290 U	ug/kg	290	85 U	ug/kg	85	7.1 U	ug/kg	7.1
delta-BHC	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
gamma-BHC (Lindane)	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
Heptachlor	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
Aldrin	150 U	ug/kg	150	79	ug/kg	44	3.6 U	ug/kg	3.6
Heptachlor epoxide	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
Endosulfan I	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
Dieldrin	3000	ug/kg	150	890	ug/kg	44	43	ug/kg	3.6
4,4-DPE	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
Endosulfan II	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
4,4-DDD	290 U	ug/kg	290	85 U	ug/kg	85	7.1 U	ug/kg	7.1
Endosulfan sulfate	290 U	ug/kg	290	85 U	ug/kg	85	7.1 U	ug/kg	7.1
Endosulfan	290 U	ug/kg	290	85 U	ug/kg	85	7.1 U	ug/kg	7.1
4,4-DDT	290 U	ug/kg	290	85 U	ug/kg	85	7.1 U	ug/kg	7.1
Methoxychlor	600 U	ug/kg	600	180 U	ug/kg	180	15 U	ug/kg	15
Endrin aldehyde	290 U	ug/kg	290	85 U	ug/kg	85	7.1 U	ug/kg	7.1
Endrin ketone	290 U	ug/kg	290	85 U	ug/kg	85	7.1 U	ug/kg	7.1
Chlordane	1500 U	ug/kg	1500	440 U	ug/kg	440	36 U	ug/kg	36
Chlorobenzilate	4400 U	ug/kg	4400	1300 U	ug/kg	1300	110 U	ug/kg	110
Diallate	8900 U	ug/kg	8900	2600 U	ug/kg	2600	220 U	ug/kg	220
Toxaphene	7300 U	ug/kg	7300	2100 U	ug/kg	2100	180 U	ug/kg	180
Isodrin	150 U	ug/kg	150	44 U	ug/kg	44	3.6 U	ug/kg	3.6
Kepon	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
Aroclor-1016	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
Aroclor-1221	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
Aroclor-1232	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
Aroclor-1242	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
Aroclor-1248	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
Aroclor-1254	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
Aroclor-1260	-	ug/kg	-	-	ug/kg	-	-	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.

Naval Station Mayport, Mayport, Florida
Former Target Range Backstop Surface Soil data

Lab Sample Number:
Site
Locator
Collect Date:

RA082008
GROUP111
TRS00101
27-JUN-95

RA082009
GROUP111
TRS0010D
27-JUN-95

MB280009
GROUP111
TRS00301
27-JUN-96

MB280011
GROUP111
TRS00401
27-JUN-96

Chemical	RA082008 VALUE	RA082008 QUAL UNITS	RA082008 DL	RA082008 VALUE	RA082008 QUAL UNITS	RA082008 DL	MB280009 VALUE	MB280009 QUAL UNITS	MB280009 DL	MB280009 VALUE	MB280009 QUAL UNITS	MB280009 DL
Pyrene	690 U	ug/kg	690	690	ug/kg	690	690	100 U	100	270 U	ug/kg	270
Butylbenzylphthalate	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
3,3-Dichlorobenzidine	1400 U	ug/kg	1400	1400	ug/kg	1400	1400	-	-	-	ug/kg	-
Benzo (a) anthracene	690 U	ug/kg	690	690	ug/kg	690	690	100 U	100	270 U	ug/kg	270
Chrysene	690 U	ug/kg	690	690	ug/kg	690	690	100 U	100	270 U	ug/kg	270
bis(2-Ethylhexyl) phthalate	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Di-n-octylphthalate	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Benzo (b) fluoranthene	690 U	ug/kg	690	690	ug/kg	690	690	100 U	100	270 U	ug/kg	270
Benzo (k) fluoranthene	690 U	ug/kg	690	690	ug/kg	690	690	100 U	100	270 U	ug/kg	270
Indeno (1,2,3-cd) pyrene	690 U	ug/kg	690	690	ug/kg	690	690	100 U	100	270 U	ug/kg	270
Dibenzo (a,h) anthracene	690 U	ug/kg	690	690	ug/kg	690	690	100 U	100	270 U	ug/kg	270
Benzo (g,h,i) perylene	690 U	ug/kg	690	690	ug/kg	690	690	100 U	100	270 U	ug/kg	270
2-picoline	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
Methyl methanesulfonate	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Ethyl methanesulfonate	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Acetophenone	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
N-Nitrosopiperidine	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Phenyl-tert-butylamine	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
2,6-Dichlorophenol	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
N-Nitroso-di-n-butylamine	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
N-Nitrosodimethylamine	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
N-Nitrosopyrrolidine	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Benzidine	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
1,2,4,5-Tetrachlorobenzene	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
Pentachlorobenzene	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
1-Naphthylamine	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
2-Naphthylamine	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
Phenacetin	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
4-Aminobiphenyl	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Pentachloronitrobenzene	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
Pronamide	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
p-Dimethylaminobenzene	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
7,12-Dimethylbenz(A)Anthracene	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
3-Methylcholanthrene	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Pyridine	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
N-Nitrosomethyl ethylamine	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
N-Nitrosomorpholine	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
o-Toluidine	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
Hexachloropropene	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
p-Phenylenediamine	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
Safrole	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
Isosafrole	6900 R	ug/kg	6900	6900	ug/kg	6900	6900	-	-	-	ug/kg	-
1,4-Naphthoquinone	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
1,3-Dinitrobenzene	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
5-Nitro-o-toluidine	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
1,3,5-Trinitrobenzene	33000 R	ug/kg	33000	33000	ug/kg	33000	33000	-	-	-	ug/kg	-
4-Nitroquinoline-1-oxide	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
Methapyrene	690 U	ug/kg	690	690	ug/kg	690	690	-	-	-	ug/kg	-
3,3-Dimethylbenzidine	3300 R	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-
Hexachlorophene	3300 R	ug/kg	3300	3300	ug/kg	3300	3300	-	-	-	ug/kg	-

Naval Station Mayport, Mayport, Florida
Former Target Range Backstop Surface Soil 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	VALUE	QUAL UNITS	DL
RA082008	GROUP111	TRS00101	27-JUN-95	3300 U	ug/kg	3300	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	ug/kg	3300
				690 U	ug/kg	690	690 U	ug/kg	690	690	ug/kg	690	690	ug/kg	690
				690 U	ug/kg	690	690 U	ug/kg	690	690	ug/kg	690	690	ug/kg	690
				3300 UJ	ug/kg	3300	3300 UJ	ug/kg	3300	3300	ug/kg	3300	3300	ug/kg	3300
				690 UJ	ug/kg	690	690 UJ	ug/kg	690	690	ug/kg	690	690	ug/kg	690
RA082009	GROUP111	TRS00101D	27-JUN-95	3300 U	ug/kg	3300	3300 U	ug/kg	3300	3300	ug/kg	3300	3300	ug/kg	3300
				690 U	ug/kg	690	690 U	ug/kg	690	690	ug/kg	690	690	ug/kg	690
				690 U	ug/kg	690	690 U	ug/kg	690	690	ug/kg	690	690	ug/kg	690
				3300 UJ	ug/kg	3300	3300 UJ	ug/kg	3300	3300	ug/kg	3300	3300	ug/kg	3300
				690 UJ	ug/kg	690	690 UJ	ug/kg	690	690	ug/kg	690	690	ug/kg	690
MB280009	GROUP111	TRS00501	27-JUN-96	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
				-	ug/kg	-	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
				-	ug/kg	-	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
				-	ug/kg	-	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
MB280011	GROUP111	TRS00401	27-JUN-96	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
				-	ug/kg	-	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
				-	ug/kg	-	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-
				-	ug/kg	-	-	ug/kg	-	-	ug/kg	-	-	ug/kg	-

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.

Naval Station Mayport, Mayport, Florida
Former Target Range Backstop Surface Soil data

Lab Sample Number: MB280012
Site: GROUP III
Locator: TRS00401D
Collect Date: 27-JUN-96

VALUE QUAL UNITS DL

SEMI-VOLATILES	ug/kg	VALUE	QUAL	UNITS	DL
N-Nitrosodimethylamine				ug/kg	
Phenol				ug/kg	
Aniline				ug/kg	
bis(2-Chloroethyl) ether				ug/kg	
Benzyl Alcohol				ug/kg	
2-Methylphenol				ug/kg	
bis(2-Chloroisopropyl) ether				ug/kg	
N-Nitroso-di-n-propylamine				ug/kg	
Hexachloroethane				ug/kg	
Nitrobenzene				ug/kg	
Isophorone				ug/kg	
2-Nitrophenol				ug/kg	
2,4-Dimethylphenol				ug/kg	
Benzoic acid				ug/kg	
bis(2-Chloroethoxy) methane				ug/kg	
2,4-Dichlorophenol				ug/kg	
1,2,4-Trichlorobenzene				ug/kg	
Naphthalene	280 U	280	U	ug/kg	280
4-Chloroaniline				ug/kg	
Hexachlorobutadiene				ug/kg	
4-Chloro-3-methylphenol				ug/kg	
2-Methylnaphthalene	280 U	280	U	ug/kg	280
Hexachlorocyclopentadiene				ug/kg	
2,4,6-Trichlorophenol				ug/kg	
Dimethylphthalate				ug/kg	
2,4,5-Trichlorophenol				ug/kg	
2-Chloronaphthalene				ug/kg	
2-Nitroaniline				ug/kg	
Acenaphthylene	280 U	280	U	ug/kg	280
2,6-Dinitrotoluene				ug/kg	
3-Nitroaniline				ug/kg	
Acenaphthene	280 U	280	U	ug/kg	280
2,4-Dinitrophenol				ug/kg	
4-Nitrophenol				ug/kg	
Dibenzofuran				ug/kg	
2,4-Dinitrotoluene				ug/kg	
Diethylphthalate				ug/kg	
4-Chlorophenyl-phenylether				ug/kg	
Fluorene	280 U	280	U	ug/kg	280
4-Nitroaniline				ug/kg	

Naval Station Mayport, Mayport, Florida
Former Target Range Backstop Surface Soil data

Lab Sample Number: MB280012
Site: GROUP111
Locator: TRS004010
Collect Date: 27-JUN-96

VALUE QUAL UNITS DL

Chemical Name	Value	Quality	Units	DL
4,6-Dinitro-2-methylphenol	-	-	ug/kg	-
N-Nitrosodiphenylamine	-	-	ug/kg	-
1,2-Diphenylhydrazine	-	-	ug/kg	-
4-Bromophenyl-phenylether	-	-	ug/kg	-
Hexachlorobenzene	-	-	ug/kg	-
Pentachlorophenol	-	-	ug/kg	-
Phenanthrene	280 U	-	ug/kg	280
Anthracene	280 U	-	ug/kg	280
Di-n-Butylphthalate	-	-	ug/kg	-
Fluoranthene	280 U	-	ug/kg	280
Pyrene	-	-	ug/kg	-
Butylbenzylphthalate	-	-	ug/kg	-
3,3-Dichlorobenzidine	-	-	ug/kg	-
Benzo (a) anthracene	280 U	-	ug/kg	280
Chrysene	280 U	-	ug/kg	280
bis(2-Ethylhexyl) phthalate	-	-	ug/kg	-
Di-n-octylphthalate	-	-	ug/kg	-
Benzo (b) fluoranthene	280 U	-	ug/kg	280
Benzo (k) fluoranthene	280 U	-	ug/kg	280
Benzo (e) pyrene	280 U	-	ug/kg	280
Indeno (1,2,3-cd) pyrene	280 U	-	ug/kg	280
Dibenzo (a,h) anthracene	280 U	-	ug/kg	280
Benzo (g,h,i) perylene	280 U	-	ug/kg	280
2-Picoline	-	-	ug/kg	-
Methyl methanesulfonate	-	-	ug/kg	-
Ethyl methanesulfonate	-	-	ug/kg	-
Acetophenone	-	-	ug/kg	-
N-Nitrosopiperidine	-	-	ug/kg	-
Phenyl-tert-butylamine	-	-	ug/kg	-
2,6-Dichlorophenol	-	-	ug/kg	-
N-Nitroso-di-n-Butylamine	-	-	ug/kg	-
N-Nitrosodimethylamine	-	-	ug/kg	-
N-Nitrosopyrrolidine	-	-	ug/kg	-
Benzidine	-	-	ug/kg	-
1,2,4,5-Tetrachlorobenzene	-	-	ug/kg	-
Pentachlorobenzene	-	-	ug/kg	-
1-Naphthylamine	-	-	ug/kg	-
2-Naphthylamine	-	-	ug/kg	-
2,3,4,6-Tetrachlorophenol	-	-	ug/kg	-
Phenacetin	-	-	ug/kg	-
4-Aminobiphenyl	-	-	ug/kg	-
Pentachloronitrobenzene	-	-	ug/kg	-
Pronamide	-	-	ug/kg	-
p-Dimethylaminoazobenzene	-	-	ug/kg	-
7,12-Dimethylbenz(A)Anthracene	-	-	ug/kg	-
3-Methylcholanthrene	-	-	ug/kg	-
Pyridine	-	-	ug/kg	-
N-Nitrosomethylethylamine	-	-	ug/kg	-
N-Nitrosomorpholine	-	-	ug/kg	-
o-Toluidine	-	-	ug/kg	-
Hexachloropropene	-	-	ug/kg	-
p-Phenylene diamine	-	-	ug/kg	-

Naval Station Mayport, Mayport, Florida
Former Target Range Backstop Subsurface Soil data

Lab Sample Number:
Site
Locator
Collect Date:

MB280010
GROUP111
TR800302
27-JUN-96
QUAL UNITS DL

MB280013
GROUP111
TR800402
27-JUN-96
QUAL UNITS DL

Chemical Name	MB280010 VALUE	MB280010 DL	MB280010 QUAL UNITS	MB280013 VALUE	MB280013 DL	MB280013 QUAL UNITS
SEMIVOLATILES						
N-Nitrosodimethylamine	-		ug/kg	-		ug/kg
Phenol	-		ug/kg	-		ug/kg
Aniline	-		ug/kg	-		ug/kg
bis(2-Chloroethyl) ether	-		ug/kg	-		ug/kg
Benzyl Alcohol	-		ug/kg	-		ug/kg
2-Methylphenol	-		ug/kg	-		ug/kg
bis(2-Chloroisopropyl) ether	-		ug/kg	-		ug/kg
N-Nitroso-di-n-propylamine	-		ug/kg	-		ug/kg
Hexachloroethane	-		ug/kg	-		ug/kg
Nitrobenzene	-		ug/kg	-		ug/kg
Isophorone	-		ug/kg	-		ug/kg
2-Nitrophenol	-		ug/kg	-		ug/kg
2,4-Dimethylphenol	-		ug/kg	-		ug/kg
Benzoic acid	-		ug/kg	-		ug/kg
bis(2-Chloroethoxy) methane	-		ug/kg	-		ug/kg
2,4-Dichlorophenol	-		ug/kg	-		ug/kg
1,2,4-Trichlorobenzene	110 U	110	ug/kg	110 U	110	ug/kg
Naphthalene	-		ug/kg	-		ug/kg
4-Chloroaniline	-		ug/kg	-		ug/kg
Hexachlorobutadiene	-		ug/kg	-		ug/kg
4-Chloro-3-methylphenol	-		ug/kg	-		ug/kg
2-Methylnaphthalene	110 U	110	ug/kg	110 U	110	ug/kg
Hexachlorocyclopentadiene	-		ug/kg	-		ug/kg
2,4,6-Trichlorophenol	-		ug/kg	-		ug/kg
Dimethylphthalate	-		ug/kg	-		ug/kg
2,4,5-Trichlorophenol	-		ug/kg	-		ug/kg
2-Chloronaphthalene	-		ug/kg	-		ug/kg
2-Nitroaniline	110 U	110	ug/kg	110 U	110	ug/kg
Acenaphthylene	-		ug/kg	-		ug/kg
2,6-Dinitrotoluene	-		ug/kg	-		ug/kg
3-Nitroaniline	110 U	110	ug/kg	110 U	110	ug/kg
Acenaphthene	-		ug/kg	-		ug/kg
2,4-Dinitrophenol	-		ug/kg	-		ug/kg
4-Nitrophenol	-		ug/kg	-		ug/kg
Dibenzofuran	-		ug/kg	-		ug/kg
2,4-Dinitrotoluene	-		ug/kg	-		ug/kg
Diethylphthalate	-		ug/kg	-		ug/kg
4-Chlorophenyl-phenylether	110 U	110	ug/kg	110 U	110	ug/kg
Fluorene	-		ug/kg	-		ug/kg
4-Nitroaniline	-		ug/kg	-		ug/kg
4,6-Dinitro-2-methylphenol	-		ug/kg	-		ug/kg
N-Nitrosodiphenylamine	-		ug/kg	-		ug/kg
1,2-Diphenylhydrazine	-		ug/kg	-		ug/kg
4-Bromophenyl-phenylether	-		ug/kg	-		ug/kg
Hexachlorobenzene	-		ug/kg	-		ug/kg
Pentachlorophenol	-		ug/kg	-		ug/kg
Phenanthrene	110 U	110	ug/kg	110 U	110	ug/kg
Anthracene	110 U	110	ug/kg	110 U	110	ug/kg
Di-n-Butylphthalate	-		ug/kg	-		ug/kg
Fluoranthene	110 U	110	ug/kg	110 U	110	ug/kg

Naval Station Mayport, Mayport, Florida
Former Target Range Backstop Subsurface Soil data

Lab Sample Number:
Site
Locator
Collect Date:

MB280010
GROUP111
TRB00302
27-JUN-96

MB280013
GROUP111
TRB00402
27-JUN-96

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Pyrene	110 U	ug/kg	110	110 U	ug/kg	110
Butylbenzylphthalate	-	ug/kg	-	-	ug/kg	-
3,3-Dichlorobenzidine	-	ug/kg	-	-	ug/kg	-
Benzo (a) anthracene	110 U	ug/kg	110	110 U	ug/kg	110
Chrysene	110 U	ug/kg	110	110 U	ug/kg	110
bis(2-Ethylhexyl) phthalate	-	ug/kg	-	-	ug/kg	-
Di-n-octylphthalate	-	ug/kg	-	-	ug/kg	-
Benzo (b) fluoranthene	110 U	ug/kg	110	110 U	ug/kg	110
Benzo (k) fluoranthene	110 U	ug/kg	110	110 U	ug/kg	110
Benzo (a) pyrene	110 U	ug/kg	110	110 U	ug/kg	110
Indeno (1,2,3-cd) pyrene	110 U	ug/kg	110	110 U	ug/kg	110
Dibenzo (a,h) anthracene	110 U	ug/kg	110	110 U	ug/kg	110
Benzo (g,h,i) perylene	110 U	ug/kg	110	110 U	ug/kg	110
2-picoline	-	ug/kg	-	-	ug/kg	-
Methyl methanesulfonate	-	ug/kg	-	-	ug/kg	-
Ethyl methanesulfonate	-	ug/kg	-	-	ug/kg	-
Acetophenone	-	ug/kg	-	-	ug/kg	-
N-Nitrosopiperidine	-	ug/kg	-	-	ug/kg	-
Phenyl-tert-butylamine	-	ug/kg	-	-	ug/kg	-
2,6-Dichlorophenol	-	ug/kg	-	-	ug/kg	-
N-Nitroso-di-n-butylamine	-	ug/kg	-	-	ug/kg	-
N-Nitrosodimethylamine	-	ug/kg	-	-	ug/kg	-
N-Nitrosopyrrolidine	-	ug/kg	-	-	ug/kg	-
Benzidine	-	ug/kg	-	-	ug/kg	-
1,2,4,5-Tetrachlorobenzene	-	ug/kg	-	-	ug/kg	-
Pentachlorobenzene	-	ug/kg	-	-	ug/kg	-
1-Naphthylamine	-	ug/kg	-	-	ug/kg	-
2-Naphthylamine	-	ug/kg	-	-	ug/kg	-
2,3,4,6-Tetrachlorophenol	-	ug/kg	-	-	ug/kg	-
Phenacetin	-	ug/kg	-	-	ug/kg	-
4-Aminobiphenyl	-	ug/kg	-	-	ug/kg	-
Pentachloronitrobenzene	-	ug/kg	-	-	ug/kg	-
Pronamide	-	ug/kg	-	-	ug/kg	-
p-Dimethylaminobenzene	-	ug/kg	-	-	ug/kg	-
7,12-Dimethylbenz(A)Anthracene	-	ug/kg	-	-	ug/kg	-
3-Methylcholanthrene	-	ug/kg	-	-	ug/kg	-
Pyridine	-	ug/kg	-	-	ug/kg	-
N-Nitrosomethylethylamine	-	ug/kg	-	-	ug/kg	-
N-Nitrosomorpholine	-	ug/kg	-	-	ug/kg	-
o-Toluidine	-	ug/kg	-	-	ug/kg	-
Hexachloropropene	-	ug/kg	-	-	ug/kg	-
p-Phenylenediamine	-	ug/kg	-	-	ug/kg	-
Safrole	-	ug/kg	-	-	ug/kg	-
Isosafrole	-	ug/kg	-	-	ug/kg	-
1,4-Naphthoquinone	-	ug/kg	-	-	ug/kg	-
1,3-Dinitrobenzene	-	ug/kg	-	-	ug/kg	-
5-Nitro-o-toluidine	-	ug/kg	-	-	ug/kg	-
1,3,5-Trinitrobenzene	-	ug/kg	-	-	ug/kg	-
4-Nitroquinoline-1-oxide	-	ug/kg	-	-	ug/kg	-
Methapyrilene	-	ug/kg	-	-	ug/kg	-
3,3-Dimethylbenzidine	-	ug/kg	-	-	ug/kg	-
Hexachloropropene	-	ug/kg	-	-	ug/kg	-

Naval Station Mayport, Mayport, Florida
Former Target Range Backstop Subsurface Soil data

Lab Sample Number:
Site
Locator
Collect Date:

MB280010
GROUP III
TRB00302
27-JUN-96
QUAL UNITS DL

MB280013
GROUP III
TRB00402
27-JUN-96
QUAL UNITS DL

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

- ug/kg
- ug/kg
- ug/kg
- ug/kg
- ug/kg

- ug/kg
- ug/kg
- ug/kg
- 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.

APPENDIX B
DATA VALIDATION SUMMARIES

Environmental Data Services, Inc.

Specializing in Laboratory Data Validation

Summary of Organic Data Validation Polynuclear Aromatic Hydrocarbons

Client: ABB Environmental Services, Inc.
Project Name: U.S. Naval Station Mayport, Mayport, Florida
Project Number: CTO 028
Contract Laboratory: Quality Analytical Laboratory
SDG Number: M3030
Purchase Order Number: SE4-21-017
NEESA Level: C
Data Reviewer: Nancy Weaver
Secondary Reviewer: Jeff Benson
Date Review Completed: August 5, 1996

Contractor Sample Number	Laboratory Sample Number	Sample Matrix
23R032	MB278001	Water
23S04001	MB278004	Soil
23B04002	MB278005	Soil
23B04002MS	MB278005MS	Soil
23B04002MSD	MB278005MSD	Soil
23B04002D	MB278006	Soil
23S04101	MB278007	Soil
23B04102	MB278008	Soil
23S04201	MB278009	Soil
23B04202	MB278010	Soil
23S04301	MB278011	Soil
23B04302	MB278012	Soil
23S04401	MB278013	Soil
23S04401D	MB278014	Soil
23B04402	MB278015	Soil

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I. Validation Procedure Summary

Data review and validation were performed in accordance with Naval Energy and Environmental Support Activity (NEESA) 20.2-047B (June 1988) using the USEPA National Functional Guidelines for Organic Data Review, (12/90, Revised 6/91) and criteria specified in the USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition (1986).

II. Data Deliverables

1. All required deliverables including QA/QC summary forms and all necessary raw data were present in legible form in the data package.

Yes: X No:

III. Technical Holding Times

Technical holding times for all samples were verified from raw data and chain of custody forms.

1. Technical holding times were within the allowable limits shown below:

a. Water samples extracted <7 days from date of sample collection; analyzed <40 days from date of extraction.

Yes: X No: N/A:

b. Soil samples extracted <14 days from date of sample collection; analyzed <40 days from date of extraction.

Yes: X No: N/A:

Comment: Holding time criteria have been met and no action has been taken.

IV. Calibration

One hundred percent of the results on summary forms were checked to ensure that reported results met required quality control criteria.

1. Were initial calibration data reviewed and found to meet all method requirements?

Yes: X No:

Comment: Initial calibration criteria have been met and no action has been taken.

2. Were continuing calibration data reviewed and found to meet all method requirements?

Yes: X No:

Comment: Calibration criteria have been met and no action has been taken. All %D values were less than 15.0%.

3. Did the laboratory meet the linearity check criteria?

Yes: X No:

Comment: The coefficient of determination was not calculated for any of the compounds. Insufficient data was printed in the coefficient of determination space. The curves all appeared to meet linearity criteria. No action was taken.

4. Were the retention times within specified limits?

Yes: X No:

Comment: Retention time criteria have been met and no action has been taken.

The following calculations were verified for this data package:

PNAs M3030 RTX-5 H8904A 7/19/96 Naphthalene mean RT = $10.49 + 10.46 + 10.45 + 10.45 +$ $10.46 / 5 = 10.46$	PNAs M3030 RTX-5 H8904A 7/22/96 Naphthalene 0.5 Std = area ratio = $156839 / 929950 = 0.16865$	PNAs M3030 RTX-5 7/20/96 Pyrene %D = $(19.44 - 19.92) / 19.44 \times$ 100 = -2.5%
---	--	--

V. Blanks

A. Laboratory Blanks

One hundred percent of the results on summary forms were checked to ensure that reported results met required quality control criteria.

1. A method blank analysis was performed for every 20 samples of a similar matrix type in each SDG.

Yes: X No:

2. Laboratory method blanks were found to be clean of target compound contamination at detectable concentrations.

Yes: X No:

3. If analytes were detected in the blanks, the associated samples were found to be free of those analytes at detectable concentrations.

Yes: No: NA: X

Comment: Blank criteria have been met and no action has been taken. Laboratory blanks NBLK01 and NBLK02 were free of contamination.

B. Field Blanks

1. Field blanks were found to be clean of target compound contamination at detectable concentrations.

Yes: X No: N/A:

2. If analytes were detected in the blanks, the associated samples were found to be free of those analytes at detectable concentrations.

Yes: No: N/A: X

Comment: Source blank 23Y009 in SDG M3029 and rinsate blank 23R032 were both free of contamination.

VI. Surrogate Spike Compounds

One hundred percent of the results on summary forms were checked to ensure that reported results met required quality control criteria.

1. The surrogate spike %R values were within the QC advisory limits for terphenyl-d14.

Yes: X No:

Comment: Surrogate criteria have been met and no action has been taken.

VII. Matrix Spikes/Matrix Spike Duplicates (MS/MSD)

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

1. For every 20 samples in an SDG, one field sample of each type was spiked for MS/MSD analysis.

Yes: X No:

2. MS/MSD sample I.D.: 23B04002

3. MS/MSD sample results were acceptable.

Yes: X No: N/A:

VIII. Blank Spikes

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

1. For every 20 samples in an SDG, one blank sample of each type was spiked for BS analysis.

Yes: X No:

2. Blank Spike sample I.D.: BS070261

3. Blank spike sample results were within acceptable QC limits.

Yes: X No: N/A:

IX. Laboratory Control Samples (LCS)

Laboratory control charts were provided for each analysis.

1. For every batch, one LCS of each type was analyzed.

Yes: X No: N/A:

2. LCS sample I.D.: W07026B1 and S07026B1

3. The percent recoveries for the LCS compound were within acceptable limits.

Yes: X No: N/A:

Comment: The LCS' performed on 7/19/96 were acceptable.

X. Field Duplicates

1. The following duplicate set was analyzed with this SDG:
 - a. 23B04002 and 23B04002D
 - b. 23S04401 and 23S04401D
2. Comment: There were no positive results reported for either duplicate pair.

XI. Target Compound Identification

Target compound identification is not reviewed for Level C validation.

XII. Compound Quantitation and Reported CRQLS

Compound quantitation and reported CRQLS are not reviewed for Level C validation.

1. CRQL values were adjusted to reflect all sample volumes, sample dilutions, concentrations, cleanup activities, and dry weight factors not accounted for by the method.

Yes: X No: N/A:

2. Comment: Samples 23S04001, 23B04102, 23B04202, and 23B04302 were diluted due to chemical interferences. The reporting limits were raised for benzo(g,h,i)perylene in sample 23S04001, benzo(b)fluoranthene in sample 23S04201 and benzo(a)pyrene in sample 23S04301. The laboratory flagged the results for these compounds as "UI" and the reviewer further qualified these results as estimated "UJ."

XIII. Overall Assessment of Data

The final validated results represent the compilation of all quality control qualification. With the exception of the quality control anomalies presented in Section XII (Compound Quantitation) of this report and the resulting qualifiers, the analyses of environmental samples and quality control samples are valid within the constraints identified with the data quality flags.

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.

**Summary of Inorganic Data Validation
Metals/Cyanide**

Client: ABB Environmental Services, Inc.
 Project Name: U.S. Naval Station Mayport, Mayport, Florida
 Project Number: CTO 028
 Contract Laboratory: Quality Analytical Laboratory
 SDG Number: M3029
 Purchase Order Number: SE4-21-017
 NEESA Level: C
 Data Reviewer: Susan Dalla
 Secondary Reviewer: Nancy Weaver
 Date Review Completed: August 7, 1996

Contractor Sample Number	Laboratory Sample Number	Sample Matrix
23Y009	MB277001	Water
23R031	MB277002	Water
23S03001	MB277003	Soil
23S03001MS	MB277003MS	Soil
23S03001MSD	MB277003MSD	Soil
23S03001D	MB277004	Soil
23B03002	MB277005	Soil
23S03101	MB277006	Soil
23B03102	MB277007	Soil
23S03201	MB277008	Soil
23B03202	MB277009	Soil
23S03301	MB277010	Soil
23B03302	MB277011	Soil
23S03401	MB277012	Soil
23S03401D	MB277013	Soil
23B03402	MB277014	Soil
23S03501	MB277015	Soil
23B03502	MB277016	Soil
23S03601	MB277017	Soil
23B03602	MB277018	Soil
23S03701	MB277019	Soil

23B03702	MB277020	Soil
23S03801	MB277021	Soil
23B03802	MB277022	Soil

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I. Validation Procedure Summary

Data review and validation were performed in accordance with Naval Energy and Environmental Support Activity (NEESA) 20.2-047B (June 1988) using the USEPA Functional Guidelines for Inorganic Analyses (7/88) and criteria specified in the USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition (1986).

II. Data Deliverables

1. All required deliverables including QA/QC summary forms are present and in legible form in the data package.

Yes: X No:

2. Lab control charts were received and data points were within the control limit windows.

Yes: X No: N/A:

Note: If data points are outside of control limit windows, refer to the Laboratory Control Sample section VIII for any effect on data quality.

III. Technical Holding Times

Chain of custody records and sample preparation logs (Form 13) were checked for all samples to verify that technical holding time, and preservation criteria were met.

1. Technical holding times were within the allowable limits shown below:
- a. Analysis for all metals was completed within 180 days of sample collection; mercury was completed within 28 days; cyanide was completed within 14 days.

Yes: X No:

Comment: Holding time criteria have been met and no action has been taken.

IV. Instrument Calibration and Calibration Verification

One hundred percent of the calibration results on the quality control summary forms were checked to ensure that reported results were within required quality control limits.

1. Instrument calibration for metals determined by inductively coupled plasma spectroscopy (ICP) was performed using a blank and one standard for each analyte.

Yes: X No: N/A:

2. Instrument calibration for metals determined by graphite furnace atomic absorption spectroscopy (GFAA) was performed using a blank and three standards (one of which was at the CRDL).

Yes: X No:

3. Instrument calibration for mercury was performed using a blank and four standards.

Yes: X No: N/A:

4. Instrument calibration for cyanide was performed using a blank and three standards (one of which was at the CRDL).

Yes: X No: N/A:

5. Calibration verification was performed for each analyte at a frequency of 10%.

Yes: X No:

6. A continuing calibration verification (CCV) was performed after the last analytical sample in each run.

Yes: X No:

7. Initial calibration verification (ICV) and CCV percent recovery (%R) values met the criteria specified below:

a. For all metals except mercury and cyanide, %R results were between 90% and 110%.

Note: Due to possible rounding errors, allow results to fall within 1% of the contract windows (e.g. 89-111%).

Yes: X No:

8. Correlation coefficients for GFAA analytes, mercury, and cyanide calibration curves were greater than or equal to 0.995.

Yes: No: N/A: X

Comment: Raw data was not provided for this Level C SDG; therefore, calibration curves were not available.

9. Comments: The following calibration calculations were verified during the validation process.

ICV or CCV	Analyte	Calculation $\%R = (\text{Found}/\text{True}) * 100$	%R
ICV	Barium	$2571/2500 \times 100$	102.8
CCV	Barium	$2523/2500 \times 100$	100.9
ICV	Arsenic	$26.26/25.0 \times 100$	105.0
CCV	Arsenic	$26.78/25.0 \times 100$	107.1
ICV	Mercury	$4.94/5.0 \times 100$	98.8
CCV	Mercury	$4.58/5.0 \times 100$	91.6
ICV	Cyanide	$101.4/94.0 \times 100$	107.9
CCV	Cyanide	$103.22/94.0 \times 100$	109.8

V. Blanks

A. Laboratory Blanks

One hundred percent of the laboratory blank results on the summary forms were checked to ensure that reported results were within required quality control limits.

1. Preparation blank analyses results have been reported for each matrix type for every extraction batch.

Yes: X No:

2. Calibration blanks were run at a frequency of 10%.

Yes: X No:

3. A calibration blank was analyzed immediately after every ICV and CCV, and after the last sample.

Yes: X No:

4. All reported blank analyte results had absolute values less than the corresponding IDL values.

Yes: No: X

Comment: Barium, copper, lead, and zinc were detected in the soils prep blank. Sample results for the above analytes were high enough to not have been affected by the blank contamination.

The following 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.

Inorganic Laboratory Blank Summary Table SDG No. M3029								
Blank ID/ Date	Affected Analyte	Absolute Conc. ug/l or mg/kg	Action Level ug/l or mg/kg	Affected Sample	Lab Conc ug/l or mg/kg	Lab Qual	EDS Conc ug/l or mg/kg	EDS Qual
PBW 7/8/96	Barium	0.99	4.95	23Y009	0.41	B	0.99	UJ
PBW 7/8/96	Selenium	-2.7	--	23Y009 23R031	1.2 1.2	U U	1.2 1.2	UJ UJ
PBW 7/8/96	Zinc	4.79	23.95	23Y009 23R031	4.8 3.6	B B	4.8 4.8	UJ UJ

PBS 7/8/96	Selenium	0.68	3.4	23S03001D	0.83	B	0.83	UJ				
				23B03002	1.0	B	1.0	UJ				
				23S03301	0.63	B	0.68	UJ				
				23B03302	0.50	B	0.68	UJ				
				23S03401	0.65	B	0.68	UJ				
				23S03401D	0.73	B	0.73	UJ				
				23B03402	0.72	B	0.72	UJ				
				23S03501	0.68	B	0.68	UJ				
				23B03502	0.43	B	0.68	UJ				
				23S03601	0.59	B	0.68	UJ				
				23B03602	0.53	B	0.68	UJ				
				PBS 7/12/96	Mercury	0.076	0.38	23S03001	0.04	B	0.08	UJ
								23S03001D	0.05	B	0.08	UJ
								23B03002	0.06	B	0.08	UJ
23S03101	0.25	-	0.25					UJ				
23B03102	0.05	B	0.08					UJ				
23S03201	0.07	B	0.08					UJ				
23B03202	0.05	B	0.08					UJ				
23S03301	0.06	B	0.08					UJ				
23B03302	0.06	B	0.08					UJ				
23S03401	0.08	B	0.08					UJ				
23S03401D	0.05	B	0.08					UJ				
23S03501	0.06	B	0.08					UJ				
23B03502	0.04	B	0.08					UJ				
23S03601	0.09	B	0.09					UJ				
23B03602	0.09	B	0.09					UJ				
23S03701	0.10	B	0.10					UJ				
23B03702	0.11	B	0.11	UJ								
23S03801	0.04	B	0.08	UJ								
23B03802	0.08	B	0.08	UJ								

5. All reported blank analyte results had absolute values less than or equal to the corresponding CRDL values.

Yes: X No:

B. Field Blanks

1. If analytes were detected in the blanks, the associated samples were found to be free of those analytes at detectable concentrations.

Yes: No: X N/A:

2. Analytes were detected, but associated sample aliquot concentrations were

2. Analytes were detected, but associated sample aliquot concentrations were greater than 5X the blank concentration.

Yes: _____ No: X N/A: _____

Comment: Barium and zinc were detected in one or both of the field blanks but the contamination appears to be the result of sample preparation and no further qualifications were required.

VI. Matrix Spike Sample Recovery

One hundred percent of the matrix spike (MS) sample results on the quality control summary forms were checked to ensure that reported results were within required quality control limits.

1. For SDG M3029, one field sample from each group of samples of a similar matrix and concentration level was spiked with each target analyte (except: Ca, Mg, K, Na on water samples and Al, Ca, Mg, K, and Na on soil/sediment samples) by the laboratory.

Yes: X No: _____

2. MS sample ID: 23S03001 (soils) 23Y009 (water)

3. For all target analytes, percent recovery (%R) results were within the limits of 75% - 125% (Note: MS %R limits do not apply when the sample concentration exceeded the spike concentration by a factor of 4 or more).

Yes: _____ No: X

Sample	Analyte	% Recovery	Qualifier
23S03001	Selenium	68.9	UJ
23S03101	Selenium	68.9	UJ
23B03102	Selenium	68.9	UJ
23S03201	Selenium	68.9	UJ
23B03202	Selenium	68.9	UJ
23S03701	Selenium	68.9	UJ
23B03702	Selenium	68.9	UJ

23S03801	Selenium	68.9	UJ
23B03802	Selenium	68.9	UJ
23Y009	Arsenic	46.8	UJ
23R031	Arsenic	46.8	UJ

4. The following spike calculations were verified during the validation process.

Instrument or Method	Analyte	Calculation %R = (SSR-SR/SA)*100	%R
ICP	Barium	$(526-20.7)/499 \times 100$	101.3
GFAA	Selenium	$(1.72-0.0)/2.49 \times 100$	69.1
CV	Mercury	$(1.13-0.044)/1.15 \times 100$	94.4
CA	Cyanide	$(2.93-0.0)/2.49 \times 100$	117.7

VII. Interference Check Samples

One hundred percent of the ICS results on the quality control summary forms were checked to ensure that reported results were within required quality control limits.

1. ICP ICSs (solutions A and AB) were analyzed at the beginning and end of each sample analysis run (or a minimum of twice per 8-hour shift, whichever was more frequent).

Yes: X No: N/A:

2. Solution AB analyte recovery results were within the control limits of 80%-120%.

Yes: X No: N/A:

3. Concentrations of Ca, Fe, and Mg in the samples are less than or equal to their respective concentration in ICS solution A or AB.

Yes: No: N/A: X

4. Cr, Cu, Ni, and V are present in a sample(s) at concentrations less than 10,000 ug/L.

Yes: X No: N/A:

5. Comments: ICP ICSs criteria have been met and no action has been taken. The following ICS calculations were verified during the validation process.

Analyte	Calculation %R=(Found Soln AB/True Soln AB)*100	%R
Barium	466.4/500 x 100	93.3

VIII. Laboratory Control Sample (LCS)

One hundred percent of the LCS results on the quality control summary forms were checked to ensure that reported results were within required quality control limits.

1. A laboratory control sample was analyzed for each SDG for each matrix type.

Yes: X No:

2. Aqueous LCS recovery results were within the control limits of 80% to 120% (except for Sb and Ag which have no required limits).

Yes: X No: N/A:

3. Soil LCS recovery results were within the required control limits specified on the laboratory Form VII-IN and control charts.

Yes: X No: N/A:

Comment: LCS criteria have been met and no action has been taken.

4. The following LCS calculations were verified during the validation process.

Instrument or Method	Analyte	Calculation %R=(Found/True)*100	%R
ICP	Barium	2470/2500 x 100	98.8
GFAA	Arsenic	106/100 x 100	106.0
CV	Mercury	4.68/5.0 x 100	93.6

CA	Cyanide	101.4/94.0 x 100	107.9
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IX. Duplicate Sample Analysis

One hundred percent of the duplicate results on the quality control summary forms were checked to ensure that reported results were within required quality control limits.

A. Laboratory Duplicates

- For each SDG, one duplicate sample was analyzed from each group of samples of a similar matrix type and concentration level.

Yes: X No:

- For duplicate analyte concentrations greater than 5X the CRDL, the relative percent difference (RPD) between the two reported results was less than 20% for aqueous samples (35% for soil samples).

Yes: X No:

- For duplicate analyte concentrations less than 5X the CRDL, the difference between the two reported results was 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.

Yes: X No:

- Comment: Laboratory duplicate criteria have been met and no action has been taken.

- The following duplicate calculations were verified during the validation process.

Instrument or Method	Analyte	Calculation $RPD = \frac{S-D}{(S+D/2)} * 100$ D = S - Dup	RPD or Difference
ICP	Copper	13.68-14.33	0.65 (±12.4)
GFAA	Lead	$[(48.2-49.2)/(48.2+49.2)]/2 * 100$	2.1 (±35%)
CV	Mercury	NC	NA

CA	Cyanide	NC	NA
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B. Field Duplicates

1. The following duplicate sets were analyzed with this SDG:
 - a. 23S03001 and 23S03001D
 - b. 23S03401 and 23S03401D

2. Comment: The following results have been qualified for exceeding RPD or difference criteria.

Sample	Analyte	RPD or Difference	EDS Qualifier
23S03001	Lead	50.1 (±35)	J
23S03001D			
23B03002			
23S03101			
23B03102			
23S03201			
23B03202			
23S03301			
23B03302			
23S03401			
23S03401D			
23B03402			
23S03501			
23B03502			
23S03601			
23B03602			
23S03701			
23B03702			
23S03801			
23B03802			

23S03001 23S03001D 23B03002 23S03101 23B03102 23S03201 23B03202 23S03301 23B03302 23S03401 23S03401D 23B03402 23S03501 23B03502 23S03601 23B03602 23S03701 23B03702 23S03801 23B03802	Arsenic	73.1 (± 35)	J
23S03001 23S03001D 23B03002 23S03101 23B03102 23S03201 23B03202 23S03301 23B03302 23S03401 23S03401D 23B03402 23S03501 23B03502 23S03601 23B03602 23S03701 23B03702 23S03801 23B03802	Copper	20.3 (± 10)	J

X. Furnace Atomic Absorption QC

One hundred percent of the AA summary data was checked to ensure that reported results were within required quality control limits.

1. Duplicate injections for AA analytes with concentrations greater than the CRDL had RSD results < 20%.

Yes: _____ No: _____ N/A: X

Comment: RSD results are contained in the raw data which is not provided for Level C review.

2. For each sample, all AA analytical spike recovery results were between 85% and 115%.

Yes: _____ No: X

Comment: The analytical spike recovery of antimony was 118% for sample 23Y009. The above result is qualified as estimated "UJ."

3. For each sample, all AA results were within the appropriate calibration range, or were diluted to meet this criteria.

Yes: X No: _____ N/A: _____

4. Sample analyte results where the analytical spike recovery was <40% were diluted once and reanalyzed.

Yes: _____ No: _____ N/A: X

5. Samples having analyte concentrations greater than or equal to 50% of the spike concentrations, and spike %R results <85% or >115% were quantitated by MSA.

Yes: _____ No: _____ N/A: X

6. MSA analyses with correlation coefficients less than 0.995 were rerun once.

Yes: _____ No: _____ N/A: X

7. MSA spike values met the criteria specified below:

- a. Spike 1 was approximately 50% of the sample concentration.
- b. Spike 2 was approximately 100% of the sample concentration.
- c. Spike 3 was approximately 150% of the sample concentration.

Yes: _____ No: _____ N/A: X

XI. ICP Serial Dilution

ICP serial dilution results were not provided by the laboratory. The case narrative states that serial dilution is "not required" for this level QC.

1. ICP serial dilution analysis was performed on one sample from each SDG of a similar matrix type and concentration level.

Yes: _____ No: _____ N/A: X

2. For each analyte in the serial dilution sample which was minimally a factor of 50 above the IDL in the original sample, the serial dilution result agreed within 10% of the original determination after correction for dilution.

Yes: _____ No: _____ N/A: X

XII. Sample Result Verification

Ten percent of all reported sample results were not verified since the raw data is not provided for a Level C data package.

1. All sample results which were verified were correctly calculated and reported.

Yes: _____ No: _____ N/A: X

Comment: Calculations and transcriptions can not be verified without the raw data.

2. All sample results fall within the calibrated range of the instrument for AA and cyanide.

Yes: X No: _____ N/A: _____

3. All reported concentrations were above the CRDL.

Yes: _____ No: X N/A: _____

Comment: The "B" qualifier applied by the laboratory for results between the CRDL and the IDL were amended with a "J" qualifier.

4. Sample results on Form 1 were reported down to the IDL not CRDL for all analytes.
 Yes: X No: N/A:
5. Reported sample results that were analyzed by ICP for As, Pb, Se, and Tl were at least 5X the ICP IDL.
 Yes: No: N/A: X
6. Sample weights, volumes and dilutions were taken into account when reporting detection limits on Form 1.
 Yes: X No: N/A:
7. IDLs were present and found to be less than CRDL.
 Yes: X No: N/A:
8. All CRDLs and IDLs were included on Form X.
 Yes: X No: N/A:
9. Raw data were free of anomalies (e.g. baseline shifts, negative absorbances/emissions, omissions, etc.). If no, please describe anomalies in the comments section below.
 Yes: No: N/A: X

Comment: Raw data is not provided for Level C review.

XIII. Additional Comments/Professional Judgment

The final validated results represent the compilation of all quality control qualification. With the exception of the quality control anomalies presented in Sections V.A.4, VI.3, V.B.2, and X.2 and the resulting qualifiers, the analyses of environmental samples and quality control samples are valid within the constraints identified with the data quality flags. All false positive/negative results and matrix interferences are summarized on Table A-1 and A-3, respectively.

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.

Environmental Data Services, Inc.

Specializing in Laboratory Data Validation

Summary of Organic Data Validation Semivolatile Organic Compounds

Client: ABB Environmental Services, Inc.
Project Name: U.S. Naval Station Mayport, Mayport, Florida
Project Number: CTO 028
Contract Laboratory: Quality Analytical Laboratory
SDG Number: M3032
Purchase Order Number: SE4-21-017
NEESA Level: C
Data Reviewer: Nancy Weaver
Secondary Reviewer: Jeff Benson
Date Review Completed: August 6, 1996

Contractor Sample Number	Laboratory Sample Number	Sample Matrix
24R033	MB280001	Water
24S00801	MB280002	Soil
24S00801MS	MB280002MS	Soil
24S00801MSD	MB280002MSD	Soil
24S00801D	MB280003	Soil
24B00802	MB280004	Soil
24S00901	MB280005	Soil
24B00902	MB280006	Soil
24S01001	MB280007	Soil
24B01002	MB280008	Soil

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I. Validation Procedure Summary

Data review and validation were performed in accordance with Naval Energy and Environmental Support Activity (NEESA) 20.2-047B (June 1988) using the USEPA National Functional Guidelines for Organic Data Review, (12/90, Revised 6/91) and criteria specified in the USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition (1986).

II. Data Deliverables

1. All required deliverables including QA/QC summary forms and all necessary raw data were present in legible form in the data package.

Yes: X No:

III. Technical Holding Times

Technical holding times for all samples were verified from raw data and chain of custody forms.

1. Technical holding times were within the allowable limits shown below:
- a. Water samples extracted ≤ 7 days from date of sample collection; analyzed ≤ 40 days from date of extraction.

Yes: X No: N/A:

- b. Soil/sediment samples extracted ≤ 14 days from date of sample collection; analyzed ≤ 40 days from date of extraction.

Yes: X No: N/A:

IV. GC/MS Instrument Performance Check

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

1. The DFTPP instrument performance check solution was analyzed at the beginning of each 12 hour period during sample analysis. All standards, samples, blanks and samples were analyzed within 12 hours of the injection of the tuning compound.

Yes: X No:

2. DFTPP ion abundance criteria for all instrument performance checks were within the quality control limits specified below.

Yes: X No:

Decafluorotriphenylphosphine (DFTPP)

<u>m/z</u>	<u>Ion Abundance Criteria</u>
51	30.0-60.0% of m/z 198
68	Less than 2.0% of m/z 69
69	Present, Mass 69 relative abundance
70	Less than 2.0% of m/z 69
127	40.0 - 60.0 of m/z 198
197	Less than 1.0% of m/z 198
198	Base peak, 100% relative abundance
199	5.0 - 9.0 of m/z 198
275	10.0 - 30.0% of m/z 198
365	Greater than 1.00% of m/z 198
441	Present, but less than m/z 443
442	Greater than 40.0% of m/z 198
443	17.0 - 23.0% of m/z 442

Summary of Tuning

Date of Injection	Instrument ID	Matrix	Level (low or medium)	File/Batch No.
7/3/96	MS3	Water	Low	H0006553.D
7/11/96	MS3	Water	Low	H0006565.D
7/11/96	MS3	Water	Low	H0006586.D

Comment: Tuning criteria have been met and no action has been taken.

V. Initial Calibration (ICAL)

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

1. An initial 5-point calibration was run for each compound at concentrations of 20, 50, 80, 120, and 160 ng per 2 ul injections.

Yes: X No:

2. The initial calibration mean relative response factor (RRF) results were greater than or equal to 0.05 for each compound.

Yes: X No:

3. The RRF percent relative standard deviation (% RSD) results from the initial calibration were less than or equal to 30% for all compounds.

Yes: No: X

Comment: Hexachlorophene exceeded the 30% RSD criteria, however, there were no positive results reported for this compound and no qualifications were required.

VI. Continuing Calibration (CCAL)

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

1. A 50 ug/L continuing calibration standard containing all target compounds was analyzed at the beginning of each 12-hour analysis period following the analysis of the instrument performance check and prior to the analysis of any blanks or samples.

Yes: X No:

2. The relative response factors (RRFs) were greater than or equal to 0.05 for each compound.

Yes: No: X

3. The percent difference (%D) between the mean initial calibration RRF and the continuing calibration RRF were within $\pm 25\%$.

Yes: No: X

Comment: The following summarizes continuing calibration %D and/or RRF exceedences:

Semivolatile Continuing Calibration Summary Table SDG No. M3032								
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
H0006566.D 7/11/96	p- Phenylenediamine	29.1	0.141	24R033 24S00801 24S01001 24S00801D 24B00802 24B00902 24B01002	500 35000 88000 35000 18000 18000 900000	U	500 35000 88000 35000 18000 18000 900000	UJ
H0006587.D 7/11/96	Benzoic Acid	57.3	0.105	24S00901	1700	U	1700	UJ
H0006587.D 7/11/96	p- Phenylenediamine	38.4	0.122	24S00901	17000	U	17000	UJ
H0006587.D 7/11/96	Hexachlorophene	59.1	0.040	24S00901	17000	U	17000	R

4. Comments: The following calibration calculations were verified during the validation process.

M3032 MS3 7/3/96 Phenol Mean RT=(Sum RT)/5 Mean RT= (1.781+1.784+1.623+ 1.628+1.592)/5=1.682	M3032 MS3 7/3/96 Phenol % RSD=(Std.Deviation/Mean)*100 % RSD=(0.09/1.682)*100 % RSD=5.5%	M3032 MS3 7/11/96 2-Chlorophenol %D=(Mean RRF- RRF50/Mean RRF)*100 %D=(1.356-1.407/1.356) *100 %D=-3.8
---	--	---

VII. Blanks

A. Laboratory Blanks

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

- Laboratory method blanks were analyzed for each matrix type, concentration level, extraction batch, and for each 12 hour time period on each GC/MS system used to analyze samples.

Yes: X No:

2. All laboratory blanks were found to be free of contaminant target compounds at detectable concentrations.

Yes: No:

Comment: The following table summarizes laboratory blank results:

Semivolatile Laboratory Blank Summary Table SDG No. M3032								
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
SBLK75 7/12/96	Di-n- butylphthalate	1	10	None	--	--	--	--
SBLK74 7/11/96	Bis(2-ethylhexyl) phthalate	330	3300	24S00801 24S00801D 24B00802 24S00901 24B00902 24S01001	180 150 58 890 1600 710	JB JB JB B B JB	710 700 370 890 1600 1800	U U U U U U

** The "action level" is 10X the blank concentration for compounds defined to be common phthalate lab contaminants, and 5X the blank concentration for other target compound contaminants.

3. All laboratory blanks were free of tentatively identified compound (TIC) contamination.

Yes: No: N/A:

4. If TICs were detected in the laboratory blanks, the associated samples were found to be free of those analytes at detectable concentrations.

Yes: No: N/A:

B. Field Blanks

1. The field blanks associated with samples in the SDG met the following conditions:

a. All field blanks were found to be free of target analytes at detectable concentrations.

Yes: X No: N/A:

Comment: The following table summarizes laboratory blank results:

Semivolatile Field Blank Summary Table SDG No. M3032								
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
24R033 7/11/96	None Found	--	--	--	--	--	--	--
23Y009 7/11/96	None Found	--	--	--	--	--	--	--

** The "action level" is 10X the blank concentration for compounds defined to be common phthalate lab contaminants, and 5X the blank concentration for other target compound contaminants.

2. All field blanks were free of tentatively identified compound (TIC) contamination.

Yes: No: N/A: X

3. If TICs were detected in the field blanks, the associated samples were found to be free of those analytes at detectable concentrations.

Yes: No: N/A: X

Comment: TICs were not analyzed for the field blank sample.

VIII. Surrogate Spike Compounds

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

1. Surrogate compound recovery (%R) results met the criteria specified below in all samples.

Yes: X No:

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

2. Sample reanalysis was performed if surrogate results were outside of criteria.

Yes: _____ No: _____ N/A: X

Comment: Sample 24B01002 surrogates were diluted out and were reported as 0%. No action was taken by the reviewer.

IX. Matrix Spikes/Matrix Spike Duplicates

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

1. For every 20 samples in an SDG, one field sample of each type was spiked for MS/MSD analysis.

Yes: X No: _____

2. MS/MSD Sample I.D.: 24S00801

3. MS/MSD sample results met with the criteria specified below.

Yes: X No: _____ N/A: _____

MS/MSD CRITERIA

	Water		Soil/Sediment	
	<u>%R</u>	<u>RPD</u>	<u>%R</u>	<u>RPD</u>
Phenol	12-110	42	26-90	35
2-Chlorophenol	27-123	40	25-102	50
1,4-Dichlorobenzene	36-97	28	28-104	27
N-Nitroso-Di-n-propylamine	41-116	38	41-126	38
1,2,4-Trichlorobenzene	39-98	28	38-107	23
4-Chloro-3-methylphenol	23-97	42	26-103	33
Acenaphthene	46-118	31	31-137	19

4-Nitrophenol	10-80	50	11-114	50
2-4-Dinitrotoluene	24-96	38	28-89	47
Pentachlorophenol	9-103	50	17-109	47
Pyrene	26-127	31	35-142	36

4. 0 of 22 MS/MSD %R results were out of required quality control limits.
0 of 11 MS/MSD RPD results were out of required quality control limits.

X. Laboratory Control Samples (LCS)

Laboratory control charts were included in the data packages.

1. Laboratory control charts were provided for each surrogate for reagent blank analyses per batch.

Yes: X No: N/A:

2. The percent recoveries were within acceptable QC limits.

Yes: X No: N/A:

Comment: LCS criteria have been met and no action has been taken.

XI. Field Duplicates

1. The following duplicate set was analyzed with this SDG:

a. 24S00801 and 24S00801D

2. Comment: The following table summarizes field duplicate results.

Semivolatile Field Duplicate Results SDG No. M3032			
Compound	24S00801 ug/kg	24S00801D ug/kg	RPD
Acenaphthene	320	250	25
Fluorene	260	220	17
Phenanthrene	2500	2300	8
Anthracene	730	650	12
Fluoranthene	3800	3700	3
Pyrene	4400	4300	2

Benzo(a)anthracene	2200	2100	5
Chrysene	2300	2200	4
Benzo(b)fluoranthene	1500	1400	7
Benzo(k)fluoranthene	1600	1600	0
Benzo(a)pyrene	1800	1800	0
Indeno(1,2,3-cd)pyrene	1100	1100	0
Dibenz(a,h)anthracene	420	400	5
Benzo(g,h,i)perylene	1200	1200	0

XII. Internal Standards (IS)

One hundred percent of the results on the summary forms were checked to ensure that reported results met required quality control criteria.

- All sample IS area counts were within a -50% to +100% control limit window from the associated calibration standard.

Yes: X No:

- All sample IS retention times were within a ± 30 sec. control limit window of the associated calibration standard IS retention times.

Yes: X No:

Comment: IS criteria have been met and no action has been taken.

XIII. Target Compound Identification

Target compound identification results are not verified for Level C data validation.

- Sample results were not verified for the following identification criteria:
 - Compound relative retention times (RRT) were within ± 0.06 RRT units of the standard relative retention time.
 - All ions present in the standard mass spectrum at a relative intensity greater than 10% were present in the sample spectrum, and the relative intensities of these ions were within $\pm 20\%$.

c. All ions present at greater than 10% in the sample mass spectrum but not present in the standard mass spectrum were accounted for.

Yes: _____ No: _____ N/A: X

XIV. Compound Quantitation and Reported CRQLS

Compound quantitation and reported CRQLs are not verified for Level C data validation.

1. All Form I sample results which were verified were correctly calculated and reported.

Yes: _____ No: _____ N/A: X

2. All sample compounds had on-column concentrations within the upper calibration range of the method.

Yes: X No: _____ N/A: _____

3. All samples were analyzed only once (i.e., no samples required re-analysis or dilution).

Yes: _____ No: X N/A: _____

XV. Tentatively Identified Compounds

One hundred percent of the results on the summary forms were checked to ensure that TIC results met required quality control criteria.

1. A mass spectral search of the NIST library was conducted for the 20 largest semivolatile fraction peaks which were not target compounds, ISs, or surrogate compounds, and the spectra for the three TIC candidates were included.

Yes: _____ No: _____ N/A: X

2. Reported TICs met the following criteria:

a. Ions present at greater than 10% abundance in the referenced spectrum were also present in the sample spectrum, and relative intensities were within $\pm 20\%$.

b. Ions present in the sample spectrum at greater than 10% abundance were also present in the reference spectra, or could be accounted for.

Yes: _____ No: _____ N/A: X

3. TIC concentrations were calculated assuming an RRF value of 1.0.

Yes: _____ No _____ N/A: X

XVI. System Performance

1. The instrumental and analytical systems used in the analysis of these samples maintained an acceptable level of performance.

Yes: X No _____

XVII. Overall Assessment of Data

The final validated results represent the compilation of all quality control qualification. With the exception of the quality control anomalies presented in Sections VI and VII (Continuing Calibration and Blanks) of this report and the resulting qualifiers, the analyses of environmental samples and quality control samples are valid within the constraints identified with the data quality flags with the exception of hexachlorophene which was rejected due to continuing calibration problems.

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.

APPENDIX C
PHOTOGRAPHS

DRAFT



WEST OF BUILDING 14, SWMU 23: View south, Building 14 in left foreground, Building 47 at right, and Building 57 center background. Sample location flags are located in the grassy area (black arrows) (December 16, 1996).



WEST OF BUILDING 14, SWMU 23: View north, Building 14 out of view to the right. Two sample location flags are marked by black arrows. The Turning Basin is in the background (December 16, 1996).

DRAFT

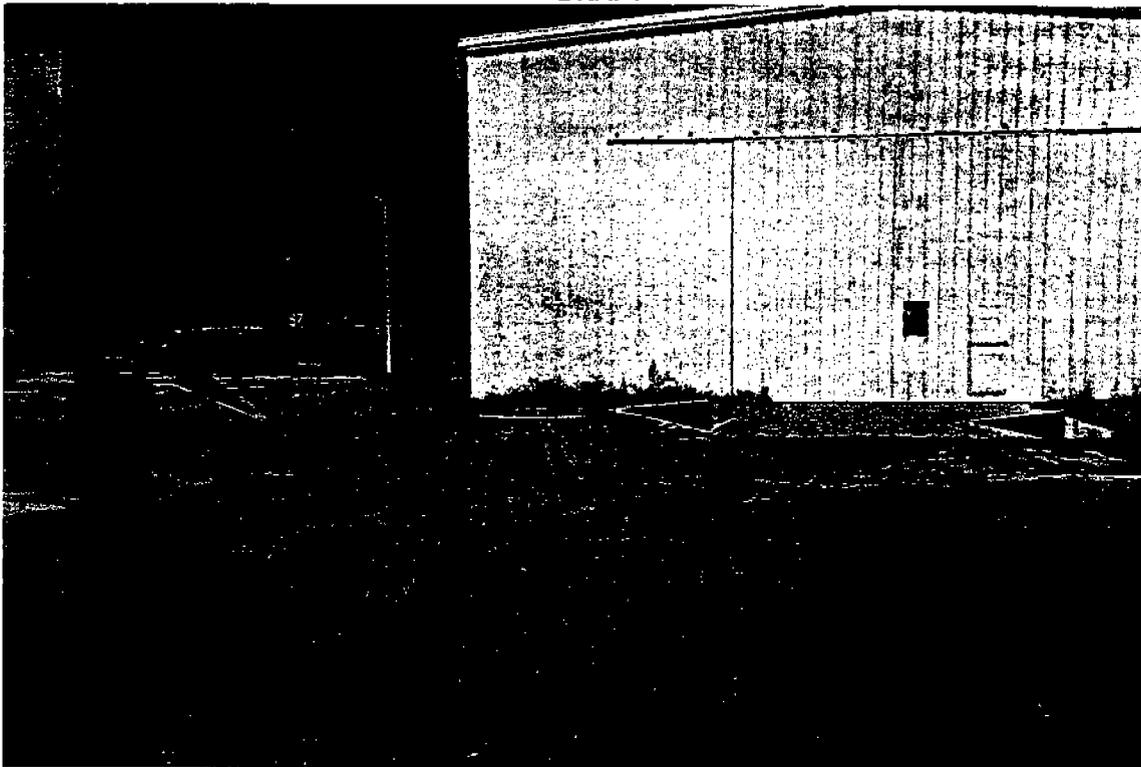


SOUTH OF BUILDING 55, SWMU 23: View east, small, white sample location flags and the limit of the gunite are marked by black arrows and pink ribbon, respectively. Building 57 shown in center background and the northern limit of SWMU 25 is to the right (South) (December 13, 1996).

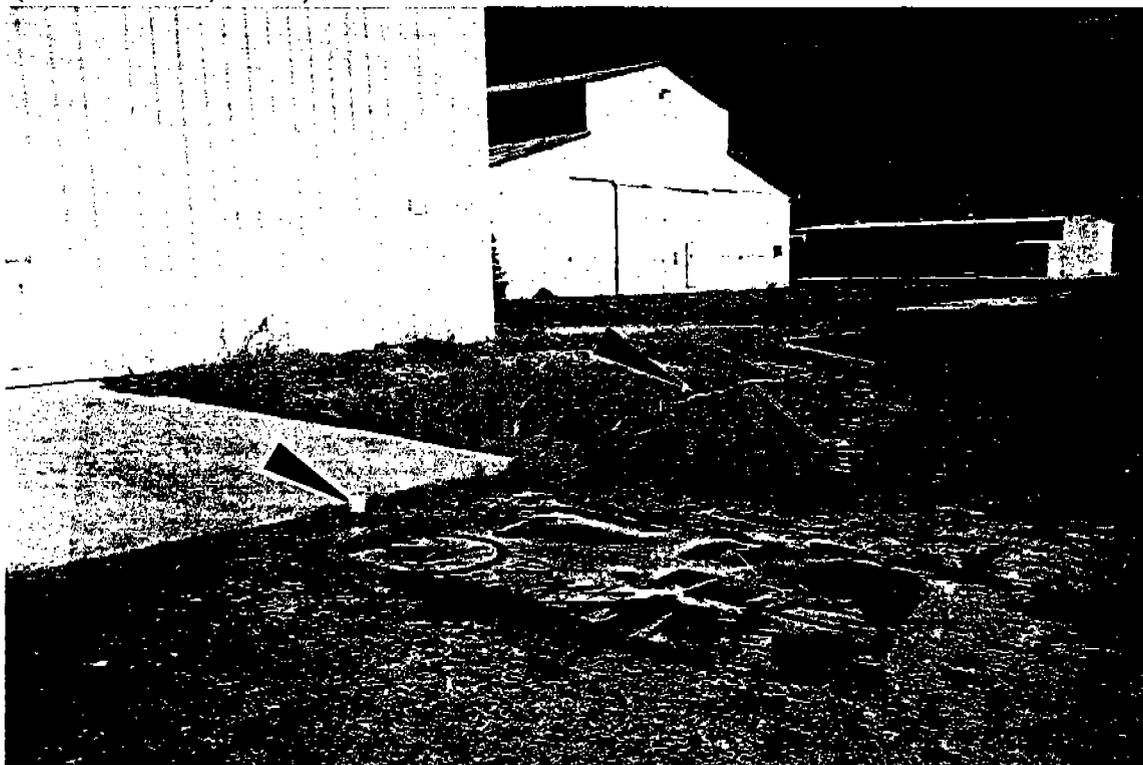


SOUTH OF BUILDING 55, SWMU 23: View northeast, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon (black arrows). Building 10 shown in center-right background (December 13, 1996).

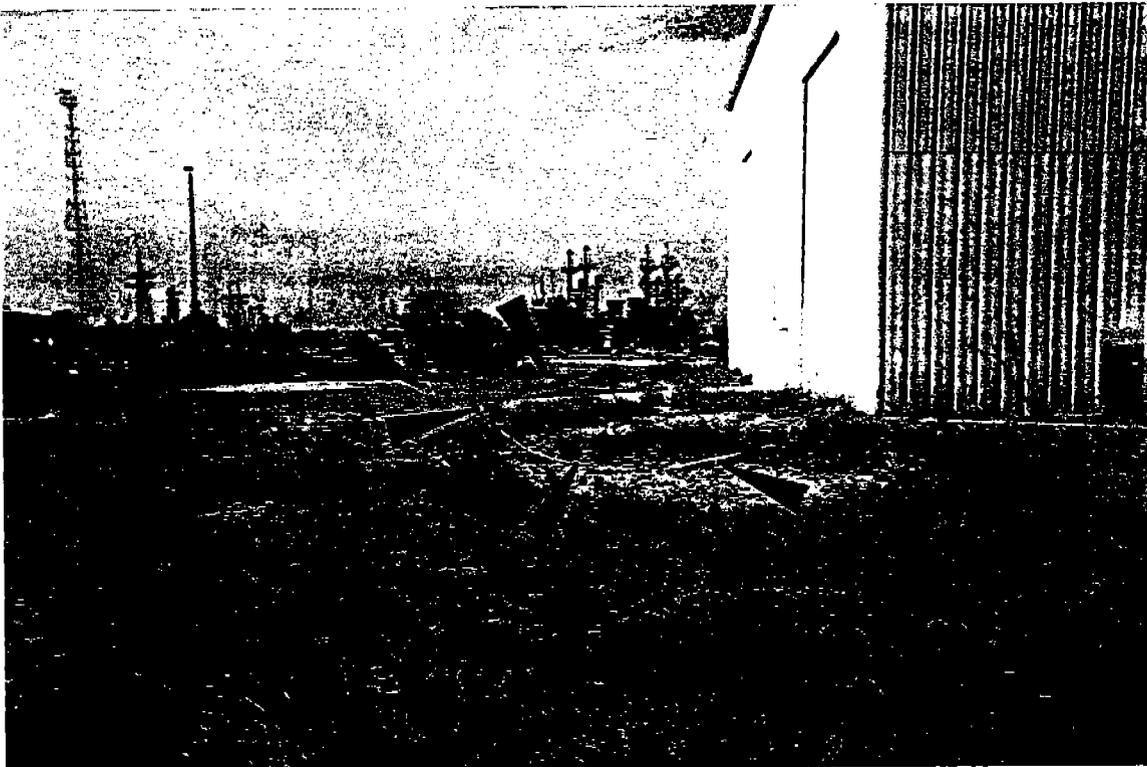
DRAFT



SOUTH OF BUILDING 55, SWMU 23: View northwest, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon (black arrows). Turning Basin in center-left background (December 13, 1996).



SOUTH OF BUILDING 55, SWMU 23: View northeast, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon (black arrows). Building 47 is in the center, and Building 10 is in the background on the right (December 13, 1996).



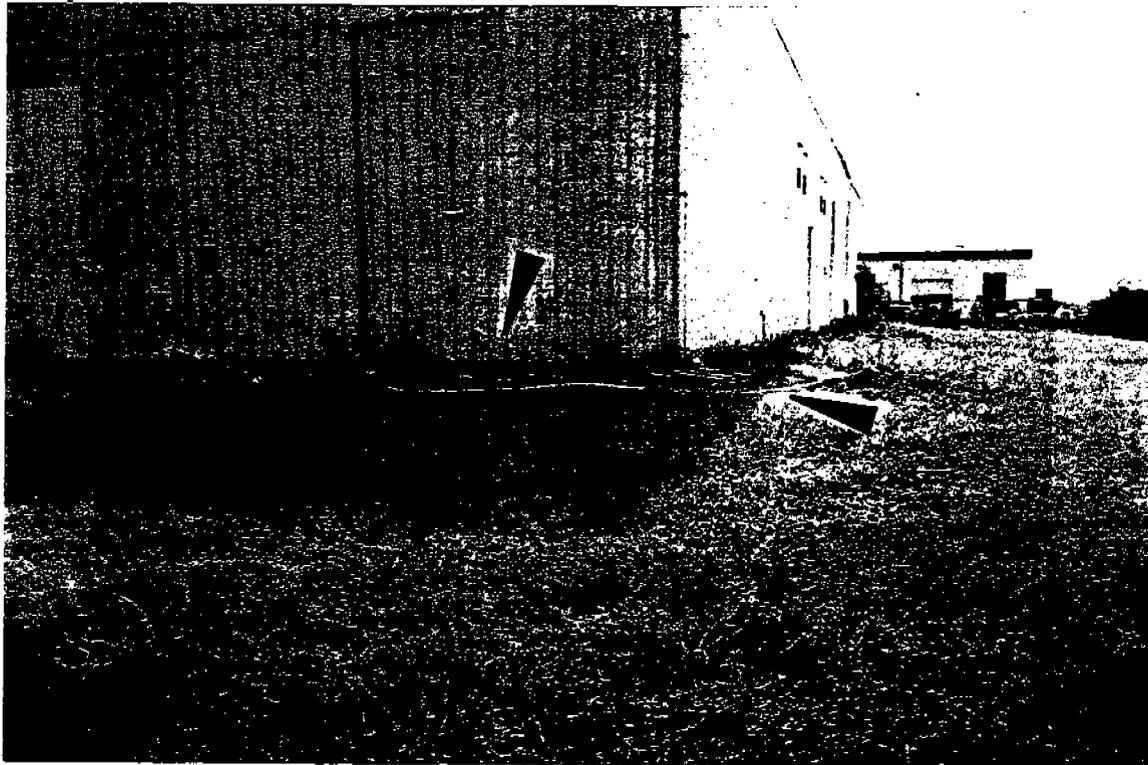
SOUTH OF BUILDING 55, SWMU 23: View west, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon (black arrows)(December 13, 1996).



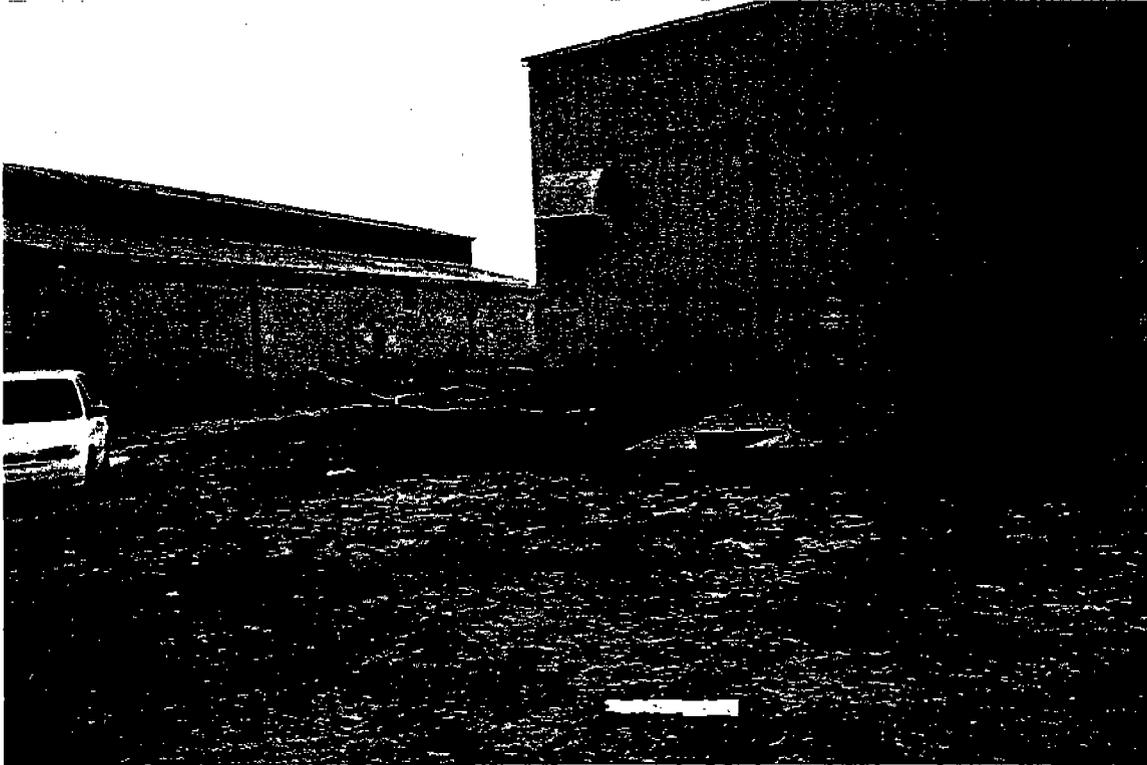
NORTH OF BUILDING 54, SWMU 23: View west, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon (black arrows)(December 13, 1996).



NORTH OF BUILDING 54, SWMU 23: View southwest, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon (black arrows) (December 13, 1996).



NORTH OF BUILDING 54, SWMU 23: View south, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon. A blue sample location flag (MPT-23-SS07) is in the gunite covered area (black arrows) (December 13, 1996).



NORTH OF BUILDING 54, SWMU 23: View south, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon. A blue sample location flag (MPT-23-SS08) is in the gunite covered area (black arrows) (December 13, 1996).



NORTH OF BUILDING 54, SWMU 23: View east, small, white sample location flags outside the limit of gunite (cement), which is marked by the pink ribbon. A blue sample location flag (MPT-23-SS08) is in the gunite covered area (black arrows) (December 13, 1996).



NORTH OF BUILDING 54, SWMU 23: View of gunite (cement) bordering unpaved area (December 13, 1996).



SOUTH OF BUILDING 57, SWMU 23: View south, three blue sample location flags (MPT-23-SS45, MPT-23-SS46, and MPT-23-SS47 [black arrows]) in unpaved area with surficial covering of "Black Beauty." Two stakes from previous sampling episode are shown (black arrows) (December 16, 1996).



SOUTH OF BUILDING 57, SWMU 23: View northwest, two blue sample location flags (MPT-23-SS45 and MPT-23-SS46) located in area with surficial covering of "Black Beauty." Stakes (two) from previous sampling episode are shown (black arrows) (December 16, 1996).



SOUTH OF BUILDING 57, SWMU 23: View west, sample location flag MPT-23-SS47 (black arrow) located in unpaved area with surficial covering of "Black Beauty" (December 16, 1996).

DRAFT

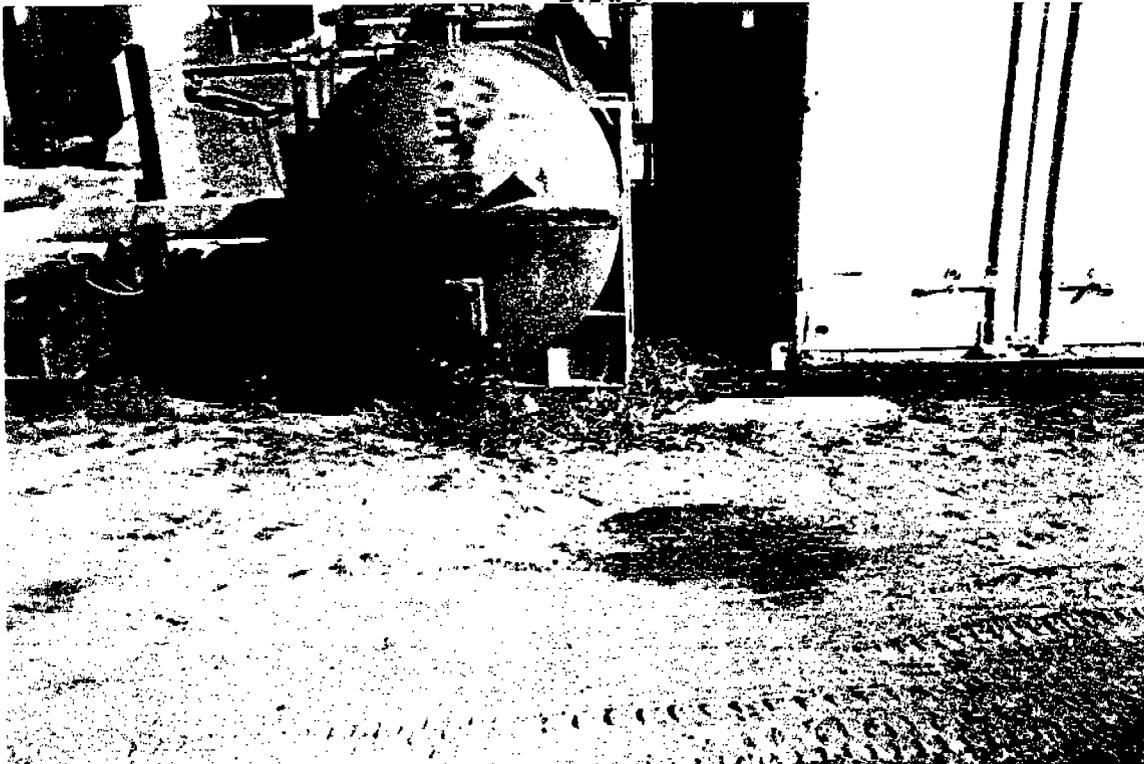


NORTH FLORIDA SHIPYARD, SWMU 24: View to north, from main gate. Discoloration of unpaved open yard area due to recent rain. Sample locations located beyond crane in center background (December 16, 1996).



NORTH FLORIDA SHIPYARD, SWMU 24: View to northeast, monitoring well MPT-24-MW01S at left corner of the rolloff. Sample location MPT-24-SS08 was collected near the discolored area, MPT-24-SS09 collected from approx. 5 feet from the rolloff located right-front corner (black arrows) (December 16, 1996).

DRAFT



NORTH FLORIDA SHIPYARD, SWMU 24: View east, monitoring well MPT-24-MW01S (under pipes). Sample MPT-24-SS10 was collected at the far end of the steel tank, approximately 3 feet from the side of the rolloff (December 16, 1996).



SOUTH SIDE OF THE ATLANTIC MARINE INC. BUILDING, SWMU 24: View east, samples were collected in the strip of grass between the southern end of the metal building and the adjacent paved parking area (December 16, 1996).

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SOUTH SIDE OF THE ATLANTIC MARINE INC. BUILDING, SWMU 24: View west, samples were collected in the strip of grass between the southern end of the metal building and the adjacent paved parking area (December 16, 1996).

DRAFT



TARGET RANGE: View northeast, sample location MPT-TR-SS-01 is located between the culvert wall and the paved entrance, MPT-TR-SS-03 and 04 were located on either side of MPT-TR-SS-01 (December 16, 1996).



TARGET RANGE: View east, sample location MPT-TR-SS-01 was located between the culvert wall and the paved entrance, MPT-TR-SS-03 and 04 were located on either side of MPT-TR-SS-01 (December 16, 1996).

APPENDIX D

TERMITE TREATMENT SPECIFICATIONS

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

SPECIFICATION
NO. 06-81-1104

N62467-81-C-1104

APPROPRIATION:
O & M N

ADDITION TO BUILDING 1320
AT THE

NAVAL STATION MAYPORT, FLORIDA

DESIGN BY

W. R. FRIZZELL ARCHITECTS, INC.
WINTER PARK, FLORIDA

SUBMITTED BY

W. R. FRIZZELL, V. P.
July 21, 1982

SPECIFICATION PREPARED BY

<u>W.R. FRIZZELL ARCHS, INC.</u> Architectural	<u>W.R. FRIZZELL ARCHS, INC.</u> Civil	<u>W.R. FRIZZELL ARCHS, INC.</u> Structural
<u>W.R. FRIZZELL ARCHS., INC.</u> Mechanical	<u>W. R. FRIZZELL ARCHS., INC.</u> Electrical	

APPROVED BY

FFD Specification
Branch Head: R.B. O'Quinn, PE Design Director

For Commander, NAVFAC C.T. Payne Date: 8-6-82 ←

J.O. No. 142K3927 W/R 3927 SWIC JES EIC 401DLB

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01012 Additional General Paragraphs
01401 Quality Control
01560 Environmental Protection

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02050 Demolition and Removal
02200 Earthwork
02250 Soil Treatment For Termite
Control
02444 Fence, Chain Link With Barb Wire
At Top
02577 Pavement Markings
02680 Bituminous Paving and Base
Course
02821 Grassing

DIV 3 CONCRETE

03301 Concrete Construction

DIV 4 MASONRY

04200 Concrete Masonry Unit Work

DIV 5 STRUCTURAL AND MISCELLANEOUS

05120 Structural Steel
05200 Open Web Steel Joists

SECTION 01011

GENERAL PARAGRAPHS

1. **INQUIRIES:** All inquiries concerning any phase of this specification, prior to bid opening, shall be made to the Commanding Officer, Southern Division, Naval Facilities Engineering Command, Code 01, P. O. Box 10068, 2144 Melbourne Street, Charleston, South Carolina 29411; Telephone Area Code 803, number 743-3648. QUESTIONS REQUIRING INTERPRETATIONS OF DRAWINGS AND/OR SPECIFICATIONS MUST BE RECEIVED AT LEAST 10 DAYS BEFORE BID OPENING IN ORDER TO INSURE APPROPRIATE TIME TO FORMULATE A RESPONSE. INTERPRETATIONS OR MODIFICATIONS TO DRAWINGS AND/OR SPECIFICATIONS REQUIRED AS A RESULT OF QUESTIONS WILL BE MADE BY CONTRACT AMENDMENT ONLY. OTHERWISE, BIDDERS SHALL BASE THEIR BIDS ON THE DRAWINGS AND SPECIFICATIONS AS ISSUED. The Government specifications and forms mentioned, other information necessary, and non-Government publications may be examined on application to the Commanding Officer, Southern Division, Naval Facilities Engineering Command, Charleston, South Carolina 29411.

2. **GENERAL INTENTION:** It is the declared and acknowledged intention and meaning to provide and secure an addition to BUILDING 1320, complete and ready for use.

3. **GENERAL DESCRIPTION:** A single story addition of concrete block walls with painted exterior finish and, concrete slab on grade floor with carpeted finish floor. A roof system of steel bar joists, metal deck, and rigid insulation under a built-up roof; and sections of metal roof on steel frames; electric and HVAC work.

4. **LOCATION:** The work shall be located at the NAVAL STATION, MAYPORT, FLORIDA, approximately as shown. The exact location will be indicated by the Contracting Officer.

5. **COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK:** The Contractor will be required to commence work under the contract within 10 calendar days after the date of "Notice of Award", to prosecute said work diligently, and to complete the entire work ready for use within 120 calendar days. The time stated for completion shall include final cleanup of the premises. The contract completion date will be computed starting 15 calendar days after the date of the Notice of Award. This 15-day period is to allow for mailing of the Notice of Award and the Contractor's submission of required Bonds.

6. **LIQUIDATED DAMAGES:** In case of failure on the part of the Contractor to complete the work within the time fixed in the contract or extensions thereof, the Contractor shall pay to the Government as liquidated damages pursuant to Clauses entitled "Termination for Default-Damages for Delay - Time Extensions," and "Damages for Delay - Defense Materials Systems and Priorities" of the General Provisions the sum of \$25 for each day of delay.

7. **DRAWINGS ACCOMPANYING SPECIFICATIONS:** The following drawings accompany this specification and are a part thereof. Drawings are the property of the Government, and shall not be used for any purpose other than that contemplated

SECTION 02250

SOIL TREATMENT FOR TERMITE CONTROL

1. SUBMITTALS:

1.1 Samples: The contractor shall submit on request, or the Contracting Officer may draw at any time and without prior notice, from stocks at the site of the work, samples of chemical concentrates and/or of diluted chemical solutions or emulsions being used or presumed to be for use in this work. Should analysis, performed by the Government, indicate such samples to contain less than the amount of active ingredient claimed on the label or specified herein, then all work done with such chemicals shall be repeated, using chemicals conforming to this specification, and without additional cost to the Government.

1.2 Manufacturer's Instructions: Prior to beginning any work, six copies each of the insecticide manufacturer's printed application instructions (label and labeling) shall be furnished the Contracting Officer.

1.3 Warranty: Before the Government will accept the soil treatment work required by this specification, the Contractor shall provide in writing and in an acceptable form, a five year warranty against infestations or re-infestations by subterranean termites of the building addition constructed under this contract. Such warranty shall obligate the Contractor or his designated representative to: (a) perform annual inspections of the building addition; (b) provide promptly such treatment as may be necessary for the elimination and control of subterranean termite infestation; and (c) repair at the Contractor's expense any and all damage up to \$25,000.00 per building or building addition resulting from such infestation.

1.3.1 Insurance: The said warranty shall be backed by a five year policy of insurance in the amount of \$25,000.00 for the building addition constructed under this contract. The policy of insurance must: (a) be issued by a bona fide insurance company; (b) name the United States of America (Department of the Navy) as the insured party; and (c) provide for the repair of all subterranean termite damage to the building addition covered by the warranty up to the dollar limit specified above.

1.4 Certification: Upon final completion of the soil treatment, and as a condition for final acceptance, the Contractor shall furnish a written certificate stating:

- (1) Chemical used had at least the minimum required concentration, brand name of chemical, and manufacturer thereof.

- (2) Rate and method of application complied in every respect with the standards contained herein.

1.5 Report: Upon completion of this work, the Contractor shall submit to the Contracting Officer a report which includes the following information:

- (1) Amount of trenched area treated, in linear feet, and square feet of treated surface area underlying concrete slabs on grade and raised floor.
- (2) Percent active ingredient (a.i.) in final solution of toxicant.
- (3) Total gallons of final solution applied, and
- (4) Total manhours expended under this contract to include (a) survey time, (b) labor, and (c) supervisory time, but not to include travel time.

2. DELIVERY AND STORAGE: Toxicants shall be delivered to project site in sealed and labeled containers as supplied by manufacturer or formulator. Labels shall bear manufacturer's warnings to be observed in handling and use of material. Labels shall bear evidence of registration under the Federal Insecticide, Fungicide, and Rodenticide Act.

3. MATERIALS: The toxicant used for control of subterranean termites shall be any insecticide labeled and EPA-registered for the purpose, and suitable for use under the conditions indicated.

4. REQUIREMENTS: The work includes the procurement of toxicant chemicals and their application to all soil and earth-type material which will be covered by or lie immediately adjacent to the buildings and structures so as to provide a lethal barrier to subterranean termites.

5. APPLICATION:

5.1 General: At the time soil treatment is to be applied, the soil to be treated shall be in a friable condition with a sufficiently low moisture content to allow uniform distribution of the soil treatment agent throughout the soil. Application shall not be made immediately after heavy rains. Toxicant shall be applied as a coarse spray and in such manner as to provide uniform distribution of the toxicant on the soil surface. Toxicant shall be applied at least 12 hours prior to placement of concrete which will be in contact with treated material. Toxicant shall be applied immediately prior to placement of capillary barrier, vapor barrier or waterproof membrane. Where treated soil or fill

material is not to be covered with a vapor barrier or waterproof membrane, adequate precautions shall be taken to prevent its being disturbed. Where soil or fill material is disturbed after treatment and before placement of slabs or other covering structures, it shall be retreated as herein-after specified for treatment. Treatment of the soil on the exterior sides of foundation walls, grade beams, and similar structures shall be coordinated with final grading and planting operations so as to avoid disturbance of the toxicant barriers by such operations. Manufacturer's warnings and precautions shall be observed in the handling and use of soil toxicants. Care shall be taken that these chemicals do not enter project water supply system and that they do not endanger animals. All formulating, mixing and application work shall be done under the direct inspection of a DOD-certified Pesticide Applicator (PA) or other person designated by the Contracting Officer, with the concurrence of the Engineering Field Division Applied Biologist, as being qualified to perform such inspection.

5.2 Details of Application: Rates and methods of application shall be in strict accordance with the insecticide manufacturer's printed instructions on the label.

6. NOTIFICATION: The Contractor shall notify the Contracting Officer at least 48 hours prior to time of beginning treatment to allow coordination with the DOD certified PA to witness the mixing and treatment application.

7. QUALIFICATIONS: All work shall be done by a Contractor whose principal business is pest control and anti-termite soil treatment, and who is State certified in the category of Structural Pest Control. Evidence of certification, in the State of operation, shall be submitted to the Contracting Officer for approval prior to beginning any work.

*** END OF SECTION ***

06-81-1104
02250 - 3

APPENDIX E

RESPONSE TO REGULATORY COMMENTS

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under the Comprehensive Long-term Environmental Action, Navy Contract, No. N62467-89-D-0317, is conducting a Resource Conservation and Recovery Act Facility Investigation 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 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) concerning the draft report entitled *Interim Measure Performance Specifications, Group III Solid Waste Management Units (SWMUs) 23, 24, and 25*, NAVSTA Mayport, Florida (ABB-ES, 1997). The USEPA has stated that their concerns have been sufficiently discussed during NAVSTA Mayport Partnering Team Meetings.

The following is correspondence received from the FDEP.

- June 30, 1997, 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: Draft Interim Measure Performance Specifications, Group III SWMUs 23, 24, and 25, NAVSTA Mayport.

Below are point-by-point responses to the FDEP's comments.

Comment 1. Please clearly state the line of responsibility in the removal actions. I am referring specifically to certification by signing and sealing the removal action by an appropriate professional engineer or geologist. In the past there has been some confusion and delay in adequately certifying similar removal actions.

A responsibility assignment matrix (RAM) was prepared for the interim measure (IM) activities at SWMUs 23, 24, and 25 by the Navy on March 31, 1997, that illustrates the roles and responsibilities of the remedial action contractor (RAC) (Bechtel Environmental, Inc., [Bechtel]), the Resident Officer in Charge of Construction, the Station, SOUTHNAVFACENGCOM, ABB-ES, and the NAVSTA Mayport Partnering Team (please refer to Attachment A). The RAM indicates that RAC is responsible for a completion report for the IM, as well as signing and sealing the report. Bechtel has also prepared an operational plan (Bechtel, 1997) that states they are responsible for signing and sealing the IM completion report.

Comment 2. Please remember that the Department considers the upper two feet of soil as surface soil unless more detailed information is presented which documents the degree of contamination (or lack thereof).

It is understood that FDEP considers the upper 2 feet of soil as surface soil. However, the IM activities include the collection of soil samples from excavation subgrades. The soil samples will be collected by Bechtel at the center of 20-by-20-foot grids when the proposed excavation subgrade has been reached. The soil

sample analytical results will be compared to the appropriate FDEP industrial soil cleanup goal (FDEP, 1995a, 1995b and 1996).

Additional soil will be excavated should the concentration exceed the industrial soil cleanup goal at 20-by-20-foot grid areas where the target excavation depth is 1 foot beneath the land surface (bls). Conversely, if the concentration is less than the industrial soil cleanup goal, then the result will be used to document conformance with the standard at the 20-by-20-foot grid area.

Soil sample analytical results will be used to document the concentration of the target analyte(s) at the 20-by-20-foot grid areas where the target excavation depth is to be 2 feet bls. Soil deeper than 2 feet bls will not be excavated.

Soil sampling activities are described in the IM operational plan for SWMUs 14, 23, 24, and 25 (Bechtel, 1997).

Comment 3. These sites are presently industrial in nature. The planned removal actions address areas of contamination that exceed industrial cleanup goals. Please understand that an industrial land use restriction must be applied to future use of these areas and to those areas not subject to removal action if contamination exceeded residential cleanup goals.

Comment acknowledged.

REFERENCES

- ABB-ES Environmental Services, Inc. 1997. *Interim Measure Performance Specifications, Group III Solid Waste Management Units (SWMUs) 23, 24, and 25, U.S. Naval Station (NAVSTA) Mayport (Draft)*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (February).
- Bechtel Environmental, Inc. 1997. *Operational Plan for Interim Measures at Group III SWMUs 23, 24, and 25, NAVSTA Mayport (Draft)*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (August).
- Florida Department of Environmental Protection (FDEP). 1995a. "Soil Cleanup Goals for the Military Sites in Florida." Memorandum from Ligia Mora-Applegate, Bureau of Waste Cleanup to Tim Bahr, Bureau of Waste Cleanup. Tallahassee, Florida (April 5).
- FDEP. 1995b. "Soil Cleanup Goals for Florida." Memorandum from John M. Ruddell, Director, Division of Waste Management, to District Directors, Waste Program Administrators. Tallahassee, Florida (September 29).
- FDEP. 1996. "Applicability of Soil Cleanup Goals for Florida." Memorandum from John M. Ruddell, Director, Division of Waste Management to District Directors, Waste Program Administrators. Tallahassee, Florida (January 19).

ATTACHMENT A
RESPONSIBILITY ASSIGNMENT MATRIX

Interim Measure (IM) for SWMUS 23, 24, & 25

Naval Station Mayport FL

Responsibility Assignment Matrix (RAM)

Task	Responsible Parties							
	Bechtel	ROICC	Mayport	SOUTH DIV	EPA/FDEP	ABB	Partners	
IM Performance Specifications	R	R	A	A	A	L	A	
Additional Sampling	L	I	A	A	A	R	A	
IM Work Plan-Operational Plan	L	R	A	A	A	R	A	
Questions	S	S	S	S	S	S	L	
Execution Plan-Work Schedule	L	A	A	A	I	R	I	
Construction & Record Drawings	L	A	A	A	I	R	I	
Construction	L	A	S	I	I	I	I	
Waste Management	L	A	S/A	I	I	I	I	
Confirmatory Sampling	L	I	A	R	R	R	A	
IM Completion Report-PE sign & seal	L	I	A	R	A	R	A	
PCAS Support & Reporting	S	I	I	A	I	L	A	

Notes:

- A = Approval Responsibility
- I = Information only--no action required
- L = Lead Responsibility
- R = Review Responsibility
- S = Support Responsibility