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PHASE 1 RCRA FACILITY ASSESSMENT SAMPLING VISIT WORK PLAN FOR SOLID WASTE MANAGEMENT UNITS 26, 49, 50 AND 56 NS MAYPORT FL
2/1/1992
ABB ENVIRONMENTAL

PHASE I

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) FACILITY ASSESSMENT SAMPLING VISIT WORKPLAN

Group I Area
Solid Waste Management Units 26, 49, 50, and 56

NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

EPA ID No. FL9170024260

CTO No. #0028

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EXECUTIVE SUMMARY

The Phase I RFA/SV Workplan is prepared to address the sampling activities at SWMUs 26, 49, 50, and 56 in accordance with the RCRA Corrective Action Program at Naval Station Mayport described in the Corrective Action Management Plan (CAMP). The CAMP is located in Appendix F of Volume I of the RFI Workplan. The SWMUs are listed below:

SWMU 26, Landfill C;
SWMU 49, Flight Line Retention Ponds;
SWMU 50, Dredge Spoils Area; and
SWMU 56, Building 1552 Accumulation Area.

Release of contaminants from these SWMUs to the environment is suspected. The purpose of sampling activities is to confirm whether or not contaminant release has occurred.

Suspect affected media will be collected and analyzed from each SWMU to confirm release of contaminants to the environment. Analyses will address selected contaminants listed in the Appendix IX Groundwater Monitoring List. Analysis methods will include USEPA Method 8240 for volatile organic compounds, Method 8270 for semivolatile organic compounds, Method 8080 for chlorinated pesticides and PCBs, and Methods 6010, 7420, and 7470 for metals.

Quality control/quality assurance, project organization, and health and safety protocols will follow the specifications described in the approved RFI Workplan, as appropriate.

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ACRONYMS, INITIALISMS, AND ABBREVIATIONS

ABB-ES	ABB Environmental Services, Inc.
AFFF	Aqueous Film Forming Foam
AIMD	Aircraft Intermediate Maintenance Department
AOC	Area of Concern
ASTM	American Society of Testing and Materials
BLS	Below Land Surface
BOD_5	Biochemical Oxygen Demand
CAA	Clean Air Act
CAMP	Corrective Action Management Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action-Navy
CO	Corporate Officer
CPF	Carcinogen Potency Factors
CRP	Community Relations Plan
CSF	Carcinogen Slope Factor
CWA	Clean Water Act
DFM	Diesel Fuel, Marine
EIC	Engineer in Charge
EP	Equilibrium Partioning
ESI	Expanded Site Investigation
FDER	Florida Department of Environmental Regulation
FTC	Fleet Training Center
GC/MS	gas chromatography/mass spectroscopy
GC	Gas Chromatograph
g/d/ft	gallon per day per foot
HASO	Health and Safety Officer
HASP	Health and Safety Plan
HEA	Health Environmental Assessment
HEED	Health and Environmental Effects Document
HEEP	Health and Environmental Effects Profile
HSWA	Hazardous and Solid Waste Amendments of 1984
IAS	Initial Assessment Study
ICP	Inductively Coupled Plasma
ID	inner diameter
IRP	Installation Restoration Program
IRIS	Integrated Risk Information System
MCL	Maximum Contaminant Level
mg/ℓ	milligrams per liter
MPT	Mayport
MSL	mean sea level

ACRONYMS, INITIALISMS, AND ABBREVIATIONS (Continued)

NACIP	Navy Assessment and Control of Installation Pollutants
NADEP	Naval Avionics Depot
NAS	Naval Air Station
NAVSTA	Naval Station
NEESA	Naval Energy and Environmental Support Activity
NGVD	National Geodetic Vertical Datum of 1929
NIRP	Navy Installation Restoration Program
NOAA	Nation Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NSC	Naval Supply Center
OWTP	Oily Waste Treatment Plant
PCB	Polychlorinated biphenyl
PM	Program Manager
QA	Quality Assurance
QAO	Quality Assurance Officer
QAP	Quality Assurance Plan
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act of 1976, as amended
RFA	RCRA Facility Assessment
RfD	reference dose
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RSD	Risk-Specific Dose
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act of 1986
SAS	Special Analytical Services
SCS	Soil Conservation Service
SDWA	Safe Drinking Water Act
SOUTHNAV-FACENGCOM	Southern Division Naval Facilities Engineering Command
SI	Site Inspection
SIMA	Shore Intermediate Maintenance Activity
SMP	Site Management Plan
SOP	Standard Operating Procedure
SOW	Statement of Work
SPHEM	Superfund Public Health Evaluation Manual
SQC	Sediment Quality Criteria
SUPSHIPS	Supervisor of Shipbuilding
SWDA	Solid Waste Disposal Act
SWMU	Solid Waste Management Unit

ACRONYMS, INITIALISMS, AND ABBREVIATIONS (Continued)

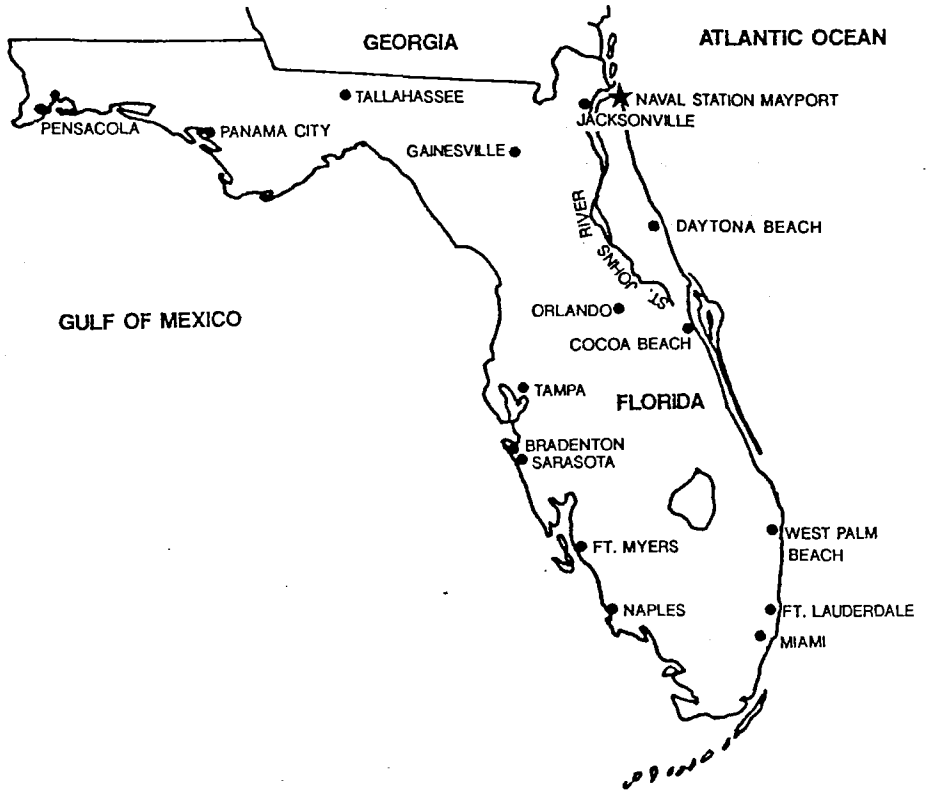
TBC	To be considered
TCL	Target Compound List
TD	Technical Director
TOM	Task Order Manager
TRB	Technical Review Board
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
VOA	Volatile Organic Compound Analyses
VSI	Visual Site Inspection

1.0 INTRODUCTION

This Workplan presents the background, approach, and data gathering procedures for Resource Conservation and Recovery Act (RCRA) investigations of selected Solid Waste Management Units (SWMU) at Naval Station (NAVSTA) Mayport. NAVSTA Mayport is located in northeastern Duval County, Florida, at the confluence of the St. Johns River and the Atlantic Ocean. Figure 1-1 presents the regional setting of NAVSTA Mayport.

1.1 RCRA CORRECTIVE ACTION PROGRAM. A RCRA Facility Assessment (RFA) for NAVSTA Mayport was conducted on behalf of the U.S. Environmental Protection Agency (USEPA) Region IV by their subcontractor, A.T. Kearney, Inc. (USEPA, 1989a). The RFA identified 56 SWMUs and two Areas of Concern (AOC) at NAVSTA Mayport. Fifteen of these SWMUs were determined not to require further action because no release of hazardous substances to the environment had occurred. Twenty-three of the remaining SWMUs were determined to require further investigation because hazardous substance release to the environment was suspected but not confirmed. RCRA Facility Assessment Sampling Visits (RFA/SV) will be conducted at these sites to confirm releases to the environment. The remaining 18 SWMUs were determined to require a RFI because hazardous substance release to the environment was confirmed and required characterization of extent of contamination. The two AOCs consist of petroleum underground storage tanks and appurtenances and are being managed under a different program of RCRA (e.g. 40CFR280, per RCRA, Subtitle C, Regulation of Underground Storage Tanks).

Due to the number of SWMUs at NAVSTA Mayport, the diversity of their past and/or present operations, and the magnitude of permit requirements, the USEPA recommended that a phased approach be used to implement an RFI and other corrective action activities. A Corrective Action Management Plan (CAMP) was prepared that describes the phased approach, proposed schedule, and strategy to implement the RCRA Corrective Action Program at NAVSTA Mayport. The CAMP is located in Appendix F of Volume I of the USEPA-approved RCRA Facilities Investigation Workplan (Southern Division Naval Facilities Engineering Command [SOUTHNAVFACENGCOM], 1991a). The CAMP identifies the operational groups of SWMUs, ranks them by their relative risks to human health and the environment,



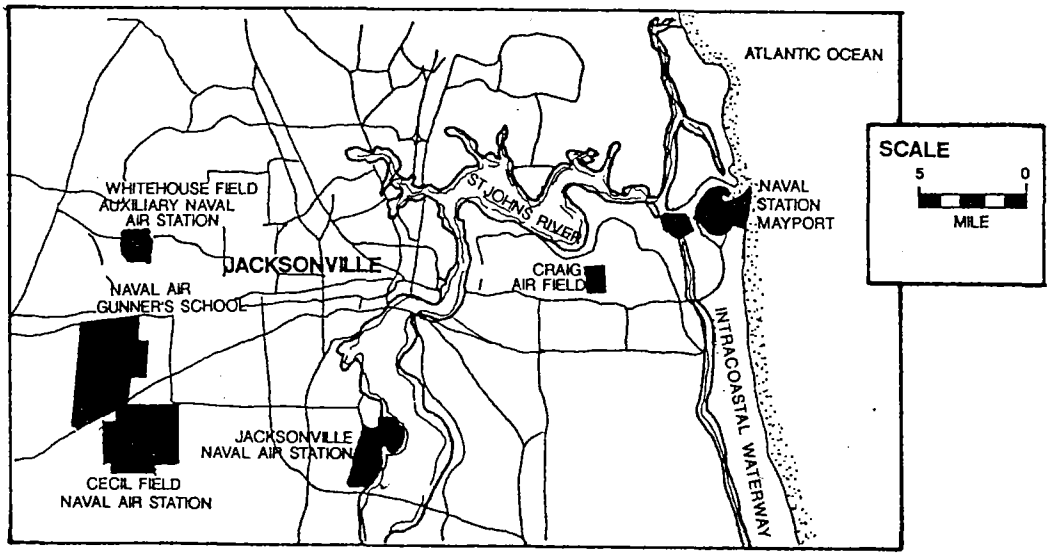


FIGURE 1-1

FACILITY LOCATION MAP

RCRA FACILITY ASSESSMENT

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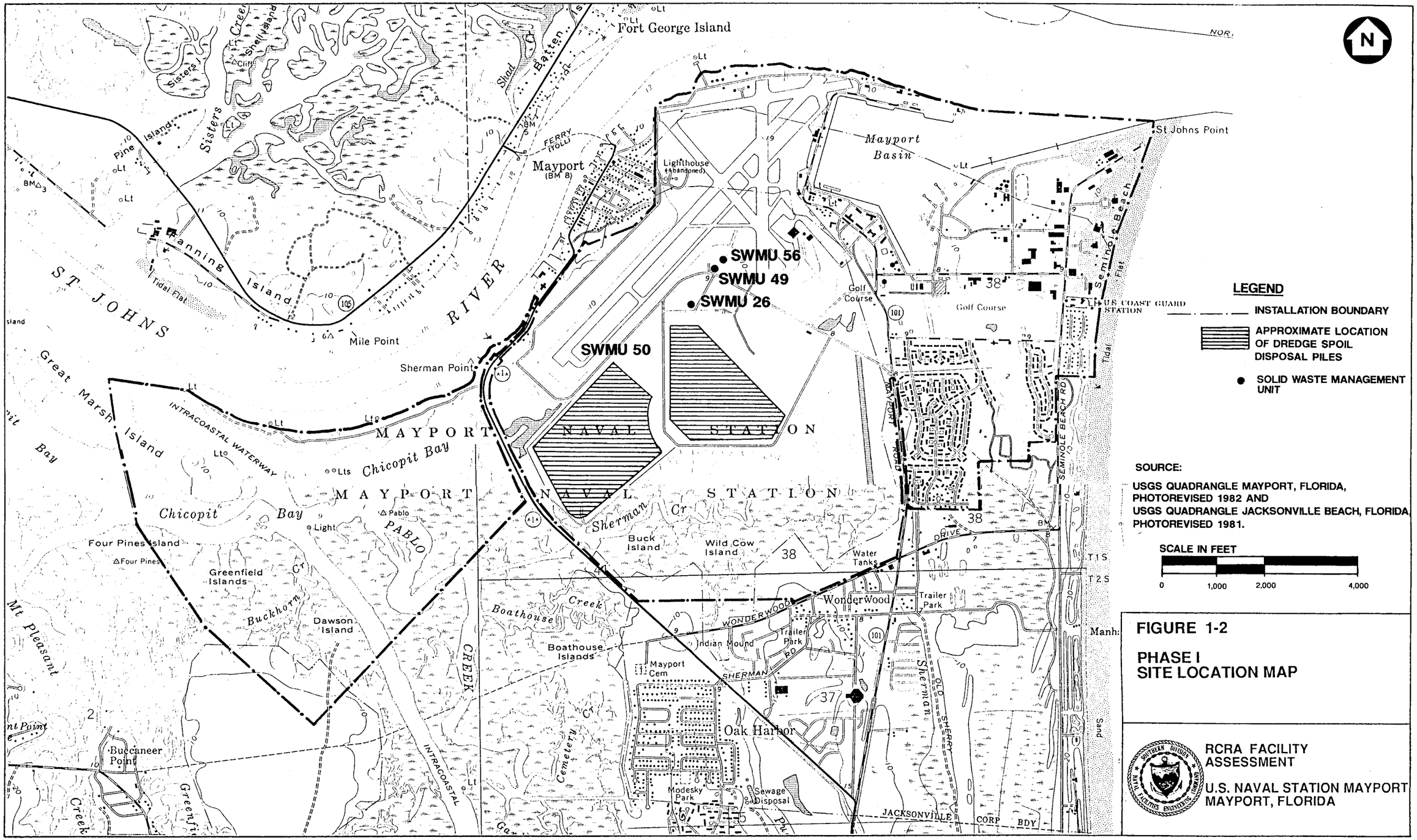
and contains the proposed schedule for phased site assessment, field investigations, and report submittals.

1.2 PHASE I INVESTIGATIONS. Phase I of the RCRA Corrective Action Program addresses the SWMUs located in the Group I SWMU Area and includes field investigation activities for both the RFA (Sampling Visits) and RFI (Site Characterization). Groups II through IV SWMU sites will be addressed in subsequent investigations in accordance with the CAMP. The Group I SWMUs that require an RFI during Phase I are SWMU 2, 3, 4, 5, 13, and 22 (USEPA 1989a; USEPA 1988a). Release of hazardous substances to the environment have been confirmed at these sites, and the USEPA issued a Hazardous and Solid Waste Amendment permit (HSWA No. H016-118598; USEPA 1988a) requiring a RCRA Facility Investigation at these and 12 other sites (located in the remaining groups of SWMUs).

A RFI Workplan (SOUTHNAVFACENGCOM, 1991a) was prepared by the Navy, and reviewed and approved by the USEPA (USEPA, 1991a). The Final RFI Workplan presents the following information for all the SWMUs at NAVSTA Mayport that require an RFI: background information for both NAVSTA Mayport as a whole and the individual SWMUs addressed by the HSWA permit, summary of previous investigative data, presentation of the rationale used to define the present RFI investigation strategy, data gathering procedures contained in the Sampling and Analysis Plan, quality assurance/quality control standards and protocols contained in the Quality Assurance Project Plan (QAPP), and the Health and Safety Plan (HASP).

The Phase I RFA/SV Workplan is prepared to address the sampling activities at SWMUs 26, 49, 50, and 56. Figure 1-2 presents the locations of the Group I RFA/SV SWMUs at NAVSTA Mayport. SWMU 26 is Landfill C (Naval Installation Restoration Program [NIRP] Site 3). SWMU 49 is the Flight Line Retention Ponds. SWMU 50 is the Dredge Spoil Disposal Areas. SWMU 56 is the Building 1552 Accumulation Area. The RFA/SV Workplan is intended to be a supplemental document to the RFI Workplan and will be consistent with the approved QAPP and HASP. Applicable sections of the RFI Workplan will be referred in the RFA/SV Workplan where appropriate.



LEGEND

- INSTALLATION BOUNDARY
- APPROXIMATE LOCATION OF DREDGE SPOIL DISPOSAL PILES
- ● SOLID WASTE MANAGEMENT UNIT

SOURCE:

USGS QUADRANGLE MAYPORT, FLORIDA, PHOTOREVISED 1982 AND
USGS QUADRANGLE JACKSONVILLE BEACH, FLORIDA, PHOTOREVISED 1981.

SCALE IN FEET

0 1,000 2,000 4,000

FIGURE 1-2

PHASE I SITE LOCATION MAP

RCRA FACILITY ASSESSMENT

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2.0 BACKGROUND

The following section summarizes the known background data for each Group I RFA/SV SWMU and includes site characteristics, past activities, and suspected contamination release scenarios (e.g., types of contaminants, quantities, and affected media). Much of this information is obtained from the USEPA RCRA Facility Assessment (USEPA, 1989a) and the Initial Assessment Study (IAS) (ESE, 1986a).

2.1 SWMU 26, LANDFILL C (NIRP SITE 3). Landfill C (SWMU 26) is located in the central part of NAVSTA Mayport, to the north of Landfill B (SWMU 2). SWMU 26 was used in 1963 for one-time disposal of scrap metal and construction debris transported to NAVSTA Mayport from another local Navy facility. The disposal area consisted of a trench approximately 100 feet long, 20 feet wide, and 8 feet deep. The landfill is now covered with soil, and reportedly no hazardous wastes were disposed of at the site according to the IAS (ESE 1986a).

SWMU 26 was identified during the IAS as NIRP Site 3. The IAS recommended no further investigation because no hazardous wastes were known to have been disposed in SWMU 26 during its brief period of operation in 1963. The SWMU was not identified in the original HSWA permit as an SWMU requiring an RFI (USEPA, 1988a). The RFA (USEPA, 1989a) recommended that documentation be obtained verifying the types of waste disposed of at this site. Alternatively, the RFA suggested that soil sampling be conducted to determine if a release to the soils has occurred.

2.2 SWMU 49 FLIGHT LINE RETENTION PONDS. The Flight Line Retention Ponds (SWMU 49) are located directly north of the northeast dredge spoil disposal area (SWMU 50). There are two ponds situated on the north side of the patrol road and to the south of an aircraft wash rack (Building 1611). The ponds were constructed at the same time that the flight operation facilities were constructed in the area in 1985 (USEPA, 1989a).

There are two storm sewer inlets into the western pond. This pond is irregular in shape with an area of approximately 75,000 square feet. There are three storm

sewer inlets into the eastern pond. This pond is roughly triangular with an area of approximately 9,000 square feet. Both ponds were excavated into native soils to a depth of approximately 2 feet below mean sea level. The two ponds are connected by a 36-inch-diameter storm sewer pipe, and the outlet from the ponds is at the southeast corner of the western pond. The pond empties into a double barrel culvert consisting of two 36-inch pipes. The culvert passes under the southern patrol road and empties into the drainage ditch which parallels the road. The ditch flows roughly southward and empties into Sherman Creek.

SWMU 49 collects runoff from the flight operations area southeast of the main runway through a conveyance system of stormwater collection conduits and ditches. The watershed that drains into the ponds includes the aircraft parking apron and the wash racks located between the main runway and Building 1552, Building 1552, and auto roadways and parking lots.

The RFA identified the Flight Line Retention Ponds as a SWMU because a fire-fighting extinguishing material called Aqueous Film Forming Foam (AFFF) had been periodically discharged to the watershed and rinsate from the aircraft wash rack could be discharged to the ponds by a potentially malfunctioning valve. Runoff from the aircraft maintenance area also discharges to the ponds.

The RFA recommended a determination as to whether AFFF indeed contains Appendix VIII hazardous constituents. It also recommended that soil and sediment samples be collected from the ponds and the drainage ditch into which the ponds discharge.

2.3 SWMU 50, DREDGE SPOIL DISPOSAL AREAS. SWMU 50 consists of two dredge spoil disposal areas located in the south central part of NAVSTA Mayport. The northeast area is roughly triangular and covers an area of approximately 1/4-square mile. The southwest disposal area is roughly rectangular and covers an area of approximately 1/3 square mile. Both disposal areas were constructed in marshy lowlands and are encircled with earthen dikes approximately 20 feet high and 15 feet wide. Material that was dredged from Mayport Basin was disposed of in these areas. Disposal of dredge spoils at SWMU 50 occurred from approximately the early 1940's to 1987. The western dredge spoil area is still active.

The RFA identified the Dredge Spoils Disposal Areas as a Solid Waste Management Area based on analyses of past sediment samples from the Mayport Basin that suggested that spoils from the basin could contain metals and organic compounds (e.g., oil and grease). The RFA suggested that samples of the dredge spoils be collected at various depths and locations in both spoil areas and be analyzed for semivolatile organic compounds and metals. It also suggested that groundwater, surface water, and sediment samples be collected from the adjacent areas. This last aspect has been addressed by the RFI activities for the Group I SWMUs requiring an RFI.

2.4 SWMU 56, BUILDING 1552 ACCUMULATION AREA. SWMU 56 is a hazardous waste accumulation area located near Building 1552 and has been in operation since approximately 1985 (USEPA, 1989a). It is located on the south side of Building 1552 and consists of a concrete pad with dimensions of 20 feet by 10 feet. The pad is fenced and wastes such as solvents, paint thinners, dirty rags, aerosol cans, and waste oils are temporarily stored in steel drums.

The Building 1552 Accumulation Area was identified as an SWMU by the RFA because a stained area with sparse vegetation was observed east of the site. Residual adsorbent material was also noted in the grass along the edges of the concrete pad. The RFA suggested that soil samples be collected from the stained area and from the edge of the concrete pad on the east side. It recommended that the samples be analyzed for volatile organic compounds, semivolatile organic compounds, and metals (USEPA, 1989a).

3.0 EXPLORATION AND SAMPLING PROGRAM

This section describes the data gathering activities, standards, and procedures required for the RFA/SV investigations at Group I. Section 2.0, Site Management Plan (SMP), of the RFI Workplan, Volume II, (SOUTHNAVFACENGCOM, 1991a) provides general operating guidelines for access, security, and field team organization that will be implemented during RFI activities. The general requirements and procedures described in Section 2.0 will also be followed for RFA/SV sampling activities. Section 3.1 General Site Operations, of the RFI Workplan, Volume II, provides descriptions of field personnel responsibilities, sample identification, sample management, chain of custody, project documentation, field changes, corrective actions, decontamination, waste management, and other general project standards and procedures. These requirements will also be followed during the RFA/SV activities.

Field and laboratory Quality Assurance/Quality Control (QA/QC) requirements for the RFA/SV will comply with the RFI QAPP located in Appendix A of the RFI Workplan, Volume II. Health and safety requirements will be in accordance with the general HASP located in Volume III of the RFI Workplan, and the Site Specific HASP located in Appendix B of the RFA/SV Workplan.

3.1 SWMU 26, LANDFILL C (NIRP SITE 3). No additional documentation is available beyond what has been reported and summarized in Section 2.0 that can verify the types of material disposed of at this site. Historical data indicate that only construction debris had been disposed of in SWMU 26. In the absence of additional supporting documentation, subsurface soil sampling will be conducted to verify if release of hazardous wastes to the environment has occurred at SWMU 26. The objective of the data gathering activities at SWMU 26 is to obtain sufficient subsurface soil samples to verify soil contamination at the site. The sampling objective does not include site characterization at this time, which will follow if contamination is confirmed.

3.1.1 Exploration Program, SWMU 26 The exploration program at SWMU 26 includes sampling and analyzing surface and subsurface soil collected from boreholes. Because many of the field activities may be repeated at other sites, they are

described as standard operation procedures in project-specific Technical Memoranda located in Appendix A, Technical Memoranda. Site-specific elements particular to SWMU 26 are discussed in subsequent paragraphs, and standard operating procedures are referenced where necessary.

3.1.2 Sample and Analysis Plan, SWMU 26 Surface soil sampling will be accomplished as described in the Technical Memorandum, *Surface Soil Sampling*, Appendix A. Drilling and subsurface soil sampling will be accomplished as described in the Technical Memorandum, *Drilling and Subsurface Soil Sampling,* Appendix A. Surface soil samples will be collected at each of the four borehole locations. Subsurface soil samples will be collected at the 4- to 5-foot interval at each borehole, which should be the approximate depth to groundwater at this site. A summary of the location, frequency, sample types, and analyzes is presented in Table 3-1. Borehole locations are presented in Figure 3-1. Sample locations were chosen to bias the sampling towards areas most likely to be contaminated based on current site knowledge.

Soil samples will be analyzed for selected semivolatile organic compounds, volatile organic compounds, metals, and polychlorinated biphenyls (PCB) and chlorinated pesticides listed in the Groundwater Monitoring List contained in Appendix IX, 40 Code of Federal Regulations (CFR) 264. Analytes are selected which are representative of potential contaminants associated with known facility operations. All Appendix IX parameters are listed in Table 4-1 of Section 4 for reference.

3.2 SWMU 49, FLIGHT LINE RETENTION PONDS. No additional documentation is available beyond what has been reported and summarized in Section 2.0 concerning the chemical composition of the fire fighting extinguishing material called AFFF. Surface water and sediment sampling are, therefore, proposed as recommended by the RFA to verify if release of hazardous wastes to the environment has occurred at SWMU 49. The objective of the data-gathering activities at SWMU 49 is to obtain sufficient surface water and sediment samples to verify if contamination at the site exists. The sampling objectives do not include site characterization at this time, which will follow if contamination is confirmed.

Table 3-1
Summary of Samples to be Collected at SWMU 26, (NIRP Site 3/Landfill C)

NAVSTA Mayport
Jacksonville, Florida

Sample Location	Sample Designation	Sample Type	Media	USEPA Method Number			
				8240	8270	6010, 7470, 7480,	8080
				VOA	SOA	Metals	Pest/PCB
MPT-26-1	MPT-26-SS-1-1	Surface soil	soil	1	1	1	1
MPT-26-2	MPT-26-SS-2-1	Surface soil	soil	1	1	1	1
MPT-26-3	MPT-26-SS-3-1	Surface soil	soil	1	1	1	1
MPT-26-4	MPT-26-SS-4-1	Surface soil	soil	1	1	1	1
			Subtotal	4	4	4	4
TBD	MPT-26-SS-X-X	Duplicates/MS/MSD	soil	1	1	1	1
			Total	5	5	5	5
MPT-26-1	MPT-26-BS-01(4-5)-1	Boring soil	soil	1	1	1	1
MPT-26-2	MPT-26-BS-02(4-5)-1	Boring soil	soil	1	1	1	1
MPT-26-3	MPT-26-BS-03(4-5)-1	Boring soil	soil	1	1	1	1
MPT-26-4	MPT-26-BS-04(4-5)-1	Boring soil	soil	1	1	1	1
			Subtotal	4	4	4	4
TBD	MPT-26-BS-X(X-X)-1	Duplicates/MS/MSD	soil	2	2	2	2
			Total	6	6	6	6
MPT-26	MPT-26-QT-1	QC Trip Blank	water	1	0	0	0
MPT-26	MPT-26-QT-2	QC Trip Blank	water	1	0	0	0
MPT-26	MPT-26-QT-3	QC Trip Blank	water	1	0	0	0
MPT-26	MPT-26-QT-4	QC Trip Blank	water	1	0	0	0
			Subtotal	4	0	0	0

Table 3-1 (Continued)
Summary of Samples to be Collected at SWMU 26, (NIRP Site 3/Landfill C)

NAVSTA Mayport
Jacksonville, Florida

Sample Location	Sample Designation	Sample Type	Media	USEPA Method Number			
				8240	8270	6010, 7470, 7480,	8080
				VOA	SOA	Metals	Pest/PCB
MPT-26	MPT-26-QS-1	QC Sampler Blank	water	1	1	1	1
MPT-26	MPT-26-QS-2	QC Sampler Blank	water	1	1	1	1
MPT-26	MPT-26-QS-3	QC Sampler Blank	water	1	1	1	1
MPT-26	MPT-26-QS-4	QC Sampler Blank	water	1	1	1	1
			Subtotal	4	4	4	4
MPT-26	MPT-26-FB-1	QC Field Blank	water	1	1	1	1
MPT-26	MPT-26-FB-2	QC Field Blank	water	1	1	1	1
MPT-26	MPT-26-FB-3	QC Field Blank	water	1	1	1	1
MPT-26	MPT-26-FB-4	QC Field Blank	water	1	1	1	1
			Subtotal	4	4	4	4

Notes: Because well and sample designations were established during the NIRP investigations, the RFA/SV will continue to use this designation scheme.

VOA = volatile organic compound analyses.
SOA = semivolatile organic compound analyses.
Pest = pesticide.
PCB = polychlorinated biphenyls.
TBD = to be determined in the field.

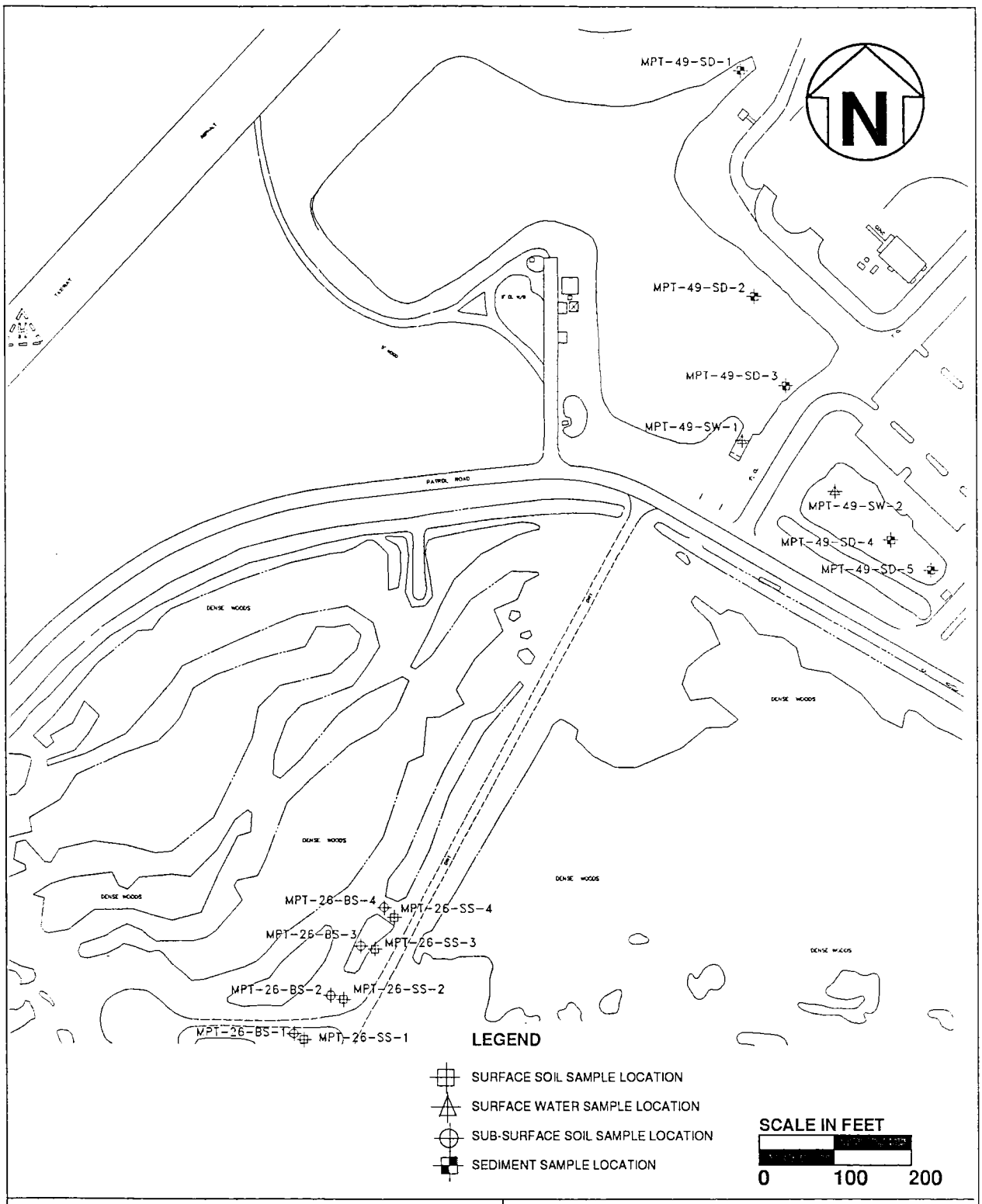

FIGURE 3-1

PHASE I
EXPLORATION LOCATIONS
SWMU 26 & SWMU 49

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3.2.1 Exploration Program, SWMU 49 The exploration program at SWMU 49 includes sampling and analyzing surface water and sediment samples collected from the ponds. Because many of the field activities may be repeated at other sites, they are described as standard operation procedures in project-specific technical memoranda located in Appendix A, Technical Memoranda. Site-specific elements particular to SWMU 49 are discussed in subsequent paragraphs, and standard operating procedures are referenced where necessary.

3.2.2 Sampling and Analysis Plan, SWMU 49 The location, frequency, media, sample types, and analyses of sediment and surface water samples are summarized in Table 3-2. Sediment and surface water sampling locations are presented in Figure 3-1. Sediment sampling will be accomplished as described in the Technical Memorandum, *Sediment and Surface Water Sampling*, Appendix A. Sample locations were chosen to bias the sampling towards areas most likely to be contaminated based on existing site knowledge and observed runoff patterns.

Samples will be analyzed for selected semivolatile organic compounds, metals, and PCB and chlorinated Pesticides listed in the Groundwater Monitoring List contained in Appendix IX, 40 CFR 264. Analytes are selected which are representative of potential contaminants associated with known facility operations. All Appendix IX parameters are listed in Table 4-1 of Section 4.0 for reference.

3.3 SWMU 50, DREDGE SPOIL DISPOSAL AREAS. No additional documentation is available beyond what has been reported and summarized in Section 2.0 concerning the nature of dredge spoils deposited in SWMU 50. Surface water, sediment, and soil (dredge spoils) sampling will be conducted to verify if release of hazardous wastes to the environment has occurred at SWMU 50. The objective of the data gathering activities at SWMU 50 is to obtain sufficient surface water, sediment, and soil samples to verify if contamination at the site exists. The sampling objectives do not include site characterization at this time, which will follow if contamination is confirmed.

3.3.1 Exploration Program, SWMU 50 The exploration program at SWMU 50 includes sampling and analyzing surface water, sediments, and soil samples collected from the dredge spoil area. Because many of the field activities may be repeated at

Table 3-2
Summary of Samples to be Collected at SWMU 49, Flight Line Retention Ponds

NAVSTA Mayport
Jacksonville, Florida

Sample Location	Sample Designation	Sample Type	Media	USEPA Method Number			
				8240	8270	6010, 7470, 7480,	8080
				VOA	SOA	Metals	Pest/PCB
MPT-49-1	MPT-49-SD-01-1	sediment	sediment	0	1	1	1
MPT-49-2	MPT-49-SD-02-1	sediment	sediment	0	1	1	1
MPT-49-3	MPT-49-SD-03-1	sediment	sediment	0	1	1	1
MPT-49-6	MPT-49-SD-06-1	sediment	sediment	0	1	1	1
MPT-49-7	MPT-49-SD-07-1	sediment	sediment	0	1	1	1
MPT-49-8	MPT-49-SD-08-1	sediment	sediment	0	1	1	1
			Subtotal	0	6	6	6
TBD	MPT-49-SD-OX-1A	Duplicates/MS/MSD	sediment	0	2	2	2
			Total	0	8	8	8
MPT-49-4	MPT-49-SW-04-1	surface water	water	0	1	1	1
MPT-49-5	MPT-49-SW-05-1	surface water	water	0	1	1	1
			Subtotal	0	2	2	2
TBD	MPT-49-OX-SW-1	Duplicates/MS/MSD	water	0	2	2	2
			Total	0	4	4	4
MPT-49	MPT-49-QT-1	QC Trip Blank	water	0	0	0	0
MPT-49	MPT-49-QT-2	QC Trip Blank	water	0	0	0	0
MPT-49	MPT-49-QT-3	QC Trip Blank	water	0	0	0	0
MPT-49	MPT-49-QT-4	QC Trip Blank	water	0	0	0	0
			Subtotal	0	0	0	0

Table 3-2 (Continued)
Summary of Samples to be Collected at SWMU 49, Flight Line Retention Ponds

NAVSTA Mayport
Jacksonville, Florida

Sample Location	Sample Designation	Sample Type	Media	USEPA Method Number			
				8240	8270	6010, 7470, 7480,	8080
				VOA	SOA	Metals	Pest/PCB
MPT-49	MPT-49-QS-1	QC Sampler Blank	water	0	1	1	1
MPT-49	MPT-49-QS-2	QC Sampler Blank	water	0	1	1	1
MPT-49	MPT-49-QS-3	QC Sampler Blank	water	0	1	1	1
MPT-49	MPT-49-QS-4	QC Sampler Blank	water	0	1	1	1
			Subtotal	0	4	4	4
MPT-49	MPT-49-FB-1	QC Field Blank	water	0	1	1	1
MPT-49	MPT-49-FB-2	QC Field Blank	water	0	1	1	1
MPT-49	MPT-49-FB-3	QC Field Blank	water	0	1	1	1
MPT-49	MPT-49-FB-4	QC Field Blank	water	0	1	1	1
			Subtotal	0	4	4	4

Notes: Because well and sample designations were established during the NIRP investigations, the RFA/SV will continue to use this designation scheme.

VOA = volatile organic compound analyses.
SOA = semivolatile organic compound analyses.
Pest = pesticide.
PCB = polychlorinated biphenyls.
TBD = to be determined in the field.

other sites, they are described as standard operation procedures in project-specific technical memoranda located in Appendix A, Technical Memoranda. Site-specific elements particular to SWMU 50 are discussed in subsequent paragraphs, and standard operating procedures are referenced where necessary.

3.3.2 Sampling and Analysis Plan, SWMU 50 The anticipated sampling location, frequency, media, types, and analyses of sediment, surface water, and soil samples are summarized in Table 3-3. The sampling locations are presented in Figure 3-2. Due to varying site conditions caused by weather and seasonal conditions, sample types at each location may be either sediment and surface water, or soil only. The type of sample collected will depend on site conditions existing during the sampling event.

Sediment and surface water sampling will be accomplished as described in the Technical Memorandum, *Sediment and Surface Water Sampling*, Appendix A. Soil sampling will be accomplished as described in the Technical Memorandum, *Surface Soil Sampling*, Appendix A, using hand augers.

Sample types will be chosen by field personnel based on existing site conditions during sampling. This is necessary because much of the surface of the dredge spoils are covered with shallow water depending on weather and seasonal conditions. One surface water and one sediment sample will be collected at each location in areas covered by water. The surface water sample will be collected before the sediment sample. A shallow draft boat will be used to access sample locations if wading is not feasible.

The dredge spoils are composed of unconsolidated sands with high moisture content and low bearing capacity. Access by a drill rig is not feasible for collection of subsurface soil samples in this area. In areas not covered by water, one near surface soil sample and one subsurface soil sample at a depth of approximately 4 to 5 feet will be collected at each sample location using hand augers. If sample retrieval using the hand auger is not possible due to the wet sandy nature of the spoil material, only the near surface soil sample will be collected.

Table 3-3
Summary of Samples to be Collected at SWMU 50, Dredge Spoil Disposal Area

NAVSTA Mayport
Jacksonville, Florida

Sample Location	Sample Designation	Sample Type	Media	USEPA Method Number			
				8240	8270	6010, 7470, 7480,	8080
				VOA	SOA	Metals	Pest/PCB
MPT-50-1	MPT-50-SD-01-1	sediment	sediment	0	1	1	1
MPT-50-2	MPT-50-SD-02-1	sediment	sediment	0	1	1	1
MPT-50-3	MPT-50-SD-03-1	sediment	sediment	0	1	1	1
MPT-50-4	MPT-50-SD-04-1	sediment	sediment	0	1	1	1
MPT-50-5	MPT-50-SD-05-1	sediment	sediment	0	1	1	1
MPT-50-6	MPT-50-SD-06-1	sediment	sediment	0	1	1	1
			Subtotal	0	6	6	6
TBD	MPT-50-SD-OX-1A	Duplicates/MS/MSD	sediment	0	2	2	2
			Total	0	8	8	8
MPT-50-1	MPT-50-SW-01-1	Surface water	water	0	1	1	1
MPT-50-2	MPT-50-SW-02-1	Surface water	water	0	1	1	1
MPT-50-3	MPT-50-SW-03-1	Surface water	water	0	1	1	1
MPT-50-4	MPT-50-SW-04-1	Surface water	water	0	1	1	1
MPT-50-5	MPT-50-SW-05-1	Surface water	water	0	1	1	1
MPT-50-6	MPT-50-SW-06-1	Surface water	water	0	1	1	1
			Subtotal	0	6	6	6
TBD	MPT-50-SW-OX-1A	Duplicates/MS/MSD	water	0	2	2	2
			total	0	8	8	8

Table 3-3 (Continued)
Summary of Samples to be Collected at SWMU 50, Dredge Spoil Disposal Area

NAVSTA Mayport
Jacksonville, Florida

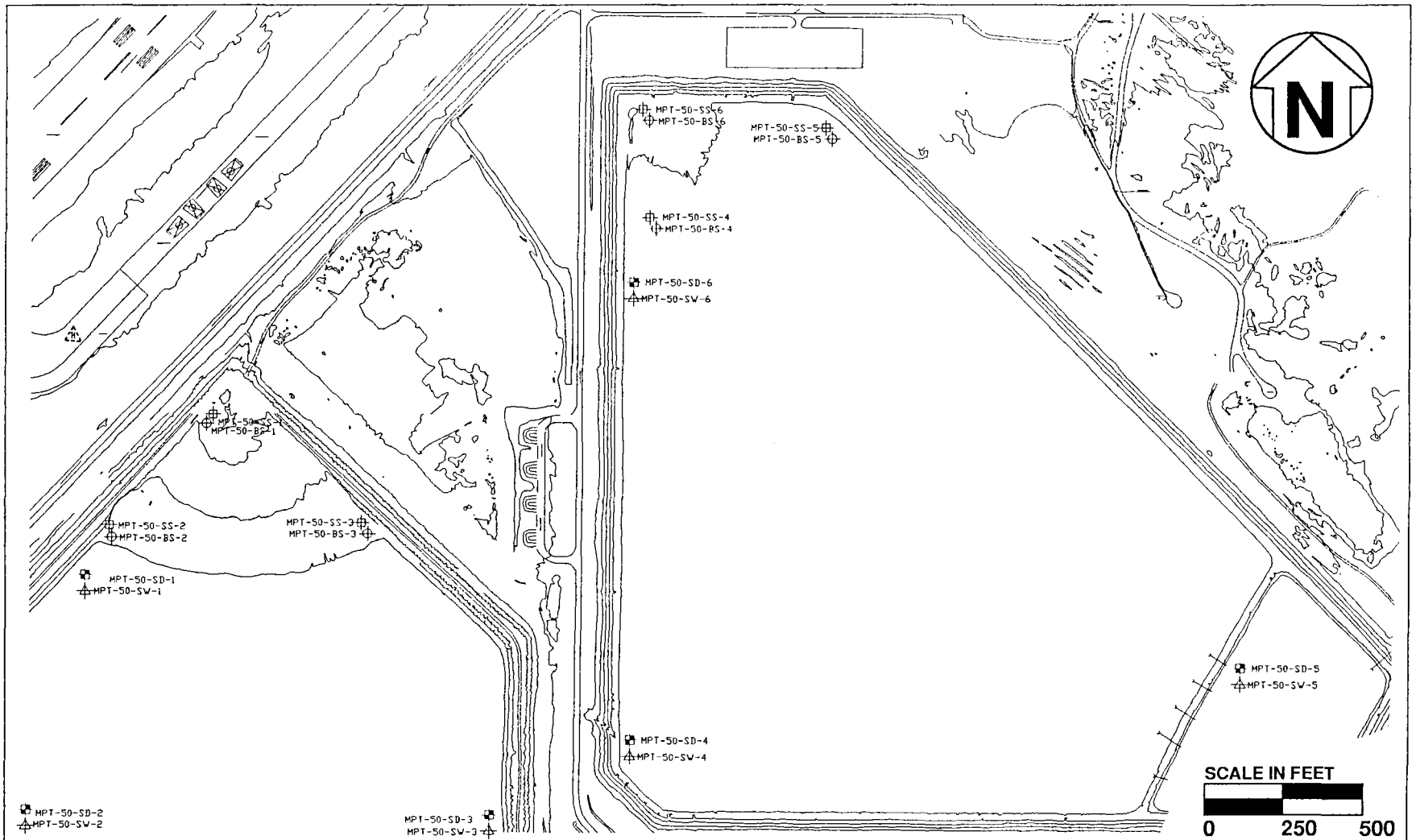
Sample Location	Sample Designation	Sample Type	Media	USEPA Method Number			
				8240	8270	6010, 7470, 7480,	8080
				VOA	SOA	Metals	Pest/PCB
MPT-50-1	MPT-50-SS-01-1	Surface soil	soil	0	1	1	1
MPT-50-2	MPT-50-SS-02-1	Surface soil	soil	0	1	1	1
MPT-50-3	MPT-50-SS-03-1	Surface soil	soil	0	1	1	1
MPT-50-4	MPT-50-SS-04-1	Surface soil	soil	0	1	1	1
MPT-50-5	MPT-50-SS-05-1	Surface soil	soil	0	1	1	1
MPT-50-6	MPT-50-SS-06-1	Surface soil	soil	0	1	1	1
			Subtotal	0	6	6	6
TBD	MPT-50-SS-OX-1A	Duplicates/MS/MSD	soil	0	1	1	1
			Total	0	7	7	7
MPT-50-1	MPT-50-BS-01-1	Boring soil	soil	0	1	1	1
MPT-50-2	MPT-50-BS-02-1	Boring soil	soil	0	1	1	1
MPT-50-3	MPT-50-BS-03-1	Boring soil	soil	0	1	1	1
MPT-50-4	MPT-50-BS-04-1	Boring soil	soil	0	1	1	1
MPT-50-5	MPT-50-BS-05-1	Boring soil	soil	0	1	1	1
MPT-50-6	MPT-50-BS-06-1	Boring soil	soil	0	1	1	1
			Subtotal	0	6	6	6
TBD	MPT-50-BS-OX-1A	Duplicates/MS/MSD	soil	0	1	1	1
			Total	0	7	7	7
MPT-50	MPT-50-QT-1	QC Trip Blank	water	0	0	0	0
MPT-50	MPT-50-QT-2	QC Trip Blank	water	0	0	0	0
MPT-50	MPT-50-QT-3	QC Trip Blank	water	0	0	0	0
MPT-50	MPT-50-QT-4	QC Trip Blank	water	0	0	0	0

Table 3-3 (Continued)
Summary of Samples to be Collected at SWMU 50, Dredge Spoil Disposal Area

NAVSTA Mayport
Jacksonville, Florida

Sample Location	Sample Designation	Sample Type	Media	USEPA Method Number			
				8240	8270	6010, 7470, 7480,	8080
				VOA	SOA	Metals	Pest/PCB
			Subtotal	0	0	0	0
MPT-50	MPT-50-QS-1	QC Sampler Blank	water	0	1	1	1
MPT-50	MPT-50-QS-2	QC Sampler Blank	water	0	1	1	1
MPT-50	MPT-50-QS-3	QC Sampler Blank	water	0	1	1	1
MPT-50	MPT-50-QS-4	QC Sampler Blank	water	0	1	1	1
			Subtotal	0	4	4	4
MPT-50	MPT-50-FB-1	QC Field Blank	water	0	1	1	1
MPT-50	MPT-50-FB-2	QC Field Blank	water	0	1	1	1
MPT-50	MPT-50-FB-3	QC Field Blank	water	0	1	1	1
MPT-50	MPT-50-FB-4	QC Field Blank	water	0	1	1	1
			Subtotal	0	4	4	4

Notes: Because well and sample designations were established during the NIRP investigations, the RFA/SV will continue to use this designation scheme.
Actual media sampled and number of samples collected will depend on sampling event.
VOA = volatile organic compound analyses.
SOA = semivolatile organic compound analyses.
Pest = pesticide.
PCB = polychlorinated biphenyls.
TBD = to be determined in the field.



LEGEND

- SURFACE SOIL SAMPLE LOCATION
- SURFACE WATER SAMPLE LOCATION
- SUB-SURFACE SOIL SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION

FIGURE 3-2

PHASE I
EXPLORATION LOCATIONS
SWMU 50

RCRA FACILITY ASSESSMENT

U.S. NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Samples will be analyzed for selected semivolatile organic compounds, metals, and PCB and chlorinated pesticides listed in the Groundwater Monitoring List contained in Appendix IX, 40 CFR 264. Analytes are selected which are representative of potential contaminants associated with known facility activities. All Appendix IX parameters are listed in Table 4-1 for reference.

3.4 SWMU 56, BUILDING 1552 ACCUMULATION AREA. Surface soil sampling is proposed as recommended by the RFA to verify if release of hazardous wastes to the environment has occurred at SWMU 56. The rationale for the data-gathering activities at SWMU 56 is described in the RCRA Facility Assessment (USEPA, 1989a) and is summarized in Section 2.0. The objective of the data gathering activities at SWMU 56 is to obtain sufficient surface soil samples to verify if contamination at the site exists. The sampling objectives do not include site characterization at this time, but will follow if contamination is confirmed.

3.4.1 Exploration Program, SWMU 56 The exploration program at SWMU 56 includes surface soil samples collected from areas of apparent vegetative stress and around the fenced concrete pad. Because many of the field activities may be repeated at other sites, they are described as standard operation procedures in project-specific technical memoranda located in Appendix A, Technical Memoranda. Site-specific elements particular to SWMU 56 are discussed in subsequent paragraphs, and standard operating procedures are referenced where necessary.

3.4.2 Sampling and Analysis Plan, SWMU 56 The location, frequency, media, and sample types of sediment and surface water are summarized in Table 3-4. Surface soil sampling locations are presented in Figure 3-3. Surface soil sampling will be accomplished as described in the Technical Memorandum, *Surface Soil Sampling*, Appendix A. Sample locations were chosen to bias the sampling towards areas most likely to be contaminated based on existing site knowledge. Samples will be analyzed for selected semivolatile organic compounds, volatile organic compounds, metals, and PCB and pesticides listed in the Groundwater Monitoring List contained in Appendix IX, 40 CFR 264. Analytes are selected which are representative of potential contaminants associated with known facility activities. All Appendix IX parameters are listed in Table 4-1 for reference.

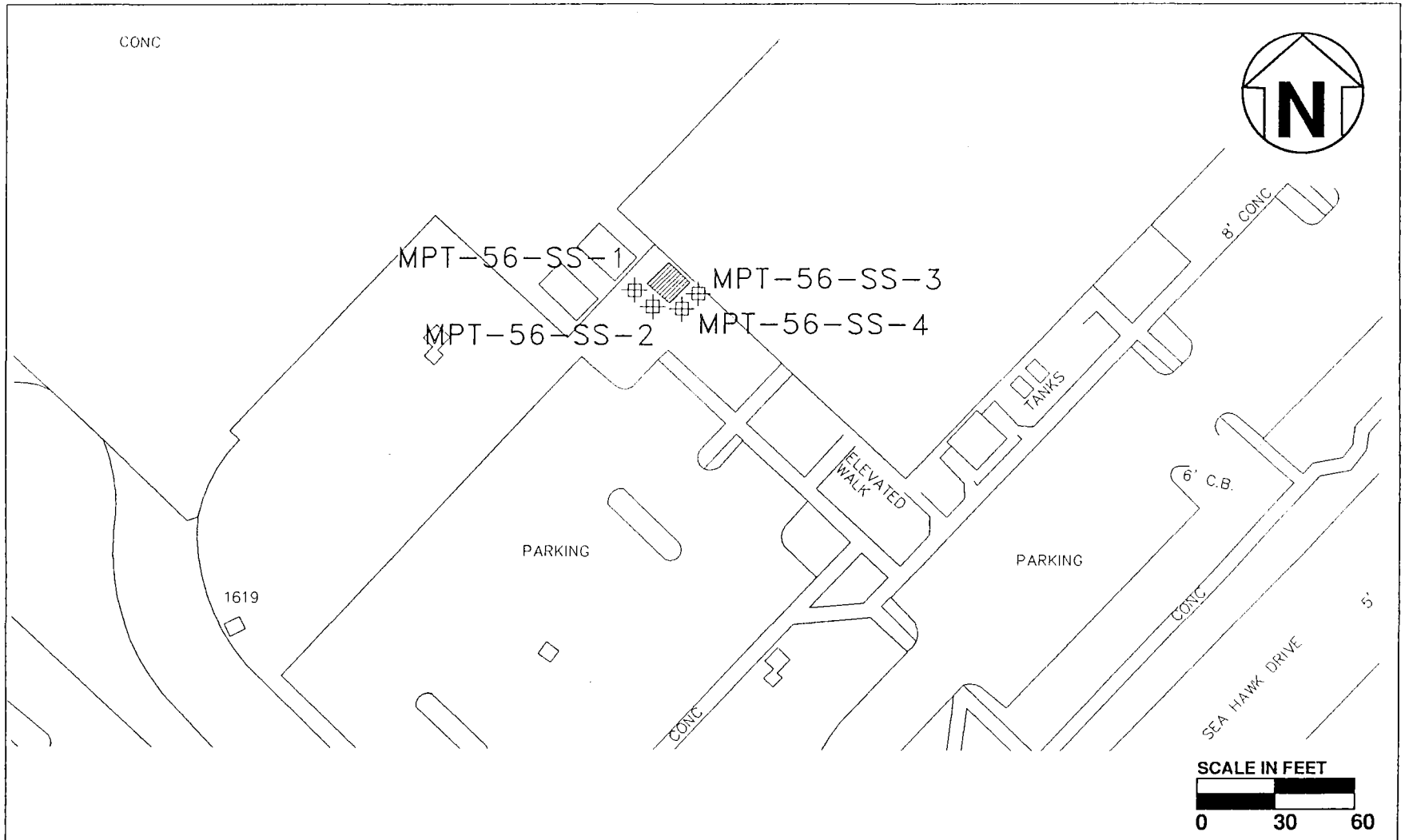
Table 3-4
Summary of Samples to be Collected at SWMU 56, Building 1552 Accumulation Area

NAVSTA Mayport
Jacksonville, Florida

Sample Location	Sample Designation	Sample Type	Media	USEPA Method Number			
				8240	8270	6010, 7470, 7480,	8080
				VOA	SOA	Metals	Pest/PCB
MPT-56-1	MPT-56-SS-01-1	Surface soil	soil	1	1	1	1
MPT-56-2	MPT-56-SS-02-1	Surface soil	soil	1	1	1	1
MPT-56-3	MPT-56-SS-03-1	Surface soil	soil	1	1	1	1
MPT-56-4	MPT-56-SS-06-1	Surface soil	soil	1	1	1	1
			Subtotal	4	4	4	4
TBD	MPT-56-SS-OX-1	Duplicates/MS/MSD	soil	2	2	2	2
			Total	6	6	6	6
MPT-56	MPT-56-QT-1	QC Trip Blank	water	1	0	0	0
MPT-56	MPT-56-QT-2	QC Trip Blank	water	1	0	0	0
MPT-56	MPT-56-QT-3	QC Trip Blank	water	1	0	0	0
MPT-56	MPT-56-QT-4	QC Trip Blank	water	1	0	0	0
			Subtotal	4	0	0	0
MPT-56	MPT-56-QS-1	QC Sampler Blank	water	1	1	1	1
MPT-56	MPT-56-QS-2	QC Sampler Blank	water	1	1	1	1
MPT-56	MPT-56-QS-3	QC Sampler Blank	water	1	1	1	1
MPT-56	MPT-56-QS-4	QC Sampler Blank	water	1	1	1	1
			Subtotal	4	4	4	4
MPT-56	MPT-56-FB-1	QC Field Blank	water	1	1	1	1
MPT-56	MPT-56-FB-2	QC Field Blank	water	1	1	1	1
MPT-56	MPT-56-FB-3	QC Field Blank	water	1	1	1	1
MPT-56	MPT-56-FB-4	QC Field Blank	water	1	1	1	1
			Subtotal	4	4	4	4

Notes: Because well and sample designations were established during the NIRP investigations, the RFA/SV will continue to use this designation scheme.

VOA = volatile organic compound analyses.
SOA = semivolatile organic compound analyses.
Pest = pesticide.
PCB = polychlorinated biphenyls.
TBD = to be determined in the field.



LEGEND

SURFACE SOIL SAMPLE LOCATION

FIGURE 3-3

PHASE I
EXPLORATION LOCATIONS
SWMU 56

RCRA FACILITY ASSESSMENT

U.S. NAVAL STATION MAYPORT
MAYPORT, FLORIDA

4.0 ANALYTICAL PROGRAM

The analytical program for the RFA/SV at NAVSTA Mayport will address selected analytes from the 40 CFR 264 Appendix IX groundwater monitoring list provided as Table 4-1 for reference. Gas Chromatography/mass spectrometry methods will be used for analyses of initial samples for organic compounds. Specifically, USEPA Method 8240 will be used to analyze volatile organic compounds and USEPA Method 8270 will be used to analyze semivolatile organic compounds. USEPA Method 8080 will be used to analyze for chlorinated pesticides and PCBs. Selected metals will be analyzed by inductively coupled plasm (ICP), Graphite Furnace Atomic Adsorption (GFAA), or cold vapor AA (CVAA), a appropriate (e.g., Methods 6010, 7420, or 7470). Typical analytes and typical reportable detection limits for the specified methods are shown in Tables 4-2 through 4-5. The number of quality control samples (including duplicates and field blanks) to be collected was determined in accordance with the generic QAPP, Appendix A, Volume II of the RFI Workplan.

Table 4-1
Appendix IX, Groundwater Monitoring List

NAVSTA Mayport
Jacksonville, Florida

Parameter	Methods	Parameter	Methods
Acenaphthylene	8100	delta-BHC	8080
	8270		8250
Acetone	8240	gamma-BHC; lindane	8080
Acetophenone	8270		8250
Acetonitrile; methyl cyanide	8015	bis(2-Chloroethoxy)methane	8270
2-Acetylaminofluorene; 2-AAF	8270	bis(2-Chloroethyl)ether	8270
Acrolein	8030	bis(2-Chloro-1-methylethyl) ether;	8010
	8240	2,4'Dichlorodisopropyl ether	8270
Acrylonitrile	8030	bis(2-Ethylhexyl)phthalate	8060
	8240		8270
Aldrin	8080	Bromodichloromethane	8010
	8270		8240
Allyl chloride	8010	Bromoform; tribromomethane	8010
	8240		8240
4-Aminobiphenyl	8270	4-Bromophenyl phenyl ether	8270
Aniline	8270	Butyl benzyl phthalate; benzyl	8060
Anthracene	8100	butyl phthalate	8270
	8270	Cadmium	6010
Antimony	6010		7130
	7040		7131
	7041	Carbon disulfide	8240
Aramite	8270	Carbon tetrachloride	8010
Arsenic	6010		8240
	7060	Chlordane	8080
	7061		8250
Barium	6010	p-Chloroaniline	8270
	7080	Chlorobenzene	8010
Benzene	8020		8020
	8240		8240
Benzo(a)anthracene; Benzanthracene	8100	Chlorobenzilate	8270
	8270	p-Chloro-m-cresol	8040
Benzo(b)fluoranthene	8100		8270
	8270	Chloroethane; ethyl chloride	8010
Benzo(k)fluoranthene	8100		8240
	8270	Chloroform	8010
Benzo(ghi)perylene	8100		8240
	8270	2-Chloronaphthalene	8120
Benzo(a)pyrene	8100		8270
	8270	2-Chlorphenol	8040
Benzyl alcohol	8270		8270
Beryllium	6010	4-Chlorophenyl phenyl ether	8270
	7090	Chloroprene	8010
	7091		8240
alpha-BHC	8080	Chromium	6010
	8250		7190
beta-BHC	8080		7191
	8250	Chrysene	8100
Cobalt	6010	1,2-Dichloroethane; ethylene	8010
	7200	dichloride	8240
	7201	1,-Dichlorethylene; vinyldene	8010
Copper	6010	chloride	8240
	7210	trans-1,2-Dichoroethylene	8010

Table 4-1 (Continued)
Appendix IX, Groundwater Monitoring List

NAVSTA Mayport
Jacksonville, Florida

Parameter	Methods	Parameter	Methods
m-Cresol	8270		8240
o-Cresol	8270	2,4-Dichlorophenol	8040
p-Cresol	8270		8270
Cyanide	9010	2,6-Dichlorophenol	8270
2,4-D; 2,4-Dichlorophenoxyacetic acid	8150	1,2-Dichloropropane	8010
4,4'-DDD	8080		8240
	8270	cis-1,3-Dichloropropene	8010
4,4'-DDE	8080		8240
	8270	trans-1,3-Dichloropropene	8010
4,4-DDT	8080		8240
	8270	Dieldrin	8080
Diallate	8270		8270
Dibenz(a,h)anthracene	8100	Diethyl phthalate	8060
	8270		8270
Dibenzofuran	8270	0,0-Diethyl 0-2-pyrazinyl phosphoro-	8270
Dibromochloromethane;	8240	thioate; thionazin	
chlorodibromomethane		Dimethoate	8270
1,2-Dibromo-3-chloropropane; DBCP	8010	p-(Dimethylamino)azobenzene	8270
	8240	7,12-Dimethylbenz(a)anthracene	8270
	8270	3,3'-Dimethylbenzidine	8270
1,2-Dibromoethane; Ethylene dibromide	8010	alpha, alpha-Dimethylphenethylamine	8270
	8240	2,4-Dimethylphenol	8040
Di-n-butyl phthalate	8060		8270
	8270	Dimethyl phthalate	8060
0-Dichlorobenzene	8010		8270
	8020	m-Dinitrobenzene	8270
	8120	4,6-Dinitro-o-cresol	8040
	8270		8270
m-Dichlorobenzene	8010	2,4-Dinitrophenol	8040
	8020		8270
	8120	2,4-Dinitrotoluene	8090
	8270		8270
p-Dichlorobenzene	8010	2,6-Dinitrotoluene	8090
	8020		8270
	8120	Dinosepb; DNBP; 2-sec-butyl-	8150
	8270	4,6-dinitrophenol	8270
3,3'Dichlorobenzidine	8270	D-n-octyl phthalate	8060
trans-1,4-Dichloro-2-butene	8240		8270
Dichlorodifluoromethane	8010	1,4-Dioxane	8015
	8240	Diphenylamine	8270
1,1-Dichloroethane	8010	Disulfoton	8140
	8240		8270
Endosulfan I	8080	Methacrylonitrile	8015
	8250		8240
Endosulfan II	8080	Methapyrilene	8270
Endosulfan sulfate	8080	Methoxychlor	8080
	8270		8270
Endrin	8080	Methyl bromide; bromomethane	8010
	8250		8240
Endrin aldehyde	8080	Methyl chloride; chloromethane	8010
	8270		8240

Table 4-1 (Continued)
Appendix IX, Groundwater Monitoring List

NAVSTA Mayport
Jacksonville, Florida

Parameter	Methods	Parameter	Methods
Ethyl benzene	8020	3-Methylcholanthrene	8270
	8240	Methylene bromide; Dibromomethane	8010
Ethyl methacrylate	8015		8240
	8240	Methylene chloride; Dichloromethane	8010
	8270		8240
Ethyl methanesul fonate	8270	Methyl ethyl ketone; MEK	8015
Famphur	8270		8240
Fluranthrene	8100	Methyl Iodide; Iodomehtane	8010
	8270		8240
Fluorene	8100	Methyl methacrylate	8015
	8270		8240
Heptachlor	8080	Methyl methanesul fonate	8270
	8270	2-Methylnaphthalene	8270
Heptachlor epoxide	8080	methyl parathion; Parathion methyl	8140
	8270		8270
Hexachlorobenzene	8120	4-Methyl-2-pentanone; Methyl	8015
	8270	Isobutyl ketone	8240
Hexachlorobutadiene	8120	Naphthalene	8100
	8270		8270
Heachlorocyclopentadiene	8120	1,4-Naphthoquinone	8270
	8270	1-Naphthylamine	8270
Hexachloroethane	8120	2-Naphthylamine	8270
	8270	Nickel	6010
Hexachlorophene	8270		7520
Hexachloropropene	8270	o-Nitroaniline	8270
2-Hexanone	8240	m-Nitroaniline	8270
Indeno(1,2,3-cd)pyrene	8100	p-Nitroaniline	8270
	8270	Nitrobenzene	8090
Isobutyl alcohol	8015		8270
Isodrin	8270	o-Nitrophenol	8040
Isophorone	8090		8270
	8270	p-Nitrophenol	8040
Isosafrole	8270		8270
Kepone	8270	4-Nitroquinoline 1-oxide	8270
Lead	6010	N-Nitrosodi-n-butylamine	8270
	7420	N-Nitrosodiethylamine	8270
	7421	N-Nitrosodimethylamine	8270
Mercury	7470	N-Nitrosodiphenylamine	8270
N-Nitrosodipropylemine; Di-n-propyl-nitrosamine	8270	2,3,7,8-TCDD; 2,3,7,8-Tetrachloro-dibenzo-p-dioxin	8280
N-Nitrosomethylethylamine	8270	1,2,4,5-Tetrachlorobenzene	8270
N-Nitrosomorpholine	8270	1,1,1,2-Tetrachloroethane	8010
N-Nitrosopiperidine	8270		8240
N-Nitrosopyrrolidine	8270	1,1,2,2-Tetrachloroethane	8010
5-Nitro-o-toluidine	8270		8240
Parathion	8270	Tetrachloroethylene; Perchloro-	8010
Polychlorinated biphenyls; PCBs	8080	ethylene; Tetrachloroethene	8240
	8250	2,3,4,6-Tetrachlorophenol	8270
Polychlorinated dibenzo-p-dioxins; PCDDs	8280	Tetraethyl dithiopyrophosphate; Sulfotepp	8270
Polychlorinated dibenzofurans; PCDFs	8280	Thallium	8010
Pentachlorobenzene	8270		7840

Table 4-1 (Continued)
Appendix IX, Groundwater Monitoring List

NAVSTA Mayport
Mayport, Florida

Parameter	Methods	Parameter	Methods
Pentachloroethane	8240		7841
	8270	Tin	7870
Pentachloronitrobenzene	8270	Toluene	8020
Pentachlorophenol	8040		8240
	8270	o-Toluidine	8270
Phenacetin	8270	Toxaphene	8080
Phenanthrene	8100		8250
	8270	1,2,4-Trichlorobenzene	8270
Phenol	8040	1,1,1-Trichloroethane; Methyl-	8240
	8270	chloroform	
p-Phenylenediamine	8270	1,1,2-Trichloroethane	8010
Phorate	8140		8240
	8270	Trichloroethylene; Trichloroethene	8010
2-Picoline	8240		8240
	8270	Trichloroefluromethane	8010
Pronamide	8270		8240
Propionitrile; Ethyl cyanide	8015	2,4,5-Trichlorophenol	8270
	8240	2,4,6-Trichlorophenol	8040
Pyrene	8100		8270
	8270	1,2,3-Trichloropropane	8010
Pyridine	8240		8240
Safrole	8270	0,0,0-Triethyl phosphorothloate	8270
Selenium	6010	sym-Trinitrobenzene	8270
	7740	Vanadium	6010
	7741		7910
Silver	6010		7911
	7760	Vinyl acetate	8240
Silvex; 2,4,5-TP	8150	Vinyl chloride	8010
Styrene	8020		8240
	8240	Xylene (total)	8020
Sulfide	9030		8240
2,4,5-T; 2,4,5-Trichlorophenoxyacetic	8150	Zinc	6010
acid			7950

Table 4-2
Appendix IX - Groundwater Monitoring List (Volatiles)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (µg/ℓ)	Method 2	PQL (µg/ℓ)	Method 3	PQL (µg/ℓ)	Reportable Limit	
								Water (µg/ℓ)	Soil (mg/kg)
Acetone	67-64-1	8240	100					100	100
Acetonitrile; Methyl cyanide	75-05-8	8015	100					100	100
Acrolein	107-02-8	8030	5	8240	5			100	100
Acrylonitrile	107-13-1	8030	5	8240	5			100	100
Allyl chloride	107-05-1	8010	5	8240	100			5	5
Benzene	71-43-2	8020	2	8240	5			5	5
Bromodichloromethane	75-27-4	8010	1	8240	5			5	5
Bromoform; Tribromomethane	75-25-2	8010	2	8240	5			5	5
Carbon disulfide	75-15-0	8240	5					5	5
Carbon tetrachloride	56-23-5	8010	1	8240	5			5	5
Chlorobenzene	108-90-7	8010	2	8020	2	8240	5	5	5
Chloroethane; Ethyl chloride	75-00-3	8010	5	8240	10			10	10
Chloroform	67-66-3	8010	0.5	8240	5			5	5
Chloroprene	126-99-8	8010	50	8240	5	8270	10	200	200
Dibromochloromethane; Chlorodibromomethane	124-48-1	8010	1	8240	5			5	5
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	8010	100	8240	5			10	10
1,2-Dibromoethane; Ethylene dibromide	106-93-4	9010	10	8240	5			5	5
trans-1,4-Dichloro-2-butene	110-57-6	8240	5					5	5
Dichlorodifluoromethane	75-71-8	8010	10	8240	5			10	10
1,1-Dichloroethane	75-34-3	8010	1	8240	5			5	5
1,2-Dichloroethane; Ethylene dichloride	107-06-2	8010	0.5	8240	5			5	5
1,1-Dichloroethylene; Vinylidene chloride	75-35-4	8010	1	8240	5				

Table 4-2 (Continued)
Appendix IX - Groundwater Monitoring List (Volatiles)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (µg/ℓ)	Method 2	PQL (µg/ℓ)	Method 3	PQL (µg/ℓ)	Reportable Limit	
								Water (µg/ℓ)	Soil (mg/kg)
trans-1,2-Dichloroethylene	156-60-5	8010	1	8240	5				
1,2-Dichloropropane	78-87-5	8010	0.5	8240	5			5	5
cis-1,3-Dichloropropene	10061-01-5	8010	20	8240	5			5	5
trans-1,3-Dichloropropene	10061-02-6	8010	5	8240	5			5	5
1,4-Dioxane	123-91-1	8015	150					200	200
Ethylbenzene	100-41-4	8020	2	8240	5			5	5
2-Hexanone	591-78-6	8240	50					10	10
Isobutyl alcohol	78-83-1	8015	50					200	200
Methacrylonitrile	126-96-7	8015	5	8240	5			5	5
Methyl bromide; Bromomethane	74-83-9	8010	20	8240	10			10	10
Methyl chloride; Chloromethane	74-87-3	8010	1	8240	10			10	10
Methylene bromide; Dibromomethane	74-95-3	8010	15	8240	5			5	5
Methylene chloride; Dichloromethane	75-09-2	8010	5	8240	5			5	5
Methyl ethyl ketone; MEK	78-93-3	8015	10	8240	100			10	10
Methyl iodide; Iodomethane	74-88-4	8010	40	8240	5			10	10
Methyl methacrylate	80-62-6	8015	2	8240	5			10	10
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	8015	5	8240	50			10	10
Pentachloroethane	76-01-7	8240	5	8270	10			10	10
Propionitrile; Ethyl cyanide	107-12-0	8015	60	8240	5			100	100
Styrene	100-42-5	8020	1	8240	5			5	5
1,2,4,5-Tetrachlorobenzene	95-94-3	8270	10						
1,1,1,2-Tetrachloroethane	630-20-6	8010	5	8240	5			5	5

Table 4-2 (Continued)
Appendix IX - Groundwater Monitoring List (Volatiles)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (μg/ℓ)	Method 2	PQL (μg/ℓ)	Method 3	PQL (μg/ℓ)	Reportable Limit	
								Water (μg/ℓ)	Soil (mg/kg)
1,1,2,2-Tetrachloroethane	79-34-5	8010	0.5	8240	5			5	5
Tetrachloroethylene; Perchloroethylene; Tetrachloroethene	127-18-4	8010	0.5	8240	5			5	5
Toluene	108-88-3	8020	2	8240	5			5	5
1,1,1-Trichloroethane; Methylchloroform	71-55-6	8240	5					5	5
1,1,2-Trichloroethane	79-00-5	8010	0.2	8240	5			5	5
Trichloroethylene; Trichloroethene	79-01-5	8010	1	8240	5			5	5
Trichlorofluoromethane	75-69-4	8010	10	8240	5			5	5
1,2,3-Trichloropropane	96-18-4	8010	10	8240	5			5	5
Vinyl acetate	108-05-4	8240	5					50	50
Vinyl chloride	75-01-4	8010	2	8240	10			10	10
Xylene (total)	1330-20-7	8020	5	8240	5			5	5

Notes: CAS = Chemical abstract service.
PQL = Practical Quantitation Limits.
μg/ℓ = micrograms per liter.
μg/kg = micrograms per kilogram.

Table 4-3
Appendix IX - Groundwater Monitoring List (Semivolatiles)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (µg/ℓ)	Method 2	PQL (µg/ℓ)	Method 3	PQL (µg/ℓ)	Reportable Limit	
								Water (µg/ℓ)	Soil (mg/kg)
Acenaphthene	83-32-9	8100	200	8270	10			10	330
Acenaphthylene	208-96-8	8100	200	8270	10			10	330
Acetophenone	98-86-2	8270	10					10	330
2-Acetylaminofluorene; 2-AAF	53-96-3	8270	10					10	330
4-Aminobiphenyl	9267-1	8270	10					50	1,650
Aniline	62-53-3	8270	10					10	330
Anthracene	120-12-7	8100	200	8270	10			10	330
Aramite	140-57-8	8270	10					50	1,650
Benzo[a]anthracene; Benzanthracene	56-55-3	8100	200	8270	10				
Benzo[b]fluoranthene	205-99-2	8100	200	8270	10			10	330
Benzo[k]fluoranthene	207-08-9	8100	200	8270	10			10	330
Benzo[ghi]perylene	191-24-2	8100	200	8270	10			10	330
Benzo[a]pyrene	50-32-8	8100	200	8270	10			10	330
Benzyl alcohol	100-51-6	8270	20					10	330
Bis(2-chloroethoxy)methane	111-91-1	8270	10					10	330
Bis(2-chloro-1-methylethyl) ether; 2,2'Di-chlorodiisopropyl ether	108-60-1	8010	100	8270	10			10	330
Bis(2-ethylhexyl) phthalate	117-81-7	8060	20	8270	10			10	330
4-Bromophenyl phenyl ether	101-55-3	8270	10					10	330
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	8060	5	8270	10			10	330
p-Chloroaniline	106-47-8	8270	20					10	330
p-Chloro-m-cresol	59-50-7	8040	5	8270	20				
2-Chloronaphthalene	91-58-7	8120	10	8270	10				

Table 4-3 (Continued)
Appendix IX - Groundwater Monitoring List (Semivolatiles)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (µg/ℓ)	Method 2	PQL (µg/ℓ)	Method 3	PQL (µg/ℓ)	Reportable Limit	
								Water (µg/ℓ)	Soil (mg/kg)
2-Chlorophenol	95-57-8	8040	5	8270	10			10	330
4-Chlorophenyl phenyl ether	7005-72-3	8270	10					10	330
Chrysene	218-01-9	8100	200	8270	10			10	330
m-Cresol	108-39-4	8270	10					10	330
o-Cresol	95-58-7	8270	10					10	330
p-Cresol	106-44-5	8270	10						
Dibenz[a,h]anthracene	53-70-3	8100	200	8270	10				
Dibenzofuran	132-64-9	8270	10					10	330
Di-n-butyl phthalate	84-74-2	8060	5	8270	10				
o-Dichlorobenzene	95-50-1	8010	2	8020	5	8120	10		
m-Dichlorobenzene	541-73-1	8010	5	8020	5	8120	10		
p-Dichlorobenzene	106-46-7	8010	2	8020	5	8120	15		
3,3'-Dichlorobenzidine	91-94-1	8270	20					20	660
2,4-Dichlorophenol	120-83-2	8040	5	8270	10			10	330
2,6-Dichlorophenol	87-65-0	8270	10					10	330
Diethyl phthalate	84-66-2	8060	5	8270	10			10	330
p-(Dimethylamino)azobenzene	60-11-7	8270	10					10	330
7,12-Dimethylbenz[a]anthracene	59-97-6	8270	10					10	
3,3'-Dimethylbenzidine	119-93-7	8270	10					10	330
alpha, alpha-Dimethylphenethylamine	122-09-8	8270	10					50	1,650
2,4-Dimethylphenol	105-67-9	8040	5	8270	10			10	330
Dimethyl phthalate	131-11-3	8060	5	8270	10			10	330
m-Dinitrobenzene	99-65-0	8270	10						

Table 4-3 (Continued)
Appendix IX - Groundwater Monitoring List (Semivolatiles)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (µg/ℓ)	Method 2	PQL (µg/ℓ)	Method 3	PQL (µg/ℓ)	Reportable Limit	
								Water (µg/ℓ)	Soil (mg/kg)
4,6-Dinitro-o-cresol	534-52-1	8040	150	8270	50				
2,4-Dinitrophenol	51-28-5	8040	150	8270	50			50	1,600
2,4-Dinitrotoluene	121-14-2	8090	0.2	8270	10			10	330
2,6-Dinitrotoluene	606-20-2	8090	0.1	8270	10			10	330
Di-n-octyl phthalate	117-84-0	8060	30	8270	10			10	330
Diphenylamine	122-39-4	8270	10					10	330
Ethyl methacrylate	97-63-2	8015	10	8240	5	8270	10		
Ethyl methanesulfonate	62-50-0	8270	10					10	330
Fluoranthene	206-44-0	8100	200	8270	10			10	330
Fluorene	86-73-7	8100	200	8270	10			10	330
Hexachlorobenzene	118-74-1	8120	0.5	8270	10			10	330
Hexachlorobutadiene	87-68-3	8120	5	8270	10			10	330
Hexachlorocyclopentadiene	77-47-4	8120	5	8270	10			10	330
Hexachloroethane	67-72-1	8120	0.5	8270	10			10	330
Hexachlorophene	70-30-4	8270	10					50	1,650
Hexachloropropene	1888-71-7	8270	10					50	1,650
Indeno(1,2,3-cd)pyrene	193-39-5	8100	200	8270	10			10	330
Isophorone	78-59-1	8090	60	8270	10			10	330
Isosafrole	120-58-1	8270	10					50	1,650
Methapyrilene	91-80-5	8270	10					50	1,650
Methylcholanthrene	56-49-5	8270	10						
Methyl methanesulfonate	66-27-3	8270	10					10	330
2-Methylnaphthalene	91-57-6	8270	10					10	330

Table 4-3 (Continued)
Appendix IX - Groundwater Monitoring List (Semivolatiles)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (µg/ℓ)	Method 2	PQL (µg/ℓ)	Method 3	PQL (µg/ℓ)	Reportable Limit	
								Water (µg/ℓ)	Soil (mg/kg)
Naphthalene	91-20-3	8100	200	8270	10			10	330
1,4-Naphthoquinone	130-15-4	8270	10					50	1,650
1-Naphthylamine	134-32-7	8270	10					50	1,650
2-Naphthylamine	91-59-8	8270	10					50	1,650
o-Nitroaniline	88-74-4	8270	50						
m-Nitroaniline	99-09-2	8270	50						
p-Nitroaniline	100-01-6	8270	50						
Nitrobenzene	98-95-3	8090	40	8270	10			10	330
o-Nitrophenol	88-75-5	8040	5	8270	10				
p-Nitrophenol	100-02-7	8040	10	8270	50				
4-Nitroquinoline 1-oxide	56-57-5	8270	10					10	330
N-Nitrosodi-n-butylamine	924-16-3	8270	10					10	330
N-Nitrosodiethylamine	55-18-5	8270	10					10	330
N-Nitrosodimethylamine	62-75-9	8270	10					10	330
N-Nitrosodiphenylamine	86-30-6	8270	10					10	330
N-Nitrosodipropylamine; Di-n-propylnitrosamine	621-64-7	8270	10						
N-Nitrosomethylethylamine	10595-95-6	8270	10					10	330
N-Nitrosomorpholine	59-89-2	8270	10					10	330
N-Nitrosopiperidine	100-75-4	8270	10					10	330
N-Nitrosopyrrolidine	930-55-2	8270	10					10	330
5-Nitro-o-toluidine	99-55-8	8270	10					10	330
Pentachlorobenzene	609-93-5	8270	10					50	1,650
Pentachloronitrobenzene	82-68-8	8270	10					50	1,650

Table 4-3 (Continued)
Appendix IX - Groundwater Monitoring List (Semivolatiles)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (µg/ℓ)	Method 2	PQL (µg/ℓ)	Method 3	PQL (µg/ℓ)	Reportable Limit	
								Water (µg/ℓ)	Soil (mg/kg)
Pentachlorophenol	87-86-5	8040	5	8270	50			50	1,600
Phenacetin	62-44-2	8270	10					10	330
Phenanthrene	85-01-8	8100	200	8270	10			10	330
Phenol	108-95-2	8040	1	8270	10			10	330
p-Phenylenediamine	106-50-3	8270	10					50	1,650
2-Picoline	109-06-8	8240	5	8270	10			50	1,650
Pronamide	23950-58-5	8270	10					10	330
Pyrene	129-00-0	8100	200	8270	10			10	330
Pyridine	110-86-1	8240	5	8270	10			50	
Safrole	94-59-7	8270	10					50	1,650
2,3,4,6-Tetrachlorophenol	58-90-2	8270	10					10	330
o-Toluidine	95-53-4	8270	10					10	330
1,2,4-Trichlorobenzene	120-82-1	8270	10					10	330
2,4,5-Trichlorophenol	95-95-4	8270	10					50	1,600
2,4,6-Trichlorophenol	88-06-2	8040	5	8270	10			10	330
sym-Trinitrobenzene	99-35-4								

Notes: CAS = Chemical abstract service.
PQL = Practical Quantitation Limits.
µg/ℓ = micrograms per liter.
mg/kg = milligrams per kilogram.

Table 4-4
Appendix IX - Groundwater Monitoring List (Pesticides)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (µg/ℓ)	Method 2	PQL (µg/ℓ)	Reportable Limit	
						Water (µg/ℓ)	Soil (mg/kg)
Aldrin	309-00-2	8080	0.05	8270	10	0.01	0.4
alpha-BHC	319-84-6	8080	0.05	8250	10	0.01	0.4
beta-BHC	319-85-7	8080	0.05	8250	40	0.02	0.8
delta-BHC	319-86-8	8080	0.1	8250	30	0.01	0.4
gamma-BHC; Lindane	58-89-9	8080	0.05	8250	10	0.01	0.4
Chlordane	57-74-9	8080	0.1	8250	10	0.1	4
Chlorobenzilate	510-15-6	8270	10			1.0	40
2,4-D; 2,4-Dichloro-phenoxyacetic acid	94-75-7	8150	10			2.5	50
4,4'-DDD	72-54-8	8080	0.1	8270	10	0.02	0.8
4,4'-DDE	72-55-9	8080	0.05	8270	10	0.02	0.8
4,4'-DDT	50-29-3	8080	0.1	8270	10	0.02	0.8
Diallate	2303-16-4	8270	10			1.0	40
Dieldrin	60-57-1	8080	0.05	8270	10	0.02	0.8
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	8150	1	8270	10	2.5	
Endosulfan I	959-98-8	8080	0.1	8250	10	0.02	0.8
Endosulfan II	33213-65-9	8080	0.05			0.02	0.8
Endosulfan sulfate	1031-07-8	8080	0.5	8270	10	0.02	0.8
Endrin	72-20-8	8250	10			0.02	0.8
Endrin aldehyde	7421-93-4	8270	10			0.02	0.8
Heptachlor	76-44-8	8080	0.05	8270	10	0.01	0.4
Heptachlor epoxide	1024-57-3	8080	1	8270	10	0.01	0.4
Isodrin	465-73-6	8270	10			0.03	1.2
Kepone	143-50-0	8270	10			0.20	8
Methoxychlor	72-43-5	8080	2	8270	10	0.04	1.6
Polychlorinated biphenyls	See Note 7	8080	50	8250	100		
Silvex; 2,4,5-TP	93-72-1	8150	2			0.5	
2,4,5-T; 2,4,5-Trichlorophe-noxyacetic acid	93-76-5	8150	2			0.5	10
Toxaphene	8001-35-2	8080	2	8250	10	0.5	20
0,0-Diethyl 0-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	8270	10			1.0	50
Dimethoate	60-51-5	8270	10			5.0	
Disulfoton	298-04-4	8140	2	8270	10	1.0	50

Table 4-4 (Continued)
Appendix IX - Groundwater Monitoring List (Pesticides)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (μg/ℓ)	Method 2	PQL (μg/ℓ)	Reportable Limit	
						Water (μg/ℓ)	Soil (mg/kg)
Famphur	52-85-7	8270	10			1.0	50
Methyl parathion; Parathion methyl	298-00-0	8140	0.5	8270	10	1.0	50
Parathion	56-38-2	8270	10				
Phorate	298-02-2	8140	2	8270	10	1.0	50
Tetraethyl dithiopyrophosphate; Sulfotepp	3689-24-5	8270	10			1.0	50
0,0,0-Triethyl phosphorothioate	126-68-1	8270	10				

Notes: CAS = Chemical abstract service.
PQL = Practical Quantitation Limits.
μg/ℓ = micrograms per liter.
mg/kg = milligrams per kilogram.

Table 4-5
Appendix IX - Groundwater Monitoring List (Inorganics)
Typical Analytes and Reportable Detection Limits

NAVSTA Mayport
Jacksonville, Florida

Common Name	CAS Number	Method 1	PQL (μg/ℓ)	Method 2	PQL (μg/ℓ)	Method 3	PQL (μg/ℓ)	Reportable Limit	
								Water (μg/ℓ)	Soil (mg/kg)
Antimony	(Total)	6010	300	7040	2000	7041	30	60	12
Arsenic	(Total)	6010	500	7060	10	7061	20	10	2
Barium	(Total)	6010	20	7080	1000			200	40
Beryllium	(Total)	6010	3	7090	50	7091	2	5	1.0
Cadmium	(Total)	6010	40	7130	50	7131	1	5	1.0
Chromium	(Total)	6010	70	7190	500	7191	10	10	2.0
Cobalt	(Total)	6010	70	7200	500	7201	10	50	10
Copper	(Total)	6010	60	7210	200			25	5.0
Cyanide	57-12-5	9010	40					5	0.5
Lead	(Total)	6010	40	7420	1000	7421	10	3	0.6
Mercury	(Total)	7470	2					0.2	0.1
Nickel	(Total)	6010	50	7520	400			40	8.0
Selenium	(Total)	6010	750	7740	20	7741	20	5	1.0
Silver	(Total)	6010	70	7760	100			10	2.0
Sulfide	18496-25-8	9030	10,000					100	4
Thallium	(Total)	6010	400	7840	1000	7841	10	10	2.0
Tin	(Total)	7870	8,000					500	100
Vanadium	(Total)	6010	80	7910	2000	7911	40	50	10
Zinc	(Total)	6010	20	7950	50			20	4.0

Notes: CAS = Chemical abstract service.
PQL = Practical Quantitation Limits.
μg/ℓ = micrograms per liter.
mg/kg = milligrams per kilogram.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance and quality control standards and procedures will comply with the approved QAPP and Site-Specific Quality Assurance Plan (QAP) contained in Appendices A and B, respectively, of the RFI Workplan, Volume II. Quality control samples will be collected in accordance with Section 11.0 of the QAPP. Decontamination of field sampling equipment will be in accordance with Section 6.3 of the QAPP and the Technical Memorandum, *Decontamination Procedures*, located in Appendix A of the RFA/SV Workplan. Sample handling and project documentation will be in accordance with Section 3.1 of the RFI Workplan, Volume II, and the referenced sections of the QAPP. Laboratory QA/QC will be in accordance with the Laboratory QAPP located in Appendix C of the RFI Workplan, Volume II.

6.0 HEALTH AND SAFETY

Health and safety requirements will be in accordance with the general Health and Safety Plan located in Volume III of the RFI Workplan, and the Site Specific Health and Safety Plan located in Appendix B of the RFA/SV Workplan.

REFERENCES

USEPA 1989a RCRA Facility Assessment of the Naval Station Mayport, Jacksonville, Florida (Final); A.T. Kearney, Inc.; September 1989.

USEPA 1988a HSWA Permit No. H016-118598; U.S. Environmental Protection Agency, Region IV; March 25, 1988.

SOUTHNAVFACENGCOM 1991a RFI Work Plan; Volumes I, II, and III (Interim Final); ABB Environmental Services, Inc.; October 1991.

USEPA 1991a Letter from USEPA (Mr. James H. Scarbrough, P.E., Chief RCRA & Federal Facilities Branch, Waste Management Division) to Commanding Officer, Naval Station Mayport (Captain Mitchell); RE: Interim Final RFI Workplan and Corrective Action Management Plan; October 24, 1991.

ESE 1986a Initial Assessment Study, Naval Station Mayport, Florida; Prepared by Environmental Science and Engineering, Inc. for Naval Energy and Environmental Support Activity, U.S. Navy; May 1986.

APPENDIX A
TECHNICAL MEMORANDA

Drilling and Subsurface Soil Sampling
Sediment and Surface Water Sampling
Surface Soil Samples
Decontamination Procedures

TECHNICAL MEMORANDUM

PREPARED BY: Gregory M. Brown

DATE: September 23, 1991

TITLE: DRILLING AND SUBSURFACE SOIL SAMPLING

PURPOSE: The purpose of this Technical Memorandum (TM) is to provide technical guidance and standard operating procedures for drilling and subsurface soiling sampling at Naval Station Mayport, Florida. This TM presents the methods for borehole construction and subsurface soil sampling using hollow-stem auger technique and split-spoon samplers, specific for conditions expected to be encountered at Naval Station Mayport during Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFI).

SCOPE: This TM covers hollow-stem augering, split-spoon subsurface soil sampling, and field screening of soil samples. Standard operating procedures for related activities such as monitoring well installation are presented in the applicable Technical Memorandum.

Drilling. Drilling activities will be used to collect subsurface soil samples and to construct groundwater monitoring wells. Monitoring wells completed in the surficial deposits will be drilled with hollow-stem augers (HSA). Monitoring wells completed in the Upper Hawthorn Group will be drilled by a combination of HSA in the surficial deposits and rotary technique to the Upper Hawthorn. The Upper Hawthorn wells will be constructed with surface casings (double cased).

General groundwater monitoring well construction details specific to Naval Station Mayport are described in Section 3.2.3.1, Volume II, Sampling and Analysis Plan. Figures 3-3a through 3-3d of Volume II, Sampling and Analysis Plan, present typical monitoring well installation details. Well construction methods and materials are described in applicable Technical Memoranda (Well Construction and Development and "Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) Guidelines for Groundwater Monitoring Well Installation") located in the Site-Specific Quality Assurance Plan (QAP), Appendix B, Volume II, Sampling and Analysis Plan.

A truck-mounted drill rig with high torque capacity such as the Failing F-6 auger rig will be used to install the wells in the surficial deposits and the initial parts of the Upper Hawthorn monitoring wells. A rotary rig, such as a Speed Star™, will be used to drill the Upper Hawthorn wells below the depth of the surface casing (keyed into an upper confining unit) to their completion depth. Surface casings will be used for wells completed in the Upper Hawthorn to minimize cross contamination between water-bearing zones.

Auger cuttings will be collected and placed in containers until analytical data indicate the appropriate method of disposal for these materials as described in Section 2.1.6, Volume II, Sampling and Analysis Plan. Drilling fluids will also be containerized. Augers, rods, bits, mud pits, temporary surface casings, and

other intrusive equipment will be decontaminated according to referenced standard operating procedures (Decontamination Procedures, Appendix B, Volume II).

Drilling activities will be documented through completion of boring logs. Bound field logbook(s) will also be kept to record data not recorded on the boring logs. Documentation will be completed in accordance with Section 3.1.8, Volume II, Sampling and Analysis Plan.

Subsurface Soil Sampling. Subsurface soil samples will be collected in the surficial deposits while drilling monitoring wells (refer to applicable sections in Volume II, Sampling and Analysis Plan, for boring and sampling locations at each site). Borings will be advanced by HSAs in the Surficial Deposit. Soil samples will be collected at 5-foot intervals using split-spoon samplers. Borings will be logged by a qualified geologist in accordance with the Unified Soil Classification System. Soil samples will be field screened using an organic vapor analyzer (OVA) or equivalent as described below.

Soil samples for laboratory chemical analysis will be collected from selected borings at just above groundwater level. Judgmental samples may be collected if visual inspection or field screening data from an OVA (or equivalent) indicates potential contamination. Depth to groundwater will vary from site to site, but is expected to be approximately 10 feet below surface, on average, over the facility.

Samples for physical parameters will be collected in the next adjacent sample interval (i.e., 5 feet below) after collection of the samples for laboratory analysis. The procedures for boring and collecting subsurface soil samples within the surficial deposit are described below.

1. Drilling and sampling equipment (e.g., split spoons) coming into contact with site soils will be decontaminated prior to sampling, between sampling locations, and at the completion of work using standard operating procedures.

2. Decontaminated equipment will be stored on clean, polyethylene sheeting or wrapped in aluminum foil or plastic bags between uses. Following decontamination, sampling equipment will not be allowed to touch the ground prior to use.

3. A truck-mounted drill rig will be used to advance the hollow-stem auger. The boring point will be located from the appropriate "Location of Exploration" figures in Volume II, Sampling and Analysis Plan. The area will be cleared for aboveground and subsurface utilities. The drilling equipment and exclusion zone will be set up as specified in the Health and Safety Plan.

4. The borings will be drilled through the surficial deposit using hollow-stem augers. The borings will be logged by a qualified engineer or geologist.

5. Background or HNU, OVA, or TIP readings will be obtained. Teadings at the borehole and in the breathing zone will be obtained while drilling and collecting samples. OVA readings will be recorded in the field logbook.

6. Soil samples will be continuously collected using 2-inch O.D., 18-inch long, steel split-spoon samplers (Standard Penetration Test ASTM D1586-84).

7. Samples at 5-foot intervals through the surficial deposit. Any disturbed material will be removed from the top of the sample interval. Sample containers will be filled by collecting soil material from the entire sample interval. For borings where samples are to be chemically analyzed, perform headspace field screening will be performed on a portion of the sample, as described below. OVA readings will be recorded in the field logbook.

8. The sample containers will be numbered and labeled as directed in Section 3.1.5, Volume II, Sampling and Analysis Plan.

9. Field documentation and chain-of-custody records will be completed for each sample selected for analysis, according to Section 3.1, Volume II, Sampling and Analysis Plan.

10. The outside of the sample containers will be decontaminated.

11. The samples will be preserved according to Section 3.1.6, Volume II, Sampling and Analysis Plan.

12. The packaging and shipping protocol will be followed as described in Section 3.1.7, Volume II, Sampling and Analysis Plan.

Field Screening. The procedures described below will be followed to field screen subsurface soil samples.

1. The soil sample will be collected from split-spoon sampler.

2. Approximately 100 to 200 cubic centimeters of the sample will be transferred to a sealable plastic bag using a clean stainless-steel spoon. Seal the remaining portion of the sample will be sealed in an appropriate container and labeled according to Section 3.1.5, Volume II, Sampling and Analysis Plan.

3. The sample will be agitated in the bag in order to break up the soil matrix and maximize the surface area of soil that is in contact with the headspace.

4. The instrument probe of the HNU, OVA, or TIP will be inserted inside the bag and sealed around the opening as much as possible.

5. The concentration of organic vapors will be read after a pre-determined equilibrium period has elapsed (at least 30 seconds) or after the instrument read-out has stabilized.

6. The organic vapor concentration and gross physical characteristics of the sample (e.g., dry, wet, sandy, clayey, discolored) will be recorded. It will be verified that the original sample number is recorded with this data so that sample selection for laboratory analyses can be made.

7. The headspace screening data will be reviewed after completion of subsurface soil sampling at the boring location, and elevated organic vapor levels will be selected for laboratory analyses.

8. Unselected samples will be disposed of with the auger cuttings.

TECHNICAL MEMORANDUM

PREPARED BY: Gregory M. Brown

DATE: September 23, 1991

TITLE: SEDIMENT AND SURFACE WATER SAMPLING

PURPOSE: The purpose of this technical memorandum (TM) is to provide technical guidance and standard operating procedures for sediment and surface water sampling at Naval Station Mayport, Florida. This TM presents the sediment and surface water sampling methods specific for conditions expected to be encountered at Naval Station Mayport during RCRA Facility Investigations (RFI).

SCOPE: The scope of this TM covers sediment and surface water sampling methods for the RFI at Naval Station Mayport. Standard operating procedures for related activities are presented in other applicable Technical Memoranda.

Surface water and sediment samples will be taken from the drainage conveyance system at the site to assess its potential to accumulate and/or transport contamination from potential source locations. The data will also be used to assess potential risks to the environment.

Sediment Samples. Sediment samples should be collected under dry conditions when standing water is absent, if possible. When conditions are dry, sediment sampling should follow the protocols described in the Technical Memorandum, Surface Soil Sampling, Appendix B, Volume II, Sampling and Analysis Plan, for collecting surface soil samples. If standing water is present at the sediment sampling location, surface water samples should be obtained prior to sediment sampling. Applicable health and safety procedures should be followed for work near open water. A "buddy" system shall be used. Sediment samples will be collected under wet conditions by the following procedures.

1. Approach sampling locations will be approached from downstream. Locations will be marked with survey stakes and tape. Sample location will be documented with a photograph.

2. Sampling equipment will be decontaminated prior to each sampling event using the procedures described in the Technical Memorandum, Decontamination Procedures, Appendix B, Volume II, Sampling and Analysis Plan.

3. Samples will be numbered and containers will be labeled as directed in Section 3.1, Volume II, Sampling and Analysis Plan.

4. The sediment sample will be collected with a decontaminated stainless-steel push tube (e.g., a Shelby tube). The sample will be collected by pushing the tube into the sediment to the desired depth. The tube will be worked to loosen the sample and the tube will be carefully removed without losing the sample. The sample

will be extruded from the tube with a new wooden dowel and placed the sample into a clean glass jar with a Teflon™-lined lid.

5. If retrieval is unfeasible, the sample will be obtained by using a decontaminated stainless-steel scoop attached to a piece of conduit pipe with strapping tape or a scoop bracket. The scoop will be dipped into the sediments and placed into a clean glass jar with Teflon™-lined lid. The method of sampling will be documented.

6. The sampling activities performed at each location will be documented, including chain-of-custody forms, according to Section 3.1, Volume II, Sampling and Analysis Plan.

7. The outside of the sample containers will be decontaminated using the procedures in the Technical Memorandum, Decontamination Procedures, Appendix B, Volume II, Sampling and Analysis Plan.

8. The samples will be preserved according to Section 3.1, Volume II, Sampling and Analysis Plan.

9. Personnel will proceed to the next sampling location.

10. When all sediment samples are collected, containers will be packaged following the procedures in Section 3.1, Volume II, Sampling and Analysis Plan.

Surface Water Samples. Surface water samples should be collected before sediment samples if wet conditions exist. Applicable health and safety procedures should be followed for work near open water. Surface water samples will be collected using the procedures below.

1. The sampling locations will be approached from downstream. The locations will be marked with survey stakes and tape. The sample locations will be documented with a photograph.

2. Sampling equipment will be decontaminated prior to each sampling episode using the procedures described in the Technical Memorandum, Decontamination Procedures, Appendix B, Volume II, Sampling and Analysis Plan.

3. Samples will be numbered and containers will be labeled as directed in Section 3.1, Volume II, Sampling and Analysis Plan.

4. Surface water will be collected with a decontaminated wide-mouth glass jar, glass or stainless-steel beaker, or pond sampler. The sample will be collected by inverting the container while entrapping air. The container will be submerge to a depth of approximately 1 foot. The container will be rotated quickly to expel the air and the water sample will be collected. The container will be removed quickly while avoiding collection of sediment. Then the container will be closed.

5. A second sample will be obtained in a clean container and the pH, temperature, and specific conductance will be measured in the field.

The container will be thoroughly rinsed with deionized water between sampling locations.

6. The sampling activities performed at each location will be documented including chain-of-custody forms, according to Section 3.1, Volume II, Sampling and Analysis Plan.

7. Decontaminate the outside of the sample containers will be decontaminated using the procedures in the Technical Memorandum, Decontamination Procedures, Appendix B, Volume II, Sampling and Analysis Plan.

8. The samples will be preserved according to Section 3.1, Volume II, Sampling and Analysis Plan.

9. Personnel will then proceed to the next sampling location.

10. When all surface water samples are collected, containers will be packaged following the procedures in Section 3.1, Volume II, Sampling and Analysis Plan.

TECHNICAL MEMORANDUM

PREPARED BY: Gregory M. Brown

DATE: September 23, 1991

TITLE: SURFACE SOIL SAMPLES

PURPOSE: The purpose of this Technical Memorandum (TM) is to provide technical guidance and standard operating procedures for surface soil sampling at Naval Station Mayport, Florida. This TM presents the surface soil sampling methods specific for conditions expected to be encountered at Naval Station Mayport during RCRA Facility Investigation (RFI).

SCOPE: The scope of this TM covers soil sampling methods for the RFI at Naval Station Mayport. Standard operating procedures for related activities are presented in other applicable Technical Memoranda.

The procedures described below described below shall be followed when collecting surface and shallow soil samples:

1. Sampling equipment coming into contact with soil samples will be decontaminated prior to sampling, between sampling locations, and at the completion of work using the procedures outlined in the Technical Memorandum, Decontamination Procedures, Appendix B, Volume II, Sampling and Analysis Plan.

2. Decontaminated equipment will be stored on clean polyethylene sheeting or wrapped in aluminum foil or plastic bags between uses. Following decontamination, the sampling equipment will not be allowed to touch the ground prior to use.

3. The samples will be numbered and containers will labelled as directed in Section 3.1, Volume II, Sampling and Analysis Plan.

4. The sample location will be located and marked with a surveyor's flag or equivalent.

5. Background HNU, OVA, or TIP readings will be obtained. Readings at soil surface and in breathing zone will be obtained while collecting samples. Organic vapor readings will be recorded in the field logbook.

6. Sticks, leaves, and other surface debris in vicinity of sampling location will be removed.

7. Surface and shallow soil samples will be collected using a soil hand auger.

8. Surface samples will be collected no deeper than 0 to 6 inches. Shallow surface samples will be collected by auguring through clean backfill to the interface with native soils. The sample will be collected at this interval. After retrieval, depth of hole will be

measured with a clean, metal ruler or mark on the auger. The sample will be placed in a clean glass jar and labeled. The sample will be preserve in accordance with Section 3.1, Volume II, Sampling and Analysis Plan.

9. The sampling locations will be photographs. The sample location will be measured relative to local reference landmarks and an entry into logbook.

10. Personnel will proceed to the next sample point and will repeat steps 4 through 9, using decontaminated sampling equipment.

11. Field documentation and chain-of-custody records for each sample will be completed according to Section 3.1, Volume II, Sampling and Analysis Plan.

12. The outside of the sample containers will decontaminated.

13. The samples will be preserved according to Section 3.1, Volume II, Sampling and Analysis Plan.

14. The packaging and shipping protocol will be followed as described in Section 3.1, Volume II, Sampling and Analysis Plan.

TECHNICAL MEMORANDUM

PREPARED BY: Gregory M. Brown

DATE: September 23, 1991

TITLE: DECONTAMINATION PROCEDURES

PURPOSE: The purpose of this Technical Memorandum (TM) to provide technical guidance and standard operating procedures for decontamination procedures during field activities at Naval Station Mayport, Florida. This TM presents the decontamination procedures required for specific conditions expected to be encountered at Naval Station Mayport during RCRA Facility Investigation (RFI).

SCOPE: The scope of this TM covers decontamination procedures for the RFI at Naval Station Mayport. Standard operating procedures for related activities are presented in other applicable Technical Memoranda.

Decontamination of personnel and equipment will be performed to minimize the possibility of transport of contaminants off-site and between work areas, and to assure sample integrity. Sampling equipment coming in contact with soil and sediment and water will be decontaminated prior to sampling, between sampling locations, between boring intervals, and at completion of the work. This will minimize the potential for cross contamination.

Decontamination of equipment will occur at the exclusion zone of the intrusive activities and at a main decontamination station. Small sampling and field equipment (e.g., trowels, bowls, sample containers, etc.) will be cleaned at the exclusion zone. A central decontamination station will be established for cleaning of augers, drilling bits, large tools, drill rigs, monitoring well supplies, and other large items.

Teflon™ and/or glass sampling equipment used for trace organics and/or metal sample collection will be decontaminated in accordance with U.S. Environmental Protection Agency (USEPA) Region IV ECB SOPQAM requirements using the following procedures:

1. Equipment will be washed thoroughly with laboratory detergent and water using a brush to remove any particulate matter or surface film.

2. The equipment will be rinsed thoroughly with tap water.

3. The equipment will be rinsed with at least a 10 percent nitric acid solution.

4. Equipment will be rinsed thoroughly with tap water.

5. Equipment will be rinsed thoroughly with deionized water.

6. Equipment will be rinsed twice with pesticide-grade isopropanol and allowed to air dry.

7. Equipment will be wrapped in one layer of aluminum foil. The edges of foil will be rolled into a "tab" to allow for easy removal. Seal the foil wrapped equipment will be sealed in plastic and dated.

8. The Teflon® or glass sampling equipment will be rinsed thoroughly with tap water in the field as soon as possible after use.

When this sampling equipment is used to collect samples that contain oil, grease, or other hard to remove materials, it may be necessary to rinse the equipment several times with pesticide-grade acetone or hexane to remove the materials before proceeding with Step 1. In extreme cases, it may be necessary to steam clean the field equipment before proceeding with Step 1. If the field equipment cannot be cleaned using these procedures, it should not be used.

Small and awkward equipment such as vacuum bottle inserts and well bailers may be soaked in the nitric acid solution instead of being rinsed with it. Fresh nitric acid solution should be prepared for each cleaning session.

Stainless-steel or metal sampling equipment used for trace organics and/or metal sample collection will be decontaminated in accordance with USEPA Region IV ECB SOPQAM requirements using the following procedures:

1. Equipment will be washed thoroughly with laboratory detergent and water using a brush to remove any particulate matter or surface film.

2. Equipment will be rinsed thoroughly with tap water.

3. Equipment will be rinsed thoroughly with deionized water.

4. Equipment will be rinsed twice with pesticide-grade isopropanol and allowed to air dry for at least 24 hours.

5. Equipment will be wrapped in one layer of aluminum foil. The edges of foil will be rolled into a "tab" to allow for easy removal. The foil wrapped equipment will be sealed in plastic and date.

6. The stainless-steel or metal sampling equipment will be rinsed thoroughly with tap water in the field as soon as possible after use.

Well sounders and tapes used to measure groundwater levels will be decontaminated in accordance with the following procedures. They will be:

1. washed with laboratory detergent and tap water,

2. rinsed with tap water,

3. rinsed with deionized water,

5. allowed to air dry, and

4. wrapped in polyethylene bags or sheeting to prevent contamination during storage or transit.

The following procedures will be used to decontaminate the Goulds Pump used for well purging. Always disconnect the pump control box will always be disconnected from the generator before cleaning.

1. Using a brush, the exterior of the contaminated hose and pump will be scrubbed with soapy water (e.g., using Alconox™).

2. The soap will be rinsed from the outside of pump and hosed with tap water.

3. The tap water residue will be rinsed from the outside of the pump and hosed with deionized water.

4. Equipment will be placed in a polyethylene bag or wrapped with polyethylene film to prevent contamination during storage or transit.

Large equipment (e.g., drill rig, augers) will be decontaminated using the procedures outlined below.

1. The equipment will be moved to the decontamination station after sampling and field activities are complete.

2. The equipment will be decontaminated using a high pressure steam cleaner with a soap cycle and water cycle. Scraping and scrubbing may be necessary to remove encrusted material. Items will be placed on sawhorses, pallets, or the equivalent to prevent contact with the ground.

3. The equipment will be rinsed with potable water.

4. The equipment will be placed on polyethylene sheeting, sawhorses, or clean pallets and allowed to dry.

Sampling and field equipment should not contact the ground surface prior to the next sampling location. Wrap appropriate equipment (i.e., monitoring well installation supplies) in polyethylene (plastic) sheeting. Decontamination fluids will be contained for subsequent treatment or disposal.

APPENDIX B

SITE-SPECIFIC HEALTH AND SAFETY PLAN

SWMU 26 - Landfill C (NIRP Site 3)
SWMU 49 - Flight Line Retention Ponds
SWMU 50 - Dredge Spoil Disposal Areas
SWMU 56 - Building 1552 Accumulation Area

ABB ENVIRONMENTAL SERVICES
SUMMARY SITE SAFETY PLAN

A. GENERAL INFORMATION

SITE: Site 2 (Landfill B) Site 4 (Landfill D) SWMU 26 (Site 3 Landfill C) Site 5 (Landfill E) Site 6 (Landfill B) SWMU 49 (Flight Retention Ponds) SWMU 50 (Dredge Spoils Disposal Area) SWMU 56 (Building 1552, Accumulation Area).

SITE OWNER/CONTACT: Jim Reed (SDIV), Mike Davenport (NAVSTA)

LOCATION: Mayport Naval Station, Mayport, Florida

PLAN PREPARED BY: Keith Peterson/Tracie Vaught DATE: 10/24/89, (Rev. 1/30/92)

APPROVED BY: _____ DATE: _____

OBJECTIVE(S): To maintain health and safety during RCRA Facility investigation activities that include installing additional monitoring wells and groundwater, soil, and sediment sampling.

PROPOSED DATE(S) OF INVESTIGATION: January 1992 to January 1993

BACKGROUND REVIEW: Complete: X Preliminary: ____

OVERALL HAZARD: Serious: ____ Moderate: ____ Low: X Unknown: ____

B. SITE/WASTE CHARACTERISTICS

WASTE TYPES: Liquid X Solid ____ Sludge ____ Gas ____

CHARACTERISTICS: Corrosive X Ignitable ____ Radioactive ____

Volatile X Toxic X Reactive ____ Unknown ____

SITE DESCRIPTION: Site 2, Landfill B, is approximately 2 acres in size and as deep as 8 feet. The trenches were constructed by dragline and are approximately 15 feet wide and 300 feet long. The trenches intersect the water table. The site is located under the current ordnance storage area.

Site 4, Landfill D, is located under the northwestern corner of the eastern-most dredge spoil disposal area. The landfill was operated between 1963 and 1985 and

occupies approximately 3 acres. The landfill consisted of a series of pits (estimated eight), each approximately 40 feet square and 8 feet deep. These pits intersected the water table.

Site 5, Landfill E, is located west of Site 4, outside the northeastern corner dike of the dredge spoil disposal area. This site consists of two areas. Both areas were operated for the disposal of waste materials in trenches from 1963 to 1966 and for aboveground disposal of construction materials from 1974 to 1980. The landfill is a series of trenches approximately 8 feet deep, 15 feet wide, and 750 feet long and occupies approximately 11 acres.

Site 6, Landfill B, is located east of the easternmost dredge spoil disposal area on NAVSTA Mayport. The landfill is approximately 34 acres in size and consists of trenches approximately 15 feet wide, 8 feet deep and several hundred feet in length. The landfill operated from 1966 to 1985 and consists of items buried in trenches and covered, followed by a second above-surface disposal facility. The trenches intersect the water table.

SWMU 26, Landfill C (NIRP Site 3). Landfill C (SWMU 26) is located in the central part of NAVSTA Mayport, to the north of Landfill B (SWMU 2). SWMU 26 was used in 1963 for one-time disposal of scrap metal and construction debris transported to NAVSTA Mayport from another local Navy facility. The disposal area consisted of a trench approximately 100 feet long, 20 feet wide, and 8 feet deep. The landfill is now covered with soil, and reportedly no hazardous wastes were disposed of at the site according to the IAS (ESE 1986a).

SWMU 49, Flight Line Retention Ponds. The Flight Line Retention Ponds (SWMU 49) are located directly north of the northeast dredge spoil disposal area (SWMU 50). There are two ponds situated on the north side of the patrol road and to the south of an aircraft wash rack (Building 1611). The ponds were constructed at the same time that the flight operation facilities were constructed in the area in 1985 (USEPA, 1989a).

SWMU 50, Dredge Spoil Disposal Areas. SWMU 50 consists of two dredge spoil disposal areas located in the south central part of NAVSTA Mayport. The northeast area is roughly triangular and covers an area of approximately 1/4-square mile. The southwest disposal area is roughly rectangular and covers an area of approximately 1/3 square mile. Both disposal areas were constructed in marshy lowlands and are encircled with earthen dikes approximately 20 feet high and 15 feet wide. Material that was dredged from Mayport Basin was disposed of in these areas. Disposal of dredge spoils at SWMU 50 occurred from approximately the early 1940's to 1987. The western dredge spoil area is still active.

SWMU 56, Building 1552 Accumulation Area. SWMU 56 is a hazardous waste accumulation area located near Building 1552 and has been in operation since approximately 1985 (USEPA, 1989a). It is located on the south side of Building 1552 and consists of a concrete pad with dimensions of 20 feet by 10 feet. The pad is fenced and wastes such as solvents, paint thinners, dirty rags, aerosol cans, and waste oils are temporarily stored in steel drums.

PRINCIPAL DISPOSAL METHOD (type and location): Drums of waste oils and sanitary waste items were dumped into standing water and periodically burned.

STATUS (active, inactive, unknown): Inactive portions covered by current ordnance storage area and dredge spoils

HISTORY (Worker or nonworker injury; complaints from public; previous agency action): Fourteen groundwater monitoring wells were installed during the ESI in 1987. Samples showed the surrounding soil and groundwater is contaminated with PCBs, solvents, pesticides, metals, and other organics.

C. HAZARD EVALUATION

Chemicals that personnel may be exposed to are solvents and wastes containing volatile organic compounds, fuel hydrocarbons, pesticides and inorganic chemicals such as chromium, mercury, and lead contained in sludge and other wastes. A chemical Hazard Information Sheet for each compound suspected of being present onsite is contained in Appendix A, Volume III, RFI Work Plan.

This site is suspected of supporting a large population of Eastern Diamondback Rattlesnakes. Fire ants are also prevelent.

D. SITE SAFETY PROCEDURES

Map/Sketch Attached? Yes Site Secured? Yes

Perimeter Identified? Yes Zone(s) of Contamination Identified? Yes

PERIMETER ESTABLISHMENT: Access to Mayport NAVSTA is restricted at all points.

PERSONNEL PROTECTION

TASK	MINIMUM LEVEL OF PROTECTION
All Activities	Level D

MODIFICATIONS: Level C protection will be used as a contingency should photoionization meter or OVA readings exceed 5.0 ppm in ambient air in the breathing zone and if identification of the compounds present can not be made. If compounds can be identified the appropriate action level will be determined based on the appropriate PEL or TLV.

Should it become apparent during any phase of the field activities that conditions are different from those anticipated, the HSO will immediately withdraw all personnel from the site until health and safety conditions at the site are reevaluated.

SITE MONITORING INSTRUMENTATION: A photoionization meter or equivalent will be on hand at all times to monitor total volatile organics in ambient air surrounding exploration activities.

DECONTAMINATION PROCEDURES

Personnel: Will be conducted as outlined in Volume III, RFI Workplan

Equipment: Will be conducted as outlined in Volume III, RFI 8.2 Workplan between each boring and upon entry to NAVSTA and upon completion of the drilling program prior to the subcontractor leaving the NAVSTA.

MOBILIZATION AND SITE ENTRY: A contamination reduction area will be established onsite. Field work preparation, staging, and decontamination will take place in this area.

TEAM ORGANIZATION:

Team Member	Responsibility
J. Daniel	Site-Safety Officer
A. Stamp	Sampler
E. Blomberg	Sampler
A. Harvey	Sampler
G. Kanchibhatla	Sampler
P. Georgariou	Project Manager
G. Brown	RFI Task Leader
Others	As required

WORK LIMITATIONS (Time of day, etc.): During daylight hours only and as restricted by Mayport NAVSTA operations and security.

PERSONNEL PROTECTIVE GEAR, DECONTAMINATION, AND OTHER MATERIAL DISPOSAL: Personnel will use Level D Protection. See Table G-1, p. G-55 (Volume III of the RFI Workplan). for a list of personnel protective gear. Decontamination fluids will be containerized and turned over to base personnel to incorporate with their hazardous waste.