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CORRECTIVE ACTION PROGRAM
GENERAL INFORMATION REPORT

U.S. NAVAL STATION
MAYPORT, FLORIDA

Unit Identification Code (UIC) No. N60201

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

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July 1995

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

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

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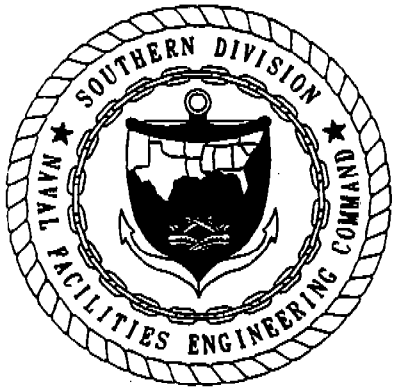

FOREWORD

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

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

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

The IR program is conducted in several stages:

- The Preliminary Assessment (PA) identifies potential sites through record searches and interviews.
- A Site Inspection (SI) then confirms which areas contain contamination, constituting actual "sites." (Together, the PA and SI steps were called the Initial Assessment Study [IAS] under the Navy's old NACIP program.)
- Next, the Remedial Investigation and the Feasibility Study (RI/FS) together determine the type and extent of contamination, establish criteria for cleanup, and identify and evaluate any necessary

remedial action alternatives and their costs. As part of the RI/FS, a Risk Assessment identifies potential effects on human health or the environment in order to help evaluate remedial action alternatives.

- The selected alternative is planned and conducted in the Remedial Design and Remedial Action stages. Monitoring then ensures the effectiveness of the effort.

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

This program is conducted in three stages as follows:

- The RCRA Facility Assessment (RFA) identifies solid waste management units (SWMUs), evaluates the potential for releases of contaminants, and determines the need for future investigations.

- The RCRA Facility Investigation (RFI) then determines the nature, extent, and fate of contaminant releases.

- The Corrective Measures Study (CMS) identifies and recommends measures to correct the release.

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

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

Questions regarding the RCRA program at NAVSTA Mayport should be addressed to Mr. David Driggers, Code 1852, at (803) 743-0501.

EXECUTIVE SUMMARY

ABB Environmental Services, Inc., under the Comprehensive Long-term Environmental Action, Navy (CLEAN) Contract, No. N62467-89-D-0317, is conducting confirmatory sampling and Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFIs) on behalf of the U.S. Navy at the Naval Station (NAVSTA) Mayport. These investigations are being conducted in accordance with the Hazardous and Solid Waste Amendment (HSWA) permit No. FL9-170-024-260, issued by the U.S. Environmental Protection Agency (USEPA) on March 25, 1988, and revised and renewed on June 15, 1993. This report presents background information and methodologies common to all of the RCRA Corrective Action Program investigations at NAVSTA Mayport.

NAVSTA Mayport is located in Jacksonville, Florida, in northeastern Duval County on the south shore of the confluence of the St. Johns River and the Atlantic Ocean. A RCRA Facility Assessment and Visual Site Inspection (RFA/VSI) for NAVSTA Mayport was conducted by the USEPA Region IV in 1989. The RFA/VSI identified 56 Solid Waste Management Units (SWMUs) and two Areas of Concern (AOCs) at NAVSTA Mayport. Fifteen of these SWMUs were determined not to require further action. Twenty-three of the remaining SWMUs were determined to require confirmatory sampling by conducting RFA Sampling Visits (SVs). The remaining 18 SWMUs were determined to require an RFI.

Due to the number of SWMUs, the diversity of their past and/or present operations, and the magnitude of the permit requirements, the USEPA recommended that a phased approach be used to implement the RFI and other corrective action activities. A Corrective Action Management Plan (CAMP; RFI workplan, Appendix F, October 1991) was prepared to describe the strategy to implement the RCRA Corrective Action Program at NAVSTA Mayport.

The purpose of the NAVSTA Mayport CAMP was to outline the strategy for conducting assessments to confirm and characterize the nature and extent of suspected releases of hazardous substances to the environment at NAVSTA Mayport. The assessments consist of RFIs to characterize the nature and extent of confirmed contamination and RFA/Svs to confirm the presence of suspected contamination in accordance with the requirements of HSWA permit No. FL9-170-024-260.

To achieve this goal, four SWMU groups were defined in the NAVSTA Mayport RCRA CAMP. SWMU Groups I through III were defined by clustering individual SWMUs within a geographic area, and with commonality of past waste management practices and corrective measures (Plate 1). SWMUs in Group IV, such as utility networks, span multiple geographic areas.

The Group I SWMUs are located in the southwest part of NAVSTA Mayport and include former landfills, active dredge material disposal areas, and other individual SWMUs. These SWMUs were incorporated into Group I because of their: (1) proximity to each other, (2) common drainage to the Sherman Creek watershed, (3) similarity of past waste disposal activities, and (4) the potential for similar or related corrective measures. Group I SWMUs were ranked as Priority 1 because of a "high perceived risk" for numerous contaminants to be of large areal extent and to affect large volumes of soil and groundwater.

The Group II SWMUs are located along the northern part of NAVSTA Mayport adjacent to the St. Johns River and include former hazardous and solid waste storage areas and petroleum waste treatment and disposal areas. The SWMUs were incorporated into Group II because of their: (1) proximity to each other, (2) nearness to the St. Johns River, and (3) potential for similar or related corrective measures. Group II SWMUs were ranked as Priority 2 because of a "moderate perceived risk." Contaminants were considered or thought to be of moderate areal extent and to affect moderate volumes of soil and groundwater. Therefore, the potential for adverse impacts to ecological receptors by soil and groundwater are considered minimal.

The Group III SWMUs are located in the eastern part of NAVSTA Mayport adjacent to the turning basin and include isolated areas with suspected contaminants confined to localized areas. The SWMUs were incorporated into Group III because of their: (1) proximity to the turning basin, the St. Johns River, and the Atlantic Ocean; (2) similarity of surrounding land use; and (3) potential for similar or related corrective measures. Group III SWMUs were ranked as Priority 3 because of a "low perceived risk." The contaminants are of localized areal extent and affect small volumes of soil and groundwater.

The Group IV SWMUs are composed of utility networks and system components, which may span multiple geographic areas at NAVSTA Mayport. None of the SWMUs in Group IV are identified in the HSWA permit as requiring an RFI, but an RFA/SV confirmatory sampling is required to determine whether an RFI is necessary. Group IV SWMUs are addressed together because of similarity of investigative and corrective measures, which may be required for utilities that are networked throughout NAVSTA Mayport. In addition, some of the SWMUs in Group IV are being addressed by other environmental management, regulatory, and maintenance programs, which will provide data to assist in determining appropriate RCRA investigative actions.

The purpose of this RCRA Corrective Action Program General Information Report is to provide information common to all of the SWMU groups being investigated at NAVSTA Mayport including sampling and analytical methodology, data evaluation, risk assessment methodology, characterization and assessment of station-wide background data, and the ecological characterization of the station. Because the information contained in this report is common to all SWMUs, it will not be repeated in RFI or confirmatory sampling reports for each SWMU group but will be referenced. The individual RFI or confirmatory sampling reports for each SWMU group also will contain a discussion of any deviations from methodologies presented in this report.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
ABSEFF	Absorption Efficiency
ADD	Average Daily Dose
AFFF	Aqueous Film Forming Foam
AIC	Adjusted Inhalation Concentration
AIMD	Aircraft Intermediate Maintenance Department
AIMF	Aircraft Intermediate Maintenance Facility
AMI	Atlantic Marine, Inc.
AOC	Area of Concern
APHA	American Public Health Association
ASTM	American Society for Testing and Materials
AWQC	Ambient Water Quality Criteria
BEHP	bis(2-ethylhexyl)phthalate
bls	below land surface
BNA	base-neutral extractable analytes
BOD_5	five-day biochemical oxygen demand
CAA	Clean Air Act
$CaCO_3$	calcium carbonate
CAMP	Corrective Action Management Plan
CCED	Clean Closure Equivalency Demonstration
CEC	cation exchange capacity
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
cfs	cubic feet per second
CLEAN	Comprehensive Long-Term Environmental Action, Navy
CLP	Contract Laboratory Program
cm	centimeter
cm^2	square centimeters
CMS	Corrective Measures Study
COC	chemical of concern
CompQAP	Comprehensive Quality Assurance Plan
CPC	contaminant of potential concern
CPF	carcinogen potency factors
CRP	Community Relations Plan
CRQL	contract required quantitation limit
CSF	cancer slope factor
CVAA	cold vapor atomic absorption
CWA	Clean Water Act
°C	degrees Celsius
D	intermediate well, >15 feet bls and <40 feet bls
DD	deep monitoring well, >40 feet bls
DAF	Dissolved Air Flotation
DBCP	1,2-dibromo-3-chloropropane
DFM	diesel fuel, marine
DO	dissolved oxygen
DOD	Department of Defense
DOT	Department of Transportation

DQO	data quality objectives
DRMO	Defense Reutilization and Marketing Office
EA	ecological assessment
ECT	Environmental Consulting & Technology, Inc.
EIC	Engineer in Charge
EP	equilibrium partitioning
EPC	exposure point concentration
EPTOX	extraction procedure toxicity
ESD	Environmental Services Division
ESE	Environmental Science and Engineering
ESI	Expanded Site Investigation
EST	Eastern Standard Time
°F	degrees Fahrenheit
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FDNR	Florida Department of Natural Resources
FDWR	Federal Drinking Water Regulations
FDWS	Florida Drinking Water Standards
FEMA	Federal Emergency Management Agency
FGFWFC	Florida Game and Freshwater Fish Commission
FID	flame ionization detector
FNAI	Florida Natural Areas Inventory
FPDWS	Florida Primary Drinking Water Standards
FSWCS	Florida Surface Water Classification Standards
FTC	Fleet Training Center
ft/d	feet per day
ft/ft	foot per foot
ft/yr	foot per year
GC	gas chromatograph
GFAA	graphite furnace atomic absorption
g/d/ft	gallon per day per foot
γ-BHC	gamma-benzenehexachloride
HASO	Health and Safety Officer
HASP	Health and Safety Plan
HEA	Health and Environmental Assessment
HEED	Health and Environmental Effects Document
HEEP	Health and Environmental Effects Profile
HHCPCs	Human Health chemicals of Potential Concern
HI	Hazard Index
HQ	Hazard Quotient
HSA	hollow-stem auger
HSWA	Hazardous and Solid Waste Amendments of 1984
IAS	Initial Assessment Study
IC	Inhalation Concentration
ICP	inductively coupled plasma

ICWW	Intracoastal Waterway
ID	inner diameter
IDL	instrument detection limit
IDW	investigative-derived wastes
IRP	Installation Restoration Program
IRIS	Integrated Risk Information System
JSI	Jacksonville Shipyard, Inc.
JTU	Jackson turbidity unit
KBN	KBN Engineering and Applied Sciences
k/hr	kilometers per hour
kg	kilograms
LADD	Lifetime Average Daily Dose
LCS	laboratory control samples
LNAPL	light non-aqueous phase liquid
ℓ/day	liters per day
m^3	cubic meter
MDL	method detection limit
MCL	maximum contaminant level
mgd	million gallons per day
m/sec	meters per second
µg/ℓ	microgram per liter
µg/kg	microgram per kilogram
mg/ℓ	milligrams per liter
mg/kg	milligrams per kilogram
ml	milliliter
mm	millimeter
mph	miles per hour
MPT	Mayport
MS/MSD	matrix spike/matrix spike duplicate
msl	mean sea level
NACIP	Navy Assessment and Control of Installation Pollutants
NADEP	Naval Aviation Depot
NAPL	nonaqueous phase liquid
NAS	Naval Air Station
NAVSTA	Naval Station
NCP	National Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NFI	North Florida Shipyard, Inc.
NGVD	National Geodetic Vertical Datum of 1929
NIRP	Navy/Marine Corps Installation Restoration Program
NOAA	National Oceanic and Atmospheric Administration
NOEL	no-observed-effect-level
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NSC	Naval Supply Center
NWI	National Wetland Inventory

OD	outer diameter
OWTP	Oily Waste Treatment Plant
OVA	organic vapor analyzer
PA	Preliminary Assessment
PAH	polynuclear aromatic hydrocarbon (also, polycyclic aromatic hydrocarbon)
PARCC	precision, accuracy, representativeness, comparability, and completeness
PCB	polychlorinated biphenyl
PEA	Preliminary Ecological Assessment
PEL	permissible-exposure-limit
PHEA	Preliminary Health and Environmental Assessment
PHHA	Preliminary Human Health Assessment
PM	Program Manager
PPE	personal protective equipment
PVC	polyvinyl chloride
PWD	Public Works Department
%R	Percent Recovery
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
RFA/SV	RCRA Facility Assessment/Sampling Visit
RfC	Reference Concentration
RfD	reference dose
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPD	Relative Percent Difference
RSD	risk-specific dose
RTVs	Reference Toxicity Values
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act of 1986
SAS	Special Analytical Services
SCS	Soil Conservation Service
SDG	sample delivery group
SDWA	Safe Drinking Water Act
SDWS	Secondary Drinking Water Standards
SI	Site Inspection
SIMA	Shore Intermediate Maintenance Activity
SMP	Site Management Plan
SOP	Standard Operating Procedure
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command

SOW	Statement of Work
SPHEM	Superfund Public Health Evaluation Manual
SQC	Sediment Quality Criteria
SQG	sediment quality goals
STORET	Storage and Retrieval of Water-Related Data
SUPSHIP	Supervisor of Shipbuilding
SV	sampling visit
SVC	screening criteria values
SVOCs	semivolatile organic compounds
SWDA	Solid Waste Disposal Act
SWMU	Solid Waste Management Unit
TBC	to be considered
TCL	target compound list
TCLP	Toxicity Characteristic Leaching Procedure
TD	Technical Director
TDS	Total Dissolved Solids
TEF	toxicity equivalency factor
TKN	total Kjeldahl nitrogen
TOC	total organic carbon
TOM	Task Order Manager
TRB	Technical Review Board
TRPH	total recoverable petroleum hydrocarbon
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
UCL	Upper Confidence Limit
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USCS	Unified Soil Classification System
USSCS	U.S. Soil Conservation Service
VOA	volatile organic analyte
VOC	volatile organic compound
VSI	Visual Site Inspection
WOW	We-Cycle Office Wastepaper
YTD	Year to date
ZHE	Zero Headspace Extraction

1.0 INTRODUCTION

This report presents a summary of basic station information, including geography, physiography, climate, soil, regional geology, hydrogeology, investigation and assessment methodology, and findings relative to background chemical concentrations to support conclusions and recommendations of Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) and RCRA Facility Assessment/Sampling Visit (RFA/SV) confirmatory sampling reports for the U.S. Naval Station (NAVSTA), Mayport, Florida (Figure 1-1). The RFIs and RFA/SVs are being conducted at NAVSTA Mayport in compliance with the requirements of the Hazardous and Solid Waste Amendments (HSWA) permit (FL9-170-024-260) issued March 25, 1988, and revised on June 15, 1993, and the approved Corrective Action Management Plan (CAMP) (ABB Environmental Services, Inc. [ABB-ES], 1991b, revised 1995). Forty-three sites have been identified in the HSWA permit as solid waste management units (SWMUs) requiring an RFI or RFA/SV (Table 1-1). Because of their number and complexity, the SWMUs have been divided into groups for investigation (Figure 1-2).

1.1 PURPOSE. The purpose of the RFI activities at NAVSTA Mayport is to provide data that will be used to:

(1) determine the nature and extent of releases from SWMUs;

(2) characterize the potential pathways of contaminant migration in the soil, surface water, and groundwater;

(3) identify potential receptors;

(4) assess potential risks to human health and the environment; and

(5) determine whether contaminants released from an SWMU require corrective measures to mitigate the risk to human health or the environment.

The purpose of RFA/SV or confirmatory sampling activities is to assess whether or not contaminants have been released to the environment at sites where releases are suspected but not confirmed. The determination that contamination has been released to the environment is based on a preliminary risk screening by comparison of site specific analytical data to background analytical data and relevant regulatory criteria. Based on the preliminary risk screening, recommendations are made for additional sampling, conducting an RFI, if necessary, or no further investigation.

1.2 SCOPE. RFI and RFA/SV field activities occurred at Group I SWMUs from January 1992 through April 1992, at Group II SWMUs from December 1992 through February 1993, and at Groups I and II SWMUs from March 1994 through December 1994. Field activities at NAVSTA Mayport included the following tasks:

- monitoring well and piezometer installation;
- surface and subsurface soil sample collection;

Table 1-1
Solid Waste Management Unit (SWMU) and Area of Concern (AOC) Summary

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Group	RFI or RFA/SV	SWMU	NIRP	Description
I	RFI	02	02	Landfill B
I	RFI	03	04	Landfill D
I	RFI	04	05	Landfill E
I	RFI	05	06	Landfill F
I	RFI	13	13	Old Fire-Fighting Training Area
I	RFI	22	NA	Building 1600 Blasting Area
I	RFA/SV	26	03	Landfill C
I	RFA/SV	49	NA	Flight Line Retention Ponds
I	RFA/SV	50	NA	Dredge Spoil Disposal Area
I	RFA/SV	56	NA	Building 1552 Accumulation Area
II	RFI	06	08	Waste Oil Pit
II	RFI	07	8A	OWTP Sludge Beds
II	RFI	08	8B	OWTP Percolation Pond
II	RFI	09	8C	OWTP
II	RFI	10	8D	RCRA Hazardous Waste Storage Area
II	RFI	11	09	Fuel Spill Area
II	RFI	12	11	Neutralization Basin
II	RFI	15	15	Old Pesticide Handling Area
II	RFI	16	16	Old Transformer Storage Yard
II	RFA/SV	19	NA	NADEP Blasting Area
II	RFA/SV	28	10	DRMO Yard
II	RFA/SV	48	NA	Former Chemistry Laboratory
II	RFA/SV	51	NA	Waste Oil Tanks
III	RFI	01	01	Landfill A
III	RFI	14	14	Mercury and Oily Waste Spill Area
III	RFI	17	17	Carbonaceous Fuel Boiler
III	RFA/SV	18	NA	FTC Diesel Generator Sump
III	RFA/SV	20	NA	Hobby Shop Drain
III	RFA/SV	21	NA	Hobby Shop Scrap Storage Area
III	RFA/SV	23	NA	Jacksonville Ship Yard, Inc., (JSI) Area

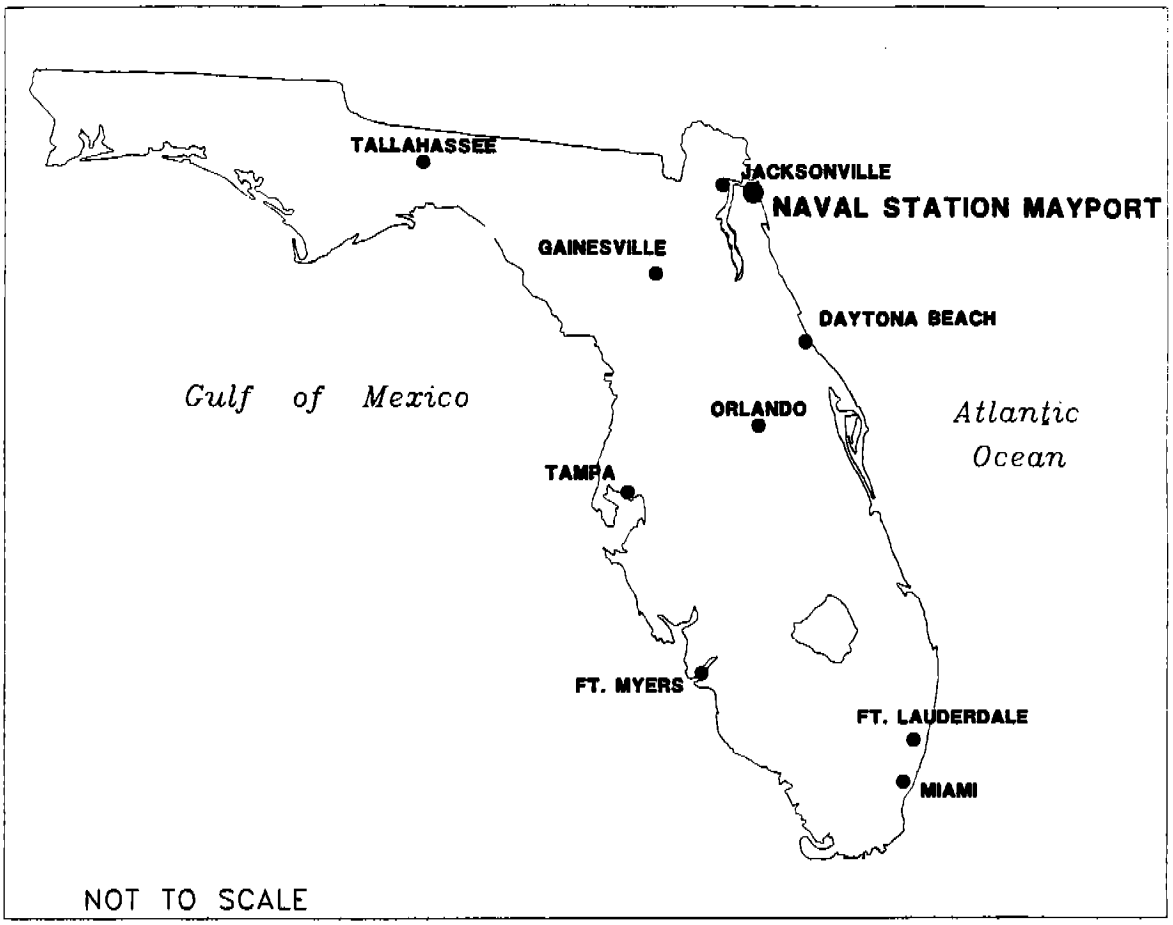
See notes at end of table.

Table 1-1 (Continued)
Solid Waste Management Unit (SWMU) and Area of Concern (AOC) Summary

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Group	RFI or RFA/SV	SWMU	NIRP	Description
III	RFA\SV	24	NA	North Florida Ship Yard, Inc., (NFI) Area
III	RFA/SV	25	NA	Atlantic Marine, Inc. (AMI), Area
III	RFA/SV	29	12	Oily Waste Pipe Line Break
III	RFA/SV	44	NA	Wastewater Treatment Facility Clarifiers 1 and 2
III	RFA/SV	45	NA	Wastewater Treatment Facility Sludge Drying Beds
III	RFA/SV	46	NA	Shore Intermediate Maintenance Area (SIMA) Engine Drain Sump
III	RFA/SV	52	NA	Public Works Department (PWD) Service Station Storage Area
IV	RFA/SV	47	NA	Oily Waste Collection System
IV	RFA/SV	53	NA	Sewer Pipeline
IV	RFA/SV	54	NA	Oil/Water Separators
IV	RFA/SV	55	NA	Storm Sewer and Drainage Pipes
IV	RFA/SV	AOC-A	NA	Fuel Distribution Systems
IV	RFA/SV	AOC-B	NA	Underground Product Storage Tanks

Notes: RFI = Resource Conservation and Recovery Act (RCRA) Facility Investigation.
RFA/SV = RCRA Facility Assessment and Sampling Visit.
NIRP = Naval Installation Restoration Program.
NA = not applicable.
OWTP = Oily Waste Treatment Plant.
RCRA = Resource Conservation and Recovery Act.
NADEP = Naval Aviation Depot.
DRMO = Defense Reutilization and Marketing Office.
FTC = Fleet Training Center.



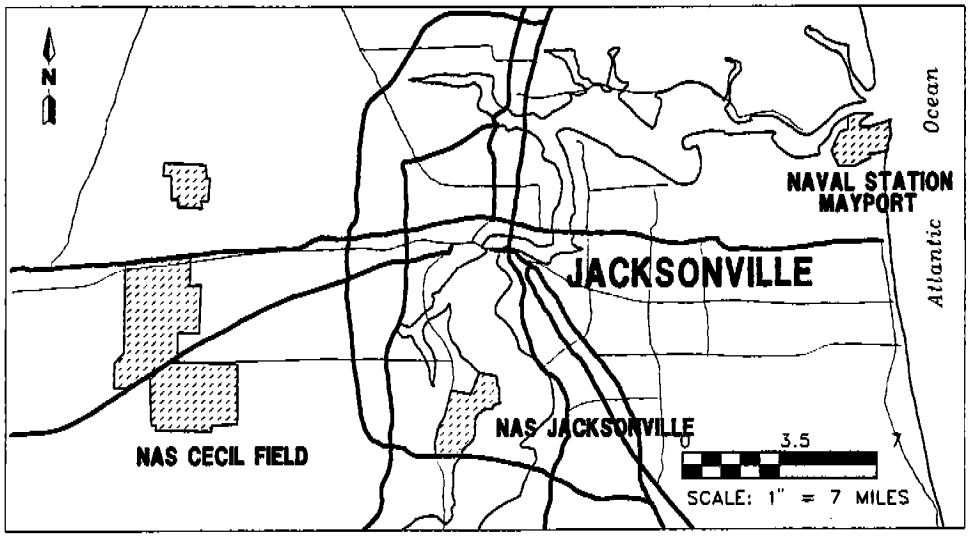


FIGURE 1-1
FACILITY LOCATION MAP

MAYPORT\MAYLOCAT\KGP-WDW-NP-CLC-JMK\07-11-95

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- sludge sample collection;
- groundwater sample collection;
- monitoring well, piezometer, and sample location topographic survey;
- *in situ* slug testing of aquifer properties at selected monitoring wells and piezometers;
- tidal influence studies of selected monitoring wells and piezometers;
- monthly groundwater elevation measurements (February 16, 1992, through January 31, 1993);
- biological inventory of terrestrial and aquatic habitats; and
- laboratory analyses of selected Appendix IX Groundwater Monitoring List parameters (40 Code of Federal Regulations [CFR] 264).

This report describes: (1) existing site conditions; (2) data gathering methods or activities for background samples and environmental samples from Groups I, II, III, and IV SWMUs; (3) human health and ecological risk assessment methodology; and (4) findings of the background investigations.

The general information report is divided into three chapters. Chapter 1.0 provides general background information for NAVSTA Mayport. Literature and previous investigative data are presented for regional geography, climate, soil, geology, and hydrogeology. Much of this information has been previously presented in the RFI workplan (ABB-ES, 1991a).

Chapter 2.0 of this report describes the field methods and procedures used for collection, analysis, and evaluation of environmental samples at NAVSTA Mayport. Chapter 2.0 also describes how data quality will be assessed based on field quality assurance and quality control (QA/QC) procedures and laboratory performance, and presents the methodology to be used for human health and ecological risk assessment.

Chapter 3.0 presents the findings from background assessment activities. These findings consist of basewide hydrogeologic measurements, an ecological study, a tidal influence study, and collection and analyses of surface soil, subsurface soil, surface water, sediment, and groundwater samples. The information presented in this report provides a background and basis for understanding the findings from field measurements and chemical analyses of media samples collected during field activities in Groups I, II, III, and IV RFIs. Subsequent reports will present the investigation-specific findings for geology, hydrogeology, biology, and contamination in surface and subsurface soil, surface water, sediment, sludge, and groundwater for SWMUs at NAVSTA Mayport.

Each report will summarize site-specific findings, present an assessment of risks to human and ecological receptors, and recommend further investigations or corrective measures for each SWMU.

1.3 NAVAL STATION (NAVSTA) MAYPORT FACILITY DESCRIPTION. NAVSTA Mayport is located within the corporate limits of the city of Jacksonville, Duval County, Florida, approximately 12 miles to the northeast of downtown Jacksonville (Figure 1-1). The station complex is located on the northern end of a peninsula bounded by the Atlantic Ocean to the east and the St. Johns River to the north and west. NAVSTA Mayport occupies the entire northern part of the peninsula except for the town of Mayport to the west between the station and the St. Johns River.

NAVSTA Mayport was commissioned in 1942 on approximately 700 acres of land. The station initially consisted of a harbor and an airfield located near the mouth of the St. Johns River. The airfield and harbor were constructed from the dredging and filling of Ribault Bay (Figures 1-3 and 1-4). The harbor was initially dredged to a depth of 29 feet below mean sea level (msl), and is referred to as the Mayport Turning Basin. The Mayport Turning Basin is surrounded on three sides by ship piers.

The original mission of the station included use by patrol craft, target boats, and rescue boats. The station was placed in caretaker status from 1946 to 1948. In 1948 the station reopened, and in 1952 an aircraft carrier was assigned to the station. To allow aircraft carriers and other large ships to berth at NAVSTA Mayport, the turning basin was dredged to a depth of 40 feet. Additionally, the amount of uplands at NAVSTA Mayport was increased by using dredge material to fill areas south of the turning basin. Figures 1-3 and 1-4 illustrate land features that were present prior to development of NAVSTA Mayport and current features.

NAVSTA Mayport is the fourth largest Navy homeport in the United States, employing approximately 13,000 active duty personnel and 1,000 civilians, and occupying more than 3,400 acres. Currently, destroyers, frigates, an aircraft carrier, a destroyer tender, and minesweepers are stationed at NAVSTA Mayport. The station is also home to five helicopter squadrons, with approximately 200,000 take-offs and landings on the 8,000-foot runway per year. The ship facilities are located in the northern and eastern areas of the complex near the Mayport Turning Basin, and the air facilities are located in the central and western areas near the runway (NAVSTA Mayport Shareholders' Report, 1993).

NAVSTA Mayport provides all necessary support services for the surface fleet and aircraft stationed at or visiting Mayport. This support includes a division of the Public Works Center, which is headquartered at Naval Air Station (NAS) Jacksonville, and provides infrastructure support. Other services include personnel support, facilities support, and ship and aircraft repair and maintenance.

Industrial operations conducted at NAVSTA Mayport involve intermediate level maintenance for both ships and aircraft, and vehicle maintenance and repair. Any maintenance activities that can be conducted without putting a ship into drydock are considered intermediate. For aircraft, largely upkeep maintenance is conducted.

Maintenance and repair operations for ships are carried out by three organizations on the station: Shore Intermediate Maintenance Activity (SIMA), Supervisor of Shipbuilding (SUPSHIP), and Naval Aviation Depot (NADEP). SIMA conducts repair and maintenance operations onboard ships at the piers and in the SIMA operations building. SUPSHIP is a contracting organization that contracts out maintenance and repair work. Formerly, three companies were under contract with SUPSHIP and

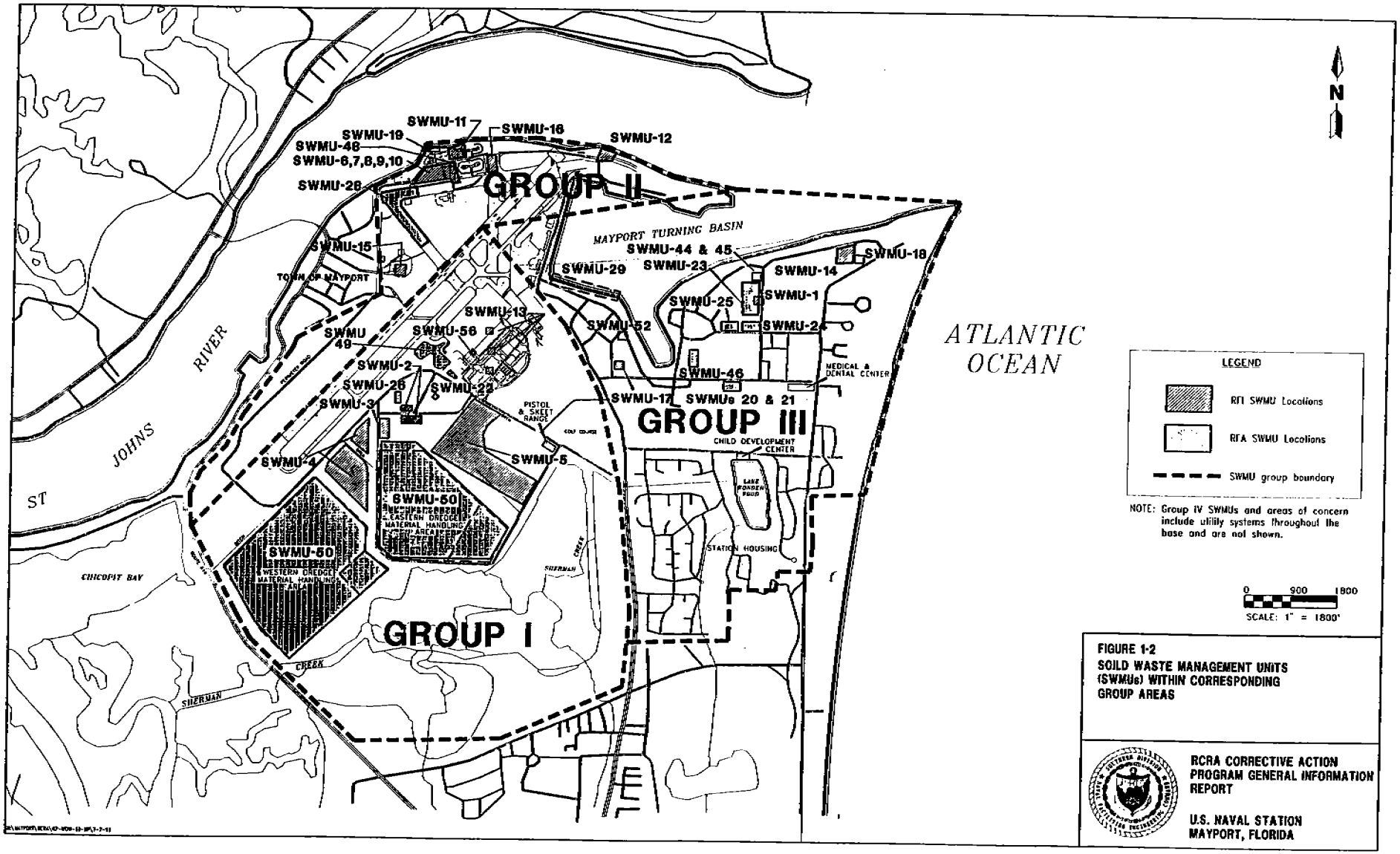

FIGURE 1-2
SOLID WASTE MANAGEMENT UNITS (SWMUs) WITHIN CORRESPONDING GROUP AREAS

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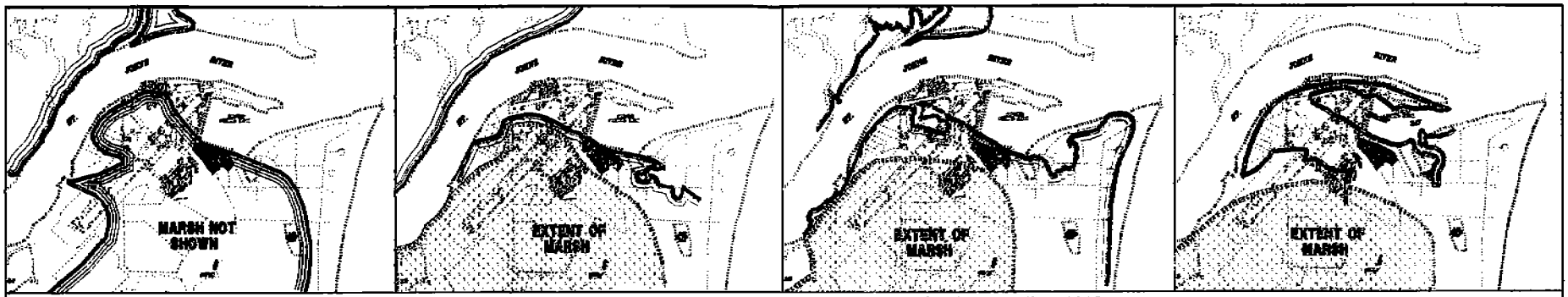


Approximate Shoreline 1822

Approximate Shoreline 1853 and Extent of Marsh

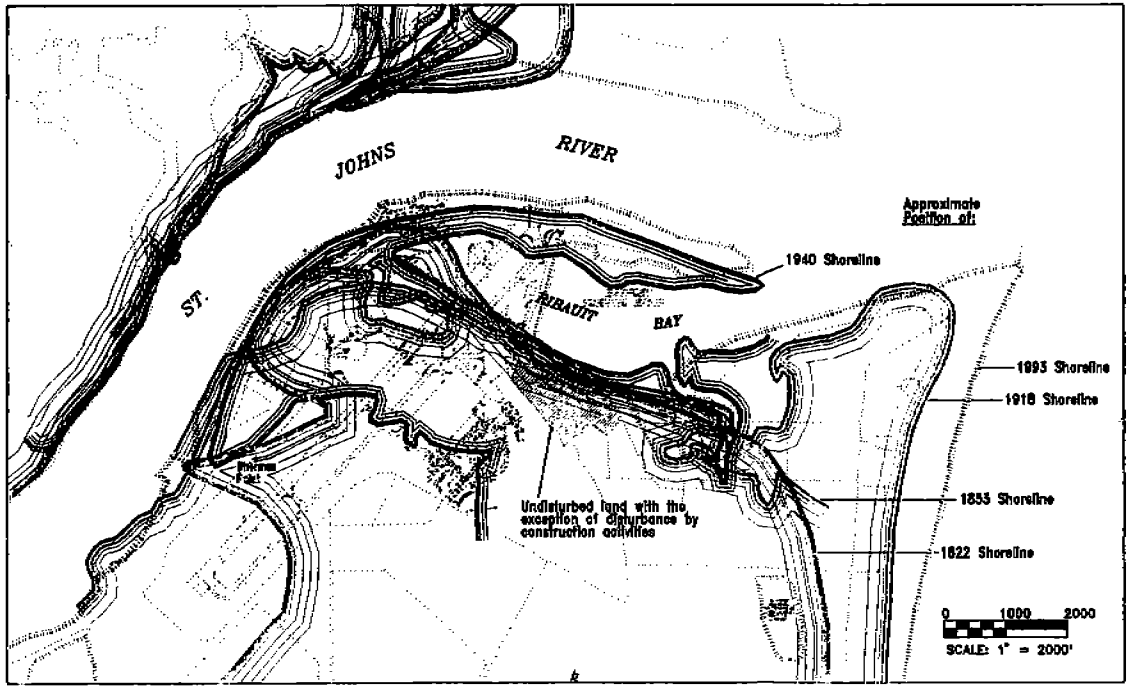
Approximate Shoreline 1918 and Extent of Marsh

Approximate Shoreline 1940 and Extent of Marsh

Scale for Small Maps

0 2250 4500

SCALE: 1" = 4500'



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Reference	
Map of 1822	Based on maps developed during early British occupation of the area.
Map of 1853	U.S. Coast Survey map.
Map of 1918	U.S.G.S. map
Map of 1940	Based on a composite map of NAVSTA Mayport, developed by NAVSTA Mayport Public Works Librarian/Historian

FIGURE 1-9
PREVIOUS LAND FEATURES SHORELINES AND ENVIRONMENTS

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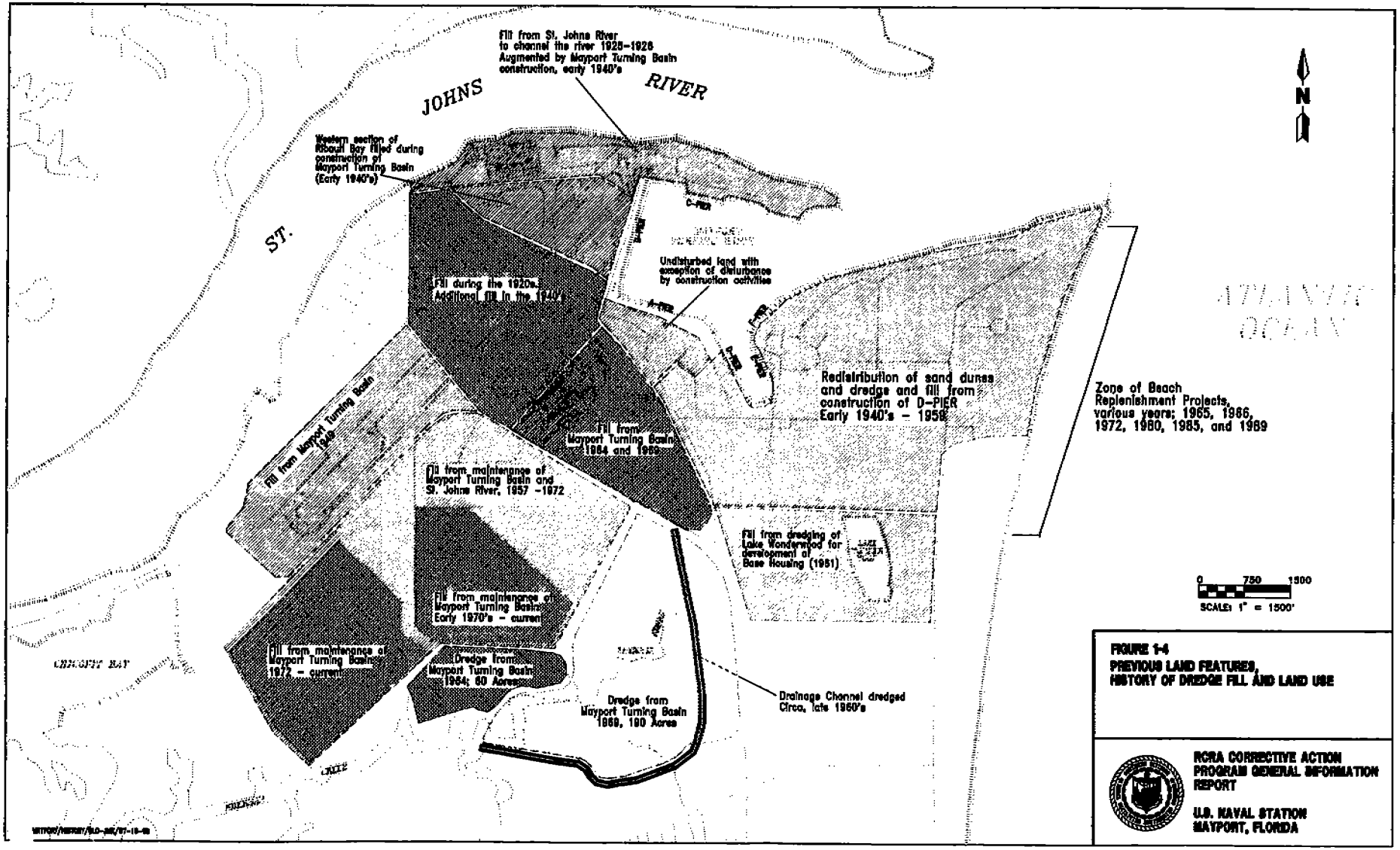

FIGURE 1-4
PREVIOUS LAND FEATURES, HISTORY OF DREDGE FILL AND LAND USE

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had facilities at NAVSTA Mayport: Jacksonville Shipyards, Inc. (JSI); North Florida Shipyards, Inc. (NFI); and Atlantic Marine, Inc (AMI). Currently, only NFI and AMI conduct maintenance work onboard ships while they are docked at the piers surrounding Mayport Turning Basin, as well as work on removable parts at their facilities. NADEP conducts maintenance operations on aircraft launching and arresting systems in its own building on station.

Aircraft maintenance is largely conducted in the hangar buildings by squadron personnel. In addition to the ship and aircraft support activities, the station maintains housing and recreational facilities for the active duty personnel and their families.

Wastes generated by the station are those normally associated with ship, on-shore maintenance, and flight operation activities. Wastes generated and disposed of at the station include waste oils, fuels, lubricants, solvents, paints, and general refuse associated with ship, aircraft, vehicle, and building maintenance activities. From 1942 to 1979, all wastes were disposed of in landfills on the station. Some of the landfilled wastes were burned at the site to reduce their volume. Additionally, some waste oils were used for mosquito control around the station. From 1979 to 1994, all burnable wastes were incinerated in a carbonaceous fuel boiler. Incinerator ash, unburnable debris, construction rubble, and large scrap materials were landfilled on the base until early 1985, when all onsite landfills were closed.

1.4 EXISTING SITE CONDITIONS. The following subsections present a summary of existing conditions common to all SWMUs located at NAVSTA Mayport.

1.4.1 Geography, Demography, and Land Use NAVSTA Mayport lies on the south bank of the St. Johns River at its confluence with the Atlantic Ocean, formerly the site of Ribault Bay (Figures 1-3 and 1-4). Parts of Ribault Bay were dredged for construction of the Mayport Turning Basin. Other areas of the bay were filled to accommodate on-shore construction. Most of the station located west of Route A1A and south of the dredge material holding areas comprise coastal marsh and tidal creeks.

Demography. Demographic information about NAVSTA Mayport was obtained from the 1993 shareholders' report for Naval Station Mayport and from observation during base tours. During several visits, information about base housing, the number of naval personnel and dependents living on base, the Child Development Center, the station clinic, recreational areas, and general base activities was collected (NAVSTA, 1993).

Mayport Naval Station employs more than 13,000 active duty men and women. As of 1994, 18 U.S. Navy ships are based at Mayport. These ships consist of an aircraft carrier, seven guided missile cruisers, two destroyers, seven guided missile frigates, a mine countermeasures ship, and five helicopter squadrons (NAVSTA, 1993).

The installation encompasses 3,401 acres, of which half (approximately 1,667 acres) is brackish marsh, sand spits, beach (vegetated and nonvegetated), and dredge material holding areas primarily located southwest of the main station area. Other land-use types on NAVSTA Mayport include regularly mown lawns, roadsides, and a golf course (527 acres); irregularly mown road and runway

shoulders (420 acres); buildings and pavement (387 acres); and managed forest (285 acres). The station also has one 20-acre freshwater lake, Lake Wonderwood (NAVSTA, 1993).

Information obtained from NAVSTA Mayport base housing personnel indicates that the average age on base is approximately 30 to 32 years for adults (NAVSTA, 1993). There are approximately 13,618 dependents on base, including 7,168 spouses and 4,796 children (approximately 1.9 children per family). On average, people are stationed at NAVSTA Mayport for 2 to 3 years. However, the period people actually live on base is approximately 2 years because personnel are usually placed on the base housing waiting list for 1 year. Approximately 681 housing units are located in the residential area that encircles Lake Wonderwood, located in the southeast area of the station (NAVSTA, 1993).

Observations during previous work in the base housing area indicate many young children live in the area. Evidence of children playing in the housing area includes bicycles, toys, and swing sets. The Child Development Center is located on Moale Avenue on Lake Wonderwood's north shore. The center is typically in operation 290 days of the year and has an approximate capacity of 251 children.

A Bachelor Officers and Enlisted Quarters area consists of 1,646 units located in the east central area of the station. The station's hospital branch medical and dental clinic is located on Massey Avenue. The medical and dental clinics provide all major health care programs to active duty Navy personnel, their dependents, and retired military personnel.

Recreational areas are scattered across the station, but most are located on the eastern side. The dominant recreational feature is a 160-acre 18-hole golf course, which spans the station. Other major features are found in a central recreational area that includes 6 baseball fields, 11 tennis courts, and a soccer and football field encircled by a 440-yard track. Individual baseball, basketball, and volleyball recreational areas are scattered across the station. An outdoor nature and fitness trail with 20 associated stationary exercise equipment stations encompasses the western, southern, and eastern shore of Lake Wonderwood and extends over many other areas of the station. Pistol and skeet ranges are located on the western edge of the station. Picnic areas at several locations on the station are provided with outdoor cooking facilities. Over 1 mile of recreational beach borders the eastern station boundary (NAVSTA, 1993).

People fish for both personal consumption and bait along the tidally influenced drainage features that flow into Sherman Creek along U.S. Highway A1A (Figure 1-2). Primary fishing locations at NAVSTA Mayport include a tidally influenced drainage ditch located west of Lake Wonderwood and a tidally influenced drainage ditch that borders the western edge of the golf course. People have also been observed fishing in Sherman Creek from boats and from the Highway A1A bridge that crosses over Sherman Creek. Surf fishing is commonplace along the Atlantic Ocean shore and along the jetties that line the Mayport Turning Basin entrance channel. Naval personnel are frequently seen fishing from the turning basin retaining wall and from berthed ships (NAVSTA, 1993).

Direct access to SWMUs by unauthorized personnel is typically limited either by fencing to prevent unauthorized access or distance from common use areas.

1.4.2 Physiography and Topography NAVSTA Mayport is situated in the southeastern Coastal Plain physiographic province. The topography of the Coastal Plain in northeastern Florida is controlled by a series of ancient marine terraces, which formed during the Pleistocene when sea level was higher than at present (Leve, 1966). Seven terraces are located in northeast Florida. Moving from west to east and decreasing in elevation, these terraces are the Coharie, Sunderland, Wicomico, Penholoway, Talbot, Pamlico, and Silver Bluff terraces. NAVSTA Mayport lies upon remnants of the Pamlico and the Silver Bluff terraces, which form a low coastal plain throughout most of the central and eastern part of northeast Florida. Elevations of these terrace ridge remnants in the vicinity of NAVSTA Mayport range from slightly above msl to 25 feet above msl. The original terrace sediments at NAVSTA Mayport have been modified by sand dune development, stream erosion, and especially by the dredging and filling activities at the station (Figures 1-3 and 1-4).

The land surface exhibits little relief, and elevations on station range from about 0 to 30 feet above msl. Most of NAVSTA Mayport has been filled with dredge material resulting from the construction and maintenance of Mayport Turning Basin. The elevations of the runways are higher than most of the surrounding land to provide drainage, and they serve as a topographic drainage divide between the southeast and northwest areas of the station.

1.4.3 Climate NAVSTA Mayport is located in the northeastern part of Duval County on the Atlantic Coast. Duval County is in the temperate zone, 7 degrees latitude north of the torrid zone, resulting in a climate that tends to be more tropical than temperate. The area is located near the northern boundary of the trade winds, which dominate summer season climate patterns. During winter months, the southerly penetration of the North American Polar Front jet stream dictates the number and intensity of polar air mass penetrations into Florida. Table 1-1 summarizes important weather measurements for the Jacksonville area for the 30-year period between 1941 to 1970 (National Ocean and Atmospheric Administration [NOAA], 1979).

The atmosphere is moist with an average relative humidity of about 75 percent, ranging from about 90 percent in the early morning hours to about 55 percent during the afternoon. The average daily sunshine varies from 5.5 hours in December to 9.0 hours in May (NOAA, 1983).

Jacksonville's temperatures are more varied than in the more subtropical parts of peninsular Florida. The annual mean temperature for Jacksonville is approximately 68 degrees Fahrenheit (°F) (20 degrees Celsius [°C]). June, July, and August are the hottest months, with temperatures averaging near 80 °F (27 °C); December, January, and February are the coolest months, with mean temperatures near 59 °F (15 °C) (NOAA, 1983). Extreme high temperatures are normally associated with low rainfall and drought conditions. Temperatures in excess of 86 °F (30 °C) are not common in winter months, but have occurred at some time during the 30-year recording period in every month from May through September. The highest temperature recorded in Jacksonville, 40.6 °F (°C), occurred in July 1942.

Mean annual precipitation for the area is 54.5 inches (138.4 centimeters [cm]) (NOAA, 1983). From November to February, monthly rainfall normally ranges between 2 and 3 inches (5 and 7 cm); however, monthly accumulations of 7 inches (17.8 cm)

Table 1-2
Aggregate Weather Measurements for Duval County and Vicinity (years between 1941 and 1970)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Measurement		Value
Temperature	°F	°C
January		
Daily maximum	64	18.1
Daily minimum	44	6.9
July		
Daily maximum	90	32.2
Daily minimum	68	20.2
Annual Extremes		
Length of record (years)		38
Record highest	105	40.6
Record lowest	12	-11.1
Normal heating degree days		Days
January		19.3
Seasonal		73.7
Wind speed	mph	m/Sec
Mean speed		
January	8.5	3.8
July	7.4	3.3
Relative humidity		Percent
January		
7 a.m. EST		87
1 p.m. EST		57
7 p.m. EST		74
July		
7 a.m. EST		88
1 p.m. EST		58
7 p.m. EST		75

Measurement		Value
Precipitation	Inches	Centimeters
Normal		
Wettest month		20.0
Driest month		4.5
Annual		138.4
Extremes		
Wettest month		49.2
Driest month		trace
Maximum in 24 hours		25.8
Snow	Inches	Millimeters
Mean total		
January	3	trace
Seasonal	3	trace
Extremes		
Maximum in 24 hours	1.5	38
Sunshine (percent possible)		
January		57
July		61
Annual mean number of Days		Days
Sunrise to sunset		
Clear		98
Partly cloudy		127
Cloudy		140
Precipitation		
0.25 mm or more		116
Snow, sleet, or hail		
0.25 mm or more		0
Thunderstorms		64
Heavy fog		37
Temperature		
>32.2 °C		81
<= 0 °C		14
<= -17.9 °C		0

Source: National Oceanic and Atmospheric Administration (1979; 1983).

Notes: °F = degrees Fahrenheit.
°C = degrees Celsius.
mph = miles per hour.
m/sec = meters per second.
EST = Eastern Standard Time.
mm = millimeter.

to more than 11 inches (27.9 cm) have occurred during this period. Jacksonville's rainy season is from June to September with monthly rainfall accumulations typically between 6 and 8 inches (15.2 and 20.3 cm). Extreme accumulations of 13 inches (33 cm) to more than 19 inches (48.3) cm per month have occurred; however, these extremes are generally associated with the passage of tropical storms. Rainfall of 1 inch (2.5 cm) or more in 24 hours normally occurs 14 times a year (NOAA, 1983).

Prevailing winds are northeasterly in the fall and winter months, and southwesterly in spring and summer (NOAA, 1983). The annual mean wind speed is about 9 miles per hour (mph) or 4 meters per second (m/sec). Wind speeds of less than 12 mph (5.4 m/sec) can be expected 99 percent of the time. Although Jacksonville lies within the Hurricane Belt, it has been fortunate in escaping hurricane-force winds, with the exception of Hurricane Dora in 1964, which produced winds of 82 mph (132 kilometers per hour [k/hr]) (NOAA, 1983).

Snow has fallen in measurable amounts twice since 1871: 1.9 inches (48 millimeter [mm]) in 1899, 1.5 inches (38 mm) in 1958, and 6 inches (152 mm) in 1989. Sleet and freezing rainstorms, likewise, have only been recorded twice: once in 1879 and during a 16-hour storm in 1962 (NOAA, 1983).

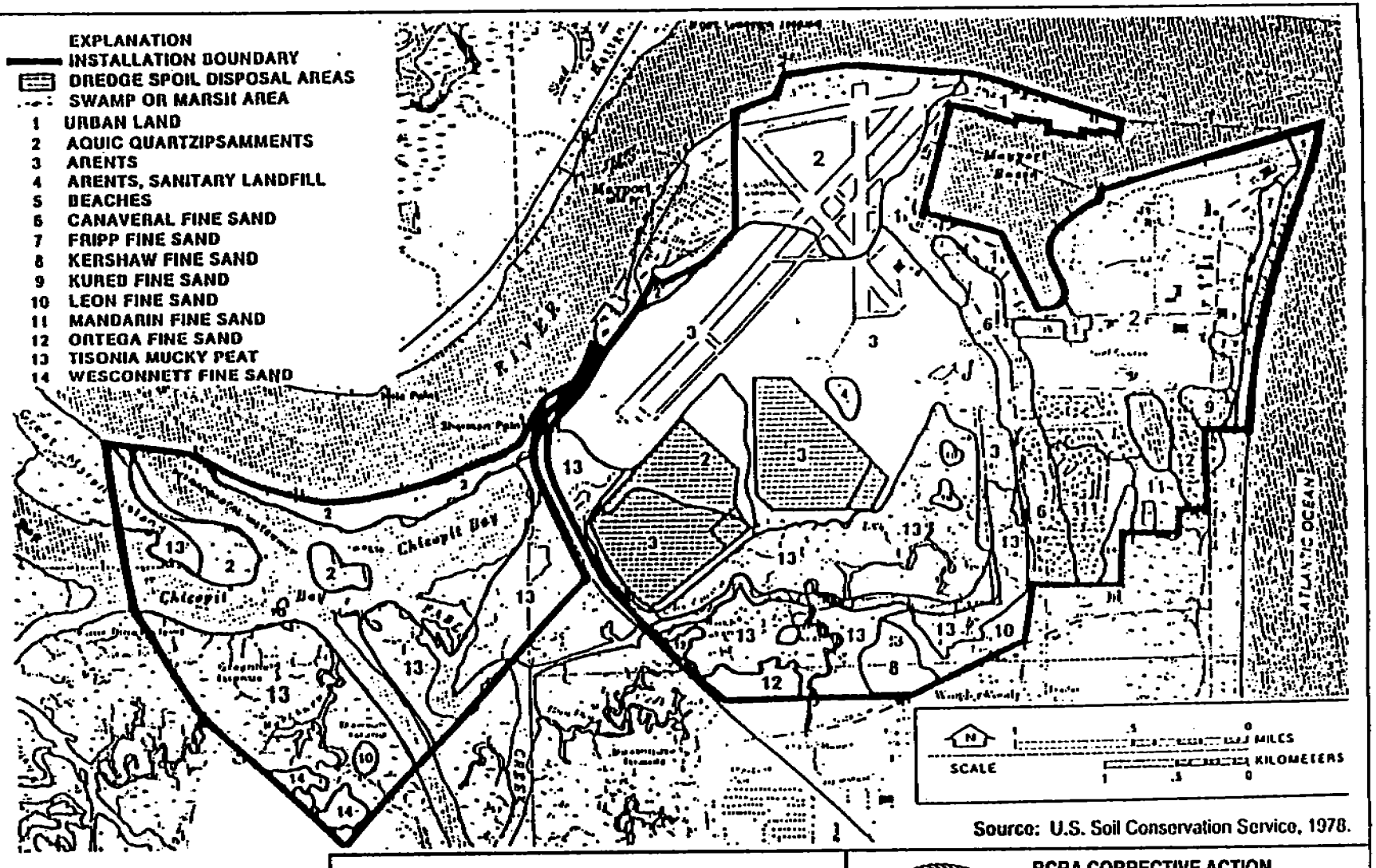
1.4.4 Soil Types In the vicinity of NAVSTA Mayport, soil types consist predominantly of sand, shell, and clay with organic peat in the salt marsh areas. These soil types are not natural native residual soil, but disturbed soil developed since dredging. Most of NAVSTA Mayport has been built up by dredge material derived from the St. Johns River and the Mayport Turning Basin (Figures 1-3 and 1-4). The dredge materials include sand, silt, and clay. The following soil descriptions by the U.S. Department of Agriculture, Soil Conservation Services may not represent the soil developed from dredge materials found at NAVSTA Mayport.

According to the U.S. Department of Agriculture, Soil Conservation Service (USSCS) survey (USSCS, 1978) for the City of Jacksonville, Duval County, Florida, 14 soil types are recognized in the immediate vicinity of NAVSTA Mayport (Figure 1-5). These soil types can be placed into three groups:

- soil of the sand ridges,
- soil of the tidal marsh, and
- soil of the flatwoods.

Soil Types of the Sand Ridge. Soil types of the sand ridges are sandy to a depth of 80 inches or more and are well drained, occurring on nearly level to moderately steep terrain. At NAVSTA Mayport, these soil types cover approximately two thirds of the station and have been filled or reworked by dredging and earth moving operations. At the station, sand ridge soil types are represented by Aquic Quartzipsamments, Arents and sanitary landfill Arents, and several soil series composed of fine-grained sand, including beach sand, Mandarin fine sand, Fripp fine sand, and Canaveral fine sand (USSCS, 1978).

Aquic Quartzipsamments is sandy soil that is variable in composition. Thicknesses of layers range from 2 to 12 feet and, under natural conditions, the soil has very rapid permeabilities. Arents soil is nearly level, poorly drained soil that has been altered by earth-moving operations. Layers of this soil are typically 2 to 20 feet thick, variable in permeability, and consist of mixed soil material, fine



Source: U.S. Soil Conservation Service, 1978.

FIGURE 1-5

SOIL TYPES FOUND ON NAVAL STATION MAYPORT

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-grained sand, sandy loam, and sandy clay loam (USSCS, 1978). Sanitary landfill Arents soil is similar to Arents but is distinguished by the fact that it overlies sanitary landfill cells.

Beach soil consists of narrow strips of nearly level sand along the Atlantic Ocean. Compositionally it is a mixture of quartz sand, heavy minerals (i.e., rutile and ilmenite), and seashell fragments. The Mandarin fine sand is a nearly level, somewhat poorly drained soil found on narrow to broad ridges slightly higher than the adjacent flatwoods. The soil is composed of fine-grained sand with organic coatings and exhibits moderate to rapid permeabilities (Environmental Science and Engineering [ESE], 1986).

Fripp fine sand is a gently sloping to sloping, excessively drained soil on narrow to broad ridges along the Atlantic Coast. Generally, the surface 6 inches is fine-grained sand that changes to fine-grained sand containing horizontal bands of black, heavy minerals below 6 inches. Permeability is rapid throughout the soil. Canaveral fine sand is a nearly level to gently sloping, well to poorly drained soil on a broad ridge near the Atlantic Coast. Permeability is very rapid and the soil consists of fine-grained sand that grades to a mix of fine-grained sand and shell fragments.

Soil Types of the Tidal Marsh. Soil types of the tidal marsh cover approximately one third of the remainder of NAVSTA Mayport and generally occur in broad expanses of tidal marsh. At NAVSTA Mayport, this soil is represented by the Tisonia mucky peat, which is underlain by clay at approximately 6 to 14 feet below land surface (bls). Tidal marsh soil types are nearly level and poorly drained; permeability is rapid in the peat and very slow in the clay.

Soil Types of the Flatwoods. Soil types of the flatwoods are sparse at NAVSTA Mayport and are represented by the Wesconnet fine sand found adjacent to the tidal marshes. This soil occurs on nearly level to gently sloping terrain, is very poorly drained, and is typically composed of a thin, black, fine-grained sand layer underlain by fine-grained sand. Permeabilities are moderate to rapid.

1.4.5 Regional Geology This subsection of the report provides regional geologic information. NAVSTA Mayport or SWMU-specific geologic information is presented in Chapter 3.0 of this report and subsequent RFI and confirmatory sampling reports.

In northeastern Florida, the distribution of sediments is controlled by the Ocala Platform, St. Johns Platform, and the Nassau Nose (Figure 1-6). NAVSTA Mayport lies at the boundary of these platforms in the Jacksonville Basin (Scott, 1988). More than 1,500 feet of Eocene and younger age sediments were deposited in the region underlying the station.

The limestones of Eocene age composed of the Ocala Group are the principal consolidated formations of concern near Mayport (Figure 1-7). The limestone formations of Eocene age in the western part of Duval County, sloping northeastward, and in the eastern part of the county, sloping northwestward, form an irregular trough or basin extending from south-central Duval County northeastward into northeastern Nassau County (Leve, 1966).

The underlying geologic sequence consists of flat-lying unconsolidated deposits of sand, silt, and clay overlying a thick sequence of marine carbonates.

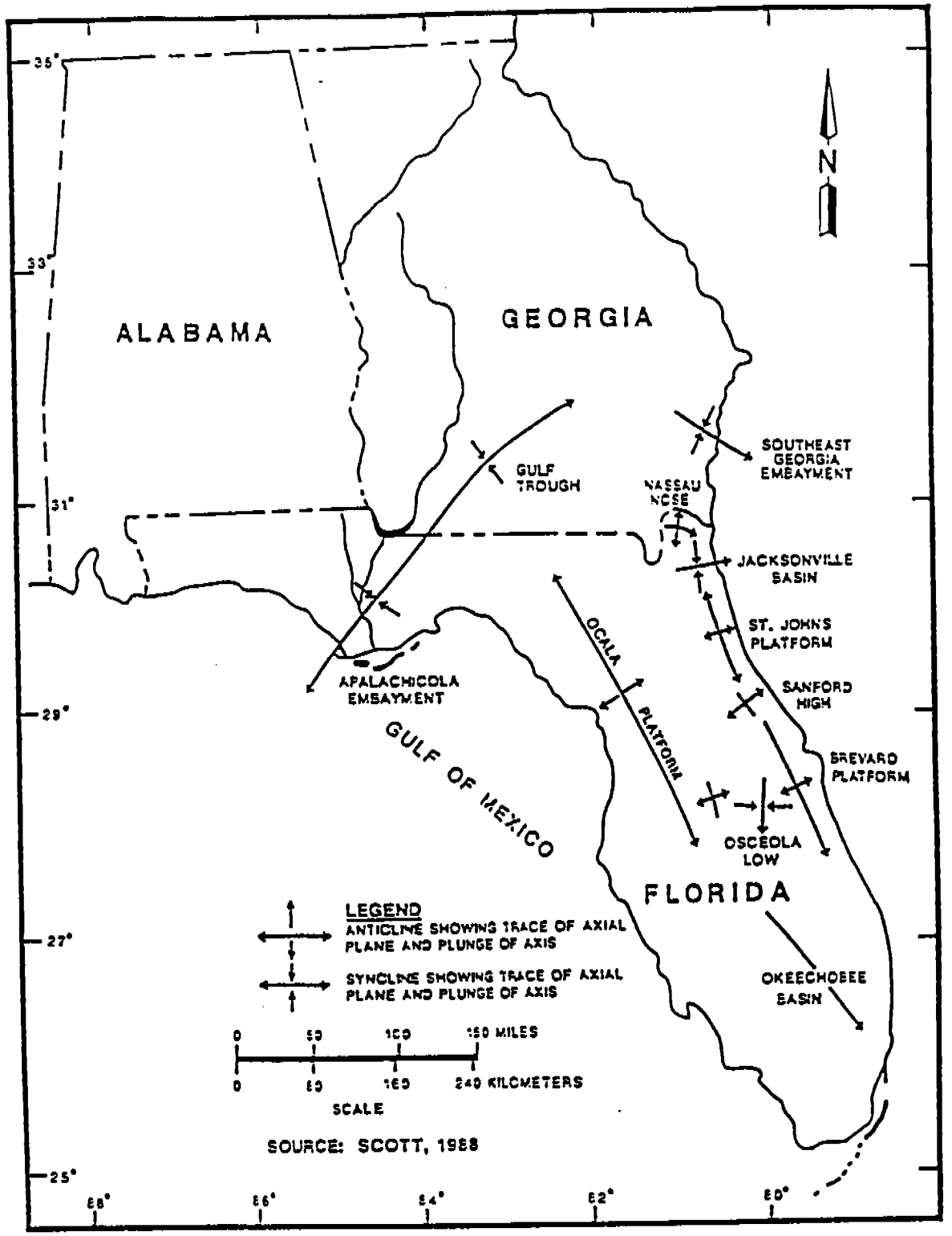

FIGURE 1-6

STRUCTURES AFFECTING SEDIMENT DEPOSITION

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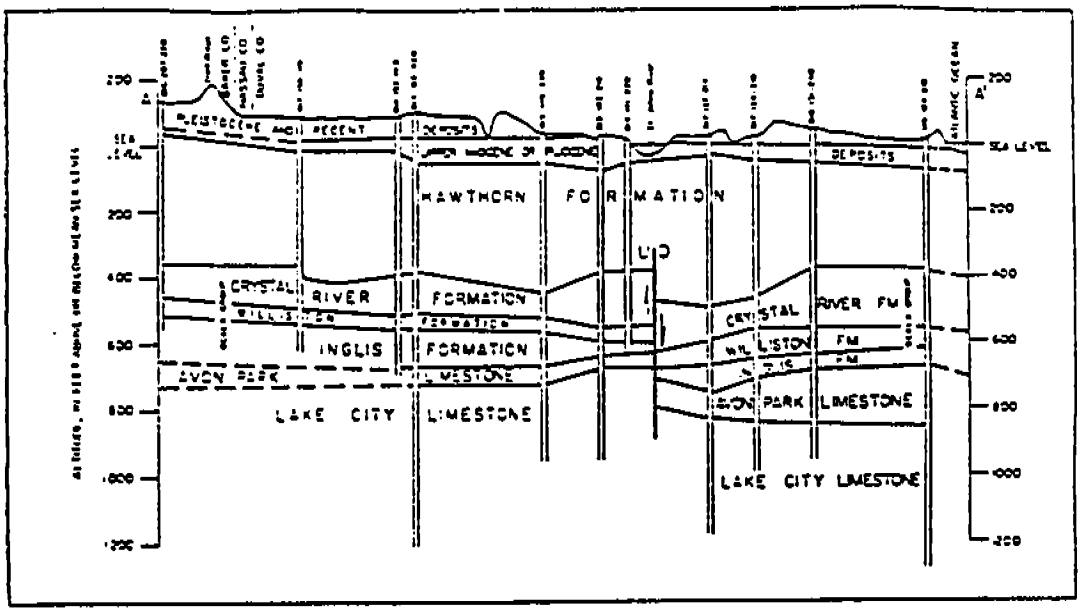

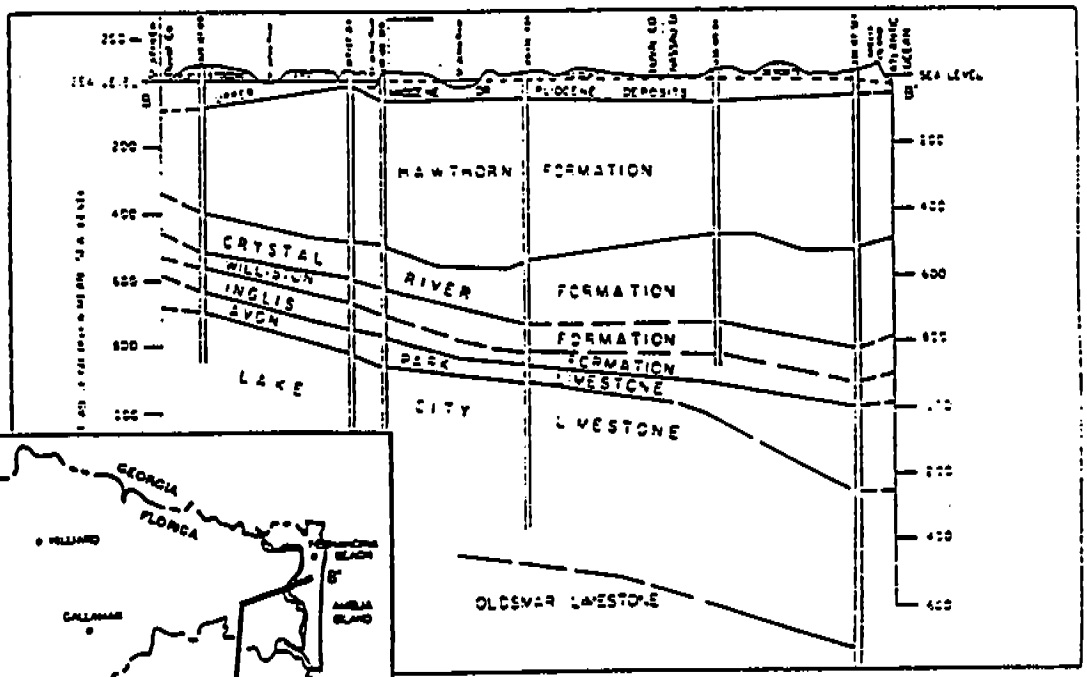

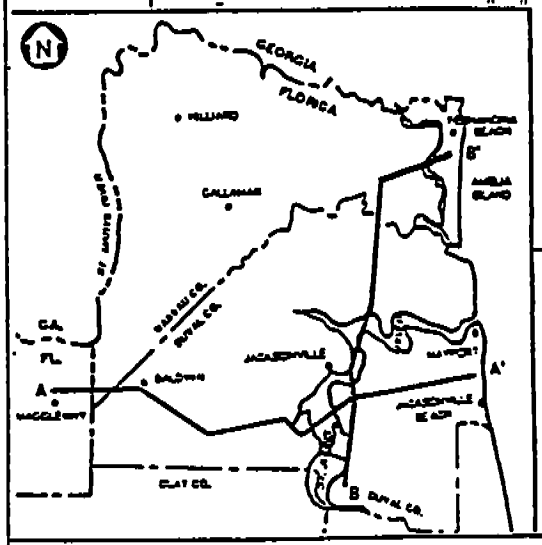

SOURCE: LEVE, 1966

FIGURE 1-7

GEOLOGIC CROSS SECTIONS SHOWING GEOLOGIC FORMATIONS IN DUVAL AND NASSAU COUNTIES, FLORIDA

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Essentially, there are three discernible geologic units underlying the station as described below (Figure 1-8).

- Surficial deposits form a unit approximately 40 to 100 feet thick and are of Recent to late Miocene age.
- The Hawthorn Group is approximately 300 feet thick and of middle Miocene age.
- Marine carbonate sequences of the Floridan aquifer system are of Eocene age and comprise a unit greater than 1,000 feet thick.

These geologic units are described in more detail in the following subsections.

1.4.5.1 **Surficial Deposits** The surficial deposits consist of sediment of Recent to late Miocene age. These deposits can be divided into undifferentiated sediment of Pleistocene and Recent age and sediment of late (upper) Miocene and Pliocene age. The sediment was deposited in lagoon and estuarine environments. The Recent and Pleistocene age sediment extends from the surface to about 100 feet below land surface (bls). These highly variable sediments include sand, shelly sand, coquina, silt, clay, and shell beds. The upper Miocene and Pliocene sediment consists of silty clay, clay, and clayey sand.

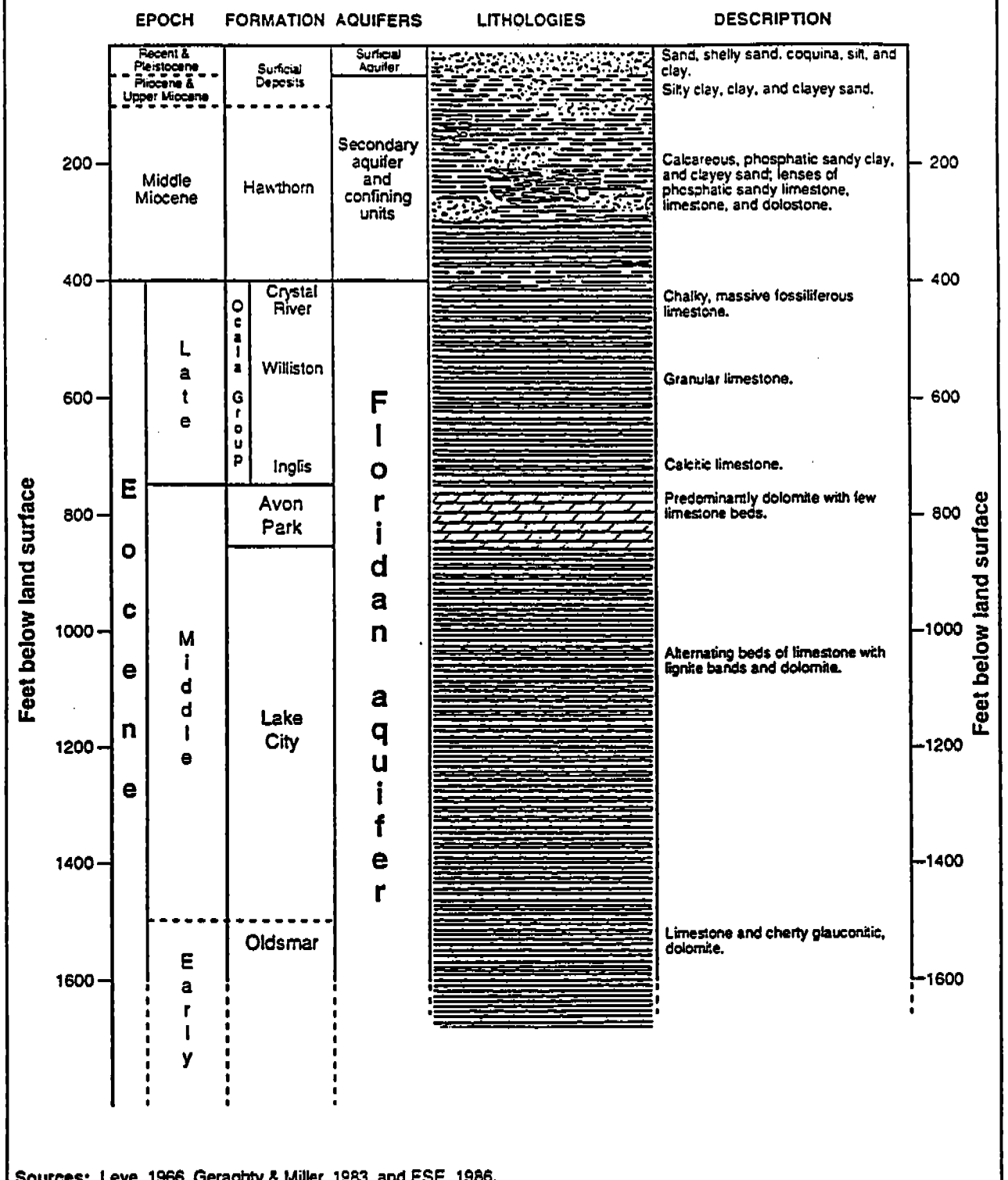
The contact between the upper Miocene and Pliocene deposits and the underlying Hawthorn Group is an unconformity marked by a coarse phosphatic sand and gravel bed (Leve, 1966), which is interpreted to be the Coosawhatchie Formation (Scott, 1988).

1.4.5.2 **Hawthorn Group** Lithologically the Hawthorn Group is quite variable and consists of calcareous, phosphatic sandy clays and clayey sands interbedded with thin discontinuous lenses of phosphatic sand, phosphatic sandy limestone, limestone, and dolostones (Leve, 1966).

The limestone and dolostone lenses are thicker and more prevalent near the base of the Hawthorn. The permeable sand and limestone layers within the Hawthorn's confining clay form the secondary artesian aquifer. The Hawthorn Group serves as a confining layer that separates the shallow aquifer from the underlying Floridan aquifer system. It lies unconformably above the Ocala Group (Crystal River Formation) (Leve, 1966).

1.4.5.3 **Marine Carbonate Sequence (Floridan Aquifer System)** The marine carbonate sequences that make up the Floridan aquifer system beneath NAVSTA Mayport consist of the following formations in descending order:

- the Ocala Group, which consists of the Crystal River Formation, the Williston Formation, and the Inglis Formation;
- the Avon Park Limestone;
- the Lake City Limestone; and
- the Oldsmar Limestone.



Sources: Leve, 1966, Geraghty & Miller, 1983, and ESE, 1986.

FIGURE 1-8

GENERALIZED GEOLOGIC COLUMN

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These formations range in age from the late Eocene Crystal River Formation to the early Eocene Oldsmar Limestone.

The Crystal River Formation is a white to cream, chalky, massive fossiliferous limestone and is the youngest Eocene formation underlying NAVSTA Mayport. The Williston Formation, which lies conformably between the overlying Crystal River Formation and the underlying Inglis Formation, is a tan to buff granular limestone. The Inglis Formation, of early late Eocene age, is lithologically a tan to buff calcitic limestone that is very similar to the Williston Formation (Leve, 1966).

The Avon Park Limestone, of late middle Eocene age, unconformably underlies the Ocala Group. It consists of alternating beds of tan, hard, massive dolomite and brown to cream, granular, calcitic limestone. The Lake City Limestone unconformably underlies the Avon Park Limestone and is early middle Eocene in age. Lithologically, it consists of alternating beds of white to brown, chalky to granular limestone with lignite bands and gray to tan dolomite. Below the Lake City Limestone is the Oldsmar Limestone of early Eocene age. It consists of a cream to brown, soft, granular limestone and cherty, glauconitic, massive to finely crystalline dolomite (Leve, 1966).

1.4.6 Regional Hydrology The following subsections describe general information available for surface water and groundwater in the vicinity of NAVSTA Mayport.

1.4.6.1 **Surface Water** NAVSTA Mayport is situated at the mouth of the St. Johns River on the south bank (Figure 1-2). Average discharge of the St. Johns River is estimated to be between 6,000 and 8,300 cubic feet per second (ft^3/sec) or about 3,900 million gallons per day (mgd) (Heath and Conover, 1981). The station is bordered on the east by the Atlantic Ocean and to the north and northwest by the St. Johns River. To the south and southwest, an extensive tract of tidal marsh exists within the boundaries of the station.

The station has one manmade, freshwater lake, Lake Wonderwood, located in the base housing area. Lake Wonderwood occupies approximately 20 acres and was created to provide fill for the adjacent housing area. The lake has a depth of approximately 20 feet and is used by NAVSTA Mayport personnel for recreation.

The other dominant surface water feature at NAVSTA Mayport is the Mayport Turning Basin. The turning basin was constructed during the early 1940's by dredging the eastern part of Ribault Bay (Figure 1-3). Dredge material was used to fill parts of Ribault Bay and other low-lying areas in order to elevate the land surface. The Mayport Turning Basin was originally dredged to a depth of 29 feet, and in 1952 the basin was deepened to a depth of 40 feet to provide access to larger ships. The 1952 dredge material was used to fill other topographic low areas of the station (Figure 1-4).

Surface runoff from NAVSTA Mayport enters Mayport Turning Basin, the St. Johns River, Lake Wonderwood, Sherman Creek, Pablo Creek, Chicopit Bay, and the Atlantic Ocean. Aircraft runways provide a topographic drainage divide between the northwest and southeast parts of the station. To the north, soil along the St. Johns River tends to be very sandy and to have high infiltration capacities. In this area there is little surface runoff, and few drainage features are evident.

To the south of the runways, dredge materials are underlain at shallow depths by less permeable silty clay deposits, and the topography is flatter and lower in elevation. The predominant drainage feature in this area is Sherman Creek.

The St. Johns River is the major freshwater surface feature near Mayport. The lower St. Johns River averages about 1 mile in width and flows along a floodplain that in places exceeds a width of 10 miles. The river is strongly affected by tides; storage capacity of the main channel is high because of the size of the stream, the low gradient, the wide floodplain, and upstream lakes. The range in stage, which averages 8.3 feet, represents considerable volumes of water temporarily held in storage over the broad, flat floodplain, prior to discharge into the Atlantic Ocean (Heath and Conover, 1981).

Tidal action in the lower reaches of the St. Johns River makes the determination of flow characteristics difficult. Average annual discharge is 8,300 ft^3/sec, based on average unit runoff values determined in upstream and downstream flow measurements, with maximums to 130,000 ft^3/sec (Heath and Conover, 1981).

Surface water of the St. Johns River around Mayport is classified as Class III water for Recreation, Propagation, and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife (Chapter 17-302.560, Florida Administrative Code [FAC]).

1.4.6.2 **Surficial Aquifer** The surficial aquifer extends to a depth of approximately 100 feet bls (Causey and Phelps, 1978; Franks, 1980). It is composed of unconsolidated deposits of sand, shell, and clay, which vary horizontally and vertically in lithology, thickness, and permeability. The surficial aquifer consists of sediments of the Upper Hawthorn Group (middle Miocene age), upper Miocene and Pliocene deposits, and Pleistocene and Holocene deposits.

The surficial aquifer in Duval County is recharged by local precipitation at an estimated rate of 10 to 16 inches per year (Fairchild, 1972). Discharge is by pumpage, outflow from springs, downward percolation, evapotranspiration, and discharge to surface water bodies.

Causey and Phelps (1978) report that the surficial aquifer under most of Duval County is composed of an upper and a lower zone that are separated by deposits of lower permeability at a depth from 25 to 50 feet bls. Franks (1980), however, found no evidence of this confining bed in the central part of NAVSTA Mayport. ABB-ES data supports Franks' (1980) initial observation.

Throughout much of NAVSTA Mayport, groundwater flow in the surficial aquifer is generally toward the major surface water features. These water bodies include the Atlantic Ocean to the east, the St. Johns River to the north and west, and Sherman Creek to the south.

Geraghty & Miller (1983), citing the work of Causey and Phelps (1978), report that groundwater in the surficial aquifer at NAVSTA Mayport is fresh in the upper part but becomes brackish below a depth of 40 feet. This phenomenon was also confirmed by Frazee and McClaugherty (1979) in other areas near NAVSTA Mayport.

1.4.6.3 **Intermediate Hawthorn Aquifer** The intermediate Hawthorn aquifer consists of sand and limestone layers interbedded in clayey sand and sandy clay of the Hawthorn Group and is situated between the surficial aquifer and the underlying Floridan aquifer system. Spechler (1982) noted that the most productive zone, a limestone layer in the upper part of the Hawthorn, is notably absent in the Mayport area. The intermediate Hawthorn aquifer may be in hydraulic connection with the surficial aquifer.

Recharge to the intermediate Hawthorn aquifer occurs primarily from precipitation, in areas approximately 30 miles to the west of the NAVSTA Mayport site in Baker and Clay Counties where Hawthorn Group sediment occurs at shallow depths beneath the land surface (approximately 30 feet bls). Recharge may also occur in other topographically updip areas where Hawthorn Group sediment outcrops.

Hawthorn Group sediment composed predominantly of sandy clay, silt, or clay may serve to restrict the vertical movement of the water such that artesian conditions may develop in some areas. Discharge is by upward leakage, pumpage, and discharge to surface water bodies.

Overall, the Hawthorn Group is a complex aquiclude that acts as a confining bed to the Floridan aquifer system and retards upward movement of water from the underlying artesian Floridan aquifer system (Fairchild, 1972). Some recharge to the intermediate Hawthorn aquifer may be derived from the Floridan aquifer system. As a result, any downward percolation of water from the intermediate Hawthorn aquifer into the Floridan aquifer system would be prevented by the artesian nature of the Floridan aquifer system.

1.4.6.4 **Floridan Aquifer System** The Floridan aquifer system is the principal source of freshwater in northeast Florida. It is composed of the Oldsmar, Lake City, and Avon Park Limestones; the Ocala Group; and a few discontinuous thin water bearing zones in the lower part of the Hawthorn Group. Figure 1-7 presents a generalized geologic column for the northwest Florida region.

The Ocala Group is a homogeneous sequence of permeable, hydraulically connected, marine limestone beds containing few hard dolomite or limestone beds that restrict the vertical movement of water. The Avon Park Limestone consists almost entirely of hard, relatively impermeable, dolomite beds that restrict the vertical movement of water between the overlying and underlying permeable zones. The Lake City and Oldsmar Limestones each contain alternating hard, relatively impermeable, dolomite confining beds and soft, permeable limestone and dolomite water-bearing zones.

The top of the Floridan aquifer system occurs at a depth of about 400 feet bls at NAVSTA Mayport. Published transmissivities of the Floridan aquifer system in eastern Duval County range from approximately 85,000 to 160,000 gallons per day per foot (g/d/ft) (Leve, 1966).

Geraghty & Miller (1983) report that groundwater in the Floridan aquifer system in the vicinity of Mayport is moving southward toward areas of heavy pumpage along the coast. Floridan aquifer system wells in the vicinity of NAVSTA Mayport are under sufficient artesian pressure to flow at the surface (Leve, 1966). Water quality in the Floridan aquifer system is potable in the Mayport area. The concentration of total dissolved solids is approximately 400 milligrams per liter (mg/ℓ) and the concentration of chlorides is around 25 mg/ℓ.

The potentiometric surface of the Floridan aquifer system exists at elevations above land surface, resulting in a net upward hydraulic gradient between the Floridan aquifer system and the surficial aquifer (Geraghty & Miller, 1983). This information suggests that the intermediate Hawthorn aquifer located in the Hawthorn Group potentially receives recharge from the Floridan aquifer system.

1.4.6.5 **Inventory of Water Supply Wells** An inventory of water supply wells within 1 mile of NAVSTA Mayport was conducted in 1993 by Geraghty and Miller, Inc. Data from this survey are provided in Figure 1-9 and Table 1-3. These data suggest that there are many unused water supply wells at NAVSTA Mayport which were

abandoned by sealing with grout during an abandonment program conducted in 1974 (ESE, 1986).

NAVSTA Mayport has its own potable water supply and distribution system. The raw water is obtained from four 12-inch diameter supply wells that are approximately 1,000 feet deep, which produce from the Floridan aquifer (Refer to Figure 1-9, Wells N-1 through N-4). Individual well capacities range from 2.1 to 2.9 million gallons per day with a combined total effective capacity of 7.1 million gallons per day (U.S. Navy, 1981 and 9184).

1.5 PREVIOUS INVESTIGATIONS. The following paragraphs summarize previous environmental investigations of possible hazardous waste releases at NAVSTA Mayport.

Two investigations of SWMUs at NAVSTA Mayport were conducted under the Navy and Marine Corps Installation Restoration program (NIRP) and its predecessor, the Naval Assessment and Control of Installation Pollutants (NACIP) program. The NIRP is similar to the U.S. Environmental Protection Agency (USEPA) administered Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund) of 1980. The two studies consisted of an Initial Assessment Study (IAS) and an Expanded Site Investigation (ESI).

The IAS was conducted at NAVSTA Mayport in late 1985 (ESE, Inc, 1986). The purpose of the IAS was to identify environmental contamination resulting from past use and disposal of hazardous substances. Sites assessed by the IAS were evaluated with regard to contaminant characteristics, migration pathways, and pollutant receptors.

The IAS included a records search both at the base and at other governmental agencies followed by an onsite survey and interviews with facility personnel. Each site identified during this process was then evaluated for contaminant characteristics, migration pathways, and potential receptors. Recommendations were made regarding the need for additional investigations. The IAS identified 17 potentially contaminated sites at NAVSTA Mayport, and recommended eight for further study. The eight sites were as follows.

NIRP Site No.	Description
01	Landfill A
02	Landfill B
04	Landfill D
05	Landfill E
06	Landfill F
08	Waste Oil Pit
09	Fuel Spill Area
14	Mercury/Oily Waste Spill Site.

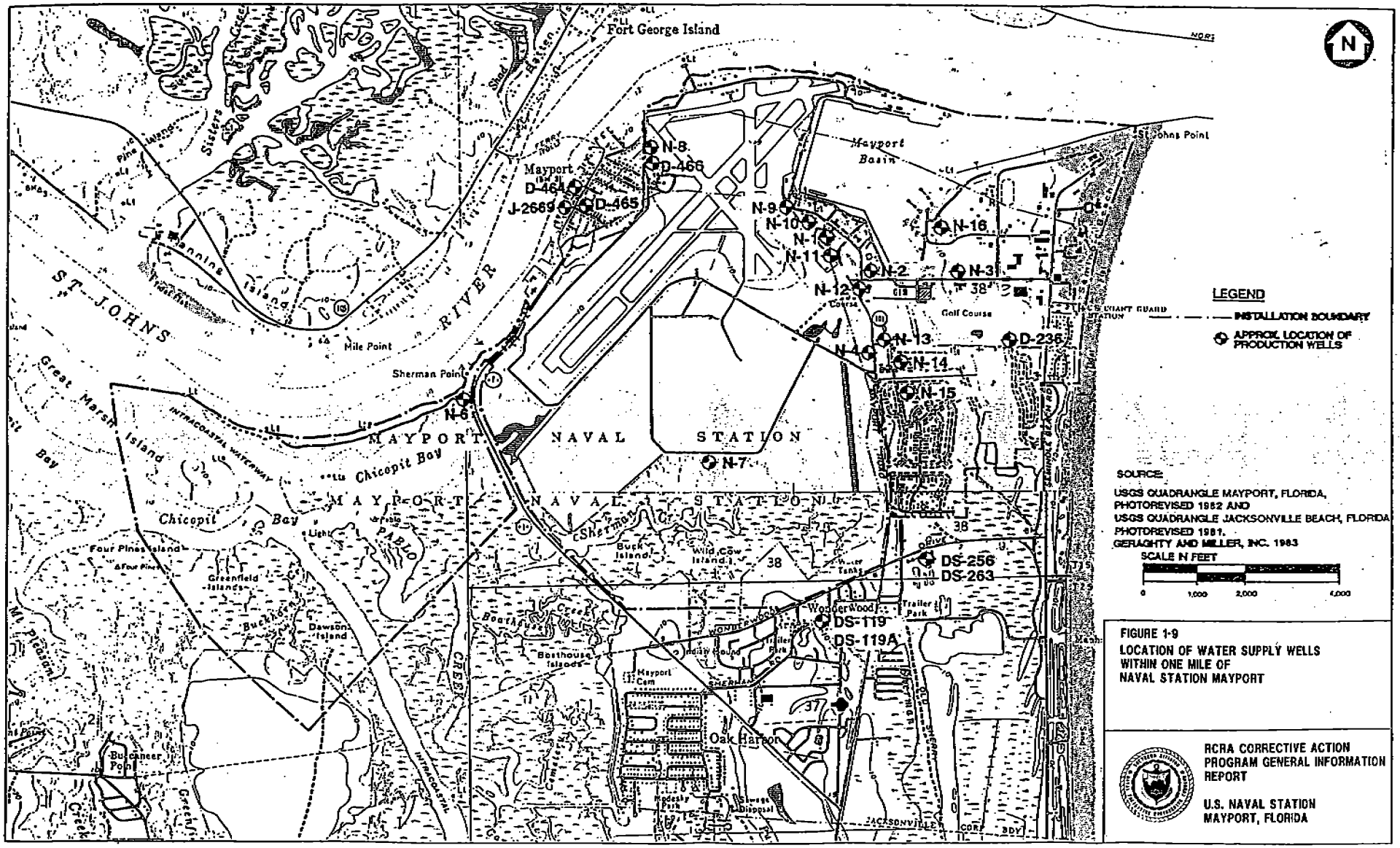

FIGURE 1-9
LOCATION OF WATER SUPPLY WELLS WITHIN ONE MILE OF NAVAL STATION MAYPORT

RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT

U.S. NAVAL STATION
MAYPORT, FLORIDA

Table 1-3
Inventory of Water Supply Wells Within 1 Mile of U.S. Naval Station

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Well Designation	Owner	Date Installed	Casing Diameter (inches)	Surface Elevation (ft msl)	Total Depth (ft)	Interval Open to Formation (ft depth)	Status
N-1	U.S. Navy	1961	12	10	1001	435-1001	In use
N-2	U.S. Navy	1956	12	10	1000	435-1000	In use
N-3	U.S. Navy	1979	16	10	1000	433-1000	In use
N-4	U.S. Navy	1979	16	10	1000	491-1000	In use
D-466	U.S. Navy	–	–	12	–	–	Plugged
D-236	U.S. Navy	1962	6	9	814	440-814	Used for irrigation
D-465	City of Jacksonville	–	–	10	–	–	Plugged
N-6	U.S. Navy	–	6	<10	–	–	Plugged
N-7	U.S. Navy	–	2	–	–	–	Plugged
N-8	U.S. Navy	–	–	–	–	–	Plugged
N-9	U.S. Navy	–	4	–	–	–	Plugged
N-10	U.S. Navy	–	–	–	–	–	Plugged
N-11	U.S. Navy	–	6	–	–	–	Plugged
N-12	U.S. Navy	–	4	–	–	–	Plugged
N-13	U.S. Navy	–	3	–	–	–	Plugged
N-14	U.S. Navy	–	3	–	–	–	Plugged
N-15	U.S. Navy	–	6	–	–	–	Plugged
N-16	U.S. Navy	–	–	–	–	–	Abandoned
N-17	U.S. Navy	–	–	–	–	–	Plugged
D-464	City of Jacksonville	1973	6	10	1219	430-1219	In use
J-2669	Private	–	3	<10	500	399-500	Unknown
DS-256	Duval County	1976	2	9	63	51-63	Monitor well
DS-263	Duval County	–	2	10	98	–	Not used
DS-119A	–	–	2	8	162	–	Unknown

Source: Hydrogeologic Assessment and Groundwater Monitoring Plan, U.S. Naval Station, Mayport Florida, by Geraghty and Miller, Inc. 1983, prepared for Southern Division, Naval Facilities Engineering Command.

Note: – = information not available or unknown.

The ESI was conducted in late 1987 (E.C. Jordan Company, 1988a). The purpose of the ESI was to determine whether specific toxic and hazardous materials were present at suspected waste disposal sites and to recommend further action if required. The ESI assessed the above listed eight sites and two additional sites based on regulatory comments on the IAS:

- NIRP Site 13, the Old Fire-Fighting Training Area; and
- NIRP Site 16, Old Transformer Storage Yard.

The ESI investigative activities included a terrain conductivity survey, 30 soil borings, installation of 28 monitoring wells, and collection and analyses of 4 surface water and sediment samples, 30 groundwater samples, and 27 soil samples. Based on evaluation of the data, the ESI recommended remedial action at NIRP Site 2 based on the concentration of polychlorinated biphenyls (PCBs) detected in soil samples. Additional investigations were recommended for two sites, NIRP Site 13 and NIRP Site 16, to further clarify the site conditions and verify the presence of contamination. Risk assessments were recommended at seven sites based on the concentrations of pesticides or metals detected in groundwater or surface water samples. The following presents a summary of the recommendations provided in the ESI report.

NIRP Site No.	Recommendation	Rationale
1	Risk Assessment	4,4'-dichlorodiphenyldichloroethane (DDD) and lead in groundwater.
2	Remedial Action	PCB-1260 in soil
4	Risk Assessment	Lead in groundwater
5	Risk Assessment	Vinyl chloride in surface water and chromium in groundwater.
6	Risk Assessment	Heptachlor in groundwater
8	Risk Assessment	Naphthalene and endrin aldehyde in groundwater.
9	Risk Assessment	Naphthalene in groundwater
13	Further Investigation	Mercury and lead in groundwater
14	Further Investigation	Mercury in groundwater
16	Further Investigation	4,4'-dichlorodiphenyltrichloroethane (DDT), 4,4'-dichlorodiphenyldichloroethene (DDE), and 4,4'-DDD in soil.

Sampling procedures and the rationale used were presented in the final ESI report (E.C. Jordan Company, 1988a). The samples collected during the ESI were analyzed for priority pollutant base-neutral extractable compounds, priority pollutant acid extractable compounds, priority pollutant pesticides and PCBs, USEPA Method 624 volatile organic compounds (VOCs), and the extraction procedure toxicity (EPTOX) metals, cadmium, chromium, lead, and mercury. These analytical parameters were chosen because of the limited quantitative data previously existing to characterize suspected contaminants at the NIRP sites.

A RCRA Facility Assessment and Visual Site Inspection (RFA/VSI) for NAVSTA Mayport was conducted in 1989 by USEPA Region IV (A.T. Kearney, Inc., 1989) The RFA/VSI identified 56 SWMUs and two Areas of Concern (AOCs). Fifteen of these SWMUs were determined not to require further action. Twenty-three of the remaining SWMUs were determined to require future confirmatory sampling. The remaining 18 SWMUs were determined to require an RFI. These 18 SWMUs are listed below (the locations are shown on Figure 1-2).

SWMU No.	NIRP No.	Description
01	01	Landfill A
02	02	Landfill B
03	04	Landfill D
04	05	Landfill E
05	06	Landfill F
06	08	Waste Oil Pit
07	8A	Oily Waste Treatment Plant (OWTP) Sludge Drying Beds
08	8B	OWTP Percolation Pond
09	8C	OWTP
10	8D	Hazardous Waste Storage Area
11	09	Fuel Spill Area
12	11	Neutralization Basin
13	13	Old Fire Fighting Training Area
14	14	Mercury/Oily Waste Spill Site
15	15	Old Pesticide Handling Area
16	16	Old Transformer Storage Yard
17	17	Carbonaceous Fuel Boiler
22	NA	Building 1600 Blasting Area

Note: NA = site not designated as an NIRP site.

The two AOCs consist of petroleum underground storage tanks (USTs) and appurtenances and are being managed under a different program of RCRA (i.e., 40 CFR 280, per RCRA, Subtitle C, Regulation of Underground Storage Tanks).

Of these 18 SWMUs, 17 had been previously identified as requiring an RFI in the HSWA permit (FL9-170-024-260) issued by the USEPA on March 25, 1988. The HSWA permit was revised and renewed on June 15, 1993. In addition, because of the number of SWMUs, the diversity of their past and/or present operations, and the magnitude of the permit requirements, the USEPA recommended that a phased approach be used to implement the corrective action activities at NAVSTA Mayport. The Navy prepared an RFI workplan (ABB-ES, 1991a) in response to the HSWA permit requirements and included a CAMP presenting a phased approach to implementation. The RFI workplan was reviewed by USEPA, and their comments and approval of the workplan and CAMP were sent to the Navy on October 21, 1991. The CAMP schedule has been subsequently revised with the agreement of USEPA and the Florida Department of Environmental Protection (FDEP).

The purpose of the CAMP was to outline the strategy for conducting assessments to confirm and characterize the nature and extent of suspected releases of hazardous substances to the environment at NAVSTA Mayport. The assessments consist of RFIs to characterize the nature and extent of confirmed contamination and confirmatory sampling in the form of RFA Sampling Visits (RFA/SVs) to confirm the presence of suspected contamination in accordance with the requirements of the HSWA permit.

To achieve this goal, four SWMU groups were defined in the CAMP. SWMU Groups I through III were defined according to geographic area, commonality of past waste

management practices, and potential corrective measures (Figure 1-2). SWMUs in Group IV include utility networks and systems that are not within a given geographic area, and span multiple geographic areas. A listing of SWMUs identified in the HSWA permit requiring either RFI or RFA/SV is provided in Table 1-1; locations (with the exception of Group IV SWMUs) are shown on Figure 1-2.

The following paragraphs provide a description of the location and rationale for prioritization of each SWMU group and whether RFI or RFA/SV activities have been undertaken (ABB-ES, 1991a).

The Group I SWMUs are located in the southwest part of NAVSTA Mayport and include former landfills, dredge material handling areas, and other individual SWMUs. These SWMUs were incorporated into Group I because of their: (1) proximity to each other, (2) common drainage to the Sherman Creek watershed, (3) similarity of past waste disposal activities, and (4) the potential for similar or related corrective measures. Group I SWMUs were ranked as Priority 1 because of a "high perceived risk" for numerous contaminants to be of large areal extent and to affect large volumes of soil and groundwater. RFI and RFA/SV field activities conducted in Group I occurred January through April 1992 and March through December 1994. The results of the investigation will be presented in separate RFI and RFA/SV reports for Group I SWMUs.

The Group II SWMUs are located along the northern part of NAVSTA Mayport contiguous with the St. Johns River and include former hazardous and solid waste storage areas, and petroleum waste treatment and disposal areas. The SWMUs were incorporated into Group II because of their: (1) proximity to each other, (2) nearness to the St. Johns River, and (3) potential for similar or related corrective measures. Group II SWMUs were ranked as Priority 2 because of a "moderate perceived risk" for contaminants to be of moderate areal extent, affecting moderate volumes of soil and groundwater, and moderate potential for adverse impacts to ecological receptors by soil and groundwater. RFI and RFA/SV field activities conducted in Group II occurred December 1992 through February 1993 and March through December 1994. The results of the investigation will be presented in separate RFI and RFA/SV reports for the Group II SWMUs.

The Group III SWMUs are located in the eastern part of NAVSTA Mayport adjacent to the Mayport Turning Basin and include isolated areas with suspected contaminants confined to localized areas. The SWMUs were incorporated into Group III because of their: (1) proximity to the Mayport Turning Basin, the St. Johns River, and the Atlantic Ocean; (2) similarity of surrounding land use; and (3) potential for similar or related corrective measures. Group III SWMUs were ranked as Priority 3 because of a "low perceived risk" for contaminants to be of localized areal extent and to affect small volumes of soil and groundwater. RFI and RFA/SV activities for Group III SWMUs are planned for 1995.

The Group IV SWMUs are composed of utility networks and system components that span multiple geographic areas at NAVSTA Mayport. This group was formed due to similarity of investigative and corrective measures that may be required for utilities that are networked throughout NAVSTA Mayport. In addition, some of the SWMUs in Group IV are being addressed by other environmental management, regulatory, and maintenance programs, which will provide data to assist in determining appropriate RCRA actions. A Draft RFA/SV Workplan has been submitted for Group IV SWMUs (ABB-ES, 1995).

2.0 NAVSTA MAYPORT RCRA CORRECTIVE ACTION PROGRAM (RFI) ACTIVITIES

The purpose of this chapter is to present the approach to activities common to all aspects of the RCRA Corrective Action Program at NAVSTA Mayport. These facility-wide activities include sample collection, analysis, evaluation, and identification of ecological habitats and potential receptors. Background characterization consisted of collecting surface and subsurface soil, surface water, sediment, and groundwater samples from areas outside SWMUs and industrial areas within the NAVSTA Mayport boundary. A field reconnaissance was conducted to identify habitats and ecological receptors.

Background and site investigations were planned using existing data (e.g., ESI) as the basis for exploration. Adjustments in the field to procedures described in the RFI workplan have been documented as additional data have become available or when procedures have been modified to meet site-specific field conditions. These modifications are in general compliance with standard procedures described in the RFI workplan (ABB-ES, 1991a) and the USEPA Region IV Standard Operating Procedure (SOP) (USEPA, 1991). Since the initiation of field activities in January 1992, an effort has been made to incorporate newly developed USEPA SOPs and to respond appropriately to newly promulgated regulatory information.

2.1 SUMMARY OF EXPLORATION AND SAMPLING PROGRAM. This section describes the data collection, management, and assessment process used during field activities for the Mayport Corrective Action Program. The goal of the data-gathering process is to obtain site characterization data of known quality. These data are then used to identify contaminants that may pose an adverse risk to human health or the environment and, if necessary, design and conduct corrective measures at the RCRA SWMUs, as well as to supplement future environmental investigations at NAVSTA Mayport. The exploration and sampling program includes six subtasks:

- piezometer and monitoring well installation;
- surface and subsurface soil sampling;
- surface water, sediment, and sludge sampling;
- groundwater sampling;
- hydrological investigations; and
- biological investigations.

2.1.1 Monitoring Well and Piezometer Installation The purpose of the monitoring wells is to assess groundwater quality at each SWMU. The monitoring wells and the piezometers are used to characterize groundwater flow directions and horizontal and vertical hydraulic gradients. The rationale for well depths and screen placement for monitoring wells and piezometers is presented in Volume 1, RFI workplan (ABB-ES, 1991a).

Monitoring wells differ in use, design, and construction; however, the piezometers installed at NAVSTA Mayport are identical to monitoring wells in design and construction. If necessary, piezometers can be used to sample groundwater.

Monitoring wells and piezometers are installed in general accordance with the following standards:

- *U.S. Environmental Protection Agency Standard Operating Procedures and Quality Assurance Manual*, Environmental Compliance Branch, Region IV, February 1, 1991;

- *Guidelines for Groundwater Monitoring Well Installation*, March 27, 1989, SOUTHNAVFACENGCOM; and

- *Environmental Protection Board (EPB) Rule 8, Proposed Amendments, Groundwater Resource Management, City of Jacksonville*, EPB, September 28, 1990.

Sampling equipment is thoroughly decontaminated in accordance with procedures presented in Appendix B of the *USEPA Standard Operating Procedures and Quality Assurance Manual* (USEPA, 1991e) and the project-specific Quality Assurance Plan (QAP), in Appendix B of the NAVSTA Mayport RFI workplan, Volume II (ABB-ES, 1991a).

Surficial aquifer monitoring wells are designated as shallow, intermediate, and deep based on the depth of the screened interval. Shallow monitoring wells typically have 10-foot screens, are drilled to depths of 15 feet bls (exceptions occur on the berm at SWMU 50), and have the letter "S" as a suffix on the alpha-numeric designator. Intermediate monitoring wells typically have 5-foot screens, are drilled and screened at depths between 15 and 40 feet bls, and have the letter "I" as a suffix on the alpha-numeric designator. Deep monitoring wells typically have 10-foot screens, are drilled and screened at depths greater than 40 feet bls, and have the letter "D" as a suffix on the alpha-numeric designator.

Boreholes for piezometers are advanced using 8¼-inch outside diameter (OD) hollow-stem augers (HSAs). Soil samples are collected from selected piezometers for the following purposes: (1) to determine the subsurface conditions at each piezometer, (2) to construct a record of the subsurface conditions encountered at each logged soil boring, and (3) to determine the character of the sediment opposite the piezometer screens. Soil samples are collected from the borehole of selected piezometers at 5-foot intervals from the land surface to the boring termination depth using a split-spoon soil sampler. The split-spoon soil sampling methodology is described in Subsection 2.1.2.3, Split-Spoon Soil Sampling. No soil samples for chemical analysis are collected from the piezometer locations.

Boreholes for shallow and intermediate monitoring well installations are typically advanced using 8¼-inch OD HSAs. Soil samples are collected from each of the monitoring well borings for the following purposes: (1) to determine the subsurface conditions at each monitoring well, (2) construct a record of the subsurface conditions encountered at each soil boring, (3) to determine the character of the sediment opposite shallow monitoring well screens, (4) to select the depth interval to install monitoring well screens for intermediate and deep monitoring wells, and (5) to collect soil samples for laboratory analyses. Soil samples are typically collected from each monitoring well borehole at 5-foot intervals from the land surface to the boring termination depth using a split-spoon soil sampler.

Upon completion of drilling and piezometer and monitoring well installation activities, flush-mount steel protective casings are installed and secured into the ground with concrete for protective purposes. The concrete pad surrounding the protective casing is placed at the land surface to secure the casing and to prevent surface runoff from entering the borehole. Additionally, each flush-mount

steel protective casing is installed with a plastic drain to prevent water retention within the casing. Each piezometer and monitoring well is provided with a gas-tight, lockable expansion plug and a "keyed-alike" brass padlock. Each piezometer and monitoring well is identified using the SOUTHNAVFACENGCOM identification scheme (ABB-ES, 1991a).

Cuttings and drilling fluids from the drilling activities are placed in 55-gallon drums. Investigation-derived waste (IDW) management is described in more detail in Subsection 2.1.1.4, Investigation-Derived Waste.

Each monitoring well is not developed until at least 24 hours after the well installation is completed. Piezometers are not developed. The monitoring wells are developed by pumping at a rate of approximately 1 gallon per minute into 55-gallon drums (see Subsection 2.1.1.4, Investigation-Derived Waste). The monitoring wells are developed until the produced water is sand-free, relatively clean, and the pH, specific conductance, and temperature of the produced water has stabilized. The following subsections provide a description of the methods used to drill and install the piezometers and monitoring wells at NAVSTA Mayport.

2.1.1.1 **Installation of Piezometers** The purpose of the piezometers is to provide additional groundwater level information to assess groundwater flow direction. The piezometers are installed near the locations stated in the RFI workplan for NAVSTA Mayport (ABB-ES, 1991a) as modified by site-specific conditions, such as utilities, trees, or buildings. Piezometers are installed vertically so that they penetrate into the shallow surficial aquifer to a depth of 5 feet or deeper below the water table to compensate for water table elevation fluctuations.

Piezometers are constructed in each borehole through the hollow portion of the augers and consist of a threaded 2-inch inner diameter (ID), schedule 40 polyvinyl chloride (PVC) riser pipe attached to a 10-foot section of 0.010-inch slot PVC well screen. A filter pack of 20/30 grade silica sand is placed opposite the well screen in the borehole annulus and brought up to a level approximately 2 feet above the top of the well screen. The augers are removed slowly during the placement of the sand pack to minimize formation caving. A 1-foot layer of bentonite clay, in pellet form, is then placed in the annular space above the sand pack and the bentonite is hydrated using potable water. After allowing sufficient time (minimum 2 hours) for the bentonite to hydrate, a bentonite-cement grout is placed in the remaining annular space to a depth of approximately 2 feet bls. After the grout has cured, the top of the piezometer is completed as previously described in Section 2.1.1. Figure 2-1 presents a diagram of a typical piezometer design.

Once the piezometers are installed, they are surveyed (see Subsection 2.1.5.4) and water level measurements are obtained (see Subsection 2.1.5.1) and plotted to determine groundwater flow direction.

2.1.1.2 **Installation of Shallow and Intermediate Surficial Aquifer Monitoring Wells** The purposes of the shallow and intermediate monitoring wells are to assess groundwater quality at each SWMU and to characterize groundwater flow directions and horizontal and vertical hydraulic gradients.

The monitoring wells are installed near the locations stated in the RFI workplan and addenda for NAVSTA Mayport (ABB-ES, 1991a) as modified by site-specific conditions such as utilities, trees, or buildings. Once the shallow and

intermediate monitoring wells are installed, they are surveyed (see Subsection 2.1.5.4). Water level measurements are obtained (see Subsection 2.1.5.1) and plotted to determine groundwater flow direction. The following paragraphs present a summary of the installation procedures.

Shallow Monitoring Wells. Shallow monitoring wells are constructed in each borehole through the hollow portion of hollow stem augers and consist of a threaded 2-inch ID, schedule 40 PVC riser pipe attached to a 10-foot section of 0.010-inch slot PVC well screen. The well screen is placed across the water table to intercept any potential free-phase contaminants that may be present. A filter pack of 20/30 grade silica sand is placed opposite the well screen in the borehole annulus and brought up to a level approximately 2 feet above the top of the well screen. The augers are removed slowly during the placement of the sand pack to minimize formation caving. A 1-foot layer of bentonite clay, in pellet form, is then placed in the annular space above the sand pack and hydrated using potable water. After allowing sufficient time (minimum 2 hours) for the bentonite to hydrate, a bentonite-cement grout is placed in the remaining annular space to a depth of approximately 2 feet bls. After the grout cures, the top of the well is completed as previously described in Subsection 2.1.1. Figure 2-2 presents a diagram of a typical installed shallow monitoring well. Shallow monitoring wells are identified with an "S" suffix.

Intermediate Monitoring Wells. Intermediate monitoring wells are installed as double-cased wells in areas where contaminants may be encountered or without double casing if the well location is in an area where contamination is not a concern. Double-cased wells prevent migration of subsurface contaminants due to the drilling and well installation process. During RCRA Corrective Action Program activities at NAVSTA Mayport, monitoring wells are installed in both noncontaminated and contaminated areas; therefore, both monitoring well installation processes are described.

Single-cased intermediate monitoring wells are constructed through the hollow portion of the hollow stem augers and consist of a threaded 2-inch ID, schedule 40 PVC riser pipe attached to a 5-foot section of 0.010-inch slot PVC well screen. A filter pack of 20/30 grade silica sand is placed using a tremie pipe opposite the well screen in the borehole annulus and brought up to a level approximately 3 feet above the top of the well screen. (This is a variance from the original workplan specifications, which stated that a 6-inch layer of fine-grained sand was to be used for intermediate wells.) The augers are removed slowly during the placement of the sand pack to minimize formation caving. A 2-foot layer of bentonite clay, in pellet form, is then placed in the annular space above the sand pack. After allowing sufficient time (minimum 2 hours) for the bentonite to hydrate, a bentonite-cement grout is placed in the remaining annular space to a depth of approximately 2 feet bls. After the grout cures, the top of the well is completed as previously described in Subsection 2.1.1. Figure 2-3 presents a diagram of an installed single-cased intermediate monitoring well. Intermediate monitoring wells are designated with an "I" suffix.

Intermediate double-cased monitoring well borings are initially advanced using 4½-inch ID HSA with drilling mud within the HSA. The drilling mud prevents migration of contaminated material within the auger and maintains hydrostatic pressures to prevent product formation materials from plowing up into the auger. Split-spoon samples are collected through the HSA at 5-foot intervals as the lead auger is advanced in the boring. Typically, the subsurface soil samples are screened onsite using a flame or photoanalyxing organic vapor detector to assess the presence of contamination by volatile organic compounds.

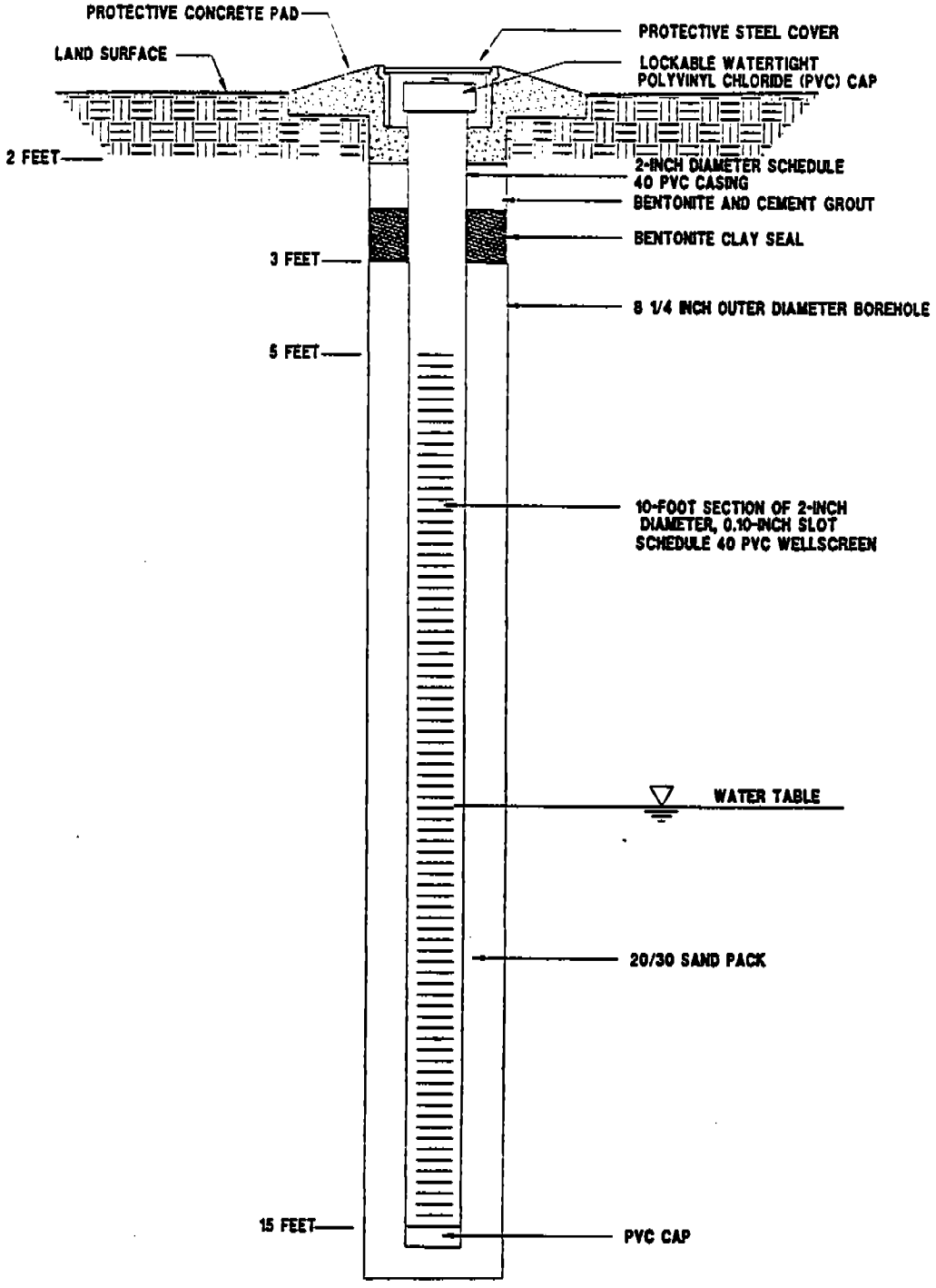

FIGURE 2-1
TYPICAL PIEZOMETER CONSTRUCTION DIAGRAM

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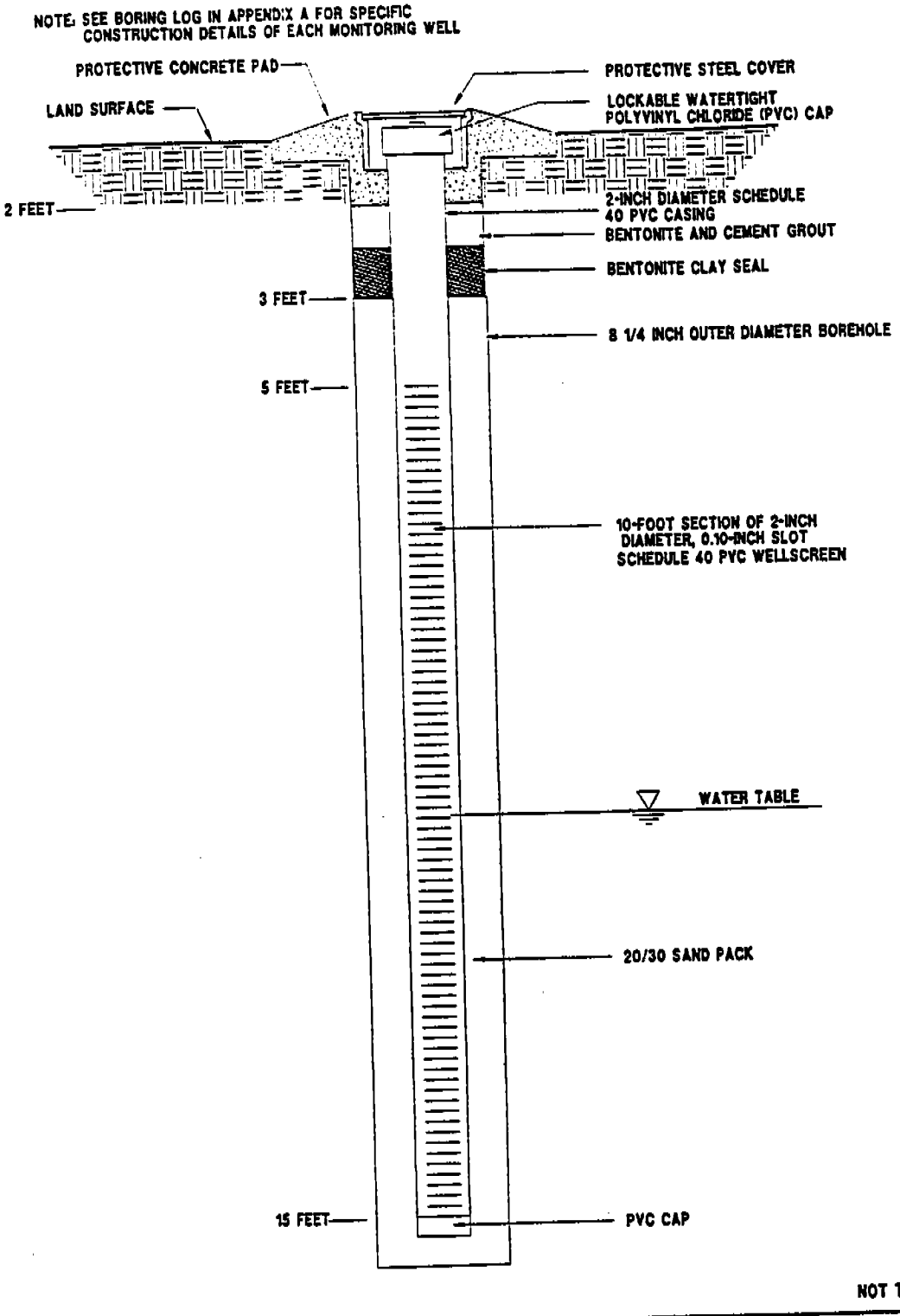

FIGURE 2-2
TYPICAL MONITORING WELL CONSTRUCTION DIAGRAM, SHALLOW ZONE, SURFICAL AQUIFER

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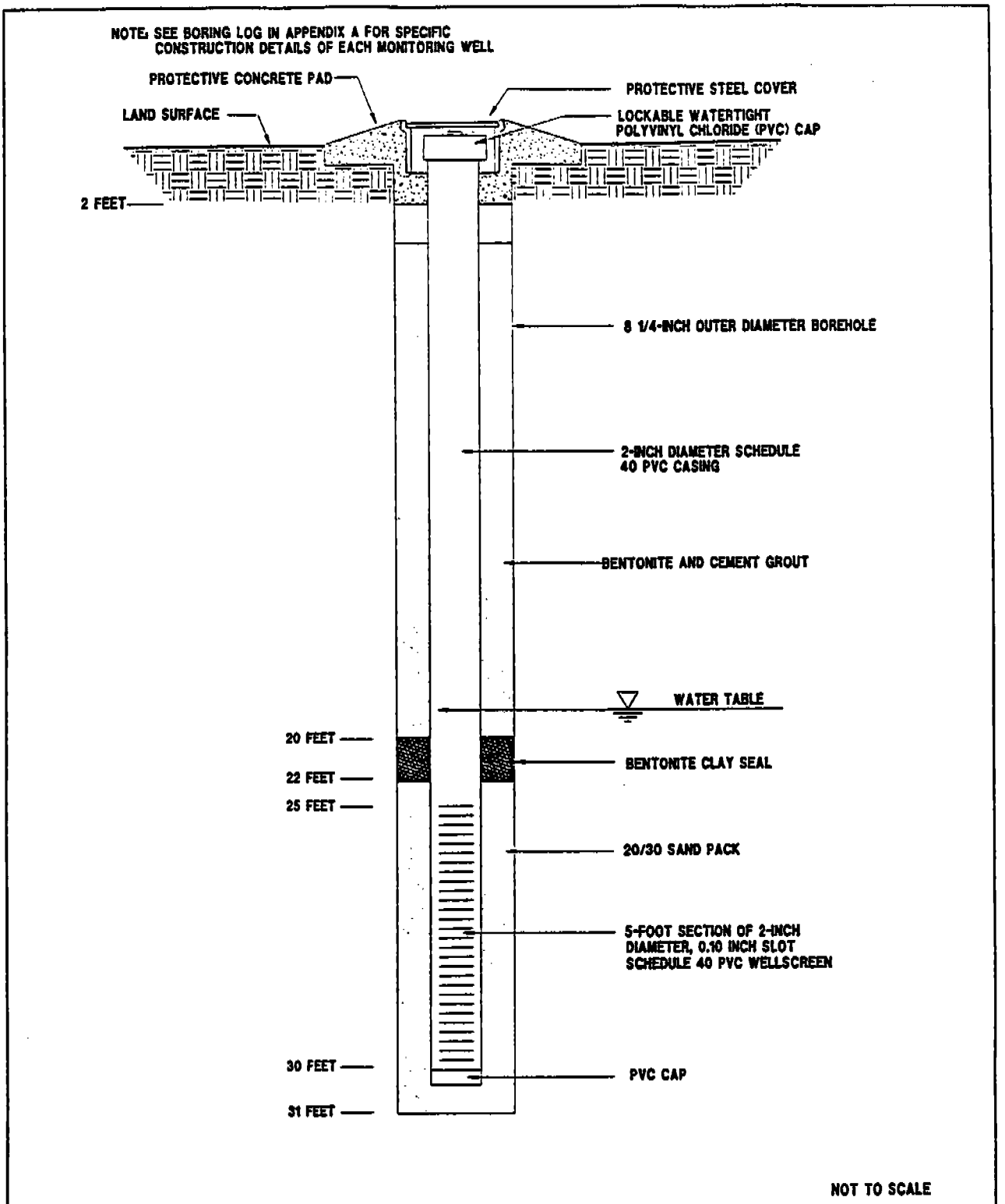

FIGURE 2-3
TYPICAL MONITORING WELL CONSTRUCTION DIAGRAM, INTERMEDIATE ZONE, SURFICIAL AQUIFER

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After identifying the zone of interest (based on depth, lithology, or organic vapor measurements) the boring is reamed to the depth desired (bottom of the contaminated zone) with a 6¼-inch ID HSA with an inert knock-out plug positioned on lead bit. The boring is advanced with drilling mud in the HSA through the contaminated zone to a "clean" zone where a 6-inch diameter, capped, flush-threaded PVC casing is lowered to depth within the HSA. Tap water is introduced into the PVC casing to counter buoyancy of the drilling mud as the PVC casing is lowered into the HSA. Grout is then mixed to the correct weight and pressure tremied to the bottom of the borehole to displace the drilling mud as the HSA is retrieved (Figure 2-4).

The grout is left in the annulus for a minimum of 24 hours to cure. After the grout cures, the boring is advanced through the PVC cap using a 5¾-ID mud-rotary tricone bit. While drilling through the PVC cap, care is taken to prevent cracking or shattering the PVC pipe or washing out the grout in the annulus space. The boring is advanced through the zone of interest and a monitoring well is installed that consists of a threaded 2-inch ID, schedule 40 PVC riser pipe attached to a 5-foot section of 0.010-inch slot PVC well screen. A filter pack of 20/30 grade silica sand is placed using a tremie pipe opposite the well screen in the borehole annulus and brought up to a level approximately 3 feet above the top of the well screen. This is a variance from the original workplan specifications, which stated that a 6-inch layer of fine-grained sand was to be used for intermediate wells. A 2-foot layer of bentonite clay, in pellet form, is then placed in the annular space above the sand pack. After allowing sufficient time (minimum 2 hours) for the bentonite to hydrate, a bentonite-cement grout is placed in the remaining annular space to a depth of approximately 2 feet bls. After the grout cures, the top of the well is completed as previously described in Subsection 2.1.1.

2.1.1.3 **Installation of the Deep Surficial Aquifer Monitoring Wells** The purposes of the deep monitoring wells are to assess groundwater quality and to characterize groundwater flow directions and horizontal and vertical hydraulic gradients. The monitoring wells are installed near the locations stated in the RFI workplan for NAVSTA Mayport (ABB-ES, 1991a) as modified by site-specific conditions, such as utilities, trees, or buildings. Deep monitoring wells are completed to the top of the Hawthorn Group.

Deep monitoring wells are installed without double casing in areas where contaminants are not encountered or with double casing if well installation is in an area where contamination is a concern. During investigation activities at NAVSTA Mayport both situations have been encountered. Installation of the nondouble-cased monitoring wells is similar to that of intermediate nondouble-cased monitoring wells described previously in Subsection 1.2.1 (see Figure 2-5).

Double-cased deep wells (greater than approximately 60 feet in depth) are completed in the upper Hawthorn Group sediments (Coosawhatchic formation). The lithology in these borings is determined by sampling at 5-foot intervals for the entire depth to obtain stratigraphic information on subsurface geology. Shallow and intermediate depth monitoring wells are installed using knowledge of the stratigraphy recorded during the previous studies and the installation of the deep wells or piezometers in a cluster. This process confirms that well depths and screened intervals are appropriate and as specified in the workplan. The deep wells constructed to the top of the Hawthorn Group are identified with a "D" suffix. The depth to the upper part of the Hawthorn Group is estimated to be 50 to 60 feet bls.

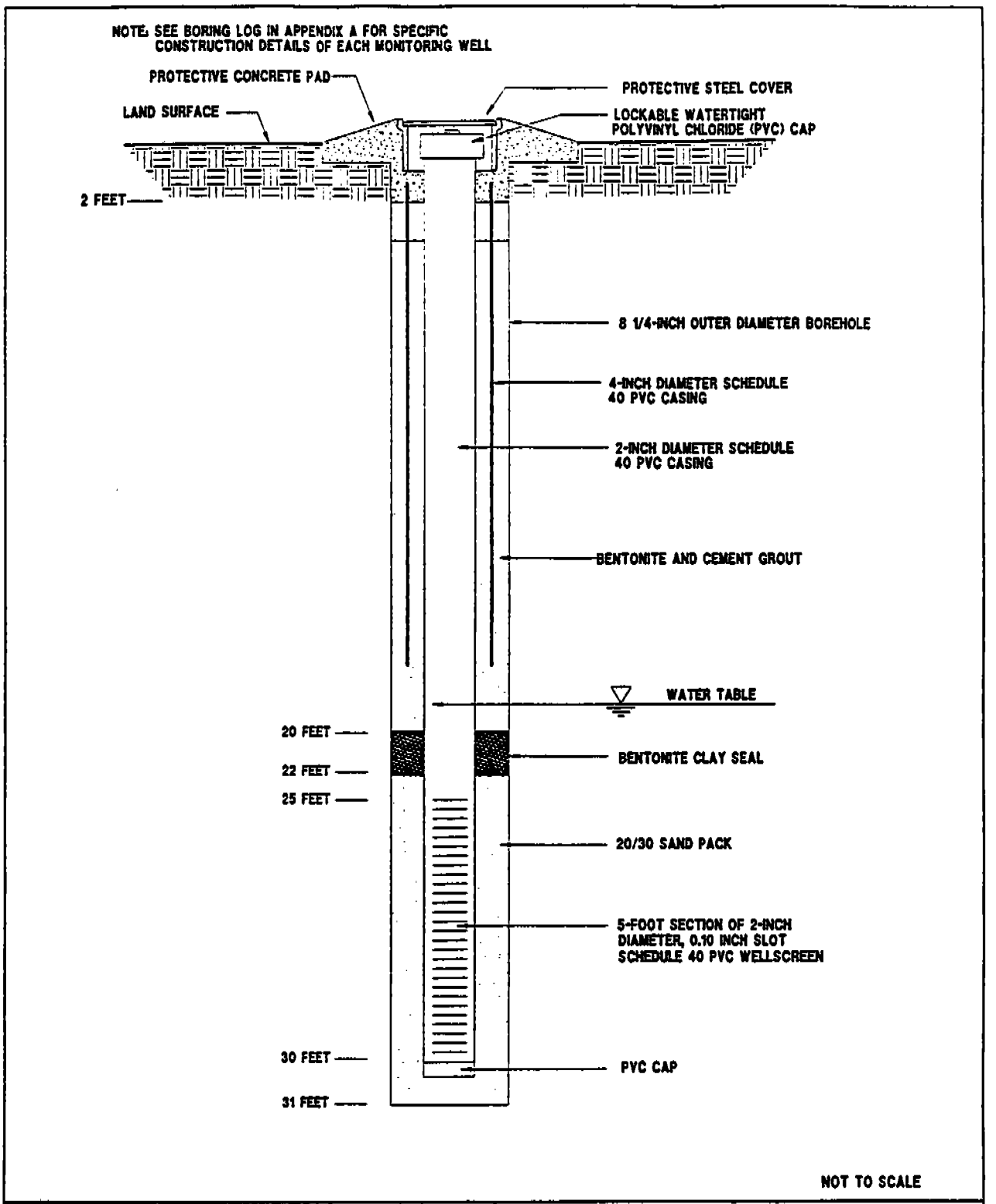

FIGURE 2-4
TYPICAL CASED MONITORING WELL CONSTRUCTION DIAGRAM, INTERMEDIATE ZONE, SURFICIAL AQUIFER

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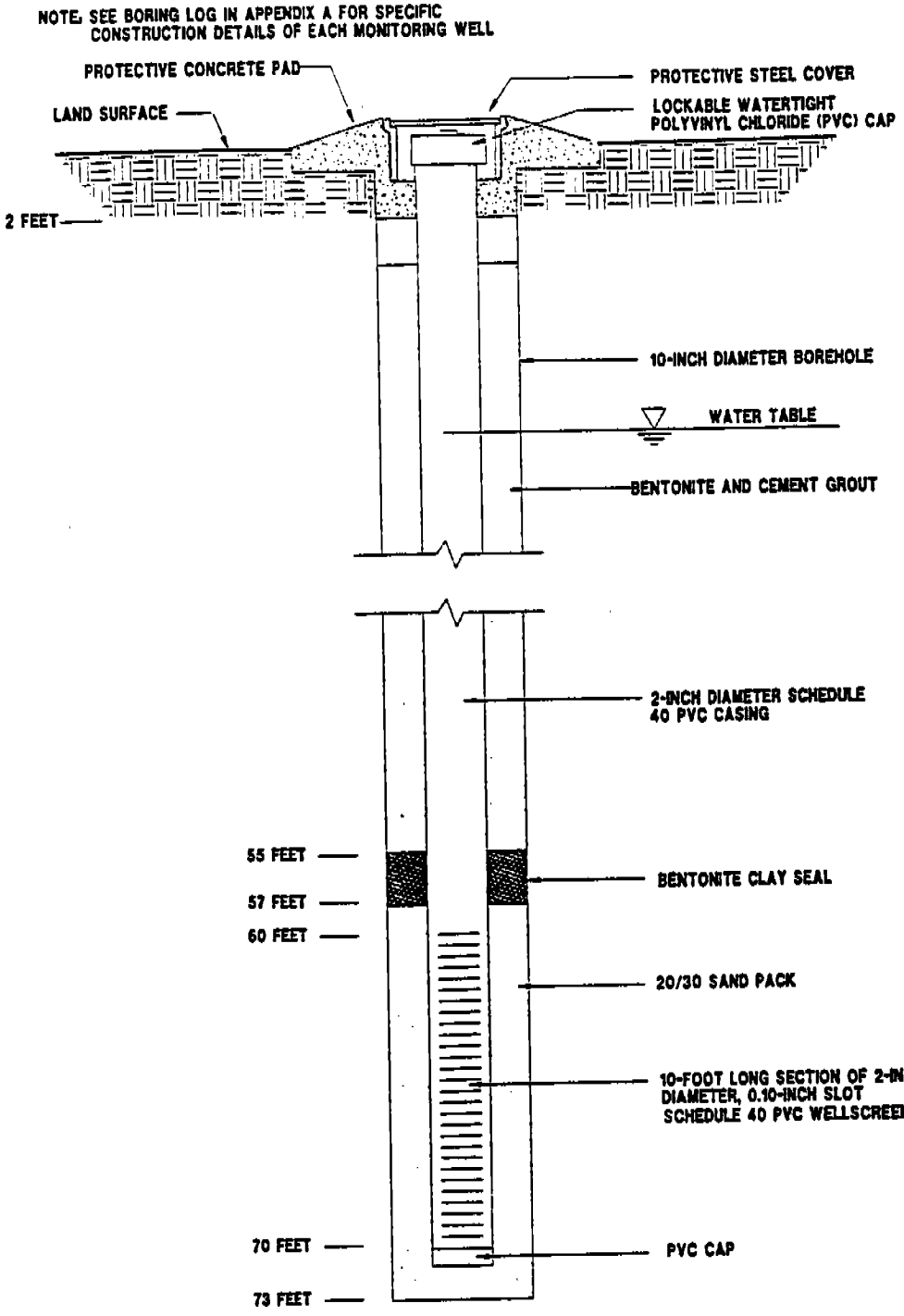

FIGURE 2-5
TYPICAL MONITORING WELL CONSTRUCTION DIAGRAM, DEEP ZONE, SURFICIAL AQUIFER

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An initial 12-inch boring is advanced by mud rotary techniques to approximately 60 feet bls where a 10-inch PVC casing consisting of 20-foot lengths is placed. This material specification is an exception to SOUTHNAVFACENGCOM's guidelines due to the corrosive nature of the dissolved solids in the surficial aquifer. The 12-inch diameter borehole is bored through the overburden in an attempt to penetrate a clay confining layer if present. The 20-foot lengths are joined using stainless-steel screws, and the PVC casing is filled with tap water to counter buoyancy of drilling mud as the PVC pipe is lowered into the open boring. A PVC cap is installed at the bottom of the 60-foot casing assembly to prevent tap water from escaping.

The annulus is filled with grout by placing a tremie tube in the annular space and pumping the grout from the bottom of the borehole to the surface. The grout used to seal the outer annular space is a bentonite-cement grout (6 to 94 percent by weight).

After the grout has cured for a minimum of 24 hours, the boring to install the inner casing is advanced through the protective outer casing seal (PVC cap) using an 8-inch mud-rotary bit. While drilling through the PVC cap, care is taken to prevent cracking or shattering the PVC pipe or washing out the grout seal around the annulus space. The drilling fluid is circulated to remove the fines after advancing the boring to the screened interval depth.

Drilling fluids that enter the well along with fines are removed during the subsequent development process. Figure 2-6 presents a diagram of an installed deep cased monitoring well.

In areas where contamination is known not to exist, deep monitoring wells are advanced using 2¼-inch OD mud-rotary tricone bits to a termination depth which is determined based on field observations such as apparent permeability. The borehole is then reamed to a larger diameter using a 10-inch OD, mud-rotary tricone bit to a specified depth. Prior to construction of the monitoring well within the bore hole, drilling fluid is circulated to remove excess cuttings, and the drilling mud weight is reduced to the minimum possible to allow for a cleaner sand pack during the monitoring well installation. The drilling tools are then removed from the borehole prior to insertion of the well construction materials.

Both double-cased and single-cased monitoring wells are constructed using threaded, 4-inch ID, schedule 40 PVC well casing attached to a 10-foot length of 4-inch diameter PVC screen with 0.010-inch slots. A filter pack of 20/30 grade silica sand was placed in the borehole annulus using a tremie pipe opposite the well screen and brought up to a level approximately 3 feet above the top of the well screen. (Early in the project [January 1992 through April 1992], 30/65 sand was tremied over the 20/30 silica sand pack as stipulated in the RFI workplan for NAVSTA Mayport [ABB-ES, 1991a]. After April 1992, a 2-foot bentonite clay seal was placed immediately above the sand pack.) The bentonite-cement grout is then placed in the remaining annular space to a depth of approximately 2 feet bls. After the grout cures, the top of the well is completed as previously described in Subsection 2.1.1.

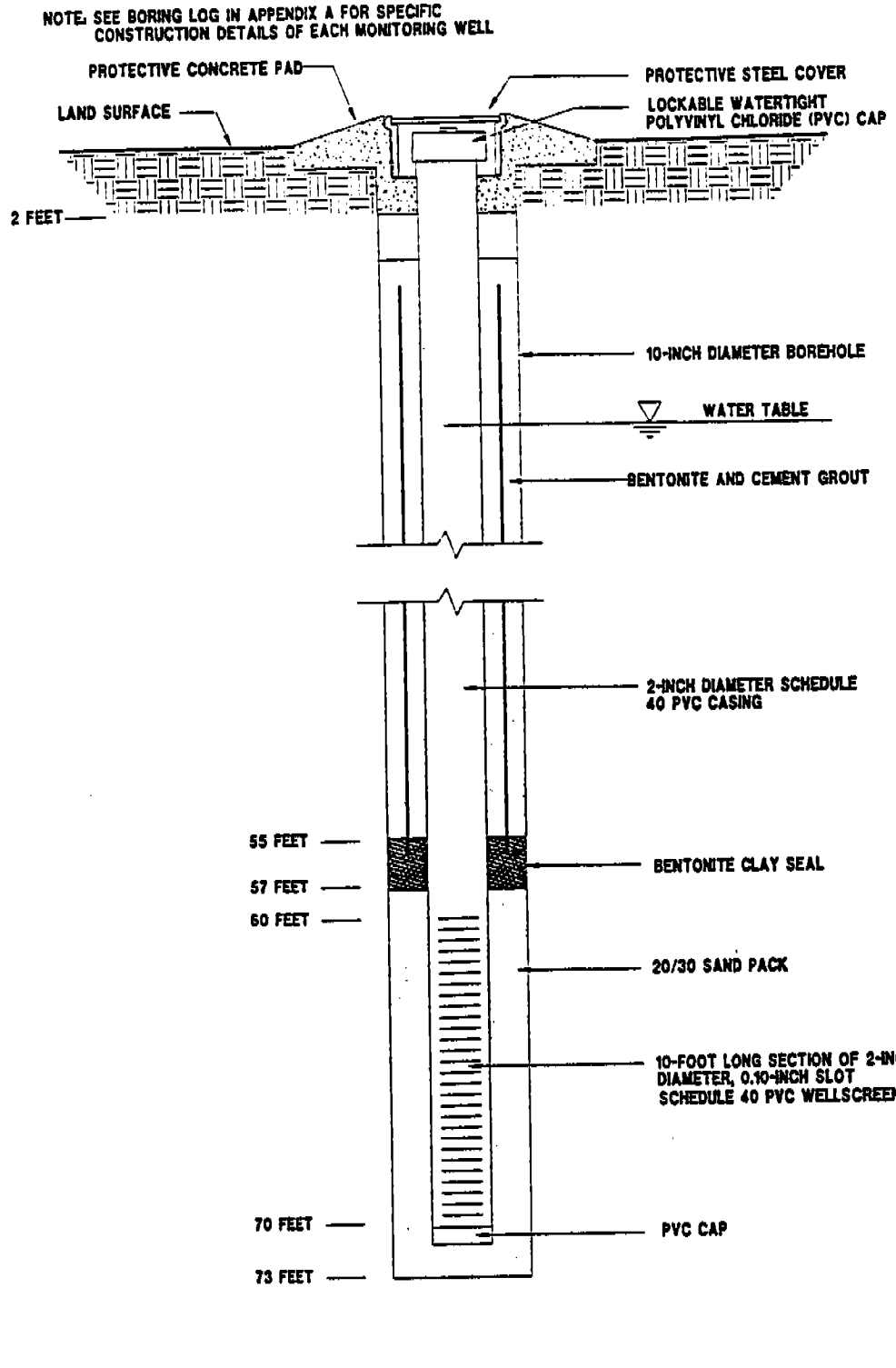

FIGURE 2-6
TYPICAL CASED MONITORING WELL CONSTRUCTION DIAGRAM, DEEP ZONE, SURFICIAL AQUIFER

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2.1.1.4 **Investigation-Derived Waste** Materials constituting IDW are as follows:

- personal protective equipment (PPE),
- soil cuttings from drilling activities,
- water and mud from the rotary wash drilling,
- water produced from the development of monitoring wells, and
- water produced from purging wells prior to sampling.

IDW materials are containerized in properly labeled 55-gallon drums and are either left at the investigation site, stored temporarily near the current hazardous waste storage building (outside of the fenced less-than-90-day accumulation area), or stored in other controlled areas. The IDW remains at these locations until chemical analytical data are collected to assess whether contaminants are potentially present in the containerized IDW materials. The analytical results of soil and groundwater samples are used to assess disposal options for IDW.

Uncontaminated PPE is collected and placed in double, heavy duty polyethylene bags and disposed of in a dumpster used for nonhazardous industrial debris as designated by Navy personnel. PPE suspected of being contaminated is given to the NAVSTA Mayport hazardous waste management coordinator for proper disposal.

Fifty-five gallon drums of soil cuttings that are determined to be uncontaminated are disposed of onsite at the well or boring location where they are generated (USEPA, 1991d). Cuttings are spread to prevent creating a nuisance condition, physical hazard, or drainage problem. The cuttings are placed so they are not eroded by surface water or rainfall to become sediment loads in nearby surface waterways such as ditches, curbs, or swales.

Water from drilling fluids and development and purging of wells determined to be uncontaminated is also disposed of onsite near the well from which it was derived. Typically, the method of disposal is to pour the well water onto the ground surface and allow the water to infiltrate into surficial soil. Care is taken to prevent the uncontaminated well water from flowing into surface waterways such as ditches, curbs, or swales.

Drums emptied of nonhazardous IDW are cleaned, transported, and stacked for reuse in subsequent phases of the RCRA Corrective Action Program. The drums are stored in a manner that minimizes the area required while maintaining easy access.

2.1.2 Soil Sampling The purpose of the soil sampling is to assess whether a prior release of contaminants has occurred at the location of an SWMU. Background soil samples are collected to assess naturally occurring concentrations of potential contaminants in areas not known to be impacted by a release to the environment. Four types of soil sample collection methods are used during field investigative activities: TerraProbe℠, hand auger, split-spoon sampler, and undisturbed sampler.

Surface and shallow subsurface soil samples, 0 to 1 foot bls and 1 to 6 feet bls, respectively, are collected from near the locations described in Subsection 3.2.5 of the Sampling and Analysis Plan (ABB-ES, 1991a) and in Addenda 2, 3, and 4 (ABB-ES, 1992c) to the Sampling and Analysis Plan as modified by site-specific conditions, such as utilities, trees, or buildings.

Sampling equipment is decontaminated in general accordance with procedures presented in Appendix B of the *USEPA Standard Operating Procedures and Quality Assurance Manual* (USEPA, 1991e) and the project-specific QAP, presented in the RFI workplan, Volume II (ABB-ES, 1991a). The soil samples are collected in general accordance with procedures discussed in the Sampling and Analysis Plan, Volume II of the RFI workplan for NAVSTA Mayport (ABB-ES, 1991a).

Soil samples are sent to a laboratory for chemical analyses of selected compounds as listed in Section 3.4 of the Sampling and Analysis Plan (ABB-ES, 1991a). Field and laboratory methods used to analyze the soil samples are described in Section 2.2 of this report. The following subsections provide a description of the four methods used to collect soil samples.

2.1.2.1 **TerraProbe℠ Soil Sampling** The TerraProbe℠ sampling system consists of a van equipped with a hydraulic ram. The hydraulic ram drives a threaded, 1-inch OD, hollow-steel rod assembly attached to an interchangeable stainless-steel sleeve that is driven to the desired sample collection depth. At the soil sample collection depth, the tip of the TerraProbe℠ sampler is retracted from a rigid leading position. With hydraulic pressure applied to advance the sample collection sleeve, the tip of the sampler retracts upward within the sleeve and material enters the sample collection sleeve. Upon retrieval, the sample is extruded from the sample collection sleeve into a precleaned 8-ounce glass jar using a hydraulic piston. Each soil sample is then described and placed in a cooler refrigerated with ice for transport to the field screening laboratory. The results of the field screening analyses are used to select samples for laboratory confirmatory analysis. TerraProbe℠ borings are self healing and do not require grouting upon completion.

2.1.2.2 **Hand Auger Soil Sampling** Surface and subsurface soil samples are collected at shallow depths with a hand auger. Surface soil samples are collected from the 0 to 1 foot bls interval. Subsurface soil samples comprise samples from the 1- to 6-foot bls (or greater if possible) interval.

Surface and subsurface soil samples are collected using a decontaminated, 4-inch diameter, stainless-steel auger. The collected soil is removed from the auger with a stainless-steel spoon. Soil samples to be analyzed for VOCs are collected directly from the lower portion of the auger and placed into precleaned sample collection containers. The soil sample remaining in the auger is transferred to a glass container for mixing; representative aliquots are then placed in precleaned sample bottles. Each bottled fraction is then placed in a cooler refrigerated with ice for shipment to the analytical laboratory. Soil samples collected for onsite field screening are handled in the same manner.

2.1.2.3 **Split-Spoon Soil Sampling** Two types of split-spoon sampling devices are used during field investigation activities to collect subsurface soil samples. A 2-foot long, 1.75-inch ID, split-barrel sampler is used for sample intervals where a soil sample is not being collected for chemical analysis. The sampler used to collect soil samples for chemical analysis consists of a 2-foot long, 3.0-inch ID tube that incorporates four, 2.5-inch OD by 6-inch long, stainless-steel sleeves.

Split spoon samples from the borehole of selected piezometers and monitoring wells are typically collected at 5-foot intervals. Split-spoon soil sampling begins at the land surface and continues to the boring termination depth. The method

used to conduct the split-spoon soil sampling is ASTM D1586. As a soil sample is collected, it is described onsite by the ABB-ES field geologist, who records the texture, color, grain size, and other characteristics of the soil recovered from the borings. The soil is classified using the USCS.

Subsurface soil samples are collected at the following intervals: a depth of 1- to 2- foot bls, a 1-foot interval immediately above the water table, and, in areas where the water table is greater than 8 feet bls, subsurface soil samples are collected from a 1-foot interval that has the highest OVA measurement based upon field screening or as a default approximately halfway between the land surface and the water table. The 2.5-inch OD by 6-inch stainless-steel sleeves are capped with an airtight plastic lid and secured with Teflon™ tape after removal from the split-spoon sleeves. The two stainless-steel sleeves are then labeled and placed in a cooler refrigerated with ice for shipment to the analytical laboratory. The remaining two soil sampling sleeves are retained for geologic description and screening for VOCs using a PortaFID™ organic vapor analyzer (OVA).

2.1.2.4 **Undisturbed Soil Sampling** Undisturbed soil samples are collected using a Shelby tube sampler. The Shelby tube sampler consists of a 2.5 foot long, 3-inch ID, thin-walled sheet metal tube with an inward beveled leading edge. The undisturbed samples are collected by augering to the desired sampling depth, then using the drill rig's hydraulic system to push the Shelby tube sampler vertically into subsurface soil. After the Shelby tube is pressed to the sample termination depth, with the length of the push not exceeding the length of the Shelby tube, the drill rod is raised slightly to eliminate downward pressure then turned manually one rotation using a pipe wrench to break contact with soil below the mouth of the Shelby tube. The tube is then withdrawn from the borehole and detached from the drill rod. Liquid wax is poured into the upper and lower ends of the Shelby tube, and the ends of the tube are then capped with plastic push caps. Except when inverting the sample to place wax in the leading edge of the sampler, the sample is maintained in its original orientation for transport to a geotechnical laboratory.

2.1.3 **Surface Water, Sediment, and Sludge Sampling** The purpose of the surface water, sediment, and sludge samples is to assess whether there was a prior release of contaminants from an SWMU. Background surface water and sediment samples are also collected to assess naturally occurring concentrations of potential contaminants in areas known not to be impacted by a release to the environment.

Surface water samples have the letters "SW" in the alphanumeric sample designation, whereas sediment samples are referred to by the letters "SD" and sludge samples by the letters "SL."

Surface water, sediment, and sludge samples are collected in accordance with procedures discussed in the Sampling and Analysis Plan, Volume II of the NAVSTA Mayport RFI workplan (ABB-ES, 1991a) and *USEPA Standard Operating Procedures and Quality Control Manual* (USEPA, 1991e).

Sampling equipment is thoroughly decontaminated in accordance with procedures presented in Appendix B of the *USEPA Standard Operating Procedures and Quality Control Manual* (USEPA, 1991e) and the site-specific QAP, Appendix B of the NAVSTA Mayport RFI workplan, Volume II (ABB-ES, 1991a).

Surface water, sediment, and sludge samples submitted for laboratory analysis are shipped by overnight delivery to the laboratory under chain-of-custody protocol for analyses of selected Appendix IX compounds listed in Section 3.4 of the Sampling and Analysis Plan (ABB-ES, 1991a).

Surface water samples are collected by dipping a decontaminated sample container beneath the water surface. Where the water is not sufficiently deep to permit the use of this sampling method, a decontaminated glass beaker is used to transfer the surface water sample into the container. Surface water is also collected by pumping the water through a Teflon™ tube with a peristaltic pump directly into the sample container. The volatile fraction is collected by emptying the contents of the tube into the 40 milliliter (mℓ) vial.

Sediment and sludge samples are collected using a decontaminated, 2-inch diameter, stainless-steel push tube or 4-inch diameter stainless-steel hand auger. Sediment and sludge samples for volatile organic analyses are removed from the sampling tube or hand auger and deposited directly into 2-ounce, precleaned glass jars equipped with Teflon™-lined lids. Sediment and sludge remaining in the sampling tube are transferred to a glass bowl, mixed, and then placed into the appropriate sample container. No vegetative matter or sludge are selectively removed from the sample during collection. All samples are placed in a cooler refrigerated with ice for shipment to the laboratory.

2.1.4 Groundwater Sampling The purpose of the groundwater sampling program is to provide data to assess whether contaminants have been released from SWMUs to the shallow surficial aquifer and, if present, assess the horizontal and vertical extent of contamination. Groundwater samples are collected for field screening and laboratory analyses from TerraProbe℠ samples and for laboratory analyses from shallow, intermediate, and deep monitoring wells.

Groundwater samples are collected in general accordance with procedures discussed in the Sampling and Analysis Plan, Volume II of the NAVSTA Mayport RFI workplan (ABB-ES, 1991a).

All sampling equipment is thoroughly decontaminated in accordance with procedures presented in Appendix B of the *USEPA Standard Operating Procedures and Quality Assurance Manual* (USEPA, 1991e) and the project-specific QAP presented in Appendix B of the NAVSTA Mayport RFI workplan, Volume II (ABB-ES, 1991a).

Groundwater samples selected for laboratory analyses are shipped by overnight delivery to the laboratory under chain-of-custody protocol for analyses of selected Appendix IX compounds listed in Section 3.4 of the Sampling and Analysis Plan (ABB-ES, 1991a).

The following subsections describe the methods used to collect groundwater samples at TerraProbe℠ sampling locations and monitoring wells.

2.1.4.1 **TerraProbe℠ Groundwater Sampling** The TerraProbe℠ consists of a van equipped with a hydraulic ram. The hydraulic ram drives a threaded 1-inch OD hollow steel rod assembly attached to a 2-foot long stainless-steel perforated screen to the desired sample collection depth. Upon reaching the desired groundwater sampling depth, a Teflon™ tube is inserted inside the hollow steel rod to the depth of the perforated screen which penetrates into the groundwater. A peristaltic pump is then used to collect the groundwater sample, which is placed

in three precleaned 40-mℓ glass vials and/or a 1-ℓ glass sample bottle. Each groundwater sample is placed in a cooler refrigerated with ice for transport to the field screening laboratory. The results of the field screening analyses are used to select some of the samples for laboratory confirmatory analyses. A description of the analytical methods selected for field screening of groundwater samples is provided in Section 2.2 of this report.

2.1.4.2 **Monitoring Well and Piezometer Sampling** During the field events of January through April 1992 and December 1992 through April 1993, monitoring wells were purged by either bailing or pumping to remove at least five volumes of water standing within the well casing prior to collecting the groundwater samples. Measurements of pH, specific conductance, and temperature were recorded for each volume of water purged from the monitoring wells. These data were collected to assess whether stagnant water within the well casing had been removed and the collected groundwater samples were representative of the aquifer zone being sampled. Groundwater samples are considered representative of the zone sample when the difference between successive measurements is less than 5 percent.

During sampling events conducted in 1992 and 1993, precleaned Teflon™ bailers and monofilament lines dedicated to each monitoring well were used to collect the groundwater samples. Sample bottles were filled in the order of VOCs, semivolatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs), and inorganics. After the groundwater samples were placed in the sample containers, the containers were placed in a cooler refrigerated with ice for shipment to the laboratory for analyses.

During the March through December 1994 and subsequent field activity, shallow and intermediate zone monitoring wells were purged immediately prior to sampling using a peristaltic pump at a "low-flow" rate, which is less than or equal to 1 liter per minute (ℓ/min). Monitoring wells were pumped from the top of the water column until seven selected groundwater parameters (dissolved oxygen, oxidation potential, pH, salinity, specific conductance, temperature, and turbidity) were stable. (The difference between successive measurements was less than 10 percent.) At NAVSTA Mayport, this typically occurs within five well volumes.

In areas where the groundwater table was less than approximately 9 feet bls, monitoring wells were purged using a peristaltic pump at a "low flow" rate, less than or equal to 1 ℓ/min. At monitoring wells in which depth to groundwater exceeded 9 feet bls, monitoring wells were purged using a bladder pump at similar purge rates. During purging of all monitoring wells, measurements of dissolved oxygen, oxidation potential, pH, salinity, specific conductance, temperature, and turbidity were recorded at 1-gallon intervals. Sampling was not begun until after stabilization of the first six measured parameters (consecutive readings within 10 percent of previous readings) and turbidity measured less than 5 nephelometric turbidity units (NTUs).

Deep zone monitoring wells (screened from 65 to 80 feet bls) are pumped from the top of the water column with a centrifugal pump to remove stagnant water standing within the well casing prior to collecting the groundwater samples. Immediately after stagnant water is removed, Teflon™ tubing is placed in the monitoring well with the intake at the midpoint of the screened interval. The deep zone monitoring well is then purged at a low rate (less than or equal to 1 ℓ/min) until the seven groundwater parameters are stable.

Precleaned Teflon™ tubing is used to collect samples in the following sample order: inorganics (metals), cyanide, SVOCs, pesticides and PCBs, and groundwater quality parameters. Precleaned Teflon™ bailer and disposable monofilament line is used to collect samples for VOCs analysis. Samples are placed in appropriate precleaned containers and preservation (base or acid) is verified prior to sealing the container.

Filtered groundwater samples were collected from selected groundwater monitoring wells. Filtering was accomplished by the addition of a 45-micron inline filter to the sample tubing. The filtered samples were placed in appropriate precleaned containers and preservation (soil) is verified prior to sealing the container. The filtered samples were collected for a comparison to the nonfiltered low flow analytical results.

Immediately after collection, groundwater samples are labeled and placed in a cooler refrigerated with ice for shipment to the laboratory for analyses. A description of the analytical methods selected for field screening of groundwater samples is provided in Section 2.2 of this report.

2.1.5 Hydrogeologic Investigation The purposes of the hydrogeologic investigation at NAVSTA Mayport are to assess: fluctuation of the water table, groundwater flow directions, effects of tidal fluctuation, and horizontal and vertical spatial variability of hydraulic conductivity in the sediment and to estimate the rates of groundwater flow for the surficial aquifer.

This information is gathered using the following methods: (1) monthly water level measurements for a period of 12 months, (2) a study to determine the effects of tidal fluctuation on the shallow surficial aquifer, (3) *in-situ* slug tests on monitoring wells to determine values for the radial hydraulic conductivity of sediment near the screened zone, and (4) a location and topographic survey of the elevation of monitoring wells and piezometers.

The following subsections provide a more detailed description of the four investigative methods.

2.1.5.1 **Potentiometric Water Surface** Groundwater elevations are obtained by direct readings from a measuring tape, which is suspended into a well or piezometer and slowly lowered until the water level is encountered. The depth to the water table is read at a designated point (north side of the riser) marked on the monitoring well or piezometer riser. Measurements are made to the nearest hundredth of an inch and recorded in a field log book. The water level indicator probe and section of measuring tape lowered into a monitoring well or piezometer are decontaminated prior to, or subsequent to, use as specified in the NAVSTA Mayport RFI workplan (ABB-ES, 1991a).

Water level measurement data are converted to elevations relative to the National Geodetic Vertical Datum (NGVD) of 1929 and used to construct potentiometric surface maps of the surficial aquifer for NAVSTA Mayport.

2.1.5.2 **Tidal Influence Study** Tidal influence studies are conducted to assess whether surface water bodies intercept the shallow surficial aquifer. During these tidal studies water level measurements are collected at hourly intervals from each monitoring well or piezometer with a data logger connected to a pressure sensing transducer. Predicted river tidal data are provided by the U.S. Naval

Observatory for two nearby staff gauging locations on the St. Johns River. Local rainfall data are provided by the NAVSTA Mayport Flight Operations Center. Surficial groundwater fluctuation data obtained from monitored wells is graphed with predicted tidal and rainfall data for the same time period.

2.1.5.3 **Aquifer Slug Test** Subsequent to sampling the monitoring wells, *in situ* hydraulic conductivity tests (slug tests) are conducted in selected monitoring wells and piezometers. A minimum of two rising and two falling head slug tests are performed at each location. Only rising head tests are performed in piezometers or monitoring wells that are screened across the water table. The slug test consists of either the introduction or withdrawal of a slug (inert volume displacement device) that displaces a known volume of water and the measurement of the change in water level in the well with respect to time. The rates of recovery are measured with a digital data logger connected to a pressure transducer, which is placed into the bottom of the piezometer or monitoring well. The time versus water level recovery data are then processed by a computer program (AQTESOLV™) that employs the method of Bouwer and Rice (1976) to calculate hydraulic conductivity for unconfined aquifers. The slug tests are conducted in conformance with the procedure described in the Subsection 3.2.5 of the NAVSTA Mayport RFI workplan (ABB-ES, 1991a).

2.1.5.4 **Sample Location Well Elevation and Wetlands Survey** The horizontal location of each new surface and subsurface soil, sediment, sludge, and surface water sampling point is located by a Florida-registered professional land surveyor. The horizontal location and vertical elevation of each new water level measuring point, well, piezometer, staff gauge, and lake weir are also surveyed by a Florida-registered professional land surveyor.

These locations are surveyed to third-order accuracy, which consists of measuring horizontal locations to an accuracy of 0.1 foot and vertical elevations to an accuracy of 0.01 foot. Horizontal locations of monitoring wells, piezometers, and sampling points are referenced to the State Plane Coordinate System. All elevations are based on the NGVD of 1929.

2.1.6 Biological Field Investigations Three separate biological field investigations have been completed as part of RFI activities at NAVSTA Mayport. In January 1992, KBN Engineering and Applied Sciences (KBN), under contract to ABB-ES, completed the first biological investigation of the Group I SWMUs. This investigation included aquatic sampling and wetland and terrestrial surveys. The methods and results are provided in Appendix C of the Phase I RFI report (ABB-ES, November 1992).

In February 1993, Environmental Consulting & Technology (ECT), under contract to ABB-ES, completed a second biological investigation of the Group II SWMUs. The purpose of this investigation was to identify and characterize habitats and ecological receptors in the area of the Group II SWMUs. Habitats were characterized based on field surveys, and the results were mapped to show the relative location of habitats and SWMUs.

A third biological investigation was completed in two separate events, one in July 1995 and the other in November 1994, by ABB-ES ecologists for the Group I and III SWMUs. This biological investigation characterized habitats and receptors in Group III and delineated the extent of wetlands in Group I. Biological sampling was also completed at the Group I SWMUs with the collection of sediment samples for toxicity testing and fish samples for analyses of contaminant concentrations in tissues.

The biological field investigations were completed to provide characterization and receptor data necessary for completion of the ecological risk assessment portion of the RFIs for Groups I, II, and III SWMUs. Some biological information was also collected to support remedial decision making in the Corrective Measures Studies (CMS). The primary objectives for the biological investigations included:

- characterization of habitats,
- identification of ecological receptors,
- characterization of wetlands, and
- collection of biological samples.

Table 2-1 provides a summary of the scope of the biological investigations completed to date. The following subsections discuss how information obtained from the biological investigations was used to characterize habitats, identify ecological receptors, and characterize and delineate wetlands in Section 3.4.

2.1.6.1 **Characterization of Habitats** Aquatic and terrestrial wildlife habitats at NAVSTA Mayport are described based on information collected during the biological field investigations.

Aquatic Habitats. Aquatic habitats at NAVSTA Mayport are characterized based on literature information (ESE, 1986) and field survey information collected by ABB-ES and its subcontractors. The aquatic habitats identified are characterized in Subsection 3.4.1.

Terrestrial Wildlife Habitats. Aerial photographs and field survey information provide the basis for mapping plant communities for the biological investigations. The plant communities are identified and classified according to the classification system developed by the Florida Natural Areas Inventory and the Florida Department of Natural Resources (FNAI, 1990). Communities are characterized based on vegetative structure and composition, topography, fire history, land form, substrate, soil moisture conditions, and other edaphic characteristics.

2.1.6.2 **Identification of Ecological Receptors** Ecological receptors include both aquatic life (fish, invertebrates, amphibians, reptiles, mammals, and plants) and terrestrial species (reptiles, invertebrates, plants, mammals, and birds). Aquatic receptors are identified based on information gathered during the biological investigations and literature reviews. The literature reviews include consultation of range maps from appropriate aquatic species field guides (Lee and others, 1980; Page and Burr, 1991; Behler and King, 1979; Rehder and Carmichael, 1981; Boschung and others, 1983; Meinkoth, 1981).

Terrestrial wildlife species that use or could potentially use the habitats located on and near the SWMUs are identified based on information gathered from the field surveys completed during the biological investigations, supplemented by personal communication with State and Federal officials and literature information. Literature information is consulted regarding habitat preferences and range of distribution to compile a list of species expected to reside in each habitat type.

Table 2-1
Summary of Biological Field Investigations at NAVSTA Mayport

RCRA Corrective Action, General Information Report
U.S. Naval Station
Mayport, Florida

Type of Investigation	Investigator/Date	SWMU Group
Aquatic biological survey in tidal drainage ditch system: Water quality studies Benthic macroinvertebrate survey Fish and macroinvertebrate survey Zooplankton and phytoplankton survey Quantitative benthic macroinvertebrate survey Wetland biological survey Terrestrial biological survey	KBN Engineering and Applied Sciences, Inc., 1992	Group I
Aquatic biological survey of St. Johns River. Identification and characterization of wetlands. Identification and characterization of terrestrial habitats. Identification of terrestrial wildlife species. Identification of rare, endangered and threatened species.	Environmental Consulting and Technology, Inc., 1993	Group II
Wetland delineation	ABB Environmental Services, Inc., 1994	Groups I, II, and III
Identification and characterization of terrestrial habitats.	ABB Environmental Services, Inc., 1994	Group III

2.1.6.3 **Characterization and Delineation of Wetlands** In July 1994, ABB-ES completed a characterization and delineation of wetlands on and near the Group I SWMUs. Wetlands were also identified and characterized during the biological investigations completed by KBN (ABB-ES, 1992). Based on the information collected during the investigations, wetlands are characterized and mapped to the extent possible (please refer to Section 3.4).

2.1.6.4 **Rare, Endangered, and Threatened Species** Certain species that potentially reside on NAVSTA Mayport are protected by Federal and/or State laws. The Florida Administrative Code (FAC, 1994), in compliance with the Federal Endangered Species Act (50 CFR 17.11-12), defines protected species as follows.

- Endangered species are those that are so few or depleted in number or so restricted in range or habitat as to be in imminent danger (or may attain such status in the immediate future) of extinction or extirpation.

- Threatened species are those that are acutely vulnerable to environmental alteration, or whose range or habitat is declining rapidly, thus leading to, or potentially leading to, rapid population decline. These species are likely to become endangered within the foreseeable future.

- Species of special concern are those in need of special protection, recognition, or consideration because they are inherently vulnerable to habitat alteration, human disturbance, or human exploitation, which in turn may lead to their becoming threatened.

The Florida Committee on Rare and Endangered Plants and Animals (FCREPA) also designates a category of 'rare' to those species having a limited geographic distribution, special habitat requirements, or occurring at the periphery of their range. These status designations are applied to the species described in Section 3.4, Biological Field Investigation Findings.

The potential for State or Federal designated rare, endangered, or threatened plant or animal species to inhabit or migrate through habitats identified at NAVSTA Mayport is evaluated based on the biological investigations and the IAS report (ESE, 1986). Communication with appropriate State and Federal agencies, along with literature information, verifies the findings.

2.1.6.5 **Biological Sampling** The biological investigations at NAVSTA Mayport include sampling of environmental media for biological testing and the collection of organisms for analyses. Biological sampling completed to date at NAVSTA Mayport includes toxicity testing, aquatic studies, and collection of plant and animal samples for analyses of contaminants in tissues.

Biological sampling is completed based on objectives specific to the investigations of individual SWMUs. Typical objectives for biological sampling include:

- measurement of contaminant exposures for ecological receptors,

- measurement of the toxicity of contaminated media (soil, sediments, or water) to laboratory test organisms, and

- measurement of impacts to the community or individual organisms resulting from exposure to contamination.

The results of biological sampling are used in the ecological risk assessment portion of the RFI.

Toxicity Testing. Toxicity testing of environmental media (soil, water, or sediment) provides a direct measurement of the magnitude and type of adverse effects for a test species after exposure to the actual mixture of contaminants from a SWMU. At NAVSTA Mayport, toxicity testing of soil has been completed at SWMU 15, and sediment toxicity testing has been completed at the Group I SWMUs. The testing results are used in the ecological risk assessment (see Section 3.6) to provide a measure of risks. In the absence of toxicity testing results, risks for aquatic receptors associated with exposure to contamination in sediment and soil is difficult to predict. The toxicity testing methods and results will be reported in the respective RFI reports for the particular SWMU where the media samples were collected.

Aquatic Studies. Aquatic studies refer to the collection and analyses of aquatic organisms for the purpose of identifying or quantifying impacts associated with exposure to contamination. Aquatic studies may include quantitative and/or qualitative collections of benthic macroinvertebrates and/or fish. The collections provide information on the abundance of individuals and species as well as the composition of the community. The structure of the community is compared to a noncontaminant exposed community to identify any degradation or stress.

Aquatic studies also provide basic physical and chemical parameters of water and habitat quality and serve to identify potential ecological receptors of contamination from SWMUs. The methods and results of aquatic studies will be reported in the corresponding RFI reports for the particular SWMU.

Chemical Analyses of Plant or Animal Tissues. Analyses of contaminant concentrations in plant and/or animal tissue provide a direct measurement of contaminant exposure for ecological receptors. In the absence of measurements, contaminant exposures for ecological receptors are estimated based on literature-reported bioconcentration or bioaccumulation factors. The estimations are usually conservative and tend to overestimate exposures and associated risks. The collection and analyses of plant and/or animal tissue for contaminant analyses will be described for a particular SWMU in the respective RFI report. Earthworms exposed to soil from SWMU 15 have been analyzed for PCBs and pesticides, and fish have been collected from the ditches surrounding the Group I SWMUs and analyzed for pesticides, PCBs, and mercury.

2.1.6.6 Identification and Characterization of Wetlands The wetland areas at NAVSTA Mayport are identified in accordance with Federal regulations (U.S. Army Corps of Engineers [USCOE], 1987) and State of Florida guidelines (Chapter 17-301, FAC). The wetland is first identified qualitatively through review of available data, including U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, U.S. Geological Survey (USGS) topographic maps, and aerial photographs.

The wetland areas identified at the study site are classified according to systems developed by the USFWS (Cowardin and others, 1979) and the FNAI (1990). Wetland habitats are classified based on information obtained from the field survey, including vegetative structure and composition, topography, land form, substrate, soil moisture, condition, and climate. The information necessary for the classification was collected during the field survey (July 25 through July 31, 1994). Observations and information gathered during the survey were recorded on a blue-line map of the study area as well as in a bound field notebook.

The primary indicator of jurisdictional status is a dominance of hydrophytic vegetation. Other factors considered are relative topography, staining, and soil saturation and inundation. Hydric soil does not appear to have developed in historic wetland areas reclaimed by placement of dredge materials (see Figures 1-3 and 1-4). Consequently, wetland boundary determinations are based primarily on the presence of hydrophytic vegetation and evidence of wetland hydrology. Wetland boundaries were flagged with surveyor's tape and the wetland flags were subsequently surveyed by a Florida-registered surveyor.

2.2 FIELD AND LABORATORY ANALYSES. The following paragraphs summarize the methods used for field screening of surface soil and groundwater samples and field and laboratory analyses of surface and subsurface soil, surface water, sediment, sludge, groundwater, and LNAPL samples. As required by Permit Condition II.C.3. and Section I.B.2. of Appendix A of the HSWA Permit, all laboratory methods of sample analyses follow USEPA document SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1986).

Field Analysis. Field screening of subsurface soil samples consists of measurement of VOCs emitted from split-spoon soil samples (see Subsection 2.1.2.3) collected during the drilling activities for piezometers and monitoring wells. The VOCs are measured with an OVA equipped with a flame ionization detector (FID). The OVA measurements represent a total value for the VOCs emitted from a sample.

Field analyses of subsurface soil and groundwater samples collected with the TerraProbe℠ system (see Subsections 2.1.2.1 and 2.1.4.1, respectively) for total recoverable petroleum hydrocarbons (TRPH) are conducted using a nondispersive infrared analyzer in accordance with USEPA Method 418.1 (modified). The results of the analyses are used to select samples for confirmatory analyses. The selected samples are sent to an NEESA-approved analytical laboratory for confirmatory TRPH analyses (USEPA Method 418.1) under NEESA Level E quality control requirements.

Field analyses of surface and subsurface soil samples collected with a hand auger (see Subsection 2.1.2.2) for PCBs are conducted using the Ensys, Inc., RISc™ immunochemical method for PCB analysis. The results of the PCB field analyses are used to select soil samples for confirmatory analysis. The soil samples were sent to an NEESA-approved analytical laboratory for analyses by USEPA Method 8080 (for PCBs only).

Laboratory Analysis. The analytical program for the NAVSTA Mayport RCRA Corrective Action Program addresses analytes selected from both the 40 CFR 264, Appendix IX, Groundwater monitoring list and the USEPA Contract Laboratory Program target compound list and target analyte list (Tables 2-2 through 2-5). The analytical methodology used was Test Methods for Evaluation of Solid Waste, USEPA SW846, Third Edition, November, 1986 (and update package, 1992).

Table 2-2
Selected Volatile Organic Compounds from Appendix IX Groundwater Monitoring List (40 CFR 264)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

CAS Number	Common Name	SW-846 USEPA Method
74-87-3	Chloromethane	8240/8010
74-83-9	Bromomethane	8240/8010
75-01-4	Vinyl chloride	8240/8010
75-00-3	Chloroethane	8240/8010
75-09-2	Methylene chloride	8240/8010
67-64-1	Acetone	8240
75-15-0	Carbon disulfide	8240
75-69-4	Trichlorofluoromethane	8240/8010
75-35-4	1,1-Dichloroethylene	8240/8010
75-34-3	1,1-Dichloroethane	8240/8010
540-59-0	1,2-Dichloroethene (total)	8240
67-66-3	Chloroform	8240/8010
107-06-2	1,2-Dichloroethane	8240/8010
78-93-3	2-Butanone	8240
71-55-6	1,1,1-Trichloroethane	8240/8010
56-23-5	Carbon tetrachloride	8240/8010
108-05-4	Vinyl acetate	8240
75-27-4	Bromodichloromethane	8240/8010
78-87-5	1,2-Dichloropropane	8240/8010
10061-01-5	cis-1,3-Dichloropropene	8240/8010
79-01-6	Trichloroethene	8240/8010
124-48-1	Dibromochloromethane	8240/8010
79-00-5	1,1,2-Trichloroethane	8240/8010
71-43-2	Benzene	8240
10061-02-6	trans-1,3-Dichloropropene	8240/8010
110-75-8	2-Chloroethylvinylether	8240/8010
75-25-2	Bromoform	8240/8010
591-78-6	2-Hexanone	8240
108-10-1	4-Methyl-2-pentanone	8240
127-18-4	Tetrachloroethene	8240/8010
79-34-5	1,1,2,2-Tetrachloroethane	8240/8010
108-88-3	Toluene	8240
108-90-7	Chlorobenzene	8240/8010
100-41-4	Ethylbenzene	8240
100-42-5	Styrene	8240
1330-20-7	Xylenes (total)	8240
541-73-1	1,3-Dichlorobenzene	8240/8010

See notes at end of table.

Table 2-2 (Continued)
Selected Volatile Organic Compounds from Appendix IX Groundwater Monitoring List (40 CFR 264)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

CAS Number	Common Name	SW-846 USEPA Method
106-46-7	1,4-Dichlorobenzene	8240/8010
95-50-1	1,2-Dichlorobenzene	8240/8010
107-02-8	Acrolein	8240
74-88-4	Iodomethane	8240
107-13-1	Acrylonitrile	8240
74-95-3	Dibromomethane	8240
97-63-2	Ethyl methacrylate	8240
96-18-4	1,2,3-Trichloropropane	8240
110-57-6	trans-1,4-Dichloro-2-butene	8240
75-05-8	Acetonitrile	8240
107-05-1	3-Chloropropene	8240
107-12-0	Propionitrile	8240
126-98-7	Methacrylonitrile	8240
123-91-1	1,4-Dioxane	8240
80-62-6	Methyl methacrylate	8240
106-93-4	1,2-Dibromoethane	8240
630-20-6	1,1,1,2-Tetrachloroethane	8240
96-12-8	1,2-Dibromo-3-chloropropane	8240
76-01-7	Pentachloroethane	8240
78-83-1	Isobutyl alcohol	8240
126-99-8	Chloroprene	8240

Notes: CFR = Code of Federal Regulations.
CAS = chemical abstract service.
SW-846 = U.S. Environmental Protection Agency, 1986 (Final Update 1, 1992).
USEPA = U.S. Environmental Protection Agency.

Table 2-3
Selected Semivolatile Organic Compounds from Appendix IX Groundwater Monitoring List (40 CFR 264)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

CAS Number	Common Name	SW-846 USEPA Method
62-75-9	N-Nitrosodimethylamine	8270
108-95-2	Phenol	8270
62-53-3	Aniline	8270
111-44-4	bis(2-Chloroethyl)ether	8270
95-57-8	2-Chlorophenol	8270
541-73-1	1,3-Dichlorobenzene	8270
106-46-7	1,4-Dichlorobenzene	8270
100-51-6	Benzyl alcohol	8270
95-50-1	1,2-Dichlorobenzene	8270
95-48-7	2-Methylphenol	8270
39638-32-9	bis(2-Chloroethyl)ether	8270
106-44-5	4-Methylphenol	8270
621-64-7	N-Nitroso-di-n-propylamine	8270
67-72-1	Hexachloroethane	8270
98-95-3	Nitrobenzene	8270
78-59-1	Isophorone	8270
88-75-5	2-Nitrophenol	8270
105-67-9	2,4-Dimethylphenol	8270
65-?5-0	Benzoic acid	8270
111-91-1	bis(2-Chloroethoxy)methane	8270
120-83-2	2,4-Dichlorophenol	8270
120-82-1	1,2,4-Trichlorobenzene	8270
91-20-3	Naphthalene	8270
106-47-8	4-Chloroaniline	8270
87-68-3	Hexachlorobutadiene	8270
59-50-7	4-Chloro-3-methylphenol	8270
91-57-6	2-Methylnaphthalene	8270
77-47-4	Hexachlorocyclopentadiene	8270
88-06-2	2,4,6-Trichlorophenol	8270
95-95-4	2,4,5-Trichlorophenol	8270
91-58-7	2-Chloronaphthalene	8270
88-74-4	2-Nitroaniline	8270
131-11-3	Dimethyl phthalate	8270
208-96-8	Acenaphthylene	8270
606-20-2	2,6-Dinitrotoluene	8270
99-09-2	3-Nitroaniline	8270
83-32-9	Acenaphthene	8270
51-28-5	2,4-Dinitrophenol	8270
100-02-7	4-Nitrophenol	8270

See notes at end of table.

Table 2-3 (Continued)
Selected Semivolatile Organic Compounds from Appendix IX Groundwater Monitoring List (40 CFR 264)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

CAS Number	Common Name	SW-846 USEPA Method
132-64-9	Dibenzofuran	8270
121-14-2	2,4-Dinitrotoluene	8270
84-66-2	Diethyl phthalate	8270
7005-72-3	4-Chlorophenyl phenyl ether	8270
86-73-7	Fluorene	8270
100-10-6	4-Nitroaniline	8270
534-52-1	4,6-Dinitro-2-methylphenol	8270
86-30-6	N-Nitrosodiphenylamine	8270
122-66-7	1,2-Diphenylhydrazine	8270
101-55-3	4-Bromophenyl phenyl ether	8270
118-74-1	Hexachlorobenzene	8270
87-86-5	Pentachlorophenol	8270
85-01-8	Phenanthrene	8270
120-12-7	Anthracene	8270
84-74-2	Di-n-butyl phthalate	8270
206-44-0	Fluoranthene	8270
129-00-0	Pyrene	8270
85-68-7	Butyl benzyl phthalate	8270
91-94-1	3,3'-Dichlorobenzidine	8270
56-55-3	Benzo[a]anthracene	8270
218-01-9	Chrysene	8270
117-81-7	bis(2-Ethylhexyl)phthalate	8270
117-84-0	Di-n-octyl phthalate	8270
205-99-2	Benzo[b]fluoranthene	8270
207-08-9	Benzo[k]fluoranthene	8270
50-32-8	Benzo[a]pyrene	8270
193-39-5	Indeno(1,2,3-cd)pyrene	8270
53-70-3	Dibenz[a,h]anthracene	8270
191-24-2	Benzo[ghi]perylene	8270
109-06-8	2-Picoline	8270
66-27-3	Methyl methanesulfonate	8270
62-50-0	Ethyl methanesulfonate	8270
98-86-2	Acetophenone	8270
100-75-4	N-Nitrosopiperidine	8270
122-09-8	Phenyl-tert-butylamine	8270
87-65-0	2,6-Dichlorophenol	8270
924-16-3	N-Nitrosodi-n-butylamine	8270
55-18-5	N-Nitrosodiethylamine	8270
930-55-2	N-Nitrosopyrrolidine	8270

See notes at end of table.

Table 2-3 (Continued)
Selected Semivolatile Organic Compounds from Appendix IX Groundwater Monitoring List (40 CFR 264)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

CAS Number	Common Name	SW-846 USEPA Method
92-87-5	Benzidine	8270
95-94-3	1,2,4,5-Tetrachlorobenzene	8270
608-93-5	Pentachlorobenzene	8270
134-32-7	1-Naphthylamine	8270
91-59-8	2-Naphthylamine	8270
58-90-2	2,3,4,6-Tetrachlorophenol	8270
122-39-4	Diphenylamine	8270
62-44-2	Phenacetin	8270
92-67-1	4-Aminobiphenyl	8270
82-68-8	Pentachloronitrobenzene	8270
23950-58-5	Pronamide	8270
60-11-7	p-(Dimethylamino)azobenzene	8270
57-97-6	7,12-Dimethylbenz[a]anthracene	8270
56-49-5	Methylcholanthrene	8270
110-86-1	Pyridine	8270
10595-95-6	N-Nitrosomethylethylamine	8270
59-89-2	N-Nitrosomorpholine	8270
95-53-4	o-Toluidine	8270
108-39-4	3-Methylphenol	8270
1888-71-7	Hexachloropropene	8270
106-50-3	p-Phenylenediamine	8270
94-59-7	Safrole	8270
120-58-1	Isosafrole	8270
130-15-4	1,4-Naphthoquinone	8270
99-65-0	1,3-Dinitrobenzene	8270
99-55-8	5-Nitro-o-toluidine	8270
99-35-4	1,3,5-Trinitrobenzene	8270
56-57-5	4-Nitroquinoline 1-oxide	8270
91-80-5	Methapyrilene	8270
119-93-7	3,3'-Dimethylbenzidine	8270
53-96-3	2-Acetylaminofluorene	8270
70-30-4	Hexachlorophene	8270

Notes: CFR = Code of Federal Regulations.
CAS = chemical abstract service.
SW-846 = U.S. Environmental Protection Agency, 1986 (Final Update 1, 1992).
USEPA = U.S. Environmental Protection Agency.

Table 2-4
Selected Organo-chlorine Pesticides and Polychlorinated Biphenyls (PCBs) From Appendix IX Groundwater Monitoring List (40 CFR 264)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

CAS Number	Common Name	SW-846 USEPA Method
319-84-6	alpha-BHC	8080
319-85-7	beta-BHC	8080
319-86-8	delta-BHC	8080
58-89-9	gamma-BHC; lindane	8080
76-44-8	Heptachlor	8080
309-00-2	Aldrin	8080
1024-57-3	Heptachlor epoxide	8080
959-98-8	Endosulfan I	8080
60-57-1	Dieldrin	8080
72-55-9	4,4'-DDE	8080
72-20-8	Endrin	8080
33213-65-9	Endosulfan II	8080
72-54-8	4,4'-DDD	8080
7421-93-4	Endrin aldehyde	8080
1031-07-8	Endosulfan sulfate	8080
50-29-3	4,4'-DDT	8080
72-43-5	Methoxychlor	8080
53494-70-5	Endrin ketone	8080
57-74-09	Chlordane	8080
8001-35-2	Toxaphene	8080
12674-11-2	Aroclor-1016	8080
11104-28-2	Aroclor-1221	8080
11141-16-5	Aroclor-1232	8080
53469-21-9	Aroclor-1242	8080
12672-29-6	Aroclor-1248	8080
11097-69-1	Aroclor-1254	8080
11096-82-5	Aroclor-1260	8080
510-15-6	Chlorobenzilate	8080
2303-16-4	Diallate	8080
465-73-6	Isodrin	8080
143-50-0	Kepone	8080

Notes: CFR = Code of Federal Regulations.
CAS = chemical abstract service.
SW-846 = U.S. Environmental Protection Agency, 1986 (Final Update, 1, 1992).
USEPA = U.S. Environmental Protection Agency.

Table 2-5
Selected Inorganic Analytes from Appendix IX Groundwater Monitoring List (40 CFR 264)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

CAS Number	Common Name	SW-846 USEPA Method
7440-36-0	Antimony	7040
7440-38-2	Arsenic	7060
7440-39-3	Barium	6010
7440-41-7	Beryllium	6010
7440-43-9	Cadmium	6010
7440-70-2	Calcium	6010
7440-47-3	Chromium	6010
7440-48-4	Cobalt	6010
7440-50-8	Copper	6010
7439-89-6	Iron	6010
7440-92-1	Lead	7420
7439-95-4	Magnesium	6010
7439-96-5	Manganese	6010
7439-97-6	Mercury	7470
7440-02-0	Nickel	6010
7440-49-2	Selenium	7740
7440-22-4	Silver	6010
7440-23-5	Sodium	6010
7440-28-0	Thallium	7840
7440-31-5	Tin	7870
7440-62-2	Vanadium	6010
7440-66-6	Zinc	6010
5955-70-0	Cyanide	9010

Notes: CFR = Code of Federal Regulations.
CAS = chemical abstract service.
SW-846 = U.S. Environmental Protection Agency, 1986 (Final Update 1, 1992).
USEPA = U.S. Environmental Protection Agency.

Gas chromatography (GC) and mass spectroscopy (MS) methods are used for analysis of environmental and QC samples for VOCs by USEPA Method 8240 and SVOCs by USEPA Method 8270 (Tables 2-2 and 2-3, respectively). VOC and SVOC tentatively identified compounds (TICs) were analyzed only for samples collected during sampling events after 1993.

Environmental and QC samples are analyzed for organochlorine pesticides and PCBs using GC by USEPA Method 8080 (Table 2-4). In addition, at sites known to be contaminated by pesticide, or used for pesticide storage, handling, and mixing, the samples are analyzed for organophosphorus pesticides and organochlorine herbicides using USEPA Methods 8140 and 8150, respectively.

Environmental and QC samples are analyzed for metals by inductively coupled plasma (ICP), graphite furnace atomic absorption (GFAA), or cold vapor atomic absorption (CVAA), as appropriate (e.g. USEPA Methods 6010, 7420, or 7470) (Table 2-5). Environmental and QC samples are analyzed for cyanide using USEPA Method 9010.

2.3 QUALITY CONTROL (QC). This section describes field and laboratory QC procedures followed during the investigation and the procedures followed to evaluate data quality based on the data validation process. Data validation is the technical review of individual analytical results relative to the criteria defined by the DQOs and the QAPP. The DQO for the NAVSTA Mayport RCRA Corrective Action Program is to obtain NEESA Level C data packages. The data validation process described in this section was followed to assess each data package individually for laboratory performance, and to evaluate the analytical results relative to field QC samples such as trip, source, or rinsate blanks. This assessment, is conducted to determine whether the data are acceptable for use in site characterization, risk assessment, and evaluation of corrective measures.

2.3.1 Field QC Field QC samples are used to: (1) assess the existence and magnitude of contaminants introduced during field activities, and (2) assess the potential for introduction of contaminants during sample storage and transport. Three types of field QC samples were used to assess contamination that may have been introduced by field activities. The three types of QC samples were equipment rinsate samples, source blanks, and trip blanks. The description and purpose of each of these three samples are presented in the following paragraphs.

- Equipment Rinsate Blank. After a piece of sampling equipment is decontaminated, it is rinsed with organic-free water manufactured onsite using a portable water filtration system. A sample of the final rinse water is submitted as an equipment rinsate blank. The purpose of the equipment rinsate blank is to assess the adequacy of decontamination procedures by identifying contaminants that may be introduced because of incomplete equipment decontamination or by not allowing the equipment to dry completely. The number of rinsate blanks is based on one per decontamination episode. Equipment rinsate blanks are analyzed for the same analytical parameters as the corresponding environmental samples. Equipment rinsate blanks are typically identified with the letters "QS," "R," or "RB" in the alpha-numeric designator.

- Source Blank. The source blank is a sample of the organic free water manufactured onsite using a portable organic free water filtration system. This blank is used to assess contamination that may have been introduced by the organic free water system or the water filtration system. The number of source blanks analyzed is based on either one source blank for each batch of organic free water or one per field event. The source blank is analyzed for the same parameters as the corresponding environmental samples. Source blanks are typically identified with the letters "K" in the alpha-numeric designator.

- Trip Blank. The trip blank is a sample of organic free water that is prepared and similarly packaged by the laboratory prior to the sampling event and travels with the sampling bottles to the site. The trip blank samples are not opened at the site or at any time prior to laboratory analysis. The purpose of the trip blank is to assess the potential for contamination of the samples via VOCs during sample bottle shipment and storage, prior to analysis. One trip blank is included in each shipping container that contains VOC samples and is typically identified by the specific date or the letter "T" in the alpha-numeric designator.

2.3.2 Laboratory QC Laboratory QC samples are used to (1) assess the existence and magnitude of contaminants introduced during the analysis of the samples, (2) assess the potential introduction of contaminants during sample storage and transport, and (3) assess the precision and accuracy of the chemical analytical methodology. Two types of laboratory QC samples are used to assess the existence and magnitude of contamination that may have been introduced by laboratory activities: the method blank for organics analysis and the preparation blank for inorganics analysis. Four other laboratory QC samples used to assess analytical precision and/or accuracy are the duplicate sample, matrix spike and matrix spike duplicate (MS/MSD), and laboratory control samples (LCS). Compounds of known concentration (surrogates) are added (spiked) to each environmental sample to assess analytical accuracy and precision. The description and purpose of these samples are presented in the following paragraphs.

- Method Blank and Preparation Blank. The method and preparation blanks are samples of organic free water prepared by the laboratory at the time of analysis. Method and preparation blanks are treated as samples in that they undergo the same analytical process as the corresponding environmental samples. The purpose of the method blank is to assess the potential for contamination of samples via VOCs, SVOCs, pesticides, and PCBs during sample analysis. The preparation blank is used to assess the potential contamination of samples via Appendix IX or CLP TAL inorganic parameters. The method and preparation blanks are used by the laboratory and in the data validation process to monitor analytical performance, to assess contamination introduced during the analytical process, and to assess the representativeness of the chemical analytical procedure.

- Duplicate Sample. One duplicate or replicate field sample is collected for every 10 field samples of the same matrix. The duplicate sample is collected from the same location and depth interval, as appropriate, of an environmental sample. The purpose of the duplicate samples is to assess sample analytical precision. The duplicate sample is analyzed for the same analytical parameters as the environmental sample.

- Matrix Spike and Matrix Spike Duplicate (MS/MSD) Sample Pairs. One MS/MSD sample pair is collected for every 20 field samples of the same matrix. The MS/MSD sample pair is collected from the same location and depth interval, as appropriate, of an environmental sample. The purpose of the MS/MSD sample pair is to assess sample analytical accuracy and precision of analytical methods for organic compounds.

- Matrix Spike Sample. Predigestion Appendix IX inorganic parameter spikes are analogous to the MS/MSD spike recovery for organic analyses in that they measure the effects of the sample matrix on the recovery of a known quantity of analyte after both sample preparation and analysis. If the predigestion spike recovery does not fall within the acceptance window of 75 to 125 percent, then a postdigestion spike monitors instrument performance and matrix effects. If both the pre- and postdigestion spike recoveries fall outside the acceptance limits, then the data are flagged to indicate nonconformance.

- Laboratory Control Sample (LCS). An LCS consists of an ideal matrix (usually organic free water) spiked with a known amount of a reference material. The LCS is prepared (digested) and analyzed with the field samples. The LCS is designed to monitor the efficiency of the overall analytical procedure, including sample preparation, and the resulting analyte recoveries must fall within preestablished acceptance limits.

- Surrogate Spikes. Surrogate spike recoveries serve to estimate accuracy and are added to every sample. Surrogate compounds are the structural homologs of target compounds, often with deuterium substituted for hydrogen, and are, therefore, expected to behave in a similar manner during analysis. Spike recoveries are used to monitor both matrix effects and laboratory performance.

2.3.3 Data Review and Validation Summary Before the analytical results are released by the laboratory, both the sample and QC data are carefully reviewed to verify sample identity, instrument calibration, detection limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. The QC data are reduced and spike recoveries are included in control charts, and the resulting data are reviewed to ascertain whether they are within the laboratory-defined limits for accuracy and precision. Any nonconforming data are discussed in the data package cover letter and case narrative.

Data validation is the technical review of a data package using criteria established in the DQOs and the QAPP. The data are reviewed and validated using the NEESA (1988) guidance document 20.2-047B, *Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program*. The data review and validation process is independent of the laboratory's checks.

Qualifiers are applied by both laboratory and data validators for analytical results when an analyte is not detected above the reported sample quantitation limit or when the analysis does not meet the acceptance criteria. Qualifiers are flags consisting of single- or double-letter abbreviations that may indicate nondetection of an analyte, or a problem with the accuracy or precision of the reported analytical results, or inability to positively identify an analyte. Flags used in the data summary tables include the following.

U Undetected. The analyte was not detected above the CRQL. The "U" designator also is used to qualify common laboratory contaminants. The "U" designator is applied to an environmental sample when the common laboratory contaminant is detected in an environmental sample at a concentration less than 10 times the value of the concentration detected in any corresponding field QC blank, method blank, or preparation blanks.

J Estimated. The analyte was present, but the reported value may not be accurate or precise and is estimated. The "J" designator is used to qualify an analyte that was present at a concentration between the CRQL and method detection limit (MDL), or the data "failed" some of the analytical validation criteria but not a sufficient amount of validation criteria to reject the data.

UJ UJ indicates that the quantitation limit is estimated and may not accurately and precisely measure the analyte in the sample. The analyte was not detected above the reported sample quantitation limit.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

R Rejected. Data were rejected by the data validator during comparison of the NEESA Level C data package with the analytical functional guideline criteria. The "R" designator indicates a significant variance in acceptable laboratory performance. The presence or absence of the analyte cannot be verified. Either reanalysis or resampling and analysis would be necessary to determine the presence or absence of the target analyte(s).

The above data qualifiers, as defined by USEPA functional guidelines (USEPA, 1988b; 1990a) are used in reporting validated data. Fully usable data are reported without qualifiers and are equivalent to RCRA Level I data (USEPA, 1988b). Data qualified as estimated values are flagged with a "J," and are equivalent to RCRA Level II data. However, both the fully usable data and the data qualified with a "J" are acceptable for use in remedial investigations, risk assessments, and corrective measures studies. Data that are determined to be unusable or are questionable due to significant QA/QC variances are flagged with an "R," and are equivalent to RCRA Level III data.

Once the data are reviewed and validated, the data are evaluated using the PARCC criteria included in the DQOs of the SAP (ABB-ES, 1991a). The following subsections provide an explanation of the PARCC criteria evaluation that will be conducted for each RFI report.

2.3.4 Precision Precision is a measure of the agreement or repeatability of a set of replicate results obtained from duplicate laboratory analyses of samples collected from the same location and depth interval. Precision was calculated from laboratory analytical data and cannot be measured directly. Precision is a quantitative measure that is expressed as the relative percent difference (RPD)

between analytical values for two samples from the same source divided by the average of their analytical value. The values used to assess precision are obtained from estimated ("J" qualifier) and positive detections above the CRQL or IDL and values from the spiked target analytes. Precision is calculated using the equation:

$$RPD = \frac{D_1 - D_2}{\frac{1}{2}(D_1 + D_2)} \times 100$$

where D_1 and D_2 are the reported values for the duplicate samples. Precision is evaluated using the results of the following comparisons:

- environmental sample(s) and a replicate of the environmental sample(s),
- environmental sample(s) and laboratory duplicate(s),
- MS/MSD, and
- two laboratory control samples in the absence of MS/MSD samples.

Sources of poor precision include sample heterogeneity, improper handling of samples, or imprecise preparation or analysis of the samples.

2.3.5 Accuracy Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. Accuracy is calculated from the analytical data and is not measured directly. Accuracy is used to identify the bias in a given measurement system (i.e., laboratory conditions, sample matrix, and sampling conditions) and is assessed by reviewing the Percent Recovery (%R) between the true value of the spiked analyte and the actual analytical value. Accuracy is calculated using the equation:

$$\%R = \frac{A - B}{C} \times 100$$

where

A = measured concentration of the spiked analyte,
B = measured concentration of the spiked compound in the unspiked sample, and
C = true concentration of the spiked analyte.

For organic analysis, each of the samples are spiked with a surrogate compound, and for inorganic analysis, each sample is spiked with a known reference material before digestion. Each of these approaches provides a measure of the matrix effects on the analytical accuracy.

Accuracy is assessed by evaluating the %R for spiked target analytes in MS/MSD samples, surrogate recovery samples, and laboratory control samples. The spike recoveries provide an indication of bias, where the reported data may overestimate or underestimate either the actual concentration of compounds detected or the quantitation limits. Recoveries outside acceptable QC limits may be caused by factors such as matrix interference or poor recovery of some of the target analytes.

2.3.6 Representativeness Representativeness is a qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition. Representativeness is a subjective parameter and is used to evaluate the efficiency of the sampling plan design. Representativeness is evaluated using the QC blank sample results. QC blank samples are trip blanks, source blanks, equipment rinsate blanks, laboratory method blanks for organic analysis, and laboratory preparation blanks for inorganic analysis.

Positive detections of compounds in the QC blank samples identify compounds that possibly have been introduced to the associated field samples during sample collection, transport, or analysis. Contaminants should not be detected in the QC blanks. The presence of target analytes in the QC blanks provides an estimate of bias to the environmental samples due to cross contamination in the field or laboratory.

2.3.7 Comparability Comparability is a qualitative measure designed to express the confidence with which one data set may be compared with another. Comparability is assessed by reviewing the data to determine that all data were acquired by using standard operating procedures for sampling, standard analytical methods for analysis, and by reporting analytical results in standard units. Comparability may also be assessed by review of the analytical method practical quantitation limits. Factors that affect comparability are sample collection and handling techniques, sample matrix type, and analytical methods. Comparability is limited by other PARCC parameters because only when precision and accuracy are known can data sets be compared with confidence.

Comparability of the NAVSTA Mayport analytical data is assured by using standard operating procedures for sample collection, by using standard chemical analytical methods, and by reporting the analytical results in standard units.

2.3.8 Completeness Completeness is defined as the percentage of measurements that are judged to be valid compared to the total number of measurements made. Valid usable values are data that are not qualified as rejected (R qualifier) by the data validation process. Completeness is evaluated to determine if an acceptable level of data was obtained so that a scientific site assessment can be completed with valid usable data. Completeness equals the total number of analytes in each sample (equipment rinsate, field and trip blanks, and duplicate samples) minus the total number of rejected analytes divided by the total number of analytes.

2.4 ECOLOGICAL RISK ASSESSMENT METHODOLOGY. Ecological Risk Assessments (ERAs) evaluate actual and potential adverse effects to ecological receptors associated with exposure to contamination from SWMUs at NAVSTA Mayport. The ERAs for SWMUs requiring an RFI will be completed in accordance with current guidance materials for ERAs at Superfund sites including the following:

- *Risk Assessment Guidance for Superfund Environmental Evaluation Manual* (USEPA, 1989f);
- *Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Reference* (USEPA, 1989g); and
- *Ecological Assessment of Superfund Sites: An Overview* (USEPA, 1991f).

Recent risk assessment guidance including the USEPA "Eco Update" bulletins (USEPA, 1991c; 1992g; 1992h) and recent publications (e.g., Maughan, 1993; Suter, 1993) will also be consulted.

The assessment approach integrates both field and predictive methodologies to assess risks. The decisions regarding overall risk to ecological receptors are based on the weight-of-evidence from the results of all components of the assessment methodology (i.e., an approach that integrates results of physical, biological, toxicological, and modeling studies to draw risk-based conclusions). The weight-of-evidence components were designed to provide measures of risks for different ecological receptors, exposure pathways, and potential adverse effects.

The following subsections describe the five components of an ERA including problem formulation, exposure assessment, ecological effects assessment, risk characterization, and uncertainty analyses.

2.4.1 Problem Formulation Problem formulation is the initial step of the ERA process. Problem formulation is composed of identification of receptors, identification of exposure pathways for those receptors, and the assessment and measurement endpoints selected for the ERAs.

Identification of Receptors. Potential ecological receptors include both aquatic and terrestrial plants and animals. The ecological receptors will include identification of plant and animal species listed by State and Federal agencies as threatened or endangered which may inhabit or potentially visit the station or if appropriate the individual sites. Lists of aquatic receptors typically include invertebrates, plants, algae, amphibians, and fish. Terrestrial wildlife receptors include mammals, birds, reptiles, invertebrates, and amphibians. Aquatic species identified during the biological field investigations also will be used to identify plants and aquatic and terrestrial wildlife receptors. This information will be used as the basis to select and provide rationale for species evaluated during the ecological risk assessment

Identification of Exposure Pathways. Exposure pathways are identified for four groups of ecological receptors (terrestrial and wetlands wildlife, terrestrial plants, terrestrial invertebrates, and aquatic receptors). The exposure pathway includes a source of contamination, contaminated media (surface soil, food, groundwater, surface water, or sediment), and an exposure route. A conceptual model of the exposure pathways from source to ecological receptors will be developed for each SWMU or group of SWMUs.

Identification of Endpoints. The endpoints selected for the ERA will be identified and listed at the beginning of the ERA process. Examples of endpoints are provided in Table 2-6. Measurements of actual toxicity and adverse effects are completed where possible to decrease uncertainties and to measure the adverse effects associated with the actual mixture of contaminants present in environmental media (soil, water, and sediment). The measurement and assessment endpoints for aquatic receptors, terrestrial and wetlands wildlife, and terrestrial plants and invertebrates are discussed separately. Assessment endpoints represent the ecological component to be protected, whereas the measurement endpoints approximate or provide a measure of the achievement of the assessment endpoint.

Table 2-6
Example of Possible Endpoints for Ecological Risk Assessment

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Media	Receptor	Mayport Assessment Endpoint	Measurement Endpoint
Surface Water	Aquatic life (invertebrates, fish, plants, and amphibians)	Survival and maintenance of benthic macroinvertebrate community structure and function.	Direct measurement of macroinvertebrate community structure and function.
		Survival and maintenance of fish, macroinvertebrate, and aquatic plant populations.	Contaminant concentrations in surface water associated with adverse effects to growth, reproduction, or survival of aquatic organisms.
Sediment	Aquatic life (invertebrates, fish, plants, and amphibians)	Survival and maintenance of benthic macroinvertebrate community structure and function.	Field sampling and measurement of macroinvertebrate community structure and function.
		Survival and maintenance of fish, macroinvertebrate, and aquatic plant populations.	Toxicity testing of sediment. Contaminant concentrations in sediment associated with adverse effects to growth, reproduction, or survival of aquatic organisms.
Surface water, sediment, and surface soil	Terrestrial and wetlands wildlife	Survival of wildlife populations and communities.	Oral contaminant exposure concentrations representing adverse effects to growth, reproduction, or survival of mammalian or avian laboratory test populations.
Surface soil	Terrestrial invertebrates	Survival of terrestrial invertebrate communities	Survival and growth of earthworms exposed to surface soil samples in laboratory toxicity tests.
Surface soil	Terrestrial plants	Survival, reproduction, and growth of plant communities.	Germination of lettuce seeds exposed to surface soil samples in laboratory toxicity tests.

Selection of Ecological Chemicals of Potential Concern (ECPCs). ECPCs represent the analytes detected in media (surface soil, surface water, sediment, or groundwater) that are considered in the ERA. The ECPCs are assumed to be associated with waste disposal practices at the SWMUs and could present a potential risk for ecological receptors. Surface water and sediment ECPCs are selected separately for wildlife and aquatic receptors because available ECPC screening tools distinguish between these two groups of receptors. Pursuant to USEPA (1989f; 1989g) national guidance, analytical data for each site at NAVSTA Mayport are evaluated to determine their validity for use in risk assessment. Analytes are not selected as ECPCs if the site concentrations are within 5 to 10 times the concentrations in associated trip blanks or method blanks. In addition, analytes in surface soil, surface water, sediment, and groundwater are not selected as ECPCs if the analyte was detected in 5 percent or fewer of the samples analyzed and were not selected as ECPCs in any other media. However, the analyte will not be eliminated if it is determined to be a "hot spot" of contamination. In accordance with USEPA Region IV guidance (USEPA, 1991g), if the maximum detected concentration of an inorganic analyte is less than 2 times the average inorganic concentration detected in the respective upgradient (surface water, sediment, or groundwater) or background samples (surface soil), then the analyte is not selected as an ECPC.

All analytes in surface soil, surface water, and sediment retained as ECPCs after the first two steps are selected as ECPCs for terrestrial or wetlands wildlife. ECPCs for aquatic receptors for groundwater, surface water, and sediment are selected based on an additional step, in accordance with USEPA Region IV guidance (USEPA, 1991g; 1992i). Analytes in sediment are selected as ECPCs if the maximum concentration detected exceeds the USEPA Region IV screening values for sediment (USEPA, 1994d) or is 2 times higher than the concentration in the upgradient reference station (inorganics only). Analytes are selected as ECPCs if a USEPA Region IV Sediment Screening Value is unavailable. Analytes in surface water and groundwater are retained as ECPCs for aquatic receptors if the maximum concentration detected exceeds the USEPA Region IV screening concentration (USEPA, 1992i) or exceeds the average concentration times 2 in the upgradient reference station (inorganics only) or a screening value is not available.

Calcium, magnesium, potassium, and sodium are excluded as ECPCs for all media as they are considered to be essential nutrients and are only toxic at extremely high concentrations. Evidence suggests that there is little potential for toxic effects resulting from overexposure to these essential nutrients. The highly controlled physiological regulatory mechanisms of these inorganics suggest that there is little, if any, potential for bioaccumulation, and available toxicity data demonstrate that high dietary intakes of these nutrients are well tolerated (National Academy of Sciences [NAS], 1977; National Research Council [NRC], 1984; 1982).

All ECPCs selected for the ERA are summarized in tables that include:

- the frequency of detection,
- range of contract required quantitation limits (CRQLs) and contract required detection limits (CRDLs),
- range of detected concentrations,

- average detected concentration,
- average of all concentrations (only for analytes selected as ECPCs),
- 95th percentile upper confidence limit (UCL) (only for analytes selected as ECPCs),
- USEPA Region IV screening criteria (surface water and sediment only), and
- twice the average background or upgradient concentration for each of the inorganic analytes.

2.4.2 Exposure Assessment Exposure assessment is the process of estimating or measuring the amount of an ECPC in environmental media (surface soil, surface water, sediment, food items, or groundwater) to which an ecological receptor may be exposed via respective exposure routes. The following paragraphs discuss how contaminant exposures are, in general, estimated or measured for aquatic receptors, wildlife, terrestrial plants, and terrestrial soil invertebrates.

Aquatic Receptors. The exposure concentrations for aquatic receptors are the amount of each ECPC measured in analytical samples of surface water and sediment at respective sampling locations. Sediment samples collected for toxicity testing represent exposure of laboratory-grown test organisms to the actual mixture of contaminants in the system, and represent a means for measurement of bioavailability and responses to sediment contamination.

Terrestrial and Wetlands Wildlife. Routes of contaminant exposure for wildlife for which exposure concentrations are measured or estimated are decided on a site-specific basis. Exposure routes usually include direct or indirect ingestion of soil, surface water, or sediment and ingestion of contaminated food. Concentrations of the ECPCs measured in surface soil samples are used to estimate contaminant exposures for wildlife receptors. Typically maximum and average concentrations are used to approximate worst-case and average contaminant exposures.

The actual amount of an ECPC taken in by a wildlife species as the result of indirect or direct ingestion of water, soil, or sediment is dependent on a number of factors. To consider these factors, certain species are selected as representative wildlife species for evaluation in a food chain model. The representative wildlife species include mammalian and avian species representing the range of trophic levels and body sizes present at the SWMU. Table 2-7 summarizes how contaminant exposure concentrations are determined for ECPCs in surface soil, sediment, and surface water for the representative wildlife species evaluated in the food web model.

A total Potential Dietary Exposure (PDE) is estimated for each representative wildlife species for each surface soil ECPC according to the equations in Table 2-7. The PDE is calculated based on the predicted concentrations of the ECPCs in food items that the species would consume, the amount of soil it would ingest, the relative amount of different food items in its diet, body weight, and food ingestion rate. If measurements of concentrations of contaminants in prey items have been collected, then these values are used in place of the estimated values.

Table 2-7
Model for Prediction of Contaminant Exposures for Representative Wildlife Species

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Prediction of Contaminant Exposures Related to Surface Soil

Description:	Estimates the amount (dose) of a contaminant ingested and accumulated by a species via incidental ingestion of contaminated surface soil and ingestion of contaminated food items.
Soil Contaminant Concentration:	Maximum: The maximum detected concentration of the ECPC when the sample size is ≤ 3, and the lesser of the maximum detected concentration or the 95th percent UCL when the sample size is ≥ 4. Average: Average of detected concentrations. If the average is greater than the maximum exposure point concentration (EPC), the maximum EPC was selected.
Concentration of a Contaminant in a Food Item (T_N):	$$\underset{(mg/kg)}{\text{Food Contaminant Concentration}} = BAF \times \underset{(mg/kg)}{\text{Soil Contaminant or Prey Item Concentration}}$$ where BAF = bioaccumulation factor = mg/kg fresh weight tissue divided by mg/kg dry weight soil for invertebrates and plants, and mg/kg fresh weight tissue divided by mg/kg fresh weight food for small mammals and small birds.
Potential Dietary Exposure (PDE):	$$PDE = \frac{[P_1 \times T_1 + P_2 \times T_2 + \ldots + P_N \times T_N + \text{soil exposure}] \times IR_{Diet} \times SFF \times ED}{BW}$$ where PDE = potential dietary exposure (mg/kg BW-day); P_N = percent of diet composed of food item N; T_N = tissue concentration in food item N (mg/kg); IR_{Diet} = food ingestion rate of receptor (kg of food or dietary item per day); BW = body weight (kg) of receptor; SFF = site foraging frequency (site area [acres] divided by home range [acres]); assumed to be equal to 1 for lethal exposure scenario; and ED = exposure duration (fraction of year species is expected to occur onsite).
Soil Exposure:	$$\underset{(mg/kg)}{\text{Soil Exposure}} = (\%\ \text{of Diet as Soil}) \times \underset{(mg/kg)}{\text{Soil Contaminant Concentration}}$$

See notes at end of table.

Table 2-7 (Continued)
Model for Prediction of Contaminant Exposures for Representative Wildlife Species

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Prediction of Contaminant Exposures Related to Surface Water and Sediment

Description: Estimates the amount of a contaminant ingested and accumulated by a species resulting from ingestion of surface water, incidental ingestion of sediment, and ingestion of contaminated aquatic food items.

Contaminant Concentration: Same as described above for soil

Contaminant Concentration in Aquatic Prey Tissue (mg/kg):

$$\begin{matrix}\text{Aquatic Prey Contaminant Concentration} \\ (mg/kg)\end{matrix} = [BAF \times \begin{matrix}\text{Sediment Contaminant Concentration} \\ (mg/kg)\end{matrix}] + [BCF \times \begin{matrix}\text{Surface Water Contaminant Concentration} \\ (mg/\ell)\end{matrix}]$$

where

BCF = bioconcentration factor (mg/kg of contaminant in food item per mg/ℓ of contaminant in water), only BCFs greater than 300 were considered as per USEPA, 1989f; and

BAF = bioaccumulation factor (see note above)

Sediment Exposure:

$$\begin{matrix}\text{Sediment Contaminant Exposure} \\ (mg/day)\end{matrix} = \begin{matrix}\text{\% of Diet as Sediment}\end{matrix} \times IR_{diet} (kg/day) \times \begin{matrix}\text{Sediment Contaminant Concentration} \\ (mg/kg)\end{matrix}$$

Surface Water Exposure:

$$\begin{matrix}\text{Surface Water Contaminant Exposure} \\ (mg/day)\end{matrix} = \begin{matrix}\text{Surface Water Contaminant Concentration} \\ (mg/\ell)\end{matrix} \times \begin{matrix}\text{Water Ingestion Rate} \\ (\ell/day)\end{matrix}$$

Aquatic Prey Exposure:

$$\begin{matrix}\text{Aquatic Prey Exposure} \\ (mg/day)\end{matrix} = \begin{matrix}\text{\% Diet as Aquatic Prey}\end{matrix} \times IR_{diet} (kg/day) \times \begin{matrix}\text{Aquatic Prey Contaminant Concentration} \\ (mg/kg)\end{matrix}$$

where

IR_{diet} = food ingestion rate of receptor (kg of food per day).

Total Exposure Related to Surface Water and Sediment:

$$\begin{matrix}\text{Potential Dietary Exposure} \\ (mg/kg)\end{matrix} = \frac{\begin{matrix}\text{Aquatic Prey Exposure} \\ (mg/kg)\end{matrix} + \begin{matrix}\text{Surface Water Exposure} \\ (mg/kg)\end{matrix} + \begin{matrix}\text{Sediment Exposure} \\ (mg/kg)\end{matrix}}{BW}$$

where

BW = body weight (kg) of receptor.

Notes:
ECPC = ecological chemicals of potential concern.
≤ = less than or equal.
UCL = upper confidence limit.
mg/kg = milligrams per kilogram.
mg/kg BW-day = milligrams per kilogram of body weight per day.
kg = kilogram.
% = percent.
mg/ℓ = milligrams per liter.
USEPA = U.S. Environmental Protection Agency.
mg/day = milligrams per day.
kg/day = kilograms per day.
IR = ingestion rate.
ℓ/day = liters per day.

Prey items for wildlife species in the food web exposure models include invertebrates and plants. Concentrations of ECPCs in invertebrate and plant tissues are estimated using bioaccumulation factors (BAFs). BAFs in invertebrates and plant prey items are defined as the ratio of the ECPC concentration in plant or invertebrate tissue to the ECPC concentration in surface soil. The BAFs reported for avian and mammalian receptors are defined as the reported ratios of ECPC concentrations in the tissues of these receptors to the concentrations of ECPCs in their food items. BAFs are extrapolated from literature values or regression equations in the scientific literature. If literature values are not available, BAFs may be estimated using best professional judgment.

The site foraging factor (SFF) allows for consideration of the frequency of feeding in the site area by estimating the acreage of the site relative to the receptor's feeding range and by considering the fraction of the year the receptor would be exposed to site contaminants. By definition, the SFF cannot exceed one.

For each representative wildlife species, the estimated percentage of soil in the overall diet is multiplied by the concentration of each ECPC in the soil and the food ingestion rate (kg per day) to determine the soil exposure concentration. Incidental soil ingestion associated with foraging activities is based on a study by Beyer and others (1991), the USEPA Exposure Factors Handbook (USEPA, 1993f), or is conservatively assumed to represent 5 percent of the total dietary intake.

Total contaminant exposure for representative wildlife species related to ECPCs in surface water and sediment may be determined according to the equation in Table 2-7. This model considers exposure concentrations of ECPCs in prey items, the amount of sediment and surface water that wildlife ingest, body weight, food ingestion rate, and water intake rate.

2.4.3 Ecological Effects Assessment The ecological effects assessment describes the potential adverse effects to ecological receptors associated with the identified ECPCs and reflects the type of assessment endpoints selected. The general methods used for identifying and characterizing ecological effects for ECPCs in surface soil, surface water, sediment, and groundwater are described in the following paragraphs.

Surface Soil. The measures of adverse ecological effects for terrestrial wildlife and terrestrial plants, and soil invertebrates are discussed separately. Potential adverse ecological effects for wildlife are estimated for each ECPC based on available literature information. Reference toxicity values (RTVs) are determined for each ECPC for avian and mammalian receptors. The RTV relates the dose of a respective ECPC in an oral exposure with an adverse effect. For each ECPC identified and each representative wildlife species selected, two RTVs are identified. A lethal RTV represents the threshold for lethal effects and is based on oral LD_{50} (oral dose lethal to 50 percent of a test population). The lethal RTV is one-fifth of the lowest reported LD_{50} for the most closely related test species. One fifth of an oral LD_{50} value is considered to be protective of lethal effects for 99.9 percent of individuals in a test population (USEPA, 1986a). An assumption is made that the value represented by one fifth of an oral LD_{50} would be protective of 99.9 percent of the individuals within the terrestrial wildlife populations and represents a level of acceptable risk.

A sublethal RTV is also identified that represents a threshold dose for sublethal effects. Sublethal effects are defined as those that impair or prevent reproduction, growth, or survival.

The RTVs are assumed to be a measure of the assessment endpoints for protection of the survival, growth, and reproduction of terrestrial wildlife populations. RTVs are derived separately for avian and mammalian species.

If neither lethal nor sublethal toxicity information is available for an ECPC, it is not possible to identify RTVs and risks associated with the predicted exposure, because the respective ECPCs are not quantitatively evaluated.

The toxicity of ECPCs in surface soil is measured either by use of soil laboratory toxicity tests or evaluated based on literature information. Soil toxicity testing is available for some SWMUs and includes a 14-day survival toxicity test with earthworms (*Eisenia foetida*) and a seed germination toxicity test with lettuce seed (*Lactuca sativa*) (Green and others, 1989). Bioaccumulation of contaminants in earthworms was determined for some SWMUs by measuring the concentrations of contaminants in worm tissue following completion of the soil toxicity testing.

In the absence of toxicity testing, literature information is consulted to evaluate the toxicity of ECPCs in soil to invertebrates and plants. Concentrations of ECPCs in soil reported to be toxic to invertebrates and plants are compared with site concentrations to evaluate risks.

Surface Water and Sediment. Lethal and sublethal RTVs are identified for each ECPC in sediment and surface water for the representative wildlife species, as previously described. Potential adverse ecological effects associated with ECPCs for aquatic receptors is evaluated by the use of toxicity testing. When toxicity testing is unavailable, adverse effects associated with ECPCs in surface water are also evaluated by comparing the ECPC concentrations in surface water, groundwater, and sediment samples with available standards and reported toxicity benchmark values (TBVs).

If toxicity testing data are available, toxicity benchmarks for each of the ECPCs in surface water and sediment are identified. State of Florida Surface Water Quality Standards (Florida Legislature, 1995) and Federal Ambient Water Quality Criteria (AWQC) (USEPA, 1991h) are considered. Additional aquatic toxicity information for ECPCs is obtained from searches of the USEPA Aquatic Information Retrieval (AQUIRE) database. Sediment toxicity benchmarks selected for comparison to detected sediment concentrations include National Oceanic and Atmospheric Administration (NOAA) Effects Range-Low (ER-L) and Effects Range-Median (ER-M) sediment guidelines (Long and others, 1993), USEPA Sediment Quality Guidelines (SQG) based on equilibrium partitioning (USEPA, 1988d), and State of Florida sediment guidelines (MacDonald, 1994).

Groundwater. Potential adverse effects associated with ECPCs in groundwater are available in the form of laboratory aquatic toxicity testing results for individual ECPCs. Aquatic toxicity information for the ECPCs is obtained from searches of the USEPA AQUIRE database. Additional toxicity benchmarks include the State of Florida Surface Water Quality Standards (Florida Legislature, 1995) and USEPA AWQC (USEPA, 1991h). Groundwater will only be evaluated where transport of contamination to a nearby surface water body is reasonably expected to occur.

2.4.4 Risk Characterization The following paragraphs describe how risks are characterized for ecological receptors. Potential adverse ecological effects are characterized separately for terrestrial and wetlands wildlife, terrestrial plants, and soil invertebrates resulting from exposure to ECPCs in surface soil, surface water, sediment, and groundwater. Risks may be characterized for aquatic receptors for exposures resulting from ECPCs in surface water, sediment, and groundwater.

Surface Soil. Risks associated with ingestion of surface soil and food by the representative wildlife species are quantitatively evaluated using Hazard Quotients (HQs), which are calculated for each ECPC by dividing the estimated dietary exposure concentration (PDE) by the toxicological benchmark (RTV) Hazard Indices (HIs), which are determined for each representative wildlife species by summing the HQs for all ECPCs. When the estimated PDE is less than the RTV (i.e., the HQ < 1), the contaminant exposure is assumed to fall below the range considered to be associated with adverse effects for growth, reproduction, and survival (of the individual organism), and no risks to the wildlife populations are assumed. When the HQ or HI is greater than 1, a discussion of the ecological significance is included and risk is assumed. When HIs are greater than 1, an evaluation of the HQs comprising the HI is completed. The number of affected individuals in a population presumably increases with increasing HQ or HI values; therefore, the likelihood of population level effects occurring is generally expected to increase with higher HQ or HI values.

Risks for terrestrial plants and soil invertebrates are characterized based on the responses of the test population observed in the toxicity testing. If adverse effects are observed in either of the toxicity tests, simple linear regressions are completed to determine if correlation(s) exists between the concentration of an analyte and the adverse response measured in the bioassay. Further qualitative consideration and discussion of the weight-of-evidence is also completed to characterize risk to these receptors.

Surface Water and Sediment. Risks associated with exposure to ECPCs in surface water and sediment are characterized separately for aquatic receptors and wildlife. Risks for aquatic receptors are characterized for each sampling location based on a weight-of-evidence evaluation of the following factors:

- presence or absence of analytes in surface water and sediment samples;
- concentrations of analytes measured in surface water and sediment samples;
- responses of *H. azteca* or *A. abdita* in the sediment laboratory toxicity tests;
- concentrations of ECPCs in surface water relative to reported toxicity of the ECPC in laboratory tests (AQUIRE information), Federal AWQC (USEPA, 1991h), and State of Florida Surface Water Quality Standards (FAC 62-302);
- concentrations of ECPCs in sediment relative to threshold effect levels (TELs) and probable effects levels (PELs) for Florida Coastal Sediments (McDonald, 1994), NOAA ER-L and ER-M sediment guidelines (Long and others, 1993), USEPA sediment quality guidelines based on equilibrium partitioning (USEPA, 1988d), Ontario Minister of the Environment (OME) Lower Effects

Level (LEL) provincial sediment quality guidelines (Persaud and others, 1989); and

- physical and chemical factors in the aquatic environment (other than chemical contamination).

If toxicity test results are negative, simple linear regressions are completed to determine if a correlation exists between the concentration of an analyte in sediment samples and the adverse response in the toxicity test.

Risks for the representative wildlife species associated with ingestion of surface water, potentially contaminated aquatic life, and sediment are quantitatively evaluated using HQs, which are calculated for each ECPC by dividing the estimated contaminant exposure concentration by the RTV. HIs are determined for each representative wildlife species by summing the HQs for all ECPCs. When the estimated exposure concentration of an individual ECPC is less than the respective RTV (i.e., the HQ < 1), the contaminant exposure is assumed to fall below the range considered to be associated with adverse effects for growth, reproduction, and survival (of the individual organism), and no risks to the wildlife populations are assumed. When the ratio is greater than 1 (i.e., HQ or HI > 1), a discussion of the ecological significance is included and risk is assumed. When HIs are greater than 1, an evaluation of the HQs comprising the HI is completed.

Groundwater. Risks for aquatic life associated with exposures to ECPCs in groundwater as it discharges to surface waters is evaluated. Predicted concentrations of the ECPCs in surface waters are compared to toxicity information from AQUIRE and promulgated State and Federal standards. When exposure concentrations exceed the toxic concentrations or standards, the magnitude and probability of risks are characterized.

2.4.5 Uncertainty Analyses Uncertainties in the ERA process are identified and discussed in subsequent RFI reports with emphasis placed on discussion of the assumptions and data gaps that may influence the results and conclusions.

2.5 HUMAN HEALTH RISK ASSESSMENT METHODOLOGY. The Human Health Risk Assessment (HHRA) for RFI activities at NAVSTA Mayport is conducted according to CERCLA methodology. The following Federal and USEPA Region IV guidelines are used to direct and support the HHRA:

- *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual, Part A* (USEPA, 1989e);
- *Supplemental Region IV Risk Assessment Guidance* (USEPA, 1991g);
- *Exposure Factors Handbook* (USEPA, 1989a);
- *Human Health Evaluation Manual, Supplemental Guidance, Standard Default Exposure Factors* (USEPA, 1991a); and
- *Guidance for Data Useability in Risk Assessment* (Part A) (USEPA, 1992c).

The State of Florida is currently formulating additional risk assessment guidance that may effect the way HHRAs are conducted for NAVSTA Mayport. HHRA documents begun before the State guidance is released will be completed using the procedures detailed below. HHRAs begun after the State's risk assessment guidance is established may need to be revised according to the procedures established in the new guidance.

The purpose of the HHRA is to characterize the risks, both current and future, associated with potential exposures to site-related contaminants at NAVSTA Mayport. The HHRA is composed of five parts: (1) data evaluation and summarization; (2) identification of Human Health Chemicals of Potential Concern (HHCPCs); (3) an exposure assessment covering both current and future uses of the site; (4) a toxicity assessment of HHCPCs; and (5) risk characterization with an uncertainty analysis.

2.5.1 Identification of Human Health Chemicals of Potential Concern (HHCPCs)

HHCPCs are generally a subset of all analytes detected in the media at a site. HHCPCs include analytes that are:

- positively identified in at least one sample,
- detected at levels significantly above blank concentrations, and
- detected at levels above background levels (inorganics only).

Chemicals that do not contribute significantly to human health risks are removed or "screened" from further consideration as HHCPCs, as recommended by USEPA (1991g). Analytes are excluded from the HHCPCs if they meet any one of the following criteria.

1. If the maximum detected concentration of an analyte is less than twice the arithmetic mean of the background concentration (inorganics only), the analyte is not selected as an HHCPC (USEPA, 1991g). The background screening values for surface soil, subsurface soil, groundwater, surface water, and sediment are indicated on Tables D-1-1, D-1-2, D-1-3, D-1-6, and D-1-7 of Appendix D, respectively.

2. If an analyte has a frequency of detection (number of samples in which the analyte is detected divided by the number of samples analyzed for that analyte) of less than 5 percent (USEPA, 1989e) and is not selected as an HHCPC in another medium, it is not selected as an HHCPC.

3. If the maximum detected concentration of the analyte in a medium is less than its corresponding USEPA Region III Risk-Based Concentration (RBC) (March 7, 1995) adjusted to an HQ of 0.1 as described in USEPA Region III guidance for selecting exposure routes and HHCPCs, and less than Federal and State standards and guidelines, the analyte is not selected as an HHCPC (USEPA, 1993b). In the USEPA Region III RBC screening table, the target hazard quotient is 1 and the target cancer risk is 1×10^{-6}. All RBCs for noncarcinogens are adjusted for a target HQ of 0.1. The RBCs are identified in Tables D-1-4 (soil screening values) and D-1-5 (water screening values) of Appendix D.

The residential soil RBCs are used for surface soil and sediment. No RBC is available for lead in soil due to a lack of toxicity data. Based on USEPA recommendation, a target level of 400 mg/kg for cleanup at Superfund sites for lead is used as the RBC for lead in soil (USEPA, 1994a). The maximum detected concentrations of analytes in surface soil and sediment are also compared to residential Florida Clean-up Goals. The maximum detected concentration of any organic analyte in surface soil that was also detected in groundwater is compared to the Florida Leaching Value for that analyte. The Florida Leaching Values (April 5, 1995) and the Florida Clean-up Goals (April 5, 1995) are identified in Table D-1-4 of Appendix D.

For subsurface soil, industrial soil RBCs are used. The industrial soil RBCs, which assume that only 50 percent of total soil ingestion is work-related, are adjusted to account for 100 percent work-related soil ingestion. Maximum detected concentrations of analytes in subsurface soil are also compared to industrial Florida Clean-up Goals. The Clean-up Goals for noncarcinogenic analytes are adjusted for a hazard quotient of 0.1. The maximum detected concentration of any organic analyte in subsurface soil that was also detected in groundwater is compared to the Florida Leaching Value for that analyte.

For groundwater and surface water, tap water RBCs are used. No RBC is available for lead in groundwater; therefore, the treatment technology action level for lead in drinking water of 15 $\mu g/\ell$ is used (USEPA, 1994b). The maximum detected concentrations of analytes in groundwater and surface water are also compared to Federal maximum contaminant levels (MCLs) (November 1994) and Florida Guidance Concentrations (June 1994). These values are indicated in Table D-1-5 of Appendix D.

4. If the maximum detected concentration of an essential nutrient (i.e., sodium, potassium, magnesium, iron, and calcium) in a medium is below a toxic level and consistent with or only slightly above its background concentration, the essential nutrient is not selected as an HHCPC. The derivation of essential nutrient screening values is presented in Appendix D-2.

5. If the analyte does not meet any of the above criteria, is not a member of the same chemical class as other HHCPCs in the medium, and is not a breakdown product of other HHCPCs in the medium, then the analyte is not selected as an HHCPC.

After applying these criteria with professional judgment, HHCPCs are identified for each medium. Analytes that are not selected as HHCPCs will be clearly identified in tables and the justification for their exclusion noted.

2.5.2 Human Health Exposure Assessment Exposure assessment estimates the types and magnitudes of potential human exposure to HHCPCs. This process involves four steps:

- characterization of the exposure setting,
- identification of exposure pathways,
- construction of exposure scenarios, and
- quantification of exposures.

2.5.3 Characterization of Exposure Setting The physical characteristics of the site and the nature of the surrounding populations are evaluated to provide a basis for assessing potential exposures. The HHRA summarizes important site characteristics that may influence human contact with site contaminants including surface conditions, soil type, degree of vegetative cover, climate, geology, and conditions that affect the migration of contaminants, such as speed and direction of groundwater flow.

Evaluation of population characteristics includes the location of current populations relative to the site and the daily activities of these populations. The presence and location of potentially sensitive subpopulations, such as children or the elderly, are also evaluated.

2.5.4 Identification of Exposure Pathways This step involves the identification of all relevant exposure pathways (current and future) through which specific populations may be exposed to contaminants at the site. An exposure pathway consists of four necessary elements: a source or mechanism of chemical release, a transport or retention medium, a point of human contact, and a route of exposure at the point of contact (USEPA, 1989e).

The first step in defining potential exposure pathways is to identify all sources of contamination (e.g., surface water, sediment, groundwater, surface soil, and subsurface soil). Once sources are identified, relevant fate and transport mechanisms are evaluated to predict current and potential future exposures. Population characteristics are then used to identify where people may contact contaminated media and the possible routes of exposure (e.g., inhalation, ingestion, or dermal absorption). The receptors to be evaluated are selected based on the current and realistic future use of the SWMU and surrounding area. Site-specific exposure pathways are identified for each SWMU. For most SWMUs, five potentially exposed population scenarios may be used: child and adult residents, adolescent and adult trespassers, site maintenance workers, occupational workers, and excavation workers. Table 2-8 lists typical exposure pathway scenarios. The HHRA for each SWMU identifies and evaluates those exposure pathways likely to be encountered at the site.

Trespasser and site maintenance worker scenarios represent current land use for most SWMUs at NAVSTA Mayport. The residential scenarios represent future land use because the land and groundwater are not currently being used by a residential population but could be used in the future. The excavation and occupational worker scenarios are also considered future land use.

The source of contamination or the initial receiving medium is usually the soil. Migration of contaminants from soil occurs through several different mechanisms such as leaching to groundwater, water or wind erosion to other media, and absorption by plants. Analytes may accumulate in plants and animals that are in contact with soil or whose food sources are in direct contact with soil. Mechanisms for migration into air include volatilization (primarily VOCs) and wind erosion of contaminated soil (all types of contaminants). Overland flow of water can result in migration of contaminants to surface water bodies and sediment. This process can also lead to relocation of the contaminants to other surface soil. Infiltration can result in migration into subsurface soil and into groundwater. Dissolved analytes (primarily soluble VOCs, SVOCs, and inorganics) are very mobile and may be transported to wells or discharged to surface water.

Table 2-8
Complete Exposure Pathways Listed by Exposure Scenario

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Exposure Medium, Exposure Route	Site Maintenance Worker (adult)	Excavation Worker (adult)	Occupational Worker (adult)	Adult Resident	Child Resident	Adult Trespasser	Adolescent Trespasser
Surface Soil							
Incidental ingestion	X	X	X	X	X	X	X
Dermal contact	X	X	X	X	X	X	X
Inhalation of particulates	X	X	X	X	X	X	X
Subsurface Soil							
Incidental ingestion		X					
Dermal contact[1]		X					
Inhalation of particulates		X					
Groundwater							
Ingestion				X			
Inhalation of shower vapors[2]				X			
Surface Water							
Incidental ingestion				X	X	X	X
Dermal contact				X	X	X	X
Sediment							
Incidental ingestion				X	X	X	X
Dermal contact[1]				X	X	X	X

[1] Chemical intake resulting from dermal contact with soil, sediment, and surface water is based on dermal guidance (U.S. Environmental Protection Agency [USEPA], 1992d) for children to account for changing surface areas and body weights to estimate the milligrams (mg) (or micrograms [μg]) of contaminant passing through the skin per exposure event. The approach for the adult exposures will follow the dermal guidance based on the surface area remaining constant. According to USEPA guidance (Keller, 1994), dermal contact will not be evaluated for groundwater exposure.

[2] Inhalation of volatiles resulting from showering.

Alternative exposure scenarios may be developed if necessary to represent site-specific conditions.

2.5.5 Exposure Point Concentrations Concentrations of each HHCPC often vary widely over a site and it would be futile to estimate health risks associated with exposure to all HHCPCs at every concentration detected at the site. Therefore, a single concentration is selected as representative of the actual concentration for each HHCPC in a given medium over the entire site. This value, called the exposure point concentration (EPC), is used in the estimates of health risks at the site. An EPC is selected for each HHCPC identified in the screening process described above.

Due to the role of EPCs in estimating human health risks, USEPA has issued specific guidance on the EPC determination process (USEPA, 1989e) and calculating the concentration term (USEPA, 1992a). This guidance states that the EPC is the lesser of the maximum detected concentration at the site or the 95 percent UCL of the arithmetic mean concentration, assuming a log-normal distribution of concentrations. The following equation is used to calculate the UCL on the arithmetic mean (USEPA, 1991g; 1992a):

$$UCL = e^{\left(\bar{x} + 0.5 s^2 + \frac{sH}{\sqrt{n-1}}\right)}$$

where:

UCL	=	95 percent upper confidence limit of estimated mean,
e	=	constant (base of natural log, approximately equal to 2.718),
x	=	arithmetic mean of log-transformed data,
s	=	standard deviation of log-transformed data,
H	=	H-statistic (Gilbert, 1987), and
n	=	number of samples.

In calculating the 95 percent UCLs, nondetections are assigned a concentration equal to one-half the sample quantification limit. If a sample quantification limit is not available, one of the following values is substituted: the method detection level or the contract required quantitation limit (CRQL) for organics, or contract required detection limit (CRDL) for inorganics. In cases where an analyte is detected in three or fewer samples, the UCL is not calculated and the EPC is equal to the maximum detected concentration.

2.5.6 Quantification of Exposures The next step is to calculate HHCPC intakes, via each exposure pathway, for each of the potentially exposed populations. Population-related variables are selected that describe the characteristics associated with individual receptors in that population. For example, intake is dependent upon contact rate, age, body weight, body surface area, exposure frequency, exposure duration, and averaging time. When possible, variables such as age, body weight, and body surface area are selected from the following USEPA guidance documents: standard default exposure factors (USEPA, 1991a), dermal exposure assessment principles and applications (USEPA, 1992d), and the exposure factors handbook (USEPA, 1989a).

The general equation for calculating chemical intake from the various media is:

$$Intake\ (mg/kg-day) = \frac{[C \times CR \times EF \times ED \times CF]}{[BW \times AT]}$$

where:

C = chemical concentration, media specific;
CR = contact rate, media specific;
EF = exposure frequency, population specific;
ED = exposure duration, population specific;
CF = conversion factor, media specific;
BW = body weight of hypothetically exposed individual; and
AT = averaging time (for carcinogens, AT=70 years times 365 days per year; for noncarcinogens, AT=ED times 365 days per year).

The specific equations used to calculate intakes from the different exposure pathways and, where possible, the default values used in the risk calculation spreadsheets are provided in Appendix D.

Some exposure pathways require additional calculations before intake values can be calculated. Following are brief explanations of the additional calculations required for the inhalation of particulates, inhalation of vapors while showering, and dermal absorption.

Inhalation of Particulates from Soil At SWMUs having the potential for wind erosion, a three-step modeling process is conducted. In the first step, respirable particle-phase emission rates are calculated. In the second step, contaminant emission rates on a unit surface area basis are calculated. In the third step, downwind ambient concentrations are estimated using air dispersion modeling. A complete discussion of the three step process and the associated equations is defined in Appendix D.

Inhalation of Vapors While Showering For this exposure scenario, the contaminant concentrations in air are estimated based on release rates of volatiles from shower water. After reviewing the literature, the model selected to predict indoor (bathroom) concentrations is the Foster and Chrostowski (1987) model. This theoretical approach was based on the experimental work of Andelman (1985). The specific equations used to determine concentrations of contaminants in bathroom air are presented in Appendix D.

Dermal Absorption from Water The absorbed dose is calculated in accordance with the USEPA *Dermal Exposure Assessment: Principles and Applications*, Interim Report (USEPA, 1992d). The permeability constant approach is used to describe the dermal absorption to contaminants in water. For all inorganic chemicals, the model assumes a permeability constant equal to that of water, which is a steady-state condition for all analytes. For organic compounds, a non-steady-state model is used to model the absorption that employs a dermal permeability constant estimated from the compound's octanol-water partition coefficient. A further description of the process used to determine absorption of contaminants from water are presented in Appendix D.

Dermal Absorption from Soil The absorbed dose from soil is calculated in accordance with the USEPA *Dermal Exposure Assessment: Principles and Applications*, Interim Report (USEPA, 1992d). Percutaneous absorption of chemicals in soil is chemical dependent and matrix dependent. According to USEPA Region IV guidance (USEPA, 1992e), absorption factors used in this risk assessment for organics and inorganics are 0.1 percent and 0.01 percent, respectively. A soil adherence factor of 1 milligram per square centimeter (mg/cm^2) per event is used in the dermal intake equations (USEPA, 1992d). The equations used to describe dermal absorption from soil are presented in Appendix D.

2.5.7 Toxicity Assessment The toxicity assessment evaluates the available evidence on the potential adverse effects associated with exposure to each analyte. With this information, a relationship between the extent of exposure and the likelihood or severity of adverse human health effects is developed. Two steps are typically associated with toxicity assessment: hazard identification and dose-response assessment.

Hazard identification identifies adverse effects that have been associated with exposure to an agent and, more importantly, whether those effects will occur in humans. Characterizing the nature and strength of causation is also a part of the hazard identification step. Each HHRA contains a toxicity profile for each HHCPC found at that SWMU. The toxicity profile describes the physical and toxicological properties of each contaminant.

A dose-response assessment is conducted to characterize and quantify the relationship between intake, or dose, of an HHCPC and the likelihood or severity of a toxic effect, or response. There are two major types of toxic effects evaluated in this risk assessment: carcinogenic and noncarcinogenic.

Following USEPA guidance (USEPA, 1989e), these two endpoints are evaluated separately. For carcinogens, USEPA weight-of-evidence classifications and numerical toxicity factors have been developed and have undergone extensive peer review. Toxicity information used in the toxicity profile is primarily from Integrated Risk Information System (IRIS), Health Effects Assessment Tables (HEAST), Agency for Toxic Substances and Disease Registration (ATSDR) Toxicology Profiles, and the USEPA Environmental Criteria and Assessment Office.

Toxicity factors for carcinogenic analytes include current slope factors, unit risk values, and weight-of-evidence classifications for all carcinogens. For confirmed human carcinogens (USEPA Class A), the cancer type observed in exposed humans is also identified.

Cancer Toxicity Values. A chemical-specific toxicity value, called the cancer slope factor (CSF), developed by the USEPA Carcinogen Risk Assessment Verification Endeavor (CRAVE) group, is used to express the dose-response relationship. Another toxicity value developed by the USEPA is the cancer "unit risk." The unit risk describes the relationship between the exposure concentration and the probability of a carcinogenic response during the lifetime of the individual. The unit risk is the cancer slope factor divided by body weight (70 kg) and multiplied by the inhalation rate (20 cubic meters per day [m^3/day]) or the water consumption rate (2 liters per day).

As required by USEPA Region IV guidance (USEPA, 1991g), risks associated with dermal exposures (most commonly for soil and water dermal contact) are evaluated using CSFs that are specific to dermally absorbed doses. Most oral CSFs are based on administered doses rather than absorbed doses (trichloroethene's CSF is a notable exception). It is, therefore, necessary to adjust those toxicity values based on administered doses before they are used for evaluation of absorbed doses. For dermal exposures, the toxicity values are adjusted as follows:

$$CSF_{adjusted} = \frac{CSF_{oral}}{ABSEFF_{oral}}$$

where $ABSEFF_{oral}$ is the absorption efficiency in the study that is the basis of the oral toxicity value.

If there is no information available on oral absorption efficiency, the conservative default values (USEPA, 1993a) of 80 percent for volatiles, 50 percent for SVOCs, and 20 percent for inorganics are used.

Each HHRA will provide the relevant information such as the CSF and unit risk as well as identify the critical study on which those values are based, cancer type identified in the study, and weight-of-evidence classification.

Toxicity Equivalency Factors (TEFs) for Carcinogenic Polynuclear Aromatic Hydrocarbons (PAHs). Carcinogenic PAHs are a class of compounds with very similar, complex heterocyclic structures. Only one PAH, benzo(a)pyrene, has a published USEPA CSF. For the other carcinogenic PAHs, the toxicity has been addressed by using TEFs published by USEPA Region IV (USEPA, 1992c). The TEFs identify the relative potency of each compound relative to that of benzo(a)pyrene. Table 2-9 lists the TEFs used in the HHRA at NAVSTA Mayport.

TEFs are not CSFs nor are they used to calculate CSFs for other PAHs. The TEFs are applied to the EPCs to determine the equivalent benzo(a)pyrene concentration. The benzo(a)pyrene equivalent EPC is then multiplied by the CSF for benzo(a)pyrene to obtain an estimate of the cancer risk for these compounds. TEFs are used only in estimating the cancer risk of these compounds and are not used to estimate the noncancer risks.

Noncancer Toxicity Values. The reference dose (RfD) is an estimate of a daily human intake, including sensitive subpopulations, that is likely to be without appreciable risk of deleterious effects during a lifetime. Most HHCPC RfDs are obtained from IRIS or HEAST. If these sources do not have an RfD value for a specific chemical, then the USEPA Region IV will be contacted to arrange for a provisional value. The provisional value will be provided to the State of Florida and the Navy and its contractor for review before it is included in the HHRA.

IRIS and HEAST provide RfD and reference concentration (RfC) values. The RfC will be used for inhalation risk quantifications whenever possible, as the method more accurately describes the toxicity associated with the inhalation route of entry. The RfC is a medium-specific concentration that is unlikely to cause deleterious noncarcinogenic effects over a lifetime.

Table 2-9
Toxicity Equivalency Factors for
Carcinogenic Polynuclear Aromatic Hydrocarbons (PAHs)

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Compound	Toxicity Equivalence Factors
Benzo(a)pyrene	1.0
Benzo(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenzo(a,h)anthracene	1.0
Indeno(1,2,3-c,d)pyrene	0.1

Source: U.S. Environmental Protection Agency (USEPA), 1993c.

As required by USEPA Region IV guidance (USEPA, 1991a), risks associated with dermal exposures (most commonly for soil and water dermal contact) are evaluated using RfDs that are specific to absorbed doses. Most oral RfDs are based on an administered dose rather than on an absorbed dose. It is, therefore, necessary to adjust those toxicity values based on administered doses before they can be used for evaluation of absorbed doses. For dermal exposures, the toxicity values are adjusted as follows:

$$RfD_{adjusted} = RfD_{oral} \times ABSEFF_{oral}$$

where $ABSEFF_{oral}$ is the absorption efficiency in the study that is the basis of the oral toxicity value.

If there is no information available on oral absorption efficiency, the conservative default values (Keller, 1993a) of 80 percent for volatiles, 50 percent for SVOCs, and 20 percent for inorganics are used.

Separate sets of RfDs have been developed for several chemicals for evaluating chronic and subchronic exposures. When available, subchronic RfDs are used for evaluating exposures with a duration of less than 7 years but more than 2 weeks (such as for an excavation worker). Chronic RfDs are used when subchronic values are unavailable and when the exposure duration was greater than 7 years. One exception to this rule is the resident child. Although the default child's exposure duration is 6 years, chronic RfDs are used with this scenario. There are no analogous reference values for evaluating acute exposures, those lasting less than 2 weeks.

2.5.8 Human Health Risk Characterization The final step of the risk assessment is the risk characterization. This step involves the integration of the exposure and toxicity assessment into quantitative expressions of potential human health risks associated with HHCPC exposure. Quantitative estimates of both carcinogenic and noncarcinogenic risks are made for each HHCPC and each complete exposure pathway identified in the exposure assessment. A clear distinction will be made between risks associated with current land use and those risks associated with potential future land and groundwater uses.

Carcinogenic Risks. Carcinogenic risks associated with exposure to individual chemicals are estimated by multiplying the chemical intake for each carcinogen by its CSF. This value represents an upper bound of the probability of an individual developing cancer over a lifetime as the result of exposure to a chemical. For each exposure pathway, the chemical-specific risks for all carcinogenic compounds are summed to determine the pathway-specific lifetime cancer risk. The following equations are used to estimate the chemical- and pathway-specific cancer risks.

Chemical-specific Excess Lifetime Cancer Risk.

$$Risk_i = CDI_i \times SF_i$$

where

$Risk_i$ = unitless probability of an individual developing cancer as the result of exposure to a chemical i;

CDI_i = chronic daily intake of chemical i averaged over 70 years (milligrams per kilogram per day [mg/kg-day]); and

SF_i = USEPA cancer slope factor for chemical i $(mg/kg\text{-}day)^{-1}$.

Pathway-specific Incremental Lifetime Cancer Risk

$$Risk_T = \Sigma\, Risk_i$$

where

$Risk_T$ = unitless probability of an individual developing cancer as the result of multiple chemical exposures; and

$Risk_i$ = unitless cancer risk estimate for the ith chemical associated with an exposure pathway.

The results from the carcinogenic risk assessment are compared with acceptable risk ranges established by the USEPA and the FDEP risk level of concern. The USEPA's guidelines, established in the National Hazardous Substances and Pollution Contingency Plan (NCP), identify acceptable exposure levels as those concentration levels "that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} using information on the relationship between dose and response (USEPA, 1989a)." Consistent with USEPA Region IV guidance (USEPA, 1994c), if a given medium has a cumulative cancer risk less than 10^{-4} and applicable or relevant and appropriate requirements (ARARs) are not exceeded, remedial goal options (RGO) would not generally need to be developed for that medium.

The FDEP has stated (FDEP, 1994) that any risks greater than 10^{-6} are worthy of further attention. Therefore, risks greater than 10^{-6} will be identified and RGOs will generally be developed whenever risk exceeds 10^{-6}.

Noncarcinogenic Risks. Noncarcinogenic risk estimates are calculated by dividing specific chemical intake by the appropriate RfD. The result is called the HQ. The HQs for individual compounds within an exposure pathway are summed to obtain the HI for that particular pathway.

Following are the equations used to determine the HQs and HIs.

Hazard Quotient

$$HQ_i = \frac{I_i}{RfD_i}$$

where:

HQ_i = hazard quotient of chemical i;
I_i = intake of chemical i averaged over the exposure period (mg/kg-day); and
RfD_i = reference dose for chemical i corresponding to the same exposure duration as the intake (mg/kg-day).

Hazard Index

$$HI = \Sigma HQ_i \quad (18)$$

where

HI = potential for noncarcinogenic effects from multiple chemical exposures; and
HQ_i = hazard quotient for i^{th} chemical associated with an exposure pathway.

An HI less than 1 indicates that noncarcinogenic toxic effects are not expected to occur due to HHCPC exposure. An HI greater than 1 indicates a greater possibility of noncarcinogenic toxic effect occurring, but the circumstances must be evaluated on a case-by-case basis. Generally, as the HI increases, so does the likelihood that adverse effects might be associated with exposure. However, the relationship between increased risk and larger HI values is not linear.

Remedial Goal Options (RGOs). The RGOs for the chemicals and media of concern will be outlined. This section will include both ARARs and health-based cleanup goals. The information provided in this section is intended to provide decision-makers with options on which to develop remedial aspects of the Corrective Measures Study.

The RGO section will include tabulated media cleanup levels for each chemical of concern in each land-use scenario evaluated in the baseline risk assessment. A chemical of concern is defined by USEPA Region IV as "chemicals which contribute to a pathway that exceeds a 10^{-4} risk (or whatever remediation level is established as a trigger by the risk manager) or an HI of 1 or greater or exceed a State or Federal chemical-specific ARAR." Chemicals need not be included if their individual carcinogenic risk contribution to the pathway is less than 10^{-6} or their noncarcinogenic HQ is less than 0.1. According to FDEP communications, a chemical of concern is any chemical with an HQ greater than 1. Media cleanup levels are risk-specific and medium- and exposure scenario-specific analyte concentrations that are based on the site-specific exposure parameters (combined ingestion, dermal, and inhalation exposures) and the toxicity information used in the baseline risk assessment.

Separate media cleanup level tables will be generated to address the USEPA guidance and the FDEP guidance. Each table will address only the chemicals of concern as defined by that specific guidance. Each table will identify, as appropriate, concentrations associated with cancer risk of 10^{-4}, 10^{-5}, and 10^{-6} and concentrations associated with Hqs of 0.1, 1, and 10 for each combination of medium, land use, and receptor type (for example, groundwater future use as residential drinking water) that have chemicals of concern associated with them as well as State and Federal chemical-specific ARARs.

RGOs based on surface and subsurface soil values for the protection of groundwater will also be included.

2.5.9 Uncertainty Analysis Risk estimates are generally conservative values that result from multiple layers of conservative assumptions inherent in the risk assessment process. Quantitative estimates of risk are based on numerous assumptions, most intended to be protective of human health (i.e., conservative). As such, risk estimates are not truly probabilistic estimates of risk, but rather are conditional estimates given a series of conservative assumptions about exposure and toxicity.

A thorough discussion of all potential sources of uncertainty in risk assessment is not feasible. In general, sources of uncertainty can be categorized into site-specific factors (e.g., variability in analytical data and exposure assessment) and toxicity and risk characterization assessment factors. Most toxicity- and risk characterization-specific uncertainties apply to all HHRAs equally in their impact on the calculated risk estimates. Common (not site-specific) sources of uncertainty and their potential effects on the magnitude of estimated risks are discussed here. Table 2-10 summarizes some of the sources of uncertainty that are common to all HHRAs. Site-specific uncertainties will be discussed in the site-specific uncertainty section in the HHRA to provide perspective for the interpretation of the site-specific risk estimates.

2.5.9.1 **Data Collection, Analysis, and Evaluation** Some uncertainty is associated with the representativeness of the data collected to complete the risk evaluation at each site. Additional uncertainties associated with estimating exposure result from the variance in sampling and analytical techniques. There are three general uncertainties related to data collection, analysis, and evaluation:

- nature and distribution of contamination,
- adequate characterization of exposure areas, and
- differences between site-specific inorganic concentrations and background inorganic concentrations.

Nature and Distribution of Contamination. The nature and distribution of contamination are discussed for each SWMU in the RCRA Facility Investigation (RFI) report. The extensive sampling and analytical program of an RFI should adequately characterize the types of contaminants present, the physical location of those contaminants, and the concentrations that are present. There is inherent uncertainty in the assumption that the nature and distribution of contamination has been adequately characterized.

Table 2-10
General Sources of Uncertainty in the Human Health Risk Assessment

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Mayport, Florida

Potential Source	Direction of Effect	Justification
Exposure Assessment		
Likelihood of exposure pathways	Overestimate	Actual exposure may not occur.
Exposure point concentrations	Overestimate	Sampling data are assumed to be representative of the exposures.
Exposure assumptions (e.g., frequency and duration)	Overestimate	Parameters selected are conservative estimates of exposure representing a reasonable maximum exposure.
Degradation of chemicals not considered	Overestimate	Risk estimates are based on recent chemical concentrations. Concentrations tend to decrease over time as a result of degradation for many organics.
Absorption of soil contaminants through the skin	Overestimate	Dermal absorption of chemicals is a function of the length of actual skin contact. Contact at a specific solid waste management unit may be insufficient to result in the absorption assumed.
Modeled exposure point concentrations	Unknown, probably overestimate.	Models are based on numerous assumptions resulting in conservative exposure point concentrations.
Toxicity Assessment		
Extrapolation of animal toxicity data to humans	Unknown, probably overestimate.	Animals and humans differ with respect to absorption, metabolism, distribution, and excretion of chemicals. The magnitude and direction of the difference varies with each chemical. Animal studies typically involve high-dose exposures, whereas humans are exposed to low doses.
Use of linear, multistage model to derive cancer slope factors (CSFs)	Overestimate	The model assumes a nonthreshold, linear at low dose relationship for carcinogens. Many compounds induce cancer by nongenotoxic mechanisms. The model results in 95 percent upper confidence limits of cancer potency. Potency is unlikely to be higher and may be as low as zero.
Lack of oral toxicity values for lead and total petroleum hydrocarbons (TPH)	Underestimate	Dose-response values for lead and TPH are not available for exposures to these contaminants in soil or groundwater. Risk from exposure to lead in soil and groundwater is not quantitatively evaluated.
Lack of inhalation toxicity values	Underestimate	Inhalation reference doses and CSFs will not be available for all human health chemicals of potential concern being evaluated for inhalation exposures (fugitive dust and volatiles while showering). Therefore, risks cannot be quantified and are underestimated.
Risk Characterization		
Summation of risk among chemicals within exposure pathways	Unknown	Little is known about the toxicity of chemical mixtures. In the absence of evidence to the contrary, additivity of risk is assumed.

Adequate Characterization of Exposure Areas. Contaminated areas, specifically soil, are sometimes small relative to the area in which a receptor would potentially be exposed. Nonrandom sampling may be conducted in areas of known or visible contamination. Because a receptor's exposure area may actually be larger than the area of contamination and a receptor's exposure would often be random, the nonrandom sampling may actually result in overestimation of exposures.

Differences between Site and Background Concentrations. Site-specific and background inorganic concentrations are compared as part of the selection of HHCPCs (Subsection 2.5.2). Both organic contaminants and inorganic analytes are commonly detected in surface soil, subsurface soil, surface water, sediment, and groundwater background locations.

Organics (e.g., pesticides) are sometimes detected in background samples, which would be expected in an industrialized area like NAVSTA Mayport. The detection of organics in background samples does not necessarily indicate that the inorganic concentrations in those samples do not represent background reference concentrations. Phthalates are also commonly detected in background samples. Phthalates are common sampling and laboratory contaminants, but sometimes cannot be conclusively associated with laboratory or sampling contamination and, therefore, are retained in the background data set. In summary, the presence of organic contamination in a particular background location does not necessarily indicate that the inorganic concentrations in that sample are not representative of inorganic reference concentrations. The use of the background sample data as reference points for inorganics detected in surface soil, surface water, sediment, and surficial groundwater is generally considered appropriate based on carefully chosen sampling locations.

2.5.9.2 **Selection of Chemicals of Potential Concern** There are uncertainties in the process of selecting human health chemicals of potential concern (HHCPCs) based on the use of risk-based screening concentrations (RBCs) and comparison to inorganic background screening concentrations.

USEPA Region III RBC Screening Table (March 7, 1995). USEPA Region IV prefers to exclude contaminants that do not contribute significantly to the risk from the risk calculations (USEPA, 1991a). The HHRA compares the maximum concentration of each analyte detected in surface soil, subsurface soil, and groundwater to medium-specific RBCs that are calculated by assuming residential exposures and calculating risk-based levels in water (e.g., tap water) and soil (e.g., residential surface soil) using an acceptable cancer risk level of 10^{-6} and an HQ of 0.1.

The RBCs for water (i.e., tap water) and soil (i.e., residential soil) are also used to screen detected analytes in surface water and sediment, respectively. This approach is conservative because the exposure assumptions for tap water and residential soil are similar, but more intense, than exposure to surface water and sediment. The assumed exposure assumptions used to derive the RBCs are likely to overestimate exposures to surface water used for nondrinking purposes and sediment. This approach is appropriate for a surface water and sediment risk-based screening to remove analytes that are not likely to contribute a significant amount of risk from the HHCPC list.

The USEPA Region III RBC table does not provide values for all chemicals in surface soil or groundwater. For those chemicals without an associated USEPA Region III RBC, an RBC for a chemical in the table that is similar in structure and physical properties to the detected contaminant may be used (for example, using the pyrene residential soil value as a surrogate for benzo(g,h,i)perylene, or di-n-octylphthalate for di-n-butylphthalate). Based on the similarities in toxicological properties between the compounds and their surrogates, it is reasonable to conclude that the USEPA Region III screening values for the chemicals detected are adequately protective of health. Generally, the use of surrogates is an approach to help focus effort on those contaminants that are contributing a significant amount of risk (e.g., cancer risk of greater than 10^{-6} and an HQ of greater than 0.1). In the cases where surrogates were not available or appropriate, the chemical will be retained as an HHCPC.

Background Screening for Inorganics. For a given inorganic analyte, the maximum detected soil or groundwater concentration at a waste site is compared to a background screening concentration (2 times the average of the medium-specific concentrations in the background locations, as described in Subsection 2.5.2). If the maximum detected concentration is less than the background screening concentration, the analyte is considered to be consistent with background concentrations. This approach is conservative in that it is likely to identify certain analytes as being inconsistent with background (including them as HHCPCs), even though the distribution of concentrations at the site is similar to that of the background dataset. This can occur when the arithmetic mean of inorganic concentrations at a background sampling location is less than the maximum detected value at the site being investigated. For example, a site-specific inorganic could be present at a concentration greater than the corresponding background screening concentration, resulting in the selection of the inorganic as an HHCPC, but still within the detected range of inorganic concentrations at the reference locations. This is the result of natural variability for inorganic concentrations in soil. Therefore, it is possible that an analyte could have a concentration distribution at a site that is similar to the distribution of concentrations for that analyte in the background dataset, but also have a maximum detected concentration that is more than twice the arithmetic mean of the concentrations in the background dataset.

Polycyclic Aromatic Hydrocarbons (PAHs). The selection of a single PAH as an HHCPC in a particular medium requires that other PAHs detected in that medium be retained as HHCPCs, even if their maximum detected concentrations are less than the available screening values. This is a protective approach that is likely to overestimate risks.

2.5.9.3 **Exposure Assessment** There are four major factors that contribute to uncertainties in the exposure assessment of most HHRAs:

- land use,
- use of the reasonable maximum exposure,
- determination of the exposure point concentration, and
- exposure parameters.

Land Use. Generally, exposure scenarios associated with future land use are difficult to predict. In an HHRA, residential land use is typically evaluated. A residential land use analysis normally includes an evaluation of the domestic use of groundwater (ingestion and inhalation of volatiles while showering) and

observed adverse effect level (NOAEL), extrapolation from lowest observed adverse effect level (LOAEL) to NOAEL, amount of data supporting the toxicity factors (i.e., inadequate studies), consistency of different studies for the same chemical, and responses of various species to equivalent doses.

The identification of human carcinogens and noncarcinogens, based on animal data, is a primary source of uncertainty in the use of toxicity values. It is not certain that the identification of carcinogenic activity as a result of an animal species' exposure to a substance means that carcinogenic activity in humans will occur after exposure to that substance. In some cases, the metabolic processes involved in carcinogenic activity in a particular organ in animals may not exist in humans. A limited number of substances are classified as human carcinogens (USEPA Class A substances).

The extrapolation of short-term to long-term exposures is also a component in some cases for the carcinogen dose-response values. The use of toxicity measures (e.g., reference doses and CSFs) introduces additional uncertainties. These parameters are generally based on animal studies, many of which are performed at high doses relative to the site-specific exposures that could occur. These data require interpretation and/or extrapolation in the low dose area of the dose-response curve. The CSFs used in the risk assessment generally represent a high-end estimate. The CSFs are the 95 percent UCL on the actual slope derived from the scientific data and, therefore, are probably overestimates of the potency.

2.5.9.5 **Risk Characterization** A mixture of analytes is present in each medium evaluated at NAVSTA Mayport. USEPA's *Guidelines for the Health Risk Assessment of Chemical Mixtures* (USEPA, 1986e) state that, if sufficient data are not available on the effects of the chemical mixture of concern, or a reasonably similar mixture, additivity of effects for constituents of the mixture should be assumed. This assumption, according to USEPA, is expected to yield generally neutral risk estimates (i.e., neither conservative nor lenient). More recent guidance from USEPA (1992b) refers to the *Guidelines for the Health Risk Assessment of Chemical Mixtures*, but further states that the assumption of additivity assumes independence of action and that if this assumption is incorrect, overestimation or underestimation of the actual multiple substance risk may occur. In calculating HI values, additivity is assumed, but in some cases, the analytes in a mixture have significantly different toxic mechanisms of action and impact different organs. In these cases, the overall HI likely overestimates noncancer risks.

3.0 NAVSTA MAYPORT STATION-WIDE BACKGROUND INVESTIGATION FINDINGS

The purpose of the background characterization is to assess existing conditions at NAVSTA Mayport, including ambient concentrations of various chemicals in the environment. The characterization included determining the identity of a constituent and its concentration as either naturally occurring or resulting from manmade sources unrelated to waste disposal activities. These data are used to assess whether similar constituents found at an SWMU are related to natural conditions or the deposition of hazardous substances. The background characterization included collection of surface and subsurface soil, surface water, sediment, and groundwater samples. Information to assess the spatial variability of geologic and hydrogeologic conditions at NAVSTA Mayport was also collected. The following subsections present spatial variations on subsurface geologic and hydrologic conditions and the results of the chemical analyses of the background samples.

3.1 GEOLOGY. A total of 135 borings has been drilled at NAVSTA Mayport for various investigative activities (Appendix A). Logs of these borings provide data with which to define the geology and hydrology of the Miocene to Holocene age deposits and the shallow surficial aquifer. Geologic information generated by this process was also used to construct geologic cross-section traverses. The location of five cross-section traverses depicting subsurface geologic conditions are presented on Figure 3-1. A key to the lithologic symbols used in the cross sections is provided in Figure 3-2. These cross sections (Figures 3-3 through 3-7) reveal three separate geologic units. The uppermost unit consists of a surficial deposit of material dredged from the Mayport Turning Basin and the St. Johns River. Beneath the surficial dredge material, a uniform, poorly graded, well sorted, sand with thin layers of a very plastic to dark-grey silty clay is found. This sand unit, termed in the cross section as undifferentiated post-Hawthorn deposits, grades with depth into the third unit, the Coosawhatchie Formation of the upper Hawthorn Group (Scott, 1988). The following provides a more detailed description of the three geologic units encountered beneath NAVSTA Mayport.

Dredge Material. Prior to construction of NAVSTA Mayport, low-lying areas such as marshes and sand flats were predominant in the interior area of the station (Figures 1-3 and 1-4). Along the Atlantic shore and the banks of the St. Johns River, beach and river bank sands predominated at the surface. Material dredged from Ribault Bay and the St. Johns River to construct the Mayport Turning Basin was used to fill low-lying areas during the initial construction and later expansion of the station (see Figure 1-4). The filling of the low-lying areas with dredge material developed areas with suitable load bearing capacities to allow construction.

The dredge material now comprises the majority of the surficial material found in the interior areas of the station. The dredge material typically consists of fine-grained, well sorted sands and/or marine shell fragments. In several localities the coarse shell fragments are the dominant material and typically appear as shell (mollusk) hash seams or layers. A more detailed description of the dredge material is provided in the Technical Memorandum, Background Characterization Activities report for NAVSTA Mayport (ABB-ES, 1993d).

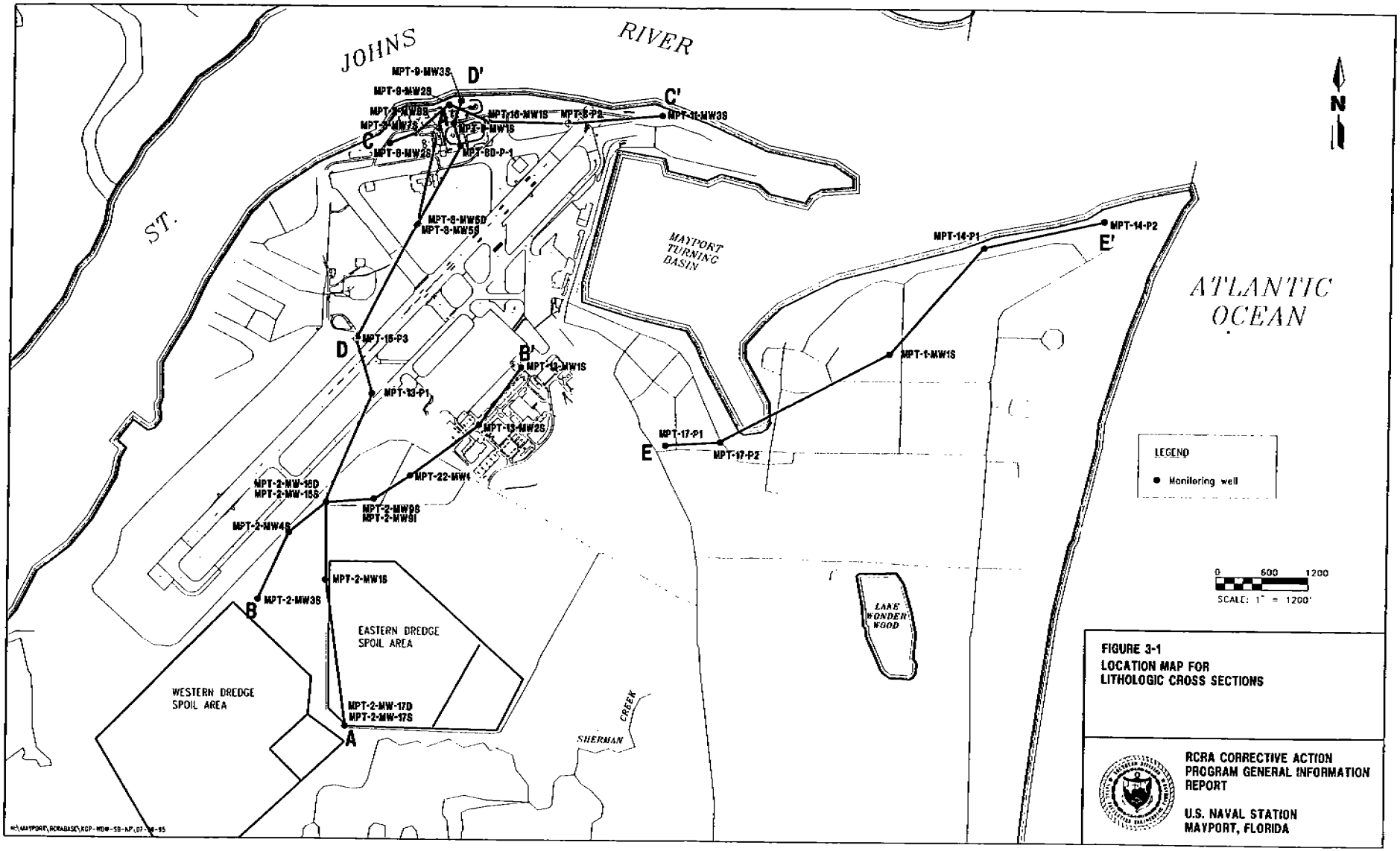

FIGURE 3-1
LOCATION MAP FOR
LITHOLOGIC CROSS SECTIONS

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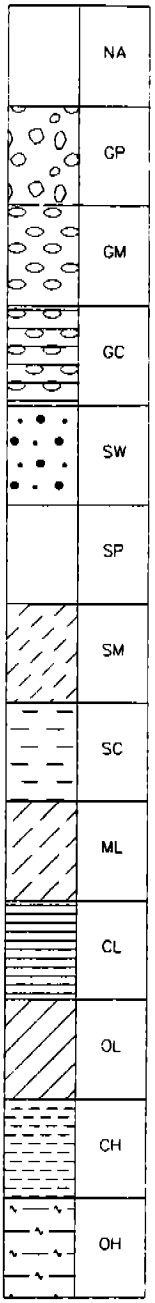

Crushed limestone, asphalt pavement

Poorly-graded gravel, gravel-sand mixtures, little or no fines, shell hash

Gravel-sand-silt mixtures

Clayey gravel gravel-sand-clay mixtures

Well-graded sand, gravelly sand, little or no fines

Poorly-graded sand, gravelly sand, little or no fines

Silty sand, Sand-silt mixtures

Clayey sand, Sand-clay mixtures

Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or clayey silt with slight plasticity

Inorganic clay of low to medium plasticity, gravelly clay, sandy clay, silty clay, lean clay

Organic silt and organic silty clay of low plasticity

Inorganic clay of high Plasticity, fat clay

Organic clay of medium to high plasticity, organic silt

Source: USCS.

Water table elevation location

FIGURE 3-2
KEY TO LITHOLOGIC SYMBOLS

H:\MAYPORT\RCRASECT\MAH-WDW-GLC-NP\7-6-95

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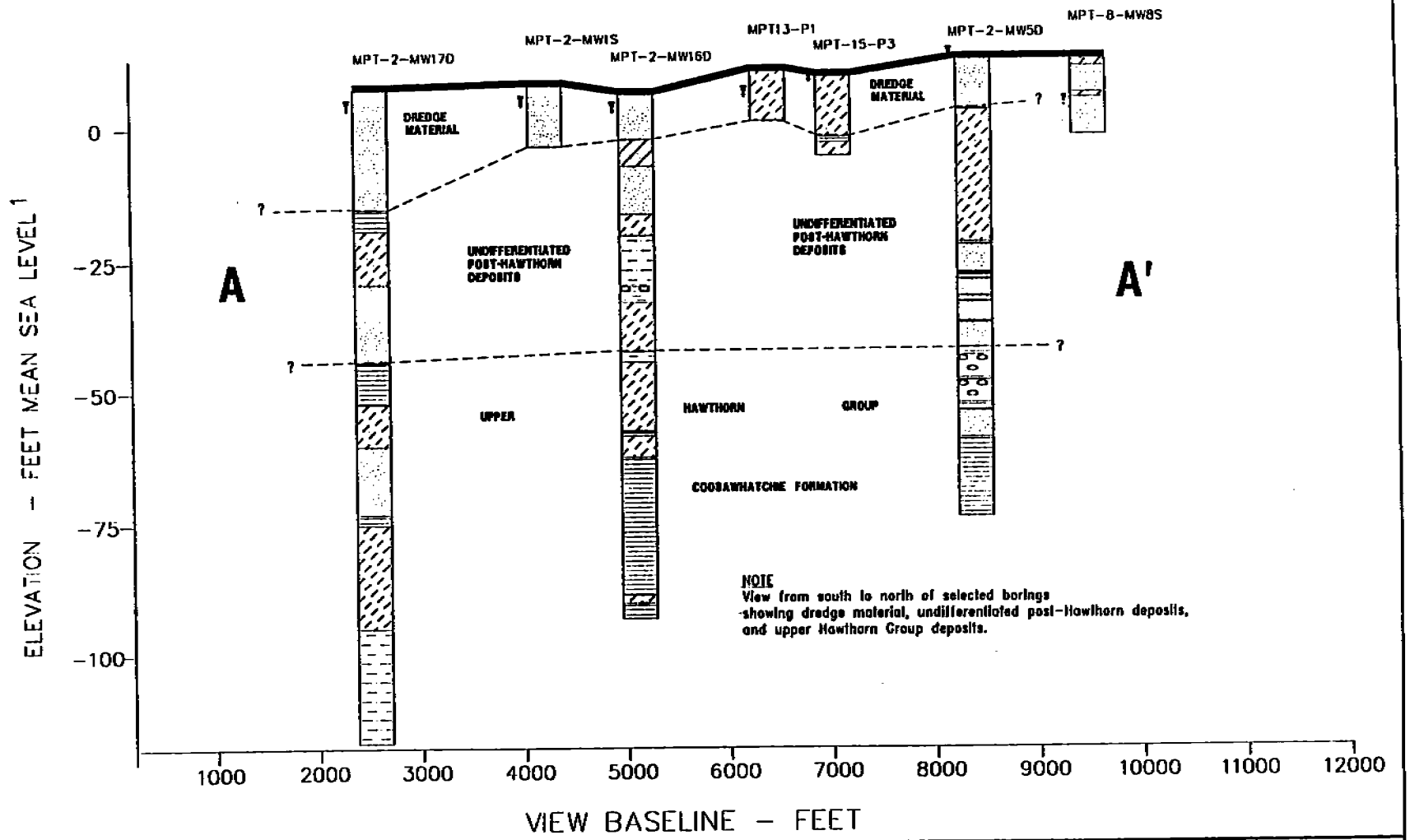

Note:
1 = National Geodetic Vertical Datum, 1929.

FIGURE 3-3
CROSS SECTION A-A',
GROUP I AND GROUP II SWMUs

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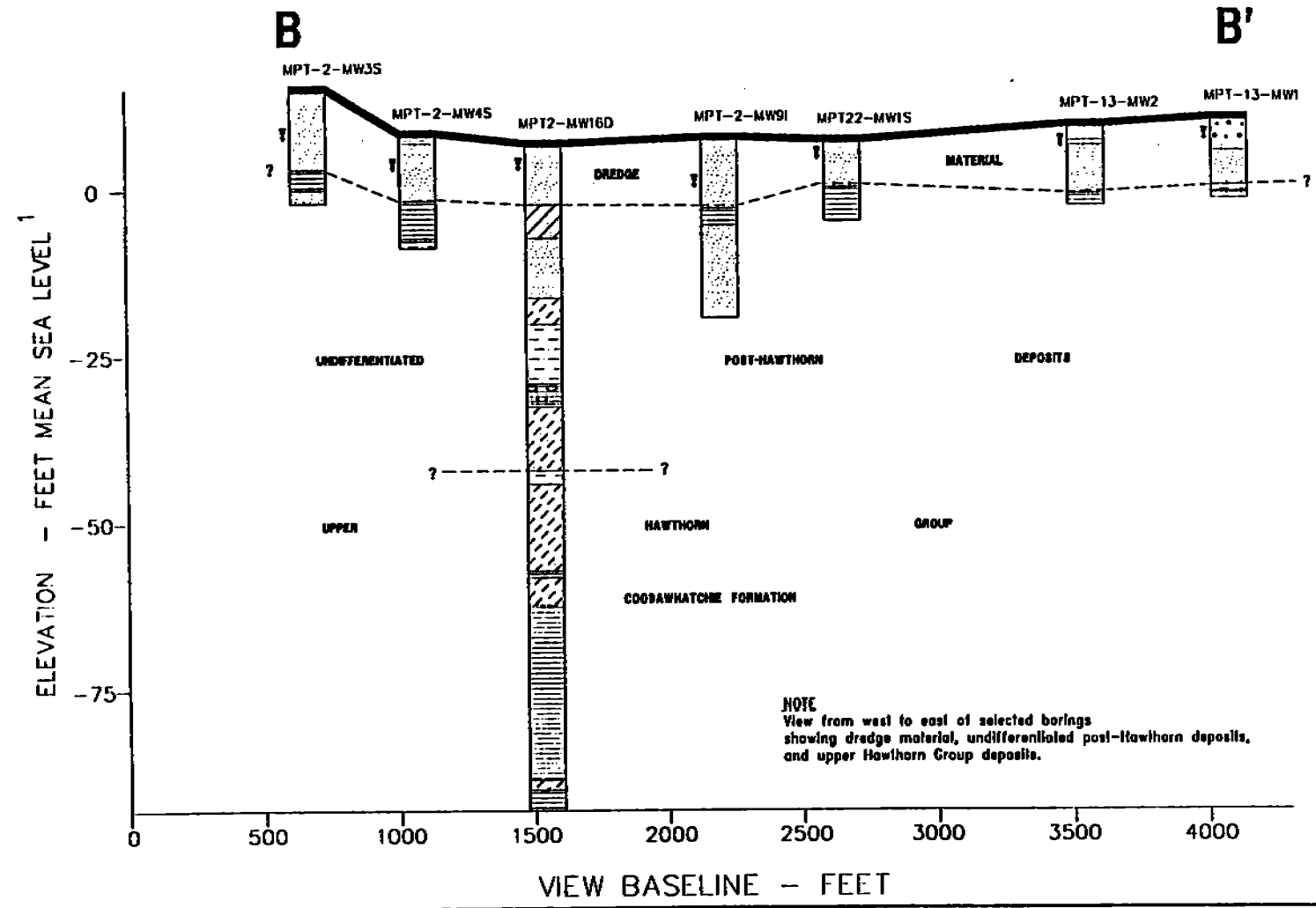
RCRASECT.DWG/KP-WDW-GIC-SB/8-20-95



Note:
1 = National Geodetic Vertical Datum, 1929.

FIGURE 3-4
CROSS SECTION B-B',
GROUP I SWMUs

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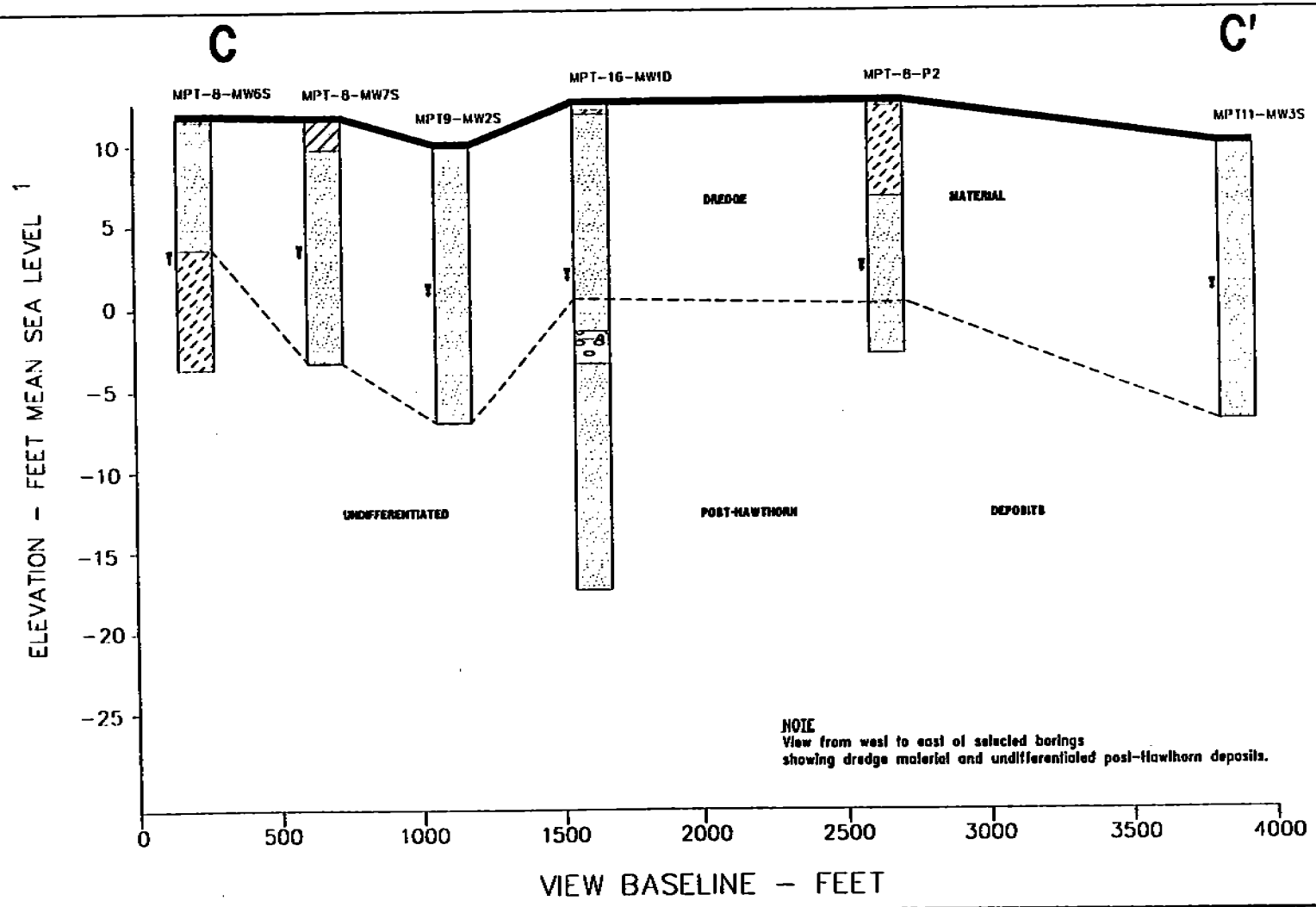

Note:
1 = National Geodetic Vertical Datum, 1929.

FIGURE 3-5
CROSS SECTION C-C',
GROUP II SWMUs

RCRASECT.DWG/KP-WDW-SD/08-20-95

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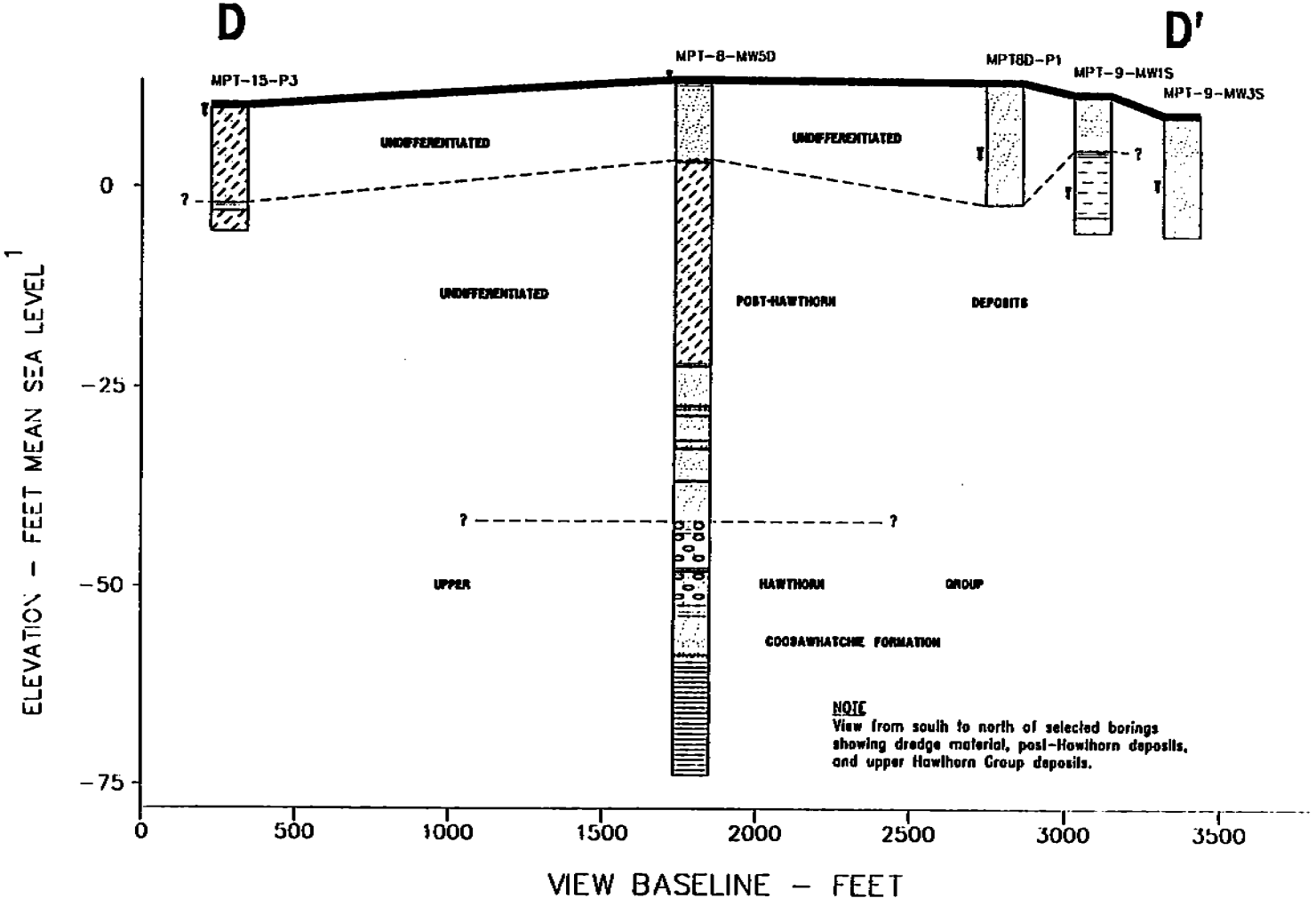

Note:
1 = National Geodetic Vertical Datum, 1929.

FIGURE 3-6
CROSS SECTION D-D',
GROUP II SWMUs

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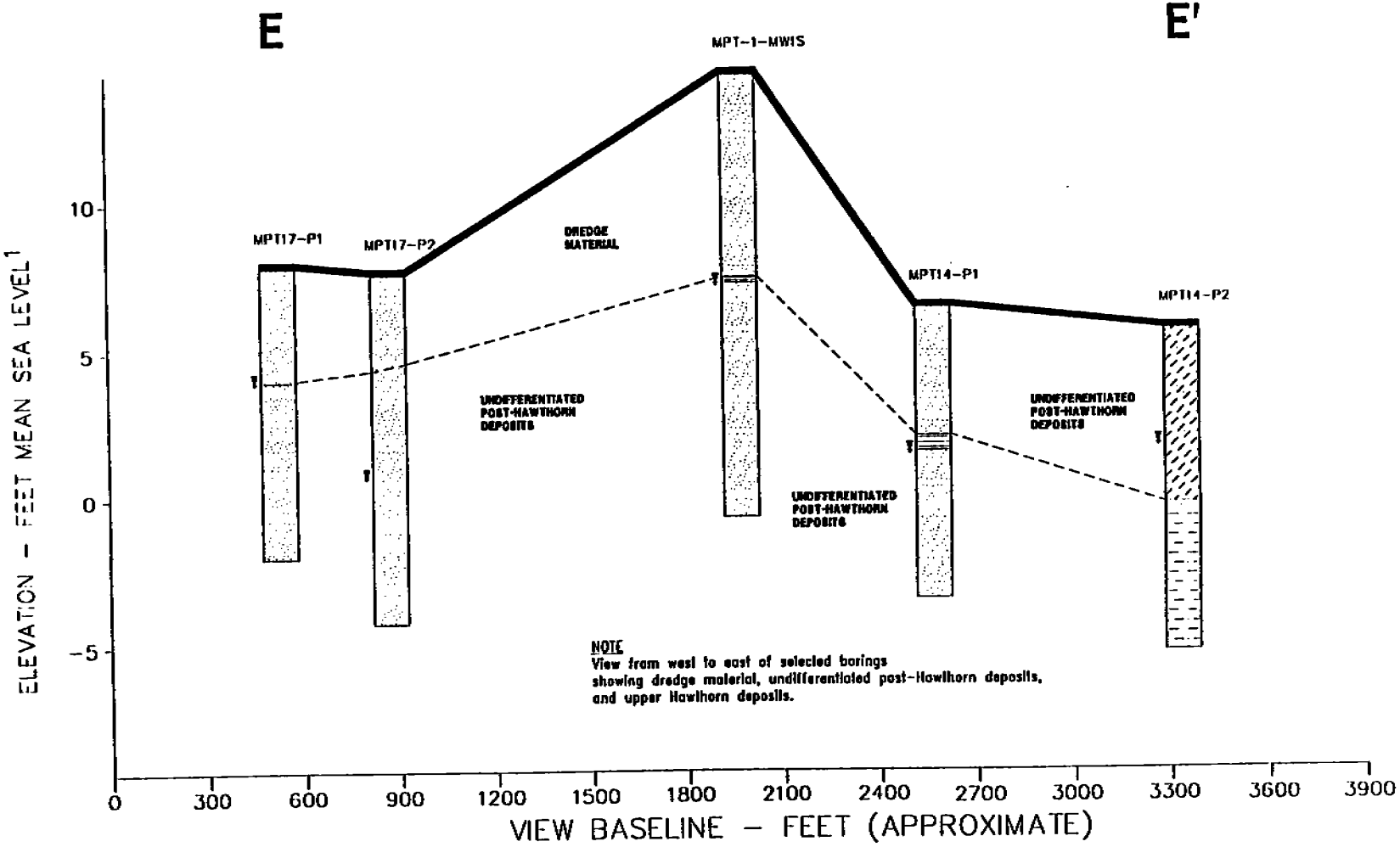

Note:
1 = National Geodetic Vertical Datum, 1929.

FIGURE 3-7
CROSS SECTION E-E', GROUP III SWMUs

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RCRASECT DWG/KP-MDW-58/8-20-95

Undifferentiated Post-Hawthorn Deposits. The second unit, undifferentiated post-Hawthorn deposits (Scott, 1988), consists of fairly uniform, well sorted, poorly graded, very fine-grained sand, which typically contains minor amounts of fines consisting of silt and clay and frequently has numerous shell fragments and subrounded pea-size gravel (Figures 3-3 through 3-7). The second unit is likely the product of Miocene to Holocene fluvial deposition and the erosion and redeposition of Hawthorn Group sediments and does not appear to be laterally uniform. River depositional processes have produced a highly variable set of lithologic units that are horizontally and vertically anisotropic throughout the study area. Color ranges from tan to light grey. Where color change occurs, the change is typically gradational over several feet.

The second unit frequently includes a very soft grey to dark-grey silty clay layer 3 to 7 feet thick that likely represents recent estuarine deposition (silt, clay, and organic material of marsh deposition). The silty clay layer is typically restricted to the interior of the station and is not commonly found along the beach or banks of the St. Johns River.

Upper Hawthorn Group. Three deep borings (MPT-2-MW16D, MPT-2-MW17D, and MPT-8-MW5D) have encountered and were terminated in the Coosawhatchie Formation of the Hawthorn Group (Figures 3-3, 3-4, and 3-6). Each of these deep borings also encountered the dredge materials and the undifferentiated post-Hawthorn deposits as described previously. Below the undifferentiated post-Hawthorn deposits the three borings encountered a mixture of very fine- to fine-grained, tan-brown to gray sand with numerous shell fragments. Within this sand at boring locations MPT-2-MW16D and MPT-2-MW17D, seams and layers of clay varied in thickness from inches to a maximum of several feet. This zone was interpreted to be the confining units typical of the Hawthorn Group located in Duval County (Leve, 1966). These localized clay sediments form a "leaky" confining zone for the secondary aquifer.

Because the undifferentiated post-Hawthorn deposits include eroded and redeposited sediments from the upper Hawthorn Group, it was not possible to determine exactly where the upper Hawthorn Group was encountered. Various factors, such as lithologic description and lithologic resistance to split-spoon sampling, indicate that the upper Hawthorn Group was encountered in both borings somewhere between 40 and 55 feet bls. The upper Hawthorn Group sediments in these borings primarily consist of fine- to medium-grained, tan to greenish-gray sand. This sand typically contains black phosphatic nodules and/or lithic limestone fragments. In addition, these shell fragments were similar to those found in the undifferentiated post-Hawthorn deposits. Interbedded within the upper Hawthorn Group sand is sandy clay, typically gray or olive green in color. This sandy clay frequently contains zones rich in limestone fragments.

3.2 HYDROGEOLOGY

The objectives of the hydrogeologic investigations conducted for the RFI at NAVSTA Mayport were as follows: (1) evaluate the extent and magnitude the influence tidal fluctuations have on the surficial aquifer, (2) estimate the hydraulic gradient and hydraulic conductivities of the shallow surficial aquifer, (3) characterize the potentiometric surface of the shallow surficial aquifer, and (4) compute the linear pore velocity of groundwater flow in the shallow surficial aquifer. The following subsections on monitoring wells and piezometers, tidal influence, physical characteristics of soil, hydraulic conductivities, the potentiometric water surfaces, and groundwater flow velocity discuss these four objectives.

3.2.1 Monitoring Wells and Piezometers Monitoring wells and piezometers were installed during three field events, January through April 1992 at Group I, December 1992 through February 1993 at Group II, and April through August 1994 at Groups I and II. Additional monitoring wells will be installed in the Group III area in 1995.

The monitoring wells were installed during RFI and confirmatory sampling activities (see Section 1.2) under the direction of ABB-ES or previously by others. A summary of "as-built" construction data for the monitoring wells and piezometers installed during RFI and confirmatory sampling investigations is included in Appendix A. Boring logs with inclusive well construction diagrams for all existing NAVSTA monitoring wells and piezometers are presented in Appendix A. Logs for monitoring wells installed at Group III will be provided as addenda to this report at a later date. Monitoring wells and piezometers installed during the RCRA Corrective Action activities have the designation of "MW" and "P", respectively, with their alpha-numeric designator. The locations of background monitoring wells are shown on Plate 1 and of monitoring wells installed at SWMU Groups I, II, and III are provided on Plates 2, 3 and 4, respectively.

3.2.2 Tidal Influence Study Tidal influence studies were conducted to assess the impact of tidal fluctuations on the surficial aquifer at NAVSTA Mayport. Monitoring wells used in the study were selected based on their proximity to tidally influenced surface water bodies. These wells are located (1) along the banks of the St. Johns River, (2) at tidally influenced creeks and drainage ditches located around the eastern dredge material handling areas, and (3) in areas distant from tidally affected surface water. A discussion of the method used to conduct the tidal influence study is provided in Section 2.1.5.2 of this report.

Computer generated tidal data produced by the U.S. Naval Observatory were compared with groundwater fluctuation data obtained from electronically monitored wells during the same time. This time interval coincided with spring tides in the area. Therefore, tidal oscillations predicted by the U.S. Naval Observatory and recorded by onsite instruments represent the maximum predicted tidal variations affecting the local water bodies during the measurement period.

The first tidal influence study was conducted on February 15 and 16, 1992, during a lunar cycle of a waxing full moon, when the tidal range was near its maximum. The response of water levels in the shallow surficial aquifer to diurnal tidal fluctuations during a 48-hour period is illustrated on Figures 3-8 and 3-9 for wells MPT-2-MW12S and MPT-2-MW12I, respectively, on Figure 3-10 for piezometer MPT-9-P1, and on Figure 3-11 for wells MPT-11-MW1S and MPT-11-MW3S. Each figure presents measurements of time along the horizontal axis. The relative tidal fluctuations are presented on the vertical right axis and the relative groundwater response is presented on an exaggerated vertical left axis for one or more wells.

The data presented in these figures suggest that the water table responds to diurnal tidal fluctuations in areas at NAVSTA Mayport located adjacent to tidally influenced water bodies. Two features common to the graphs presented in the figures are the response time lag, which varied from 7.5 to 11 hours, and the exhibited net rise of the water table elevation, possibly due to a waxing lunar cycle.

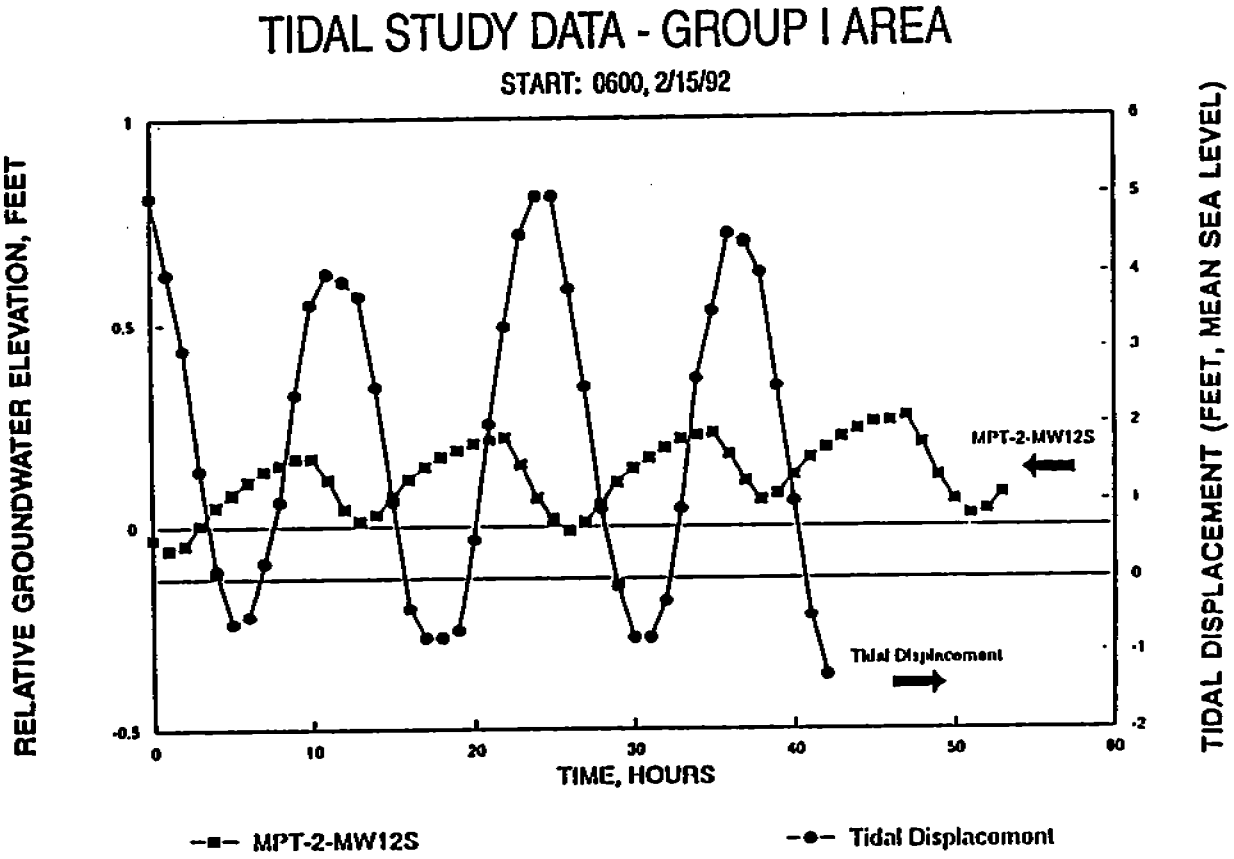

FIGURE 3-8

TIDAL STUDY DATA FOR GROUP 1 AREA, LANDFILL F, SWMU 5, MONITORING WELL MPT-2-MW12S

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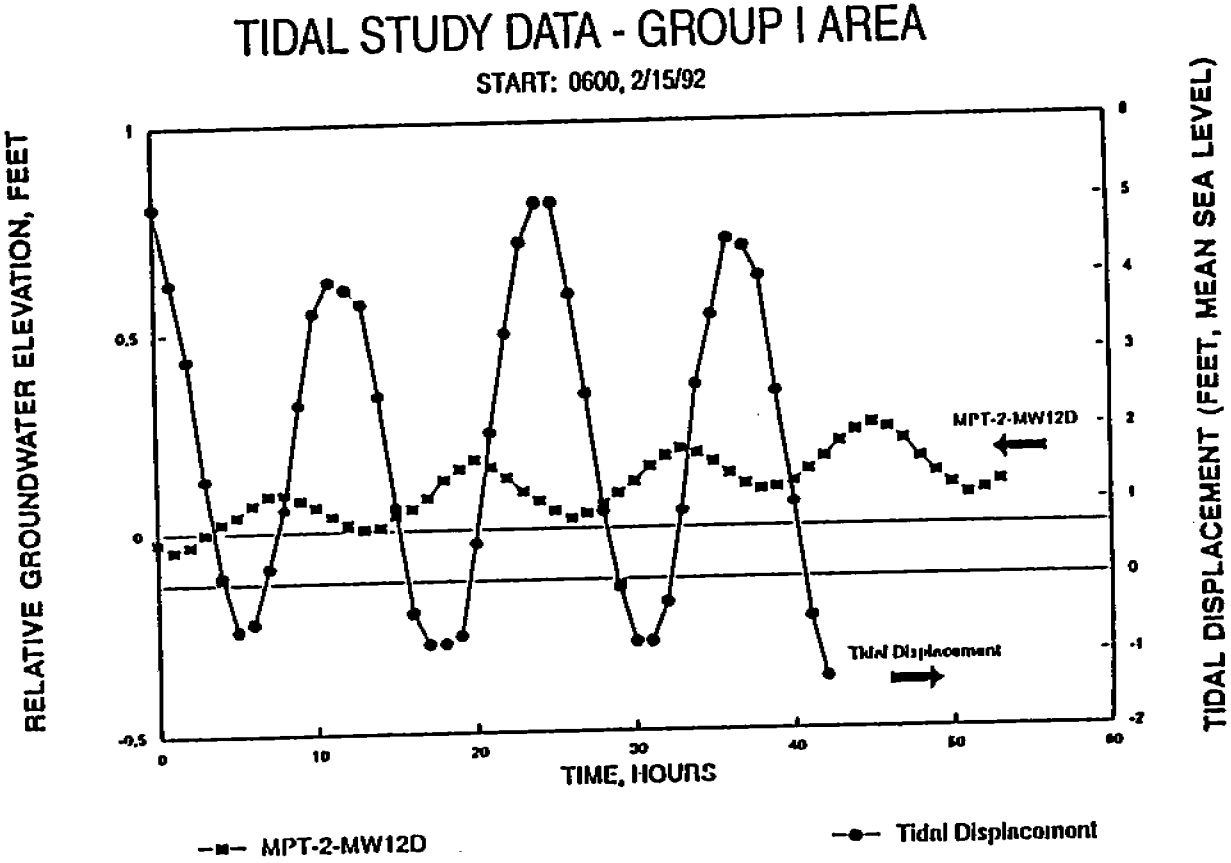

FIGURE 3-9

TIDAL STUDY DATA FOR GROUP I AREA,
LANDFILL F, SWMU 5,
MONITORING WELL MPT-2-MW12I

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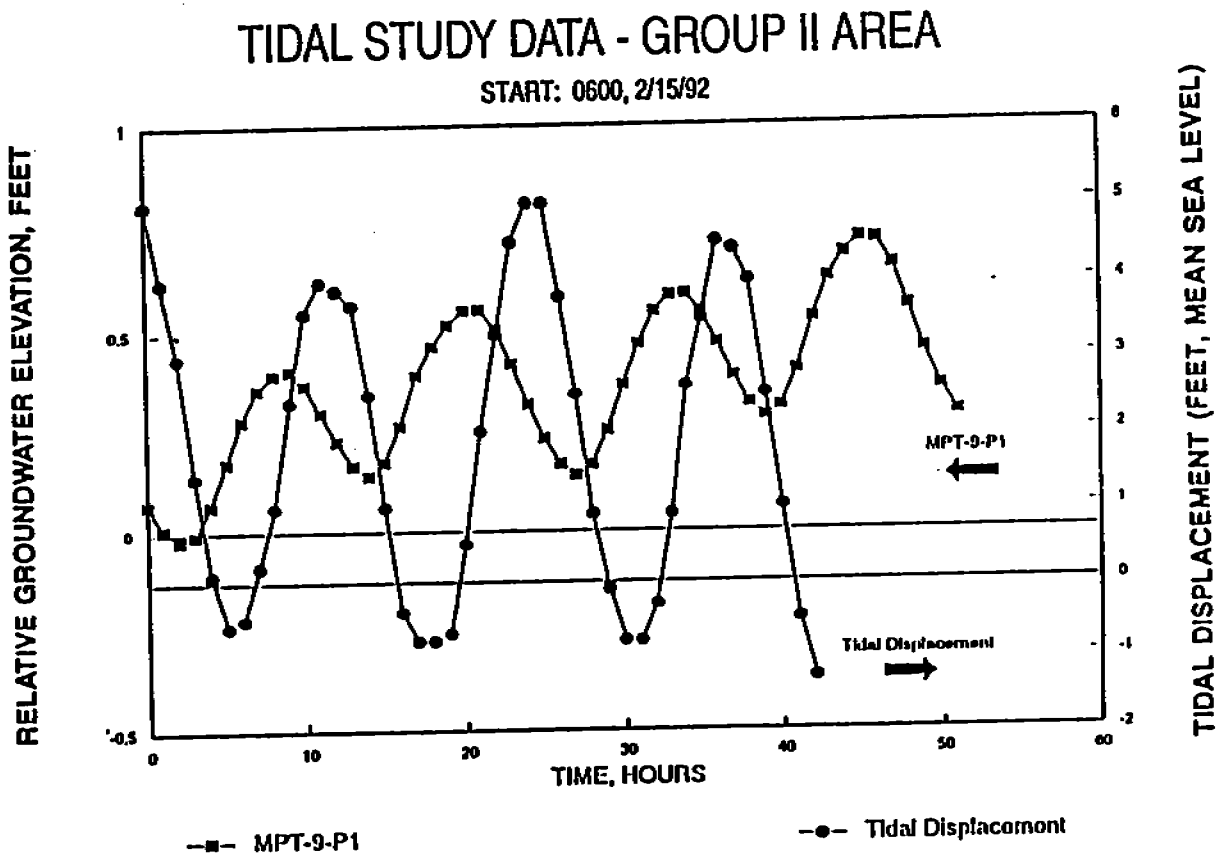

FIGURE 3-10

TIDAL STUDY DATA FOR GROUP II AREA, OILY WASTE TREATMENT PLANT, SWMU 9, PIEZOMETER MPT-9-P1

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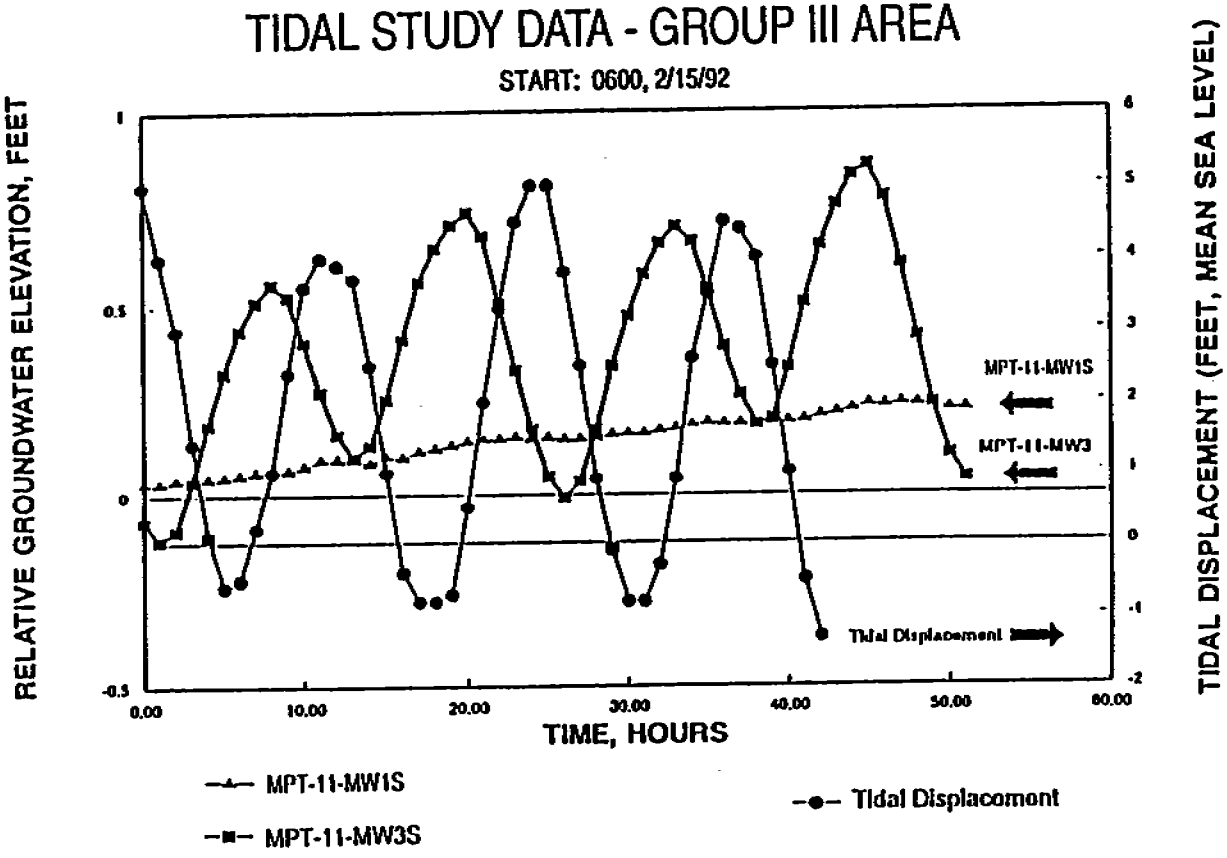

FIGURE 3-11

TIDAL STUDY DATA FOR GROUP III AREA, NEUTRALIZATION BASIN, SWMU 9, MONITORING WELLS MPT-11-MW1S AND MPT-11-MW3S

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The second tidal influence study was conducted during the period between December 8, 1992, and December 16, 1992, during a new moon lunar cycle. Water level measurements were collected at the following monitoring wells in the vicinity of SWMUs 6 and 7.

- MPT-8-MW1S is a monitoring well on the hydraulically upgradient (refer to Subsection 3.2.5, Potentiometric Water Surface) side of the westernmost sludge lagoon and is approximately 550 feet from the St. Johns River.

- MPT-8-MW2S is a monitoring well located hydraulically downgradient from the westernmost sludge lagoon and is approximately 300 feet from the St. Johns River.

- MPT-8-MW3S is a monitoring well located hydraulically downgradient from the westernmost sludge lagoon and is approximately 230 feet from the St. Johns River (the location of the Group V monitoring wells is provided on Plate 3).

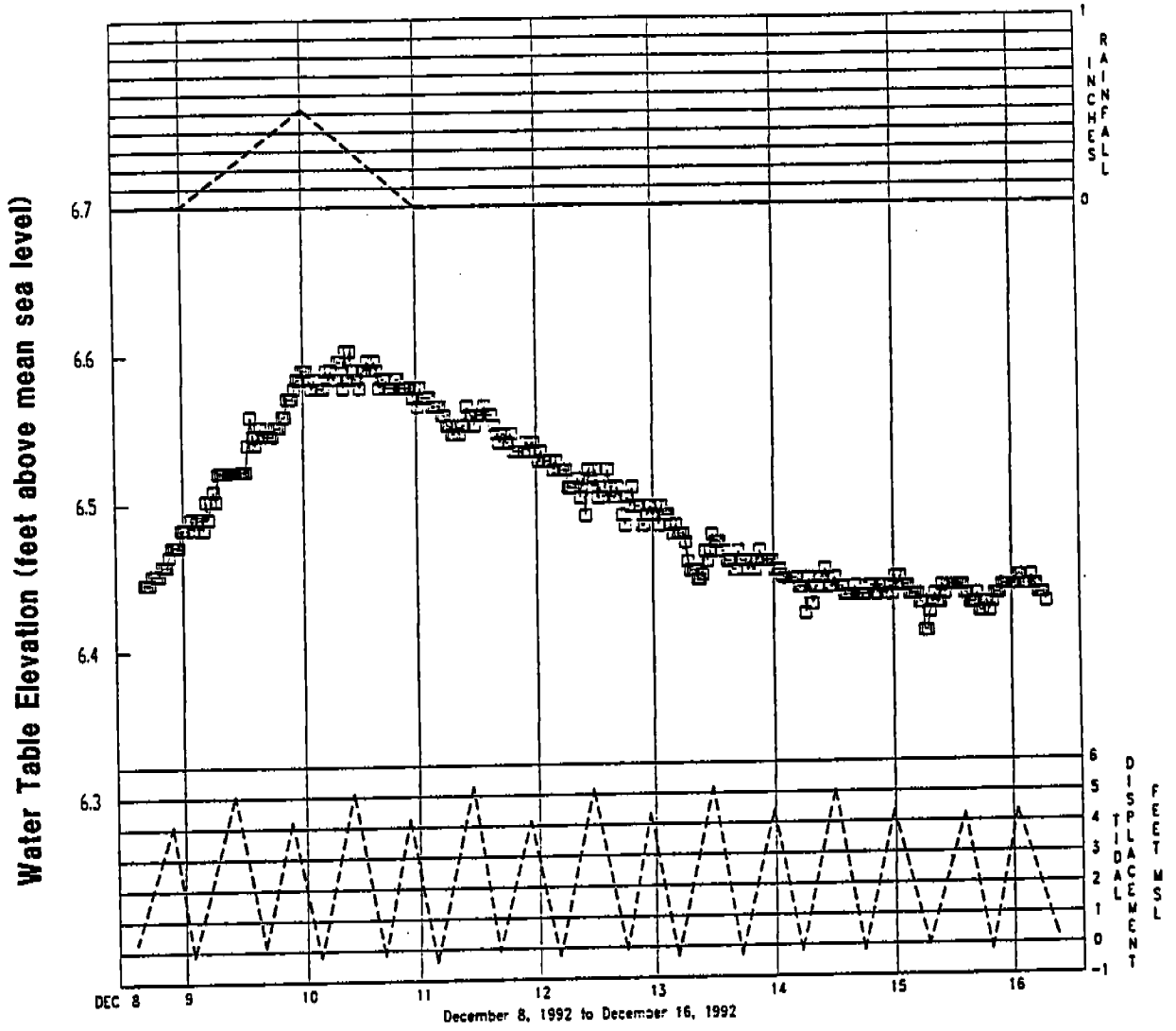
The only rainfall event during the tidal influence study occurred on December 10, 1992, and rainfall was approximately 0.51 inch.

Graphs of rainfall data and water table and tidal fluctuations are presented as Figures 3-12, 3-13, and 3-14 for monitoring wells MPT-8-MW1S, MPT-8MW-2S, and MPT-8-MW3S, respectively. The duration of the tidal influence, in days, is shown on the horizontal axis, the water table is shown on the left vertical axis, rainfall is shown on the upper portion of the right vertical axis, and tidal fluctuation is shown on the bottom right portion of the right axis.

The data presented in each of the three figures suggest that the shallow surficial aquifer exhibited a recharge response subsequent to the rainfall event. The graphs also suggest that the water table declined after the rainfall event and that there was another recharge event that likely was the shallow surficial aquifer's response to a rising tide during the new moon lunar stage.

The tidal response presented in these three figures indicates that a maximum tidal period was to occur from December 10, 1992, to December 14, 1992, and then decline starting on December 15, 1992. Because actual tidal data were not collected and computer-generated tidal data were used, it is not known whether the rising water level in the shallow surficial aquifer is a delayed response to tidal fluctuation, or other atmospheric conditions affected the tide and caused tides higher than predicted.

Data presented on Figure 3-12 for monitoring well MPT-8-MW1S suggest that the groundwater does not respond strongly to diurnal tidal fluctuations at that location. However, some of the minor troughs and peaks in the graph of the water table correspond slightly to diurnal tidal fluctuations. Data presented on Figures 3-13 and 3-14 for monitoring wells MPT-8-MW2S and MPT-8-MW3S, respectively, do suggest a strong correlation between the shallow surficial aquifer and diurnal tidal fluctuations.



Water Level in Monitoring Well MPT-8-MW1S

FIGURE 3-12
TIDAL STUDY DATA
GROUP II SWMUs
MONITORING WELL MPT-8-MW1S
DECEMBER 8, 1992 - DECEMBER 16, 1992

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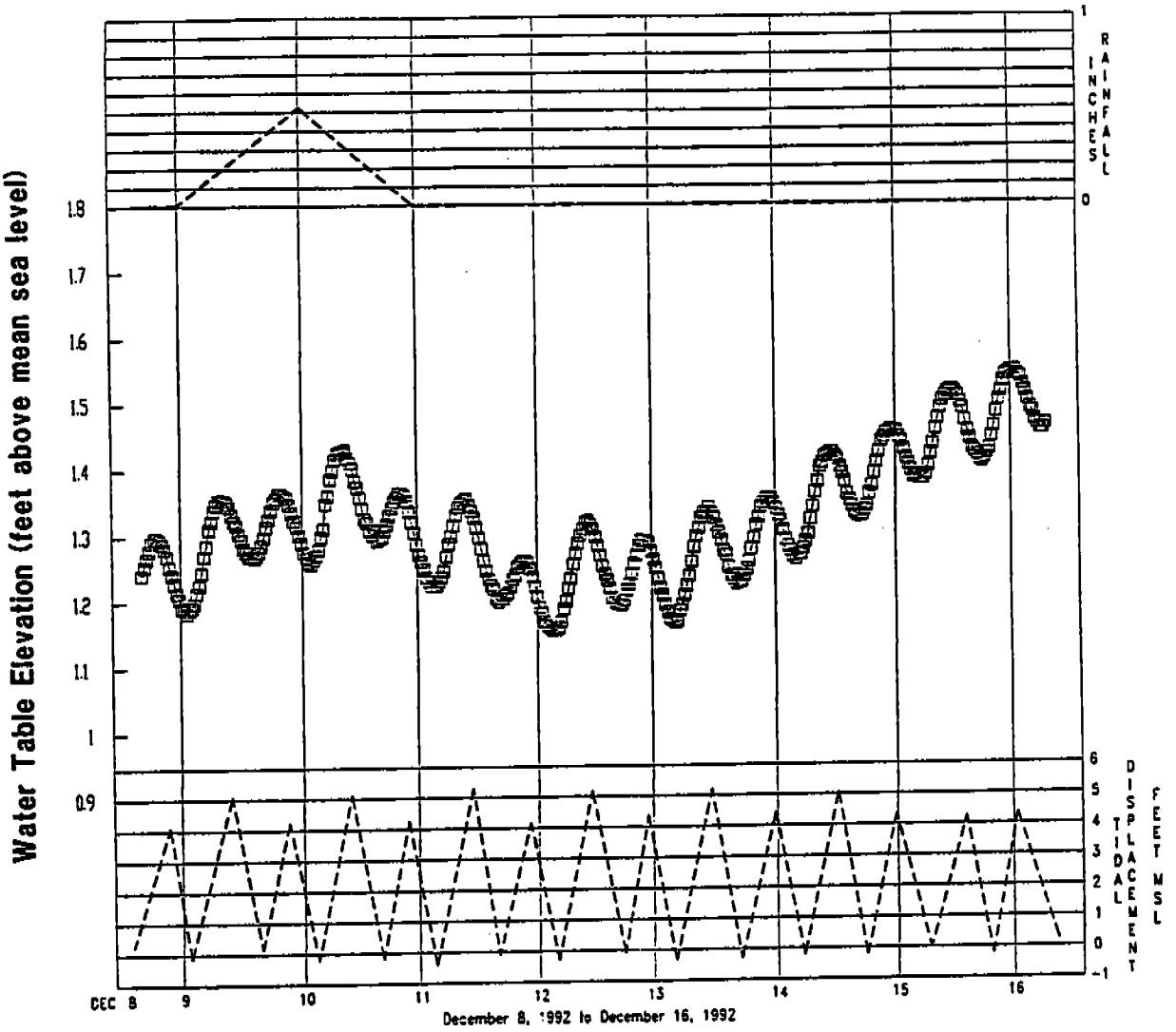

Water Level in Monitoring Well MPT-8-MW2S

FIGURE 3-13
TIDAL STUDY DATA
GROUP II SWMUs
MONITORING WELL MPT-8-MW2S
DECEMBER 8, 1992 - DECEMBER 16, 1992

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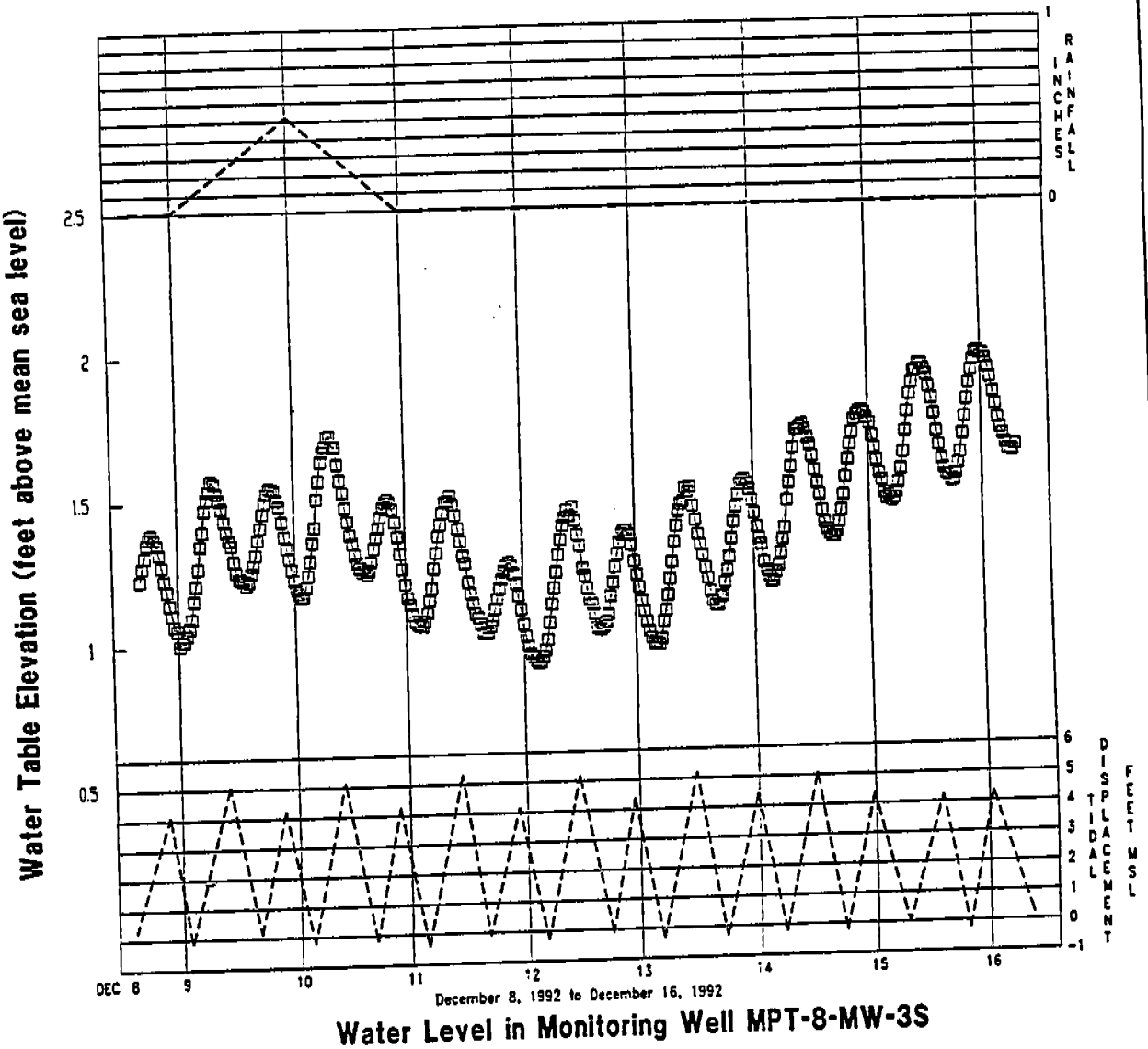

FIGURE 3-14
TIDAL STUDY DATA
GROUP II SWMUs
MONITORING WELL MPT-8-MW3S
DECEMBER 8, 1992 - DECEMBER 16, 1992

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The third tidal influence study was conducted between January 27, 1993, and February 4, 1993. Lunar stages during this period were: a last quarter on January 14, 1993; a new moon on January 22, 1993; a first quarter on January 30, 1993; and a full moon on February 6, 1993. Water level measurements were collected at the following wells (Plate 1).

- MPT-S-MW1S is a monitoring well located hydraulically upgradient (refer to Subsection 3.2.5, Potentiometric Water Surface) to SWMUs 6, 7, 8, 9, 10, 11, and 16 and is approximately 1,000 feet from the St. Johns River.

- MPT-8D-P1 is a piezometer located hydraulically upgradient to SWMU 11 and hydraulically sidegradient to SWMUs 8 and 9 and is approximately 700 feet from the St. Johns River.

- MPT-9-MW1S is a monitoring well located hydraulically upgradient to SWMU 11 and hydraulically sidegradient to SWMU 9 and is approximately 400 feet from the St. Johns River.

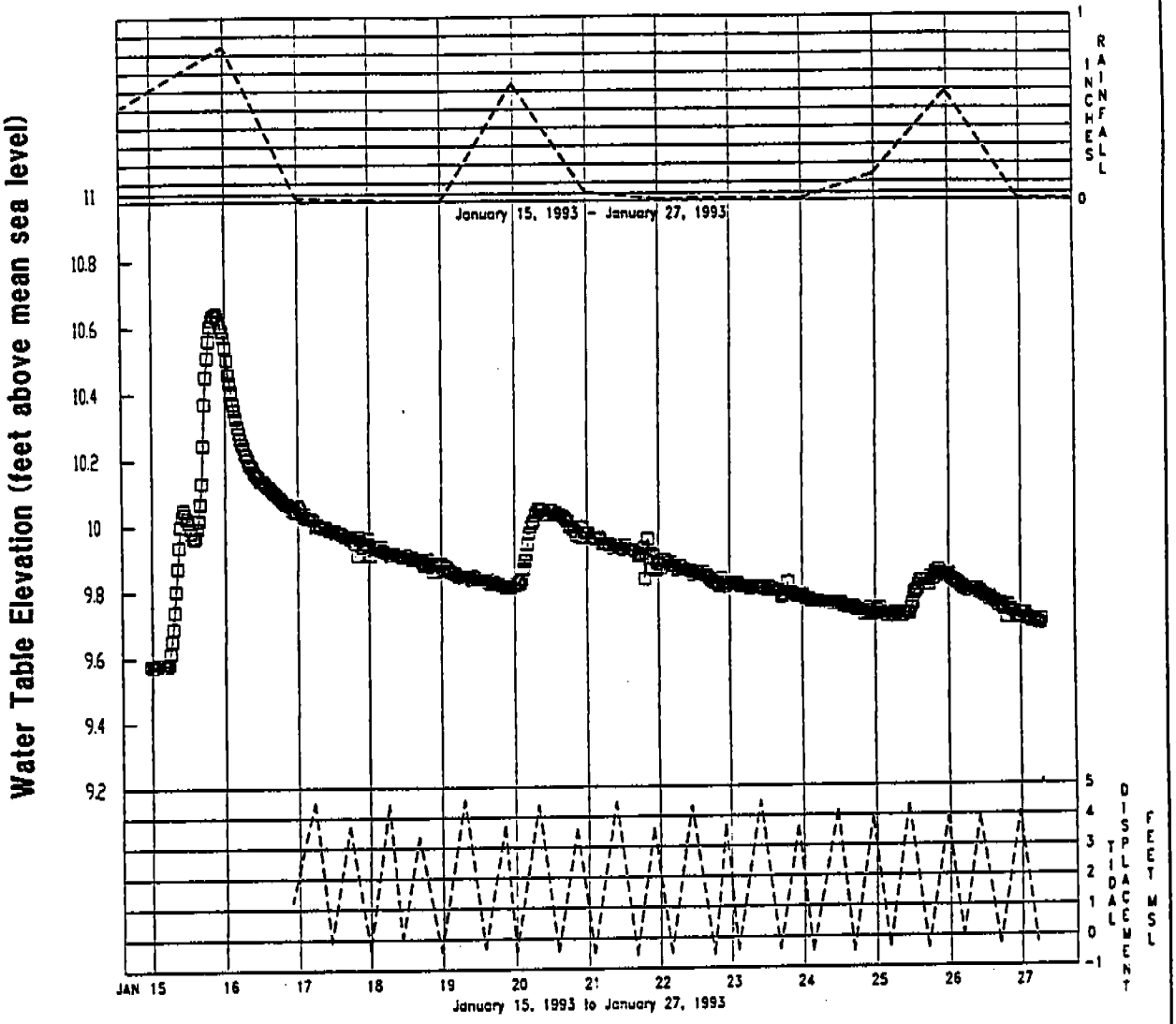
- MPT-9-MW3S is a monitoring well located hydraulically downgradient from SWMU 11 and is located approximately 100 feet from the St. Johns River.

Rainfall events that occurred before and during this tidal study are: approximately 0.52 inch on January 13, 1993 (not graphed on figures); 0.5 inch on January 15, 1993; 0.86 inch on January 16, 1993; 0.66 inch on January 20, 1993; 0.01 inch on January 21, 1993; 0.14 inch on January 25, 1993; and 0.6 inch on January 26, 1993. No other rainfall events occurred during the remainder of the third tidal influence study.

Data presented on Figure 3-15 for monitoring well MPT-S-MW1S, and Figure 3-16 for piezometer MPT-8D-P1, suggest that the shallow surficial aquifer water table is not affected by lunar or diurnal tidal fluctuations at these monitoring well locations. Comparisons of rainfall and water level data on Figure 3-15 for monitoring well MPT-S-MW1S suggest a rapid response to recharge and discharge by the shallow surficial aquifer from rainfall events. Figure 3-16 for piezometer MPT-8D-P1, compared to the figure for monitoring well MPT-S-MW1S, suggests a longer response to rainfall events at this location (MPT-8D-P1).

Data presented on Figure 3-17 for monitoring wells MPT-9-MW1S and Figure 3-18 for monitoring well MPT-9-MW3S suggest that the shallow surficial aquifer water table is affected by lunar and diurnal tidal fluctuations at these monitoring well locations. Comparisons of rainfall and water level data presented in the figures suggest that the shallow surficial aquifer water table, at these monitoring well locations, also responds to rainfall events.

3.2.3 Physical Characteristics of Soil Fourteen soil and four sediment samples (with duplicates) were submitted to an offsite laboratory for analyses of grain-size diameter, percent moisture, soil bulk density, cation exchange capacity, pH, and total organic carbon (TOC) (Table 3-1). Grain size information is not included in Table 3-1, but is provided in Appendix A. These samples were collected from soil borings during monitoring well installations and, therefore, reflect soil conditions at monitoring well locations.



Water Level in Monitoring Well MPT-S-MW1S

FIGURE 3-15
TIDAL STUDY DATA
GROUP II SWMUs
MONITORING WELL MPT-S-MW1S
JANUARY 15, 1993 - JANUARY 27, 1993

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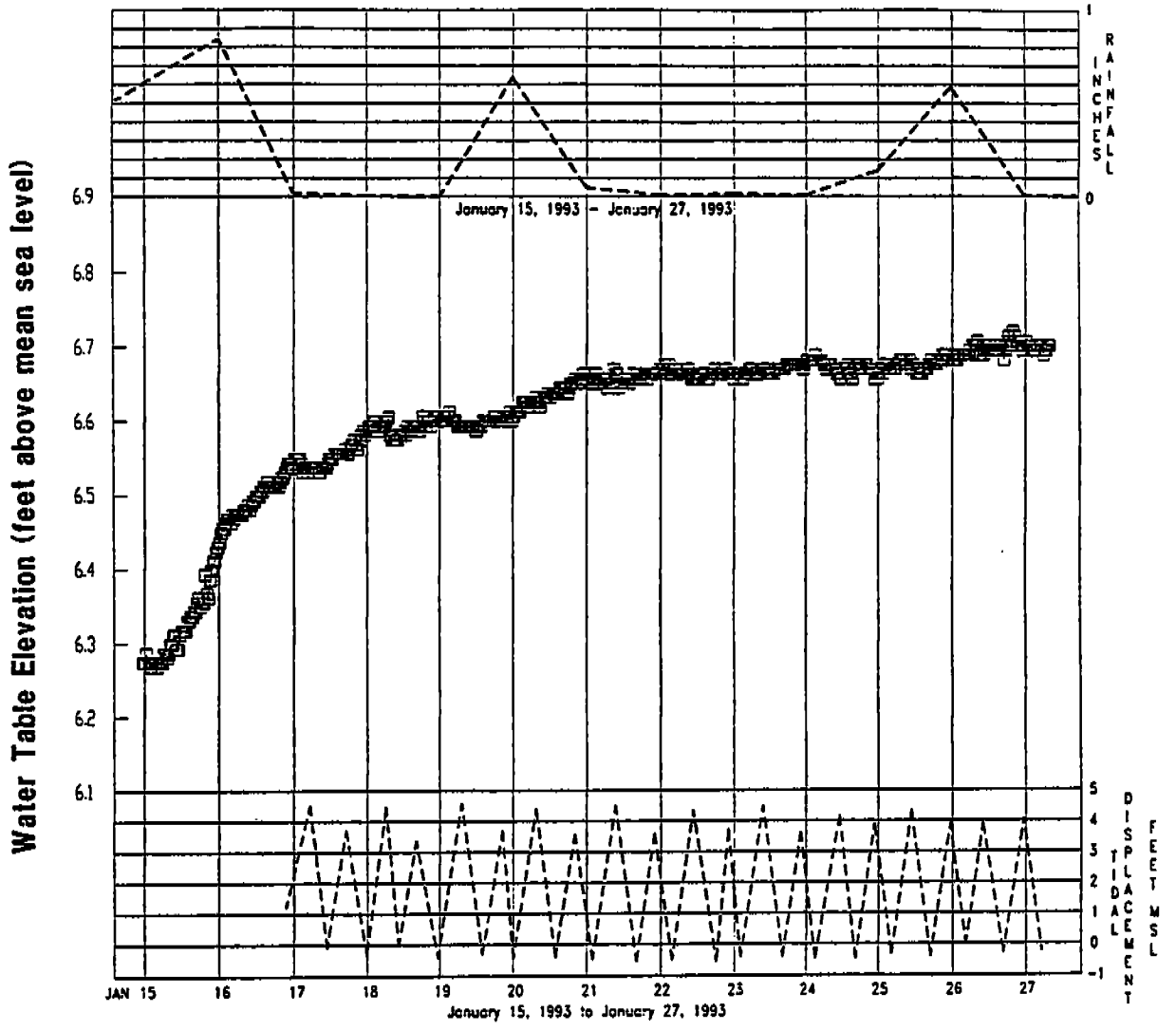

Water Level in Piezometer MPT-8D-P1 (Continued)

FIGURE 3-16
TIDAL STUDY DATA
GROUP II SWMUs
PIEZOMETER MPT-8D-P1
JANUARY 15, 1993 - FEBRUARY 3, 1993

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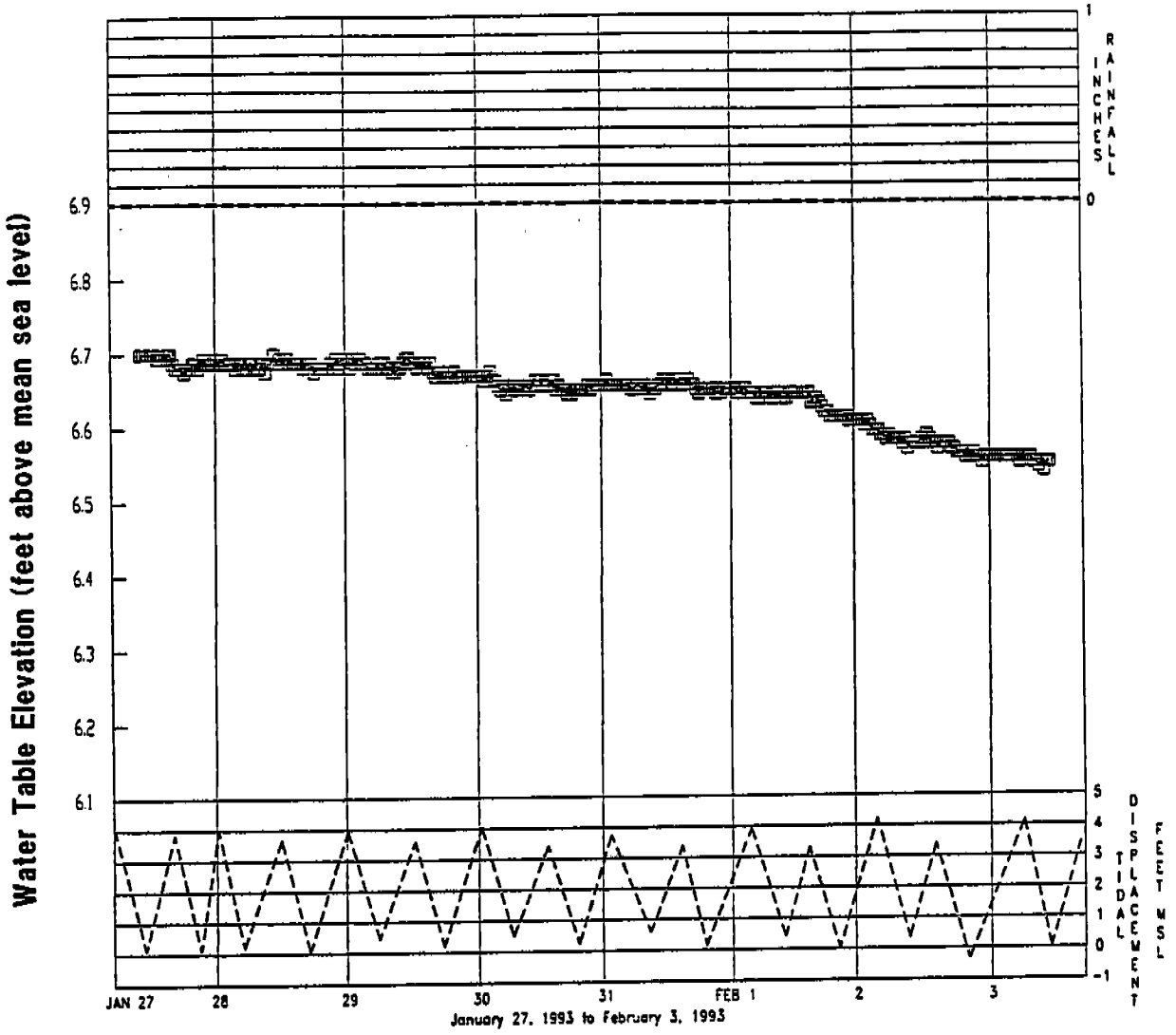

Water Level in Piezometer MPT-8D-P1

FIGURE 3-16 (Continued)
TIDAL STUDY DATA
GROUP II SWMUs
PIEZOMETER MPT-8D-P1
JANUARY 15, 1993 - FEBRUARY 3, 1993

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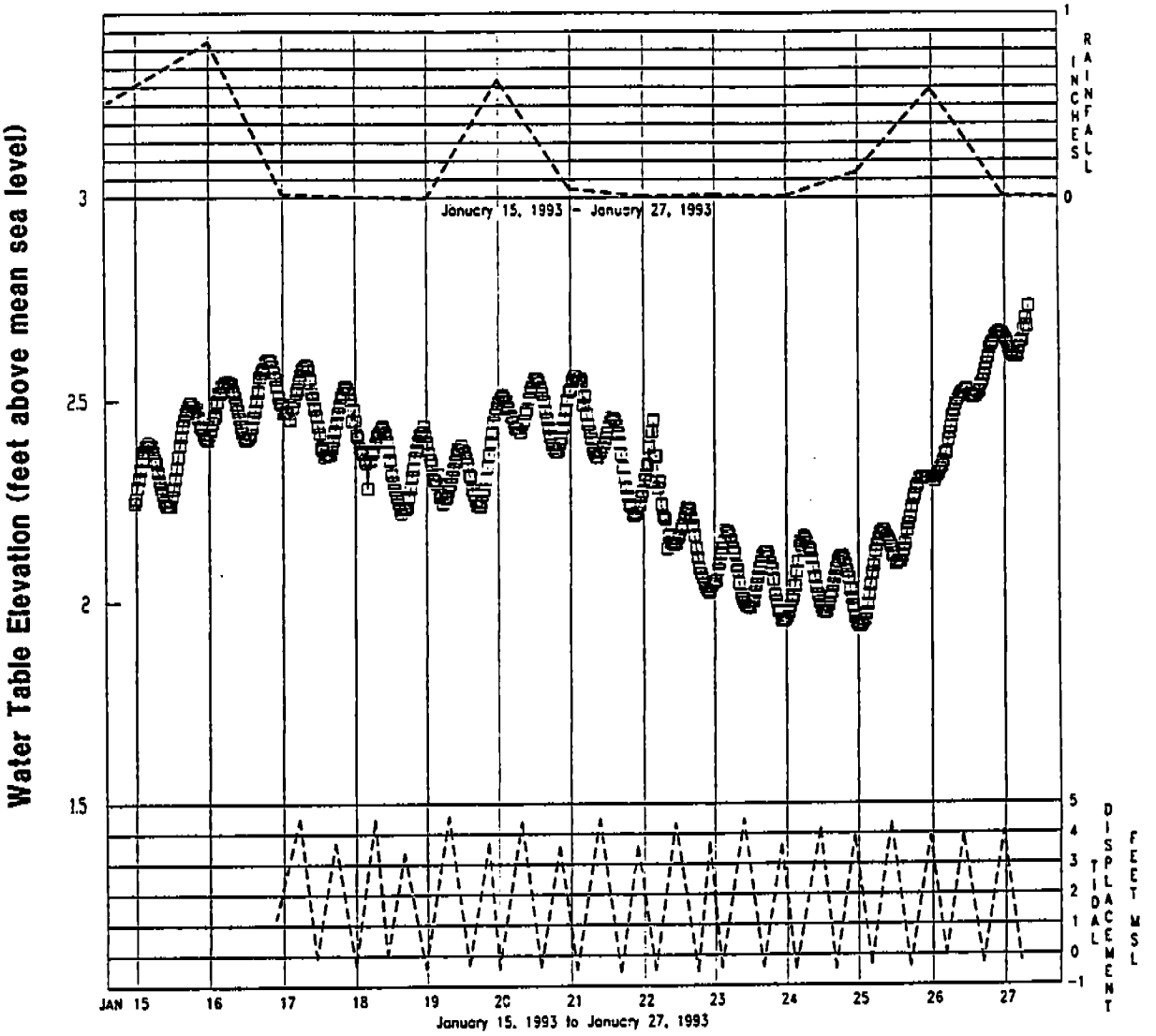

Water Level in Monitoring Well MPT-9-MW1S (Continued)

FIGURE 3-17
TIDAL STUDY DATA
GROUP II SWMUs
MONITORING WELL MPT-9-MW1S
JANUARY 15, 1993 - FEBRUARY 3, 1993

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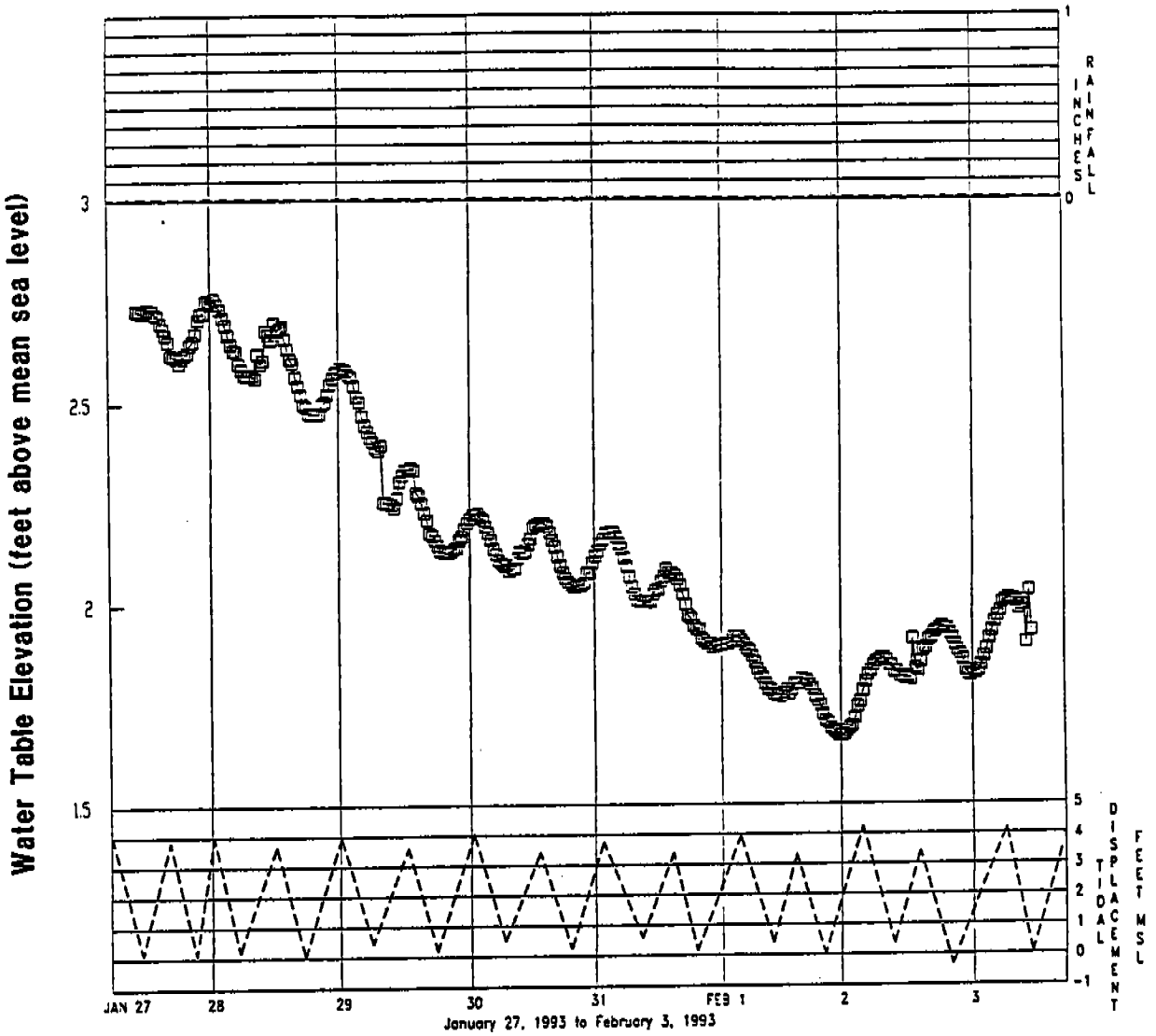
U.S. NAVAL STATION MAYPORT FLORIDA



Water Level in Monitoring Well MPT-9-MW1S

FIGURE 3-17 (Continued)
TIDAL STUDY DATA
GROUP II SWMUs
MONITORING WELL MPT-9-MW1S
JANUARY 15, 1993 - FEBRUARY 3, 1993

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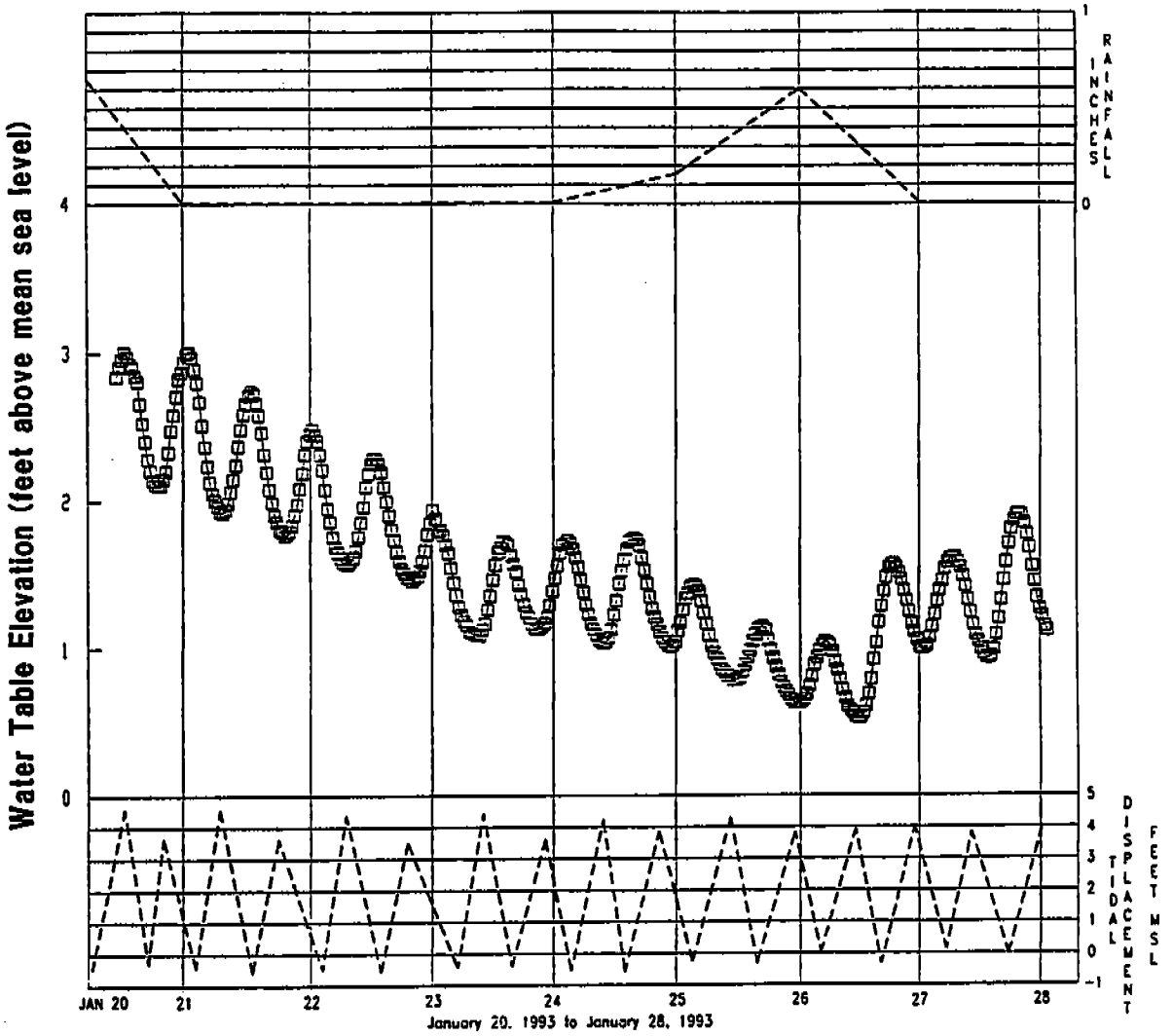

Water Level in Monitoring Well MPT-9-MW3S (Continued)

FIGURE 3-18
TIDAL STUDY DATA
GROUP II SWMUs
MONITORING WELL MPT-9-MW3S
JANUARY 20, 1993 - FEBRUARY 4, 1993

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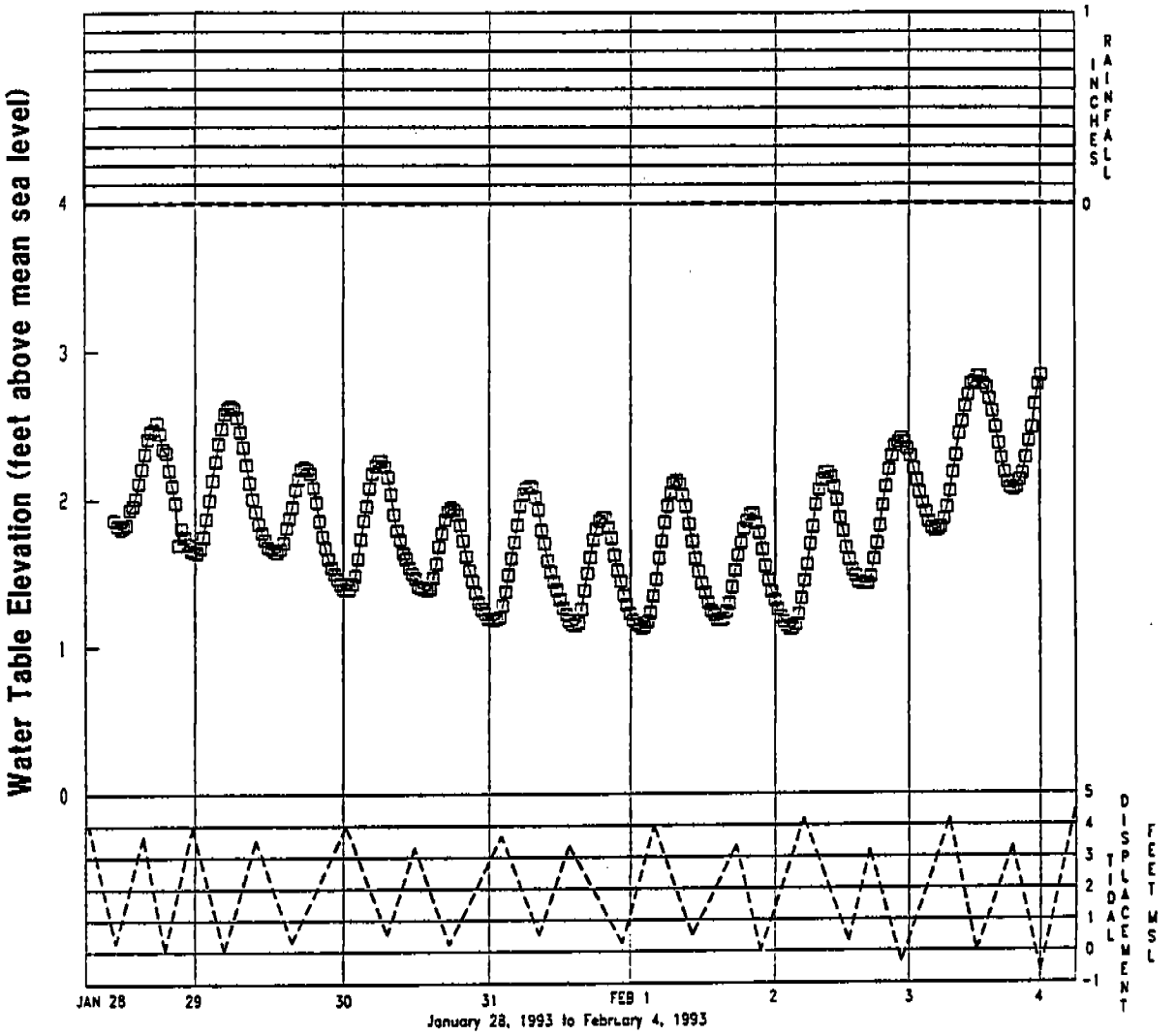

Water Level in Monitoring Well MPT-9-MW3S

FIGURE 3-18 (Continued)
TIDAL STUDY DATA
GROUP II SWMUs
MONITORING WELL MPT-9-MW3S
JANUARY 20, 1993 - FEBRUARY 4, 1993

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Table 3-1
Physical Soil Characteristics

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

SWMU Group No.	Sample No. Location	Sample Depth (feet)	Moisture (%)	Soil Bulk Density (gr/cm^3)	CEC	pH	TOC
I	MPT-2-MW11S1	1-2	15.1	1.39	5.0	7.57	2,800
	MPT-2-MW12S1	2-3	18.5	1.38	2.1	7.91	1,140
	MPT-2-MW16S1	1.5-2.5	17.9	1.44	1.4	9.24	3,480
	MPT-2-MW17S1	2-4	7.9	1.45	1.9	8.42	3,780
	MPT-13-MW4S1	2.5-7.5	15.0	1.41	1.8	8.19	2,470
	MPT-13-MW5S1	3-4	15.4	1.39	1.1	8.6	1,320
	MPT-13-MW6S1	2.5-3	14.9	1.28	0.7	9.11	1,870
	MPT-22-MW1S1	2.5-8.5	15.7	1.57	2.1	8.44	6,650
II	MPT-B-SS1	0-1	4.4	–	1.3	7.38	1,950
	MPT-B-SS1 Dup	0-1	5.1	–	1.0	8.02	1,740
	MPT-B-SS2	0-1	17.6	–	0.7	8.01	2,620
	MPT-B-SS3	0-1	17.7	–	1.1	8.0	5,400
	MPT-B-SS4	0-1	5.6	–	1.0	8.17	8,030
	MPT-B-SS5	0-1	4.8	–	0.6	6.28	1,440
	MPT-B-SS6	0-1	5.5	–	1.0	8.14	1,660
	MPT-B-SD4	NA	21.5	–	1.4	6.75	5,870
	MPT-B-SD5	NA	20.7	–	1.8	7.42	8,760
	MPT-B-SD6	NA	31.6	–	2.5	7.64	10,800
	MPT-B-SD7	NA	30.9	–	2.4	7.24	7,250
	MPT-B-SD7 Dup	NA	29.0	–	2.2	7.63	5,160

Notes: SWMU = solid waste management unit.
% = percent.
gr/cm^3 = gram per cubic centimeter.
CEC = cation exchange capacity (milliequivalents per 100 grams).
pH = standard units.
TOC = total organic carbon (milligrams per kilogram).
MW = monitoring well.
S = shallow monitoring well.
B = background sample location.
SS = soil sample.
– = not analyzed.
Dup = duplicate sample.
SD = sediment sample.
NA = not applicable.

The grain size data were used to determine the uniformity coefficient and to classify the soil relative to engineering grades using grain-size distribution charts. The grain-size distribution graphs are provided in Appendix A. Grain-size distribution curves indicate that the soil samples consisted mainly of poorly graded, fine-grained, sand-size material. Samples MPT-2-MW11S, MPT-2-MW16S, and MPT-13-MW5 consist of 85 to 90 percent fine-grained sand. Samples MPT-2-MW12S, MPT-2-MW15S, and MPT-13-MW6S are primarily (95 percent) medium-grained sand with less than 5 percent smaller than fine-grained sand. MPT-13-MW4S and its duplicate consist of 80 percent fine-grained sand and 20 percent medium-grained sand. Based on the observed particle size distributions, an estimated effective porosity from 0.25 to 0.35 percent appears reasonable. A value of 0.35 percent was selected for calculating linear groundwater velocities.

Two samples, MPT-2-MW17S and MPT-22-MW1S, were not similar to the previously described samples. Sample MPT-2-MW17S consisted of 65 percent fine-grained sand and 35 percent medium-grained sand. Sample MPT-22-MW1S contained 50 percent fine-grained, sand-size material, 25 percent medium-grained sand, and 25 percent coarse sand. These samples also are generally classed as SP soil (USCS), consisting predominantly of one grain size, fine, and a low percentage of fines typically comprising the remainder.

Cation exchange capacity (CEC) is the quantity of excess ions in the zone adjacent to the charged particles surface or layer that can be exchanged for other cations. CEC for geologic materials is expressed as the number of milliequivalents of cations that can be exchanged in a sample with a dry mass of 100 grams at a Ph of 7.0. The Ph of the samples ranged from slightly acidic, 6.28 standard units, to basic, 9.24 standard units. Actual CEC values are strongly Ph dependent, with Ph affecting the charge of the particle; at a low or acidic pH a positive charge prevails, and, at a high or basic pH, a negative charge prevails. The CEC values for the samples are relatively low, ranging from 0.6 to 5.0 milliequivalents per 100 grams (Table 3-1). This would suggest that inorganic elements with exchangeable cations, if in a mobile phase, would not likely be adsorbed.

Soil and sediment samples were analyzed to determine "typical" concentrations of TOC. The TOC data are used to assess the potential for organic compounds to adsorb to soil and to assess whether organic carbon is present as a food source for microbial degradation of organic compounds. The TOC concentrations in soil samples ranged from 1,140 to 8,030 mg/kg and, in the sediment samples, ranged from 5,870 to 10,800 mg/kg. This implies that limited sorption of organic compounds may occur and that organic carbon is present as a source of food for microbial degradation.

3.2.4 Hydraulic Conductivity Tests Hydraulic conductivity tests consisted of *in situ* "slug" tests and laboratory testing of three undisturbed soil samples. The slug tests consisted of both rising- and falling-head tests and have been conducted on selected piezometers and monitoring wells at NAVSTA Mayport. Two to six slug tests were conducted at each location to provide a statistical average of the estimated radial hydraulic conductivity (K) of the aquifer in the vicinity of a piezometer or monitoring well screened interval. A summary of the slug test data is presented in Table 3-2 and individual records of the slug test calculations are provided in Appendix B. The monitoring wells listed in Table 3-2, except monitoring wells MPT-2-MW12I, MPT-8-MW5D, and MPT-16-MW1I, are screened across the water table. The apparent disparity in the screen depths is a result of installing some of the wells on the dikes of the dredge spoil basins, which are approximately 25 feet higher than the surrounding land surface.

Table 3-2
In Situ Radial Hydraulic Conductivity (K) at NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Group No.	SWMU No.	Well or Piezometer No.	Screen Interval (feet bls)	No. of Tests	Range of K (ft/d)	Average K (ft/d)
I	2	MPT-2-P5	5 to 11	6	5.0 to 5.5	5.5
	4	MPT-2-P2	5 to 10	4	7.4 to 8.4	8.0
	4	MPT-2-P4	30 to 35	5	11.7 to 17.0	13.1
	4	MPT-2-P9	30 to 35	5	15.8 to 19.1	18.0
	5	MPT-2-P11	30 to 35	6	6.4 to 9.1	7.6
	5	MPT-2-P6	5 to 10	6	5.9 to 6.4	6.1
	5	MPT-2-P8	5 to 10	6	4.0 to 6.0	4.5
	5	MPT-2-MW15I	15 to 25	6	9.8 to 14.0	12.4
	5	MPT-2-MW12I	20 to 25	5	36.2 to 50.5	44.7
	13	MPT-13-P1	5 to 10	4	15.0 to 21.9	18.3
	13	MPT-13-P4	5 to 10	6	3.5 to 17.1	15.7
	13	MPT-13-P5	5 to 10	5	1.3 to 1.4	1.3
II	6, 7, and 8	MPT-8-MW4S	5 to 15	2	6.0 to 7.6	6.8
	6, 7, and 8	MPT-8-MW5S	5 to 15	2	1.2 to 1.3	1.2
	6, 7, and 8	MPT-8-MW6S	5 to 15	3	1.7 to 1.9	1.8
	6, 7, and 8	MPT-8-MW7S	5 to 15	2	1.8 to 2.3	2.1
	6, 7, and 8	MPT-8-MW8S	5 to 15	2	1.0 to 1.1	1.0
	6, 7, and 8	MPT-8-MW5D	60 to 70	2	0.16 to 0.18	0.17
	6, 7, and 8	MPT-8-P2	5 to 15	3	6.4 to 7.5	7.1
	6, 7, and 8	MPT-8-P3	5 to 15	2	0.8	0.8
	6, 7, and 8	MPT-8-P4	5 to 15	2	9.5 to 9.7	9.6
	15	MPT-15-MW1S	5 to 15	3	3.1 to 3.6	3.2
	15	MPT-15-P2	5 to 15	3	5.3 to 5.6	5.5
	15	MPT-15-P3	5 to 15	2	5.6 to 5.9	5.7
	15	MPT-15-P4	5 to 15	2	0.2	0.2
	16	MPT-16-MW1I	25 to 30	2	30.9 to 32.4	31.6
	16	MPT-16-MW2S	5 to 15	2	4.3 to 5.2	4.7
	16	MPT-16-MW3S	5 to 15	2	10.4 to 10.5	10.4
	16	MPT-9-P1	12 to 17	5	19.5 to 31.7	30.5
III	1	MPT-1-P1	5 to 10	5	14.9 to 236.3	46.0
	1	MPT-1-P2	10 to 15	5	21.3 to 27.5	24.5
	1	MPT-1-P3	10 to 15	6	15.2 to 19.1	16.6
	14	MPT-14-P1	5 to 10	4	10.9 to 13.5	11.8
	14	MPT-14-P2	6 to 11	4	17.5 to 28.1	22.1
	17	MPT-17-P1	5 to 10	4	62.1 to 82.0	72.2
	17	MPT-17-P2	7 to 12	6	17.7 to 26.7	22.8

Notes: SWMUs = solid waste management units.
bls = below land surface.
ft/d = feet per day.

The following presents the range of radial hydraulic conductivities at each of the surficial aquifer wells screened across the water table at NAVSTA Mayport.

- At Group I SWMUs, the radial hydraulic conductivity ranged from 1.3 to 22 feet per day (ft/d) with an overall average of 10 ft/d.
- At Group II SWMUs, the radial hydraulic conductivity ranged from approximately 0.2 to 32 ft/d with an overall average of 6 ft/d.
- At Group III SWMUs, the radial hydraulic conductivity ranged from 15 to 82 ft/d with an overall average of 31 ft/d.

The radial hydraulic conductivity at monitoring well MPT-2-MW12I was higher than the shallower monitoring wells with a range of 36 to 50 ft/d and an average of 45 ft/d. Monitoring well MPT-8-MW5D was screened at depths of 60 to 70 feet bls. The range in radial hydraulic conductivity values for this well were 0.16 to 0.18 ft/d and the average was 0.17 ft/d. Monitoring well MPT-16-MW1I was screened at depths of 25 to 30 feet bls. The range in radial hydraulic conductivity values for this well were approximately 31 and 32 ft/d with an average of 32 ft/d.

The radial hydraulic conductivity values represent the local variation of this parameter within the fine-grained, silt-shell-clay admixture that constitutes the upper units of the surficial aquifer at NAVSTA Mayport. Average radial hydraulic conductivity values were within the same order of magnitude at Groups I and II SWMUs, whereas Group III SWMUs had relatively higher values.

The laboratory vertical hydraulic conductivity test was conducted in accordance with test method ASTM-D2216. Three samples from Group II were analyzed by this procedure. The results of the analyses are provided in Table 3-3. The average of the three values was calculated to be 3.5 ft/d. Based on these data, the vertical hydraulic conductivity appears to be less than the radial hydraulic conductivity.

Table 3-3
Laboratory Hydraulic Conductivity (K) at
NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Location	Sample Depth (feet)	Laboratory Vertical Hydraulic Conductivity (cm/sec)	Laboratory Vertical Hydraulic Conductivity (ft/d)
MPT-8-MW5S	5.66 to 6.33	0.0019	5.4
MPT-8-MW6S	9.33 to 10.0	0.00084	2.4
MPT-16-MW1S	9.33 to 10.0	0.00098	2.8

Notes: cm/sec = centimeters per second.
ft/d = feet per day.

3.2.5 Potentiometric Water Surfaces Water table elevations were measured monthly from February 16, 1992, through January 31, 1993. The monthly water level data are provided in Appendix B. The monthly water level data were averaged for each monitoring well or piezometer and are provided in Table 3-4. Groundwater measurements were obtained from approximately 40 to 60 selected piezometers and

Table 3-4
Average Water Levels From February 12, 1992, Through January 31, 1993

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

SWMU Group	Well or Piezometer No.	Northing (ST PLN)	Easting (ST PLN)	AVG (ft msl)
(1)	MAY-CG-3	2200772.9	362853.3	1.97
I	MAY-1330-3	2204182.4	368758.8	4.93
I	MAY-1601-1	2203117.4	368462.6	5.52
I	MAY-265-5	2200963.7	372958.9	5.45
I	MPT-1-MW1S	2202286.9	372829.0	5.32
I	MPT-1-MW2S	2202618.3	372520.3	5.18
I	MPT-13-MW1S	2202051.5	368004.0	5.84
I	MPT-13-MW2S	2201306.8	367476.4	5.62
I	MPT-13-MW3S	2200862.2	367740.6	4.58
I	MPT-13-MW4S	2201085.4	367688.0	4.71
I	MPT-13-MW5S	2201499.2	367718.7	6.18
I	MPT-13-MW6S	2201904.4	367684.0	6.97
I	MPT-13-P1	2201716.0	366075.6	7.30
I	MPT-13-P3	2201497.1	367715.8	6.04
I	MPT-13-P4	2201301.3	368068.6	5.53
I	MPT-13-P5	2200912.2	367115.3	3.59
I	MPT-13-P6	2202120.1	366879.5	7.99
I	MPT-1-P1	2203345.2	372912.0	3.02
I	MPT-1-P2	2202891.0	373338.7	4.21
I	MPT-1-P3	2202846.0	372166.0	3.89
I	MPT-2-MW1S	2199297.5	365498.7	4.60
I	MPT-2-MW10S	2200333.6	366391.8	6.17
I	MPT-2-MW2S	2199855.4	368573.7	4.01
I	MPT-22-MW1S	2200638.4	366582.7	4.44
I	MPT-2-MW3S	2199038.7	364604.9	8.95
I	MPT-2-MW5S	2200114.4	365958.5	6.56
I	MPT-2-MW6S	2199779.9	365492.5	5.14
I	MPT-2-MW7I	2197403.6	365934.4	3.29
I	MPT-2-MW7S	2197405.6	365926.7	4.13
I	MPT-2-MW8S	2200144.7	365838.5	6.42
I	MPT-2-MW9I	2200338.7	366127.7	3.16
I	MPT-2-MW9S	2200345.5	366127.4	6.03
I	MPT-2-MW11S	2198829.9	368644.3	3.16
I	MPT-2-MW11I	2198211.9	368319.8	2.55
I	MPT-2-MW12S	2198209.6	368318.3	2.45
I	MPT-2-MW15D	2200458.0	367585.3	3.25
I	MPT-2-MW15S	2200460.6	367584.9	3.28

See notes at end of table.

Table 3-4 (Continued)
Average Water Levels From February 12, 1992, Through January 31, 1993

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Group Number	Well or Piezometer No.	Northing (ST PLN)	Easting (ST PLN)	AVG (ft msl)
I	MPT-2-MW16D	2200286.8	365475.2	3.07
I	MPT-2-MW16S	2200289.0	365475.4	3.77
I	MPT-2-MW17D	2197412.0	365773.2	4.21
I	MPT-2-MW17S	2197409.6	365775.4	4.34
I	MPT-2-MW4S	2199896.7	365011.2	3.16
I	MPT-2-P1	2199063.9	365497.2	4.92
I	MPT-2-P10	2195899.8	363415.5	9.04
I	MPT-2-P11	2196198.9	364395.6	5.93
I	MPT-2-P12	2196870.3	365157.0	8.39
I	MPT-2-P13	2199402.7	367408.9	9.31
I	MPT-2-P2	2198464.0	365498.3	5.05
I	MPT-2-P3	2198074.8	363421.2	6.35
I	MPT-2-P4	2198966.8	364241.4	6.14
I	MPT-2-P5	2201086.7	366452.8	2.77
I	MPT-2-P6	2200321.5	367964.8	2.28
I	MPT-2-P7	2197396.9	366597.0	4.26
I	MPT-2-P8	2197417.0	367731.9	3.16
I	MPT-2-P9	2197566.0	362977.9	6.05
II	MPT-10-P1	2204745.5	365963.8	2.41
II	MPT-11-MW1S	2205130.9	369851.2	1.77
II	MPT-11-MW2S	2205332.0	369902.2	1.48
II	MPT-11-MW3S	2205342.9	369802.8	1.57
II	MPT-8-MW1S	2204730.6	366284.7	1.70
II	MPT-8-MW2S	2204968.2	366261.8	Free-Prod.
II	MPT-8-MW3S	2205069.4	366363.4	Free-Prod.
II	MPT-8D-P1	2204936.8	367186.0	6.87
II	MPT-9-MW1S	2205218.8	367081.4	2.18
II	MPT-9-MW2S	2205465.4	367012.3	1.91
II	MPT-9-MW3S	2205507.6	367183.0	1.46
II	MPT-9-P1	2205413.6	367665.5	1.77
II	MPT-S-MW1S	2204505.6	366904.0	9.36
II	MPT-S-MW2S	2205369.7	366493.8	1.74
II	MPT-S-MW3S	2205411.6	366783.9	1.74
II	MPT-S-MW4S	2199526.5	364658.4	3.20
III	MPT-14-MW1S	2203770.9	374860.1	2.17
III	MPT-14-MW2S	2203726.0	374680.5	2.68
III	MPT-14-P1	2203675.6	374024.7	2.13

See notes at end of table.

Table 3-4 (Continued)
Average Water Levels From February 12, 1992, Through January 31, 1993

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Group Number	Well or Piezometer No.	Northing (ST PLN)	Easting (ST PLN)	AVG (ft msl)
III	MPT-14-P2	2204016.2	375562.2	2.10
III	MPT-15-P1	2204181.7	365689.2	4.92
III	MPT-17-P1	2201071.3	369942.2	3.44
III	MPT-17-P2	2201113.6	370630.3	3.07

[1] Located offsite at Coast Guard Base on St. Johns River adjacent to the town of Mayport.

Notes: ST PLN = Florida State Planar Coordinate System.
AVG. = average water level from February 12, 1992, through January 31, 1993.
ft msl = feet mean sea level, National Geodetic Vertical Datum of 1929.
Free-prod = floating free phase product.
MPT = U.S. Naval Station, Mayport, Florida.
MW = monitoring well.
P = piezometer.
S = less than 15 feet below land surface (bls).
I = between 25 to 30 feet bls.
D = monitoring well screened greater than 40 feet bls.

monitoring wells located throughout NAVSTA Mayport. The method used to collect groundwater information is described in Section 2.1.5.1, Potentiometric Water Surface.

The water level data were used to construct potentiometric surface maps (Appendix B) of the shallow surficial aquifer for each of the monthly measurements and a potentiometric surface map was constructed showing the average value for each of the monitoring well or piezometer locations (Figure 3-19). Tables 3-5 and 3-6 list and describe the monitoring wells and piezometers currently in use at NAVSTA Mayport for potentiometric surface evaluation and groundwater sampling as well as their relative hydraulic position.

Based on monthly and average potentiometric surface maps, groundwater flow in the surficial aquifer is recharged or originates from four separate localized hydrologic mounds (Figure 3-19). Two of the hydrologic mounds are the dredge material basins located in Group I; one hydrologic mound appears to be centered within the boundary of the western dredge material area, the other appears to be centered to the east of the eastern dredge material area. Another hydrologic mound, located in the Group II area, is generally oval in shape and appears to be located along the main aircraft runway. This hydrologic mound appears to have two lobes, one of which is oriented to the north toward the Fuel Farm and Oily Waste Treatment Plant area (Group II SWMUs 6, 7, 8, 9, 10, 15, and 16) and the second, smaller lobe is oriented to the south toward the Aircraft Intermediate Maintenance Facility (AIMF) (Group I SWMU 13). The extent of the mounding along the southern part of the runway is unknown because of insufficient coverage by piezometers or monitoring wells.

A fourth mound may exist in Group III. The areal extent of this mound is estimated based on limited data. The hydrologic mounds represent groundwater topographic highs and, therefore, have potential energy to "flow downhill" to "lower" areas. The flow direction of groundwater from each of the mounds is "radial" or away from the center of the hydrologic mound. Groundwater flow from the mounded areas discharges to the numerous surface drainage ditches to the south and west, and ultimately toward the St. Johns River, Mayport Turning Basin, or the Atlantic Ocean.

The averaged water level data were used to assess horizontal hydraulic gradients by comparison of water level data from monitoring wells and piezometers screened at the same approximate elevation at each SWMU; six monitoring wells and four piezometers in Group I, three monitoring wells and one piezometer in Group II, and one monitoring well and one piezometer in Group III (Table 3-7).

The horizontal groundwater gradients at Group I SWMUs range from 0.0026 foot per foot (ft/ft) to 0.077 ft/ft. The horizontal gradients at the Group II SWMUs were 0.011 and 0.014 ft/ft. The horizontal gradient at Group III SWMUs was 0.0046 ft/ft.

The averaged water level data were used to assess vertical hydraulic gradients by comparison of water level data from monitoring well pairs screened at different elevations in Groups I and II, six monitoring well pairs in Group I, and one monitoring well pair in Group II (Table 3-8).

The vertical hydraulic gradient in Group I was assessed using paired wells in both shallow and intermediate and shallow and deep parts of the surficial aquifer.

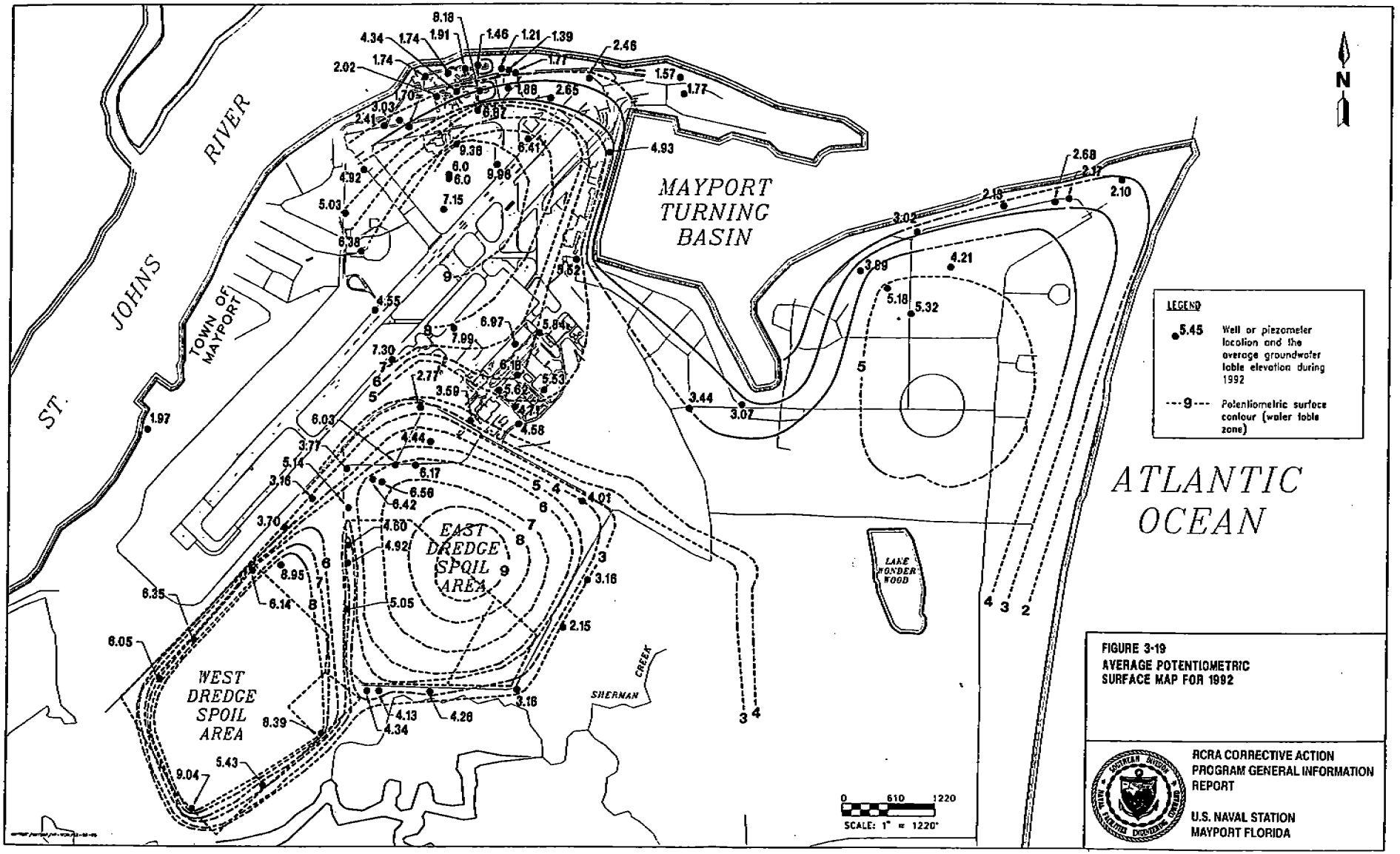
ST. JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
LAKE WONDERWOOD
SHERMAN CREEK
N
LEGEND
5.45 Well or piezometer location and the average groundwater table elevation during 1992
9 Potentiometric surface contour (water table zone)
0 610 1220
SCALE: 1" = 1220'
FIGURE 3-19
AVERAGE POTENTIOMETRIC SURFACE MAP FOR 1992
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION MAYPORT FLORIDA

Table 3-5
Summary of Groundwater Monitoring Wells and Piezometers Installed During RCRA Corrective Action Program Activities

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

SWMU Number	Well Designation	Hydraulic Position Relative to the SWMU	Diameter (inches)	Total Depth (feet)	Screened interval (feet)
2	MPT-2-MW11S	DG of SWMUs 50 and CG of 5	2	15	5 to 15
	MPT-2-MW11I	DG of SWMUs 50 and CG of 5	2	30.5	25 to 30
	MPT-2-MW12S	DG of SWMU 50	2	15	5 to 15
	MPT-2-MW12I	DG of SWMU 50	2	30	25 to 30
	MPT-2-MW13S	CG of SWMUs 2 and 3	2	12.5	2 to 12
	MPT-2-MW15S	DG of SWMU 5	2	15	5 to 15
	MPT-2-MW15I	DG of SWMU 5	2	30	25 to 30
	MPT-2-MW16S	DG of SWMUs 4 and 50	2	15	5 to 15
	MPT-2-MW16D	DG of SWMUs 4 and 50	4	100	90 to 100
	MPT-2-MW17S	DG of SWMU 50	2	15	5 to 15
	MPT-2-MW17I	DG of SWMU 50	2	30.5	25 to 30
	MPT-2-MW17D	DG of SWMU 50	4	125	115 to 125
	MPT-2-MW18S	DG of SWMUs 2 and 26	2	12.5	2 to 12
	MPT-2-MW18I	DG of SWMUs 2 and 26	2	30.5	25 to 30
	MPT-2-MW19S	DG of SWMU 50	2	35.5	25 to 35
	MPT-2-MW20S	DG of SWMU 50	2	35.5	25 to 35
	MPT-2-MW21S	DG of SWMU 5	2	13.5	3 to 13
	MPT-2-MW22S	DG of SWMUs 3 and 4	2	12.5	2 to 12
	MPT-2-MW22I	DG of SWMUs 3 and 4	2	30.5	25 to 30
	MPT-2-MW23S	DG of SWMU 5	2	13.5	3 to 13
	MPT-2-MW23I	DG of SWMU 5	2	30.5	25 to 30
	MPT-2-MW24S	DG of SWMU 50	2	35	24.5 to 34.5
	MPT-2-MW25S	DG of SWMU 50	2	35.5	25 to 35
	MPT-2-MW25I	DG of SWMU 50	2	55.5	50 to 55
	MPT-2-MW26S	DG of SWMU 50	2	40.5	30 to 40
	MPT-2-MW26I	DG of SWMU 50	2	55.5	50 to 55
	MPT-2-MW27I	DG of SWMU 50	2	30.5	25 to 30
	MPT-2-MW28S	DG of SWMU 50 and UG of SWMU 4	2	14.5	4 to 14
	MPT-2-MW29S	DG of SWMUs 4 and 50	2	12.5	2 to 12
	MPT-2-MW30S	DG of SWMUs 2, 3, and 26	2	13.5	3 to 13

See notes at end of table.

Table 3-5 (Continued)
Summary of Groundwater Monitoring Wells and Piezometers Installed During RFI Activities

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SWMU Number	Well Designation	Hydraulic Position Relative to the SWMU	Diameter (inches)	Total Depth (feet)	Screened interval (feet)
2 (cont'd)	MPT-2-MW31S	DG of SWMUs 4 and 50	2	12.5	2 to 12
	MPT-2-MW31I	DG of SWMUs 4 and 50	2	30.5	25 to 30
	MPT-2-MW32S	DG of SWMUs 4 and 50	2	12.5	2 to 12
	MPT-2-MW32I	DG of SWMUs 4 and 50	2	30.5	25 to 30
	MPT-2-MW33S	DG of SWMUs 2, 3, 26, and 50	2	12.5	2 to 12
	MPT-2-MW33I	DG of SWMUs 2, 3, 26, and 50	2	30.5	25 to 30
	MPT-2-MW34S	DG of SWMUs 2, 3, 26, and 50 and UG 13	2	12.5	2 to 12
	MPT-2-MW34I	DG of SWMUs 2, 3, 26, and 50 and UG 13	2	30.5	25 to 30
	MPT-2-MW35S	DG of SWMUs 4 and 50	2	12.5	2 to 12
	MPT-2-MW35I	DG of SWMUs 4 and 50	2	29.5	24 to 29
	MPT-2-MW36S	DG of SWMUs 4 and 50	2	12.5	2 to 12
	MPT-2-MW36I	DG of SWMUs 4 and 50	2	30.5	25 to 30
	MPT-2-MW36D	DG of SWMUs 4 and 50	4	60.5	50 to 60
	MPT-2-MW37S	DG of SWMUs 2, 3, 4, and 26	2	12.5	2 to 12
	MPT-2-MW37I	DG of SWMUs 2, 3, 4, and 26	2	30.5	25 to 30
	MPT-2-MW38S	DG of SWMUs 2, 3, 4, and 26	2	12.5	2 to 12
	MPT-2-MW38I	DG of SWMUs 2, 3, 4, and 26	2	30.5	25 to 30
	MPT-2-MW38D	DG of SWMUs 2, 3, 4, and 26	4	60.5	50 to 60
	MPT-2-P1	DG of SWMU 4	2	10	5 to 10
	MPT-2-P2	DG of SWMU 4	2	10	5 to 10
	MPT-2-P3	DG of SWMU 50	2	5	27 to 32
	MPT-2-P4	DG of SWMU 50	2	5	30 to 35
	MPT-2-P5	UG of SWMUs 2 and 26	2	10	5 to 10
	MPT-2-P6	UG of SWMU 5	2	10	5 to 10
	MPT-2-P7	DG of SWMU 50	2	10	5 to 10
	MPT-2-P8	DG of SWMU 50	2	10	5 to 10
	MPT-2-P9	DG of SWMU 50	2	5	30 to 35
	MPT-2-P10	DG of SWMU 50	2	5	30 to 35
	MPT-2-P11	DG of SWMU 50	2	5	30 to 35
	MPT-2-P12	DG of SWMU 50	2	5	25 to 30
	MPT-2-P13	DG of SWMUs 5 and 50	2	10	5 to 10

See notes at end of table.

Table 3-5 (Continued)
Summary of Groundwater Monitoring Wells and Piezometers Installed During RFI Activities

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SWMU Number	Well Designation	Hydraulic Position Relative to the SWMU	Diameter (inches)	Total Depth (feet)	Screened interval (feet)
8	MPT-8-MW4S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW5S	UG of OWTP AREA	2	15	5 to 15
	MPT-8-MW5I	UG of OWTP AREA	2	30.5	25 to 30
	MPT-8-MW5D	UG of OWTP AREA	4	75	65 to 75
	MPT-8-MW6S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW7S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW8S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW9S	UG of OWTP AREA	2	15	5 to 15
	MPT-8-MW10S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW11S	DG of OWTP AREA	2	15.5	5 to 15
	MPT-8-MW12S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW13S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW13I	DG of OWTP AREA	2	40.5	35 to 40
	MPT-8-MW14S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW15S	DG of OWTP AREA	2	15.5	5 to 15
	MPT-8-MW15I	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW16S	DG of OWTP AREA	2	15	5 to 15
	MPT-8-MW17S	DG of OWTP AREA	2	15.5	5 to 15
	MPT-8-MW18S	DG of OWTP AREA	2	15	4.5 to 14.5
	MPT-8-MW19S	DG of OWTP AREA	2	14.5	4 to 14
	MPT-8-P1	DG of OWTP AREA	2	10	5 to 10
	MPT-8-P2	UG of SWMU 8	2	10	5 to 10
	MPT-8-P3	UG of SWMU 8	2	10	5 to 10
	MPT-8-P4	UG of SWMU 8	2	10	5 to 10
	MPT-8-P5	UG of SWMU 8	2	10	5 to 10
	MPT-8-P6	UG of SWMU 8	2	10	5 to 10
	MPT-8D-P1	CG of SWMU 8	2	10	5 to 10
11	MPT-11-MW3S	UG of SWMU 12	2	20	10 to 20

See notes at end of table.

Table 3-5 (Continued)
Summary of Groundwater Monitoring Wells and Piezometers Installed During RFI Activities

RCRA Field Investigation, General Information Report
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SWMU Number	Well Designation	Hydraulic Position Relative to the SWMU	Diameter (inches)	Total Depth (feet)	Screened interval (feet)
13	MPT-13-MW7S	UG of SWMU 13	2	15	5 to 15
	MPT-13-MW8S	UG of SWMU 13	2	12.5	2 to 12
	MPT-13-MW9S	UG of SWMU 13	2	12.5	2 to 12
	MPT-13-MW10S	UG of SWMU 13	2	15	5 to 15
	MPT-13-P1	UG of SWMU 13	2	10	5 to 10
	MPT-13-P2	DG of SWMU 13	2	10	5 to 10
	MPT-13-P3	DG of SWMU 13	2	10	5 to 10
	MPT-13-P4	DG of SWMU 13	2	10	5 to 10
	MPT-13-P5	UG of SWMU 13	2	10	5 to 10
	MPT-13-P6	UG of SWMU 13	2	10	5 to 10
14	MPT-14-P1	DG of SWMU 14	2	10	5 to 10
	MPT-14-P2	DG of SWMU 14	2	10	5 to 10
15	MPT-15-MW1S	DG of SWMU 15	2	15	5 to 15
	MPT-15-MW2S	DG of SWMU 15	2	13	2.5 to 12.5
	MPT-15-MW3S	UG of SWMU 15	2	16.5	6 to 16
	MPT-15-MW4S	UG of SWMU 15	2	15.5	5 to 15
	MPT-15-MW5S	UG of SWMU 15	2	18.5	8 to 18
	MPT-15-MW5I	DG of SWMU 15	2	30.5	25 to 30
	MPT-15-P1	DG of SWMUs 15 and 28	2	15	10 to 15
	MPT-15-P2	DG of SWMU 15	2	10	5 to 10
	MPT-15-P3	UG of SWMU 15	2	10	5 to 10
	MPT-15-P4	CG of SWMU 15	2	10	5 to 10
16	MPT-16-MW1I	DG of SWMU 16	2	30	25 to 30
	MPT-16-MW2S	DG of SWMU 16	2	15	5 to 15
	MPT-16-MW3S	DG of SWMU 16	2	15	5 to 15
	MPT-16-MW4S	UG of SWMU 16	2	15.5	5 to 15
17	MPT-17-P1	DG of SWMU 17	2	10	5 to 10
	MPT-17-P2	DG of SWMU 17	2	10	5 to 10
22	MPT-22-MW1S	DG of SWMU 22	2	15	5 to 15
	MPT-22-MW2S	DG of SWMU 22	2	13.5	3 to 13

See notes at end of table.

Table 3-5 (Continued)
Summary of Groundwater Monitoring Wells and Piezometers Installed During RFI Activities

RCRA Field Investigation, General Information Report
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SWMU Number	Well Designation	Hydraulic Position Relative to the SWMU	Diameter (inches)	Total Depth (feet)	Screened interval (feet)
26	MPT-26-MW1S	DG of SWMU 26	2	12.5	2 to 12
	MPT-26-MW2S	DG of SWMU 26	2	12.5	2 to 12
	MPT-26-MW3S	DG of SWMU 26	2	12.5	2 to 12
	MPT-26-MW4S	UG of SWMU 26	2	12.5	2 to 12
28	MPT-28-MW1S	DG of SWMU 28	2	18.5	8 to 18
	MPT-10-P1	DG of SWMU 28	2	10	5 to 10
56	MPT-56-MW1S	DG of SWMU 56	2	15	5 to 15
	MPT-B-MW1S	Background	2	15.5	5 to 15
	MPT-B-MW1I	Background	2	38.5	28 to 38
	MPT-B-MW1D	Background	4	72.5	62 to 72
	MPT-1-MW1S	Background	2	15	5 to 15
	MPT-S-MW1S	Background	2	12.5	2 to 12

Notes: RCRA = Resource Conservation and Recovery Act.
SWMU = solid waste management unit.
MPT = Naval Station Mayport.
DG = downgradient.
UG = upgradient.
OWTP = Oily Waste Treatment Plant.
CG = crossgradient.

Table 3-6
Summary of Monitoring Wells and Piezometers Installed Prior to 1992

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

SWMU Number	Well Designation	Hydraulic Position Relative to the SWMU	Diameter (inches)	Total Depth (feet)	Screened interval (feet)
1	MPT-1-MW1S	UG of SWMU 1	2	15	5 to 15
2	MPT-2-MW1S	DG of SWMUs 4 and 50 and UG of 3	2	15	5 to 15
	MPT-2-MW2S	DG of SWMU 5	2	15	5 to 15
	MPT-2-MW3S	DG of SWMU 50 and UG of 4	2	15	5 to 15
	MPT-2-MW4S	DG of SWMU 4	2	15	5 to 15
	MPT-2-MW5S[1]	DG of SWMU 50	2	15	5 to 15
	MPT-2-MW6S	DG of SWMUs 3 and 50	2	15	5 to 15
	MPT-2-MW7S	DG of SWMU 50	2	15	5 to 15
	MPT-2-MW7I	DG of SWMU 50	2	15	5 to 15
	MPT-2-MW8S	CG of SWMUs 2 and 3 and DG of 50	2	15	5 to 15
	MPT-2-MW9S[1]	DG of SWMUs 2 and 50 and CG of 26	2	15	5 to 15
	MPT-2-MW9I[1]	DG of SWMUs 2 and 50 and CG of 26	2	30	25 to 30
	MPT-2-MW10S	DG of SWMUs 2 and 50	2	15	5 to 15
8	MPT-8-MW1S	UG of OWTP Area	2	15	5 to 15
	MPT-8-MW2S	DG of OWTP Area	2	15	5 to 15
	MPT-8-MW3S	DG of OWTP Area	2	15	5 to 15
9	MPT-9-MW1S	CG of OWTP Area	2	15	5 to 15
	MPT-9-MW2S	DG of OWTP Area	2	15	5 to 15
	MPT-9-MW3S	DG of OWTP Area	2	15	5 to 15
11	MPT-11-MW1S	UG of SWMU 12	2	20	10 to 20
	MPT-11-MW2S	UG of SWMU 12	2	20	10 to 20
13	MPT-13-MW1S	DG of SWMU 13	2	15	5 to 15
	MPT-13-MW2S	DG of SWMU 13	2	15	5 to 15
	MPT-13-MW3S	DG of SWMU 13	2	15	5 to 15
	MPT-13-MW4S	DG of SWMU 13	2	15	5 to 15
	MPT-13-MW5S	DG of SWMU 13	2	15	5 to 15
	MPT-13-MW6S	DG of SWMU 13	2	15	5 to 15
Background					
	MPT-S-MW1S	UG of OWTP Area	2	12.5	2 to 12
	MPT-S-MW2S	DG of OWTP Area	2	15	5 to 15
	MPT-S-MW3S	DG of OWTP Area	2	15	5 to 15
	MPT-S-MW4S	DG of SWMU 4	2	15	5 to 15

[1] Well abandoned or destroyed.

Notes: SWMU = solid waste management unit.
MPT = U.S. Naval Station Mayport, Florida.
UG = upgradient.
DG = downgradient.
CG = crossgradient.
OWTP = Oily Waste Treatment Plant.

Table 3-7
Summary of Horizontal Hydraulic Gradients

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
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Group Number	Hydraulically Upgradient Location	Average[1] (ft msl)	Hydraulically Downgradient Location	Average[1] (ft msl)	Distance[2]	Average Hydraulic Gradient (ft/ft)
I	MPT-2-P13	9.31	MPT-2-MW2S	4.01	740	0.0072
	MPT-2-P13	9.31	MPT-2-MW11S	3.16	800	0.0077
	MPT-2-MW1S	4.6	MPT-2-MW4S	3.16	450	0.0032
	MPT-13-MW1S	5.84	MPT-13-P4	5.53	450	0.0068
	MPT-13-MW1S	5.84	MPT-13P5	3.59	850	0.0026
II	MPT-S-MW1S	9.36	MPT-S-MW2S	1.74	560	0.014
	MPT-S-MW1S	9.36	MPT-9-P1	1.77	200	0.011
III	MPT-1-MW1S	5.32	MPT-1-P1	3.12	500	0.0046

[1]Average water level from February 12, 1992, through January 31, 1993.
[2]Distance between wells in feet.

Notes: ft msl = feet below mean sea level, National Geodetic Vertical Datum of 1929.
ft/ft = foot per foot.
MPT = NAVSTA Mayport, Florida.

Table 3-8
Summary of Vertical Hydraulic Gradients
Group I and II SWMUs

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Group Number	Shallow Well	Average[1] (ft msl)	Deep Well	Average[1] (ft msl)	Distance[2]	Average[3] Hydraulic Gradient (ft/ft)
I	MPT-2-MW7S	4.49	MPT-2-MW7I	3.71	12	0.065
	MPT-2-MW9S	6.03	MPT-2-MW9I	3.16	12	0.23
	MPT-2-MW12S	2.45	MPT-2-MW12I	2.55	12	0.0083
	MPT-2-MW15S	3.28	MPT-2-MW15I	3.25	12	0.0025
	MPT-2-MW16S	3.75	MPT-2-MW16D	3.25	88	0.0059
	MPT-2-MW17S	4.34	MPT-2-MW17D	4.92	112	0.0051
II	MPT-8-MW5S	5.86	MPT-8MW5D	4.05	55	0.033

[1] Average water level from February 12, 1992, through January 31, 1993.
[2] Distance between wells in feet.
[3] Negative value represents an upward hydraulic gradient and positive value represents a downward hydraulic gradient.

Notes: ft/ft = foot per foot.
ft msl = feet below mean sea level (NGVD, 1929).
MPT = NAVSTA Mayport, Florida.
MW = monitoring well.

The vertical hydraulic gradient in Group II was assessed using monitoring wells paired in the shallow and deep parts of the surficial aquifer. Well screen intervals for the vertical groundwater hydraulic conductivity were distributed as follows:

- shallow, less than 15 feet, monitoring well designations with letter "S" in the suffix;
- intermediate, greater than 15 feet and less than 40 feet, monitoring well designations with letter "I" in the suffix; and
- deep, greater than 40 feet, monitoring well designations with letters "D" in the suffix.

The shallow and intermediate monitoring well pairs in Group I consisted of the following wells (Plate 2):

- MPT-2-MW7S and MPT-2-MW7I,
- MPT-2-MW9S and MPT-2-9I,
- MPT-2-MW12S and MPT-2-MW12I, and
- MPT-2-MW15S and MPT-2-MW15I.

The shallow and intermediate well pairs were located around the eastern dredge material handling area. Monitoring well pairs exhibited a net downward hydraulic gradient at three of the well pairs (MPT-2-MW7S and MPT-2-MW7I, MPT-2-MW9S and MPT-2-MW9I, and MPT-2-MW15S and MPT-2-MW15I) and a net upward gradient at one well pair (MPT-2-MW15S and MPT-2-MW15I). The vertical groundwater gradients at these monitoring wells range from -0.0083 to 0.25 ft/ft. The negative value represents a net upward hydraulic gradient and the positive value represents a net downward hydraulic gradient. The net upward and downward gradients are biased by time of measurement and tidal fluctuation and, therefore, the gradients shown in Tables 3-7 and 3-8 may not actually portray the true horizontal and vertical hydraulic gradients.

Two monitoring well pairs in the Group I vicinity consist of shallow and deep monitoring well pairs (Plate 2):

- MPT-2-MW16S and MPT-2-MW16D and
- MPT-2-MW17S and MPT-2-MW17D.

Monitoring well pair MPT-2-MW16S and MPT-2-MW16D is located near the northwest end of the eastern dredge material handling area and well pair MPT-2-MW17S and MPT-2-MW17D is located near the southwest end of the eastern dredge material handling area. Vertical hydraulic gradients for these two wells were 0.0059 and 0.0051 ft/ft, respectively.

The vertical gradient in Group II was assessed with monitoring wells paired in the shallow and deep zone of the surficial aquifer, MPT-8-MW5S and MPT-8-MW5D, respectively (Plate 3). The vertical hydraulic gradient at this well cluster was 0.033 ft/ft. The vertical hydraulic gradient in Group II appears to be steeper than the gradient in Group I. A possible explanation for this is that the deep well in Group II is screened at a shallower depth than the deep wells in Group I.

Comparison of horizontal versus vertical hydraulic gradients for Group I suggests that there may be more variation and possibly steeper vertical gradients. The steeper gradients likely are related to the mounding and recharge effect from the dredge material handling basins and fluctuations in the groundwater in response to tidal fluctuations. The horizontal hydraulic gradient in Group II appears to be slightly steeper than the vertical hydraulic gradient.

The regional potentiometric surface of the Floridan aquifer system is reported to be above the ground surface at topographically low areas east of Jacksonville. For example, water supply wells screened in the Floridan aquifer system in areas of NAVSTA Mayport are under sufficient artesian pressure to flow at the land surface (Leve, 1966). To assess the possibility that upward leakage from the Floridan aquifer system would potentially influence the surficial aquifer at NAVSTA Mayport, three monitoring well clusters (MPT-2-MW16S and MPT-2-MW16D, MPT-2-MW17S and MPT-2-MW17D, and MPT-8-MW5S and MPT-8-MW5D) were installed to measure the vertical hydraulic gradient between shallow and deep parts of the surficial aquifer system.

Based on the current data, artesian influence from the Floridan aquifer system on the surficial aquifer is negligible, with no net observed upward hydraulic gradient. Potential bias to this conclusion exists should the water in the surficial aquifer become more saline with depth. If the salinity increases with depth, insufficient density data have been collected to apply corrections to the water level elevations. In a study conducted at NAVSTA Mayport in 1980, the USGS suggested that the surficial aquifer becomes more brackish with depth (Franks, 1980).

3.2.6 Groundwater Flow Velocity Horizontal and vertical groundwater flow rates for the shallow surficial aquifer were calculated as the average linear groundwater velocity. The average linear velocities were calculated from a modified form of Darcy's equation and represent the ratio of linear travel distance to travel time between two points (Freeze and Cherry, 1979). The average linear velocity is expressed as V_D/N_e where V_D is the Darcy velocity ($V_D = KI$, K = hydraulic conductivity, and I = hydraulic gradient) and N_e is the effective porosity of the saturated geologic stratum. An effective porosity of 0.35 was used in the calculations (see Section 3.2.3, Physical Characteristics of Soil).

Estimated horizontal groundwater flow rates for a depth interval of approximately 5 to 20 feet bls were calculated and are shown in Table 3-9. The average linear groundwater velocity as calculated by Darcy's law was as follows for the three SWMU Groups.

- The average linear horizontal groundwater flow rate for Group I SWMUs ranged from 0.074 to 0.22 ft/d, or 27 to 80 feet per year (ft/yr).
- The average linear horizontal groundwater flow rates for Group II SWMUs were 0.19 and 0.24 ft/d, or 69 and 87 ft/yr.
- The average linear horizontal groundwater flow rate for Group III SWMUs was 0.41 ft/d or 149 ft/yr.

Table 3-9
Summary of Horizontal Groundwater Flow Rates, Group I, II, and III SWMUs

RCRA Corrective Action Program, General Information Reports
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			A	B	C	D	E
Group Number	Hydraulic Upgradient Well	Hydraulic Downgradient Well	Estimated Hydraulic Conductivity (K, ft/d)	Average Hydraulic Gradient (I, ft/ft)	Estimated Effective Porosity (N_e, %)	Estimated Linear Groundwater Flow Rate (V_D, ft/d)	Estimated Linear Groundwater Flow Rate (ft/yr)
I	MPT-2-P13	MPT-2-MW2S	10.0	0.0072	0.35	0.21	76
	MPT-2-P13	MPT-2-MW11S	10.0	0.0077	0.35	0.22	80
	MPT-2-MW1S	MPT-2-MW4S	10.0	0.0032	0.35	0.091	33
	MPT-13-MW1S	MPT-13-P4	10.0	0.0068	0.35	0.19	71
	MPT-13-MW1S	MPT-13P5	10.0	0.0026	0.35	0.074	27
II	MPT-S-MW1S	MPT-S-MW2S	6.0	0.014	0.35	0.24	87
	MPT-S-MW1S	MPT-9-P1	6.0	0.011	0.35	0.19	69
III	MPT-1-MW1S	MPT-1-P1	31	0.0046	0.35	0.41	149

Notes: Calculations = columns (A × B)/C = D × 365 = E.
K = radial hydraulic conductivity.
ft/d = feet per day.
I = hydraulic gradient.
ft/ft = foot per foot.
N_e = effective porosity.
% = percent.
V_D = linear groundwater velocity, V_D/N_e; (V_D = KI).
ft/yr = feet per year.
MW = monitoring well.
P = piezometer.

Based on these data, the dredge material used as fill, which comprises the majority of shallow surficial aquifer material in Groups I and II, has relatively lower groundwater flow velocities than the surficial aquifer sediments at Group III. However, the average linear groundwater flow velocities for Groups I and II are similar. The sediments of the shallow surficial aquifer in Group III consist of sand in a beach ridge depositional environment that has been covered by dredge materials. Estimated vertical groundwater flow rates were calculated only for Groups I and II, because there is not an intermediate or deep monitoring well located in Group III.

One shallow and intermediate monitoring well pair, MPT-2-MW12S and MPT-2-MW12I, in Group I exhibited an upward hydraulic gradient (denoted as a negative value in Table 3-10). These two wells are located adjacent to the eastern dredge material handling area and tidal marsh. The upward hydraulic gradient is potentially an artifact of tidal fluctuations. The estimated linear upward groundwater flow rate (vertical) for this well pair was -0.0083 ft/d or approximately -30 ft/yr.

Three shallow and intermediate monitoring well pairs (MPT-2-MW7S and MPT-2-MW7I, MPT-2-MW9S and MPT-2-MW9I, and MPT-2-MW15S and MPT-2-MW15I) in Group I exhibited downward hydraulic gradients (denoted as positive values in Table 3-10). The estimated linear groundwater flow rates for these wells were 0.65 ft/d or 240 ft/yr, 2.3 ft/d or 840 ft/yr, and 0.025 ft/d or 9 ft/yr, respectively. Two of these values are greater than horizontal linear groundwater flow velocities for Group I.

Three of the monitoring well pairs consist of shallow and deep monitoring well pairs; two in Group I, MPT-2-MW16S and MPT-2-MW16D and MPT-2-MW17S and MPT-2-MW17D, and one in Group II, MPT-8-MW5S and MPT-8-MW5D. The vertical linear hydraulic conductivity values for these wells were 0.059 ft/d or 21 ft/yr, 0.051 ft/d or 19 ft/yr, and 0.33 ft/d or 120 ft/yr, respectively.

The vertical linear groundwater flow rates for two of the shallow and intermediate well pairs, MPT-2-MW7S and MPT-2-MW7I and MPT-2-MW9S and MPT-2-MW9I, in Group I are orders of magnitude greater than the horizontal flow velocities. The vertical linear velocities for the shallow and deep monitoring well pairs, MPT-2-MW16S and MPT-2-MW16D and MPT-2-MW17S and MPT-2-MW17D, in Group I are at the lower end of the range for the horizontal linear groundwater flow velocities. It should be noted that the dredge material holding areas cause a mounded groundwater table and, as a result, the vertical linear groundwater velocities in the vicinity of the basins may exceed the horizontal linear groundwater velocities for parts of the shallow surficial aquifer. The two shallow and intermediate well pairs that exhibited the highest linear flow rates also had the steepest vertical hydraulic gradients (see Table 3-6). As the vertical hydraulic gradient decreases and dissipates with distance from the center of the groundwater mound, the horizontal flow component may exceed the vertical component.

The vertical linear groundwater flow velocity for some of the shallow and deep well pair in Groups I and II SWMUs was higher than the horizontal linear groundwater velocity. Based on this data, it appears that the vertical linear groundwater velocities may exceed the horizontal linear groundwater velocity at some locations at NAVSTA Mayport. the vertical value is based on the assumption that there is not a significant density difference between shallow and deep portions of the surficial aquifer. Additionally, the radial hydraulic conductivity

Table 3-10
Summary of Vertical Groundwater Flow Rates, Group I and II SWMUs

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U.S. Naval Station
Mayport, Florida

Group No.	Shallow Well	Deep Well	A	B	C	D	E
			Average Vertical Hydraulic Conductivity (K, ft/d)	Average Hydraulic Gradient (I, ft/ft)	Estimated Effective Porosity (N_e, %)	Estimated Linear Groundwater Flow Rate (V_D, ft/d)	Estimated Linear Groundwater Flow Rate (V_D, ft/yr)
I	MPT-2-MW7I	MPT-2-MW7I	3.5	0.065	0.35	0.65	237
	MPT-2-MW9I	MPT-2-MW9I	3.5	0.23	0.35	2.3	839
	MPT-2-MW12S	MPT-2-MW12I	3.5	- 0.0083	0.35	- 0.083	- 30
	MPT-2-MW15S	MPT-2-15DR	3.5	0.0025	0.35	0.025	9
	MPT-2-MW16S	MPT-2-MW16D	3.5	0.0059	0.35	0.059	21
	MPT-2-MW17S	MPT-2-MW17D	3.5	0.0051	0.35	0.051	18.6
II	MPT-8-MW5S	MPT-8MW5D	3.5	0.033	0.35	0.33	120

Notes: Calculations = columns $(A \times B)/C = D \times 365 = E$.
K = radial hydraulic conductivity.
ft/d = feet per day.
I = hydraulic gradient.
ft/ft = foot per foot.
N_e = effective porosity.
% = percent.
V_D = linear groundwater velocity, V_D/N_e; (V_D = KI).
ft/yr = feet per year.
MPT = NAVSTA Mayport, Florida.
MW = monitoring well.

value for shallow surficial sediments was used to compute the vertical linear groundwater flow velocity. Because sediment of the intermediate and deep zones of the surficial includes lower permeability clayey sediment, a more conservative assumed average value for hydraulic conductivity would be 0.28 ft/d. Using this value, the vertical linear groundwater flow velocity would be 0.026 ft/d or approximately 10 feet per day.

Based on the limited ability of the sediment to retard the migration of contaminants, as suggested by the CEC and TOC values, contaminants in the groundwater may migrate in saturated zones in the surficial aquifer at rates near the linear groundwater flow velocity. The horizontal and vertical groundwater hydraulic gradients and velocities indicate that contaminants may migrate not only horizontally but vertically in the shallow surficial aquifer. A bias to the vertical hydraulic gradients is the potential effect of tidal fluctuations on the shallow aquifer. A bias to the vertical linear velocities is the use of the laboratory hydraulic conductivity values to compute the vertical linear groundwater flow velocities. The calculated velocity is likely biased high, as the value for more permeable shallow sediment does not take into account the lower permeability sediment found at depth in the post-Hawthorn sediments and Hawthorn Group sediments beneath NAVSTA Mayport.

3.3 BACKGROUND CHEMICAL CHARACTERISTICS. The presence on- and off-station of naturally occurring concentrations of organic and inorganic target analytes was assessed by the collection of 6 surface and 4 subsurface soil samples, 7 surface water and sediment samples, and 10 groundwater samples from 8 monitoring wells located on-station (Plate 1). The purpose of collecting these data was to establish station-wide background screening values to assess contaminants detected at each SWMU. The following subsections provide a discussion of the analytical results. A complete listing of analytical results of the background samples is contained in Appendix C.

3.3.1 Surface and Subsurface Soil Sample Analytical Results Six surface soil and four subsurface soil samples were collected to assess background concentrations of target analytes at NAVSTA Mayport (Plate 1). The following paragraphs describe sampling locations and the rationale for sampling.

Six surface soil samples were collected at a depth of 0 to 1 foot bls on February 16, 1993. Three of these surface soil samples were collected northwest of the main runway (MPT-B-SS1, MPT-B-SS2, and MPT-B-SS3), and one sample (MPT-B-SS4) was collected in a wooded area centrally located at NAVSTA Mayport. Sample MPT-B-SS5 was collected south of Lake Wonderwood in the base housing area, and sample MPT-B-SS6 was collected in a wooded area in the northeast corner of the station.

The six surface soil samples collectively represent soil that has developed in dredge material. These sampling locations represent areas of apparent minimal anthropogenic influence based on aerial photographic interpretation. Surface soil samples MPT-B-SS1 through MPT-B-SS4 were collected from maintained fields (mown) and may reflect recent surface application of various pesticides and herbicides. Surface soil samples MPT-B-SS5 and MPT-B-SS6 are located in wooded areas that are not maintained and are not likely to have received regular maintenance in the recent past.

Four subsurface soil samples were collocated at surface soil sampling locations MPT-B-SS1 and MPT-B-SS4 through MPT-B-SS6. These subsurface soil samples represent background soil conditions at depths of 4 to 6 feet bls.

Surface Soil. Target analytes detected in the background surface soil samples consisted of 1 pesticide (4,4'-dichlorodiphenyldichloroethene [4-4'-DDE]), an aerobic degradation byproduct of 4,4'-dichlorodiphenyltrichloroethane [4,4'-DDT]) (Montgomery, 1991), and 14 inorganic analytes (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, selenium, thallium, tin, vanadium, zinc, and cyanide) (Tables 3-11 and 3-12). No VOC, SVOC, or PCB target analytes were detected in the background surface soil samples. A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value, and comparison to human health-based benchmark values is presented in Table 3-13. Neither the target analytes detected in the background surface soil samples nor the calculated background screening values exceed human health based benchmark values from USEPA Region III Risk Based Concentrations (RBCs) (USEPA, 1995) or Cleanup Goals for Military Sites in Florida (FDEP, 1995b).

Subsurface Soil. Four background subsurface soil samples (MPT-B-SBA, MPT-B-SB4, MPT-B-SB5, and MPT-B-SB6) were collected on November 22, 1994, from immediately above the water table at depths ranging from 4 to 6 feet bls. These subsurface soil samples were collected at the same location as the previously described surface soil sample locations. However, subsurface soil samples were not collected at the same locations as the MPT-B-SS2 and MPT-B-SS3 surface samples due to saturation and ponding of the area. The groundwater table had risen to the ground surface due to unusually heavy precipitation.

The following target analytes were detected in subsurface soil samples: 1 SVOC (benzoic acid), 1 pesticide (4,4'-DDE), and 12 inorganics (arsenic, barium, beryllium, chromium, cobalt, copper, lead, mercury, tin, vanadium, zinc, and cyanide) (Tables 3-14 and 3-15). Volatile organics and PCBs were not detected in the subsurface soil samples.

A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value, and comparison to human health-based benchmark values is presented for background subsurface soil samples in Table 3-16. Concentrations of arsenic detected in three of the background subsurface soil samples and the background screening value (0.9 mg/kg) exceed the USEPA Region III RBC of 0.37 mg/kg. None of the other target analytes detected in the background surface soil samples nor the calculated background screening values exceed human health based benchmark values from USEPA Region III Risk Based Concentrations (RBCs) (USEPA, 1995) or Cleanup Goals for Military Sites in Florida (FDEP, 1995b).

3.3.2 Surface Water and Sediment Sample Analytical Results Seven background surface water and sediment samples have been collected at locations on- and off-station during two separate field events. In addition to these background samples, three surface water and sediment samples have been collected during 1994 from the Mayport Turning Basin (MPT-B-SD10 through MPT-B-SD12) and three from the St. Johns River (MPT-B-SD13 through MPT-B-SD15) (Plate 1). The purpose of these surface water and sediment samples is to provide background comparison data for SWMU 50, the dredge material holding area, and serve as reference samples for SWMUs that have groundwater discharging to the St. Johns River. During the first field event, January through April 1992, three surface water and these sediment samples (MPT-B-SW-1 through MPT-B-SW-3 and MPT-B-SD-1 through MPT-B-SD-3, respectively) were collected from the Group I background locations (Plate 1).

Table 3-11
Pesticides Detected In Background Surface Soil Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			24082		24082		24082		24082		24082		24082	
Sample Matrix			Soil		Soil		Soil		Soil		Soil		Soil	
Location No.:			MPT-B-SS1		MPT-B-SS1DUP		MPT-B-SS2		MPT-B-SS3		MPT-B-SS4		MPT-B-SS5		MPT-B-SS6	
Sample No.			MPTBSS1		MPTBSS1D		MPTBSS2		MPTBSS3		MPTBSS4		MPTBSS5		MPTBSS6	
Date Sampled:			16-Feb-93		16-Feb-93		16-Feb-93		16-Feb-93		16-Feb-93		16-Feb-93		16-Feb-93	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
72-55-9	4,4' - DDE	µg/kg	--		--		--		--		2.3		--		--	

Notes: Data validation verified and qualifiers assigned by Heartland Environmental Services.
DUP = sample duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
4,4'-DDE = dichlorophenyldichloroethene.
µg/kg = micrograms per kilogram.
-- = concentration less than the contract required quantitation limit (CRQL).

Table 3-12
Inorganic Analytes Detected In Background Surface Soil Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			01527		01527		01527		01527		01527		01527		01527	
Sample Matrix:			Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Location No.:			MPT-B-SS1		MPT-B-SS1DUP		MPT-B-SS2		MPT-B-SS3		MPT-B-SS4		MPT-B-SS5		MPT-B-SS6	
Sample No.:			MPTBSS1		MPTBSS1D		MPTBSS2		MPTBSS3		MPTBSS4		MPTBSS5		MPTBSS6	
Date Sampled:			16-Feb-93		16-Feb-93		16-Feb-93		16-Feb-93		16-Feb-93		16-Feb-93		16-Feb-93	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-39-3	Barium	mg/kg	2.7	J	2.6	J	5.0	J	2.5	J	3.6	J	0.76	J	2.0	J
7440-41-7	Beryllium	mg/kg	--		--		--		--		0.06	J	--		0.09	J
7440-43-9	Cadmium	mg/kg	--		--		1.0	J	--		--		--		--	
7440-47-3	Chromium	mg/kg	1.5	J	0.72	J	1.2	J	2-.5		0.72	J	0.68	J	1.7	J
7440-50-8	Copper	mg/kg	2.1	J	--		--		--		--		--		--	
7782-49-2	Selenium	mg/kg	0.72	J	0.59	J	0.86	J	0.71	J	0.69	J	0.47	J	--	
7440-28-0	Thallium	mg/kg	--		--		0.78	J	--		1.1	J	0.77	J	0.94	J
7440-62-2	Vanadium	mg/kg	1.7	J	1.2	J	1.6	J	2.5	J	2.3	J	--		2.0	J
7440-66-6	Zinc	mg/kg	1.7	J	0.35	J	1.2	J	0.71	J	1.4	J	1.9	J	1.8	J

Notes: Data validation code J in the Qual. column is verified and assigned by Heartland Environmental Services.
DUP = sample duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
mg/kg = milligrams per kilogram.
J = estimated concentration.
-- = concentration less than the contract required quantitation limit (CRQL).

Table 3-13
Summary of Background Surface Soil Sample Analytical Results
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	USEPA Region III RBCs[5]	Cleanup Goals for the Military Sites in Florida[6]
Pesticides/PCBs (µg/kg)							
4,4'-DDE	1/6	0.7 - 2.3	2.3 - 2.3	2.3	2.3	1,900[7]	3,100
Inorganics (mg/kg)							
Barium	6/6	NR	0.76 - 5	2.8	5.6	550[8]	5,000
Beryllium	2/6	0.06 - 0.07	0.06 - 0.09	0.08	0.16	0.15[7]	0.1
Cadmium	1/6	0.83 - 0.96	1 - 1	1	2	3.9[8]	37
Chromium	6/6	NR	0.68 - 2.5	1.3	2.6	39[8,9]	150[9]
Copper	1/6	0.35 - 0.41	1.1375* - 1.13-75*	1.1	2.2	290	2,900
Selenium	5/6	0.45 - 0.45	0.47 - 0.86	0.68	1.36	39[8]	390
Thallium	4/6	0.53 - 0.62	0.77 - 1.1	0.9	1.8	-	-
Vanadium	5/6	0.46 - 0.46	1.45* - 2.5	2	4	55[8]	480
Zinc	6/6	NR	0.71 - 1.9	1.3	2.6	2,300[8]	23,000

See notes at end of table.

Table 3-13 (Continued)
Summary of Background Surface Soil Sample Analytical Results
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	USEPA Region III RBCs[5]	Cleanup Goals for the Military Sites in Florida[6]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not detected in either the environmental sample or associated duplicate, the value used for the nondetection is one-half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all environmental samples in which the analyte was detected; it includes a single value for an environmental sample and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
[4] The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration and will be used for screening purposes in the risk assessment.
[5] Source: Memorandum dated March 7, 1995, from Roy L. Smith, Technical Support Section, USEPA Region III to RBC Table Mailing List. Subject Risk-Based Concentration Table, January through June 1995.
[6] Source: Memorandum dated April 5, 1995 from Ligia Mora-Applegate, Technical Review Section, Bureau of Waste Cleanup to Tim Barr. Technical Review Section, Bureau of Waste Cleanup. Subject: Cleanup goals for the Military Sites in Florida.
[7] The calculated value corresponds to a human cancer risk level of 1 in 1,000,000.
[8] The calculated value corresponds to a noncancer hazard quotient of 0.1.
[9] The value is based on the hexavalent form of chromium.

Background sample locations include: MPT-B-SS1, MPT-B-SS2, MPT-B-SS3, MPT-B-SS4, MPT-B-SS5, MPT-B-SS6
Duplicate samples include: MPT-B-SS1DUP

Notes: USEPA = U.S. Environmental Protection Agency.
RBC = risk based concentration.
PCBs = polychlorinated biphenyls.
µg/kg = micrograms per kilograms.
4,4'-DDE = Dichlorodiphenyldichloroethane.
mg/kg = milligrams per kilograms.
NR = range of reporting limits not applicable because the analyte was detected in every sample.
-- = criteria not available.

Table 3-14
Semivolatile and Pesticide Analytes Detected in Background Subsurface Soil Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Batch No.:			R9130		R9130		R9130		R9130		R9130	
Sample Matrix:			Soil		Soil		Soil		Soil		Soil	
Location No.:			MPT-B-BS1		MPT-B-BS1DUP		MPT-B-BS4		MPT-B-BS5		MPT-B-BS6	
Sample No.:			OBBS00104		OBBS00104D		OBBS00404		OBBS00504		OBBS00604	
Sample Depth			3 to 4 feet		3 to 4 feet		3 to 4 feet		3 to 4 feet		3 to 4 feet	
Date Sampled:			22-Nov-94		22-Nov-94		22-Nov-94		22-Nov-94		22-Nov-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
72-55-9	4,4'-DDE	µg/kg	--		--		3.5		--		--	
65-85-0	Benzoic acid	µg/kg	--		--		--		110.0	J	--	

Notes: Data validation code J in the Qual. column is verified and assigned by Heartland Environmental Services.
DUP = sample duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
4,4'-DDE = 4,4'-dichlorodiphenyldichlorethene.
µg/kg = micrograms per kilogram.
-- = concentration less than the instrument detection limit (IDL).
J = estimated concentration.

Table 3-15
Inorganic Analytes Detected In Background Subsurface Soil Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Batch No.:			R9130		R9130		R9130		R9130		R9130	
Sample Matrix:			Soil		Soil		Soil		Soil		Soil	
Location No.:			MPT-B-BS1		MPT-B-BS1DUP		MPT-B-BS4		MPT-B-BS5		MPT-B-BS6	
Sample No.:			OBBS00104		OBBS00104D		OBBS00404		OBBS00504		OBBS00604	
Date Sampled:			22-Nov-94		22-Nov-94		22-Nov-94		22-Nov-94		22-Nov-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	mg/kg	0.58	J	0.43	J	0.5	J	--		0.33	J
7440-39-3	Barium	mg/kg	3.3	J	3.9	J	6.8	J	2.1	J	1.9	J
7440-41-7	Beryllium	mg/kg	0.07		0.07	J	--		--		--	
7440-47-3	Chromium	mg/kg	1.5	J	3.0		--		1.4	J	1.5	J
7440-48-4	Cobalt	mg/kg	--		0.71	J	--		--		--	
7440-50-8	Copper	mg/kg	2.0	J	2.3	J	--		--		1.4	J
7739-92-1	Lead	mg/kg	0.93		0.75		--		1.9		--	
7439-97-6	Mercury	mg/kg	--		0.03	J	0.03	J	0.03	J	--	
7740-31-5	Tin	mg/kg	4.0	J	2.8	J	2.2	J	2.2	J	3.0	J
7440-62-2	Vanadium	mg/kg	1.7	J	1.9	J	2.5	J	0.71	J	1.2	J
7440-66-6	Zinc	mg/kg	2.9	J	2.8	J	2.0	J	2.5	J	2.4	J
7440-28-0	Cyanide	mg/kg	0.58		--		--		--		--	

Notes: Data validation code J in the Qual. column is verified and assigned by Heartland Environmental Services.
DUP = sample duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
mg/kg = milligrams per kilogram.
J = estimated concentration.
-- = concentration less than the instrument detection limit (IDL).

Table 3-16
Summary of Background Subsurface Soil Samples
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	USEPA Region III RBCs[5]	Cleanup Goals for the Military Sites in Florida[6]
Semivolatiles (µg/kg)							
Benzoic acid	1/4	110 - 1,900	110 - 110	110	110	31,000,000	68,000,000
Pesticides/PCBs (µg/kg)							
4,4'-DDE	1/4	0.7 - 3.5	3.5 - 3.5	3.5	3.5	1,900[7]	9,900[7]
Inorganics (mg/kg)							
Arsenic	3/4	0.13 - 0.13	0.33 - 0.505*	0.45	0.9	0.37[7]	3[7]
Barium	4/4	NR	1.9 - 6.8	3.6	7.2	550[8]	7,400
Beryllium	1/4	0.07 - 0.07	0.07* - 0.07*	0.07	0.14	0.15[7]	0.2
Chromium	3/4	0.57 - 0.57	1.4 - 2.25*	1.7	3.4	39[8,9]	22[8]
Cobalt	1/4	0.335 - 0.7	0.52* - 0.52*	0.52	1.04	470	11,000
Copper	2/4	0.2 - 0.9	1.4 - 2.15*	1.8	3.6	290	7,200
Lead	2/4	0.58 - 0.59	0.84* - 1.9	1.4	2.8	400[10]	-
Mercury	3/4	0.015 - 0.03	0.03 - 0.04*	0.03	0.06	2.3[7]	48
Tin	4/4	NR	2.2 - 3.4*	2.7	5.4	4,700	66,000
Vanadium	4/4	NR	0.71 - 2.5	1.6	3.2	55[8]	480
Zinc	4/4	NR	2 - 2.85*	2.4	4.8	2,300[8]	55,000
Cyanide	1/4	2.7 - 2.7	0.32* - 0.32*	0.33	0.66	2,050[8]	4,000

See notes at end of table.

Table 3-16 (Continued)
Summary of Background Subsurface Soil Samples
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	USEPA Region III RBCs[5]	Cleanup Goals for the Military Sites in Florida[6]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not detected in either the environmental sample or associated duplicate, the value used for the nondetection is one-half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all environmental samples in which the analyte was detected; it includes a single value for an environmental sample and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
[4] The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration and will be used for screening purposes in the risk assessment.
[5] Source: Memorandum dated March 7, 1995 from Roy L. Smith, Technical Support Section. USEPA Region II to RBC Table Mailing List. Subject Risk Based Concentrations Table.
[6] Source: Memorandum dated April 5, 1995 from Ligia Mora-Applegate, Technical Review Section, Bureau of Waste Cleanup to Tim Barr. Technical Review Section, Bureau of Waste Cleanup. Subject: Cleanup Goals for the Military Sites in Florida.
[7] The value corresponds to a human cancer risk level of 1 in 1,000,000.
[8] The calculated value corresponds to a noncancer hazard quotient of 0.1.
[9] The value is based on the hexavalent form of chromium.
[10] USEPA Office of Solid Waste and Emergency Response (OSWER) Directive No. 9355.4-12 revised interim recommended soil cleanup for CERCLA and RCRA sites.

Background sample locations include: MPT-B-BS1, MPT-B-BS4, MPT-B-BS5, MPT-B-BS6
Duplicate samples include: MPT-B-BS1DUP

Notes: USEPA = U.S. Environmental Protection Agency.
RBC = risk-based concentration.
µg/kg = micrograms per kilograms.
PCBs = polychlorinated biphenyls.
4,4'-DDE = Dichlorodiphenyldichloroethane.
mg/kg = milligrams per kilograms.
– = criteria not available.
NR = range of reporting limits not applicable because the analyte was detected in every sample.

MPT-B-SW and MPT-B-SD-1 were collected from the north side of a tidally influenced drainage ditch located on the south side of Perimeter Road adjacent to the NAVSTA Mayport golf course. This area is impacted by drainage from the eastern side of the station, which includes the eastern side of the golf course and the residential area that surrounds Lake Wonderwood and its tributaries. Ultimately, drainage from this area flows to Sherman Creek then to the St. Johns River.

MPT-B-SW, MPT-B-SD-2, MPT-B-SW, and MPT-B-SD-3 were collected from tidally influenced tributaries of Sherman Creek just outside the station boundary. These samples reflect offsite influence to sediment of Sherman Creek tributaries that drain residential and commercial areas located to the south.

During the second field event, January 13 through April 18, 1993, four additional surface water and sediment samples (MPT-B-SW-4 through MPT-B-SW-7 and MPT-B-SD-4 through MPT-B-SD-7, respectively) were collected from the Group II background locations (Plate 1).

Sampling locations MPT-B-SW, MPT-B-SD-4, MPT-B-SW, and MPT-B-SD-5 were sampled on February 18, 1993. Samples MPT-B-SW and MPT-B-SD-4 and samples MPT-B-SW and MPT-B-SD-5 were collected from Buck Island and near Dawson Island, respectively. Both areas are on the NAVSTA Mayport military reservation, but are remote from most direct human activities. Samples from these locations provide sediment and surface water background chemical concentrations representative of undeveloped areas surrounding NAVSTA Mayport; however, these areas are likely to be influenced by nonpoint sources of chemicals (such as urban runoff or aerial deposition) characteristic of the land use surrounding NAVSTA Mayport and the affiliated SWMUs. MPT-B-SW5 and MPT-B-SD5 were resampled on August 3, 1994, as references for evaluation of chemical concentration variations over time and as reference samples for the surface water and sediment samples collected for the biological and ecological assessment.

Surface water and sediment samples MPT-B-SW1SD6 and MPT-B-SW1SD-7 were collected on February 17, 1993, from two sampling locations in a marshy area. These sampling locations provide surface water and sediment background chemical concentrations representative of light industrial and residential anthropogenic influences at NAVSTA Mayport. Surface water and sediment samples collected from Mayport Turning Basin and St. Johns River represent anthropogenic influence for the station and up-river from NAVSTA Mayport.

The following paragraphs present surface water and sediment analytical results.

Surface Water Samples. Total dissolved solids (TDSs), as measured by a gravimetric method (USEPA Method 160.1), ranged from 8,700 mg/ℓ in sample MPT-B-SW1 to 18,600 mg/ℓ in sample MPT-B-SW4. The TDS values are biased low for some of the samples, compared to an ion balance. Background surface water is moderately saline and general water quality is influenced by the estuarine character of Sherman Creek, Pablo Creek, and Chicopit Bay. TDS values for brackish and saline waters typically range between 1,000 to 20,000 mg/ℓ and 20,000 and 35,000 mg/ℓ or greater, respectively (Freeze and Cherry, 1979).

Sulfate and chloride were the dominant anions. Sulfate ($SO_4^=$), a common form of sulfur found in oxygenated conditions, ranged from 130 mg/ℓ in sample MPT-B-SW7 to 1,190 mg/ℓ in sample MPT-B-SW2. Sulfide ($S^=$) is a form of reduced sulfur often

found under anaerobic conditions. No sulfide was found in any background sample above the method detection limits of 0.1 to 0.4 mg/ℓ. Chloride ranged from 710 mg/ℓ in sample MPT-B-SW7 to 10,400 mg/ℓ in sample MPT-B-SW2. With the exception of sample location MPT-B-SW7, background surface water meets the conditions for predominantly marine water as defined in Chapter 17-302.200, FAC (chloride ≥1,500 mg/ℓ).

Alkalinity (as calcium carbonate [$CaCO_3$]) ranged from 82 mg/ℓ in sample MPT-B-SW4 to 265 mg/ℓ in sample MPT-B-SW6. Hardness (as $CaCO_3$) ranged from 404 mg/ℓ in sample MPT-B-SW2 to 2,800 mg/ℓ in sample MPT-B-SW4, which is in the "hard" range for natural water.

A discussion of nutrients, TOC, oil and grease, and color for surface water samples collected prior to 1994 is provided in the Technical Memorandum Background Characterization Activities Report (ABB-ES, 1994).

General parameters such as TDS, alkalinity, and hardness suggest that the surface water at background surface water locations is affected by the estuarine influences of Sherman Creek, Pablo Creek, and Chicopit Bay. Water quality at the time of sampling was within Class III marine criteria based on applicable standards compared to the general parameters measured (Chapter 62-302, FAC).

Target analytes detected in the station-wide background surface water samples (MPT-B-SW1 through MPT-B-SW7) consisted of 1 VOC (1,2-dibromo-3-chloropropane), 2 SVOCs (2-acetylaminofluorene and bis(2-ethylhexyl)phthalate), and 20 inorganics (antimony, arsenic, barium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, selenium, sodium, thallium, tin, vanadium, zinc, and cyanide). Pesticides and PCBs were not detected in the surface water samples (Tables 3-17 and 3-18).

Target analytes detected in the surface water samples collected from Mayport Turning Basin (MPT-B-SW10 through MPT-B-SW12) consist of 1 VOC (2-butanone) six inorganics (barium, cadmium, copper, selenium, tin, and zinc), and cyanide. SVOCs, pesticides and PCBs were not detected in these three surface water samples.

Target analytes detected in the surface water samples collected from the St. Johns River (MPT-B-SW13 through MPT-B-SW15) consist of 2 VOCs (2-butanone and acetone), eight metals (barium, beryllium, cadmium, copper, selenium, tin, vanadium, and zinc), and cyanide. SVOCs, pesticides and PCBs were not detected in these three surface water samples.

A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value and comparison to benchmark values is presented for the station-wide background surface water samples (MPT-B-SW1 through MPT-B-SW7) in Table 3-19. Concentrations of 1 VOC, 7 inorganics, and cyanide exceed the bench mark criteria. Concentrations of the VOC, 1,2-dibromo-3-chloropropane, were detected at 10 μg/ℓ in two background surface water samples and an associated duplicate and exceeds the Class III Marine surface water standard of 0.2 μg/ℓ.

Arsenic was detected in each of the background surface water samples and duplicates at concentrations that exceed the USEPA ambient water quality criteria (0.0175 μg/ℓ) for protection of human health (consumption of fish).

Table 3-17
Volatile and Semivolatile Organic Analytes Detected in Background Surface Water Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			20723		01538		01538		01538		01538	
Sample Matrix:			Surface Water		Surface Water		Surface Water		Surface Water		Surface Water	
Location:			MPT-B-SW2		MPT-B-SW5		MPT-B-SW5		MPT-B-SW6		MPT-B-SW7	
Sample No.:			MPT-B-SW-1		MPTBSW5		00SW001		MPTBSW6		MPTBSW7	
Date Sampled:			21-Jan-92		18-Feb-93		8-Sept-94		17-Feb-93		17-Feb-93	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
Volatile Organics												
67-64-1	Acetone	µg/l	--		--		--		--		--	
78-93-3	2-Butanone	µg/l	--		--		--		--		--	
96-12-8	1,2-Dibromo-3-Chloropropane[a]	µg/l	--		--		--		10.0	J	10.0	J
Semivolatile Organics												
56-96-3	2-Acetamidofluorene[b]	µg/l	--		10.0		--		--		--	
117-81-7	bis(2-Ethylhexyl)phthalate	µg/l	3	J	--		1	J	--		--	

See notes at end of table.

Table 3-17 (Continued)
Volatile and Semivolatile Organic Analytes Detected In Background Surface Water Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			01538		M7840		M7840		M7840		M7840		M7480	
Sample Matrix:			Surface Water		Surface Water		Surface Water		Surface Water		Surface Water		Surface Water	
Location:			MPT-B-SW7		MPT-B-SW10		MPT-B-SW11		MPT-B-SW12		MPT-B-SW14		MPT-B-SW15	
Sample No.:			MPTBSW7D		0BSW010		0BSW011		0BSW012		0BSW014		MPTBSW015	
Date Sampled:			17-Feb-93		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
Volatile Organics														
67-64-1	Acetone	µg/ℓ	--		--		--		--		--		5	J
78-93-3	2-Butanone	µg/ℓ	--		3	J	3	J	2	J	2	J	--	
96-12-8	1,2-Dibromo-3-Chloropropane[a]	µg/ℓ	10	J	--		--		--		--		--	
Semivolatile Organics														
56-96-3	2-Acetamidofluorene[b]	µg/ℓ	--		--		--		--		--		--	
117-81-7	bis(2-Ethylhexyl)phthalate	µg/ℓ	--		--		--		--		--		--	

Data validation code J in the Qual. column were verified and assigned by Heartland Environmental Services.

Notes: CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
µg/ℓ = micrograms per liter.
-- = concentration less than the Contract Required Quantitation Limit (CRQL).
J = estimated concentration.
DUP = sample duplicate.

Table 3-18
Inorganic Analytes Detected In Background Surface Water Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:		20723		20723		20723		20723		05128	
Sample Matrix:		Surface Water		Surface Water		Surface Water		Surface Water		Surface Water	
Location		MPT-B-SW1		MPT-B-SW2		MPT-B-SW3		MPT-B-SW3		MPT-B-SW4	
Sample No.:		MPT-B-SW-1		MPT-B-SW-2		MPT-B-SW-3		MPTBSWDUP1		MPT-B-SW-4	
Date Sampled:		21-Jan-92		21-Jan-92		21-Jan-92		21-Jan-92		17-Feb-94	
CAS RN	Common Name	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	1.2	J	0.86	J	1.2	J	1.4	J	--	
7440-39-3	Barium	11.1	J	12.3	J	15.4	J	15.4	J	11.7	J
7440-41-7	Beryllium	--		--		--		--		--	
7440-43-9	Cadmium	--		--		--		2.4	J	--	
7440-72-2	Calcium	NA		NA		NA		NA		168,000	J
7440-47-3	Chromium	--		--		--		4.0	J	--	
7440-50-8	Copper	--		37.2		2.4	J	--		--	
7439-89-6	Iron	NA		NA		NA		NA		435	
7440-92-1	Lead	1.3	J	--		0.91	J	1.5	J	--	
7439-95-4	Magnesium	NA		NA		NA		NA		490,000	
7439-96-5	Manganese	NA		NA		NA		NA		10.4	J
7440-02-0	Nickel	--		19.8	J	--		--		--	
7440-49-2	Selenium	2.6	J	--		1.8	J	--		--	
7440-23-5	Sodium	NA		NA		NA		NA		--	
7440-28-0	Thallium	--		--		--		--		--	
7440-31-5	Tin	--		--		--		--		--	
7440-62-2	Vanadium	3.6	J	--		--		--		4.5	J
7440-66-6	Zinc	6.1	J	--		--		--		--	
5955-70-0	Cyanide	3.0	J	NA		NA		NA		--	

See notes at end of table.

Table 3-18 (Continued)
Inorganic Analytes Detected In Background Surface Water Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:		01528		M7465		01528		01528		01528	
Sample Matrix:		Surface Water		Surface Water		Surface Water		Surface Water		Surface Water	
Location		MPT-B-SW5		MPT-B-SW5		MPT-B-SW6		MPT-B-SW7		MPT-B-SW7DUP	
Sample No.:		MPTBSW5		00SW001		MPTBSW6		MPTBSW7		MPTBSW7D	
Date Sampled:		18-Feb-93		8 Sept 94		17-Feb-93		17-Feb-93		17-Feb-93	
CAS RN	Common Name	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	3.8	J	--		8.1	J	--		--	
7440-39-3	Barium	10.6	J	10.9	J	11.6	J	6.8	J	7.8	J
7440-41-7	Beryllium	--		--							
7440-43-9	Cadmium	--		--		--		--		--	
7440-72-2	Calcium	166,000		NA		159,000	J	71,600	J	71,100	J
7440-47-3	Chromium	--		--		--		--		--	
7440-50-8	Copper	2.4	J	--		--		--		--	
7439-89-6	Iron		--	NA		155.0		92.5	J	85.7	J
7440-92-1	Lead	--		--		--		--		--	
7439-95-4	Magnesium	453,000		NA		345,000		54,600		54,000	
7439-96-5	Manganese	23.7		NA		36.5		94.0		98.7	
7440-02-0	Nickel	13.0	J	--		--		--		--	
7440-49-2	Selenium	--		13.7	J	--		--		--	
7440-23-5	Sodium	--		NA		--		386,000		380,000	
7440-28-0	Thallium	73.7	J	1.8	J	--		--		--	
7440-31-5	Tin	776.0		--		--		--		--	
7440-62-2	Vanadium	5.0	J	3.4	J	5.2	J	3.5	J	--	
7440-66-6	Zinc	--		--		--		--		3.2	J
5955-70-0	Cyanide	--		0.92	J	--		--		--	

See notes at end of table.

Table 3-18 (Continued)
Inorganic Analytes Detected In Background Surface Water Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:		M7465		M7465		M7465		M7465		M7465		M7840	
Sample Matrix:		Surface Water		Surface Water		Surface Water		Surface Water		Surface Water		Surface Water	
Location:		MPT-B-SW10		MPT-B-SW11		MPT-B-SW12		MPT-B-SW13		MPT-B-SW13		MPT-B-SW15	
Sample No.:		0BSW010		0BSW012		0BSW012		0BSW013		OBSW014		MPTBSW015	
Date Sampled:		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94	
CAS RN	Common Name	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	--		--		--		--		--		--	
7440-39-3	Barium	6.2	J	5.6	J	6.5	J	6.6	J	7.6	J	8.7	J
7440-41-7	Beryllium	--		--		--		--		0.24	J	--	
7440-43-9	Cadmium	--		--		--		--		--		--	
7440-72-2	Calcium	NA		NA		NA		NA		NA		--	
7440-47-3	Chromium	--		--		--		--		--		--	
7440-50-8	Copper	5.4	J	--		--		--		5.0	J	4.1	J
7439-89-6	Iron	NA		NA		NA		NA		NA		--	
7440-92-1	Lead	--		--		--		--		--		--	
7439-95-4	Magnesium	NA		NA		NA		NA		NA		--	
7439-96-5	Manganese	NA		NA		NA		NA		NA		--	
7440-02-0	Nickel	--		--		--		--		--		--	
7440-49-2	Selenium	22.6	J	--		16.7	J	21.2	J	--		14.7	J
7440-23-5	Sodium	NA		NA		--		--		--		--	
7440-28-0	Thallium	--		--		--		--				--	
7440-31-5	Tin	--		--		12.3	J	--		9.9	J	--	
7440-62-2	Vanadium	--		--		--		--		1.8	J	--	

See notes at end of table.

Table 3-18 (Continued)
Inorganic Analytes Detected in Background Surface Water Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:		M7465		M7465		M7465		M7465		M7465		M7840	
Sample Matrix:		Surface Water		Surface Water		Surface Water		Surface Water		Surface Water		Surface Water	
Location:		MPT-B-SW10		MPT-B-SW11		MPT-B-SW12		MPT-B-SW13		MPT-B-SW13		MPT-B-SW15	
Sample No.:		0BSW010		0BSW012		0BSW012		0BSW013		OBSW014		MPTBSW015	
Date Sampled:		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94	
CAS RN	Common Name	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-66-6	Zinc	2.3	J	--		1.8	J	1.4	J	5.3	J	2.1	J
5955-70-0	Cyanide	--		0.69	J	0.39	J	1.1	J			3.9	J

Data validation code J in the Qual. column were verified and assigned by Heartland Environmental Services.

Notes: All concentrations are reported in micrograms per liter.
DUP = sample duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
J = estimated concentration.
NA = not analyzed.
– = concentration less than the IDL (Instrument Detection Limit).

Table 3-19
Summary of Background Surface Water Samples
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Ambient Water Quality Criteria		Class III Marine Surface Water Standards[7]
						For Protection of Aquatic Life: Acute/Chronic[5]	For Protection of Human Health[6]	
Volatiles (µg/ℓ)								
1,2-Dibromo-3-chloropropane	2/8	10 - 10	10 - 10	10	10	- / -	-	0.2 [11]
Semivolatiles (µg/ℓ)								
2-Acetylaminofluorene	1/8	10 - 10	10 - 10	10	10	- / -	-	-
bis(2-Ethylhexyl)phthalate	2/8	10 - 40	1 - 3	3	3	400 / 360 [8]	50,000	6 [11]
Inorganics (µg/ℓ)								
Antimony	1/8	3.1 - 40	38.75* - 38.75*	38.8	77.6	1,500 / 500 [8]	45,000	4,300
Arsenic	5/8	0.9 - 6.9	0.86 - 8.1	3.1	6.2	69 [9] / 36 [9]	0.0175	36 [9]
Barium	8/8	NR	7.2* - 15.4*	11.3	22.6	- / -	-	2,000 [11]
Cadmium	1/8	0.8 - 4.0	1.6* - 1.6*	1.6	3.2	43 / 9.3	-	9.3
Calcium	4/4	NR	71,350* - 168,000	141,088	282,176	- / -	-	-
Chromium	1/8	0.95 - 2.4	2.5* - 2.5*	2.5	5	1,100[10] / 50[10]	-	50 [10]
Cobalt	2/8	2.3 - 5.1	5.6 - 9.7*	7.7	15.4	- / -	-	-
Copper	3/8	0.7 - 27.5	1.5* - 37.2	13.7	27.4	2.9 / -	-	2.9
Iron	3/4	187 - 187	89.1* - 435	226	452	- / -	-	0.3

See notes at end of table.

Table 3-19 (Continued)
Summary of Background Surface Water Samples
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Ambient Water Quality Criteria		Class III Marine Surface Water Standards[7]
						For Protection of Aquatic Life: Acute/Chronic[5]	For Protection of Human Health[6]	
Lead	2/8	0.78 - 2.6	1.2* - 1.3	1.3	2.6	220 / 8.5	-	5.6
Magnesium	4/4	NR	54,300* - 490,000	335,575	671,150	- / -	-	-
Manganese	4/4	NR	10.4 - 96.35*	41.7	83.4	- / -	100	50 [11]
Nickel	1/8	7 - 19.8	13 - 13	13	26	75 / 8.3	100	8.3
Selenium	3/8	0.65 - 10.6	1.2* - 13.7	5.8	11.6	300 / 71	-	71
Sodium	1/4	55.6 - 55.6	383,000* - 383,000*	383,000	766,000	- / -	-	160,000 [11]
Thallium	2/8	1.4 - 1.4	1.8 - 73.7	37.8	75.6	2,130 [12] / -	48	48
Tin	1/8	9.4 - 208	776 - 776	776	1,552	- / -	-	4,200 [11]
Vanadium	6/8	1.1 - 2.7	2.3* - 5.2	4	8	- / -	-	49 [11]
Zinc	1/8	0.8 - 23.5	2* - 2*	2	4	95 / 86	-	86
Cyanide	2/8	1.8 - 3	0.92 - 3	1.5	3	1 / -	-	1

See notes at end of table.

Table 3-19 (Continued)
Summary of Background Surface Water Samples
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Ambient Water Quality Criteria		Class III Marine Surface Water Standards[7]
						For Protection of Aquatic Life: Acute/Chronic[5]	For Protection of Human Health[6]	

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not detected in either the environmental sample or associated duplicate, the value used for the nondetection is one half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it includes a single value for an environmental sample and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
[4] The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration and will be used for screening purposes in the risk assessment.
[5] Values reported are for the protection of aquatic life in marine environments. USEPA, "Water Quality Criteria Summary", Office of Science and Technology, Health and Ecological Criteria Division, Washington, D.C., May 1, 1991.
[6] Values reported are for fish consumption only. USEPA, "Water Quality Criteria Summary," Office of Science and Technology, Health and Ecological Criteria Division, Washington, D.C.,May 1, 1991.
[7] Values are Class III Marine Water Quality Standards. Florida Administrative Code. 17-302, "Surface Water Quality Standards," April, 1993
[8] Proposed standard or criteria.
[9] This value is based on the trivalent form of arsenic.
[10] This value is based on the hexavalent form of chromium.
[11] Value is a groundwater guidance concentration from Florida Department of Environmental Protection (FDEP), Groundwater Guidance Concentrations, June 1994.
[12] Insufficient data to develop criteria; value is the lowest observed effect level.

Background sample locations include: MPT-B-SW1, MPT-B-SW2, MPT-B-SW3, MPT-B-SW4, MPT-B-SW5, MPT-B-SW6, MPT-B-SW7, AND 00SW001
Duplicate samples include: MPT-B-SW-3D, MPTBSW7D

Notes: µg/l = micrograms per liter.
- = criteria are not available.
NR = range of reporting limits not applicable because the analyte was detected in every sample.

Copper was detected in three surface water samples; however, only one sample contained a concentration (37.2 $\mu g/\ell$) that exceeds a value of 2.9 $\mu g/\ell$ which is the USEPA ambient water quality criteria for protection of aquatic life (acute exposure) and the Class III marine surface water standard.

Iron was detected in three background surface water samples and an associated duplicate at concentrations that exceed the Class III marine surface water standard of 0.3 $\mu g/\ell$.

Manganese and sodium were detected in a surface water sample and associated duplicate at concentrations that exceed the FDEP groundwater guidance concentrations of 50 and 160,000 $\mu g/\ell$, respectively, which are used as surrogate comparison values in the absence of Class III marine surface water standards.

Nickel was detected as a single occurrence at a concentration 13 $\mu g/\ell$ that exceeds a value of 8.3 $\mu g/\ell$, which is the USEPA ambient water quality criteria for protection of aquatic life (chronic exposure) and the Class III marine surface water standard.

Thallium was detected in two surface water samples; however, only one sample contained a concentration (73.7 $\mu g/\ell$) that exceeds a value of 48 $\mu g/\ell$, which is the USEPA ambient water quality criteria for protection of human health (consumption of fish) and the Class III marine surface water standard.

Cyanide was detected in two surface water samples; however, only one sample contained a concentration (3 $\mu g/\ell$) that exceeds a value of 1 $\mu g/\ell$, which is the USEPA ambient water quality criteria for protection of aquatic life (acute exposure) and the Class III marine surface water standard.

A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value, and comparison to benchmark values is presented for the surface water samples (MPT-B-SW10 through MPT-B-SW12) collected from Mayport Turning Basin in Table 3-20. Only one inorganic target analyte, copper, was detected at a concentration that exceeds a benchmark value. Copper was detected as a single occurrence at a concentration (5.4 $\mu g/\ell$) that exceeds a value of 2.9 $\mu g/\ell$, which is the USEPA ambient water quality criteria for protection of aquatic life (acute exposure) and the Class III marine surface water standard.

A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value and comparison to benchmark values is presented for the surface water samples (MPT-B-SW13 through MPT-B-SW15) collected from the St. Johns River in Table 3-21. Three inorganic target analytes, beryllium, copper, and cyanide, were detected at concentrations that exceed benchmark criteria. Beryllium was detected as a single occurrence at a concentration (0.24 $\mu g/\ell$) that exceeds a value of 0.0641 $\mu g/\ell$, which is the USEPA ambient water quality criteria for protection of human health (consumption of fish), and a value of 0.13 $\mu g/\ell$, which is the Class III marine surface water standard. Copper and cyanide were detected in two surface water samples at concentrations that exceed values of 2.9 $\mu g/\ell$ and 1 $\mu g/\ell$, respectively, which are USEPA ambient water quality criteria for protection of aquatic life (acute exposure) and the Class III marine surface water standard.

Table 3-20
Summary of Background Surface Water Samples
Collected from the St. Johns River

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Ambient Water Quality Criteria		Class III Marine Surface Water Standards[7]
						For Protection of Aquatic Life: Acute/Chronic[5]	For Protection of Human Health[6]	
Volatiles (µg/ℓ)								
2-Butanone	1/3	10 - 10	2 - 2	2	2	- / -	-	4,200 [9]
Acetone	1/3	10 - 10	5 - 5	5	5	- / -	-	700 [9]
Inorganics (µg/ℓ)								
Barium	3/3	NR	6.6 - 8.7	7.6	15.2	- / -	-	-
Beryllium	1/3	0.18 - 0.18	0.24 - 0.24	0.24	0.48	- / -	0.0641	0.13 [8]
Cadmium	1/3	3 - 3	6.1 - 6.1	6.1	12.2	43 / 9.3	-	9.3
Copper	2/3	4 - 4	4.1 - 5	4.6	9.2	2.9 / -	-	2.9
Selenium	2/3	13.2 - 13.2	14 - 21.2	17.6	35.2	300 / 71	-	71
Tin	1/3	9.4 - 9.4	9.9 - 9.9	9.9	19.8	- / -	-	4,200 [9]
Vanadium	1/3	1.7 - 1.7	1.8 - 1.8	1.8	3.6	- / -	-	49 [9]
Zinc	3/3	NR	1.4 - 5.3	2.9	5.8	95 / 86	-	86
Cyanide	2/3	0.32 - 0.32	1.1 - 3.9	2.5	5.0	1 / -	-	1

See notes at end of table.

Table 3-20 (Continued)
Summary of Background Surface Water Samples
Collected from the St. Johns River

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Ambient Water Quality Criteria		Class III Marine Surface Water Standards[7]
						For Protection of Aquatic Life: Acute/Chronic[5]	For Protection of Human Health[6]	

[1] Frequency of detection is the number of samples in which the analyze was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not detected in either the environmental sample or associated duplicate, the value used for the nondetection is one half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it includes a single value for an environmental sample and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
[4] The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration and will be used for screening purposes in the risk assessment.
[5] Values reported are for the protection of aquatic life in marine environments. USEPA, "Water Quality Criteria Summary," Office of Science and Technology, Health and Ecological Criteria Division, Washington, D.C., May 1, 1991.
[6] Values reported are for fish consumption only. USEPA, "Water Quality Criteria Summary," Office of Science and Technology, Health and Ecological Criteria Division, Washington, D.C.,May 1, 1991.
[7] Values are Class III Marine Water Quality Standards. Florida Administrative Code. 17-302, "Surface Water Quality Standards," April, 1993.
[8] At annual average flow conditions.
[9] Value is a groundwater guidance concentration from Florida Department of Environmental Protection (FDEP) Groundwater Guidance Concentrations, June 1994.

Notes: Background sample locations include: MPT-B-SW13, MPT-B-SW14, MPT-B-SW15
- = criteria are not available.
$\mu g/\ell$ = micrograms per liter.
NR = range of reporting limits not applicable because the analyte was detected in every sample.

Table 3-21
Summary of Background Surface Water Samples Collected from the Mayport Turning Basin

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Ambient Water Quality Criteria		Class III Marine Surface Water Standards[7]
						For Protection of Aquatic Life: Acute/Chronic[5]	For Protection of Human Health[6]	
Volatiles (µg/ℓ)								
2-Butanone	3/3	5 - 5	2* - 3	2.7	2.7	- / -	-	-
Inorganics (µg/ℓ)								
Barium	3/3	100 - 100	5.6 - 6.55*	6.1	12.2	- / -	-	-
Cadmium	2/3	1.5 - 3	3.35* - 8.3	5.8	11.6	43 / 9.3	-	9.3
Copper	1/3	4 - 4	5.4 - 5.4	5.4	10.8	2.9 / -	-	2.9
Selenium	2/3	2.5 - 13.2	20.55* - 22.6	21.6	43.2	300 / 71	-	71
Tin	1/3	4.7 - 9.4	8.5* - 8.5*	8.5	17	- / -	-	-
Zinc	2/3	1.3 - 10	1.9* - 2.3	2.1	4.2	95 / 86	-	86
Cyanide	2/3	0.16 - 0.32	0.27 - 0.69	0.48	0.96	1 / -	-	1

See notes at end of table.

Table 3-21 (Continued)
Summary of Background Surface Water Samples
Collected from the Mayport Turning Basin

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Ambient Water Quality Criteria		Class III Marine Surface Water Standards[7]
						For Protection of Aquatic Life: Acute/Chronic[5]	For Protection of Human Health[6]	

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not rejected in either the environmental sample or associated duplicate, the value used for the nondetection is one half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it includes a single value for an environmental and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
[4] The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration and will be used for screening purposes in the risk assessment.
[5] Values reported are for the protection of aquatic life in marine environments. USEPA, "Water Quality Criteria Summary," Office of Science and Technology, Health and Ecological Criteria Division, Washington, D.C., May 1, 1991.
[6] Values reported are for fish consumption only. USEPA, "Water Quality Criteria Summary," Office of Science and Technology, Health and Ecological Criteria Division, Washington, D.C.,May 1, 1991.
[7] Values are Class III Marine Water Quality Standards. Florida Administrative Code. 17-302, "Surface Water Quality Standards," April, 1993.

Notes: Background sample locations include: MPT-B-SW10, MPT-B-SW11, MPT-B-SW12
Duplicate samples include: MPT-B-SW12DUP
- = criteria are not available.
$\mu g/\ell$ = micrograms per liter.
NR = range of reporting limits not applicable because the analyte was detected in every sample.

Sediment Samples. The analytical results of VOCs, SVOCs, pesticides, and inorganics detected in the sediment samples are provided in Tables 3-20, 3-21, and 3-22, respectively. A discussion of the target analytes detected in the background sediment sample is provided in the Technical Memorandum Background Characterization Activities Report (ABB-ES, 1994).

Target analytes detected in the station-wide background sediment samples (MPT-B-SD1 through MPT-B-SW&) consisted of 2 VOCs (carbon disulfide and toluene), 3 SVOCs (bis(2-ethylhexyl)phthalate, di-n-butylphthalate, and pyrene), 3 pesticides (4,4'-DDD, 4,4'-DDE, and 4,4'-DDT), and 15 inorganics (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, thallium, tin, vanadium, and zinc). No PCBs were detected in the sediment samples.

Target analytes detected in the sediment samples collected from Mayport Turning Basin (MPT-B-SD10 through MPT-B-SD12) consist of 5 VOCs (2-butanone, acetone, carbon disulfide, methylene chloride, and toluene) 2 SVOCs (butylbenzylphthalate and fluoranthene), and 13 metals (arsenic, barium, beryllium, chromium, cobalt, copper, lead, mercury, nickel, tin, thallium, vanadium, and zinc) (Tables 3-22, 3-23, and 3-24).

Target analytes detected in the sediment samples collected from the St. Johns River (MPT-B-SD13 through MPT-B-SD15) consist of 1 VOC (toluene), 1 SVOC (benzoic acid), and 8 metals (arsenic, barium, beryllium, chromium, lead, tin, vanadium, and zinc) (Tables 3-22, 3-23, and 3-24).

A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value, and comparison to benchmark values is presented for station-wide background sediment samples MPT-B-SD1 through MPT-B-SD7 in Table 3-25. Concentrations of one SVOC, two pesticides, and one inorganic exceed the benchmark criteria. The SVOC bis(2-ethylhexyl)phthalate was detected in two environmental samples which had two associated duplicates; only one duplicate sample contained bis(2-ethylhexyl)phthalate. The concentrations of bis(2-ethylhexyl)phthalate detected in these two sediment samples and duplicate exceed the toxic effect level (TEL) (182 μg/kg) (MacDonald, 1994).

The pesticide 4,4'-DDD was detected as a single occurrence at a concentration (4.2 μg/kg) that exceeded the Long and Morgan effects range-low (ERL) benchmark of 2 μg/kg and the TEL of 1.22 μg/kg. 4,4'-DDE was detected in two sediment samples at concentrations that exceed the ERL bench mark of 2 μg/kg, the TEL of 1.22 μg/kg and the probable effects level (PEL) of 3.74 μg/kg (MacDonald, 1994).

Mercury was detected in three sediment samples, but not an associated duplicate, at concentrations that exceed the ERL bench mark of 0.15 mg/kg, the TEL of 0.13 mg/kg and the PEL of 0.696 mg/kg.

A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value, and comparison to benchmark values is presented for sediment samples collected from Mayport Turning Basin (MPT-B-SD10 through MPT-B-SD12) in Table 3-26. Concentrations of four metals (arsenic, copper, mercury, and nickel) exceed the benchmark criteria. Arsenic was detected in three sediment samples but only two samples contained concentrations that exceed the TEL (7.24 mg/kg). Copper

Table 3-22
Volatile Organic Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:		20723		20723		20723	
Sample Matrix:		Sediment		Sediment		Sediment	
Location:		MPT-B-SD2		MPT-B-SD3		MPT-B-SD3	
Sample No.:		MPT-B-SD-2		MPT-B-SD-3		MPTBSDDUP1	
Date Sampled:		21-Jan-92		21-Jan-92		21-Jan-92	
CAS RN	Common Name	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
78-93-3	2-Butanone	--		--		--	
67-64-1	Acetone	--		--		--	
75-15-0	Carbon disulfide	--		83.0		19.0	
78-87-3	Methylene Chloride	--		--		--	
108-88-3	Toluene	3	J	--		--	

See notes at end of table.

Table 3-22 (Continued)
Volatile Organic Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:		M7480		M7480		M7480		M7480	
Sample Matrix:		Sediment		Sediment		Sediment		Sediment	
Location:		MPT-B-SD10		MPT-B-SD11		MPT-B-SD12		MPT-B-SD13	
Sample No.:		0BSD010		0BSD011		0BSD012		0BSD013	
Date Sampled:		8-Sept-94		8-Sept-94		8-Sept-94		8-Sept-94	
CAS RN	Common Name	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
78-93-3	2-Butanone	39	J	88	J	5	J	–	
67-64-1	Acetone	390	J	540	J	–		–	
75-15-0	Carbon disulfide	25	J	34		6	J	–	
78-87-3	Methylene Chloride	22	J	–		–		–	
108-88-3	Toluene	32		–		–		4	J

Notes: Concentrations are reported in micrograms per kilogram.
Data validation code J in the Qual. column was verified and assigned by Heartland Environmental Services.
DUP = sample duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
– = concentration less than the Contract Required Quantitation Limit (CRQL).
J = estimated concentration.

Table 3-23
Semivolatile Organic and Pesticide Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			20723		20723		20723		20723		35168	
Sample Matrix:			Sediment		Sediment		Sediment		Sediment		Sediment	
Location			MPT-B-SD1		MPT-B-SD2		MPT-B-SD3		MPT-B-SD3		MPT-B-SD6	
Sample No.:			MPT-B-SD-1		MPT-B-SD-2		MPT-B-SD-3		MPTBSDDUP1		MPT-BSD6	
Date Sampled:			21-Jan-92		21-Jan-92		21-Jan-92		21-Jan-92		17-Feb-93	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
Semivolatile Organics												
117-81-7	bis(2-Ethylhexyl)phthalate[1]	µg/kg	--		--		260	J	--		--	
87-74-2	Di-n-butylphthalate[1]	µg/kg	--		54	J	70	J	71	J	--	
85-68-7	Butylbenzylphthalate	µg/kg	--		--		--		--		--	
65-85-0	Benzoic acid	µg/kg	--		--		--		--		--	
206-44-0	Fluoranthene	µg/kg	--		--		--		--		--	
129-00-0	Pyrene[1]	µg/kg	--		--		--		--		--	
Pesticides												
50-29-3	4,4'-DDT[2]	µg/kg	0.8	J	--		--		--		--	
72-54-8	4,4'-DDD[2]	µg/kg	--		--		--		--		4.2	
72-55-9	4,4'-DDE[2]	µg/kg	3.0	J	--		--		--		7.9	

See notes at end of table.

Table 3-23 (Continued)
Semivolatile Organic and Pesticide Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			35168		35168		M7840		M7840		M7840	
Sample Matrix:			Sediment		Sediment		Sediment		Sediment		Sediment	
Location:			MPT-B-SD7		MPT-B-SD7		MPT-B-SD10		MPT-B-SD12		MPT-B-SD13	
Sample No.:			MPTBSD7		MPTBSD7DUP		0BSD010		0BSD012		0BSD013	
Date Sampled:			17-Feb-93		17-Feb-93		8-Sept-94		8-sept-94		8-Sept-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
Semivolatile Organics												
117-81-7	bis(2-Ethylhexyl)phthalate[1]	µg/kg	140	J	200	J	--		--		--	
87-74-2	Di-n-butylphthalate[1]	µg/kg	--		--		--		--		--	
85-68-7	Butylbenzylphthalate	µg/kg	--		--		--		55	J	--	
65-68-7	Benzoic acid	µg/kg	--		--		--		--		--	
129-00-0	Fluornathene	µg/kg	--		--		97	J	--		--	
129-00-0	Pyrene[1]	µg/kg	99	J	--		--		--		--	
Pesticides												
50-29-3	4,4'-DDT[2]	µg/kg	--		--		--		--		3.6	
72-54-8	4,4'-DDD[2]	µg/kg	--		--		--		--		--	
72-55-9	4,4'-DDE[2]	µg/kg	--		--		--		--		6.2	J

See notes at end of table.

Table 3-23 (Continued)
Semivolatile Organic and Pesticide Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:				
Sample Matrix:			Sediment	
Location			MPT-B-SD15	
Sample No.:			OBSD15	
Date Sampled:			8 September 1994	
CAS RN	Common Name	Units	Conc.	Qual.
Semivolatile Organics				
117-81-7	bis(2-Ethylhexyl)phthalate[1]	µg/kg	--	
87-74-2	Di-n-butylphthalate[1]	µg/kg	--	
85-68-7	Butylbenzylphthalate	µg/kg	--	
65-68-7	Benzoic acid	µg/kg	29	J
206-44-0	Fluornathene	µg/kg	--	
129-00-0	Pyrene[1]	µg/kg	--	
Pesticides				
50-29-3	4,4'-DDT[2]	µg/kg	--	
72-54-8	4,4'-DDD[2]	µg/kg	--	
72-55-9	4,4'-DDE[2]	µg/kg	--	

[1]Semivolatile Organic, USEPA Method 8270.
[2]Pesticide, USEPA Method 8080.

Notes: Data validation code J in the Qual. column was verified and assigned by Heartland Environmental Services.
DUP = sample duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
µg/kg = micrograms per kilogram.
-- = concentration less than the contract Required Quantitation Limit (CRQL).
J = estimated concentration.

Table 3-24
Inorganic Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			20703		20703		20703		20703		01528	
Sample Matrix:			Sediment		Sediment		Sediment		Sediment		Sediment	
Location:			MPT-B-SD1		MPT-B-SD2		MPT-B-SD3		MPT-B-SD3		MPT-B-SD4	
Sample No.:			MPT-B-SD-1		MPT-B-SD-2		MPT-B-SD-3		MPTBSDDUP1		MPTBSD4	
Date Sampled:			21-Jan-92		21-Jan-92		21-Jan-92		21-Jan-92		17-Feb-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	mg/kg	0.68	J	--		4.2	J	6.6		--	
7440-39-3	Barium	mg/kg	3.6	J	7.4	J	16.1	J	15.2	J	6.5	J
7440-41-7	Beryllium	mg/kg	0.059		0.45		0.59		0.54		--	
7440-43-9	Cadmium	mg/kg	--		--		0.82	J	--		--	
7440-47-3	Chromium	mg/kg	2.5	J	4.4		28.1		26.6		1.3	J
7440-48-4	Cobalt	mg/kg	--		--		--		--		--	
7440-50-8	Copper	mg/kg	2.0	J	2.3	J	3.1	J	3.5	J	--	
7439-92-1	Lead	mg/kg	3.4		3.0		8.5		10.0		--	
7439-97-6	Mercury	mg/kg	--		--		0.15		--		--	
7440-02-0	Nickel	mg/kg	--		5.5	J	7.1	J	6.4	J	--	
7782-49-2	Selenium	mg/kg	0.39	J	0.32	J	0.52	J	0.62	J	0.71	J
7440-28-0	Thallium	mg/kg	--		--		--		--		--	
7440-31-5	Tin	mg/kg	--		--		--		--		--	
7440-62-2	Vanadium	mg/kg	2.2	J	3.7	J	28.4		26.2		1.6	J
7440-66-6	Zinc	mg/kg	7.7		6.1		26.7		32.1		3.0	J

See notes at the end of table.

Table 3-24 (Continued)
Inorganic Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			01528		M76540		01528		01528		M7840	
Sample Matrix:			Sediment		Sediment		Sediment		Sediment		Sediment	
Location			MPT-B-SD5		MPT-B-SD5		MPT-B-SD6		MPT-B-SD7		MPT-B-SD7	
Sample No.:			MPTBSD5		00SD001		MPTBSD6		MPTBSD7		MPTBSD7DUP	
Date Sampled:			18-Feb-93		3-Aug-94		17-Feb-93		17-Feb-93		17-Feb-93	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	mg/kg	1.3	J	3.6	J	--		--		--	
7440-39-3	Barium	mg/kg	4.7	J	12.3	J	4.4	J	4.0	J	4.0	J
7440-41-7	Beryllium	mg/kg	--		0.47	J	--		--		0.1	J
7440-43-9	Cadmium	mg/kg	--		--		--		--		--	
7440-47-3	Chromium	mg/kg	2.4	J	17.1		3.1		3.0		2.8	
7440-48-4	Cobalt	mg/kg	--		2.4	J	--		--		--	
7440-50-8	Copper	mg/kg	5.0	J	7.5	J	2.6	J	0.88	J	0.88	J
7439-92-1	Lead	mg/kg	1.5	J	7.7		--		3.1		2.5	
7439-97-6	Mercury	mg/kg	--		1.1	J	0.24	J	0.22	J	--	
7440-02-0	Nickel	mg/kg	--		5.1	J	--		--		--	
7782-49-2	Selenium	mg/kg	--		--		0.81	J	0.65	J	--	
7440-28-0	Thallium	mg/kg	--		--		--		0.88	J	--	
7440-31-5	Tin	mg/kg	12.3	J	--		--		--		--	
7440-62-2	Vanadium	mg/kg	1.8	J	17	J	3.3	J	2.7	J	2.2	J
7440-66-6	Zinc	mg/kg	2.1	J	34.3		11.6	J	9.5	J	7.9	J

See notes at end of table.

Table 3-24 (Continued)
Inorganic Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			M7840		M7840		M7840	
Sample Matrix:			Sediment		Sediment		Sediment	
Location			MPT-B-SD10		MPT-B-SD11		MPT-B-SD12	
Sample No.:			0BSD010		0BSD011		OBSD012	
Date Sampled:			17-Feb-94		17-Feb-94		17-Feb-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	mg/kg	14.4		11.6		1.1	J
7440-39-3	Barium	mg/kg	21	J	26.3	J	3.1	J
7440-41-7	Beryllium	mg/kg	0.9	J	1.2	J	0.13	J
7440-43-9	Cadmium	mg/kg	--		--		--	
7440-47-3	Chromium	mg/kg	33.6		41.6		4.1	
7440-48-4	Cobalt	mg/kg	5.2	J	7.0	J	--	
7440-50-8	Copper	mg/kg	98.2		85.7		--	
7439-92-1	Lead	mg/kg	21.8		15.6		1.7	
7439-97-6	Mercury	mg/kg	1.4		0.72		0.28	
7440-02-0	Nickel	mg/kg	37	J	26.6	J	--	
7782-49-2	Selenium	mg/kg	--		--		--	
7440-28-0	Thallium	mg/kg	--		--		0.39	J
7440-31-5	Tin	mg/kg	19.6	J	18.6	J	4.6	J
7440-62-2	Vanadium	mg/kg	33.9	J	47.3	J	3.3	J
7440-66-6	Zinc	mg/kg	101		94.3		10.8	

See notes at end of table.

Table 3-24 (Continued)
Inorganic Analytes Detected In Background Sediment Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			M7840		M7840		M7840	
Sample Matrix:			Sediment		Sediment		Sediment	
Location			MPT-B-SD13		MPT-B-SD14		MPT-B-SD15	
Sample No.:			0BSD013		0BSD014		0BSD015	
Date Sampled:			8-Sept-94		8-Sept-94		8-Sept-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	mg/kg	0.92	J	0.44	J	0.48	J
7440-39-3	Barium	mg/kg	6.5	J	1.5	J	1.7	J
7440-41-7	Beryllium	mg/kg	0.06	J	--		--	
7440-43-9	Cadmium	mg/kg	--		--		--	
7440-47-3	Chromium	mg/kg	2	J	1.6	J	1.6	J
7440-48-4	Cobalt	mg/kg	--		--		--	
7440-50-8	Copper	mg/kg	--		--		--	
7439-92-1	Lead	mg/kg	1.2		--		0.95	
7439-97-6	Mercury	mg/kg	--		--		--	
7440-02-0	Nickel	mg/kg	--		--		--	
7782-49-2	Selenium	mg/kg	--		--		--	
7440-28-0	Thallium	mg/kg	--		--		--	
7440-31-5	Tin	mg/kg	--		3.7	J	2.6	J
7440-62-2	Vanadium	mg/kg	1.6	J	1.0	J	0.83	J
7440-66-6	Zinc	mg/kg	1.7	J	1.9	J	1.8	J

Notes:

Data validation codes J and J in the Qual. column were verified and assigned by Heartland Environmental Services.
DUP = sample duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
mg/kg = milligrams per kilogram.
J = concentration is estimated to be less than the CRDL (Contract Required Detection Limit) but greater than the IDL.
-- = concentration less than the IDL (Instrument Detection Limit).

Table 3-25
Summary of Background Sediment Samples
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Long and Morgan		MacDonald	
						ERL[5]	ERM[6]	TEL[7]	PEL[8]
Volatiles (µg/kg)									
Carbon disulfide	1/8	6 - 12	51* - 51*	51	51	-	-	-	-
Toluene	1/8	6 - 15	3 - 3	3	3	-	-	-	-
Semivolatiles (µg/kg)									
bis(2-Ethylhexyl)phthalate	2/8	45 - 7,200	170* - 292.5*	231	231	-	-	182	2,647
Di-n-butylphthalate	2/8	410 - 7,200	54 - 70.5*	62.3	62.3	-	-	ID	ID
Pyrene	1/8	410 - 7,200	282* - 282*	282	282	350	2,200	153	1,398
Pesticides/PCBs (µg/kg)									
4,4'-DDT	1/8	1 - 4.5	0.8 - 0.8	0.8	0.8	1	7	1.19	4.77
4,4'-DDD	1/8	1 - 4.5	4.2 - 4.2	4.2	4.2	2	20	1.22	7.81
4,4'-DDE	2/8	0.7 - 4.5	3 - 7.9	5.5	5.5	2	15	2.07	3.74
Inorganics (mg/kg)									
Arsenic	4/8	0.01 - 0.21	0.68 - 5.4*	2.7	5.4	33	85	7.24	41.6
Barium	8/8	NR	3.6 - 15.65*	7.3	14.6	-	-	-	-
Beryllium	2/8	0.04 - 0.56	0.07* - 0.47*	0.27	0.54	-	-	-	-
Cadmium	1/8	0.33 - 1.3	0.575* - 0.575*	0.57	1.14	5	9	0.676	4.21
Chromium	8/8	NR	1.3 - 27.35*	7.6	15.2	80	145	52.3	160
Cobalt	1/8	0.56 - 5.65	2.4 - 2.4	2.4	4.8	-	-	-	-
Copper	7/8	0.43 - 0.43	0.88* - 7.5	3.4	6.8	70	390	18.7	108
Lead	6/8	0.2 - 1.2	1.5 - 9.25*	4.6	9.2	35	110	30.2	112
Mercury	3/8	0.02 - 0.24	0.12* - 1.1	0.49	0.98	0.15	1.3	0.13	0.696
Nickel	3/8	2 - 3.6	5.1 - 6.75*	5.8	11.6	30	50	15.9	42.8
Selenium	6/8	0.3 - 1.1	0.32 - 0.81	0.55	1.1	-	-	-	-
Thallium	1/8	0.36 - 0.74	0.62* - 0.62*	0.62	1.24	-	-	-	-
Tin	1/8	5 - 90.1	12.3 - 12.3	12.3	24.6	NA	NA	ID[9]	ID[9]
Vanadium	8/8	NR	1.6 - 27.3*	7.4	14.8	-	-	-	-
Zinc	8/8	NR	2.1 - 34.3*	12.9	25.8	120	270	124	271

See notes at end of table.

Table 3-25 (Continued)
Summary of Background Sediment Samples
Collected from NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Long and Morgan		MacDonald	
						ERL[5]	ERM[6]	TEL[7]	PEL[8]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not detected in either the environmental sample or associated duplicate, the value used for the nondetection is one half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it includes a single value for an environmental and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
[4] The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration and will be used for screening purposes in the risk assessment.
[5] ERL = Effects Range-Low. From: Long, E.R. and L.G. Morgan, March, 1990. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." National Oceanographic Atmospheric Administration (NOAA) Technical Memorandum NOS OMA 52.
[6] ERL = Effects Range-Median. From: Long, E.R. and L.G. Morgan, March, 1990. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." NOAA Technical Memorandum NOS OMA 52.
[7] TEL = Toxic Effect Level. From: McDonald, D.D. November, 1994. Development of an Approach to the Assessment of Sediment Quality in Florida. Prepared for the Florida Department of Environmental Regulation.
[8] PEL = Probable Effects Level. From: McDonald, D.D. November, 1994. Development of an Approach to the Assessment of Sediment Quality in Florida. Prepared for the Florida Department of Environmental Regulation.
[9] Value for Tributyltin is in development.

Notes Background sample locations include: MPT-B-SD1, MPT-B-SD2, MPT-B-SD3, MPT-B-SD4, MPT-B-SD5, MPT-B-SD6, MPT-B-SD7, AND 00SD001.
Duplicate samples include: MPT-B-SD-3D, MPTBSD7D.

µg/kg = micrograms per kilograms.
- = criteria are not available.
ID = Insufficient data to derive sediment quality guidelines.
PCBs = polychlorinated biphenyls.
DDT = dichlorodiphenyltrichloroethane.
DDD = dichlorodiphenyldichloroethene.
DDE = Dichlorodiphenyldichloroethane.
mg/kg = milligrams per kilograms.
NA = compound listed by respective source but criteria not available.
NR = range of reporting limits not applicable because the analyte was detected in every sample.

Table 3-26
Summary of Background Sediment Samples
Collected from the Mayport Turning Basin

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Long and Morgan		MacDonald	
						ERL[5]	ERM[6]	TEL[7]	PEL[8]
Volatiles (µg/kg)									
2-Butanone	3/3	NR	5 - 88	44	44	-	-	-	-
Acetone	2/3	36 - 36	390 - 540	465	465	-	-	-	-
Carbon disulfide	3/3	NR	6 - 34	21.7	21.7	-	-	-	-
Methylene chloride	1/3	8 - 26	22 - 22	22	22	-	-	-	-
Toluene	1/3	8 - 26	32 - 32	32	32	-	-	-	-
Semivolatiles (µg/kg)									
Butylbenzylphthalate	1/3	1,700 - 1,800	55 - 55	55	55	-	-	-	-
Fluoranthene	1/3	480 - 1,700	97 - 97	97	97	600	3600	113	1,494
Inorganics (mg/kg)									
Arsenic	3/3	NR	1.1 - 14.4	9	18	33	85	7.24	41.6
Barium	3/3	NR	3.1 - 26.3	16.8	33.6	-	-	-	-
Beryllium	3/3	NR	0.13 - 1.2	0.74	1.48	-	-	-	-
Chromium	3/3	NR	4.1 - 41.6	26.4	52.8	80	145	52.3	110
Cobalt	2/3	0.8 - 0.8	5.2 - 7.0	6.1	12.2	-	-	-	-
Copper	2/3	3.0 - 3.0	85.7 - 98.2	92	184	70	390	18.7	108
Lead	3/3	NR	1.7 - 21.8	13	26	35	110	30.2	112
Mercury	3/3	NR	0.28 - 1.4	0.8	1.6	0.15	1.3	0.13	0.696
Nickel	2/3	2.2 - 2.2	26.6 - 37	31.8	63.6	30	50	15.9	42.8
Tin	3/3	NR	4.6 - 19.6	14.3	28.6	NA	NA	ID[9]	ID[9]
Thallium	1/3	1.3 - 1.5	0.39 - 0.39	0.39	0.78	-	-	-	-
Vanadium	3/3	NR	3.3 - 47.3	28.2	56.4	-	-	-	-
Zinc	3/3	NR	13.8 - 101	68.7	137.4	120	270	124	271

See notes at end of table.

Table 3-26 (Continued)
Summary of Background Sediment Samples
Collected from the Mayport Turning Basin

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Long and Morgan		MacDonald	
						ERL[5]	ERM[6]	TEL[7]	PEL[8]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not detected in either the environmental sample or associated duplicate, the value used for the nondetection is one-half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it includes a single value for an environmental and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
[4] The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration.
[5] ERL = Effects Range-Low. From: Long, E.R. and L.G. Morgan, March, 1990. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." National Oceanographic Atmospheric Administration (NOAA) Technical Memorandum NOS OMA 52.
[6] ERM = Effects Range-Median. From: Long, E.R. and L.G. Morgan, March, 1990. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." NOAA Technical Memorandum NOS OMA 52.
[7] NOEL = No Observed Effect Level. From: McDonald, D.D. November, 1994. Development of an Approach to the Assessment of Sediment Quality in Florida. Prepared for the Florida Department of Environmental Regulation.
[8] TEL = Toxic Effects Level. From: McDonald, D.D. November, 1994. Development of an Approach to the Assessment of Sediment Quality in Florida. Prepared for the Florida Department of Environmental Regulation.
[9] Value for tributyltin is in development.

Notes: Background sample locations include: MPT-B-SD10, MPT-B-SD11, MPT-B-SD12
Duplicate samples include: MPT-B-SD12DUP

µg/kg = micrograms per kilograms.
NR = range of reporting limits not applicable because the analyte was detected in every sample.
- = criteria are not available.
mg/kg = milligrams per kilograms.
NA = compound listed by respective source but criteria not available.
ID = insufficient data to derive sediment quality guidelines.

was detected in two of three sediment samples at concentrations that exceed the ERL (70mg/kg) and the TEL (18.7 mg/kg). Mercury was detected in three of the sediment samples; two of the samples contained concentrations that exceeded the Long and Morgan ERL (0.15 mg/kg) and ERM (1.3 mg/kg) and the MacDonald TEL (0.13 mg/kg) and PEL (0.696 mg/kg). One sample contained mercury at a concentration (0.28 mg/kg) that exceeded only the ERL and TEL. Nickel was detected in only two of the three samples at concentrations that exceeded the ERL (30 mg/kg) and the TEL (15.9 mg/kg).

A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value, and comparison to benchmark values is presented for sediment samples collected from the St. Johns River (MPT-B-SD13 through MPT-B-SD15) in Table 3-27. Concentrations of two pesticides 4,4'-DDT and 4,4'-DDE, which were detected as single occurrences in the same sample, exceed benchmark criteria. Both 4,4'-DDT and 4,4'-DDE were detected at concentrations that exceed their respective ERL and TEL benchmark values (Table 3-27).

3.3.3 Groundwater Sample Analytical Results The locations of eight monitoring wells used to collect background groundwater samples are presented on Plate 1. The eight background groundwater monitoring wells are located in areas where the water table of the surficial aquifer is "mounded" and likely to be a recharge area. Four of the eight background monitoring wells are located in Group II; these are MPT-S-MW1S, MPT-8-MW5S, MPT-8-MW5I, and MPT-8-MW5D. These four monitoring wells are located hydraulically upgradient of SWMUs 6, 7, 8, 9, 10, and 11. MPT-S-MW1S and MPT-8-MW5S are screened across the water table from 3 to 15 feet bls. MPT-8-MW5I, an intermediate depth monitoring well, is screened from 25 to 30 feet bls. MPT-8-MW5D, a deep zone monitoring well, is screened from 60 to 70 feet bls.

The remaining four background monitoring well locations are in Group III. These monitoring wells are MPT-1-MW1S, MPT-B-MW1S, MPT-B-MW1I, and MPT-B-MW1D. MPT-1-MW1S is located hydraulically upgradient of SWMU 1 and is screened across the water table from 5 to 15 feet bls. MPT-B-MW1S, MPT-B-MW1I, and MPT-B-MW1D are located near Lake Wonderwood near the station residential area and are not associated with an SWMU. The shallow monitoring wells are screened across the water table from 5 to 15 feet bls, the intermediate monitoring well is screened from 25 to 30 feet bls, and the deep zone monitoring well is screened from 62 to 72 feet bls.

Groundwater samples have been collected for general water chemistry parameters from three monitoring wells, MPT-1-1, MPT-S-1, and MPT-8-MW5S. Alkalinity as calcium carbonate ($CaCO_3$), hardness as $CaCO_3$, total Kjeldahl nitrogen (TKN), ammonia-Nitrogen, nitrate plus nitrite, phosphorous, total organic carbon, oil and grease, color, and pH are presented on bar chart summaries in Appendix B. General groundwater quality parameters of TDS, chlorides, and sulfate were below the secondary groundwater quality standards (Chapter 17.550.320, FAC) of 500 mg/ℓ, 250 mg/ℓ, and 250 mg/ℓ, respectively. Based on these parameters, general water quality of the background groundwater samples appears to be potable.

Target analytes detected in four shallow background groundwater samples collected from monitoring wells screened to approximately 15 feet bls consisted of one VOC (carbon disulfide), four SVOCs (3- and 4-methylphenol [coeluting analytes], benzo(a)anthracene, and bis(2-ethylhexyl)phthalate), and 15 inorganics (arsenic,

Table 3-27
Summary of Background Sediment Samples Collected from the St. Johns River

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Long and Morgan		MacDonald	
						ERL[5]	ERM[6]	TEL[7]	PEL[8]
Volatiles (µg/kg)									
Toluene	1/3	7 - 7	4 - 4	4	4	-	-	-	-
Semivolatiles (µg/kg)									
Benzoic acid	1/3	2,000 - 2,100	29 - 29	29	29	-	-	-	-
Pesticides/PCBs (µg/kg)									
4,4'-DDE	1/3	0.8 - 0.8	6.2 - 6.2	6.2	6.2	2	15	2.07	3.74
4,4'-DDT	1/3	1.6 - 1.6	3.6 - 3.6	3.	3.6	1	7	1.19	4.77
Inorganics (mg/kg)									
Arsenic	3/3	NR	0.44 - 0.92	0.61	1.22	33	85	7.24	41.6
Barium	3/3	NR	1.5 - 6.5	3.2	6.4	-	-	-	-
Beryllium	1/3	0.05 - 0.05	0.06 - 0.06	0.06	0.12	-	-	-	-
Chromium	3/3	NR	1.6 - 2	1.7	3.4	80	145	52.3	160
Lead	2/3	0.58 - 0.58	0.95 - 1.2	1.1	2.2	35	110	30.2	112
Tin	2/3	2.3 - 2.3	2.6 - 3.7	3.2	6.4	NA	NA	ID [9]	ID [9]
Vanadium	3/3	NR	0.83 - 1.6	1.1	2.2	-	-	-	-
Zinc	3/3	NR	1.7 - 1.9	1.8	3.6	120	270	124	271

See notes at end of table.

Table 3-27 (Continued)
Summary of Background Sediment Samples
Collected from the St. Johns River

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Long and Morgan		MacDonald	
						ERL[5]	ERM[6]	TEL[7]	PEL[8]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not detected in either the environmental sample or associated duplicate, the value used for the nondetection is one-half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it includes a single value for an environmental and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
[4] The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration and will be used for screening purposes in the risk assessment.
[5] ERL = Effects Range-Low. From: Long, E.R. and L.G. Morgan, March, 1990. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." National Oceanographic Atmospheric Administration (NOAA) Technical Memorandum NOS OMA 52.
[6] ERL = Effects Range-Median. From: Long, E.R. and L.G. Morgan, March, 1990. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." NOAA Technical Memorandum NOS OMA 52.
[7] NOEL = No Observed Effect Level. From: McDonald, D.D. November, 1994. Development of an Approach to the Assessment of Sediment Quality in Florida. Prepared for the Florida Department of Environmental Regulation.
[8] TEL = Toxic Effects Level. From: McDonald, D.D. November, 1994. Development of an Approach to the Assessment of Sediment Quality in Florida. Prepared for the Florida Department of Environmental Regulation.
[9] Value for tributyltin is in development.

otes: Background sample locations include: MPT-B-SD13, MPT-B-SD14, MPT-B-SD15.

µg/kg = micrograms per kilograms.
- = criteria are not available.
PCBs = polychlorinated biphenyls.
DDE = Dichlorodiphenyldichloroethane.
DDT = dichlorodiphenyltrichloroethane.
mg/kg = milligrams per kilograms.
NR = range of reporting limits not applicable because the analyte was detected in every sample.
NA = compound listed by respective source but criteria not available.
ID = Insufficient data to derive sediment quality guidelines.

Table 3-28
Volatile and Semivolatile Organic Analytes Detected in Background Groundwater Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group/Batch No.:			20902		M7490		20902		23886		M7480		M7480	
Sample Matrix:			Water		Water		Water		Water		Water		Water	
Location No.:			MPT-1-MW1S		MPT-1MW1S		MPT-S-MW1S		MPT-S-MW1S		MPT-S-MW1S		MPT-S-MW-1SDUP	
Sample No.:			MPT-1-MW-1		01MW001		MPT-S-1-1		S-1		OSMW001R		OSMW001RD	
Date Sampled:			12-Feb-92		08-Jul-94		12-Feb-92		28-Jan-93		7-Aug-94		7-Aug-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
Volatile Organics														
67-64-1	Acetone[1]	µg/ℓ	--		--		--		--		--		--	
75-15-0	Carbon disulfide[1]	µg/ℓ	--		--		1	J	--		--		--	
67-66-3	Chloroform[1]	µg/ℓ	--		--		--		--		--		--	
75-27-4	Bromodichloromethane[1]	µg/ℓ	--		--		--		--		--		--	
Semivolatile Organics														
117-81-7	bis(2-Ethylhexyl)phthalate[2]	µg/ℓ	7		--		6	J	--		6	J	--	
56-55-3	Benzo(a)anthracene[2]	µg/ℓ	--		--		2	J	--		--		--	
108-39-1	3&4-Methylphenol[2]	µg/ℓ	--		--		--		--		--		--	

See notes at end of table.

Table 3-28 (Continued)
Volatile and Semivolatile Organic Analytes Detected in Background Groundwater Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group/Batch No.:			23886		R8403		R8403		GN-0312		R8634		M7480		M7480		M7480	
Sample Matrix:			Water		Water		Water		Water		Water		Water		Water		Water	
Location No.:			MPT-8-MW5S		MPT-8-MW5S		MPT-8-MW5I		MPT-8-MW5D		MPT-8-MW5D		MPT-B-MW1S		MPT-B-MW-1I		MPT-B-MW1D	
Sample No.:			MPT-8-MW5S		08MW005S		08MW005I		8MW5DD		08MW005D		OBMW001S		OBMW001I		OBMW001D	
Date Sampled:			27-Jan-93		26-Jul-94		26-Jul-94		02-Feb-92		29-Aug-94		08-Jul-94		07-Aug-94		08-Jul-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
Volatile Organics																		
67-64-1	Acetone[1]	µg/ℓ	--		--		--		--		16		--		--		--	
75-15-0	Carbon disulfide[1]	µg/ℓ	--		--		--		--		--		--		--		--	
67-66-3	Chloroform[1]	µg/ℓ	--		--		2	J	--		--		--		3	J	--	
75-27-4	Bromodichloromethane[1]	µg/ℓ	--		--		2	J	--		--		--		--		--	
Semivolatile Organics																		
117-81-7	bis(2-Ethylhexyl)phthalate[2]	µg/ℓ	--		--		--		--		--		--		--		--	
56-55-3	Benzo(a)anthracene[2]	µg/ℓ	--		--		--		--		--		--		--		--	
108-39-1	3- and 4-Methylphenol[2]	µg/ℓ	--		29		--		--		--		--		--		--	

[1] Volatile organic compounds, U.S. Environmental Protection Agency (USEPA) Method 8240.
[2] Semivolatile organic compounds, USEPA Method 8270.

Notes: Data validation code J in the Qual. column is verified and assigned by Heartland Environmental Services.
DUP = duplicate.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
µg/ℓ = micrograms per liter.
-- = concentration less than the instrument detection limit (IDL).
J = estimated concentration.

Table 3-29
Inorganic Analytes Detected In Background Unfiltered Groundwater Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			20902		M7491		20902		23886		M7481	
Sample Matrix:			Water		Water		Water		Water		Water	
Location No.:			MPT-1-MW1S		MPT-1-MW1S		MPT-S-MW1S		MPT-S-MW1S		MPT-S-MW1	
Sample No.:			MPT-1MW1-1		01MW001		MPT-S-1-1		S-1		OSMW001R	
Date Sampled:			12-Feb-92		08-Jul-94		12-Feb-92		28-Jan-93		08-Jul-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	µg/ℓ	14.3		6	J	--		--		1.9	J
7440-39-3	Barium	µg/ℓ	0.82	J	--		0.66	J	--		9.2	J
7440-72-2	Calcium	µg/ℓ	69,400		65,000		91,400	J	90,000		113,000	
7440-47-3	Chromium	µg/ℓ	--		--		--		3.7	J	--	
7440-48-3	Cobalt	µg/ℓ	--		--		--		--		--	
7440-50-8	Copper	µg/ℓ	1.4	J	--		--		--		--	
7439-89-6	Iron	µg/ℓ	3,540		15.4	J	156		284	J	95	J
7440-92-1	Lead	µg/ℓ	2.5	J	--		1.4	J	--		--	
7439-95-4	Magnesium	µg/ℓ	3,100	J	2,860	J	17,600		15,500		7,670	
7439-96-5	Manganese	µg/ℓ	397		7.1	J	33.2		36		67.8	
7439-97-6	Mercury	µg/ℓ	--		0.1	J	--		--		0.08	J
7440-49-2	Selenium	µg/ℓ	0.63	J	--		--		--		--	
740-22-4	Silver	µg/ℓ	--		--		--		--		--	
7440-23-5	Sodium	µg/ℓ	5,880		9,300		7,330		--		13,800	
7440-62-2	Vanadium	µg/ℓ	9.4	J	4.4	J	2.2	J	--		5.8	J
7440-66-6	Zinc	µg/ℓ	10.2	J	--		2.4	J	63.4	J	--	
5955-70-0	Cyanide	µg/ℓ	--		0.95	J	--		--		--	

See notes at end of table.

Table 3-29 (Continued)
Inorganic Analytes Detected In Background Unfiltered Groundwater Samples

RCRA Corrective Action Program, General Information Report
U.S Naval Station
Mayport, Florida

Sample Delivery Group:			M7481		23886		R8404		R8404		GN-01312	
Sample Matrix:			Water		Water		Water		Water		Water	
Location No.:			MPT-S-MW1SDUP		MPT-8-MW5S		MPT-8-MW5S		MPT-8-MW5I		MPT-8-MW5D	
Sample No.:			OSMW001RD		MPT-8-MW5S		08MW0055		08MW005I		8MW5DD	
Date Sampled:			08-Jul-94		27-Jan-93		26-Jul-94		26-Jul-94		02-Feb-93	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	µg/ℓ	1.9	J	2.9	J	--		0.6	J	--	
7440-39-3	Barium	µg/ℓ	9.2	J	6.5	J	--		--		45.3	J
7440-72-2	Calcium	µg/ℓ	113,000		89,500		84,500	J	82,000	J	158,000	
7440-47-3	Chromium	µg/ℓ	--		6.6	J	--		--		--	
7440-48-4	Cobalt	µg/ℓ	--		--		--		--		3.2	J
7440-50-8	Copper	µg/ℓ	--		--		--		--		--	
7439-89-6	Iron	µg/ℓ	75	J	2,760	J	--		--		182	
7440-92-1	Lead	µg/ℓ	--		--		--		--		--	
7439-95-4	Magnesium	µg/ℓ	7,450		15,400		--		--		314,000	
7439-96-5	Manganese	µg/ℓ	64.7		39.9		--		--		101	
7439-97-6	Mercury	µg/ℓ	--		--		--		--		--	
7440-49-2	Selenium	µg/ℓ	--		--		--		--		--	
7440-23-4	Silver	µg/ℓ	--		--		--		--		3.7	J
7440-23-5	Sodium	µg/ℓ	13,300	J	--		--		--		--	
7440-62-2	Vanadium	µg/ℓ	5.8	J	7.2	J	--		2.3	J	2.8	J
7440-66-6	Zinc	µg/ℓ	--		23.9	J	--		--		15.6	J
57-12-5	Cyanide	µg/ℓ	--		--		--		--		--	

See notes at end of table.

Table 3-29 (Continued)
Inorganic Analytes Detected In Background Unfiltered Groundwater Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			R8635		M7481		M7491		M7481	
Sample Matrix:			Water		Water		Water		Water	
Location No.:			MPT-8MW5D		MPT-B-MW-1S		MPT-B-MW1I		MPT-B-MW1D	
Sample No.:			08MW005D		OBMW001S		OBMW001I		OBMW001D	
Date Sampled:			29-Aug-94		08-Jul-94		09-Jul-94		08-Jul-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Arsenic	µg/ℓ	–		3.3	J	–		5.5	J
7440-39-3	Barium	µg/ℓ	75.5	J	8.2	J	6.4	J	48.9	J
7440-72-2	Calcium	µg/ℓ	130,000		79,000		100,000		251,000	
7440-47-3	Chromium	µg/ℓ	--		--		--		--	
7440-48-4	Cobalt	µg/ℓ	--		--		--		--	
7440-50-8	Copper	µg/ℓ	--		--		--		--	
7439-89-6	Iron	µg/ℓ	108		425		660		609	
7440-92-1	Lead	µg/ℓ	--		--		1.5	J	--	
7439-95-4	Magnesium	µg/ℓ	253,000		12,300		23,600		419,000	
7439-96-5	Manganese	µg/ℓ	49.5		70.9		119		228	
7439-97-6	Mercury	µg/ℓ	--		--		--		--	
7440-49-2	Selenium	µg/ℓ	--		--		--		--	
7440-22-4	Silver	µg/ℓ	--		--		--		--	
7440-23-5	Sodium	µg/ℓ	2,640,000		10,500	J	79,500		3,310,000	J
7440-62-2	Vanadium	µg/ℓ	3.6	J	2.8	J	3.6	J	--	
7440-66-6	Zinc	µg/ℓ	4.3	J	–		--		--	
57-12-5	Cyanide	µg/ℓ	–		--		–		--	

Notes: Data validation codes in the Qual. column were verified and assigned by Heartland Environmental Services.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
µg/ℓ = micrograms per liter.
-- = concentration less than the instrument detection limit (IDL).
J = estimated concentration.

barium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, selenium, sodium, vanadium, zinc, and cyanide). Pesticides and PCBs were not detected in the shallow groundwater samples (Tables 3-28 and 3-29).

Target analytes detected in two intermediate background groundwater samples collected from monitoring wells screened from 25 to 30 feet bls consisted of two VOCs (bromodichloromethane and chloroform) and nine inorganics (arsenic, barium, calcium, iron, lead, magnesium, manganese, sodium, and vanadium) (Tables 3-28 and 2-29). SVOCs, pesticides, and PCBs were not detected in intermediate groundwater samples (Tables 3-28 and 3-29). Target analytes detected in 2 deep background groundwater samples collected from monitoring wells with 10-foot screens at depths greater than 60 feet bls consisted of 1 VOC (acetone) and 11 inorganics (arsenic, barium, calcium, cobalt, iron, magnesium, manganese, silver, sodium, vanadium, and zinc) (Tables 3-28 and 3-29). SVOCs, pesticides, and PCBs were not detected in the deep groundwater samples (Tables 3-28 and 3-29).

A summary of frequencies of detection, range of detection limits, range of detected concentrations, mean of detected concentrations, the background screening value, and comparison to benchmark values is presented for background groundwater samples in Table 3-30. Concentrations of one VOC, one SVOC, and three inorganics exceed benchmark values. The VOC bromodichloromethane was detected as a single occurrence at a concentration (2 $\mu g/\ell$) that exceeds the Florida groundwater guidance concentration of 0.6 $\mu g/\ell$ (FDEP, 1994).

The SVOC bis(2-ethylhexyl)phthalate was detected in three groundwater samples at concentrations that meet or exceed the Florida groundwater guidance concentration of 6 $\mu g/\ell$.

Iron was detected in five groundwater samples at concentrations that exceed the Federal MCL (USEPA, 1994) and Florida groundwater guidance value of 300 $\mu g/\ell$.

Manganese was detected in six groundwater samples and an associated duplicate at concentrations that meet or exceed the Federal MCL and Florida groundwater guidance value of 50 $\mu g/\ell$.

Sodium was detected in two groundwater samples collected from monitoring wells installed in the deep zone of the surficial aquifer at concentrations that exceed the Florida groundwater guidance value of 160,000 $\mu g/\ell$.

Filtered Groundwater Samples. Four filtered groundwater samples were collected using a 45-micron inline filter to compare the results of inorganic analyses with those from unfiltered groundwater samples collected from the same locations using the low flow sampling technique. These samples were collected from three shallow and one intermediate groundwater monitoring wells (MPT-1-MW1S, MPT-5-MW1S, MPT-B-MW1S, and MPT-B-MW1I) (Table 3-31). Comparison of the analytical results from samples collected using the two techniques indicates that low flow unfiltered sampling and filtered sampling provide comparable results for inorganic analytes, with the exception of iron.

3.3.4 Quality Assurance A summary of the type of sample, number of samples, and type of laboratory analyses conducted during the background investigations is provided in Table 3-32. The number of duplicate samples and analytical parameters is summarized in Table 3-33 and the number of field quality control samples is summarized in Table 3-34. The analytical results for the environmental samples

Table 3-30
Summary of Background Groundwater Samples From Shallow, Intermediate and Deep Aquifer Zones At NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Federal MCLs[5]	Florida Groundwater Guidance	
							Concentration[6]	Basis[7]
Volatiles (µg/ℓ)								
Acetone	1/12	3 - 44	16 - 16	16	16	700	700	SYS
Bromodichloromethane	1/12	5 - 5	2 - 2	2	2	80[8]	0.6	C
Carbon disulfide	1/12	5 - 5	1 - 1	1	1	NA	700	SYS
Chloroform	2/12	5 - 5	3 - 3	2.5	2.5	80[8]	6	C
Semivolatiles (µg/ℓ)								
3- & 4-Methylphenol (2)	1/12	10 - 20	29 - 29	29	29	NA	35[12]	SYS
Benzo(a)anthracene	1/12	10 - 10	2 - 2	2	2	0.1	4	C
bis(2-Ethylhexyl)phthalate	3/12	5 - 10	5.5* - 7	6.2	6.2	6	6	P
Inorganics (µg/ℓ)								
Arsenic	7/12	0.4 - 6.0	0.6 - 14.3	4.9	9.8	50	50	P
Barium	8/12	1.2 - 3.3	0.66 - 75.5	19.5	39.0	2000	2000	P
Calcium	12/12	NR	65,000 - 251,000	103,733	207,466	NA	NA	
Chromium	2/12	2 - 2.6	3.7 - 6.6	5.2	10.4	100	100	P
Copper	1/12	0.9 - 12.7	1.4 - 1.4	1.4	2.8	1,300[9]	1,000	S
Iron	10/12	68.2 - 78.6	15.4 - 3,540	864	1,728	300[10]	300	S
Lead	3/12	0.6 - 6.0	1.4 - 2.5	1.8	2.6	15[11]	15[11]	P
Magnesium	10/12	18,800 - 19,700	2,860 - 419,000	76,992	153,984	NA	NA	
Manganese	10/12	20.1 - 23.6	7.1 - 397	105	210	50[10]	50	S
Mercury	2/12	0.04 - 0.5	0.06* - 0.1	0.08	0.16	2	2	P
Selenium	3/12	0.6 - 13.2	0.63 - 15.1*	5.9	11.8	50	50	P
Sodium	8/10	31,500 - 39,500	5,880 - 3,310,000	759,508	1,519,016	NA	160,000	P
Vanadium	9/12	1.5 - 2.6	2.2 - 9.4	4.6	9.2	NA	49	SYS
Zinc	5/12	1.82 - 8.8	2.4 - 63.4	20.8	41.6	5000[10]	5000	S
Cyanide	1/12	0.81 - 5	0.95 - 0.95	0.95	1.9	200	200	P

See notes at end of table.

Table 3-30 (Continued)
Summary of Background Groundwater Samples
From Shallow, Intermediate and Deep Aquifer Zones
At NAVSTA Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detection Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]	Background Screening Values[4]	Federal MCLs[5]	Florida Groundwater Guidance	
							Concentration[6]	Basis[7]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. If the target analyte is not detected in either the environmental sample or associated duplicate, the value used for the nondetection is one half the reporting limit. If the target analyte is not detected in either the environmental sample or associated duplicate sample, the value used for the nondetect is one half the reporting limit.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it includes a single value for an environmental samples and associated duplicate. The arithmetic mean does not include those environmental samples in which the analyte was not detected.
4 The background screening value for organics is the mean detected concentration and will not be used for screening purposes in the risk assessment. The background screening value for inorganics is two times the mean detected concentration and will be used for screening purposes in the risk assessment.
[5] The Federal maximum contaminant level (MCLs) are maximum permissible level of a contaminant in water which is delivered to any user of a public water system. These values are from the Office of Water, USEPA. "Drinking Water Regulations and Health Advisories," May 1994.
[6] Source: Florida Department of Environmental Protection. June 1994. Groundwater Guidance Concentrations.
[7] The FDEP values were derived based on a number of approaches:
P = Primary Standards are found in Rule 62-550.310 and 62-320. Rule 17-520(1), FAC, Groundwater Classes, Standards, and Exemptions designates these standards as enforceable.
S = Secondary Standard are found in Rule 62-550.310 and 320. Rule 62-520(1), FAC, Groundwater Classes, Standards, and Exemptions designates these standards as enforceable. These standards relate to the organoleptic or other undesirable properties.
C = Guidance concentration for carcinogens.
SYS = Guidance concentrations for parameters where an appreciable risk for deleterious effects exists to a human population with daily exposure.
[8] The total trihalomethanes concentration cannot exceed 80 $\mu g/\ell$.
[9] Copper action level. Treatment technology action limit for drinking water distribution systems per "National Primary Drinking Water Regulations" 40 CFR 141.
[10] Federal secondary maximum contaminant level.
[11] Lead action level. Treatment technology action limit for drinking water distribution systems per "National Primary Drinking Water Regulations" 40 CFR 141 as amended in 57 FR 41345, August 3, 1993.
[12] Florida groundwater guidance concentrations for 3- & 4-methylphenol were compared, and the most conservative value (4-methylphenol) is reported.

Notes: Background sample locations include: 01MW001, 08MW005S, 0BMW001S, 0SMW001R, 8MW5S, MPT-1-MW1-1, MPT-S-1-1, AND S1
Duplicate samples include: 0SMW001RD
MCL = maximum contaminant level.
$\mu g/\ell$ = micrograms per liter.
NA = criteria are not available.
NR = range of reporting limits not applicable because the analyte was detected in every sample.

Table 3-31
Inorganic Analytes Detected In Background Filtered Groundwater Samples

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sample Delivery Group:			M7491		M7481		M7481		M7491	
Sample Matrix:			Water		Water		Water		Water	
Location No.:			01MW001S		MPT-S-MW-1SF		MPT-B-MW1S		MPT-B-MW1I	
Sample No.:			01MW001F		OSMW001RF		OBMW001SF		OBMW001IF	
Date Sampled:			08-Jul-94		08-Jul-94		08-Jul-94		09-July-94	
CAS RN	Common Name	Units	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.	Conc.	Qual.
7440-38-2	Antimony	µg/ℓ	3.7	J	--		--		--	
7440-38-2	Arsenic	µg/ℓ	5.2	J	1.9	J	3.5	J	--	
7440-39-3	Barium	µg/ℓ	--		9.2	J	8.2	J	6	J
7440-72-2	Calcium	µg/ℓ	63,100		109,000		79,300		98,700	
7440-47-3	Chromium	µg/ℓ	--		--		--		--	
7440-50-8	Copper	µg/ℓ	--		--		--		--	
7439-89-6	Iron	µg/ℓ	33	J	11.7	J	177		309	
7440-92-1	Lead	µg/ℓ	--		--		16.9		--	
7439-95-4	Magnesium	µg/ℓ	2,840	J	7,510		11,800		23,200	
7439-96-5	Manganese	µg/ℓ	37.7		64.3		70.4		114	
7439-97-6	Mercury	µg/ℓ	0.08	J	--		--		0.9	J
7440-49-2	Selenium	µg/ℓ	0.08		--		--		--	
7440-22-4	Silver	µg/ℓ	--		--		--		--	
7440-23-5	Sodium	µg/ℓ	9,500		13,500	J	10,600	J	79,000	
7440-62-2	Vanadium	µg/ℓ	3.2	J	4.3	J	2.7	J	3	J
7440-66-6	Zinc	µg/ℓ	--		--		--		--	

Notes: Data validation codes in the Qual. column were verified and assigned by Heartland Environmental Services.
CAS RN = chemical abstract service registry number.
Conc. = concentration.
Qual. = qualifier.
µg/ℓ = micrograms per liter.
J = estimated concentration.
-- = concentration less than the instrument detection limit (IDL).

Table 3-32
Summary of Sample Matrix and Analytical Procedures

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analytical Procedure	Sample Matrix Type			
	Soil	Surface Water	Sediment	Groundwater
Volatile organic compounds USEPA Method 8240	10	7	7	8
Volatile organic compounds USEPA Method 8010	NA	NA	NA	8
Semivolatile organic compounds USEPA Method 8270	10	7	7	8
Pesticides and PCBs, kepone USEPA Method 8080	10	7	7	8
Inorganics and cyanide USEPA Methods 6010, 9010, 7440, and 7880	10	7	7	8
Water quality parameters[1]	NA	NA	NA	5
Total	40	28	28	45

[1]Water quality parameters:

- Total dissolved solids
- Chloride
- Alkalinity
- Hardness
- Sulfate
- Sulfide
- Total Kjeldahl nitrogen
- Ammonia nitrogen
- Nitrate
- Nitrite
- Phosphorous
- Total organic carbon
- Oil and grease
- Color
- pH

Notes: USEPA = U.S. Environmental Protection Agency.
NA = analysis not performed.
PCBs = polychlorinated biphenyls.

Table 3-33
Summary of Duplicate Samples and Analytical Procedures

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analytical Procedure	Sample Matrix Type			
	Soil	Surface Water	Sediment	Groundwater
Volatile organic compounds USEPA Method 8240	2	1	1	4
Volatile organic compounds USEPA Method 8010	NA	NA	NA	NA
Semivolatile organic compounds USEPA Method 8270	2	1	1	4
Pesticides and PCBs, kepone USEPA Method 8080	2	1	1	4
Inorganics and cyanide USEPA Methods 6010, 9010, 7440, and 7880	2	1	1	4
Water quality parameters[1]	NA	NA	NA	NA
Total	8	4	4	16

[1] Water quality parameters:

- Total dissolved solids
- Chloride
- Alkalinity
- Hardness
- Sulfate
- Sulfide
- Total Kjeldahl nitrogen
- Ammonia nitrogen
- Nitrate
- Nitrite
- Phosphorous
- Total organic carbon
- Oil and grease
- Color
- pH

Notes: USEPA = U.S. Environmental Protection Agency.
NA = analysis not performed.
PCBs = polychlorinated biphenyls.

Table 3-34
Summary of Field Quality Control Blanks and Analytical Procedures

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Analytical Procedure	Sample Matrix Type		
	Trip Blank	Source Blank	Equipment Rinsate Blank
Volatile organic compounds USEPA Method 8240	18	5	13
Volatile Organic Compounds USEPA Method 8010	NA	2	3
Semivolatile Organic Compounds USEPA Method 8270	NA	5	13
Pesticides and PCBs, Kepone USEPA Method 8080	NA	6	14
Inorganics and Cyanide USEPA Methods 6010, 9010, 7440, and 7880	NA	5	13
Water Quality Parameters[1]	NA	NA	NA
Total	18	23	56

[1] Water quality parameters:

- Total dissolved solids
- Chloride
- Alkalinity
- Hardness
- Sulfate
- Sulfide
- Total Kjeldahl nitrogen
- Ammonia nitrogen
- Nitrate
- Nitrite
- Phosphorous
- Total organic carbon
- Oil and grease
- Color
- pH

Notes: USEPA = U.S. Environmental Protection Agency.
NA = analysis not performed.
PCBs = polychlorinated biphenyls.

and field quality control samples for Appendix IX target analytes are provided in Appendix C. In addition, groundwater samples from some of the monitoring wells were analyzed by USEPA Method 8010 to obtain detection limits compatible with State of Florida primary drinking water standards.

The NEESA Level C data packages produced from analytical results of sample collected from January 1992 through February 1993 were reviewed and validated by Heartland Environmental Services, Inc., St. Peters, Missouri. During 1994, NEESA Level C data packages were reviewed and validated by Environmental Data Services, Inc., Denver, Colorado. NEESA Level C corresponds with CERCLA Level III DQOs and is recommended by NEESA (NEESA, 1992) for sites that are located away from densely populated areas, not on the NPL, and have a low probability of litigation. It is also consistent with standards defined by RCRA for RFIs (USEPA, 1988b).

Data validation is the technical review of a data package using criteria established in the DQOs and QAPP. The data were reviewed and validated using the NEESA (1988) guidance document 20.2-047B, *Sampling and Chemical Analysis Quality Assurance Requirement for the Navy Installation Program.* The data review and validation process is independent of the laboratory's checks because it is impossible to repeat the laboratory's review, as not all the raw data are included in the Level C data packages. Samples that did not meet the acceptance limit criteria were qualified with a flag (single or double letter abbreviations that indicate nondetection of an analyte, a problem with precision or accuracy of reported analytical results, or inability to positively identify an analyte). Fully usable data are reported without qualifiers and are equivalent to RCRA Level I data (USEPA, 1988b). Data qualified as estimated values are flagged with a "J," and are equivalent to RCRA Level II data. Data that are determined to be unusable or are questionable due to significant QA/QC variances are flagged with an "R," and are equivalent to RCRA Level III data.

Once the data were reviewed and validated according to the guidance presented in NEESA 20.2-047B, the data were evaluated using the precision, accuracy, representativeness, comparability, and completeness (PARCCs) criteria included in the DQOs of the Sampling Analysis Plan (SAP) (ABB-ES, 1991a). The following subsections provide an explanation of the PARCC criteria evaluation.

Precision The criteria for precision were met for the NAVSTA Mayport background samples for each environmental matrix (surface and subsurface soil, surface water, sediment, and groundwater). None of the background analytical data were qualified based on precision criteria.

Accuracy The criteria for accuracy were met for each environmental matrix. Target acceptance ranges for the spike recoveries are included in the analytical method. If the spike recovery falls outside the acceptance windows, then the environmental sample data would require qualification. The criteria for accuracy were met for the NAVSTA Mayport background samples for each environmental matrix (surface and subsurface soil, surface water, sediment, and groundwater). None of the background analytical data were qualified based on the accuracy criteria.

Representativeness Positive detections of compounds in the QC blank samples identify compounds that possibly have been introduced to the associated field samples during sample collection, transport, or analysis. Contaminants should not be detected in the QC blanks. The presence of target analytes in the QC

blanks provides an estimate of bias to the environmental samples due to cross-contamination in the field or laboratory.

Positive detection of target analytes were reported by the laboratory and validated for the NAVSTA Mayport background samples. The following is a description of target analytes detected in field and laboratory QC samples.

Trip Blanks. Target compounds detected in the trip blank samples consisted of:

- acetone,
- chloroform, and
- methylene chloride.

A summary of the results of the analyses of trip blanks is provided in Appendix C. Acetone and methylene chloride are attributed to laboratory contamination. Chloroform, a trihalomethane, can be formed when "free" chloride ions are present and may be an artifact of the onsite organic free water source or the laboratory. Target analytes were detected in some of the trip blanks, and some of the analytical results were qualified as a result. Based on assessment of trip blanks for representativeness, the analytical data were acceptable for each sample delivery group (SDG).

Field Blanks. Target compounds and analytes detected in the field blank samples consisted of the following.

- **Gas chromatograph (GC) and mass spectrometer VOCs**
  2-butanone
  chlorobenzene
  methylene chloride

- **GC VOCs**
  chlorobenzene

- **Inorganics**

arsenic	barium
lead	magnesium

A summary of the results of the analyses of field blanks is provided in Appendix C for VOCs and for inorganics. In addition to the field blank, a rig water blank also was obtained from the drilling rig water storage tank. Target analytes detected in this blank were bromodichloromethene, dibromochloromethene, barium, copper, lead, and zinc (Appendix C). The detected 2-butanone and methylene chloride results are attributed to laboratory contamination. Chlorobenzene and the inorganic analytes can be attributed to the water source or the water treatment system that was used to make the organic free water or they may be laboratory artifacts. Target analytes were detected in some of the source blanks, and some of the analytical results were qualified as a result. Based on assessment of source blanks for representativeness, the analytical data were acceptable for each SDG.

Equipment Rinsate Blanks. Target analytes detected in the equipment rinsate blank samples consisted of the following.

- **GC and mass spectrometer VOCs**
  2-butanone
  acetone
  chlorobenzene
  methylene chloride
  1,2-dibromo-3-chloropropane

- **GC VOC**
  chlorobenzene

- **SVOCs**
  bis(2-ethylhexyl)phthalate
  benzoic acid
  N-nitro sopiperidine

- **Inorganics**

antimony	chromium	magnesium	thallium
arsenic	cobalt	mercury	zinc
barium	copper	nickel	
beryllium	iron	selenium	
cadmium	lead	silver	

A summary of the analyses of equipment rinsate blanks is provided in Appendix C. The detected acetone, 2-butanone, methylene chloride, bis(2-ethylhexyl)phthalate, and di-n-butylphthalate results are attributed to laboratory contamination. Chlorobenzene and the inorganic analytes can be attributed to the water source or the water treatment system that was used to make the organic free water or they may be laboratory artifacts. Target analytes were detected in some of the equipment rinsate blanks, most notably sample MPT-QS-009, and some of the analytical results were qualified as a result.

Based on assessment of equipment rinsate blanks for representativeness, the analytical data for the NAVSTA Mayport background samples were acceptable for each SDG.

Method and Preparation Blanks. Target analytes detected in the laboratory method and preparation blank samples consisted of the following.

- **GC and mass spectrometer VOCs**
  acetone
  methylene chloride

- **SVOC**
  bis(2-ethylhexyl)phthalate

- **Inorganics**

antimony	calcium	magnesium	sodium
arsenic	copper	manganese	thallium
barium	iron	mercury	vanadium
cadmium	lead	selenium	zinc

A summary of the analyses of the method and preparation blanks is provided in Appendix C. GC volatiles, pesticides, and PCB target analytes were not detected in the method blanks. The detectable acetone, methylene chloride, bis(2-ethylhexyl)phthalate, and di-n-butylphthalate results are attributed to laboratory contamination. Chlorobenzene and the inorganic analytes can be attributed to the

water source or the water treatment system that was used to make the organic free water, or they may be laboratory artifacts. Because target analytes were detected in some of the method blanks, some of the analytical results were qualified. Samples for which analytical results were qualified are described in Appendix C. However, based on assessment of method blanks for representativeness, the analytical data were acceptable for each SDG.

Comparability Comparability of the NAVSTA Mayport background data was assured by using standard operating procedure for sample collection, by using standard chemical analytical methods, and by reporting the analytical results in standard units.

Completeness A goal of 95 percent usable data was established in the NAVSTA Mayport RFI workplan (ABB-ES, 1991a). Less than 5 percent of the NAVSTA Mayport background data was qualified.

Based on the evaluation of PARCC criteria for the NAVSTA Mayport background data, they are usable for site characterization, risk assessment, and corrective measures study.

3.4 BIOLOGICAL FIELD INVESTIGATION FINDINGS. The findings of the biological field investigations at NAVSTA Mayport are summarized in the following subsections that describe habitats, ecological receptors, and rare, endangered, and threatened species.

3.4.1 Characterization of Habitats The natural resources at NAVSTA Mayport are influenced by wetlands and water bodies within and adjacent to its boundaries (Plate 5). The Atlantic Ocean forms the station's eastern boundary, and the St. Johns River bounds the study area on the north. Most of the area south of the magazines and dredge material holding areas (adjacent to Sherman Creek) is composed of tidal marsh. The tidal marsh constitutes the least disturbed habitat near the SWMUs at NAVSTA Mayport. Upland systems at NAVSTA Mayport may be generally described as consisting of coastal uplands, developed and ruderal lands, and managed forests.

3.4.1.1 Aquatic Habitat Aquatic habitat at NAVSTA Mayport includes the St. Johns River, the tidally influenced ditches surrounding the Group I SWMUs, and Sherman Creek.

The location and extent of aquatic habitats are shown on Plate 5. They consist of an unlined drainage ditch system that drains surface water from the SWMUs and the eastern and western dredge disposal areas. This ditch system connects with Sherman Creek and its associated tidal marsh, and by way of the Intracoastal Waterway, with the lower St. Johns River. The entire system is influenced tidally, creating a continuous ebb and flow estuarine environment for biota. Within the drainage ditch, tidal fluctuation ranges from minimal at the most northern and southern extremes of the ditch to 4 feet at areas connecting directly to Sherman Creek. Habitat is provided for aquatic invertebrates, fish and plant species that can tolerate the variable influence of tidal action, and surface water runoff.

3.4.1.2 Terrestrial Wildlife Habitat Most of the land at NAVSTA Mayport is managed and altered by man and, therefore, represents disturbed habitats. The

location and extent of habitats characterized at NAVSTA Mayport for the Groups I, II, and III SWMUs are shown on Plate 5. An inventory of plant species identified within the habitats is included in Appendix E. The following paragraphs describe the identified habitat types and their extent within the study areas. Dominant plant species are listed for each habitat.

Mesic Flatwoods. Mesic flatwoods consist of acidic sand overlying hardpan, and are found on relatively flat, moderately to poorly drained terrain. Within the coastal plain, pine flatwoods are generic forests dominated by a canopy of pines with a dense shrub stratum, which in Florida usually comprises saw palmetto (*Serenoa repens*). Mesic flatwoods include the pine flatwoods communities least affected by disturbance from clearing of understory or trails. The canopy is dominated by slash pine (*Pinus elliottii*), with southern red cedar (*Juniperus virginiana*), and cabbage palm (*Sabal palmetto*) comprising a sparse understory. Common shrubs include salt bush (*Baccharis halimifolia*), yaupon (*Ilex vomitoria*), wax myrtle (*Myrica cerifera*), and some saw palmetto. Common herbaceous plants include catbrier (*Smilax bona-nox*), beggars tick (*Bidens alba*), water pennywort (*Hydrocotyle bonariensis*), bushy beardgrass (*Andropogon glomeratus*), love grass (*Eragrostis spectabilis*), switch grass (*Panicum virgatum*), and hairawn muhly (*Muhlenbergia capillaris*).

Disturbed Mesic Flatwoods. Disturbed mesic flatwoods are floristically similar to the mesic flatwoods described above and represent second growth in areas partially or totally cleared of original pine flatwoods vegetation. The successional vegetation consists largely of slash pine (*Pinus elliottii*), red cedar (*Juniperus virginiana*), cherry laurel (*Prunus caroliniana*), hercules club (*Zanthoxylum clava-herculis*), cabbage palm (*Sabal palmetto*), and occasional laurel oak (*Quercus laurifolia*). The dense undergrowth is characterized by salt bush (*Baccharis* sp.), wax myrtle (*Myrica cerifera*), and shrub verbena (*Lantana camara*). Herbaceous plants common to open areas include beggars tick (*Bidens alba*), parietaria (*Parietaria floridana*), ragweed (*Ambrosia artemisifolia*), common sow thistle (*Sonchus oleraceus*), and pokeweed (*Phytolacca americana*). Vines are a dominant form of plant life, and include grape (*Vitis munsoniana*) and Virginia creeper (*Parthenocissus quinquefolia*).

Second Growth Hardwoods. This community type represents second growth, as does disturbed mesic flatwoods, but differs from these disturbed areas floristically. Trees common to these areas include hackberry (*Celtis laevigata*), hercules club (*Zanthoxylum clava-herculis*), and cabbage palm (*Sabal palmetto*). Other common species are salt bush (*Baccharis* sp.), yaupon (*Ilex vomitoria*), elderberry (*Sambucus canadensis*), and wax myrtle (*Myrica cerifera*). Live oak and red cedar are occasionally seen. On bermed areas within this habitat, sand cordgrass (*Spartina bakeri*) dominates.

Prairie Hammock. Prairie hammocks are characterized by clumps of tall cabbage palms (*Sabal palmetto*) and live oaks (*Quercus virginiana*) in the midst of prairie or marsh communities. They rise slightly amid relatively flat terrain. The understory is generally very open, but may be ringed by saw palmettos (*Serenoa repens*). Other plants observed in this type of habitat include the dwarf palmetto (*Sabal minor*) and wax myrtle (*Myrica cerifera*).

Maritime Hammock. Maritime hammocks, or coastal hammocks, occur immediately inland of the coastal strand. They develop on old coastal dunes that are sufficiently stable to allow growth of forest. These hammocks are characterized

as a narrow band of hardwood forest consisting primarily of live oak (*Quercus virginiana*), cabbage palms (*Sabal palmetto*), and red bay (*Persea borbonia*). These plants tend to form dense, wind-pruned canopies. Although maritime hammock once occurred as a continuous band inward of the shoreline (FNAI, 1990), at NAVSTA Mayport these occur as short, dense strips located at St. Johns Point and Seminole Beach. The area known as Seminole Beach is identified on maps presented in USSCS (1978).

Coastal Grassland. This habitat is a treeless, flat or gently undulating terrain with barren sand or sparse to dense ground cover that consists of grasses, prostrate vines, and herbaceous species that are able to withstand harsh maritime conditions. More established sites may include scattered shrubs. This area may be periodically flooded by saltwater, and storms may deposit sand and debris. At NAVSTA Mayport, this habitat is low, making it prone to relatively frequent overwash. Common plants in this habitat include muhly grass (*Muhlenbergia* sp.), bluestem grasses (*Andropogon* sp.), beach cordgrass (*Spartina* sp.), dune panic grass (*Panicum amarulum*), glasswort (*Salicornia* sp.), sand spurs (*Cenchrus* sp.), pennywort (*Hydrocotyle* sp.), ground cherry (*Physalis walteri*), crowfoot grass (*Dactyloctenium aegyptium*), dropseed (*Sporobolus sp*), prickly pear cactus (*Opuntia stricta*), love grass (*Eragrostis spectabilis*), and wax myrtle (*Myrica cerifera*) (FNAI, 1990).

Wet Flatwoods. These low flatwoods are characterized by the presence of scattered pine trees or cabbage palms and relatively open canopy. Sparse ground cover, or a sparse understory and dense ground cover of hydrophytic herbs and shrubs, are found. They occur on relatively flat, poorly drained sandy soil, generally overlying hardpan or clay layers. Water often stands on the surface during the rainy seasons. Common plants in this habitat include pond pine (*Pinus serotina*), slash pine (*Pinus ellioitti*), sweetbay (*Magnolia virginiana*), saw palmetto (*Serenoa repens*), creeping beggarweed (*Desmodium* sp.), greenbrier (*Smilax* sp.), and bluestem (*Andropogon* sp.) (FNAI, 1990).

Overgrown Field. This disturbed area, cleared of original vegetation, has been revegetated by diverse herbaceous plants, some shrubs, and small trees. Herbs include blanket flower (*Gaillardia pulchella*), finger grass (*Eustachys glauca*), beggars tick (*Bidens alba*), camphorweed (*Heterotheca subaxilaris*), hairawn muhly (*Muhlenbergia capillaris*), broomsedge (*Andropogon glomeratus*), ragweed, dayflower (*Commelina diffusa*), sida (*Sida rhombifolia*), ground cherry (*Physalis walteri*), smutgrass (*Sporobolus indicus*), dewberry (*Rubus trivialis*), bahia grass (*Paspalum notatum*), common sow thistle, purple thistle (*Cirsium horridulum*), love grass, prickly pear cactus (*Opuntia stricta*), cranesbill (*Geranium carolinianum*), and spurge (*Chamaesyce* sp.). Cabbage palm, wax myrtle, and salt bush are the common shrubs or small trees.

Maintained Field. Maintained field describes the land at NAVSTA Mayport maintained as lawn by frequent mowing, such as that around buildings, structures, runways, ballfields, and recreational areas. Common plants include bermuda grass (*Cynodon dactylon*), black medic (*Medicago jupulina*), carpet grass (*Axonopus affinis*), bahia grass (*Paspalum notatum*), chickweed (*Stellaria media*), pink purslane (*Portulaca pilosa*), and water pennywort (*Hydrocotyle bonariensis*).

Estuarine and Estuarine Unconsolidated Substrate Communities. The estuarine and estuarine unconsolidated substrate communities at NAVSTA Mayport occur along the St. Johns River to the north and adjacent to the facility, and along the Atlantic Ocean shoreline (Plate 5).

Coastal Berm Community. The coastal berm community borders the north edge of the site near SWMUs 6 and 7. It has been altered by riprap placement (Plate 5).

3.4.2 Identification of Ecological Receptors Ecological receptors include aquatic life (plants, invertebrates, mammals, fish, amphibians, and reptiles) and terrestrial wildlife (mammals, birds, and reptiles). Each receptor group is discussed in the following subsections.

3.4.2.1 **Aquatic Life** Aquatic receptors are discussed according the aquatic habitats present at NAVSTA Mayport.

Drainage Ditch System around Group I SWMUs and Sherman Creek. The 1992 biological field investigation focused on characterizing the aquatic habitat and receptors in the ditches surrounding the Group I SWMUs. These ditches drain the areas of the SWMUs and also drain the eastern and western dredge disposal areas (Plate 5). The ditches are connected to Sherman Creek and its associated tidal marsh. Aquatic invertebrate, fish, and plant species identified within the ditches are listed in Appendix E. The biological field investigations did not include assessing the aquatic habitat of Lake Wonderwood.

St. Johns River. The St. Johns River provides habitat for numerous aquatic species. Appendix E lists 160 species of aquatic invertebrates, fish, amphibians, reptiles, and mammals that are likely to inhabit, be transient in, or seasonally migrate through the water of the lower St. Johns River in the vicinity of NAVSTA Mayport. Some food fishes found in this area include silver perch (*Bairdiella chrysura*), spotted seatrout (*Cyinoscion nebulosus*), weakfish (*Cynoscion regalis*), Spanish mackerel (*Scomberomorus maculatus*), striped mullet (*Mugil cephalus*), Gulf flounder (*Paralichthys albigutta*), and others. Some economically important invertebrate species found here include pink shrimp (*Penaeus duorarum*), brown shrimp (*Penaeus aztecus*), blue crab (*Calinectes sapidus*), and stone crab (*Menippe mercenaria*). Protected turtles observed transiting the lower part of the river and the Atlantic Ocean include ridley turtle (*Lepidochelys kempii*), leatherback turtle (*Cermochelys coriacea*), and the Atlantic loggerhead turtle (*Caretta caretta*) (NAVSTA, 1994). Mammals that are transient within these waters are the common dolphin (*Delphinus delphis*), the protected right whale (*Eubalaena glacialis*), and West Indian manatee (*Trichechus manatus*).

Only those fishery resources adapted to the mixture of freshwater and saltwater (estuarine) or those that are known to seasonally migrate through estuaries were included in the list of potential receptors in the St. Johns River.

3.4.2.2 **Terrestrial Wildlife Species** Terrestrial wildlife species that use or could potentially use the habitats located on and near the SWMUs were identified based on observations made during the biological field investigations (ABB-ES, 1992a; ABB-ES, 1994a), other reports (ESE, 1986), and the reported distribution of species within the identified habitat types. An inventory of animal species expected or observed in the habitats at NAVSTA Mayport is presented in Appendix E.

Wildlife species that inhabit most upland areas at NAVSTA Mayport are those that are generally associated with urban areas and are tolerant of human disturbance. The biological field survey completed for the Group II SWMUs in 1993 identified 37 vertebrate species, including some transient or migratory species. Field surveys of habitats among Group III SWMUs in 1994 led to identification of additional species that may occur at NAVSTA Mayport.

Estuarine and Estuarine Unconsolidated Substrate Communities A variety of seabirds, waterfowl, and shorebirds could be expected at various times of the year. The brown pelican (*Pelecanus occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), sanderling (*Calidris alba*), common tern (*Sterna hirundo*), ruddy turnstone (*Arenaria interpres*), killdeer (*Charadrius vociferus*), and laughing and ring-billed gulls (*Larus atricilla* and *Larus delawarensis*) were observed during the field survey. A single osprey (*Pandion haliaetus*) was observed over the St. Johns River. A dead common loon (*Gavia immer*) and a gannet (*Morus bassanus*) were observed washed up on the beach. Other species that may be expected to use this habitat are listed in Appendix E.

Mesic Flatwoods. This community is one of the few forested habitats at NAVSTA Mayport. The cardinal (*Cardinalis cardinalis*), tufted titmouse (*Parus biocolor*), common crow (*Corvus brachyrhynchos*), blue jay (*Cyanocitta cristata*), gray catbird (*Dumetella carolinensis*), mockingbird (*Mimus polygolttos*), and mourning dove (*Zenaida macroura*) were common bird species observed during the biological field investigation. A single great-horned owl (*Bubo virginianus*) was continually sighted in the mesic flatwoods adjacent to SWMU 15. Although no nest was found, it is possible that the owls nest onsite. A green anole (*Anolis carolinensis carolinensis*) was the only reptile observed.

Disturbed Mesic Flatwoods. Common bird species observed in this community include the cardinal, mockingbird, crow, yellow-rumped warbler (*Dendroica coronata*), gray catbird, rufous-sided towhee (*Pipilo erythrophthalmus*), and mourning dove. A feral cat was also observed.

Prairie Hammock. Animals common to prairie hammocks include the box turtle (*Terrapene carolina*), southeastern five-lined skink (*Eumeces inexpectatus*), and several species of shrews and rodents (FNAI, 1990).

Maritime Hammock. Animals typically inhabiting maritime hammocks include the squirrel treefrog (*Hyla squirella*), ring-necked snake (*Diadophis punctatus*), rat snake (*Elaphe obsoleta*), and the gray squirrel (*Sciurus carolinensis*) (FNAI, 1990).

Coastal Grassland. Common animals seen in this habitat include ghost crabs (*Ocypode quadrata*), red-winged blackbirds (*Agelaius phoeniceus*), and savannah sparrows (*Passerculus sandwichensis*) (FNAI, 1990). Some shorebirds that may transit or nest in this community include sandpipers (*Calidris* sp.), plovers (*Charadrius* sp.), American oystercatcher (*Haemotopus palliatus*), various gull species (*Larus* sp.), and terns (*Sterna* sp.).

Wet Flatwoods. Typical animals in this habitat include the oak toad (*Bufo quercicus*), cricket frog (*Tantilla* sp.), chorus frog (*Pseudacris* sp.), yellow rat snake (*Elaphe obsoleta*), eastern diamondback rattlesnake (*Crotalus adamanteus*), pygmy rattlesnake (*Systrurus miliarius*), red-shouldered hawk (*Buteo lineatus*), northern bobwhite (*Colinus virginianus*), opossum (*Didelphis virginiana*),

cottontail rabbit (*Sylvilagus floridanus*), cotton rat (*Sigmondon hispidus*), cotton mouse (*Peromuscus gossypinus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), bobcat (*Lynx rufus*), and white-tailed deer (*Odocoileus virginianus*) (FNAI, 1990).

Overgrown Field. The overgrown field communities are small, but bird species observed include starling (*Sturnus magna*), meadowlark (*Sturnus vulgaris*), field sparrow (*Spizella pusilla*), loggerhead shrike (*Lanius ludovicianus*), mockingbird, killdeer, and ground dove (*Columbina passerina*).

Maintained Field. The remainder of the study area is dominated by maintained field primarily surrounding buildings and runways. Cattle egret (*Bubulcus ibis*), killdeer, white ibis (*Eudocimus albus*), and both boat-tailed and common grackles (*Quiscalus major* and *Quiscalus quiscula*) were observed feeding in this habitat type.

Containment Ponds. The storage or containment ponds (e.g., SWMU 7) on the northern part of the facility provide little habitat to onsite wildlife. A killdeer, yellow-rumped warbler, and mockingbird were observed near the ponds, but it is unlikely that these species are dependent on this community type.

Larger containment ponds (e.g., dredge material holding areas, SWMU 50) and salt marshes on the southern part of the facility attract numerous wading birds and waterfowl. These birds may periodically migrate to habitats on or near the SWMUs. Turkey vultures and black vultures (*Cathartes aura* and *Coragypus atratus*) were also observed flying over these areas.

3.4.3 Characterization and Delineation of Wetlands Wetland habitat types identified within the study area include wetland ditch, freshwater marsh, and tidal marsh categories.

Ditch Habitat. A series of drainage ditches is located throughout the study area, and those located along the northern and eastern perimeter of the study area are tidally influenced (Plate 5). The patrol road drainage ditch is located along the northern perimeter of the study areas and connects Chicopit Bay with Sherman Creek to the east. The wetland delineation series A to A', B to B', and C to C' demarcate the delineated part of this ditch (Plate 5). The canal varies from 5 to 10 meters in width with characteristic wetland vegetation including cattail (*Typha domingensis*), smooth cordgrass (*Spartina alterniflora*), and bulrush (*Scirpus californicus*). Groundsel tree (*Baccharis halimifolia*), myrtle (*Myrica cerifera*), willow (*Salix* sp.), and cabbage palm (*Sabal palmetto*) occur in the upland area above the ditch.

Two tidally influenced ditches are located along both sides of the eastern access road to the weapons bunkers. These ditches were flagged with the wetland series D to D', E to E', and F to F' (Plate 5). Groundsel trees transition to a marsh elder (*Iva frutescens*) dominated shrub thicket along both ditches, with smooth cordgrass occurring along the ditch banks. The inner ditch continues around the southern slope of the Eastern Dredge Spoil Area (SWMU 50) and then along its western slope to the north of A'.

A nontidally influenced wetland drainage ditch is also located between G and G' immediately west of the western access road to the weapons storage buildings, and

connects with the large drainage ditch running along the Patrol Road in the vicinity of SWMU-4.

Freshwater Marsh Habitat. A freshwater marsh habitat dominated by marsh elder is located northwest of SWMU-5 and extends nearly to the Patrol Road to the north (Area H, Plate 5). The central part of the southern perimeter of this wetland grades abruptly into a small cabbage palm hammock (area I on Plate 5) located adjacent to the access road leading from SWMU-2.

A similar freshwater marsh habitat (Plate 5) is located directly south of this access road. These two wetland areas are classified as a palustrine scrub-shrub wetland type under the Cowardin (1992) system. Upland areas associated with these wetland areas intergrade into mesic flatwood habitat dominated by slash pine (*Pinus elliottii*), laurel oak (*Quercus laurifolia*), red cedar (*Juniperus silicicola*), and saw palmetto (*Serenoa repens*). Catbrier (*Smilax bona-nox*), beardgrass (*Andropogon glomeratus*), and switch grass (*Panicum virgatum*) predominate in the relatively sparse undergrowth layer.

A more extensive freshwater marsh is located on the northeast side of the Eastern Dredge Material Handling Area (K, Plate 5). This wetland is predominately vegetated with marsh elder that grows in a single homogeneous stand of several acres in extent. This wetland intergrades with mesic flatwoods along its western and southern borders. Soil characteristics throughout are a white sand or grayish sandy loam that often contains shell fragments.

A narrow transitional wetland marsh is developing along the toe of the berm slope on the northeast side of the Eastern Dredge Disposal Area (L, Plate 5). Along parts of the berm where hydrological conditions are favorable, scattered clumps of cattails are evident.

Tidal Marsh Habitat. The tidal marsh habitat is located along the entire eastern perimeter of the study area from the Patrol Road, opposite the Golf Course, to the area south of the weapons storage bunkers and the southern perimeter of the Western Dredge Material Handling Area (SWMU 50, M to M', Plate 5). The tidal marsh habitat is associated with Sherman Creek, which is tidally influenced, and is dominated by dense, uniform stands of black rush (*Juncus romerianus*) and in more regularly inundated areas, smooth cordgrass. In addition, perennial glasswort (*Salicornia virginica*), seashore dropseed (*Sporobolus virginicus*), sea oxeye (*Borrichia frutescens*), and marsh elder are commonly found throughout. Transitional shrub species along this wetland boundary include groundsel tree, willow, elderberry (*Sambucus canadensis*), and winged sumac (*Rhus copallina*). This vegetation abuts the mown grass area surrounding the individual weapons bunkers. The wetland substrate is classified as a Tisonia series dark brown mucky peat (USSCS, 1978), and represents the only native hydric soil associated with the study area.

3.4.4 Occurrence of Rare, Endangered, and Threatened Species The potential for rare, endangered, or threatened plant or animal species to inhabit or migrate through habitats identified at NAVSTA Mayport was identified based on the results of the biological field investigations. These studies were updated and supplemented by ABB-ES in 1994. Official lists of endangered fauna and flora in Florida (Wood, 1994a) identified the protected species, and the Florida Natural Areas Inventory (FNAI, 1990) provided a summary of sensitive species in Duval County. The following subsections describe the protected species identified as

present or possibly occurring at NAVSTA Mayport. A summary of these species is presented in Table 3-35. Appendix E provides specific life history information for each of the species considered for inclusion.

3.4.4.1 **Plants** Two protected plants were observed at NAVSTA Mayport: the dwarf palmetto, *Sabal minor*, and the prickly pear cactus, *Opuntia stricta*. Additional species of protected plants that occur in Duval County are discussed in Appendix E.

Dwarf Palmetto. The dwarf palmetto (*Sabal minor*) was observed by an ABB-ES biologist during the November 1994 survey of Group III SWMUs. It was found in the residential area near Lake Wonderwood, southeast of SWMU 5 and SWMU 17, where it inhabits moist hammocks and flatwoods. This species is considered threatened by the Florida Game and Fresh Water Fish Commission (FGFWFC) (Wood, 1994a).

Prickly Pear Cactus. The prickly pear cactus (*Opuntia stricta*) was observed in November 1994 near SWMU 1 and SWMU 14 among groundcover of coastal grasslands and in February 1993 on coastal berm, overgrown fields, and containment ponds near SWMU 6, SWMU 7, and SWMU 11. FGFWFC lists this plant as threatened (Wood, 1994a).

3.4.4.2 **Fish** Two protected fish species were identified as potentially inhabiting the St. John River adjacent to NAVSTA Mayport (Wood, 1994a; FNAI, 1990). These species are the shortnose sturgeon (*Acipenser brevirostrum*) and the Atlantic sturgeon (*Acipenser oxyrhynchus*). Additional protected fish species that occur in Duval County but are not expected to occur at NAVSTA Mayport are discussed in Appendix E.

Shortnose sturgeon. The shortnose sturgeon (*Acipenser brevirostrum*) is classified as endangered by both the U.S. Fish and Wildlife Service (USFWS) and the Florida Game and Fresh Water Fish Commission (FGFWFC) (Wood, 1994a). This primitive fish species has been reported to occur in Duval County (FNAI, 1990). The St. Johns River estuary is typical shortnose sturgeon habitat, providing access to blackwater streams for spawning and deepwater saline environments for overwintering.

Atlantic Sturgeon. The Atlantic sturgeon (*Acipenser oxyrhynchus*) is classified as a species of special concern by the FGFWFC, although the USFWS provides protected status only for the Gulf of Mexico subspecies, *A. oxyrhunchus desotio*, (Wood, 1994a). The Atlantic sturgeon has been reported to occur in Duval County (FNAI, 1990).

3.4.4.3 **Amphibians** One species of amphibian, the Florida Gopher Frog (*Rana capito [=areolata]*) designated as species of special concern (Wood, 1994a), is identified as possibly occurring in the vicinity of NAVSTA Mayport. Descriptions of other protected amphibian species in Duval County but not expected at NAVSTA Mayport are provided in Appendix E.

The Florida gopher frog (*R. capito [=areolata]*) is designated a species of special concern by the FGFWFC and a review candidate by USFWS (Wood, 1994a). This frog has been reported from Duval County (FNAI, 1990), and Mohler (1992) confirms its presence in the vicinity of NAVSTA Mayport. Suitable habitat for gopher frogs includes pine flatwoods, xeric hammocks, and ruderal successional stages of these communities (Mohler, 1992). It is likely that this species is present in the mesic flatwoods and disturbed mesic flatwoods near the SWMUs at NAVSTA Mayport.

Table 3-35
Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of Naval Station Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Shortnose sturgeon (*Acipenser brevirostrum*)	E	E		Reported from Duval County (FNAI, 1990). The St. Johns River estuary is typical habitat for this species.
Atlantic sturgeon (*Acipenser oxyrhynchus*)	SSC			The USFWS provides protected status only for the Gulf of Mexico subspecies, *A. oxyrhynchus desotio*) (Wood, 1994a). The Atlantic sturgeon has been reported from Duval County (FNAI, 1990) and possibly uses the St. Johns River estuary.
Florida gopher frog (*Rana capito*)	SSC	C2		Reported resident of Duval County (FNAI, 1990). Possible resident at NAVSTA Mayport in the vicinity of SWMUs 2, 3, 4, 5, 6, 14, 15, 17, and 45.
American alligator (*Alligator mississippiensis*)	SSC	T(S/A)		Confirmed resident of Duval County (FNAI, 1990) and NAVSTA Mayport. Observed at Lake Wonderwood, tidal marsh, and Intracoastal Waterway near the facility (Conley, 1995).
Eastern indigo snake (*Drymarchon corais couperi*)	T	T		Reported resident of Duval County (FNAI, 1990). May be found in high sandy pine, pine flatwoods, and wet prairies (Mohler, 1992). May occur in association with SWMUs 2, 15, or 45.
Loggerhead turtle (*Caretta caretta*)	T	T		Confirmed resident at Mayport NAVSTA (Conley, 1995). Nesting sites observed and protected on Seminole Beach at and near Katheryn Abbey Hanna Park.
Leatherback turtle (*Dermochelys coriacea*)	E	E		Probable transient offshore of NAVSTA Mayport (Conley, 1995) along Atlantic shoreline. No nests have been reported.
Atlantic ridley turtle (*Lepidochelys kempii*)	E	E		May transit offshore of NAVSTA Mayport (Conley, 1995) along Atlantic shoreline. No nests have been reported.

See notes at end of table.

Table 3-35 (Continued)
Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of Naval Station Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Gopher tortoise (*Gopherus polyphemus*)	SSC	C2		Confirmed resident at NAVSTA Mayport near lighthouse, in association with flatwoods near SWMU 15 (Conley, 1995).
Piping plover (*Charadrius melodus*)	T	T		Confirmed migrant in Duval County (FNAI, 1990). Probable migrant in vicinity of SWMUs 1, 12, and 14.
Worthington's marsh wren (*Cistothorus palustris griseus*)	SSC			Confirmed resident of Duval County (FNAI, 1990). Known to nest in saltmarshes near NAVSTA Mayport. Probable resident near SWMUs 5 and 50.
Little blue heron (*Egretta caerulea*)	SSC			Confirmed resident of Duval County (FNAI, 1990). Observed transient feeder in the vicinity of SWMUs 2, 3, 4, and 5. Probable transient near SWMUs 1, 6, 7, and 50.
Snowy egret (*Egretta thula*)	SSC			Confirmed resident of Duval County (FNAI, 1990). Observed transient feeder in the vicinity of SWMUs 2, 3, 4, and 5. Probable transient near SWMUs 1, 6, 7, and 50.
Tricolored heron (*Egretta tricolor*)	SSC			Confirmed resident of Duval County (FNAI, 1990). Confirmed transient feeder in the vicinity of SWMUs 2, 3, 4, and 5. Probable transient near SWMUs 1, 6, 7, and 50.
White ibis (*Eudocomus albus*)	SSC			Observed on the golf course at NAVSTA Mayport (by ABB-ES ecologists). Probable feeder in overgrown fields, maintained fields, and lawns scattered throughout the facility.
Wood stork (*Mycteria americana*)	E	E		Confirmed migrant; observed feeding in perimeter ditches near SWMUs 2, 3, 4, 5, 22, 26, and 50.

See notes at end of table

Table 3-35 (Continued)
Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of Naval Station Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Southeastern kestrel (*Falco sparverius paulus*)	T	C2		Probable migrant. No nests have been reported (Conley, 1995). Kestrels were seen near SWMUs 4 and 5, but subspecies was not determined.
American oystercatcher (*Haematopus palliatus*)	SSC			Reported in Duval County (FNAI, 1990). No nests observed, nor likely to occur on disturbed beach. May transiently feed near SWMU 14.
Arctic peregrine falcon (*Falco peregrinus tundrius*)	E	T		Confirmed migrant; no nests have been reported (Conley, 1995).
Bald eagle (*Haliaeetus leucocephalus*)	T	E		Confirmed migrant.
Osprey (*Pandion haliaetus*)	SSC			Observed transient at St. Johns River; nesting stations maintained at NAVSTA Mayport (Conley, 1995).
Brown pelican (*Pelecanus occidentalis*)	SSC			Observed transient at St. Johns River.
Black skimmer (*Rynchops niger*)	SSC			Reported migrant in Duval County (FNAI, 1990). Probable transient in intertidal zone near SWMU 14.
Least tern (*Sterna antillarum*)	T			Probable transient in intertidal zone near SWMU 14. Nests observed at SWMU 50 western dredge material handling area on hard, rocky soil (Conley, 1995).
West Indian manatee (*Trichechus manatus*)	E	E		Confirmed migrant in Duval County (FNAI, 1990) and in the St. Johns River estuary adjacent to SWMUs 12 and 14 (Conley, 1995).
Right whale (*Eubalaena glacialis*)	E	E		Confirmed Atlantic coast migrant. Anecdotal information of occasional foraging in estuarine portion of the St. Johns River adjacent to SWMUs 12 and 14 (Valade, 1993).

See notes at end of table

Table 3-35 (Continued)
Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of Naval Station Mayport

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Dwarf palmetto (*Sabal minor*)			T	Observed in the residential area near Lake Wonderwood, southeast of SWMUs 5 and 17 during 1994 survey by ABB-ES ecologists.
Prickly pear cactus (*Opuntia stricta*)			T	Observed in coastal grasslands inward of the sandy beach, Seminole Beach, by ABB-ES ecologists during 1994 survey, and on coastal berm, overgrown fields, and around containment ponds near SWMUs 6, 7, and 11.

[1] Florida Game and Fresh Water Fish Commission (list published in Sections 39-27.003-005, Florida Administrative Code) (Wood, 1994a).
[2] U.S. Fish and Wildlife Service (list published in List of Endangered and Threatened Wildlife and Plants, 50 CFR 17.11-12) (Wood, 1994a).
[3] Florida Department of Agriculture and Consumer Services (list is statutorily designated by the Preservation of Native Flora of Florida Act (581.185-187, Florida Statutes) (Wood, 1994a).

Notes: FGFWFC = Florida Game and Freshwater Fish Commission.
USFWS = U.S. Fish and Wildlife Service.
FDA = Florida Department of Agriculture.
E = endangered.
FNAI = Florida Natural Areas Inventory.
SSC = species of special concern.
C2 = a candidate for Federal listing with some evidence of vulnerability, but for which not enough information exists to justify listing.
NAVSTA = Naval Station.
SWMU = solid waste management unit.
T(S/A) = threatened due to similarity of appearance.
T = threatened.
ABB-ES = ABB Environmental Services, Inc.

3.4.4.4 **Reptiles** Table 3-28 summarizes the protected reptile species expected to occur at NAVSTA Mayport. Nine protected reptile species were identified whose ranges overlap NAVSTA Mayport (Wood, 1994a; FNAI, 1990). Six of the species were identified as potentially occurring within the Groups I, II, or III SWMUs at NAVSTA Mayport. These species include the American alligator (*Alligator mississippiensis*), the Atlantic loggerhead (*Caretta caretta*), the eastern indigo snake (*Drymarchon corais couperi*), the leatherback turtle (*Dermochelys coriacea*), the Atlantic ridley turtle (*Lepidochelys kempii*), and the gopher tortoise (*Gopherus polyphemus*).

American Alligator. The American alligator (*Alligator mississippiensis*) is a confirmed resident of Duval County (FNAI, 1990). It is listed by USFWS as threatened, due to its similarity in appearance to the endangered American crocodile (*Crocodylus acutus*). The FGFWFC lists the alligator as a species of special concern (Wood, 1994a). Alligators were not observed in any of the aquatic habitats during the biological field investigations. Alligator tracks or nest sites were also not found within or near the SWMUs. The alligator may be a transient visitor to freshwater ponds on NAVSTA Mayport, but it will not inhabit the estuarine environment provided by the ditches surrounding the Group I SWMUs or the St. Johns River.

Atlantic Loggerhead. The Atlantic loggerhead (*Caretta caretta*), is listed as threatened by both State (FGFWFC) and Federal (USFWS) agencies (Wood, 1994a). The Atlantic loggerhead has been sighted in Duval County (FNAI, 1990), and will nest as far north as the Carolinas. The primary nesting beaches, however, occur on Florida's east coast from Brevard to Broward Counties (Mohler, 1992). The USFWS considers Little Talbot Island to the north of NAVSTA Mayport, and Manhattan Beach to the south, as nesting territory for the Atlantic loggerhead (Figures 3-20 and 3-21). Kenneth Conley, Natural Resources Officer, NAVSTA Mayport (Conley, 1995), confirms nesting of this species on beaches at NAVSTA Mayport, along with an active program of collecting eggs for protected hatching and later release.

Leatherback Turtle. The leatherback turtle (*Dermochelys coriacea*) is classified as endangered by both USFWS and the FGFWFC (Wood, 1994a). This large sea turtle nests in beach dunes and coastal grasslands, and in various marine and estuarine habitats. It has been reported in Duval County (FNAI, 1990), and the Natural Resources Office, NAVSTA Mayport (Conley, 1995), confirms its presence as a transient in waters of the lower St. Johns River near the SWMUs. Nesting activity has not been observed at NAVSTA Mayport nor is it expected.

Atlantic Ridley Turtle. The Atlantic ridley turtle (*Lepidochelys kempii*) is classified as endangered by the USFWS and FGFWFC (Wood, 1994a). FNAI (1994) reports nonconfirmed sightings of non-nesting turtles in Duval County, and the Natural Resources Office, NAVSTA Mayport (Conely, 1995), confirms its presence as a transient in waters of the lower St. Johns River near the SWMUs. Nesting activity has not been observed at NAVSTA Mayport nor is it likely.

Gopher Tortoise. The gopher tortoise (*Gopherus polyphemus*) is listed as a candidate for protection by USFWS and a species of special concern by FGFWFC (Wood, 1992). Gopher tortoises occur throughout Florida and may be found in high sandy pine habitats and pine flatwoods. Gopher tortoise burrows are used by commensal species such as the Eastern indigo snake and Florida pine snake. Although gopher tortoise burrows were not found in association with Group II SWMUs

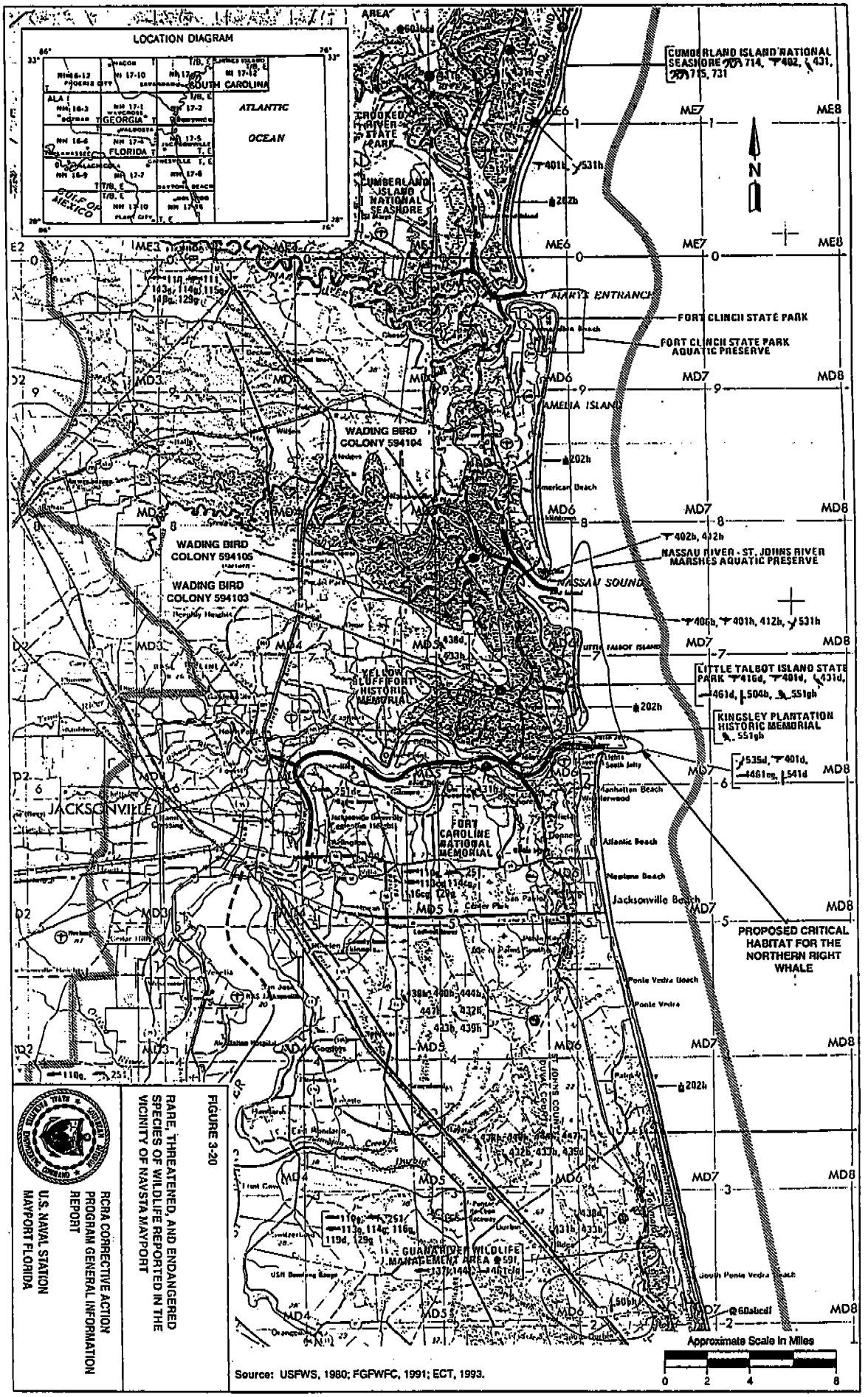

FIGURE 3-20

RARE, THREATENED, AND ENDANGERED SPECIES OF WILDLIFE REPORTED IN THE VICINITY OF NAVSTA MAYPORT

RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION
MAYPORT FLORIDA

NOTES

SPECIES WITH SPECIAL STATUS

Species with special status that can be found throughout the coastal zone depicted on the Jacksonville sheet include:

110, 701, 702, 703, 704, 705, 251a, 257, 415b, 443b, 505g, 508b, 507eg, 511b, 535, 552b, 602, 603, 608, 618, 712, 738.

Atlantic sturgeon (111) is threatened in Florida.

The mapped extent of the Florida manatee (251) reflects its State of Florida recognized critical habitat.

The following plant species with special status can be found in Camden County, Georgia:

302, 305.

AQUATIC ORGANISMS

Due to scale limitations, only representative estuarine and riverine systems are shown.

Species that can be found from the shoreline to the three-mile limit on the Jacksonville sheet include:

110p, 111g, 201, 202, 203, 204, 205, 251, 59ac, 71ac, 72c, 78ac, 1124, 113g, 114g, 116g, 117cd, 120l, 127dl, 128g, 130cd, 135cdl, 137acdl, 138acdl, 139cdl, 140cdl, 141cdl, 142rcdl, 143acdl, 144acdl, 145acdl, 146acdl, 147acdl, 148acdl, 158cdl, 159cdl, 160cdl, 161cdl, 162cdl, 163cdl, 178, 187acdl, 188, 189, 191l, 192l, 193l, 194l, 195l, 1991, 252, 253, 254, 255, 257, 258.

Generally includes the following species:

201, 202, 204, 205, 251, 59abcdl, 71bcdl, 72bcl, 78bcl, 1124, 117bcd, 120dl, 127dcl, 130bl, 135, 137abcdl, 138abcdl, 139bcdl, 140bcdl, 141bcdl, 142bcdl, 143bcdl, 144bcdl, 145bcdl, 146abcdl, 147bcdl, 148bcdl, 158abdl, 159cdl, 160abcdl, 162l, 163abcdl, 179bl, 187bcdl, 188bl, 190bl, 191bl, 193bl, 194l, 195l, 1998l, 252.

Generally includes the following species:

59bcdl, 71bcl, 72bcl, 78bcl, 1124, 117b, 120bl, 127bd, 136l, 137bcdl, 138bcdl, 139bcdl, 140bcdl, 141bcdl, 142bcdl, 143bcdl, 144bcdl, 145l, 148l, 158bl, 160b, 163abcdl, 187l, 188bl, 190bl, 193bl, 195b.

Generally includes the following species:

59bcdl, 71b, 72b, 78b, 1104abcdl, 108abdl, 112cdl, 120bl, 122abcdl, 123abcdl, 124abcdl, 125abcdl, 131abdl, 132abdl, 133abdl, 134abdl, 135abdl, 138l, 139b, 139b, 140b, 144b, 148b, 155abdl, 158b, 163bcdl, 165abdl, 187b, 188bl, 193bl.

Generally includes the following species:

104abcdl, 105abdl, 112d, 122abcdl, 123abcdl, 124abcdl, 125abcdl, 131abdl, 132abdl, 133abdl, 134abdl, 135abdl, 155abdl, 165abdl.

Species of importance in a particular river, creek or sound are denoted on the map.

TERRESTRIAL ORGANISMS

Species that can be found throughout the coastal zone depicted on the Jacksonville sheet include:

316l, 454a, 465a, 705c, 706c, 707c, 708c, 709l, 710c, 711c, 712.

The Atlantic coast of Florida serves as a migratory route and overwintering area for a wide variety of shorebirds, wading birds, waterfowl, seabirds, and songbirds (401, 431, 461, 531, 551).

HABITAT USE

Shown in BLUE for species with special status, PLUS for aquatic organisms and BROWN for terrestrial organisms

a	Spawning ground	f	Spot fishing/hunting area
b	Nursery	g	Migratory area
c	Commercial harvesting area	h	Nesting area
d	Adult concentration	i	Unusual distribution or specimen
e	Overwintering area		

AQUATIC ORGANISMS

Shown in BLUE; species with special status shown in RED(HT) or (S) indicates species protected by Federal or State Legislation (see text)

SYMBOL — SPECIES

PLANTS (1-50)
- 1 Fresh water
- 2 Redweed

INVERTEBRATES (51-100)
- 51 Crabs
- 52 Mussels
- 53 Oysters
- 54 Scallops
- 55 Clams
- 56 Worms
- 57 Shrimp
- 58 American lobster
- 59 Blue crab
- 60 Eastern oyster
- 61 European oyster
- 62 Bay scallop
- 63 Deep-sea scallop
- 64 Calico scallop
- 65 Surf clam
- 66 Hard clam
- 67 Soft shell clam
- 68 Rockinthemeter clam
- 69 Bloodworm
- 70 Sandworm
- 71 White shrimp
- 72 Brown shrimp
- 73 Northern shrimp
- 74 Rock crab
- 75 Irish cockle
- 76 Whelk
- 77 Ocean quahog
- 78 Pink shrimp
- 79 Stone crab
- 80 Spiny lobster

FISH (101-200)
- 101 Sharks, skates, rays
- 102 Herring
- 103 Salmon and trout
- 104 Catfish
- 105 Cod
- 106 Sunfish and bass
- 107 Perch
- 108 Tilefish
- 109 Longnose gar
- 110 Shortnose sturgeon (E)
- 111 Atlantic sturgeon (S)
- 112 American eel
- 113 Blueback herring
- 114 Hickory shad
- 115 Alewife
- 116 American shad (S)
- 117 Atlantic menhaden
- 118 Atlantic herring
- 119 Gizzard shad
- 120 Tarpon
- 121 Atlantic salmon
- 122 White catfish
- 123 Channel catfish
- 124 Yellow bullhead
- 125 Brown bullhead
- 126 Flat bullhead
- 127 Sea catfish
- 128 White perch
- 129 Striped bass
- 130 Black sea bass
- 131 Northern searobin
- 132 Weakfish
- 133 Spanish
- 134 Longnosed bass
- 135 Black crappie
- 136 Sheepshead
- 137 Spotted seatrout
- 138 Whitefish
- 139 Spot
- 140 Atlantic croaker
- 141 Southern kingfish
- 142 Northern kingfish
- 143 Gulf kingfish
- 144 Red drum
- 145 Star drum
- 146 Black drum
- 147 Summer flounder
- 148 Southern flounder
- 149 Winter flounder
- 150 Rainbow smelt
- 151 Atlantic tomcod
- 152 Threadfin shad
- 153 Carp
- 154 Atlantic mackerel
- 155 Chain pickerel
- 156 White bass
- 157 Northern pike
- 158 Silver perch
- 159 Florida pompano
- 160 Bluefish
- 161 Spanish mackerel
- 162 Cobia
- 163 Mullet
- 164 White crappie
- 165 Redear sunfish
- 166 Smallmouth bass
- 167 Yellow perch
- 168 Pumpkinseed
- 169 Atlantic halibut
- 170 Atlantic cod
- 171 Pollock
- 172 Haddock
- 173 Hake
- 174 Bluefin tuna
- 175 Wallleye
- 176 Northern pike
- 177 Scup
- 178 Tautog
- 179 Atlantic spadefish
- 180 Bay anchovy
- 181 Hellbender
- 182 Little tunny
- 183 Atlantic tomato
- 184 Brown trout
- 185 Cunner
- 186 Yellowtail flounder
- 187 Gulf flounder
- 188 Pinfish
- 189 King mackerel
- 190 Pigfish
- 191 White grunt
- 192 Tripletail
- 193 Ladyfish
- 194 Scamp
- 195 Jack
- 196 Snapper
- 197 Grunner
- 198 Sailfish
- 199 Great barracuda
- 200 Maryland darter (T)

REPTILES AND AMPHIBIANS (201-250)
- 201 Green sea turtle (T)
- 202 Loggerhead sea turtle (T)
- 203 Hawksbill turtle (T)
- 204 Atlantic ridley turtle (T)
- 205 Leatherback turtle (T)

MAMMALS (251-300)
- 251 Florida manatee (T)
- 252 Atlantic bottlenose dolphin
- 253 Pygmy sperm whale
- 254 Short-finned pilot whale
- 255 Harbor seal
- 256 Gray seal
- 257 Right whale (T)
- 258 Atlantic spotted dolphin

High salinity estuarine habitat (generally 16.5 to 30 parts per thousand); arrows used for wide estuaries.

Mid salinity estuarine habitat (generally 5 to 16.5 parts per thousand).

Low salinity estuarine habitat (generally 0.5 to 5 parts per thousand) and tidal freshwater.

Non-tidal freshwater riverine and creek habitat.

TERRESTRIAL ORGANISMS

Shown in RED for species with special status, PLUS for aquatic organisms and BROWN for terrestrial organisms

SYMBOL — SPECIES

RAPTORS (501-530)
- 501 Raptors
- 502 Owls
- 503 Kites
- 504 Hawks
- 505 Bald eagle (F)
- 506 Osprey (S)
- 507 Peregrine falcon (F)
- 508 Cooper's hawk (S)
- 509 Swallow-tailed kite
- 510 Marsh hawk (S)
- 511 Southeastern American kestrel (S)
- 512 Limpkin (Carrying out (S)

SHOREBIRDS (531-550)
- 531 Seabirds
- 532 Petrels, shearwaters, and albatrosses
- 533 Pelicans and allies
- 534 Alcids
- 535 Brown pelican (F)
- 536 Black guillemot
- 537 Leach's petrel
- 538 Razorbill
- 539 Common puffin
- 540 Double-crested cormorant
- 541 Gannet
- 542 Wilson's petrel
- 543 Northern phalarope
- 544 Audubon's shearwater
- 545 Greater shearwater
- 546 Shearwaters
- 547 Petrels
- 548 Jaegers
- 549 White pelican

SONGBIRDS AND OTHERS (551-600)
- 551 Songbirds and others
- 552 Red-cockaded woodpecker (F)
- 553 Chuckwalla
- 554 Herbert's sparrow (F)
- 555 Wood turkey
- 556 American woodcock
- 557 Plumbeous warbler
- 558 Swainson's warbler
- 559 Ruffed grouse
- 560 Bobwhite
- 561 Mourning dove
- 562 Warblers
- 563 Ring-necked pheasant
- 564 Bank swallow
- 565 Henry grasshopper (F)
- 566 White-crowned pigeon (S)

REPTILES AND AMPHIBIANS (601-700)
- 601 Eastern banded-snouted toad (S)
- 602 Eastern indigo snake (F)
- 603 American alligator (F)
- 604 Northern diamondback terrapin
- 605 Amphibians
- 606 Gopher tapa
- 607 Dog turtle (S)
- 608 Gopher tortoise (S)
- 609 Eastern tiger salamander (S)
- 610 Northern brown lizard
- 611 Tiger tailed shark
- 612 Map turtle
- 613 Plymouth red-bellied turtle (F)
- 614 Eastern diamondback rattlesnake
- 615 Carolina gopher frog
- 616 Florida gopher frog (S)
- 617 Atlantic salt marsh watersnake (F)
- 618 American crocodile (F)
- 619 Florida Keys mole skink (S)
- 620 Florida black-headed snake (S)
- 621 Pine barrens tree frog (S)
- 622 Northern pine snake (S)
- 623 Corn snake (S)
- 624 Eastern coachwhip (S)
- 625 Southern gray tree frog (S)

MAMMALS (701-800)
- 701 Beavers
- 702 Whitetail deer
- 703 Key deer
- 704 Rockland Island deer
- 705 Opossum
- 706 Marsh rabbit
- 707 Pine rat
- 708 Raccoon
- 709 St. Tomas Island raccoon
- 710 Mink
- 711 River otter (F)
- 712 Feral hog
- 713 Feral cow
- 714 Cumberland Island pocket gopher
- 715 Amelia Island cotton mouse
- 716 Angular beltrunners
- 717 Black bear (S)
- 718 Bobcat
- 719 Eastern gray squirrel
- 720 Eastern fox squirrel
- 721 Eastern cottontail
- 722 Peninsula fox squirrel (F)
- 723 Bobcat
- 724 Red fox
- 725 Otter
- 726 Gray fox
- 727 Striped skunk
- 728 Weasels
- 729 Longtail weasel
- 730 Colonial pocket gopher (S)
- 731 Wild ponies
- 732 Cotton mouse
- 733 Beach mouse sub
- 734 Black island meadow vole
- 735 Pallid beach mouse (S)
- 736 Sherman's fox squirrel (S)
- 737 Florida mouse (S)
- 738 Florida panther (F)
- 739 Gulf's pocket gopher (S)
- 740 Key Largo wood rat (S)
- 741 Lower Keys cotton rat (S)
- 742 Key Largo cotton mouse (S)

FIGURE 3-21

LEGEND FOR MAP OF RARE, THREATENED, AND ENDANGERED SPECIES OF WILDLIFE REPORTED IN THE VICINITY OF NAVSTA MAYPORT

RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT

U.S. NAVAL STATION MAYPORT FLORIDA

0653A-08 TYE 06233SMAW

during the field surveys, it is likely that this species occurs at NAVSTA Mayport in association with mesic flatwoods and disturbed mesic flatwoods near the SWMUs. The gopher tortoise is a confirmed resident near the lighthouse adjacent to SWMU 15 (Conely, 1995).

Eastern Indigo Snake. The eastern indigo snake (*Drymarchon corais couperi*) is listed as threatened by both USFWS and the FGFWFC (Wood, 1994a). The eastern indigo snake has been a reported resident of Duval County (FNAI, 1990). This large snake is found in high sandy pine habitats, moist hammocks, and pine flatwoods, and often in association with gopher tortoise burrows (Mohler, 1992). Although remnants of mesic flatwoods exist on NAVSTA Mayport, eastern indigo snakes were not observed during any of the biological field investigations. Due to its ability to use a variety of habitat types, the eastern indigo snake may potentially occur at NAVSTA Mayport, particularly in association with SWMUs 2, 15, and 45.

3.4.4.5 **Birds** Fourteen legally protected bird species were identified as potentially occurring within the study area at NAVSTA Mayport (FNAI, 1990). Table 3-28 also summarizes information concerning the protected bird species. The listed Smyrna seaside sparrow (*Ammodramus maritimus pelonotus*) is now believed to be extinct (Wood, 1994b). Each of the probable resident species is described in the following paragraphs. Descriptions of additional bird species considered in this analysis but not identified as a possible resident or migrant at NAVSTA Mayport are provided in Appendix E.

Piping Plover. The piping plover (*Charadrius melodus*) is classified as threatened by the USFWS and the FGFWFC (Wood, 1994a). This species is a confirmed migrant in Duval County (FNAI, 1990), where it winters on beaches, sand flats, and mud flats. Bird count reports from the Audubon Society Christmas Bird Count indicate that the wintering population in Florida is not more than several hundred individuals (Kale, 1928). Although piping plovers were not observed during the February 1993 biological field investigation, these birds may be present at NAVSTA Mayport because they prefer to feed in habitats similar to those found near SWMUS 1, 12, and 14.

Worthington's Marsh Wren. Worthington's marsh wren (*Cistothorus palustris griseus*) is classified as a species of special concern by the FGFWFC (Wood, 1994a). This bird is a confirmed resident of Duval County (FNAI, 1990), which is near the southern limit of its range. This species restricts itself to salt and brackish marshes, and feeds only upon insects and crustaceans gleaned from marsh grasses. This wren is known to occur and nest in saltmarshes near the Mayport facility (Kale, 1928) but was not sighted during any of the biological field investigations. This wren may inhabit and forage in the remnant saltmarsh adjacent to SWMU 2, and/or the salt and brackish wetlands to the south of SWMUs 5 and 50.

Little Blue Heron, Snowy Egret, and Tricolored Heron. The little blue heron (*Egretta caerulea*), snowy egret (*E. thula*), and tricolored heron (*E. tricolor*) are wading birds listed as species of special concern by FGFWFC (Wood, 1994a). All three of these birds are confirmed residents of Duval County (FNAI, 1990). Containment and treatment ponds that constitute poor habitat for wading birds are dispersed among the wetlands in the vicinity of SWMU 1, SWMU 6, and SWMU 7. The shoreline along the St. Johns River is an artificial rocky intertidal zone that may provide feeding habitat for wading birds, especially during low tides. In addition, a tidal marsh occurs adjacent to SWMUs 2, 4, 5, and 50. A little blue heron and snowy egrets were observed feeding in ditches in the study area and in offsite salt marshes. Although nesting by wading birds in these areas is

considered very unlikely, transient feeding is possible for nonresident species. The FGFWFC has recorded five colonies of wading birds within a 100-kilometer radius of the SWMUs (Figures 3-20 and 3-21). Little blue herons have been considered very unlikely, transient feeding is possible for non-resident species. recorded as recently as 1987 (Runde and others, 1991).

White Ibis. The white ibis (*Eudocomus albus*) is classified as a species of special concern by the FGFWFC (Wood, 1994a). The white ibis is a confirmed resident of Duval County (FNAI, 1990), where it feeds in shallow freshwater and estuarine habitats. The diet of the ibis is composed primarily of crustaceans (crayfish and crabs). Flocks of ibis travel great distances in the search for suitable feeding areas. Suitable feeding areas at NAVSTA Mayport exist on the base golf courses (Kale, 1928) where they were observed during the biological field investigations.

Arctic Peregrine Falcon. The Arctic peregrine falcon (*Falco peregrinus tundrius*) is classified as endangered by the FGFWFC and as threatened by the USFWS (Wood, 1994a). This falcon has been reported in Duval County (FNAI, 1990), where it may overwinter (Kale, 1928). Most wintering peregrine falcons remain within a few square miles of large concentrations of other birds. The large aquatic preserve just north of NAVSTA Mayport hosts large concentrations of birds that may serve as prey for the peregrine falcon.

Southeastern American Kestrel. The southeastern American kestrel (*Falco sparverius paulus*) is listed as threatened by FGFWFC and is a candidate for listing by USFWS (Wood, 1994a). These small hawks are reported residents of Duval County (FNAI, 1990) and may be found in any of a variety of habitats. The suspected decline of the kestrel populations is attributed to pesticides. Insects are their chief prey, but they also feed upon rodents, reptiles, and, infrequently, on small birds (Kale, 1928).

American Oystercatcher. The American oystercatcher (*Haematopus palliatus*) is classified as a species of special concern by the FGFWFC (Wood, 1994a). This shore bird has been reported in Duval County (FNAI, 1990) where it may nest and feed on open sandy beaches or spoil islands (Kale, 1928). Oystercatchers were not observed during the biological field investigations. Because oystercatchers lay their eggs on open sand above the high water line, the northern shoreline of NAVSTA Mayport, which has a granite riprap, is not suitable nesting habitat for this species. It is possible, however, that the upper eastern shoreline near SWMU 14, with its estuarine unconsolidated substrate and coastal grassland, could be suitable nesting habitat. The American oystercatcher is likely to transit the SWMU, if not nest there.

Bald Eagle. The bald eagle (*Haliatus leucocephalus*) is listed as threatened by FGFWFC, and as endangered by USFWS (Wood, 1994a). Bald eagles are confirmed residents of Duval County (FNAI, 1990). Neither bald eagles nor their nests were observed during the biological field investigations. It is quite likely that bald eagles fly over, feed, and roost within or near the adjacent aquatic preserve. The bald eagle may feed upon fish occupying the estuarine habitat north of SWMU 12 and SWMU 14.

Wood Stork. The wood stork (*Mycteria americana*) is listed as endangered by both FGFWFC and USFWS (Wood, 1994a). Wood storks are confirmed residents of Duval County (FNAI, 1990), and were observed in perimeter ditches near SWMU 2, 4, 5, 22, 26, and 50. Wood storks are also likely to occur around estuarine consolidated substrates, tidal marshes, and containment ponds.

Osprey. The osprey (*Pandion haliaetus*) is a fish-eating raptor designated as threatened by FCREPA (Kale, 1928) and as a species of special concern by FGFWFC (Wood, 1994a). The osprey is a confirmed resident of NAVSTA Mayport at SWMU 2 where a nest is located.

Brown Pelican. The brown pelican (*Pelecanus occidentalis*) is classified as a species of special concern by the FGFWFC (Wood, 1994a). This large, distinctive bird has been reported in Duval County (FNAI, 1990), where it may nest in the shrubs of nearby islands and feed primarily in shallow estuarine water. As a top predator, this species is particularly vulnerable to sources of pollution that affect prey species (Kale, 1928). Several individuals were observed flying along the St. Johns River north of NAVSTA Mayport during the second biological field investigation. Individuals were also observed in 1994 near the golf course.

Black Skimmer. The black skimmer (*Rynchops niger*) is classified as a species of special concern by the FGFWFC (Wood, 1994a). Black skimmers have been reported in Duval County (FNAI, 1990), where they may nest in sandy flats above the high water line in coastal areas (Kale, 1928). This species feeds primarily at night and usually upon small fish in the intertidal zone. Black skimmers were not observed during the biological field investigations but they are likely to occur and feed on or near the shoreline adjacent to SWMUs 1, 12, and 14.

Least Tern. The least tern (*Sterna antillarum*) is listed as threatened by the FGFWFC (Wood, 1994a). This tern has been reported in Duval County (FNAI, 1990), primarily associated with open flat beaches. Least terns were observed in 1994 nesting in the newly filled western dredge spoils area. Least terns may also be present as transient feeders along the northern and eastern shorelines adjacent to SWMUs 1, 12, and 14.

3.4.4.6 **Mammals** Two protected mammalian species were identified as potentially occurring within the study area at NAVSTA Mayport (Wood, 1994a; FNAI, 1990). These include the West Indian manatee (*Trichechus manatus*) and the right whale (*Eubalena glacialis*) (Table 3-28). Other protected mammalian species expected in Duval County but not at NAVSTA Mayport are discussed in Appendix E.

West Indian Manatee. The West Indian manatee (*Trichechus manatus*) is listed as endangered by USFWS and FGFWFC (Wood, 1994a) and is a confirmed migrant in Duval County (FNAI, 1990). The West Indian manatee may be a transient feeder in the estuarine habitat of the St. Johns River adjacent to SWMUs 12 and 14.

Right Whale. The right whale (*Eubalaena glacialis*) migrates along the Atlantic coast, with mature females and their calves foraging during the winter months offshore from Savannah, Georgia, to Cape Canaveral, Florida (Valade, 1993). The right whale is listed as endangered by both the FGFWFC and the USFWS (Wood, 1994a). There is anecdotal information regarding occasional foraging in the estuarine part of the St. Johns River (Valade, 1993) near SWMUs 12 and 14.

4.0 SUMMARY OF STATION-WIDE BACKGROUND CONDITIONS

The purpose of the RCRA Corrective Action Program Information Report is to provide information common to all of the four SWMU groups being investigated at NAVSTA Mayport, including sampling and analytical methodology, data evaluation, risk assessment methodology, characterization and assessment of station-wide background data, and the ecological characterization of the station. Because the information contained in this report is common to all SWMUs, it will not be repeated in RFI or confirmatory sampling reports for each SWMU group but will be referenced. The individual RFI or confirmatory sampling reports for each SWMU group also will contain a discussion of any deviations from methodologies presented in this report.

Included within the NAVSTA Mayport General Information Report is the following information: summary of published information about NAVSTA Mayport, including geography, physiography, demographics, climate, regional geology, and hydrogeology; methods and procedures used to conduct the field activities; methodology used to validate analytical data; methodology used to conduct risk assessments; and characterization and assessment of station-wide background analytical data, including surface and subsurface soil, surface water, sediment, and groundwater that will be used to evaluate the data from each SWMU group.

4.1 **FINDINGS**. The following paragraphs provide a brief summary of the site background conditions (geologic, hydraulic, and hydrogeologic) and target analytes detected in background surface and subsurface soil, surface water, sediment, and groundwater samples.

4.1.1 Geologic Conditions The uppermost sediments at NAVSTA Mayport consist of a surficial deposit of material dredged from the Mayport Turning Basin and the St. Johns River. Material dredged from Ribault Bay and the St. Johns River to construct the Mayport Turning Basin were used to fill low-lying areas during the initial construction and later expansion of the station (Figures 1-3 and 1-4). The filling of the low-lying areas with dredge material resulted in the development of areas with suitable load-bearing capacities to allow construction. The dredge material now comprises the majority of the surficial material found in the interior areas of the station. Because of variations in the environments dredged, the dredge material varies horizontally and vertically in lithology across the station. Also, it should be noted that the areal extent of dredge material as illustrated on Figures 1-3 and 1-4 does not agree with the reported soil types at NAVSTA Mayport as illustrated on Figure 1-5.

Beneath the dredge materials are undifferentiated post-Hawthorn deposits (Scott, 1988) that consist of fairly uniform, well sorted, poorly graded, very fine-grained sand and typically contain minor amounts of fines consisting of silt and clay; frequently numerous shell fragments and subrounded pea-size gravel are present. The second unit, which is likely the product of Miocene to Holocene fluvial deposition with the erosion and redeposition of Hawthorn Group sediment, does not appear to be laterally uniform. River depositional processes have produced a highly variable set of lithologic units that also are horizontally and vertically anisotropic throughout the study area.

Based on these data, the background surface and subsurface soil samples that have been collected at depths of 0 to 1 foot bls and 3 to 4 feet bls, respectively, throughout NAVSTA Mayport (Plate 1) are representative of the dredge materials that comprise the surface soil at the various SWMUs. Therefore, arithmetic means

or single detection values of the concentration of target analytes detected in background soil samples are conservative estimates of either naturally occurring or man-influenced concentrations.

4.1.2 Hydraulic Conditions Surface runoff from NAVSTA Mayport enters Mayport Basin, the St. Johns River, Lake Wonderwood, Sherman Creek, Pablo Creek, Chicopit Bay, and the Atlantic Ocean. Aircraft runways provide a topographic drainage divide between the northwest and southeast parts of the station. To the north, soil along the St. Johns River tends to be very sandy and to have high infiltration capacities. In this area there exists little surface runoff, and few drainage features are evident.

The station has one manmade, brackish water lake, Lake Wonderwood, located in the base housing area (Plate 1). Lake Wonderwood is connected to Sherman Creek by a drainage ditch and has a tide control gate. Lake Wonderwood occupies approximately 20 acres and was created to provide fill for the adjacent housing area. The lake has a depth of approximately 20 feet and is used by NAVSTA Mayport personnel for recreation.

The other dominant surface water feature on station is the Mayport Turning Basin. The turning basin was constructed during the early 1940's by dredging the eastern part of Ribault Bay (Figure 1-3 and 1-4). Dredge material was used to fill parts of Ribault Bay and other low-lying areas to elevate the land surface.

Surface water and sediment samples have been collected from a variety of locations (Plate 1) that represent both on- and off-station environments, some of which are more influenced by human activity than others. The surface water and sediment samples collected to date should provide representative locations from which adequate background data could be used to assess SWMU-specific conditions.

4.1.3 Hydrogeologic Conditions Based on monthly and average potentiometric surface maps, groundwater flow in the surficial aquifer is recharged or originates from four separate localized hydrologic mounds (Figure 3-19). Two of the hydrologic mounds are the dredge material handling areas located in the Group I SWMU area; one hydrologic mound appears to be centered within the boundary of the western dredge material handling area, the other appears to be centered along the eastern dredge material handling area. The third hydrologic mound is generally oval in shape and appears to be located along the main aircraft runway. This hydrologic mound has two distinct lobes, one of which is oriented to the north toward the Fuel Farm and Oily Waste Treatment Plant area (RFI SWMUs 8, 9, and 10). The second, smaller lobe is oriented to the south toward the Aircraft Intermediate Maintenance Facility (AIMF), near SWMU 13. The fourth hydrologic mound is based on limited data and is inferred to be centered in the Group III SWMU area.

Because the hydrologic mounds represent subsurface topographic highs and, therefore, have potential energy to flow "downhill," the flow direction of groundwater from each of the mounds is radial or away from the hydrologic mound. Groundwater flow from the mounded areas discharges to the numerous surface drainage ditches to the south and west, and ultimately toward the St. Johns River, the Mayport Turning Basin, or the Atlantic Ocean.

Monitoring wells located in the hydrologic mounds are representative locations from which adequate background data could be collected to assess SWMU-specific conditions of the surficial aquifer water table zone. Additional SWMU-specific background groundwater data will be collected and evaluated as appropriate at NAVSTA Mayport.

4.1.4 Target Analytes Detected in Background Surface Soil Samples Six background surface soil samples were collected at locations on-station at a depth of 0 to 1 foot bls (Plate 1). Target analytes detected in the background surface soil samples consisted of 1 pesticide (4,4'-dichlorodiphenyldichloroethene [4-4'-DDE]), an aerobic degradation byproduct of 4,4'-dichlorodiphenyltrichloroethane (4,4'-DDT) (Montgomery, 1991), and 14 inorganic analytes (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, selenium, thallium, tin, vanadium, zinc, and cyanide) (Tables 3-11 and 3-12). No VOC, SVOC, or PCB target analytes were detected in the background surface soil samples. Background screening values and comparison of the detected analytes to benchmark values are provided in Table 3-13.

4.1.5 Target Analytes Detected in Background Subsurface Soil Samples Four background subsurface soil samples were collected at locations on-station at a depth of 3 to 4 feet bls (Plate 1). The following target analytes were detected in subsurface soil samples: 1 SVOC (benzoic acid), 1 pesticide (4,4'-DDE), and 12 inorganics (arsenic, barium, beryllium, chromium, cobalt, copper, lead, mercury, tin, vanadium, zinc, and cyanide) (Tables 3-14 and 3-15). No volatiles or PCBs were detected in the subsurface soil samples. Background screening values and comparison of the detected analytes to benchmark values are provided in Table 3-16.

4.1.6 Target Analytes Detected in Background Surface Water Samples Seven background surface water samples were collected at locations on-and off-station (Plate 1). Target analytes detected in the station-wide background surface water samples consisted of 1 VOC (1,2-dibromo-3-chloropropane), 2 SVOCs (2-acetylaminofluorene and bis(2-ethylhexyl)phthalate), and 20 inorganics (antimony, arsenic, barium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, selenium, sodium, thallium, tin, vanadium, zinc, and cyanide). No pesticides or PCBs were detected in the surface water samples (Tables 3-17 and 3-18). Background screening values and comparison of the detected analytes to benchmark values are provided in Table 3-19 for the station-wide background surfacewater samples.

4.1.7 Target Analytes Detected in Background Sediment Samples Seven background sediment samples were collected at locations on- and off-station at a depth of 0 to 1 foot below the water sediment interface (Plate 1). Target analytes detected in the background sediment samples consisted of 2 VOCs (carbon disulfide and toluene), 3 SVOCs (bis(2-ethylhexyl)phthalate, di-n-butylphthalate, and pyrene), 3 pesticides (4,4'-DDD, 4,4'-DDE, and 4,4'-DDT), and 15 inorganics (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, thallium, tin, vanadium, and zinc) (Tables 3-22, 3-23, and 3-24). No PCBs were detected in the sediment samples. Background screening values and comparison of the detected analytes to benchmark values are provided in Table 3-25 for the station-wide background sediment samples.

4.1.8 Target Analytes Detected in Background Groundwater Sample Background groundwater samples were collected from eight monitoring wells (four wells screened across the water table, two wells screened from 25 to 30 feet bls, and two wells screened from 60 to 70 feet bls). These eight monitoring wells were installed in areas where the water table is "mounded" and likely is a groundwater recharge area.

Shallow Monitoring Wells. The four shallow monitoring wells are screened from 0 to 15 feet bls, they are MPT-1-MW1S, MPT-S-MW1S, MPT-S-MW1S, and MPT-8-MW5S (Plate 1). Monitoring well MPT-1-MW1S is located in the Group III SWMU area and is hydraulically upgradient of SWMU 1. Monitoring wells MPT-S-MW1S and MPT-8-MW5S

are located in the Group II SWMU area and are hydraulically upgradient of SWMUs 6, 7, 8, 9, 10, 11, and 16. Monitoring well MPT-B-MW1S is located near Lake Wonderwood adjacent to the station residential area where no industrial activities have taken place.

Shallow Monitoring Wells. Target analytes detected in groundwater samples collected from the shallow monitoring wells consist of 1 VOC (carbon disulfide), 4 SVOCs (3- and 4-methylphenol [coeluting analytes], benzo(a)anthracene, and bis(2-ethylhexyl)phthalate), and 15 inorganics (arsenic, barium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, selenium, sodium, vanadium, zinc, and cyanide) (Tables 3-26 and 3-27). No pesticides or PCBs were detected in the shallow groundwater samples.

Intermediate Monitoring Wells. The two intermediate monitoring wells (MPT-8-MW-5I and MPT-B-MW1I) are screened from 25 to 30 feet bls. Monitoring well MPT-8-MW1I is located in the Group II SWMU area and is hydraulically upgradient of SWMUs 6, 7, 8, 9, 10, 11, and 16. Monitoring well MPT-B-MW1I is located near Lake Wonderwood adjacent to the station residential area where no industrial activities have taken place.

Target analytes detected in groundwater samples collected from the two intermediate monitoring wells consist of two VOCs (bromodichlormethane and chloroform) and nine inorganics (arsenic, barium, calcium, iron, lead, magnesium, manganese, sodium, and vanadium) (Tables 3-28 and 3-29). No SVOCs, pesticides, or PCBs were detected in intermediate groundwater samples.

Deep Monitoring Wells. Two deep monitoring wells (MPT-8-MW-5D and MPT-B-MW1D) are screened from approximately 60 to 70 feet bls. Monitoring well MPT-8-MW1I is located in the Group II SWMU area and is hydraulically upgradient of SWMUs 6, 7, 8, 9, 10, 11, and 16. Monitoring well MPT-B-MW1I is located near Lake Wonderwood adjacent to the station residential area where no industrial activities have taken place.

Target analytes detected in groundwater samples collected from the deep aquifer zone monitoring wells consist of 1 VOC (acetone) and 11 inorganics (arsenic, barium, calcium, cobalt, iron, magnesium, manganese, silver, sodium, vanadium, and zinc) (Tables 3-28 and 3-29). No SVOCs, pesticides, or PCBs were detected in the deep groundwater samples. Background screening values and comparisons of the detected target analytes to benchmark values for the shallow, intermediate and deep zones of the surficial aquifer are provided in Table 3-30.

Comparison of analytical results collected using low flow sampling (unfiltered) to filtered samples (45 micron) suggest the two results are comparable with exception of iron. Analytical results for inorganic target analytes for filtered groundwater samples is provided in Table 3-31

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APPENDIX A

BORING LOGS

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-B-MWIS		**BORING NO.** MPT-B-MWIS
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/17/94	**COMPLTD:** 08/17/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.19 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 8.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/28/94		**SITE:** Background

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil.		SM		
				0	Silty Sand, fine.			Posthole	
					Silty Sand-fine, light gray to tan.				
5									
					Silty Sand-fine, brown.				
10					Silty Sand-fine, yellowish brown.				
15					Silty Sand-fine, with shell fragments, yellowish green.				
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-B-MWID				
					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-B-MWII		**BORING NO.** MPT-B-MWII
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/18/94	**COMPLTD:** 08/18/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 33-38 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.19 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 38.5FT.	**DPTH TO ▽** 8.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/28/94		**SITE:** Background

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Top Soil over Silty Sand, fine.		SM	Posthole	
					Silty Sand-fine, light gray to tan.				
5					Silty Sand-fine, moist to wet, brown.				
10					Silty Sand-fine, yellowish brown.				
15					Silty Sand-fine, with shell fragments, yellowish green.				
20					Silty Sand-fine, with shell fragments, yellowish green.				
25									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-B-MW1I		**BORING NO.** MPT-B-MW1I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 06/16/94	**COMPLTD:** 06/16/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 33-38 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.19 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 38.5FT.	**DPTH TO ∇** 9.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 06/28/94		**SITE:** Background

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA

Continued from PAGE 1

Silty Sand-fine, few shells, light gray. — SM

30

Silty Sand- (30-31'), fine, tan to light gray, over Silty Clay, (31- 31.5'), medium to high plasticity, few shells, greenish gray, over Sandy Clay (31.5-33.5'), estimated contact, low to medium plasticity, grayish green. — CH / CL

35

Silty Sand-fine, light gray to white. — SM

Shelby Push Tube Attempted - Refusal

Estimated contact — CL

Clay-dense, white with few medium sized shells.

40

LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-B-MW1D

TOTAL DEPTH OF BORING = 38.5' BLS

45

50

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-B-MW1D	**BORING NO.** MPT-B-MW1D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 06-08-94	**COMPLTD:** 06-15-94
METHOD: Mud Rotary 7 7/8" tricone	**CASE SIZE:** 4"	**SCREEN INT.:** 62-72 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.50 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 74FT.	**DPTH TO ▽** 8.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/28/94		**SITE:** BACKGROUND

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Top Soil over Silty Sand, fine.		SM	Posthole	
5			1.0/2.0	0	Silty Sand-fine, light gray to tan.			7,17,16,8	
					Silty Sand-fine, moist to wet, brown.				
10			1/2	0	Silty Sand-fine, saturated, yellowish brown.			3,4,8,7	
15			2/2	0	Silty Sand-fine, with shell fragments, yellowish green.			13,13,24,28	
20			2/2	0	Silty Sand-fine, with shell fragments, yellowish green.			4,5,7,18	
25			1.5/2.0	0	Silty Sand-fine, with shell fragments, light gray.			8,10,25,50	
30			2/2	0	Silty Sand- (30-31'), fine, tan to light gray, over Silty Clay, (31- 31.5'), medium to high plasticity, few shells, greenish gray, over Sandy Clay (31.5-33.5'), estimated contact, low to medium plasticity, grayish green.		CH CL	4,3,1,3	
35				0	Silty Sand-fine, light gray to white.		SM	12,44,50/4"	
					Estimated contact		CL		
40									

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-B-MW1D		**BORING NO.** MPT-B-MW1D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08-08-94	**COMPLTD:** 08-15-94
METHOD: Mud Rotary 7 7/8" tricone	**CASE SIZE:** 4"	**SCREEN INT.:** 62-72 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.50 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 74FT.	**DPTH TO ▽** 9.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/28/94		**SITE:** BACKGROUND

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1.5/2	0	Clay-dense, white with few medium size shell fragments.		CL	22,21,18,18	
45			1/2	0	Clay-dense, white with few medium size shell fragments.			10,4,10,14	
50			1/2	0				11,18,29,19	
					Clay-dense, white with few medium size shell fragments				
55			1/2	0				8,12,11,24	
					Estimated contact		SM		
60			1/1.5	0	Silty Sand-fine, with shell fragments.			12,18,33	
					Estimated contact		SC		
65			1.8/2	0	Clayey Sand-fine, wet, olive green to yellowish green.			8,10,14,19	
					Estimated contact		CL		
70			2/2	0	Sandy Clay-fine, wet, few clayey sand stringers.			5,8,8,8	
			0/2		Shelby Push Tube Attempted - No Recovery			UD/Shelby Push Tube Sample	
75					TOTAL DEPTH OF BORING = 74' BLS				
80									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-S-MW1R		**BORING NO.** MPT-S-MW1R
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/07/94	**COMPLTD:** 08/07/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 14.59 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▼** 3.8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/30/94		**SITE:** Background

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							SC		
					Clayey Sand- (0-0.67'), dense, with shell fragments.		CH		
				0	Clay- (0.67-1'), high plasticity, tan.		SM	Posthole	
					Silty Sand-fine, with shell fragments, tan.				
5			0/2		Shelby Push Tube Attempted - No Recovery			UD/Shelby Push Tube Sample	
					Silty Sand-fine, with shell fragments, grayish green.			Observation	
			0/2		Shelby Push Tube Attempted - No Recovery			UD/Shelby Push Tube Sample	
10			0/2		Shelby Push Tube Attempted - No Recovery			UD/Shelby Push Tube Sample	
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-1-MW1S		**BORING NO.** MPT-1-1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/9/87	**COMPLTD:** 9/9/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 14.30 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15FT.	**DPTH TO ▽** 7 FT.
LOGGED BY: R. M. Nugent	**WELL DEVELOPMENT DATE:** 9/9/87		**SITE:** #1

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.8/2'	3.3	Sand-fine to coarse, brown, moist, some organic matter		SP	3,7,18,18	
		SS2	1.8/2'	3.0	Sand-as above, gray with some shell fragments Sand-as above, 2" brown layer at 1.2' of spoon			2,21,28,30	
5		SS3	1.5/2'	8.5	Sand-fine, dark brown, moist Sand-fine to medium, gray, some shell fragments			9,18,23,28	
	YES	SS4	1/2'	2.8	Sand-as above Clay-stiff, saturated at bottom		CL	10,11,8,9	
		SS5		7.2	Sand-light tan to gray, saturated, small shell fragments		SP	7,7,18,18	
10									
		SS6	2/2'	3.5	Sand-light gray, saturated with some shell fragments			5,29,50,+	
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-1-MW2S	**BORING NO.** MPT-1-2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 10/9/87	**COMPLTD:** 10/9/87
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 18.93 FT.	**MONITOR INST.:** Hnu / **TOT DPTH:** 15.0FT.	**DPTH TO ▽** 5.00 FT.
LOGGED BY: R. M. Nugent	**WELL DEVELOPMENT DATE:** 10/10/87	**SITE:** #1

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.3/2'	10.0	Fill-gravel, dark brown, moist Sand-fine, lt. brown to lt. gray, moist, few shell fragments		SP	22,22,37,31	
5	YES	SS2	1.3/2'	4.8	Sand-fine, gray, moist, few shell fragments, trade gravel			24,25,17,22	▽
10		SS3	2.0/2'	13.5	Sand-fine, brown to gray, saturated, few shell fragments, with a 0.4' fine clay layer, dark gray, saturated, high plasticity		CL SP	8,2	
15		SS4	2.0/2'	2.8	Sand-fine, light grey, few shells and shell fragments, saturated			12,32,51+	
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-1-MW3S		**BORING NO.** MPT-1-3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5087-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 10/8/87	**COMPLTD:** 10/8/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.00 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15.0FT.	**DPTH TO ▽** 5.00 FT.
LOGGED BY: R. M. Nugent	**WELL DEVELOPMENT DATE:** 10/10/87		**SITE:** #1

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.5/2'	8.3	Sand-fine, lt. brown to gray, dry to moist, few shells and shell fragments, silt Sand-fine, gray, moist, few shell fragments		SP	7,14,18	
5	YES	SS2	1.3/2'	7.0				13,14,8,12	▽
10		SS3	2.0/2'	13.8	Sand-fine, dark gray, saturated, few shell fragments, with a 0.17ft' clay lens			5,24,50+	
15		SS4	1.5/2'	3.1	Sand-fine, tanish, grey to lt. gray with a few shell fragments, (diminish with depth)			24,38,50+	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-1-P1	**BORING NO.** MPT-1-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A. / **CASE SIZE:** 2"	**SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.11 FT. / **MONITOR INST.:** OVA	**TOT DPTH:** 10FT.	**DPTH TO ▽** 5.00 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #1

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-very fine to medium, lt.brown w/ abundance of shell fragaments		SP		
5			2/2	N/A	SAND-as above, saturated below 5'			6,6,6,7	▽
10									
15									
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-1-P2		**BORING NO.** MPT-1-P2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 10-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.77 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15FT.	**DPTH TO ▼** 10.0 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #1

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine to silty, tan, w/ some shell fragaments		SM		
5			2/2	0	Same as above			4,5,4,5	
10			2/2	0	SAND-fine to silty, gray, saturated			8,8,8,5	▼
15					Boring terminated @ 15'				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-1-P3	**BORING NO.** MPT-1-P3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 10-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.04 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 15FT.	**DPTH TO ▽** 7.00 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #1

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-very fine to medium, tan, w/ some shell fragments		SP		
5			2/2	0	Same as above, dry			10,10,7,8	
			1.7/2	0	SAND-very fine to silty, tan, saturated		SM	6,8,7,8	▽
10									
15					Boring terminated @ 15'				
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MWIS		**BORING NO.** MPT-2-1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5087
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/22/87	**COMPLTD:** 9/22/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.43 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: R. M. Nugent	**WELL DEVELOPMENT DATE:** 9/22/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.5/2'	83.1	Sand-fine to medium sand, dark brown, dry Sand-fine, tan, dry, trade shell		SP	13,14,18,28	
	YES	SS2	1.8/2'	35.7	Sand-fine, tan, dry Sand-fine, tan, moist, few shell fragments, bottom saturated			7,13,13,14	
5		SS3	0.7/2'	10.4	Sand-fine to medium, gray, few shell fragments, saturated			18,12,5,4	
10		SS4	2.0/2'	0				11,10,1,2	
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW2S		**BORING NO.** MPT-2-2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/22/87	**COMPLTD:** 9/22/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.58 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: R. M. Nugent	**WELL DEVELOPMENT DATE:** 9/22/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.8/2'	0	Sand – Top (0.2') fine, dark brown, dry / Middle (0.7') fine, tan, moist / Bottom clayey, dark brown to black, moist, trade shell, stiff		SP SC SP	4,13,14,14	
	YES	SS2	1.5/2'	0	Sand- Top (0.5') as above / Middle (0.5') fine to medium, gray moist / Bottom as above, saturated			13,17,29,30	▽
5		SS3	1.9/2'	0	Sand-fine to medium, dry, silt, few shell fragments with a clay lens (0.5')			11,8,2,1	
10		SS4	0.5/2'	0	Clay – dry, olive		CL	5	
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW3S		**BORING NO.** MPT-2-3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/11/87	**COMPLTD:** 9/14/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 17.34 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15.0FT.	**DPTH TO ▽** 7.00 FT.
LOGGED BY: R. M. Nugent	**WELL DEVELOPMENT DATE:** 9/11/87 ?		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.4/2'	0	Sand-Top (0.4') / fine to medium, top soil, dark brown, dry, trade shell, Bottom / fine, brown, few shell fragments decreaseing with depth		SP	8,15,8,9	
		SS2	1.7/2'	34.4	Sand-fine, tan, dry, incesing moisture with depth			24,35,30,13	
		SS3	1.5/2'	8.7	Sand-fine to medium, gray, moist, few shell fragments, trade coarse sand concretion			23,38,28,35	
5	YES	SS4	1.4/2'	0				7,9,8,9	▽
10		SS5	2.0/2'	17	Sand-fine, gray, saturated, few shell fragments, trade gravel size sand concretions			5,14,28,55	
					Clay-		CL		
15		SS6	2.0/2'	7	Sand-fine, grey, saturated, few shell fragments		SP	7,50	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW4S		**BORING NO.** MPT-2-MW4S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/11/87	**COMPLTD:** 9/11/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.28 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15.0FT.	**DPTH TO ▽** 5.10 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/11/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.5/2'		Sand-fine to medium with top soil, vegitation, gravel, small shell fragments with a layer (0.5') of clayey sand, orange, moist at 1' depth		SP SC SP	4,12,17,20	
5	YES	SS2	1.3/2'		Sand-fine, light grey, small shell fragments, saturated			8,11,5,10	
10		SS3	2.0/2'		Clay-uniform, olive, decomposed organics		CL	4,5,9,10	
15		SS4	1.5/2'		Clay-same as above Sand- top (0.4") very fine, greenish grey, bottom interbedded with sand and clay		SP SC	3,8,11,16	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-5		**BORING NO.** MPT-2-5
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/23/87	**COMPLTD:** 9/23/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.81 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/23/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0	YES	SS1	1.8/2'		Sand-top (0.5') fine to medium sand, top soil, dark brown, dry/ bottom (1.1') light to dark grey, trace coarse sand and shell fragments, dry to moist		SP	17,23,30,S	
5		SS2	1.4/2'	38.2	Sand-fine to coarse, light grey, few shell fragments, saturated			1,7,10,8	
10		SS3	0.7/1'		Clay-dark, olive, saturated		CL	11,13	
							SP		
					WELL DESTROYED BY PIPELINE CONSTRUCTION (1993)				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW8S	**BORING NO.** MPT-2-8
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/22/87	**COMPLTD:** 9/22/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.429 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 4.0 FT.
LOGGED BY: R. M. Nugent	**WELL DEVELOPMENT DATE:** 9/22/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0		SS1	1.8/2'	0	Sand-top (0.4') fine, top soil, dark brown, dry/ middle (0.4') fine to medium, light tan, dry, few shell fragments/ bottom same as above, trade gravel, moist with a clay layer (0.4') interbedded with some sand, some shell		SP	14,31,35,41	
	YES	SS2	1.5/2'	0			CL		
							SP	19,27,28,28	▽
5		SS3	1.5/2'	0	Sand-fine to medium, gray, saturated, few shell fragments			2,5,7,12	
10		SS4	1.8/2'	0	Clay-dark olive, organic		CL	4,5,5,10	
15									
20									
25									
30									

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW7S	**BORING NO.** MPT-2-7S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 7/15/87	**COMPLTD:** 7/22/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3.5-10.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.58 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 12.0FT.	**DPTH TO ⊽** 4.75 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/23/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1		2.8	Clay-dark brown, stiff, some vegitation on the top soil		CL	8,20,38,27	
	YES	SS2		5.2	Sand-fine to medium, few shells, dry		SP	13,13,9,11	
					Sand-same as above, tan, dry to moist				
		SS3		8.2				11,27,3,1	
5									
10		SS4		4.80	Sand-fine to medium, light grey, few shell fragments, saturated			5,2,2,5	
					Clay-dark olive, shelly, moist		CL		
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW7I		**BORING NO.** MPT-2-7D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/23/87	**COMPLTD:** 9/23/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 15-25'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.08 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 25.0FT.	**DPTH TO ▽** 7.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/23/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top soil (0.2') clayey with vegitation		SP		
					Clayey sand-middle (0.2-0.4') dark brown, stiff, shell fragments and sand , dry		CL		
					Sand-fine to medium, light tan with few shell fragments, dry		SP		
					Sand-same as above		SC		
5					Sand-same as above, dry to moist with a layer (0.3') clay interstetial with sand, few gravel/pebble concretions		SP		
10		SS1	1.4/2'	0	Sand-fine to coarse, grey, some shell fragments, saturated		CL	20,31,19,18	
		SS2	0.9/2'	0.3	Claayey Sand-dark brown, saturated, trace shell fragments		SC	3,4,12,17	
					Clay-dark olive, saturated				
15		SS3	1.2'	0	Sand-fine to medium, brown, saturated, few shell fragments, bottom grey to green, no shells		SP	-	
		SS4		25				20,21,21,19	
20									
25		SS5	2.0/2'	0	Clay-grey to green, plastic, stickey		CL	-	
					Sandy Clay-grey to green, grading back to clay				
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-2-MW8S		**BORING NO.** MPT-2-8
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 8/23/87	**COMPLTD:** 8/23/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.5 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 8/23/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	YES	SS1	1.2/2'	8.6	Sand-top (0.4")/ top soil, fine, brown, dry, middle (0.4-1')/ fine to medium, tan, bottom/ black, similar to burnn asphalt, dry		SP	13,12,11,14	
		SS2	0.2/2'		No sample in spoon-Augured mat black gravel with fine to coarse sand			18,17,19,25	▽
5		SS3	0.8/2'	8.0	Sand-fine to coarse, dark grey, few shells, trac clay, saturated bottom/ as above, light gray, few shell fragments, saturated			13,18,17,21	
10		SS4	2/2'	0	Clay-dark olive clay, saturated		CL	2,3,2,1	
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW9I	**BORING NO.** MPT-2-9I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/22/87	**COMPLTD:** 9/22/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 15-25'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.58 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 25.0FT.	**DPTH TO ∇** 7.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/23/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0	YES	SS1	1.8/2'	3.5	Sand-fine to medium, dark brown, dry		SP	8,8,27,30	
			1.85/2'		Sand-fine to medium, light brown, dry, few shell fragments				
5		SS2	1.8/2'	78.3	Sand-as above			18,28,30,21	
			2.0/2'		Sand-fine, gray, moist, trade shell fragments, bottom saturated				
		SS3	2/2'	2.3				2,2,3,4	
10		SS4	1.5/2'	13.0	Clay-dark olive, saturated		CL	6,6,37,22	
		SS5	1.3/2'	8.7	Sand-fine, light brown, saturated, bottom gray with few shell fragments		SP	?	
15		SS6	2.0/2'	0.8	Sand-as above			9,15,31,?	
20		SS7	1.3/2'	11.2	Sand-as above			?	
25		SS8	-	14.5	Sand-fine, gray, saturated, some shell fragments in the bottom			?	
6@					WELL ABANDONED BY GROUTING (1994)				
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW9S		**BORING NO.** MPT-2-9S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/22/87	**COMPLTD:** 9/22/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 15-25'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.53 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: R. M. Neugent	**WELL DEVELOPMENT DATE:** 9/22/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					Sand-fine to medium, dark to light brown, dry, few shell fragments		SP		
10					Clay-dark olive, saturated		CL		
15					Sand-fine, light brown, saturated, bottom gray with few shell fragments		SP		
					WELL ABANDONED BY GROUTING (1994)				

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW10S	**BORING NO.** MPT-2-10
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/10/87	**COMPLTD:** 9/10/87
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.3 FT.	**MONITOR INST.:** Hnu / **TOT DPTH:** 15.0FT.	**DPTH TO ▽** 5.8 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/17/87	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.5/2'	7.1	Sand-fine to medium, light gray, shell fragments, well sorted with a top sandy clay layer, slightly moist		SP	40,34,40,34	
5	YES	SS2	-	15.3	Sand-fine to medium, shells and fragments, very moist			9,21,18,13	▽
10		SS3		5.1	Silty Clay-dark olive to black, decomposed organic matter, very moist		OL	5,4,4,7	
15		SS4	-	5.3	Sand-fine, light tan, organic matter, saturated		SP	8,9,11,17	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW11S	**BORING NO.** MPT-2-MW11S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/21/92	**COMPLTD:** 1/21/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12'	**PROTECTION LEVEL:** D
TOC ELEV.: 5.73 FT.	**MONITOR INST.:** PORTA-FID	**TOT DPTH:** 12FT.	**DPTH TO ▽** 2.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 1/28/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT-2-11-1.5-1	☒	N/A	0	SAND-very fine to fine, grey Note: Resampled on 1/24/92 utilizing a stainless steel hand auger		SP	3,4,3,4	
5			1.7/2	0	CLAY-dark brown, highly organic		OH	1,2,1,-	
10									
					Boring terminated @ 12'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MWIII	**BORING NO.** MPT-2-MWIII
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/27/94	**COMPLTD:** 08/27/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 5.77 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32.0FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/30/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, dark brown to tan.		SM	Posthole	▽
5			1.8/2	0	Silty Sand-fine, brown to gray.			1,1,1,1	
10			0/2		Shelby push tube attempted - no recovery			UD/Shelby Push Tube Sample	
15			1.5/2	0	Silty Sand-estimated contact fine, yellowish brown to brown with trace clay.			2,2,2,3	
20			2/2	1	Clayey Sand-fine, trace silt, yellowish green.		SC	1,1,1,2	
25			1.8/2	0	Clayey Sand-fine, yellowish green.			1,1,1,1	
30			1/2		Estimated contact Silty Sand-fine to medium, few shells.		SM	2,2,2,8	
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-2-MW12S		**BORING NO.** MPT-2-MW12S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/24/92	**COMPLTD:** 1/24/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12'	**PROTECTION LEVEL:** D
TOC ELEV.: 5.51 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12FT.	**DPTH TO ▽** 3.00 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** 1/28/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT-2-12-2.5-I	☒		0	SAND-fine, tan Note: Sample obtained with stainless steel hand auger		SP		
5				0	SAND-fine, dk. brown, high clay content w/ organics		SC		
10				0	CLAY-dk. brown, highly organic		OL		
					Boring terminated @ 12'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW12I	**BORING NO.** MPT-2-MW12I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/27/92	**COMPLTD:** 1/27/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 14-24'	**PROTECTION LEVEL:** D
TOC ELEV.: 5.42 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 24.5FT.	**DPTH TO ∇** 5.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 1/28/92	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan		SP		
							SC		
5					SAND-fine, dk. brown, high clay content w/ organics				
							OL		
10					CLAY-dark brown, highly organic				
15			1.8/2	5.5	SAND-very fine to silty, dark grey, saturated		SM	1,1,2,6	
20			0.5/2	1.2	GRAVEL SIZE SHELL FRAGMENTS		GP	6,5,6,6	
			2/2	2.4	SAND-very fine to silty, grey, w/ abundance of shell fragments		SP	4,5,6,8	
25					Boring terminated @ 25'				
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW13S	**BORING NO.** MPT-2-MW13S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/21/94	**COMPLTD:** 07/21/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.57 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/28/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine to medium, tan to brown.		SM	Posthole	
5			1/2	0	Silty Sand-fine to medium, light gray with minor % shells.			7,20,20,19	
								Observation	
10			2/2	0	Sandy Clay Shelby Push Tube Attempted - Full Recovery		CL	UD/Shelby Push Tube Sample	
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW15I	**BORING NO.** MPT-2-MW15I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 8/23/87	**COMPLTD:** 8/23/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 15-25'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.88 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 25.0FT.	**DPTH TO ▽** 7.4 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 8/23/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Clay-dark olive, saturated, some organic matter		SP		
					Sand - top (0.4-0.8') fine, uniform, tan, shell fragments, middle (0.8-0.7') dark brown clay with some sand bottom/ fine to medium, mottled grayish brown, poorly sorted				
					Sand - top (0.4') fine to medium, light gray to tan, dry middle (0.4-1.0) medium to coarse, dark to light gray bottom (1.0-1.85) light gray to tan, with a layer of plastic clay interbedded with sand, Fe Oxide bands				
5									
10		SS1	2.0/2'	0	Sandy clay- fine to medium, dark brown, dry		SC	1,1,3,3	
					Clay- light gray, moist, bottom/ dark green to olive with organic material, plastic, moist		CL		
	YES	SS2	2.0/2'	0				10,3,7,4	
					Clayey Sand-dark grey Clayey Sand-with vegitation		SC		
15		SS3	0.8/2'	8.8	Sand- top (0.4-0.8')/ fine, uniform, tan, shell fragments, middle (0.8-0.7')/ dark brownn clay with some sand bottom/ fine to medium, motteled greyish brown, poorly sorted		SP	8,8,13,15	
					Sand- top (0.4')/ fine to medium, light gray to tan, dry middle (0.4-1.0)/ medium to coarse, dark to light gray bottom (1.0-1.85)/ light grey to tan, with a layer of plastic clay interbedded with sand, Fe Oxide bands				
20					Sandy clay-fine to medium, dark brown, dry				
					Clay-light gray, moist, bottom/ dark green to olive with organic material, plastic, moist				
					Clay-green/brown to olive, organic matter, moist				
					Clayey Sand-very fine, light grey, moist				
25		SS4	2.0/2'	2.8				8,9,8,4	
30									

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW15S	**BORING NO.** MPT-2-MW15S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/14/87	**COMPLTD:** 9/14/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.85 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15.0FT.	**DPTH TO ▽** 4.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/14/87		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0		SS1	1.1/2'	2.7	Clayey Sand-with vegitation		SP	11,17,20,28	
	YES	SS2	1.85/2'	0	Sand- top (0.4-0.8')/ fine, uniform, tan, shell fragments, middle (0.8-0.7')/ dark brownn clay with some sand bottom/ fine to medium, motteled greyish brown, poorly sorted			9,10,16,20	
5			2.0/2'		Sand- top (0.4')/ fine to medium, light gray to tan, dry middle (0.4-1.0)/ medium to coarse, dark to light gray bottom (1.0-1.85)/ light grey to tan, with a layer of plastic clay interbedded with sand, Fe Oxide bands				
10		SS3		4.1	Sandy clay-fine to medium, dark brown, dry		SC	1,2,2,2	
					Clay-light gray, moist, bottom/ dark green to olive with organic material, plastic, moist		CL		
15		SS5	2.0/2'	4.3	Clay-green/brown to olive, organic matter, moist			4,8,20,13	
					Clayey Sand-very fine, light grey, moist		SP		
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW18S	**BORING NO.** MPT-2-MW18S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/21/92	**COMPL.TD:** 1/21/92
METHOD: H.S.A.	**CASE SIZE:** 2" **SCREEN INT.:** 2-12'	**PROTECTION LEVEL:** D
TOC ELEV.: 5.51 FT.	**MONITOR INST.:** PID **TOT DPTH:** 12FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 1/22/92	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					Sandy brown fill w/ shell fragments		SP		
	MPT-2-18-2-1	☒	0/2		No sample recovered Note: Resampled 1/24/92 utilizing stainless steel hand auger			22,14,14,12	
5									
			2/2	1.0	SAND-fine, grey, saturated CLAY-dark brown, highly organic		PT	8,4,3,4	
10									
					Boring terminated @ 12'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-2-MW16D	**BORING NO.** MPT-2-MW16D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/17/92	**COMPLTD:** 1/20/92
METHOD: Mud Rotary	**CASE SIZE:** 4"	**SCREEN INT.:** 90-100'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.89 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 100FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** 2/14/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5			1/2	0	SAND-fine, brown, w/ shell fragments		SP	3,5,14,10	▽
10			1.7/2	1.0	CLAY-silty, dk. brown, some organics, soft		OL	N/A	
15			0.7/2	0	SAND-fine to medium, dk. brown, saturated		SP	1,1,3,4	
20			1.8/2	0.3	SAND-very fine to fine, gray, w/ shell fragments		SP	1,1,4,3	
25			N/A	0.7	SAND-very fine to silty, gray, trace shell fragments		SM	1,2,2,3	
30			1.8/2	N/A	SAND-clayey, fine to medium, olive green, w/ shell fragments		SC	2,4,5,4	

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-2-MW16D		**BORING NO.** MPT-2-MW16D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/17/92	**COMPLTD:** 1/20/92
METHOD: Mud Rotary	**CASE SIZE:** 4"	**SCREEN INT.:** 90-100'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.68 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 100FT.	**DPTH TO ∇** 3.5 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** 2/14/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1.8/2				SC		
35			1/2	N/A				3,3,4,4	
							GC		
			1.8/2	N/A	CLAY-olive green, stiff, good plasticity (21") over SAND-fine to medium, silty, gray (3")		CH SM	5,4,11,22	
40									
			1/2	N/A				15,18,27,33	
45									
			1.2/2	N/A	SAND-silty, gray, w/ small clay lenses 1" thick every 4"		SC	15,21,34,50	
50			1.2/2	N/A	SAND-very fine to fine, w/ some silt, tan, tight, wet		SM	15,28,21,37	
55									
			1.2/2	N/A				15,10,20,22	
60									

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW16D		**BORING NO.** MPT-2-MW16D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/17/92	**COMPLTD:** 1/20/92
METHOD: Mud Rotary	**CASE SIZE:** 4"	**SCREEN INT.:** 90-100'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.89 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 100FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** 2/14/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
65			2/2	0	SAND-as above (3") over Gravel size shell fragments and quartz, loose (1") over SAND-as above (3")		SM GC SM	15,29,41,32	
70			1/2	1.0	CLAY-silty, olive green, some interbedded limestone fragments		CL	8,8,22,25	
75			1.2/2	1.2	CLAY-as above			24,8,8,8	
80			1.8/2	0	CLAY-as above			19,29,50,-	
85			1.8/2	0	CLAY-as above			15,25,29,33	
90			1.8/2	0	CLAY-as above			12,18,17,18	

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW16D	**BORING NO.** MPT-2-MW16D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/17/92	**COMPLTD:** 1/20/92
METHOD: Mud Rotary	**CASE SIZE:** 4"	**SCREEN INT.:** 90-100'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.69 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 100FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** 2/14/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
			1.8/2				CL		
95			1.5/2	1.8	CLAY-as above (8") over SAND-fine, gray, wet			27,33,50,-	
			1.2/2	3.7	SAND-as above (1") over CLAY-as above (3")		SM		
							CL	18,22,22,35	
100					Boring terminated @ 100'				
105									
110									
115									
120									

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW17S	**BORING NO.** MPT-2-MW17S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/21/92	**COMPLTD:** 1/21/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.73 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 13FT.	**DPTH TO ▽** 5.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 2/12/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan, shell fragments		SP		
			N/A	0	No sampled recovered			4,2,1,1	
5			1.5/2	0	SAND-fine, gray, shell fragments, saturated			1,1,1,-	
10									
15					Boring terminated @ 13'				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW17I	**BORING NO.** MPT-2-MW17I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 06/27/94	**COMPLTD:** 06/27/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.83 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32.0FT.	**DPTH TO ▽** 2.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 06/30/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-dark brown over Silty Sand-brown, w/cobble sized cemented sands		SM	Posthole	▽
5				0	Silty Sand-fine, grey, w/shell fragments			Observation	
10					Silty Sand-As above				
15					Silty Sand-As above			Observation	
20					Silty Sand-As above, w/ some shell fragments				
25					Silty Clay-olive green		CL	Observation	
30					Silty Sand-fine, saturated		SM		
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW17D		**BORING NO.** MPT-2-MW17D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/21/92	**COMPLTD:** 1/29/92
METHOD: Mud Rotary	**CASE SIZE:** 4"	**SCREEN INT.:** 115-125'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.79 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 125FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 2/12/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan, shell fragments		SP		
5					SAND-fine, fine, gray, shell fragments, saturated				
10									
15			1.8/2	0	SAND-as above			4,3,2,2	
20			1.8/2	0.2	SAND-as above, w/ abundance of shell fragments			5,5,7,8	
25			2/2	0	CLAY-very silty, olive green		CL	2,2,3,4	
							SM		
30			1/2	0.3				7,8,18,25	

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW17D		**BORING NO.** MPT-2-MW17D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/21/92	**COMPLTD:** 1/29/92
METHOD: Mud Rotary	**CASE SIZE:** 4"	**SCREEN INT.:** 115-125'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.79 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 125FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 2/12/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1/2		SAND-very fine to silty, saturated		SM		
35			1.5/2	0.2	SAND-fine to medium, tan, w/ some shell fragments (1') over SAND-very fine to silty, w/ abundance of shell fragments (6")			38,31,30,32	
							SP		
40			0.8/2	0.2	SAND-very fine to fine, gray, w/ some shell fragments, wet			38,50,-,-	
45			0.8/2	1.3	SAND-as above			14,18,24,21	
50			0.5/2	0	SAND-as above			10,18,25,22	
							CL		
55			0.5/2	0	CLAY-silty, gray			8,10,10,14	
60							SM		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW17D		**BORING NO.** MPT-2-MW17D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/21/92	**COMPLTD:** 1/29/92
METHOD: Mud Rotary	**CASE SIZE:** 4"	**SCREEN INT.:** 115-125'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.78 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 125FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 2/12/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
65			2/2	0.4	SAND-very fine to silty, tan, w/ a few shell fragments + 1" bands of clay every 4"		SM	24,18,14,27	
70			1.5/2	0.3	SAND-very fine, gray, hard, w/ some shell fragments		SP	24,42,50,-	
75			2/2	0.2	SAND-as above, w/ phosphate nodules			4,18,29,28	
80			2/2	0.2	SAND-fine to medium, olive green, wet (8") over CLAY-sandy, olive green, hard (15")		CL	10,11,8,22	
							SM		
85			2/2	0.3	SAND-very fine to silty, olive green, moist, w/ black phosphate nodules			5,5,8,11	
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW17D	**BORING NO.** MPT-2-MW17D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/21/92	**COMPLTD:** 1/29/92
METHOD: Mud Rotary / **CASE SIZE:** 4"	**SCREEN INT.:** 115-125'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.79 FT. / **MONITOR INST.:** PID	**TOT DPTH:** 125FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 2/12/92	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
			2/2	0.2	SAND-as above		SM	4,8,8,8	
95			2/2	0.2	SAND-as above			5,8,14,18	
100			2/2	0.3	SAND-as above			9,11,17,17	
105			2/2	0.8	SAND-as above		SC	14,21,20,30	
110			2/2	0.2	SAND-as above, w/ higher clay content			12,10,16,20	
115			2/2	0.2	CLAYEY SAND- as above			14,12,18,21	
120			1/2	0.2				12,18,17,21	

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-MW17D		**BORING NO.** MPT-2-MW17D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/21/92	**COMPLTD:** 1/29/92
METHOD: Mud Rotary	**CASE SIZE:** 4"	**SCREEN INT.:** 115-125'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.79 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 125FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 2/12/92		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 4				
			1/2		CLAYEY SAND- as above		SC		
125			1.5/2	0.2	CLAYEY SAND- as above			3,4,7,10	
					Boring terminated @ 125'				
130									
135									
140									
145									
150									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW18S	**BORING NO.** MPT-2-MW18S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/02/94	**COMPLTD:** 08/02/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.37 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 2.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/29/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, tan to white.		SM	Posthole	
			1.5/2	0	Silty Sand-fine, minor % shells, light gray.			7,10,8,5	
5									
								Observation	
10			2/2	0	Silty Sand (10-10.5')-fine, gray, over Clay (10.5-11.5')-medium plasticity, greenish gray, over Silty Sand (11.5-12')-fine, greenish gray.		CL	1,2,2,2	
							SM		
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW18I				
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW18I	**BORING NO.** MPT-2-MW18I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/28/94	**COMPLTD:** 08/28/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.51 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 2.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/30/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, tan to white.		SM	Posthole	▽
			1.5/2	0	Silty Sand-fine, few shells, light gray.			7,10,8,5	
10			2/2	0	Silty Sand (10-10.5')-fine, gray, over Clay (10.5-11.5')-medium plasticity, greenish gray, over Silty Sand (11.5-12')-fine, greenish gray.		CL SM	1,2,2,2	
15			1.2/2		Silty Sand-fine, greenish brown with trace clay.			2,2,2,2	
20			1.5/2	0	Silty Sand-As above			1,1,1,2	
25			1.5/2	0	Silty Sand-fine, minor % shells, gray.			2,2,2,2	
30			1.8/2	0	Silty Sand-As above			2,6,8,15	
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW19S	**BORING NO.** MPT-2-MW19S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/08/94	**COMPLTD:** 07/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-35 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 32.50 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 37FT.	**DPTH TO ▽** 27 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/13/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine to medium, dark brown to tan.		SM	Posthole	
5				0	Silty Sand-fine, tan.			Observation	
10				0	Silty Sand-as above.			Observation	
15				0	Silty Sand-as above.			Observation	
20									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW19S		**BORING NO.** MPT-2-MW19S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/08/94	**COMPLTD:** 07/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-35 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 32.50 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 37FT.	**DPTH TO ▽** 27 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/13/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1.5/2	0	Silty Sand-fine to medium, few shells, wet, gray.		SM	8,4,4,6	
25			1/2	0	Silty Sand-fine to medium, few shells, gray.			8,4,4,6	▽
30			1.5/2	4	Silty Sand-fine to medium, medium sized shell fragments, saturated gray.			2,4,4,5	
35			1.5/2	3	Silty Sand (35-35.5')-As above over Silty Clay (35.5-37')- minor % organics, dry, greenish brown.		OL	4,8,3	
					TOTAL DEPTH OF BORING = 37' BLS				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW20S		**BORING NO.** MPT-2-MW20S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/07/94	**COMPLTD:** 07/07/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 24.5-34.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 32.09 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 37FT.	**DPTH TO ▽** 27 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/13/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Silty Sand-fine, brown to tan.		SM	Posthole	
5									
				0	Silty Sand-fine, tan.			Observation	
10									
				0				Observation	
15									
					Silty Sand-estimated contact, fine, tan.		SC		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW20S	**BORING NO.** MPT-2-MW20S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/07/94	**COMPLTD:** 07/07/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 24.5-34.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 32.08 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 37FT.	**DPTH TO ▼** 27 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/13/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1/2	2	Clayey Sand-fine to medium, trace clay, dark gray to light gray.		SC	4,4,4,3	
25			1/2	>1000	Clay (25-25.25')-dark greenish gray with trace organics, over Silty Sand-fine, wet, grayish green.		CL SM	3,2,6,6	
30			1.5/2		Silty Sand (30-30.5')-fine, trace clay, light gray to white over Clay (30.5-30.75')-greenish gray over Silty Sand (30.75-30.88')-fine, light gray, over Clay-low plasticity, trace organics, grayish green.		CL SM CL	5,4,1,1	
35			1.7/2	30	Clay-stiff, low to medium plasticity, trace organics, brownish gray.			1,1,1,4	
40					TOTAL DEPTH OF BORING = 37' BLS				

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW21S	**BORING NO.** MPT-2-MW21S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/03/94	**COMPLTD:** 08/03/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.58 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 13.5FT.	**DPTH TO ▽** 4.0 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/28/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Silty Sand-fine to medium, tan to white.		SM		
					Silty Sand-as above, saturated at 4', white to gray.			Posthole	
5			1.5/2	15	Silty Sand-fine, green to gray.			3,1,1,1	
				0	Silty Sand- (observed from cuttings) as above.			Observation	
					Estimated contact between Silty Sand and Clay.		CL		
10			2/2	5	Clay (10-10.5')-low to medium plasticity, olive green to gray, over Silty Sand (10.5-13.5')-fine, greenish gray.		SM	1,1,4,5	
					TOTAL DEPTH OF BORING = 13.5' BLS				
15									
20									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW22I	**BORING NO.** MPT-2-MW22I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/20/94	**COMPLTD:** 07/20/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.09 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ∇** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/28/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-dark brown to tan with trace debris.		SM	Posthole	
5			0.7/2	0	Silty Sand-fine to medium, tan with trace shells.			1,2,2,1	
10			0.7/2	0	Silty Sand-fine to medium, gray.			1,1,1,1	
15			1/2	0	Silty Sand-fine, greenish gray with trace clay.			1,2,2,2	
20			0.7/2	0	Silty Sand-As above			4,1,1,1	
25			0/2		Shelby Push Tube Attempted - No Recovery			UD/Shelby Push Tube Sample	
30			0/2		Shelby Push Tube Attempted - No Recovery			UD/Shelby Push Tube Sample	
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW22S	**BORING NO.** MPT-2-MW22S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/21/94	**COMPLTD:** 07/21/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.09 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/22/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-dark brown to tan with trace debris.		SM	Posthole	
5			0.7/2	0	Silty Sand-fine to medium, tan with trace shells.			1,2,2,1	
10			0.7/2	0	Silty Sand-fine to medium, gray.			1,1,1,1	
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW22I LOG.				
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, Fl.	**LOG of WELL:** MPT-2-MW23S		**BORING NO.** MPT-2-MW23S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/29/94	**COMPLTD:** 08/29/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 5.22 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 13.5FT.	**DPTH TO ▽** 4 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/30/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-light brown to tan.		SM	Posthole	
					Clay-sand lenses with minor % shells, gray.		CL		
5			2/2	0				1,1,WOR	
10			1.5/2	0	Clay (10-11.5')-dark olive green, over Silty Sands.			1,1,1,1	
					Silty Sand-grayish green with trace clay.		SM		
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW23I LOG.				
15					TOTAL DEPTH OF BORING = 13.5' BLS				
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW23I	**BORING NO.** MPT-2-MW23I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/27/94	**COMPLTD:** 08/27/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 5.38 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 4 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/30/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-light brown to tan.		SM	Posthole	▽
5			2/2	0	Clay-sand lenses with minor % shells, gray.		CL	1,1,WOR	
10			1.5/2	0	Clay (10-11.5')-dark olive green, over Silty Sands.		SM	1,1,1,1	
15			1.5/2	0	Silty Sand-grayish green with trace clay.			1,1,2,1	
20			1.8/2	0	Silty Sand-fine to medium, yellowish green.			WOR	
25			1.8/2	0	Silty Sand-fine to medium, yellowish green.			1,1,1,1	
30			0.5/2	0	Silty Sand-fine to medium, minor % shells.			1,1,1,3	
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW24S		**BORING NO.** MPT-2-MW24S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/30/94	**COMPLTD:** 08/30/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 24.5-34.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 32.29 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 37FT.	**DPTH TO ▽** 27 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Silty Sand-fine, dark brown to light tan.		SM		
				0				Posthole	
5				0	Silty Sand-tan.			Observation	
10					Silty Sand-fine, tan.				
				0				4,15,21,33	
15					Silty Sand- (observed from cuttings) as above.				
				0				Observation	
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW24S		**BORING NO.** MPT-2-MW24S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/30/94	**COMPLTD:** 08/30/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 24.5-34.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 32.29 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 37FT.	**DPTH TO ▽** 27 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			2/2	0	Silty Sand-fine, gray to dark gray.		SM	7,14,21,27	
25			1.5/2	0	Silty Sand-fine to medium, black and white shell fragments, light gray.			3,8,8,5	
30			2/2	0	Silty Sand-light gray to white over Sandy Clay (31.5-35')-olive green mottled with black.			1,2,1,2	
							CL		
					Estimated contact between Sandy Clay and Silty Sand.		SM		
35			1.5/2	0	Silty Sand-fine, minor % shells, organics, light gray, black to brown.			8,12,1,1	
					TOTAL DEPTH OF BORING = 37' BLS				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW25S		**BORING NO.** MPT-2-MW25S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/08/94	**COMPLTD:** 07/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-35 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 32.07 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 35.5FT.	**DPTH TO ▽** 25.0 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/13/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, tan with trace shells.		SM	Posthole	
5				0	As above			Observation	
10				0	As above			Observation	
15				0	As above			Observation	
20					Silty Sand (20-20.25')-fine, gray, over Sandy Clay (20.25-25')- estimated contact, gray with trace organic material.		CL		
25				0	Silty Sand-fine to medium, light gray to dark gray with trace shell fragments.		SM	Observation	▽
30							SC		

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW25S		**BORING NO.** MPT-2-MW25S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/08/94	**COMPLTD:** 07/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-35 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 32.07 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 35.5FT.	**DPTH TO ▽** 25.0 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/13/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
					Clayey Sand-fine, greenish gray with trace shell fragments.		SC		
35					Silty Sand (35-35.5') over Clay-greenish gray with trace silt.				
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW25I LOG.				
					TOTAL DEPTH OF BORING = 35.5' BLS				
40									
45									
50									
55									
60									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW25I	**BORING NO.** MPT-2-MW25I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/08/94	**COMPLTD:** 07/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 50-55 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 31.78 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 57FT.	**DPTH TO ▽** 25 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/13/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, tan with trace shells.		SM	Posthole	
5				0	As above			Observation	
10				0	As above			Observation	
15				0	As above			Observation	
20			1.5/2	0	Silty Sand- (20-20.25'), fine, gray, over Sandy Clay, (20.25-25'), estimated contact, gray with trace organics.		CL	1,6,8,10	
25			1/2	0	Silty Sand-fine to medium, light gray to dark gray with trace shell fragments.		SM	3,4,4,4	▽
30							SC		

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW25I	**BORING NO.** MPT-2-MW25I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/08/94	**COMPLTD:** 07/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 50-55 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 31.78 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 57FT.	**DPTH TO ∇** 25 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/13/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1.8/2	8	Clayey Sand-fine, greenish gray with trace shell fragments.		SC	1,2,1,1	
35			2/2	0	Silty Sand (35-35.5') over Clay-greenish gray with trace silt.		SM	WOR,1,1,2	
40			1.8/2	0	Clayey Sand-fine, yellowish brown.		SC	1,1,1,1	
			0/2					UD/Shelby Push Tube Sample	
45			1.5/2	0	As above			WOR	
					Shelby Push Tube Attempted - No Recovery				
50			1.8/2	0	Silty Sand-gray with trace shell fragments.		SM	1,1,1,2	
55			2/2	0	As above			1,2,7,5	
					TOTAL DEPTH OF BORING = 57' BLS				
60									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW26S		**BORING NO.** MPT-2-MW26S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/29/94	**COMPLTD:** 08/29/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 30-40 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 32.41 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 40.5FT.	**DPTH TO ▽** 22 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil-brown		SM		
5				0	Silty Shelly Sand-brown, over Silty Sand (1.25-10')-fine, tan.			Observation	
10					Silty Sand-fine, tan to white with minor % black grains.				
15					Silty Sand- (observed from cuttings) as above.				
				0				Observation	
20					Silty Sand-fine, saturated, tan to white w/ minor % black grains.				▽
25				0				Observation	
					Silty Sand-light gray with minor % black grains.				
30									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW26S	**BORING NO.** MPT-2-MW26S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/29/94	**COMPLTD:** 08/29/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 30-40 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 32.41 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 40.5FT.	**DPTH TO ▽** 22 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
					Silty Sand-as above.		SM		
35				0				Observation	
					Silty Sand-light gray with minor % black grains over Clay (38.5-40')- low plasticity, dry, black to grayish green.		CL		
40					Clay-stiff, medium to high plasticity, grayish green with a trace of brown to red organic material.		CH		
					LITHOLOGIC DESCRIPTION OBTAINED FROM MPT-2-MW28I LOG.				
					TOTAL DEPTH OF BORING = 40.5' BLS				
45									
50									
55									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW26I		**BORING NO.** MPT-2-MW26I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/29/94	**COMPLTD:** 08/29/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 50-55 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 32.35 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 57FT.	**DPTH TO ▽** 22 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil-brown		SM		
5				0	Silty Shelly Sand-brown, over Silty Sand (0.25-10')-fine, tan.			Observation	
10			0.5/2	0	Silty Sand-fine, tan to white with minor % black grains.			5,4,3,3	
15				0	Silty Sand- (observed from cuttings) as above.			Observation	
20			1/2	0	Silty Sand-fine, wet, tan to white with minor % black grains.			4,5,5,3	▽
25			1/2	0	Silty Sand-light gray with minor % black grains.			2,2,2,2	
30			1.5/2	0	Silty Sand-as above.			4,7,9,7	
35									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW26I	**BORING NO.** MPT-2-MW26I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/29/94	**COMPLTD:** 08/29/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 50-55 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 32.35 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 57FT.	**DPTH TO ∇** 22 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/08/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1.5/2	0	Silty Sand-light gray with minor % black grains over Clay (38.5-40')- low plasticity, dry, black to grayish green.		SM	3,4,1,1	
							CL		
40			0.8/2	0	Clay-stiff, medium to high plasticity, grayish green with a trace of brown to red organic material.		CH	2,3,3,4	
					Estimated contact		SM		
45			1/2	0	Silty Sand-light greenish gray.			1,1,1,1	
50			2/2	0	Silty Sand-w/ minor % shell fragments, light gray to greenish gray.			2,3,4,8	
55			1/1	0	Silty Sand-fine, minor % shells, grayish green.			3,2,1,1	
					TOTAL DEPTH OF BORING = 57' BLS				
60									
65									
70									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW27I		**BORING NO.** MPT-2-MW27I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/28/94	**COMPLTD:** 08/28/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.99 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ∇** FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/30/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Top Soil Silty Sand-fine, tan.		SM	Posthole	
5			1.5/2	0	Silty Shelly Sand-fine, lt. brown to lt. gray at 5.5'.			4,8,7,7	
					Estimated contact		CL		
10			1.5/2	0	Clay-organics, brown with intermittent 1" fine sand lenses.			2,2,2,2	
			0/2		Shelby Push Tube Attempted - No Recovery			UD/Shelby Push Tube Sample	
15			2/2	0	Clay (15-15.33')-over Silty Sand (15.33-15.83')-over Clayey Sand.		SM	1,1,1,1	
20			1.8/2	0	Silty Sand-fine, yellowish green with minor clays.			2,2,2,2	
25			1/2	0	Silty Shell Sand-fine, abundant shell fragments, yellowish green.			0,0,0,1	
30			1.5/2	0	Silty Sand (30-30.87')-fine over Silty Shelly Sand-lt. gray.			3,1,8,14	
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW28S	**BORING NO.** MPT-2-MW28S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/21/94	**COMPLTD:** 07/21/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 4-14 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 17.38 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 14.5FT.	**DPTH TO ▽** 5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/28/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, tan.		SM	Posthole	
					Silty Sand-fine, tan.				
5			1/2	0				5,8,14,23	▽
					Silty Sand-fine, saturated.				
			1.5/2	0				28,22,30,21	
10					Estimated from cuttings				
					As above			UD/Shelby Push Tube Sample	
			0/2						
15					TOTAL DEPTH OF BORING = 14.5' BLS				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW28S	**BORING NO.** MPT-2-MW28S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/05/94	**COMPLTD:** 08/05/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.43 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/08/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil (0-0.5')		SM		
					Silty Sand-fine, trace shell fragments and fine gravel, tan.			Posthole	
					Silty Sand-fine to medium, shell fragments, tan to gray, wet.				▽
5			1.5/2	0	Silty Sand-fine, shell fragments, brown to lt gray, gravel lenses at 5.5'.			8,9,9,7	
					Estimated contact		CL		
10			2/2	0	Silty Clay-brown (10-10.87') over Silty Sands with a trace of organic material, brown.		SM	3,3,6,7	
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW30S	**BORING NO.** MPT-2-MW30S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/04/94	**COMPLTD:** 08/04/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.91 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 13.5FT.	**DPTH TO ▽** 3.8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Top Soil (0-1')-highly organic, clay, silt, and sand, brown. Crushed Limestone-sand size shells, tan to white. Crushed Limestone-sand size shell lens over Silty Sand-lt. gray, wet wet at 3' and saturated at 4'.		SM	Posthole	
5			1.5/2	0	Silty Sands-fine, minor gravel, lt gray, (0.5') over Silty Sand, fine, gray over (0.5') over Silty Sand, fine, minor % shell fragments, saturated.			7,10,10,8	
				0	Silty Sands-As above (observed from cuttings).			Observation	
10			1/2	0	Silty Sand-fine, gray, (0.33') over Silty Clay-medium to low plasticity, few organics, greenish brown. Silty Clay- (no spoon taken, lithology assumed to be the same as above).		CL	5,1,1,1	
15					TOTAL DEPTH OF BORING = 13.5' BLS				
20									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW31S	**BORING NO.** MPT-2-MW31S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/04/94	**COMPLTD:** 08/04/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 9.14 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▼** 3.0 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/08/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, light brown to tan.		SM	Posthole	▼
5					Silty Sand-fine, light brown to tan.			Observation	
10					Silty Sand-fine, minor % shell fragments, trace clay, gray.			Observation	
					Sandy Clay-tan over Silty Sand, light brown to tan.		CL		
15					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW31I LOG. TOTAL DEPTH OF BORING = 12.5' BLS				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW31I	**BORING NO.** MPT-2-MW31I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/09/94	**COMPLTD:** 07/09/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 9.08 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/21/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, light brown to tan.		SM	Posthole	
5					Shelby Push Tube Attempted - No Recovery			UD/Shelby Push Tube Sample	
10					Silty Sand-fine, minor % of shell fragments, trace clay, gray.				
			1/2	0	Sandy Clay-tan, to Silty Sand, light brown to tan.		CL	4,1,1,1	
15					Estimated contact		SC		
					Estimated contact		CL		
20			0.5/2	0	Sandy Clay-yellowish green.			4,1,2,2	
25			1/2	0	Silty Sand- (25-25.67') fine, light yellowish green to white, over Clayey Sand, fine, yellowish green.		SM SC	3,1,1,1	
30			1/2	0	Silty Sand-fine, minor % shell fragments, lt. greenish gray with a 1" gray clay lens.		SM	18,43,26,11	
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW32S	**BORING NO.** MPT-2-MW32S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/05/94	**COMPLTD:** 08/05/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 12.48 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 7 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, brown to tan.		SM	Posthole	
5			1.3/2	20	Silty Sand- (5-5.87') fine, light gray, over Clay, high plasticity, wet, gray.		CL	1,3,6,4	
10			1/2	10	Clay-medium plasticity, soft, brown.			1,1,1,1	
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW32I LOG.				
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW32I	**BORING NO.** MPT-2-MW32I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/09/94	**COMPLTD:** 07/09/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.39 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 7 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/19/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, brown to tan.		SM	Posthole	
5			1.3/2	20	Silty Sand- (5-5.87') fine, light gray, over Clay, high plasticity, wet, gray.		CL	1,3,6,4	
10			1/2	10	Clay-medium plasticity, soft, brown.			1,1,1,1	
					Estimated contact		SC		
15			1.5/2	0	Clayey Sand- (15-15.5') fine, brown, over Silty Sand, fine, brown.		SM	2,2,4,5	
20									
25			1/2	0	Silty Sand-fine to medium, minor % shell fragments, greenish gray.			2,4,12,12	
30			1.6/2		Silty Sand-as above.			4,6,6,4	
					TOTAL DEPTH OF BORING = 32' BLS				
35									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW33S	**BORING NO.** MPT-2-MW33S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/04/94	**COMPLTD:** 08/04/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 9.47 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ∇** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-saturated at 3', tan to gray.		SM	Posthole	
				0				Observation	
5			1.5/2	0	Silty Sand-fine, saturated, minor % black and white shell fragments, light gray.			7,7,8,8	
10			1/2	0	Silty Sand (10-10.5')-fine, gray, over Organic Clay, gray to brown.		OL	1,4,2,2	
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW33I LOG.				
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW33I	**BORING NO.** MPT-2-MW33I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/10/94	**COMPLTD:** 07/10/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 9.33 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/19/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-saturated at 3', tan to gray.		SM	Posthole	
				0				Observation	
5			1.5/2	0	Silty Sand-fine, saturated, minor % black and white shell fragments, light gray.			7,7,8,8	
10			1/2	0	Silty Sand (10-10.5')-fine, gray over Organic Clay-gray to brown.		OL	1,4,2,2	
15			0/2		Silty Sand-fine, brown. Shelby Push Tube Attempted - No Recovery		SM	UD/Shelby Push Tube Sample	
20			2/2	0	Silty Sand-fine, light gray to white with few 1" clay lenses at 21.5'.			1,1,1,1	
25			2.2	0	Clay (25-25.25')-brown, over Silty Sand-fine, yellowish green with trace clay.		CL SM	1,1,2,4	
30			1.8/2	0	Silty Sand-fine, yellowish green to gray with trace clay.			1,2,3,5	
35					TOTAL DEPTH OF BORING = 32' BLS				

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW34S	**BORING NO.** MPT-2-MW34S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/05/84	**COMPLTD:** 08/05/84
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 10.46 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/84		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine to medium, dark brown to light gray.		SM	Posthole	
5			1/2	0	Silty Sand-fine, light gray over Clay-medium to high plasticity, gray.		CH	3,7,8,11	
10			1/2	0	Clay-medium to high plasticity, soft, gray.			1,1,1,1	
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW34I		**BORING NO.** MPT-2-MW34I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/10/94	**COMPLTD:** 07/10/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 10.81 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/22/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine to medium, dark brown to light gray.		SM	Posthole	
5			1/2	0	Silty Sand-fine, light gray over Clay-medium to high plasticity, gray.		CH	3,7,8,11	
10			1/2	0	Clay-medium to high plasticity, soft, gray.			1,1,1,1	
15			2/2		Clay-As above			Shelby	
20			0.5/2	0	Clay-medium to high plasticity, greenish gray over Clayey Sand-medium, minor % of shell fragments.		SC	3,4,2,2	
25			1/2	0	Clayey Sand-medium, minor % of shell fragments, greenish gray.			1,3,1,1	
30			2/2	0	Sandy Clay-soft, gray.		CL	1,1,1,1	
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW35S	**BORING NO.** MPT-2-MW35S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/4/94	**COMPLTD:** 08/4/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.38 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-0.5')		SM		
				0	Silty Sand-tan to white with gray mottling.			Posthole	
5			1/2	0	Clay-high plasticity, some organics, grayish green.		CH	1,1,1,1	
					Estimated contact		SM		
10			0.5/2	0	Silty Sand-fine, trace of shells, light tan.			2,2,4,5	
					LITHOLOGIC DESCRIPTION OBTAINED FROM MPT-2-MW35I LOG.				
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW35I		**BORING NO.** MPT-2-MW35I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/22/94	**COMPLTD:** 08/22/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 24-28 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.40 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/08/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Top Soil- (0-0.5') Silty Sand-tan to white with gray mottling.		SM	Posthole	
5			1/2	0	Clay-high plasticity, some organics, grayish green.		CH	1,1,1,1	
					Estimated contact		SM		
10			0.5/2	0	Silty Sand-fine, trace of shell fragments, light tan.			2,2,4,5	
15			1.5/2	0	Clayey Silty Sand-fine, shell fragments, saturated, grayish green.			1,2,2,3	
20			2/2	0	Silty Sand-fine, grayish green to light brown, 1" white layers.			8,7,17,12	
25			1.8/2	0	Silty Sand-As above, with trace of shell fragments.			2,4,4,3	
30			2/2	0	Silty Sand- (30-31') fine, light gray to white, over Silty Sand-light green (31-31.167') over Clay-stiff, yellowish green to grayish green, very fine yellowish brown sand stringers.		CL	2,2,4,4	
35					TOTAL DEPTH OF BORING = 32' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-2-MW36S	**BORING NO.** MPT-2-MW36S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/05/94	**COMPLTD:** 08/05/94
METHOD: 4.25" HSA	**CASE SIZE:** 4"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.58 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: PVC	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-0.5')				
					Silty Sand, tan.			Posthole	
					Silty Sand-fine, saturated, light gray to white.				
5			1/2	0				8,8,2,2	
10			2/2	5	Clay-some organics, High to Medium plasticity, light gray.			WOR	
					LITHOLOGICAL DESCRIPTION TAKEN FROM MPT-2-MW36D				
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-2-MW36I	**BORING NO.** MPT-2-MW36I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/20/94	**COMPLTD:** 08/20/94
METHOD: 4.25" HSA	**CASE SIZE:** 4"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.57 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 30.5FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/08/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-0.5').				
					Silty Sand, tan			Posthole	
					Silty Sand-fine, saturated, light gray to white.				
5									
10					Clay-some organics, High to medium plasticity, saturated, light gray.				
15					Clay-high plasticity, trace silty, gray.				
20					Silty Sand-fine, light gray to black with shell fragments.				
25					Silty Sand-fine, light gray to black with shell fragments.				
30					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW36D LOG				
					TOTAL DEPTH OF BORING = 30.5' BLS				
35									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW36D	**BORING NO.** MPT-2-MW36D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/20/94	**COMPLTD:** 08/20/94
METHOD: 4.25" HSA	**CASE SIZE:** 4"	**SCREEN INT.:** 50-60 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.47 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 62FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/10/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-0.5')				
					Silty Sand, tan.			Posthole	
5			1/2	0	Silty Sand-fine, saturated, light gray to white.			8,8,2,2	
10			2/2	5	Clay-some organics, high to medium plasticity, saturated, light gray.			WOR	
15			2/2	0	Clay-high plasticity, trace silty, gray.			0,0,1,1	
20			1/2	0	Silty Sand-fine, light gray to black with shell fragments.			1,1,2,3	
25			1/2	0	Silty Sand-fine, light gray to black with shell fragments.			0,0,1,1	
30			1/2	0	Sandy Clay-grayish green with a trace of shell fragments.			1,2,1,1	
35									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW36D		**BORING NO.** MPT-2-MW36D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 06/20/94	**COMPLTD:** 06/20/94
METHOD: 4.25" HSA	**CASE SIZE:** 4"	**SCREEN INT.:** 50-60 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.47 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 62FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/10/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1.8/2	0	Clayey Sand-fine, grayish green with trace clay.			4,4,8,10	
40			2/2		Sandy Clay-dense, grayish green with shell fragments.			Shelby	
45			1.8/2	0	Clayey Sand- (45-46.8'), fine to medium, tan to white, over Silty Sand, light gray to white.			2,2,2,4	
50			1.5/2	0	Clayey Sand-medium, shell fragments, orange to yellow.			1,2,4,8	
55			1.8/2	0	Silty Sand-fine to medium, yellowish brown to grayish green.			5,5,20,22	
60			1.8/2	0	Silty Sand-fine to medium, green to black, trace clay.			12,20,26,54	
					TOTAL DEPTH OF BORING = 62' BLS				
65									
70									

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-2-MW37S		**BORING NO.** MPT-2-MW37S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/04/94	**COMPLTD:** 08/04/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.93 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-1'),		SM		
					Silty Sand, tan to light gray			Posthole	
					Silty Sand-fine, light gray to white with trace organics.				
5			1/2	0				4,1,6,8	
10			1/2	0	Sandy Clay- (10-10.5'), over Clayey Sand, fine, grayish green.		CL SC	1,1,1,1	
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW36I LOG				
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-2-MW37I	**BORING NO.** MPT-2-MW37I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/22/94	**COMPLTD:** 08/22/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 24.5-29.5 FT. **PROTECTION LEVEL:** D
TOC ELEV.: 8.84 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 32FT. **DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/08/94	**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-1')		SM		
					Silty Sand, tan to light gray			Posthole	
5			1/2		Silty Sand-fine, light gray to white with trace organics.			4,1,6,8	
10			1/2		Sandy Clay- (10-10.5'), over Clayey Sand, fine, grayish green.		CL SC	1,1,1,1	
15			2/2		Silty Sand- (15-16'), fine, over Clay, brown.		SM CL	1,1,1,1	
					Shelby Push Tube Attempted - Full Recovery			UD/Shelby Push Tube Sample	
20			2/2		Clay-brown.			1,1,1,1	
25			1/2		Silty Sand-fine, saturated, light gray.		SM	3,5,7,10	
30			1.8/2		Silty Sand-fine, saturated, light gray.			2,3,3,3	
					TOTAL DEPTH OF BORING = 32' BLS				
35									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-2-MW38S	**BORING NO.** MPT-2-MW38S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/05/94	**COMPLTD:** 08/05/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.14 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/09/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-0.5'), over Silty Sand, fine, shells.		SM		
					Silty Sand-fine, with shell fragments			Posthole	
5			1.3/2	0	Silty Sand-fine, with shell fragments			8,9,7,12	▽
					Estimated contact		CL		
10			1.8/2	0	Clay-wet, some silt, greenish gray.			1,1,1,1	
					LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-2-MW38D				
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-2-MW38I	**BORING NO.** MPT-2-MW38I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/19/94	**COMPLTD:** 07/19/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.18 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/28/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-0.5').		SM		
					Silty Sand, fine, with shell fragments			Posthole	
5					Silty Sand, with shell fragments				▽
					Estimated contact		CL		
10					Clay-wet, some silt, greenish gray.				
15					Clay-wet,some silt, greenish gray.				
					Estimated contact		SC		
20					Silty Sand- (20-21.5'), fine, estimated contact, light gray to white, over Clayey Sand, light gray to green.		SM		
							SC		
					Estimated contact		SM		
25					Silty Sand-fine, saturated, light gray to white.				
30					Silty Sand-fine, saturated, light gray to white.				
35					LITHLOGIC DESCRIPTION OBTAINED FROM MPT-2-MW38D TOTAL DEPTH OF BORING = 32' BLS				

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW38D	**BORING NO.** MPT-2-MW38D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/18/94	**COMPLTD:** 08/18/94
METHOD: 4.25" HSA	**CASE SIZE:** 4"	**SCREEN INT.:** 50-60 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.38 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 67FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/10/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil- (0-0.5')		SM		
					Silty Sand, fine, shells.			Posthole	
5			1.3/2	0				8,9,7,12	
					Estimated contact		CL		
10			1.6/2	0	Clay-wet, some silt, greenish gray.			1,1,1,1	
15			2/2	0				1,1,1,1	
					Estimated contact		SC		
20			1.8/2	0	Silty Sand- (20-21.5'), fine, light gray to white, over Clayey Sand, light gray to green estimated contact.		SM	1,1,1,1	
							SC		
					Estimated contact		SM		
25			1.8/2	0	Silty Sand-fine, saturated, light gray to white.			1,1,1,1	
30			2/2	0	Silty Sand-fine, saturated, light gray to white			1,1,1,1	
35									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-2-MW38D	**BORING NO.** MPT-2-MW38D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 06/18/94	**COMPLTD:** 06/18/94
METHOD: 4.25" HSA	**CASE SIZE:** 4"	**SCREEN INT.:** 50-60 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.38 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 67FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/10/94		**SITE:** 2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1.8/2	0			SM	1,1,1,1	
40			2/2	0				1,1,2,3	
45			2/2	0	Silty Sand-fine, trace clay, light gray to white.			2,3,1,2	
50			1.5/2	1	Silty Sand-fine, trace clay, light gray to white			1,2,6,6	
55			1.8/2	0				1,3,6,6	
60			1.8/2	0				3,7,8,6	
65			1.8/2	0	Silty Sand-fine, light gray to white with a 1" clay lense, few shell fragemts			5,2,2,2	
70					TOTAL DEPTH OF BORING = 67' BLS				

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-2-P1		**BORING NO.** MPT-2-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/14/92	**COMPLTD:** 1/14/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-8'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.75 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 8FT.	**DPTH TO ▽** 3.00 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5			1.6/2	100	SAND-fine to medium, silty, olive green, w/ shell fragaments		SP	3,3,3,3	▽
10					Boring terminated @ 8'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P2	**BORING NO.** MPT-2-P2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/14/92	**COMPLTD:** 1/14/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 4-9'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.97 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 9FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: PAT CRAINE	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5			1.8/2	0.2	SAND-fine to medium, olive green to gray, w/ shell fragments		SP	8,8,4,5	
10					Boring terminated @ 9'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P3	**BORING NO.** MPT-2-P3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/14/92	**COMPLTD:** 1/14/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 27-32'	**PROTECTION LEVEL:** D
TOC ELEV.: 31.83 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 32FT.	**DPTH TO ▽** 28 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-very fine to fine, tan, w/ shell fragments		SP		
5				4	SAND-very fine to fine, olive green, w/ shell fragments, moist				
10				12	SAND-fine, tan, moist				
15				7	SAND-as above				
20				7	SAND-as above				
25				9.6	SAND-very fine to fine, olive green, moist				
30			1.8/2	30	SAND-very fine, olive green, w/ shell fragments, saturated			4,7,7,7	▽
35					Boring terminated @ 32'				
40									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P4	**BORING NO.** MPT-2-P4
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/14/82	**COMPLTD:** 1/15/82
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 30-35'	**PROTECTION LEVEL:** D
TOC ELEV.: 32.74 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 35FT.	**DPTH TO ▽** 28 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				2.0	SAND-very fine to fine, tan, loose		SP		
5									
10				10	SAND-very fine to fine, lt. brown, loose				
15									
20				9.0	SAND-as above				
25									
30			1.8/2	20	CLAY-silty, black, organic, moist		OL	8,7,4,4	▽
35									
					Boring terminated @ 35'				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-2-P5		**BORING NO.** MPT-2-P5
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/15/92	**COMPLTD:** 1/15/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 6-11'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.15 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 11FT.	**DPTH TO ▽** 5.50 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-very fine to fine, tan, w/ abundance of shell fragments		SP		
5			1.7/2	7.8	SAND-very fine to fine, gray, w/ shell fragments, saturated			4,5,7,8	
10					Boring terminated @ 11'				
15									
20									
25									
30									

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P6	**BORING NO.** MPT-2-P6
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/15/92	**COMPLTD:** 1/15/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 5.09 FT.	**MONITOR INST.:** PID / **TOT DPTH:** 10FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: R.W. HOLLOWAY	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					Black sandy top soil		SP		
5			1.8/2	58.6	SAND-fine to very fine, grey, saturated, trace organics			1,2,1,-	
					SAND-silty, gray, saturated		SM		
10					Boring terminated @ 10'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P7		**BORING NO.** MPT-2-P7
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.85 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 10FT.	**DPTH TO ▽** 5.00 FT.
LOGGED BY: R.W. HOLLOWAY	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Black sandy top soil		SP		
					SAND-very fine to fine, tan, loose				
5			1.2/2	22	SAND-fine to very fine, grey, abundance of shell fragments			8,4,5,4	▽
10					Boring terminated @ 10'				
15									
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P8		**BORING NO.** MPT-2-P8
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.35 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 10FT.	**DPTH TO ▽** 4 FT.
LOGGED BY: R.W. HOLLOWAY	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					CLAY-silty, organic, dk. brown, w/ some shell fragments		CL		
				18.8			SP	1,-	
5			2/2		SAND-fine to very fine, grey, abundance of shell fragments				▽
				50.2	CLAY-organic, dk. brown, moist		OL		
10					Boring terminated @ 10'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P9		**BORING NO.** MPT-2-P9
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 30-35'	**PROTECTION LEVEL:** D
TOC ELEV.: 32.18 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 35FT.	**DPTH TO ▽** 28.5 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-very fine to fine, tan, loose, few shell fragments		SP		
5				2.3	SAND-as above				
10				11.9	SAND-as above				
15				2.3	SAND-as above				
20				3.1	SAND-as above				
25									
30			0.5/2	4.0	SAND-very fine to fine, gray, saturated			7,9,8,8	
35					Boring terminated @ 35'				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P10	**BORING NO.** MPT-2-P10
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/16/92	**COMPLTD:** 1/16/92
METHOD: H.S.A.	**CASE SIZE:** 2" **SCREEN INT.:** 30-35'	**PROTECTION LEVEL:** D
TOC ELEV.: 32.02 FT.	**MONITOR INST.:** PID **TOT DPTH:** 35FT.	**DPTH TO ▽** 27 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-very fine to fine, tan, loose, few shell fragments		SP		
5					NOTE: Split-spoon sampling was not performed while penetrating material used to construct berm.				
10									
15									
20									
25									
30			1.2/2	4.0	SAND-very fine to fine, grey, saturated, over 8" of clay, silty dark grey, low plasticity		CL	8,5,8,8	▽
35					Boring termintated at 35'				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P11		**BORING NO.** MPT-2-P11
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 30-35'	**PROTECTION LEVEL:** D
TOC ELEV.: 31.85 FT.	**MONITOR INST.:** N/A	**TOT DPTH:** 35FT.	**DPTH TO ▽** 28 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					SAND-very fine to fine, tan, w/ some shell fragments		SP		
15					SAND-very fine to silty, gray, w/ shell fragments		SM		
30			0.9/2	5.2	SAND-as above, saturated			15,14,18,18	
35					Boring terminated @ 35'				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P12	**BORING NO.** MPT-2-P12
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30'	**PROTECTION LEVEL:** D
TOC ELEV.: 32.75 FT.	**MONITOR INST.:** N/A	**TOT DPTH:** 30FT.	**DPTH TO ∇** 25 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan, w/ some shell fragments		SP		
30			1.5/2	0.5	SAND-fine, gray, saturated, over 1' CLAY-black, highly organic		OH	1,2,4,6	
					Boring terminated @ 31'				

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-2-P13	**BORING NO.** MPT-2-P13
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/23/92	**COMPLTD:** 1/23/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.87 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 10FT.	**DPTH TO ▽** 2.0 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #2

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-clayey, lt. gray, organic, w/ shell fragments		SC		
			1.5/2	0.2				4,3,2,3	
5					CLAY-dark gray, plastic, minor silt & sand		CL		
					CLAY-same as above, grading to higher sand content				
10					Boring terminated @ 10'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW1S	**BORING NO.** MPT-8-1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5087-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/17/87	**COMPLTD:** 9/17/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-16.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 15.74 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 17.0FT.	**DPTH TO ▽** 8.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/17/87		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.8/2'	0.8	Sand-uniform, light tan, dry with dark brown to black top soil		SP	5,5,24,38	
5		SS2	1.6/2'	188	Sand- top/ fine, dark brown, organic sandy soil, middle/ light brown bottom/ fine to medium, light grey			18,17,33,41	
	YES	SS3	1.1/2'		Sand-fine to medium, few shell fragments			8,9,8,2	
10		SS4	2.0/2'	140	Sand-top/ fine to medium, dark gray with black silty sand layers bottom/ light grey, with clay lens			1,3,1,2	
15		SS5	1.7/2'	52.3	Sand-fine, uniform, with small clay, a clay, a layer (0.15') uniform, plastic, grey , some shell fragments at the bottom			7,18,17,8	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW2S		**BORING NO.** MPT-8-2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/17/87	**COMPLTD:** 9/17/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-17' ?	**PROTECTION LEVEL:** D
TOC ELEV.: 14.00 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15.0FT.	**DPTH TO ▽** 9.50 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/17/87		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	2.0/2'		Sand-fine to medium, tan, few shell fragments, dry, bottom/ tan to grey, many shells		SP	13,20,22,38	
5		SS2	1.7/2'		Sand-same as above, dark brown on the top, light grey at the bottom			17,21,30,58	
	YES	SS3	1.1/2'		Sand-same as above			12,13,20,22	
10		SS4	1.1/2'		Sand-fine to medium, grey, shells and fragments, grading to fine sand			6,8,13,19	
15		SS5	2.0/2'		Sand-same as abov, light grey, with many shells			4,7,8,13	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW3S	**BORING NO.** MPT-8-3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/18/87	**COMPLTD:** 9/18/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 14.10 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15.0FT.	**DPTH TO ▽** 9.50 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/18/87		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0		SS1	1.4/2'		Sand-fine to medium, light tan, shell fragments, dry		SP	7,13,20,29	
5		SS2	1.1/2'		Sand-same as above, interbedded with dark brown shells			13,14,16,7	
	YES	SS3	1.8/2'		Sand-same as above, some dark brown Sand-top (0.5')/ fine, tan, shells, middle (0.5-0.55')/ blue shells bottom/ fine to medium, graded to light grey, shells			10,10,12,8	▽
10		SS4	1.4/2'		Sand-fine to medium, grey, shells and fragments, grading to fine sand			17,17,15,7	
15		SS5	2.0/2'		Sand-same as abov, many shells and fragments			17,21,21,37	
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW4S		**BORING NO.** MPT-8-MW4S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/14/93	**COMPLTD:** 1/14/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.90 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 10.18 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/17/93		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT8 MS04-2	X	100%	0.0	ORGANIC SOIL - dark brown, loamy, w/ some shell fragments over SAND - fine, tan, dry (bottom 2")		OL	12,10,14,15*	
							SP		
5			50%	0.0	ORGANIC SOIL - dark brown, loamy, w/ some shell fragments		OL	2,2,1,2	
			100%	0.0	ORGANIC SOIL -same as above (top 6") over SAND - fine, tan, moist, w/ some fine shell fragments		SP	4,4,6,8	
	MPT8 MS04-8	X	100%	80	SAND - fine, tan, some shells, w/ hydrocarbon odor			12,12,12,20*	▽
10									
15					Boring Terminated at 15.5 feet				
20					* Use of non-standard 3" split-spoon sampler for sample recovery at these depths is reflected in the higher blow counts				
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW5S		**BORING NO.** MPT-8-MW5S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/13/93	**COMPLTD:** 1/13/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 13.00 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 7.28 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/18/93		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0	MPT8 MS05-2	X	100%	0.0	ORGANIC SOIL - dark brown, sandy, w/ plant matter (top 8") over SAND - fine to medium , tan, shelly, moist		OL SP	8,8,11,16	
5					SAND - fine, tan, moist				
					SAND - fine to medium, tan, shelly, moist				▽
	MPT8 MS05-9	X	100%	60	SAND - fine, lt. gray, wet			8,10,11,12	
10					ORGANIC SOIL - dark brown, silty, w/ plant matter over SAND - fine, silty, dk. gray, wet		OL SM		
15					Boring Terminated at 15.5 feet				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW5I		**BORING NO.** MPT-8-MW5I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/11/94	**COMPLTD:** 07/11/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 13.34 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/22/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-brown to gray with few shells.		SM	Posthole	
5				0	Clay- (6-6.5'), over Clayey Sand-greenish gray with few shells.		CL SC	Observation	
10				0	Silty Sand-fine, grayish green with trace clay.		SM	Observation	
15				0	Silty Sand-as above.			Observation	
20				0	Silty Sand-as above.			Observation	
25				0	Silty Sand-fine, grayish green with trace clay.			Observation	
30				0	As above			Observation	
35					SEE LITHOLOGY FROM MPT-8-MW5DD TOTAL DEPTH OF BORING = 32' BLS				

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW5D	**BORING NO.** MPT-8-MW5D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/11/93	**COMPLTD:** 1/13/93
METHOD: MUD ROTARY	**CASE SIZE:** 4"	**SCREEN INT.:** 60-70'
TOC ELEV.: 13.29 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 87.0FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/18/93	**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0.0	ORGANIC SOIL - dark brown, sandy, w/ plant matter (top		OL SP	POST-HOLE	
5			40%	0.0	SAND - fine, tan, moist SAND - fine to medium, tan, shelly, moist SAND - fine, lt. gray, wet			1,2,5,5	
10			40%	50	ORGANIC SOIL - dark brown, silty, w/ plant matter over SAND - fine, silty, dk. gray, wet		OL SM	2,6,5,6	
15			50%	30	SAND - fine, light gray, silty, moist			7,10,10,11	
20			70%	0.0	SAND - fine, light gray, silty, wet			17,26,37,41	
25			50%	0.0	Same as above			8,16,38,40	
30									

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW5D		**BORING NO.** MPT-8-MW5D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/11/93	**COMPLTD:** 1/13/93
METHOD: MUD ROTARY	**CASE SIZE:** 4"	**SCREEN INT.:** 80-70'	**PROTECTION LEVEL:** D
TOC ELEV.: 13.29 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 87.0FT.	**DPTH TO ▽** 9.20 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/18/93		**SITE:** #8

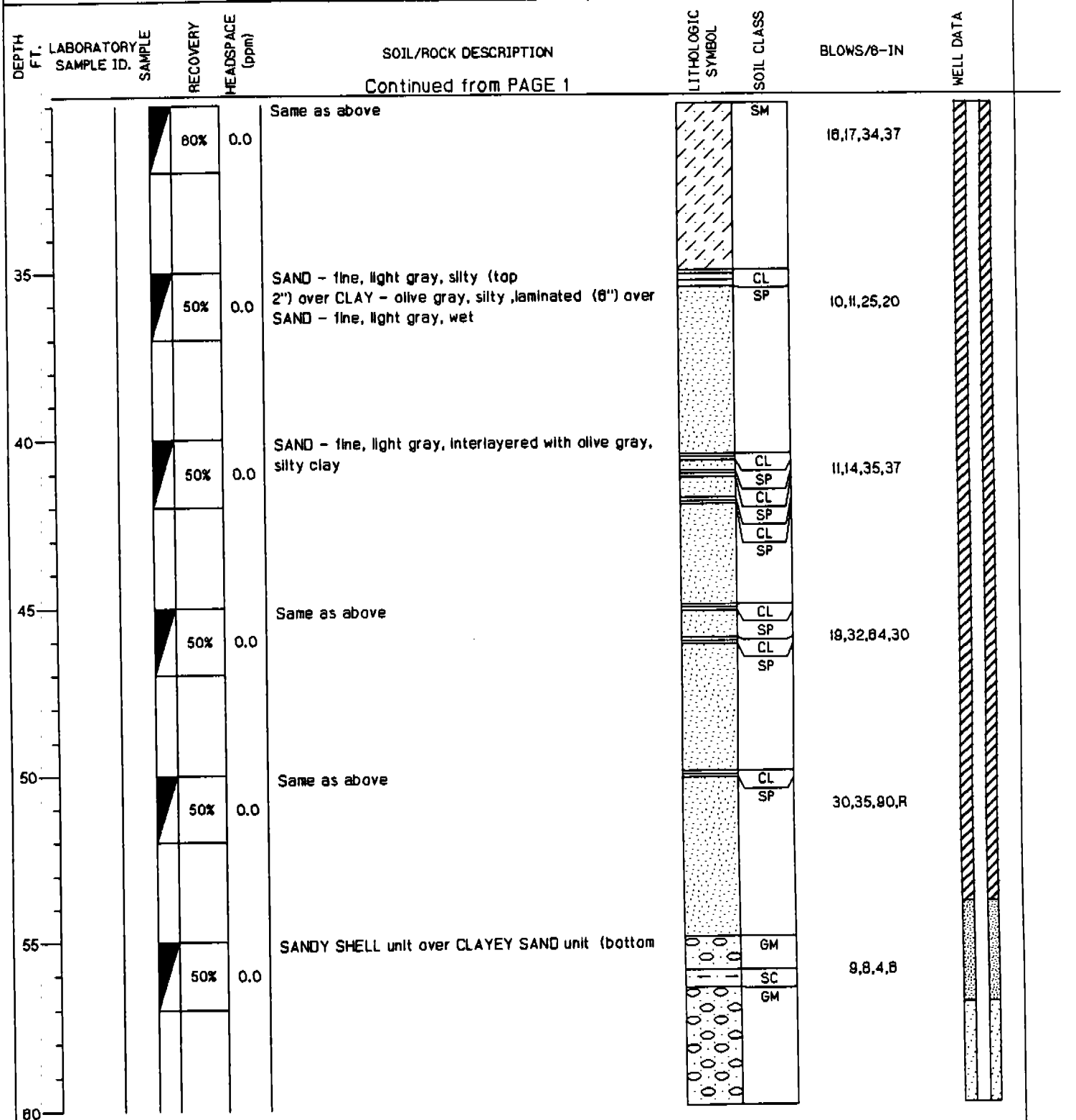

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW5D		**BORING NO.** MPT-8-MW5D
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/11/93	**COMPLTD:** 1/13/93
METHOD: MUD ROTARY	**CASE SIZE:** 4"	**SCREEN INT.:** 60-70'	**PROTECTION LEVEL:** D
TOC ELEV.: 13.28 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 87.0FT.	**DPTH TO ▽** 9.20 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/18/93		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
			80%	0.0	SHELL - shell hash unit, grading downward from fine to coarse (top 9") over CLAY - olive gray, silty, medium plasticity, wet		GM CL	2,4,6,2	
							GM		
65			50%	0.0	SHELL - shell hash unit, grades downward into Clay -olive gray, silty, wet		CL	5,8,5,6	
							SP		
70			50%	0.0	SAND - fine to medium, dark gray, coatings of organic matter and sulfurous odor, moist			17,28,28,38	
							CL		
75			60%	0.0	CLAY - greenish gray, silty, stiff, med. to low plasticity, dry			15,30,31,70	
80			100%	0.0	CLAY - light gray, nodular, stiff to hard, low plasticity, slightly moist			18,41,80,R	
85			100%	5.0	CLAY - light gray, black nodules, mod. stiff, low plasticity, slightly moist			8,10,18,27	
					Boring Terminated at 87 feet				
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW8S	**BORING NO.** MPT-8-MW8S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/15/93	**COMPLTD:** 1/15/93
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.57 FT.	**MONITOR INST.:** F.I.D. / **TOT DPTH:** 15.5FT.	**DPTH TO ▽** 8.54 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/17/93	**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0	MPT8 MS08-2	X	100%	0.0	ORGANIC SOIL - dark brown, loamy (3 inch.) over SAND - fine, tan, dry w/ shell fragments		OL / SP	18,22,25,19	
5			100%	0.0	SAND - fine, tan, w/ some shell fragments, moist			5,8,10,21	
10	MPT8 MS08-7	X	100%	0.0	SAND - fine, tan, wet, w/ some shell fragments (top 12") over SAND - fine, silty, gray, wet		SM	4,8,5,5	▽
15					Boring Terminated at 15.5 feet				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW7S		**BORING NO.** MPT-8-MW7S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/93	**COMPLTD:** 1/18/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.73 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 8.38 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 2/1/93		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT8 MS07-2	X	100%	0.0	ORGANIC SOIL - dark brown, loamy, w/ some shell fragments		OL	4,8,8,10	
							SP		
5			75%	0.0	SAND - fine, tan, shelly (approx. 30%), moist			4,11,9,15	
	MPT8 MS07-8	X	100%	3000	SAND - medium to fine, dark gray, shelly w/ hydrocarbon odor			21,20,18,25*	▽
10									
15					Boring Terminated at 15.5 feet				
20					*Use of non-standard 3" split-spoon for sample recovery is reflected in the higher blow counts at these depths				
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW8S	**BORING NO.** MPT-8-MW8S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/93	**COMPLTD:** 1/18/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 13.12 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 9.04 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 2/1/93		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT8 MS08-2	X	100%	30	ASPHALT PAVEMENT - artificial surface (6") over SAND - fine, silty, tan, w/ some shell,dry (6") over ORGANIC SOIL - dark brown, loamy, dry (12")		SM / OL	8,16,17,28 *	
5			75%	0.0	SAND - fine, laminated, tan, shelly, moist		SP	5,12,11,15	
	MPT8 MS08-8	X	100%	0.0	SAND - fine, silty, lt. brown, shelly, moist (12") over SAND - fine, lt. gray, w/ some shell		SM / SP	15,30,31,38*	▽
10									
15					Boring Terminated at 15.5 feet				
20					*Use of non-standard 3" split-spoon for sample recovery is reflected in the higher blow counts at these depths				
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-8-MW8S		**BORING NO.** MPT-8-MW8S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/27/94	**COMPLTD:** 07/27/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 12.55 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 10 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/05/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Silty Sand with medium sized gravel- (0-0.5').		SM		
					Silty Clay, red brown.		CL		
				0	Silty Sand, with shell fragments, gray.		SM	Posthole	
					Silty Sand, with coarse sized gravel, gray.				
					Silty Sand, with shell fragments, tan.				
5			1.8/2	>1000				11,8,11,12	
10			1.8/2	0	Silty Sand-fine to medium, with shell fragments, gray.			3,3,3,3	▽
15			1/2	0	Silty Sand, with shell fragments, gray.			2,3,1,1	
					TOTAL DEPTH OF BORING=15.5' BLS				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-8-MW10S	**BORING NO.** MPT-8-MW10S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/27/94	**COMPLTD:** 07/27/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 13.11 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 10 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 09/07/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, dark brown with a trace of shell fragments.		SM	Posthole	
5			1/2	0	Silty Sand-fine to medium, tan with shell fragments.			7,8,9,9	
10			1/2	0	Silty Sand-fine, tan with shell fragments, 1" of low plasticity clay			4,4,4,2	▽
15			1/2	0	Silty Sand-fine to medium, gray with shell fragments.			3,4,7,8	
20					TOTAL DEPTH OF BORING=15.5' BLS				

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW11S	**BORING NO.** MPT-8-MW11S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/28/94	**COMPLTD:** 07/28/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 11.48 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/05/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine to medium, with shell fragments.		SM	Posthole	
5			1/2		Silty Sand-fine, gray, with trace of shell fragments.			11,8,7,8	
10			0.8/2	250	Silty Sand-fine, tan to gray with shell fragments.			3,4,6,8	
15			1/2	30	Silty Sand-fine to medium, brown to dark gray with trace of shell fragments.			2,1,1,1	
20					TOTAL DEPTH OF BORING = 15.5' BLS				

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-MW12S		**BORING NO.** MPT-8-MW12S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/02/94	**COMPLTD:** 08/02/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 8.0-18.0 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 12.93 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 18.5FT.	**DPTH TO ▼** 12 FT.
LOGGED BY: D. Mustonen	**WELL DEVELOPMENT DATE:** 08/05/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-tan with shell fragments .		SM	Posthole	
					Silty Sand-dark tan with shell fragments, high plasticity clay at 5'.				
5			1.5/2	0				4,3,5,5	
10			1.4/2	8	Silty Sand-gray with shell fragments.			6,7,8,9	
15			1.2/2	2	Silty Sand-gray with shell fragments.			6,3,4,7	
					TOTAL DEPTH OF BORING = 18.5 BLS				
20									

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-8-MW13S		**BORING NO.** MPT-8-MW13S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/26/94	**COMPLTD:** 08/26/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** PID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 8 FT. FT.
LOGGED BY: D. Mustonen	**WELL DEVELOPMENT DATE:** 09/05/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil (0-0.5').		SM		
					Silty Sand, with coarse shell fragments, tan.			Posthole	
5			1.5/2	2.0	Silty Sand, light tan.			5,8,7,9	
10			1.4/2	1000	Silty Sand-fine, with shell fragments, petroleum stained, tan.			3,4,5,5	
15			1.8/2	300	Silty Sand, with coarse shell fragments, gray.			4,2,3,6	
					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW13I	**BORING NO.** MPT-8-MW13I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/26/94	**COMPLTD:** 08/26/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 35-40 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 11.33 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 40.5FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: K. Mish	**WELL DEVELOPMENT DATE:** 09/12/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							SM	Posthole	
5			1.5/2	0.5	Silty Sand-fine, damp, with shell fragments, tan.			7,11,12,14	▽
10			0.7/2	98	Silty Sand-fine, saturated, with shell fragments, petroleum odor, dark gray.			2,5,7,7	
15			0.9/2	150	Silty Sand-fine to medium, with shell fragments, strong petroleum odor, dark gray.			5,4,7,8	
20			1.2/2	1.2	Silty Sand, light gray with shell fragments.			4,10,42,32	
25			1.8/2	0.2	Silty Sand-fine, with shells fragments, light gray.			8,23,53,42	
30			1/2	1.0	Silty Sand-fine, trace organic material, gray.			8,18,40,8	

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW13I	**BORING NO.** MPT-8-MW13I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/26/94	**COMPLTD:** 08/26/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 35-40 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 11.33 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 40.5FT.	**DPTH TO ▼** 8 FT.
LOGGED BY: K. Mish	**WELL DEVELOPMENT DATE:** 09/12/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1/2				SM		
35					Silty Sand-fine, trace organic material, gray				
40					TOTAL DEPTH OF BORING = 40.5' BLS				
45									
50									
55									
60									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW14S		**BORING NO.** MPT-8-MW14S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/27/94	**COMPLTD:** 07/27/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 10.72 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 8.0 FT.
LOGGED BY: D. Mustonen	**WELL DEVELOPMENT DATE:** 09/05/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				80	Silty Sand-fine, with shell fragments, gray to black.		SM	Posthole	
					Silty Sand-fine to medium, with shell fragments, gray.				
5			1.6/2	70				6,4,4,2	
10			1/2	>1000	Silty Sand-fine, with shell fragments, gray.			6,11,11,15	
15			1/2	300	Silty Sand-fine, with shell fragments.			4,4,4,4	
20					TOTAL DEPTH OF BORING = 15.5' BLS				

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-8-MW15S	**BORING NO.** MPT-8-MW15S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/27/94	**COMPLTD:** 07/27/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 10.03 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 8.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 09/05/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, dark brown.		SM	Posthole	
5			1.8/2	0	Silty Sand-fine, trace clay, tan to brown.			2,2,4,8	
10			1/2	80	Silty Sand-fine to medium, with shell fragments, gray.			3,5,8,9	
15			1/2	300	Silty Sand-fine, gray.			1,1,1,1	
20					TOTAL DEPTH OF BORING = 15.5' BLS				

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW15I	**BORING NO.** MPT-8-MW15I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/30/94	**COMPLTD:** 09/01/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 34 -38 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 9.98 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 40FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: K. Mish & A. Tolman	**WELL DEVELOPMENT DATE:** 09/12/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							SM	Posthole	
5			2/2	0.5	Sand-very fine to fine, loose, damp, light tan.			3,4,3,3	
10			1/2	2.5	Shelly Sand-very fine to medium, saturated, faint petroleum odor, gray			8,7,9,11	
15			2/2	2.5	Sand-very fine to fine, strong petroleum odor, light gray.			3,4,5,8	
20			1.2/2	3.0	Sand-fine to medium, petroleum odor, dark to light gray, w/ a minor amount of shell fragments.			5,6,5,8	
25			2/2	2.5	Sand-very fine to fine, trace shell fragments, sulfur odor, light gray.			7,16,23,28	
30			1.8/2	5.0				8,13,12,10	

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW15I		**BORING NO.** MPT-8-MW15I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/30/94	**COMPLTD:** 09/01/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 34 -38 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 9.98 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 40FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: K. Mish & A. Tolman	**WELL DEVELOPMENT DATE:** 08/12/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
			1.8/2		Sand-very fine to fine, sulfur odor, light gray w/ two 1/2" black beds.		SM		
35			1/2	-	Sand (0-8")-very fine, light gray, over Clay (8-12")-silty, some shells, saturated, slight sulfur odor.		CL	27,38,46,-	
					Sand-very fine, saturated, light gray.		SM		
40					TOTAL DEPTH OF BORING = 40' BLS				
45									
50									
55									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW16S	**BORING NO.** MPT-8-MW16S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/28/94	**COMPLTD:** 07/28/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.
TOC ELEV.: 10.03 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5 FT.FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/04/94	**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Silty Sand-fine, with shell fragments, brown.		SM	Posthole	
5			1.8/2	0	Silty Sand-fine, with a trace of shell fragments, light brown to gray			4,4,4,6	
10			1/2	0	Silty Sand-fine, with shell fragments, grayish green.			6,7,8,9	▽
15			1/2	0	Silty Sand-fine, with shell fragments, gray.			2,2,4,5	
20					TOTAL DEPTH OF BORING = 15.5' BLS				

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-8-MW17S		**BORING NO.** MPT-8-MW17S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/22/94	**COMPLTD:** 07/22/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 10.88 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 10.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/28/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, with a trace shell fragments, tan.		SM	Posthole	
5			1/2	0	Silty Sand-fine, with a trace shell fragments, tan.			2,2,2,3	
10			1/2	1	Silty Sand-fine to medium, trace clay, greenish gray.			4,4,7,8	▽
15			1/2	20	Silty Sand-fine to medium, with shell fragments.			1,5,4,3	
20					TOTAL DEPTH OF BORING = 15.5' BLS				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL.	**LOG of WELL:** MPT-8-MW18S	**BORING NO.** MPT-8-MW18S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/22/94	**COMPLTD:** 07/22/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 4.5-14.5 FT. **PROTECTION LEVEL:** D
TOC ELEV.: 8.80 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15FT. **DPTH TO ▽** 8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/28/94	**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, with shell fragments, tan.		SM	Posthole	
					Silty Sand-fine, with a trace of shell fragments, tan.				
5			1/2	0				7,10,8,9	
10			1/2	0	Silty Sand-fine, with a trace of shell fragments, gray.			4,4,4,2	
15			1/2	0	Silty Sand-fine, greenish gray.			3,3,4,1	
					TOTAL DEPTH OF BORING = 15' BLS				
20									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW19S		**BORING NO.** MPT-8-MW19S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 08/08/94	**COMPLTD:** 08/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 4-14 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 5.24 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 14.5FT.	**DPTH TO ▽** 0.5 FT.
LOGGED BY: L. Smith	**WELL DEVELOPMENT DATE:** 08/13/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Sand-fine to medium, tan to light gray		SP	Observation	
5					As above			Observation	
10					As above			Observation	
15					TOTAL DEPTH OF BORING = 14.5' BLS				
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-8-MW20S		**BORING NO.** MPT-8-MW20S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: N/A		**DATE STARTED:** 10/27/94	**COMPLTD:** 10/27/94
METHOD: Hand Install w/ Hydro Asst	**CASE SIZE:** 2"	**SCREEN INT.:** 7-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: Not Surveyed FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ∇** Inter-tidal Zone FT.
LOGGED BY: D. Mustonen	**WELL DEVELOPMENT DATE:** 11/07/94		**SITE:** 8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Sand-fine to medium, tan to light gray Temporary Monitoring Well installed by hand with hydraulic jet assist, No Lithology taken.		SP	Observation	
5									
10					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8D-P1	**BORING NO.** MPT-8D-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/23/92	**COMPLTD:** 1/23/92
METHOD: H.S.A.	**CASE SIZE:** 2" **SCREEN INT.:** 10-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 12.88 FT.	**MONITOR INST.:** FID **TOT DPTH:** 15FT.	**DPTH TO ▽** 9.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #8D

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, gray, w/ a few shell fragaments		SP		
5			2/2	7.5	SAND-as above			11,12,11,14	
10			1/2	6.5	SAND-as above, saturated			6,7,7,3	▽
15					Boring terminated @ 15'				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-P2		**BORING NO.** MPT-8-P2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/17/93	**COMPLTD:** 1/17/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 12.70 FT.	**MONITOR INST.:** N.A.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 10.24 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** N.A.		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ORGANIC SOIL - dark brown, loamy (top 8")		OL		
							SM	Post-Hole	
					SAND - medium to fine, silty, tan to gray, laminated				
5			70%					8,8,5,6	
							SP		
10			50%		SAND - coarse to fine, laminated w/ shell stringers			5,15,18,13	▽
15					Boring Terminated at 15.5 feet				
20									
25									
30									

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-8-P3		**BORING NO.** MPT-8-P3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/17/93	**COMPLTD:** 1/17/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 13.17 FT.	**MONITOR INST.:** N.A.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 10.52 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** N.A.		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ORGANIC SOIL - dark brown, loamy (top 4")		OL		
					SAND - coarse to fine, well-graded,tan, compacted		SP	Post-Hole	
5			70%		SAND - medium to fine, silty, tan, w/ shell fragments		SM	13,21,14,12	
10			60%		SAND - medium to fine, silty, tan			10,9,9,23	
15					Boring Terminated at 15.5 feet				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-P4	**BORING NO.** MPT-8-P4
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/17/93	**COMPLTD:** 1/17/93
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 14.87 FT.	**MONITOR INST.:** N.A. / **TOT DPTH:** 15.5FT.	**DPTH TO ∇** 8.26 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** N.A.	**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ORGANIC SOIL - dark brown, sandy (top 6")		OL		
					SAND - coarse, tan to light gray, shelly		SP		
								Post-Hole	
5			70%		SAND - coarse to fine, tan, w/ shell fragments			10,11,14,13	
10			40%		Same as above, no shell fragments			2,3,4,4	
					SAND - fine, silty, gray		SM		
15					Boring Terminated at 15.5 feet				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-P5		**BORING NO.** MPT-8-P5
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/93	**COMPLTD:** 1/18/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 14.00 FT.	**MONITOR INST.:** N.A.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 4.04 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** N.A.		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ORGANIC SOIL - dark brown, loamy (top 6")		OL		
					SAND - fine, tan , w/ shell fragments		SP		
					SAND - fine, tan, shelly, moist				
5					SAND - fine, silty, gray, wet		SM		
10					SILT - dark gray, wet		ML		
15					SAND - fine, dark gray, wet		SP		
					Boring Terminated at 15.5 feet				
					Lithologic descriptions from drill cuttings				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-8-P8		**BORING NO.** MPT-8-P8
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/93	**COMPLTD:** 1/18/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 14.87 FT.	**MONITOR INST.:** N.A.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 7.72 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** N.A.		**SITE:** #8

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ORGANIC SOIL - dark brown, loamy (top 6") over SAND - fine, tan , w/ shell fragments		OL / SP		
					SAND - fine, tan, moist				
5									
					Same as above				
10					SAND - fine, light gray, wet				
					SAND - fine, silty, dark gray, wet		SM		
					SILT - black, wet		ML		
15					SAND - fine, dark gray, wet		SP		
					Boring Terminated at 15.5 feet				
					Lithologic descriptions from drill cuttings				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-9-MWIS	**BORING NO.** MPT-9-1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/15/87	**COMPLTD:** 9/15/87
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 8-18'	**PROTECTION LEVEL:** D
TOC ELEV.: 14.39 FT.	**MONITOR INST.:** Hnu / **TOT DPTH:** 20.0FT.	**DPTH TO ∇** 12.31 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/15/87	**SITE:** #9

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.55/2'		Sand-top (0.8')/ medium to coarse, light to dark grey, shell fragments bottom/ fine to medium, light tan, shell fragments		SP	7,11,21,27	
		SS2	1.2/2'		Sand-same as above				
		SS3	1.7/2'		Sand-same as above, bottom dark brown, dry			20,22,28,31	
5	YES	SS4	1.3/2'		Sand-top (0.8')/ same as above			7,13,14,19	
		SS5	1.8/2'		Clay-uniform, plastic, grey mottled with brown stringers of clay, dry middle (1-1.4')/ fine to medium, white, shell fragments		CL / SC	18,21,27,17	
10					Sandy Clay-grey, plastic, moist				
15		SS6	2.0/2'		Sand-fine to medium sand, light gray, shells		SP	8,32,50/ST	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-9-MW2S		**BORING NO.** MPT-9-2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/16/87	**COMPLTD:** 9/16/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 13.38 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15.0FT.	**DPTH TO ▽** 9.00 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/16/87		**SITE:** #9

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.3/2'				SP	12,12,15,13	
5		SS2	1.5/2'		Sand-same as above			17,9,8,8	
	YES	SS3	1.3/2'		Sand-top (0.5')/ fine, tan, shells, middle (0.5-0.55')/ blue shells bottom/ fine to medium, graded to light grey, shells			7,9,12,3	
10		SS4	1.5/2'		Sand-fine to medium, light grey, shells and fragments, saturated			4,8,12,13	
15		SS5	0.4/2'		Sand-same as above			2,12,50/	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-9-MW3S		**BORING NO.** MPT-9-3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/16/87	**COMPLTD:** 9/16/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.49 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 15.0FT.	**DPTH TO ▽** 9.00 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/16/87		**SITE:** #9

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.5/2'		Sand-fine to medium, uniform, with 0.4' top organic soil and vegitation, bottom/ light tan, shell fragments		SP	4,13,27,28	
		SS2	1.6/2'		Sand-same as above, 0.1' thick clayey sand layer, dry			18,20,20,19	
		SS3	1.5/2'		Sand-same as above, 0.35' thick layer of interbedded brown clay, red sand with shells			22,13,11,12	
5	YES	SS4	1.55/2'					12,8,8,7	
			1.8/2'		Sand-fine to medium, tan, 50 % shelly, grading very fine, light tan sand at the bottom				▽
10		SS5						7,22,22,35	
15		SS6	2.0/2'		Sand-fine to medium, grey, many shells and fragments			7,11,22,30	
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-9-P1		**BORING NO.** MPT-9-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/23/92	**COMPLTD:** 1/23/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 12-17'	**PROTECTION LEVEL:** D
TOC ELEV.: 12.22 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 17.0FT.	**DPTH TO ▽** 12 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #9

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, dk. brown, w/ a few shell fragaments		SP		
5			2/2	60	SAND-fine, gray			7,7,7,10	
			2/2	N/A	SAND-as above			11,10,11,12	
10			2/2	N/A	Sand-as above			11,14,11,12	▽
15			2/2	0.2	SAND-as above, wet			3,4,8,11	
					Boring terminated @ 17'				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-10-P1	**BORING NO.** MPT-10-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/28/92	**COMPLTD:** 1/28/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 10-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.88 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 15FT.	**DPTH TO ▽** 8.0 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #10

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan, shell fragments		SP		
5			1.8/2	0.2	SAND-as above			7,8,7,9	
10			2/2	0.8	SAND-as above, saturated			4,3,4,4	
15					Boring terminated @ 15'				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-11-MW1S	**BORING NO.** MPT-11-1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5087-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 4/25/89	**COMPLTD:** 4/25/89
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 10 - 19.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 12.16 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 20.0FT.	**DPTH TO ▼** 10.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/22/87		**SITE:** SWMU 12 (Site 11)

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Sand- brown and gray ,fine sand with shells		SM	Post-hole	
		SS1					SP	8,10,9,13	
					Sand- tan, fine sand with interlayered shell lenses				
5		SS2						8,12,11,14	
10		SS3						8,9,10,7	▼
15					Sand - gray, fine sand with shell				
		SS4						8,30,14,13	
20					Boring Terminated				
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-11-MW2S		**BORING NO.** MPT-11-2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5097-05
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 4/25/89	**COMPLTD:** 4/25/89
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 10 - 19.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.42 FT.	**MONITOR INST.:** PID	**TOT DPTH:** 17.0FT.	**DPTH TO ▽** 12.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/22/87		**SITE:** SWMU 12 (Site 11)

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Sand- brown and tan, fine sand		SM		
							SP		
		SS1			Sand- tan, fine with interlayered shell lenses			3,2,2,1	
5									
		SS2						3,2,2,4	
10									
		SS3						4,6,4,6	▽
15		SS4			Sand - gray, fine with shell				
					Boring Terminated				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.		**LOG of WELL:** MPT-11-MW3S	**BORING NO.** MPT-11-MW3S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/24/92	**COMPLTD:** 1/24/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 7-17'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.87 FT.	**MONITOR INST.:** N/A	**TOT DPTH:** 17FT.	**DPTH TO ▽** 8.0 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #14

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine to medium, lt. gray, w/ shell fragments		SP		
5									
10					SAND-fine to medium, lt. green, saturated				▽
15									
					Boring terminated @ 17'				
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-13-MWIS		**BORING NO.** MPT-13-1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5087-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/18/87	**COMPLTD:** 9/18/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 13.03 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/18/87		**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	YES	SS1	1.4/2'	79.9	Sand-fine to medium, well graded, light tan, shell fragments, dry		SW	33,42,43,50	▽
5		SS3	1.4/2'	132	Sand-top (0.15')/ very fine, brown, shell fragments, bottom (0.15-1.4')/ fine, uniform, light grey, few shells, saturated		SP	7,9,14,9	
10		SS4		70.1	Clayey Sand- top (1')/ very fine interbedded, medium plastic, grey middle (1-1.2')/ uniform, medium plastic, grey		SC	1,2,2,2	
							CL		
					Sand-very fine, brown, saturated		SP		
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-13-MW2S		**BORING NO.** MPT-13-2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 5087-04
CONTRACTOR: MONITOR TESTING		**DATE STARTED:** 9/15/87	**COMPLTD:** 9/15/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 12.77 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/15/87		**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1		1.4	Sand- top (0.25')/ dark brown, top soil, bottom /fine to medium, shell fragments		SP		
	YES	SS2	1.2/2'		Sand-same as above, middle (0.2-0.5')/ medium, tan, many shell fragments (coquina), bottom/ fine, well sorted, uniform, grey			17,31,50/	
							SW		
							SP		
5		SS3	1.3/2'	1.0	Sand-top (0.2')/ fine to medium, light grey, shell fragments, middle (0.2-0.45')/ dark brown sandy peat, saturated, (0.45-0.9')/fine, light grey, with shell fragments, bottom/ fine, uniform, no shells			9,12,22,27	
10		SS4	2.0/2'	1.5	Sand-same as above			4,4,8,8	
					Clay- (0.3-1')/ soft, plastic, uniform, grey, (1-1.8')/ stiff, dark brown, with mud dump vegitation, bottom/ stiff, uniform, dark olive		CL		
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-13-MW3S	**BORING NO.** MPT-13-3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5087-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/18/87	**COMPLTD:** 9/18/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.45 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 10.0FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/18/87		**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	SS1		1.4/2'		Sand- top (0.25')/ dark brown, top soil, middle (2.5-0.8')/ fine to medium, light tan, shells, Fe Oxide layer at 0.8'		SP	40,40,50,30+	
5	SS3		1.4/2'	30.2	Sand-top (0.5')/ fine, dark grey, shells middle (0.5-0.9')/ same as above, light grey bottom/ fine, uniform, no shells, saturated			13,15,26,40	
10	SS4		2.0/2'	5.1	Clayey Sand- very fine, grey		SC	1,1,1,2	
					Clay- (0.8-1.1') dark brown, decomposed vegitation / (1.1-1.5') firm, uniform, dark olive / (1.5-2.0) medium plastisity, grey		CL		
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL		**LOG of WELL:** MPT-13-MW4S	**BORING NO.** MPT-13-MW4S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/24/92	**COMPLTD:** 1/24/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.88 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 1/28/92		**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT-13-4-3-1	⊠			SAND-fine, brown, loose, very few shell fragments		SP		
					Note: Sample and MS & MSD obtained above water table, 2.5-3.5'				
5			1.2/2	0	SAND-fine, tan, w/ shell fragments, saturated			9,10,9,14	
					SAND-very fine, gray, saturated				
10			2/2	0				11,12,8,8	
					Boring terminated @ 12'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-13-MW5S	**BORING NO.** MPT-13-MW5S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/24/92	**COMPLTD:** 1/24/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 3-13'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.04 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 13FT.	**DPTH TO ▽** 5.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** 1/28/92	**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan, w/ shell fragments		SP		
	MPT-13 -5-3-1	☒			Note: Sampled approximately 3.5'				
5			2/2	20	SAND-fine, gray, w/ shell fragments, saturated			4,3,2,3	▽
10			2/2	N/A				3,2,3,3	
					CLAY-black, organic, low plasticity		OL		
15					Boring terminated				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-13-MW6S		**BORING NO.** MPT-13-MW6S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/24/92	**COMPLTD:** 1/24/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.66 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** 1/28/92		**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT-13 6-2.5-1	☒			SAND-very fine to fine, tan to gray, w/ shell fragments Note: Sampled by hand with decontaminated stainless steel spoon @ 2.5' Due to location of well on the flight ramp and active flight operation , samples were not obtained. Observation of drill cuttings indicate saturated fine tan to gray sands to 12'. Boring terminated @ 12'		SP		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-13-MW7S	**BORING NO.** MPT-13-MW7S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/28/94	**COMPLTD:** 07/28/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.58 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: D. Mustonen	**WELL DEVELOPMENT DATE:** 09/07/94		**SITE:** 13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				4	Silty Sand-fine to medium, tan.		SM	Posthole	
5			1/2	80	Silty Sand-medium, light gray.			7,17,24,21	
10			1.5/2	80	Organic Clay-high plasticity, dark brown to black.		OH	2,2,1,1	
					TOTAL DEPTH OF BORING = 12.5' BLS.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-13-MW8S	**BORING NO.** MPT-13-MW8S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/08/94	**COMPLTD:** 08/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 10.47 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine, & K. Mish	**WELL DEVELOPMENT DATE:** 09/07/94		**SITE:** 13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, tan, few shells.		SM	Posthole	
5					Silty Sand-fine, gray with trace shells.			Observation	
10									
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-13-MW9S	**BORING NO.** MPT-13-MW9S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/07/94	**COMPLTD:** 08/07/94
METHOD: 4.25" HSA	**CASE SIZE:** 2" / **SCREEN INT.:** 2-12 FT	**PROTECTION LEVEL:** D
TOC ELEV.: 9.29 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 09/07/94	**SITE:** 13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, gray, some clay.		SM	Posthole	
5					Silty Sand-fine, gray, some clay.			Observation	
10									
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-13-MW10S	**BORING NO.** MPT-13-MW10S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/08/94	**COMPLTD:** 08/08/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT	**PROTECTION LEVEL:** D
TOC ELEV.: 9.85 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ∇** 3.0 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 09/07/94		**SITE:** 13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, dark brown.		SM	Posthole	
5			2/2	0	Silty Sand-fine, light gray.			12,8,7,8	
10			2/2	4	Silty Clay-medium plasticity, grayish green to brown with some organics.		CL	1,1,1,1	
					TOTAL DEPTH OF BORING = 12.5' BLS.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-13-P1	**BORING NO.** MPT-13-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2" **SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.03 FT.	**MONITOR INST.:** FID **TOT DPTH:** 10FT.	**DPTH TO ▽** 5.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan, w/ shell fragaments		SM		
5			1.7/2	4.0	SAND-fine, tan, saturated over 1' of SAND-very fine to silty, gray, w/ shell fragments			4,2,1,-	
10					Boring terminated @ 10'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-13-P3		**BORING NO.** MPT-13-P3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.18 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 10FT.	**DPTH TO ▽** 5.0 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-very fine to fine, tan, w/ coarse shell fragaments		SP		
5			2/2	22	SAND-silty, gray, w/ a trace of shell fragments		SM	4,4,2,2	▽
10					Boring terminated @ 10'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-13-P4		**BORING NO.** MPT-13-P4
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.31 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 10FT.	**DPTH TO ▽** 5.0 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, black, organic		ML		
					SAND-very fine to fine, tan, w/ abundance of shell fragaments		SP		
5			1.2/2	8.0	SAND-very fine to fine, gray, saturated			8,5,5,8	▽
10					Boring terminated @ 10'				
15									
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-13-P5	**BORING NO.** MPT-13-P5
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A. / **CASE SIZE:** 2"	**SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 6.45 FT. / **MONITOR INST.:** PID	**TOT DPTH:** 10FT.	**DPTH TO ▽** 4.0 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan, w/ shell fragaments		SP		
5			1.0/2	0.3	SAND-very fine to silty, gray, w/ shell fragments, saturated		SM	10,2,1,2	
10					Boring terminated @ 10'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-13-P6	**BORING NO.** MPT-13-P6
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.16 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 10FT.	**DPTH TO ▽** 3.50 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, gray, abundant shell fragments		SP		
5			1.3/2	0	SAND-fine, gray, abundant shell fragments, saturated			9,15,16,18	▽
10					boring terminated @10'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-14-MWIS	**BORING NO.** MPT-14-1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5087-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/17/87	**COMPLTD:** 9/17/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-12'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.41 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 13.0FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/17/87		**SITE:** #14

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	YES	SS1	1.4/2'		Sand-fine to medium, light tan, with few shell fragments, visible layering, dry		SP	7,14,20,29	▽
5		SS3	1.4/2'	180	Sand-same as above, saturated			9,16,31,50	
10		SS4	2.0/2'	141	Sand-fine to medium, uniform sand with shell fragments, saturated			7,23,50/5in	
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-14-MW2S	**BORING NO.** MPT-14-2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 5097-04
CONTRACTOR: MONITOR TESTING	**DATE STARTED:** 9/17/87	**COMPLTD:** 9/17/87
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.47 FT.	**MONITOR INST.:** Hnu	**TOT DPTH:** 13.0FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: M. C. Diblin	**WELL DEVELOPMENT DATE:** 9/17/87		**SITE:** #14

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		SS1	1.8/2'	80.2	Sand-fine, uniform with layering, light tan bottom/ dark tan, some shell fragments, visible bedding		SP	7,12,20,30	
	YES	SS2	1.5/2'	49.7	Sand-fine, uniform, light tan, dry, bottom/ some shell fragments			7,20,25,27	▽
5		SS3	1.5/2'	59.8	Sand-fine, uniform, light grey, middle/ shelly, gravelly sand, saturated, bottom/ fine to medium, light grey, saturated			5,18,28,50	
10		SS4	1.8/2'	4.8	Sand-fine to medium, light gray, saturated, shell fragments			11,31,50/3cm	
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-14-P1	**BORING NO.** MPT-14-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.50 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 10FT.	**DPTH TO ▽** 5.00 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine to coarse, brown to tan, loose		SP		
5			2/2	2	CLAY-olive green, high water content, first 6" over SAND-very fine to fine, gray		CL / SP	12,9,8,10	▽
10					Boring terminated @ 10'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-14-P2	**BORING NO.** MPT-14-P2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/18/92	**COMPLTD:** 1/18/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 6-11'	**PROTECTION LEVEL:** D
TOC ELEV.: 5.71 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 11FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Pat Craine	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #13

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-very fine to silty, tan, w/ large pieces of glass		SM		
5			2/2	N/A	SAND-very fine to silty, tan, some shell fragments, saturated			7,7,8,20	
					SAND-very fine to silty, tan, w/ trace CLAY, olive green		SC		
10									
					Boring terminated @ 11'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-15-MWIS		**BORING NO.** MPT-15-MWIS
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/15/93	**COMPLTD:** 1/16/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 12.14 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 5.78 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/17/93		**SITE:** #15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT15 MS01-2	X	100%	0.0	ORGANIC SOIL - black, loamy (top 8 inch.) over SAND - medium, tan, shelly, moist		OL SP	8,10,11,10	
5	MPT15 MS01-8	X	100%	0.0	SAND - fine, tan, moist, down to 5.4 ft. over SAND - fine, tan, shelly, wet			10,14,9,10	▽
10									
15					Boring Terminated at 15.5 feet				
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-15-MW2S	**BORING NO.** MPT-15-MW2S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/12/94	**COMPLTD:** 07/12/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2.5-12.5 FT	**PROTECTION LEVEL:** D
TOC ELEV.: 11.77 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 14FT.	**DPTH TO ▽** 5.0 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/21/94		**SITE:** 15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, dark brown with trace clay.		SM	Posthole	
5			1.8/2	0	Silty Sand-fine, saturated, light gray.			6,10,11,10	
					Silty Sand-fine, light gray with few shells.			Observation	
10			1/2	0	Silty Sand-fine, light gray with few shells.			4,3,2,2	
			1/2	70	Silty Sand- (12-12.5') fine, tan, over Sandy Clay (12.5-13.17'), light gray, over Clayey Sand (13.17-14'), light gray to dark gray.		CL SC	4,2,1,1	
					TOTAL DEPTH OF BORING = 14' BLS				
15									
20									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-15-MW3S	**BORING NO.** MPT-15-MW3S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 7/13/94	**COMPLTD:** 7/13/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 8-18 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 11.28 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 17FT.	**DPTH TO ▽** 8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/21/94		**SITE:** 15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand - Dark to light brown, w/ trace coarse shells.		SM	Posthole	
					Silty Sand - As above, w/ trace medium to coarse shells.				
5			75%	0				7,10,14,14	▽
					Silty Sand - As above, grey, wet				
10			50%	10	Silty Sand - Dark brown to grey, highly organic			2,2,5,8	
15			100%	0	Clay- (15-18.3') - moderately stiff, grayish green, over Clayey sand.		CL SC	2,1,1,1	
					TOTAL DEPTH OF BORING = 17' BLS				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-15-MW4S		**BORING NO.** MPT-15-MW4S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 7/13/94	**COMPLTD:** 7/13/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 12.18 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 7.0 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/21/94		**SITE:** 15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0			SM	Posthole	
					Silty Sand-few shells, dark brown to tan.				
				0				Posthole	
5			1.3/2	0	Silty Sand - As above			4,9,12,11	
								Observation	
10			0.5/2	10	Silty Sand-fine, tan.			2,4,6,8	
							CL		
15			1.5/2	10	Clay-moderately stiff, grayish green.			1,1,1,1	
					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-15-MW5S	**BORING NO.** MPT-15-MW5S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 07/13/94	**COMPLTD:** 07/13/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 8-18 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 12.37 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 18.5FT.	**DPTH TO ▽** 8.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/21/94	**SITE:** 15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, few shells, dark brown.		SM	Posthole	
5			1.7/2	0	Silty Sand-fine, tan, damp at 6'.			4,4,5,5	▽
				0				Observation	
10			.9/1	0	Silty Sand-fine, wet, saturated, tan to white.			2,5,13,13	
15			1/2	0	Silty Sand-fine, dark brown.			2,2,8,7	
20					TOTAL DEPTH OF BORING = 18.5' BLS LITHOLOGICAL DESCRIPTION OBTAINED FROM MPT-15-MW5I				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-15-MW5I		**BORING NO.** MPT-15-MW5I
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.		**DATE STARTED:** 07/12/94	**COMPLTD:** 07/12/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 12.45 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** 8.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 07/21/94		**SITE:** 15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, few shells, dark brown.		SM	Posthole	
5			1.7/2	0	Silty Sand-fine, tan, damp at 8'.			4,4,5,5	
				0				Observation	
10			.9/1	0	Silty Sand-fine, wet, saturated, tan to white.			2,5,13,13	
15			1/2	0	Silty Sand-fine, dark brown.			2,2,8,7	
20			1.3/2	0	Silty Sand-fine, few shells, greenish gray to white.			11,18,14,13	
25			1/2	0	Silty Sand- (25-25.33'), fine, brown to white with a 1" dark gray clay lens.			3,3,6,8	
30			.2/2	0	Silty Sand-fine, trace clay, brown to tan.			3,2,6,10	
35					TOTAL DEPTH OF BORING = 32' BLS				

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-15-P1		**BORING NO.** MPT-15-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/28/92	**COMPLTD:** 1/28/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 10-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 13.28 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15FT.	**DPTH TO ▽** 9.5 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A		**SITE:** #15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5			1.5/2	1.2	SAND-fine, tan, loose w/ shell fragments		SP	4,12,10,11	
10			2/2	0.8	SAND-fine to silty, dk. gray, a few shell fragments, saturated		SM	3,4,6,6	▽
15					Boring terminated @ 15'				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-15-P2		**BORING NO.** MPT-15-P2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/17/93	**COMPLTD:** 1/17/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.83 FT.	**MONITOR INST.:** N.A.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 5.80 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** N.A.		**SITE:** #15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ORGANIC SOIL - dark brown, loamy (top 3")		OL		
					SAND - coarse to med., tan to gray, w/ shell frag.		SP	Post-Hole	
5			100%		SAND - med. to fine, silty, tan, w/ large shell fragments		SM	5,8,10,18	
10			100%		SAND - med. to fine, silty, light gray			1,1,1,1	
					CLAY - silty (< 5%), olive gray		CL		
							SM		
15					Boring Terminated at 15.5 feet				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-15-P3	**BORING NO.** MPT-15-P3
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/17/93	**COMPLTD:** 1/17/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.07 FT.	**MONITOR INST.:** N.A.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 5.52 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** N.A.		**SITE:** #15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ORGANIC SOIL - dark brown, loamy (top 3")		OL		
					over SAND - coarse to med., silty, tan to gray, w/ shells		SM		
					SAND - med. to fine, silty, tan, w/ shell fragments				
5									
10					CLAY - silty (~ 5%), olive gray, strong odor		CL		
					SAND - fine, silty, gray		SM		
15					Boring Terminated at 15.5 feet				
					Lithologic descriptions from drill cuttings				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-15-P4		**BORING NO.** MPT-15-P4
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/17/93	**COMPLTD:** 1/17/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.51 FT.	**MONITOR INST.:** N.A.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 4.81 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** N.A.		**SITE:** #15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ORGANIC SOIL - dark brown, loamy (top 3")		OL		
					SAND - coarse to med., tan , w/ shell frag.		SP		
								Post-Hole	
5			60%		SAND - med. to fine, tan, w/ shell fragments			21,28,19,29	▽
10			60%		Same as above			9,4,2,2	
					CLAY - silty (~ 5%), olive gray		CL		
					SAND - fine, silty, gray		SM		
15					Boring Terminated at 15.5 feet				
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-16-MWII		**BORING NO.** MPT-16-MWII
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/14/93	**COMPLTD:** 1/14/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 25-30'	**PROTECTION LEVEL:** D
TOC ELEV.: 12.84 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 30.5FT.	**DPTH TO ▽** 10.78 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/17/93		**SITE:** #16

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT16 MS01-2	X	100%	0.0	ARTIFICIAL SOIL - crushed limestone (top 8") over ORGANIC SOIL - black, loamy, dry (3") over SAND - fine, tan, w/ shell fragments		OL SP	26,30,38,47*	
5			100%	0.0	SAND- fine, tan, shelly, moist			3,10,10,10	
			75%	0.0	SAND - fine, tan, w/ decreasing shell content			3,12,5,10	
			100%	0.0	SAND- fine, tan, w/ coarse shell fragments (*Use of the non-standard 3" split spoon for sample recovery is reflected in the higher blow counts at these depths)			14,40,38,22*	
10	MPT16 MS01-8	X	50%	0.0	SAND - fine to med.,tan, laminated,wet			6,8,7,10	▽
			80%	0.0	SAND - fine to med.,tan, shelly, wet			3,2,3,9	
			100%	0.0	SHELL - shell hash unit (top 8") over SANDY SHELL unit (14") over SAND - fine, gray, wet (2")		GP GM	3,4,4,8	
15			75%	0.0	SAND - fine, lt. gray to dark gray, w/ occas. shell		SP	10,13,14,15	
			100%	0.0	SAND - fine, dark gray, w/ some shell frag.			8,13,10,18	
20			100%	0.0	SAND - same as above			4,16,18,20	
			100%	0.0	SAND - same as above			10,12,16,14	
25			100%	20.0	SAND - same as above			4,7,5,10	
			80%	45.0	SAND - same as above			28,38,40,38	
			100%	0.0	SAND - same as above			18,25,20,24	
30					Boring Terminated at 30.5 feet				

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-16-MW2S	**BORING NO.** MPT-16-MW2S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/14/93	**COMPLTD:** 1/14/93
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.85 FT.	**MONITOR INST.:** F.I.D. / **TOT DPTH:** 15.5FT.	**DPTH TO ▽** 9.44 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/17/93	**SITE:** #18

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0	MPT16 MS02-2	X	85%	0.0	ORGANIC SOIL- sandy, w/ plant matter (3 inch.) over SAND - fine, silty, tan w/ asphalt gravel (1 ft.) over SAND - fine, silty, w/ some whole shell		SM / GM / SM / SP	21,13,13,12*	
5			70%	0.0	SAND - fine, laminated, tan, shelly, moist			5,8,11,11	
10	MPT16 MS02-8	X	85%	610	SAND - fine, tan to lt. gray, shelly w/ hydrocarb. odor over CLAY - med. plasticity, olive gray to black over SAND - fine, lt. gray, wet		CL / SP	11,11,17,18*	▽
15					Boring Terminated at 15.5 feet				
20					*Use of non-standard 3" split-spoon for sample recovery is reflected in the higher blow counts at these depths				
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-16-MW3S		**BORING NO.** MPT-16-MW3S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			**PROJECT NO:** 7533-84
CONTRACTOR: GROUNDWATER PROTECTION, INC.		**DATE STARTED:** 1/14/93	**COMPLTD:** 1/14/93
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15'	**PROTECTION LEVEL:** D
TOC ELEV.: 11.18 FT.	**MONITOR INST.:** F.I.D.	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 9.80 FT.
LOGGED BY: Felix Rizk	**WELL DEVELOPMENT DATE:** 1/17/93		**SITE:** #16

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	MPT16 MS03-2	X	75%	0.0	ORGANIC SOIL - dark brown, loamy, w/ some asphalt rubble		OL	17,18,12,10*	
							SP		
5			80%	0.0	SAND - fine, tan, shelly, moist with a 3" stringer of ORGANIC SOIL - dark brown, loamy		OL	2,3,2,4	
							SP		
	MPT16 MS03-6	X	100%	0.0	SAND - fine to medium, tan, shelly, wet			5,12,15,15*	▽
10									
15					Boring Terminated at 15.5 feet				
20					*Use of non-standard 3" split-spoon sampler for sample recovery is reflected in the higher blow counts at these depths				
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-16-MW4S	**BORING NO.** MPT-16-MW4S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 06-07-94	**COMPLTD:** 06-07-94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 5-15 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 14.85 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 15.5FT.	**DPTH TO ▽** 8.7 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 06/30/94		**SITE:** 16

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-medium to coarse, tan with few shells		SM	Posthole	
5			1.9/2	0	Silty Sand-As above			7,7,8,10	
					As Above-Observed from cuttings.				
10			0.1/2	0	Silty Sand-medium to coarse, light gray with minor % gravel.			13,4,1,1	
15					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

TITLE: Mayport Naval Station, Mayport, FL	**LOG of WELL:** MPT-17-P1	**BORING NO.** MPT-17-P1
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/28/92	**COMPLTD:** 1/28/92
METHOD: H.S.A.	**CASE SIZE:** 2" **SCREEN INT.:** 5-10'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.87 FT.	**MONITOR INST.:** FID **TOT DPTH:** 10FT.	**DPTH TO ▽** 4.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #17

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine, tan, loose		SP		
5			1.5/2	1.2	Shell fragments w/ approx. 20% SAND-fine, tan, wet		SP	3,5,9,14	
10					Boring terminated @ 10'				
15									
20									
25									
30									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-17-P2	**BORING NO.** MPT-17-P2
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-61
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/28/92	**COMPLTD:** 1/28/92
METHOD: H.S.A.	**CASE SIZE:** 2" / **SCREEN INT.:** 7-12'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.72 FT.	**MONITOR INST.:** FID / **TOT DPTH:** 12FT.	**DPTH TO ▽** 7.00 FT.
LOGGED BY: Randy Holloway	**WELL DEVELOPMENT DATE:** N/A	**SITE:** #17

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5			1.5/2	0.2	SAND-fine, brown, loose, w/ some shell fragments		SP	10,8,8,6	
10			1.9/2	0.2	SAND-fine, brown, w/ shell fragments, saturated			8,7,8,6	
					Boring termintated @ 12'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Mayport Naval Station, Mayport, Fl.	**LOG of WELL:** MPT-22-MWIS	**BORING NO.** MPT-22-MWIS
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 7533-81
CONTRACTOR: GROUNDWATER PROTECTION, INC.	**DATE STARTED:** 1/24/92	**COMPLTD:** 1/24/92
METHOD: H.S.A.	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.15 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12FT.	**DPTH TO ▽** 2.5 FT.
LOGGED BY: Larry Smith	**WELL DEVELOPMENT DATE:** 1/28/92		**SITE:** #22

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SAND-fine to medium, lt. gray to tan, numerous shell fragments		SP		
5					CLAY-sandy, silty, gray to dk. green, organics, some shell fragments		CL		
10					Boring terminated @ 12'				
15									
20									
25									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-22-MW2S	**BORING NO.** MPT-22-MW2S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/03/94	**COMPLTD:** 08/03/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13 ft.	**PROTECTION LEVEL:** D
TOC ELEV.: 6.70 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 13.5FT.	**DPTH TO ▽** 3.8 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/29/94		**SITE:** 22

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-tan (0-0.67') over Silty Sand (0.67-1.17') with coarse to medium shell fragments over Silty Sand, tan to light gray with fine to medium shell fragments.		SM	Posthole	
					Silty Sand-tan (1.17-4.67') over Clay (4.67-5') fat, saturated.		CL		
5			0.9/2	2	Silty Sand-medium to fine, saturated, minor % shells, gray.		SM	3,5,5,4	
					Sand Clay- (observed from cuttings), minor % shells, saturated, light gray to brown.		CL		
10			0.5/2	0	Clay-high plasticity, saturated, light black to brown.		CH	1,1,1,1	
					TOTAL DEPTH OF BORING = 13.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-26-MWIS	**BORING NO.** MPT-26-MWIS
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/22/94	**COMPLTD:** 08/22/94
METHOD: 4.25" HSA / **CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 5.85 FT. / **MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/29/30	**SITE:** 26

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top Soil		SM		
				0	Silty Sand (0.5-1.5') - fine over Sandy Clay (1.5-2') - gray over Silty Sand - fine, gray.		CL / SM	Posthole	
					Silty Sand (4-5') estimated contact - fine, gray over Clay - gray to black, trace organics.				
5			2/2	0			SC	1,2,1,1	
				0	Clayey Sand - trace silt, greenish gray.			Observation	
10			0/2		Shelby push tube attempted - no recovery.			UD/Shelby Push Tube Sample	
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-26-MW2S	**BORING NO.** MPT-26-MW2S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/02/94	**COMPLTD:** 08/02/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.
TOC ELEV.: 6.88 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/29/94	**SITE:** 26

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, some shells, saturated at 3.5', tan to gray.		SM	Posthole	
5			1/2	5	Silty Sand-As above			3,4,3,3	
10			1.5/2	0	Silty Sand-fine, saturated, brown.			6,7,8,8	
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-26-MW3S	**BORING NO.** MPT-26-MW3S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/02/94	**COMPLTD:** 08/02/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.05 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/29/94		**SITE:** 26

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, tan		SM	Posthole	
			1.8/2	0	Silty Sand-fine, tan to light gray with gravel lens from 3.5-4.7'.		GM	5,6,7,7	
5							SM		
							GM		
				0	Silty Gravel- (Observed from cuttings) fine gravel with silty and fine sands, gray.			Observation	
10			2/2	0	Silty Clay-high plasticity, saturated, brown with clayey sand lens from 11.8 to 12'.		CH	1,1,1,1	
							SC		
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-26-MW4S	**BORING NO.** MPT-26-MW4S
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/03/94	**COMPLTD:** 08/03/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 7.21 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/29/94		**SITE:** 26

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				2	Silty Sand-fine, shell fragments		SM	Posthole	
5			1.5/2	3	Silty Sand-fine, shell fragments, saturated from 3.5 to 4', tan to gray.			3,3,4,3	
					Estimated contact between Silty Sand and Clay.		CH	Observation	
10			1.8/2	0	Clay (10-10.67) - high plasticity, saturated, brown over Silty Sand - fine.		SM	1,1,3,8	
					TOTAL DEPTH OF BORING = 12.5' BLS				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Station Mayport, Mayport, FL	**LOG of WELL:** MPT-28-MWIS	**BORING NO.** MPT-28-MWIS
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/07/94	**COMPLTD:** 08/07/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 8-18 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 11.85 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 18.5FT.	**DPTH TO ▽** 10.5 FT.
LOGGED BY: P. Craine	**WELL DEVELOPMENT DATE:** 08/30/94		**SITE:** 28

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Silty Sand-fine, medium to coarse shells, light gray to brown.		SM	Posthole	
5			1.8/2	0	Clayey Sand-fine, wet.		SC	5,5,7,7	
					Shelby Push Tube attempted - 100% recovery.		SM	UD/Shelby Push Tube Sample	
10			1.5/2	0	Silty Sand-few shell fragments, saturated, tan to brown.			8,8,8,8	▽
15			1/2	0	Silty Sand-light gray, over Clay (16.25-16.5') - high plasticity, saturated, gray over Sand (16.5-18') - medium to coarse.		CH / SM	5,3,1,1	
					TOTAL DEPTH OF BORING = 18.5' BLS				
20									

TITLE: Naval Station Mayport, Mayport FL	**LOG of WELL:** MPT-58-MWIS	**BORING NO.** MPT-58-MWIS
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		**PROJECT NO:** 8533-04
CONTRACTOR: LAYNE ENVIRONMENTAL SERVICES, INC.	**DATE STARTED:** 08/03/94	**COMPLTD:** 08/03/94
METHOD: 4.25" HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 8.97 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 12.5FT.	**DPTH TO ▽** 3.0 FT.
LOGGED BY: K. Mish	**WELL DEVELOPMENT DATE:** 08/27/94		**SITE:** 58

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				200	Sand-fine, light brown, w/ trace gravel, dry, loose.		SM	Posthole	
					Silty Sand-very fine to fine, dark gray, damp, w/ trace gravel.				
			1.8/2	5	Silty Sand-very fine to fine, light gray, saturated, w/ trace of shell fragments			12,14,18,18	
5									
10			2/2	100	Silty Clay-dark brown, saturated, w/ trace of shell fragments and wood debris, strong petroleum odor.		ML	1,1,1,1	
					TOTAL DEPTH OF BORING=12.5' BLS				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

Design of Monitoring Well Sand Filter Pack and Well Screen Slot Size

Monitoring wells and piezometers constructed at U.S. Naval Station (NAVSTA) Mayport, Florida are designed in general accordance with the methodology described in the Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells, USEPA, March 1991. The USEPA handbook suggest that monitoring wells and piezometers should have artificial sand filter packs when stratified formations with thin layers of fine-grained materials alternate with coarser materials are encountered. The artificial sand filter pack should be designed using a soil sample from formation material collected at the proposed screened interval. (USEPA, 1991). The following describes the design process.

A soil sample from the formation where the well screen is to be placed is collected and submitted to a geotechnical laboratory for physical analysis (i.e., grain size distribution). The geotechnical laboratory sieves the soil sample in accordance with American Society of Testing Materials (ASTM) standard D-422 and constructs a plot of grain size (in millimeters) versus the cumulative percentage of the sample retained in sieves of various sizes. The grain size plot is used to obtain information for the design of the artificial sand filter pack and select the monitoring well screen slot size.

The recommended grain size of the artificial sand filter pack is selected by multiplying the 70 percent retained grain size of the formation material by a factor of 4 and 6. A factor of 4 is used if the formation is fine and uniform; a factor of 6 is used if the formation is coarse and non-uniform. (USEPA, 1991). The uniformity of the formation material is determined by calculating the uniformity coefficient using the grain size distribution plot. The uniformity coefficient is the ratio of the sieve size that retains 40 percent (in millimeters) of the formation material divided by the sieve size that retains 90 percent (in millimeters) of the formation material (columns C, B and A, respectively in Table A-1).

Soil samples were collected from proposed well screen intervals and grain size testing was conducted. A summary of the grain size testing is provided in Table A-2. The recommended grain size for the artificial sand filter pack used for NAVSTA Mayport monitoring wells and piezometers was computed as previously described using a factor of 6 (Table A-1). The computed filter pack grain size is shown in column F (Table A-1) and is similar to the installed sand filter packs used at NAVSTA Mayport (presented in column G of Table A-1). The grain size of the material comprising the installed sand filter pack should retain formation material up to the 70 percent grain size material.

The monitoring well screen slot size was selected to retain the artificial sand filter pack (Table A-1). The filter pack used at NAVSTA Mayport consist of sand size material ranging from 0.635 to 0.889 millimeters (mm) across the smallest diameter which is larger than the well screen slot size of 0.25 mm (0.01 inches).

Table A–1

DESIGN OF MONITORING WELL SAND FILTER PACK AND WELL SCREEN SLOT SIZE

RCRA Facility Investigation, General Information Report
U. S. Naval Station, Mayort Florida

Sample Location	Sample Depth (ft)	Calculation of Uniformity Coefficient			Calculation of Filter Pack Grain Size			Installed Materials	
		40 Percent Retained (mm) A	90 Percent Retained (mm) B	Uniformity Coefficient C	70 Percent Retained (mm) D	Multiplier Multiplier E	Calculated Grain Size F	Filter Pack Grain Size (mm)	Well Screen Slot Size (mm)
MPT–2–MW05S	5.75 to 6.25	NC	NC		0.014	6	0.08	0.635 to 0.889	0.25
MPT–2–MW18I	10.0 to 12.0	0.19	0.0879	2.16	0.141	6	0.85	0.635 to 0.889	0.25
MPT–2–MW29S	8.0 to 10.0	NC	NC		0.161	6	0.97	0.635 to 0.889	0.25
MPT–2–MW29S	8.0 to 10.0	0.22	0.1161	1.89	0.011	6	0.07	0.635 to 0.889	0.25
MPT–2–MW32S	8.0 to 10.0	0.18	0.0941	1.91	0.131	6	0.79	0.635 to 0.889	0.25
MPT–2–MW33I	15.0 to 17.0	NC	NC		0.046	6	0.28	0.635 to 0.889	0.25
MPT–2–MW34S	6.0 to 8.0	0.22	0.1265	1.74	0.165	6	0.99	0.635 to 0.889	0.25
MPT–2–MW34I	15.0 to 17.0	NC	NC		0.006	6	0.04	0.635 to 0.889	0.25
MPT–2–MW36S	8.0 to 10.0	0.23	0.1167	1.97	0.002	6	0.01	0.635 to 0.889	0.25
MPT–2–MW36S	8.0 to 10.0	NC	NC		0.164	6	0.98	0.635 to 0.889	0.25
MPT–2–MW36D	40.0 to 42.0	NC	NC		0.017	6	0.10	0.635 to 0.889	0.25
MPT–2–MW37I	17.0 to 19.0	0.11	0.0044	25.00	0.075	6	0.45	0.635 to 0.889	0.25
MPT–2–MW38S	6.0 to 8.0	0.21	0.1269	1.65	0.163	6	0.98	0.635 to 0.889	0.25
MPT–2–MW38I	12.0 to 14.0	NC	NC		0.05	6	0.30	0.635 to 0.889	0.25
MPT–8–MW05S	5.75 to 6.25	0.62	0.1309	4.74	0.191	6	1.15	0.635 to 0.889	0.25
MPT–8–MW06S	9.5 to 10.0	0.13	0.0783	1.66	0.097	6	0.58	0.635 to 0.889	0.25
MPT–16–MW01I	9.5 to 10.0	0.19	0.0837	2.27	0.114	6	0.68	0.635 to 0.889	0.25
MPT–28–MW01S	6.0 to 8.0	0.19	0.1103	1.72	0.146	6	0.88	0.635 to 0.889	0.25

Notes: Column C = Column A / B
Column F = Column D x E
NC = not calculated, material is a clayey silt
ft = feet beneath the land surface
mm = millimeters.

Table A–2
SIEVE ANALYSIS DATA

RCRA Facility Investigation, General Information Report
U. S. Naval Station, Mayort, Florida

Sample Location	Sample Depth (ft)	Lithologic Description	USCS Soil Classification	Percent Retained by Particle Size			
				Gravel	Sand	Silt	Clay
MPT–2–MW05S	5.75 to 6.25	Clayey Very Sandy SILT	CH	–	35.3	44.9	19.8
MPT–2–MW18I	10.0 to 12.0	Slightly Silty Fine SAND	SP–SM	–	90.1	9.9	–
MPT–2–MW29S	8.0 to 10.0	Fine SAND with Shell	SP	0.6	97.9	1.7	–
MPT–2–MW29S	8.0 to 10.0	Clayey Very Sandy SILT	CH	–	25.8	51.2	23.0
MPT–2–MW32S	8.0 to 10.0	Fine SAND	SP	–	99.2	0.8	–
MPT–2–MW33I	15.0 to 17.0	Clayey Sandy SILT	CH	–	28.9	55.1	16.0
MPT–2–MW34S	6.0 to 8.0	Fine SAND with Shell	SP	0.4	98.3	1.3	–
MPT–2–MW34I	15.0 to 17.0	Clayey Slightly Sandy SILT	CH	–	4.6	68.1	27.3
MPT–2–MW36S	8.0 to 10.0	Fine SAND	SP	–	–	99.5	0.5
MPT–2–MW36S	8.0 to 10.0	Very Clayey Slightly Sandy SILT	CH	–	3.1	57.5	39.4
MPT–2–MW36D	40.0 to 42.0	Clayey Slightly Sandy SILT	MH	–	2.2	79.4	18.4
MPT–2–MW37I	17.0 to 19.0	Slightly Clayey Silty Fine SAND	SC	–	70.1	19.4	10.5
MPT–2–MW38S	6.0 to 8.0	Fine SAND with Shell	SP	0.5	98.7	0.8	–
MPT–2–MW38I	12.0 to 14.0	Clayey Very Sandy SILT	CH	–	38.9	46.9	14.2
MPT–8–MW05S	5.75 to 6.25	Fine SAND	SP	18.0	79.8	2.2	–
MPT–8–MW06S	9.5 to 10.0	Slightly Silty Fine SAND with Shell	SP–SM	0.6	94.0	5.4	–
MPT–16–MW01I	9.5 to 10.0	Fine SAND with Shell	SP	0.5	97.6	1.9	–
MPT–28–MW01S	6.0 to 8.0	Fine SAND	SP	–	98.9	1.1	–

Notes: USCS = Unified Soil Classification System
NA = Not Applicable, material is a clayey silt.
ft = feet beneath the land surface
mm = Millimeters

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034001
Sample Desc.: MPT-2-11
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units	
Mass Dry Sample	g	50.00
Moisture Cont	%	0.00
Corr. Dry Mass	g	50.00 (M)
Pass #10 sieve	%	100.00 (B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.65

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	429.1	428.9	0.2	--	0.4	0.4	0.850mm	99.6
40#	395.5	395.2	0.3	0.5	0.6	1.0	0.425mm	99.0
80#	362.6	351.9	10.7	11.2	21.4	22.4	0.180mm	77.6
100#	372.0	357.7	14.3	25.5	28.6	51.0	0.150mm	49.0
200#	401.3	381.5	19.8	45.3	39.6	90.6	0.075mm	9.4
<200#	370.0	369.8	0.2	45.5	0.4	91.0	<0.075mm	9.0

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
4	6	44	0	--	24.0		--	--
4	6	45	0.67	9.5	24.0	5.1	0.0610	10.2
4	7	15	30	7.5	24.0	3.1	0.0092	6.2
4	7	45	60	6.5	24.0	2.1	0.0066	4.2
4	10	45	240	6.0	23.5	1.5	0.0033	3.0
4	2	45	480	6.0	23.5	1.5	0.0023	3.0
5	6	45	1440	5.5	23.5	1.0	0.0014	2.0

Approved By: J. Stanley
CH2M HILL 4-24-91

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034005
Sample Desc.: MPT-13-5
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units		
Mass Dry Sample	g	50.00	
Moisture Cont	%	0.00	
Corr. Dry Mass	g	50.00	(M)
Pass #10 sieve	%	100.00	(B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.64

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	416.5	414.8	1.7	--	3.4	3.4	0.850mm	96.6
40#	397.9	395.5	2.4	4.1	4.8	8.2	0.425mm	91.8
80#	358.0	337.2	20.8	24.9	41.6	49.8	0.180mm	50.2
100#	378.4	366.7	11.7	36.6	23.4	73.2	0.150mm	26.8
200#	388.4	376.4	12.0	48.6	24.0	97.2	0.075mm	2.8
<200#	360.6	360.3	0.3	48.9	0.6	97.8	<0.075mm	2.2

Day	Reading Time Hr	Reading Time Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
4	6	49	0	--	24.0		--	--
4	6	50	0.67	6.0	24.0	1.6	0.0624	3.2
4	7	20	30	5.0	24.0	0.6	0.0094	1.2
4	7	50	60	4.5	24.0	0.1	0.0066	0.2
4	10	50	240	4.5	23.5	0.0	0.0033	0.0
4	2	50	480	4.5	23.5	0.0	0.0024	0.0
5	6	50	1440	4.5	23.5	0.0	0.0014	0.0

Approved By:
CH2M HILL 2-28-92

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034002
Sample Desc.: MPT-2-16SS
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units	
Mass Dry Sample	g	50.00
Moisture Cont	%	0.00
Corr. Dry Mass	g	50.00 (M)
Pass #10 sieve	%	100.00 (B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.65

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	416.0	414.8	1.2	--	2.4	2.4	0.850mm	97.6
40#	397.8	395.5	2.3	3.5	4.6	7.0	0.425mm	93.0
80#	358.6	337.2	21.4	24.9	42.8	49.8	0.180mm	50.2
100#	378.2	366.8	11.4	36.3	22.8	72.6	0.150mm	27.4
200#	388.1	376.4	11.7	48.0	23.4	96.0	0.075mm	4.0
<200#	360.6	360.4	0.2	48.2	0.4	96.4	<0.075mm	3.6

Day	Reading Time Hr	Reading Time Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
4	6	45	0	--	24.0		--	--
4	6	46	0.67	7.5	24.0	3.1	0.0617	6.2
4	7	16	30	6.5	24.0	2.1	0.0093	4.2
4	7	46	60	5.5	24.0	1.1	0.0066	2.2
4	10	46	240	5.0	23.5	0.5	0.0033	1.0
4	2	46	480	5.0	23.5	0.5	0.0024	1.0
5	6	46	1440	4.5	23.5	0.0	0.0014	0.0

Approved By:

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034006
Sample Desc.: MPT-13-6
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units	
Mass Dry Sample	g	50.00
Moisture Cont	%	0.00
Corr. Dry Mass	g	50.00 (M)
Pass #10 sieve	%	100.00 (B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.63

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	429.1	428.9	0.2	--	0.4	0.4	0.850mm	99.6
40#	395.7	395.2	0.5	0.7	1.0	1.4	0.425mm	98.6
80#	362.3	351.8	10.5	11.2	21.0	22.4	0.180mm	77.6
100#	372.6	357.7	14.9	26.1	29.8	52.2	0.150mm	47.8
200#	404.0	381.4	22.6	48.7	45.2	97.4	0.075mm	2.6
<200#	369.9	369.7	0.2	48.9	0.4	97.8	<0.075mm	2.2

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
4	6	50	0	--	24.0		--	--
4	6	51	0.67	7.0	24.0	2.6	0.0622	5.2
4	7	21	30	4.5	24.0	0.1	0.0094	0.2
4	7	51	60	4.5	24.0	0.1	0.0067	0.2
4	10	51	240	4.5	23.5	0.0	0.0034	0.0
4	2	51	480	4.5	23.5	0.0	0.0024	0.0
5	6	51	1440	4.5	23.5	0.0	0.0014	0.0

Approved By: _____
CH2M HILL 3-16-91

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034008
Sample Desc.: MPT-2-125
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units	
Mass Dry Sample	g	50.00
Moisture Cont	%	0.00
Corr. Dry Mass	g	50.00 (M)
Pass #10 sieve	%	100.00 (B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.65

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	428.9	428.8	0.1	--	0.2	0.2	0.850mm	99.8
40#	395.7	395.2	0.5	0.6	1.0	1.2	0.425mm	98.8
80#	371.2	351.8	19.4	20.0	38.8	40.0	0.180mm	60.0
100#	376.1	357.7	18.4	38.4	36.8	76.8	0.150mm	23.2
200#	391.5	381.4	10.1	48.5	20.2	97.0	0.075mm	3.0
<200#	369.8	369.7	0.1	48.6	0.2	97.2	<0.075mm	2.8

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
10	6	44	0	--	24.0		--	--
10	6	45	0.67	7.0	24.0	2.6	0.0619	5.2
10	7	15	30	5.5	24.0	1.1	0.0093	2.2
10	7	45	60	5.0	24.0	0.6	0.0066	1.2
10	10	45	240	5.0	24.0	0.6	0.0033	1.2
10	2	45	480	5.0	24.0	0.6	0.0023	1.2
11	6	45	1440	5.0	24.0	0.6	0.0013	1.2

Approved By: [signature]
CH2M HILL 2-26-91

Redding Quality Analytical Laboratories
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916.244.5227
FAX 916.244.4109

CH2MHILL Engineers Planners Economists Scientists

Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034008 (Dup)
Sample Desc.: MPT-2-12~~5~~5
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units	
Mass Dry Sample	g	50.00
Moisture Cont	%	0.00
Corr. Dry Mass	g	50.00 (M)
Pass #10 sieve	%	100.00 (B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.65

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	414.9	414.8	0.1	--	0.2	0.2	0.850mm	99.8
40#	396.0	395.5	0.5	0.6	1.0	1.2	0.425mm	98.8
80#	360.7	337.2	23.5	24.1	47.0	48.2	0.180mm	51.8
100#	382.2	366.7	15.5	39.6	31.0	79.2	0.150mm	20.8
200#	385.3	376.4	8.9	48.5	17.8	97.0	0.075mm	3.0
<200#	360.4	360.3	0.1	48.6	0.2	97.2	<0.075mm	2.8

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
10	6	45	0	--	24.0		--	--
10	6	46	0.67	6.5	24.0	2.1	0.0620	4.2
10	7	16	30	5.5	24.0	1.1	0.0093	2.2
10	7	46	60	5.0	24.0	0.6	0.0066	1.2
10	10	46	240	5.0	24.0	0.6	0.0033	1.2
10	2	46	480	5.0	24.0	0.6	0.0023	1.2
11	6	46	1440	5.0	24.0	0.6	0.0013	1.2

Approved By: _____

CH2M HILL 2/18/92
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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034004
Sample Desc.: MPT-13-4
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units		
Mass Dry Sample	g	50.00	
Moisture Cont	%	0.00	
Corr. Dry Mass	g	50.00	(M)
Pass #10 sieve	%	100.00	(B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.64

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	417.9	414.8	3.1	--	6.2	6.2	0.850mm	93.8
40#	398.4	395.5	2.9	6.0	5.8	12.0	0.425mm	88.0
80#	355.7	337.2	18.5	24.5	37.0	49.0	0.180mm	51.0
100#	378.6	366.7	11.9	36.4	23.8	72.8	0.150mm	27.2
200#	388.3	376.4	11.9	48.3	23.8	96.6	0.075mm	3.4
<200#	360.6	360.4	0.2	48.5	0.4	97.0	<0.075mm	3.0

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
4	6	47	0	--	24.0		--	--
4	6	48	0.67	7.0	24.0	2.6	0.0620	5.2
4	7	18	30	6.0	24.0	1.6	0.0093	3.2
4	7	48	60	5.0	24.0	0.6	0.0066	1.2
4	10	48	240	5.0	23.5	0.5	0.0033	1.0
4	2	48	480	5.0	23.5	0.5	0.0024	1.0
5	6	48	1440	5.0	23.5	0.5	0.0014	1.0

Approved By: _____
CH2M HILL 2-19-93

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034007
Sample Desc.: MPT-22-15
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units	
Mass Dry Sample	g	50.00
Moisture Cont	%	0.00
Corr. Dry Mass	g	50.00 (M)
Pass #10 sieve	%	100.00 (B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.67

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	425.6	414.8	10.8	--	21.6	21.6	0.850mm	78.4
40#	406.4	395.5	10.9	21.7	21.8	43.4	0.425mm	56.6
80#	349.8	337.2	12.6	34.3	25.2	68.6	0.180mm	31.4
100#	372.5	366.7	5.8	40.1	11.6	80.2	0.150mm	19.8
200#	384.1	376.4	7.7	47.8	15.4	95.6	0.075mm	4.4
<200#	360.4	360.3	0.1	47.9	0.2	95.8	<0.075mm	4.2

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
4	6	51	0	--	24.0		--	--
4	6	52	0.67	8.0	24.0	3.6	0.0612	7.2
4	7	22	30	7.0	24.0	2.6	0.0092	5.2
4	7	52	60	5.5	24.0	1.1	0.0066	2.2
4	10	52	240	5.5	23.5	1.0	0.0033	2.0
4	2	52	480	4.5	23.5	0.0	0.0023	0.0
5	6	52	1440	4.5	23.5	0.0	0.0014	0.0

Approved By: _____
CH2M HILL 2-18-91

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034003
Sample Desc.: MPT-2-17[illegible]5
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units	
Mass Dry Sample	g	50.00
Moisture Cont	%	0.00
Corr. Dry Mass	g	50.00 (M)
Pass #10 sieve	%	100.00 (B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.64

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	434.2	428.9	5.3	--	10.6	10.6	0.850mm	89.4
40#	403.8	395.2	8.6	13.9	17.2	27.8	0.425mm	72.2
80#	369.3	351.8	17.5	31.4	35.0	62.8	0.180mm	37.2
100#	364.6	357.6	7.0	38.4	14.0	76.8	0.150mm	23.2
200#	390.0	381.5	8.5	46.9	17.0	93.8	0.075mm	6.2
<200#	369.8	369.8	0.0	46.9	0.0	93.8	<0.075mm	6.2

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
4	6	46	0	--	24.0		--	--
4	6	47	0.67	8.5	24.0	4.1	0.0615	8.2
4	7	17	30	7.0	24.0	2.6	0.0093	5.2
4	7	47	60	6.0	24.0	1.6	0.0066	3.2
4	10	47	240	5.5	23.5	1.0	0.0033	2.0
4	2	47	480	5.5	23.5	1.0	0.0024	2.0
5	6	47	1440	5.0	23.5	0.5	0.0014	1.0

Approved By: [signature]
CH2M HILL 2-18-92

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :ABB E.S. Mayport Naval Station
Proj. Number:LMG00999.99
ATTENTION: Ms. Emily Ramuchak

Sample I.D. : 32034P04 (Dup)
Sample Desc.: MPT-13-4
Date Analyzed: 02/14/91

INITIAL SAMPLE MASS

	Units	
Mass Dry Sample	g	50.00
Moisture Cont	%	0.00
Corr. Dry Mass	g	50.00 (M)
Pass #10 sieve	%	100.00 (B)

Mass of total sample represented by mass used in hydrometer test
W = (M/B) x 100 = 50.00 g
Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

HYGROSCOPIC MOISTURE CONTENT

	Units	
Can No.	--	[ ]
Gross Wet Mass	g	50.00
Gross Dry Mass	g	50.00
Moisture Mass	g	0.00
Tare Mass	g	0.00
Dry Soil Mass	g	50.00
Moisture Content	%	0.00

Specific Gravity: 2.63

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accum.	Percent Retained Indiv.	Percent Retained Accum.	STD Sieve	Accum. Percent Passing
20#	431.3	428.9	2.4	--	4.8	4.8	0.850mm	95.2
40#	397.9	395.2	2.7	5.1	5.4	10.2	0.425mm	89.8
80#	368.7	351.8	16.9	22.0	33.8	44.0	0.180mm	56.0
100#	370.3	357.7	12.6	34.6	25.2	69.2	0.150mm	30.8
200#	395.0	381.5	13.5	48.1	27.0	96.2	0.075mm	3.8
<200#	369.8	369.7	0.1	48.2	0.2	96.4	<0.075mm	3.6

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp (deg Cel)	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
4	6	48	0	--	24.0		--	--
4	6	49	0.67	7.5	24.0	3.1	0.0621	6.2
4	7	19	30	6.0	24.0	1.6	0.0094	3.2
4	7	49	60	5.0	24.0	0.6	0.0066	1.2
4	10	49	240	5.0	23.5	0.5	0.0033	1.0
4	2	49	480	5.0	23.5	0.5	0.0024	1.0
5	6	49	1440	5.0	23.5	0.5	0.0014	1.0

Approved By:
CH2M HILL 2-18-92

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LAW ENGINEERING

P.O. Box 5728 — 3901 Carmichael Ave.
Jacksonville, Florida 32207
(904) 396-5173

REPORT of Soil Testing

Client: CH2M - Hill

Date: 2/22/93

Project: Miscellaneous Testing
Mayport ABB - 753384

Project No: 446-01953-01

On various dates starting January 26, 1993, three samples were tested for grain size ASTM D-422, moisture content ASTM D-2216, permeability ASTM D-2434, and bulk density. The samples were obtained from undisturbed sample tubes supplied to Law Engineering, Inc. by Mr. Larry Smith of ABB. The results of these tests are as follows:

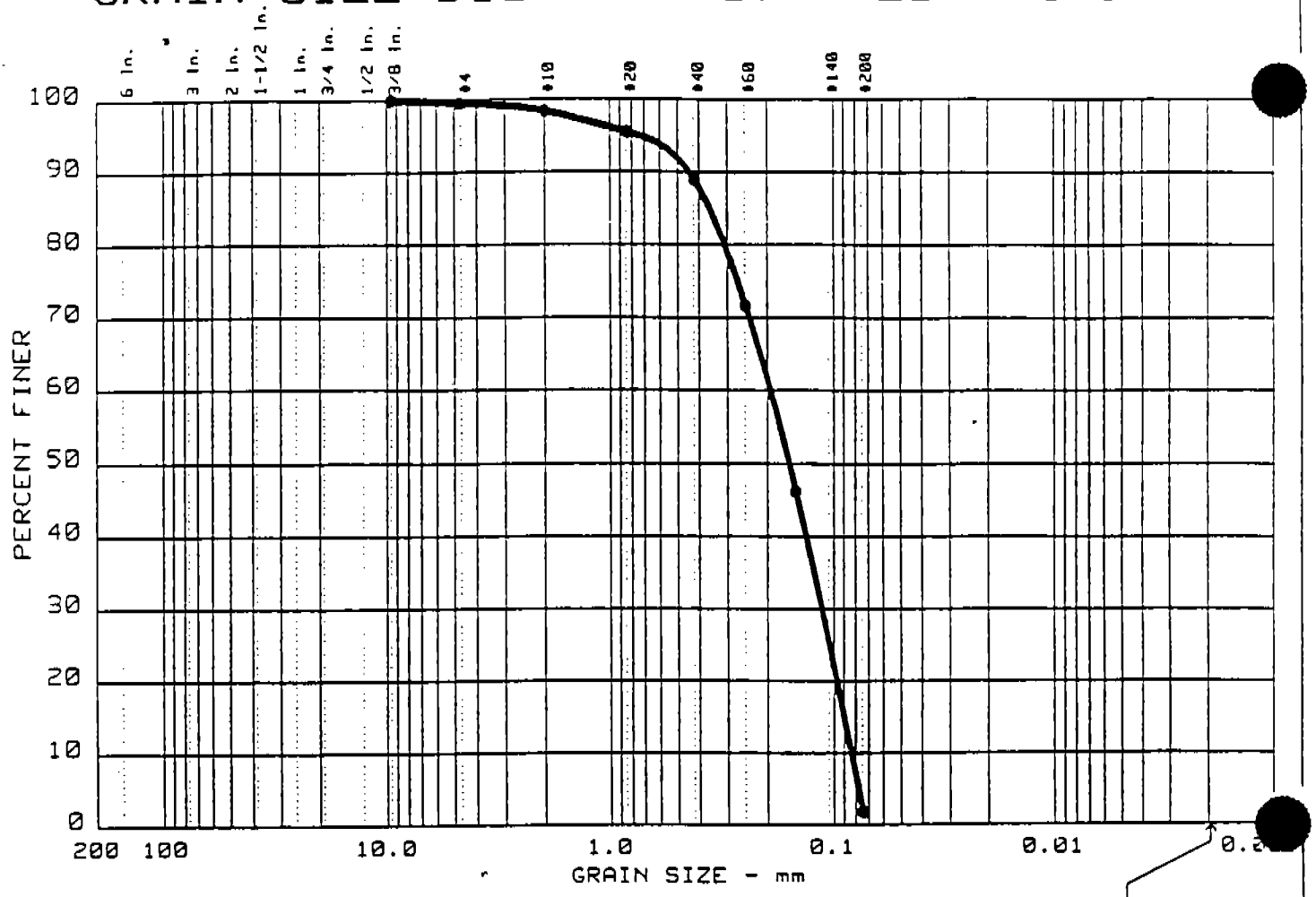
SAMPLE IDENTIFICATION	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	COEFFICIENT OF PERMEABILITY (CM/SEC)
MPT - 16A 9'4" - 10'0"	13.4	109.3	9.8×10^{-4}
MPT - 8 - 6S 9'4" - 10'0"	24.4	83.4	8.4×10^{-4}
MPT - 8 - 5S 5'8" - 6'4"	12.8	108.4	1.9×10^{-3}

Respectfully submitted,
LAW ENGINEERING

Bryant B. Wildes

Bryant B. Wildes, Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.5	97.6	1.9	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.36	0.19	0.16	0.114	0.0902	0.0837	0.80	2.3

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Fine SAND w/ a few shells	SP	A-3

Project No.: 446-01953-01
Project: Mayport ABB-753384
● Location: Boring MPT-16A

Date: 2-15-93

Remarks:

Depth: 9'4" - 10'0"

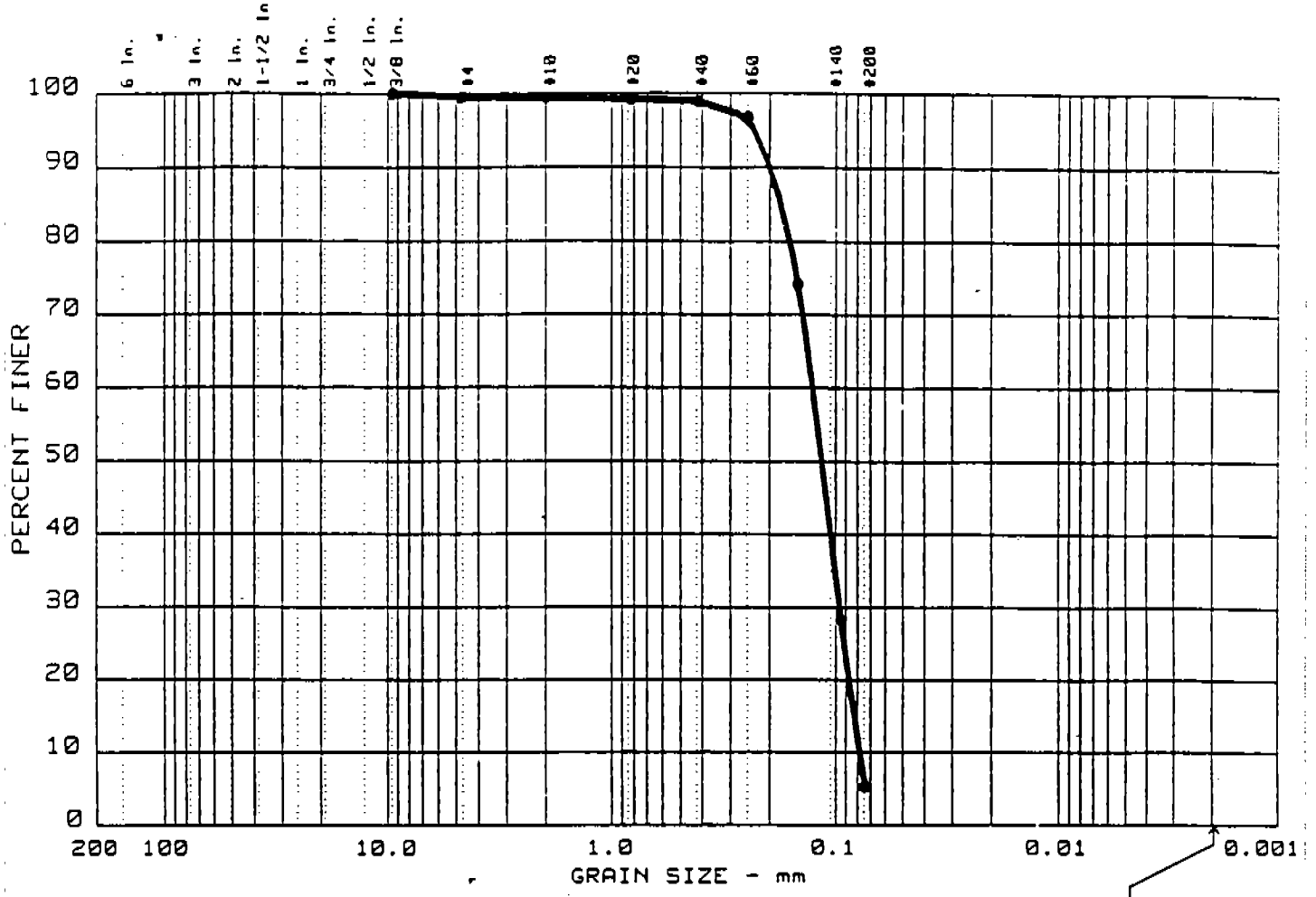
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING, INC.

Bryant B. Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.6	94.0	5.4	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.18	0.13	0.12	0.097	0.0830	0.0783	0.94	1.6

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Slightly Silty Fine SAND w/ a few shells	SP-SM	A-3

Project No.: 446-01953-01
Project: Mayport ABB-753384
● Location: Boring MPT-8-6S

Date: 2-15-93

Remarks:

Sample No. 2

Depth: 5'4"- 10'0"

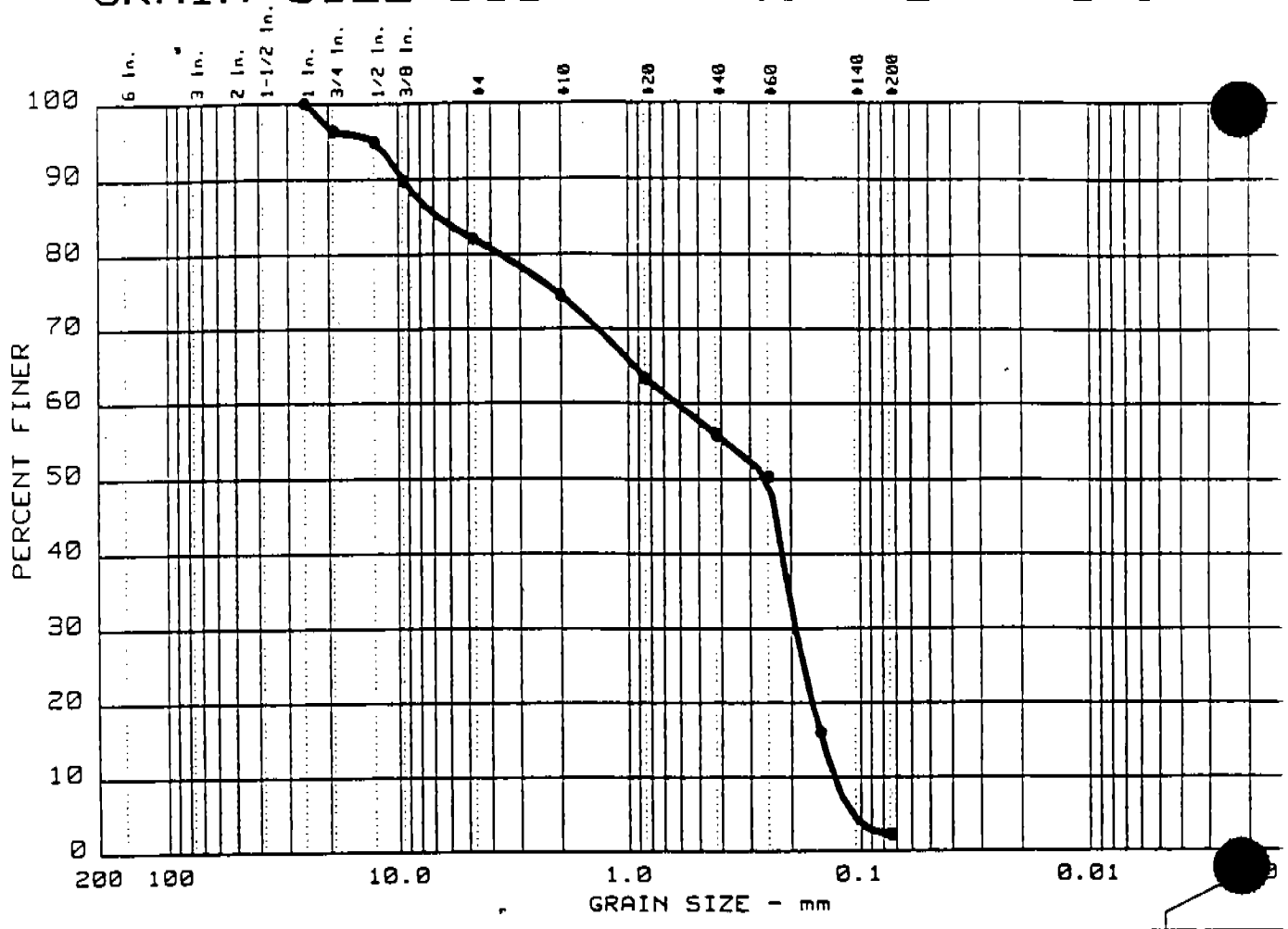
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING, INC.

Bryant B. Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLA
●	0.0	18.0	79.8	2.2	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C
●			6.68	0.62	0.25	0.191	0.1460	0.1309	0.45	4.

	MATERIAL DESCRIPTION	USCS	AASHTO
●	Tan Fine SAND w/ shell	SP	A-3

Project No.: 446-01953-01
Project: Mayport ABB-753384
● Location: Boring MPT-8-SS

Date: 2-15-93

Remarks:
Sample No. 2
Depth: 5'8"- 6'4"

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Bryant B Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Techni

Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35167001
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSS1
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.68

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	431.39	428.80	2.6	--	5.2	5.2	0.850mm	94.8
40#	401.28	395.07	6.2	8.8	12.4	17.6	0.425mm	82.4
80#	357.56	337.15	20.5	29.3	41.0	58.6	0.180mm	41.4
100#	367.08	357.59	9.5	38.8	19.0	77.6	0.150mm	22.4
200#	386.39	376.39	10.0	48.8	20.0	97.6	0.075mm	2.4
<200#	360.42	360.29	0.1	48.9	0.3	97.9	<0.075mm	2.1

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	6	59	0	--	21.2	--	--	--
24	7	00	0.67	7.0	21.2	1.7	0.0635	3.4
24	7	30	30	5.5	21.2	0.2	0.0096	0.4
24	8	00	60	5.5	21.1	0.2	0.0068	0.4
24	11	00	240	6.0	21.2	0.2	0.0034	0.4
24	3	00	480	5.5	21.3	0.0	0.0024	0.0
25	7	00	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull

Date: 3/9/93

#5-8-93 000002
3/9/93

000003

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc.:	ABB Environmental	Sample I.D.:	35167002
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSS1D
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.66

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	435.96	428.79	7.2	--	14.3	14.3	0.850mm	85.7
40#	405.44	395.07	10.4	17.5	20.7	35.1	0.425mm	64.9
80#	357.92	337.17	20.8	38.3	41.5	76.6	0.180mm	23.4
100#	363.73	357.60	6.1	44.4	12.3	88.8	0.150mm	11.2
200#	380.84	376.36	4.5	48.9	9.0	97.8	0.075mm	2.2
<200#	360.31	360.29	0.0	48.9	0.0	97.8	<0.075mm	2.2

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	01	0	--	21.2	--	--	--
24	7	02	0.67	6.5	21.2	1.2	0.0640	2.4
24	7	32	30	5.5	21.2	0.2	0.0096	0.4
24	8	02	60	5.5	21.1	0.2	0.0068	0.4
24	11	02	240	6.0	21.2	0.2	0.0034	0.4
24	3	02	480	5.5	21.3	0.0	0.0024	0.0
25	7	02	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hall

Date: 3/9/93

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35167P01
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSS1
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.68

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	416.31	414.70	1.6	--	3.2	3.2	0.850mm	96.8
40#	398.41	395.43	3.0	4.6	6.0	9.2	0.425mm	90.8
80#	372.37	353.03	19.3	23.9	38.7	47.9	0.180mm	52.1
100#	379.27	366.66	12.6	36.5	25.2	73.1	0.150mm	26.9
200#	393.60	381.41	12.2	48.7	24.4	97.5	0.075mm	2.5
<200#	415.45	415.39	0.1	48.8	0.1	97.6	<0.075mm	2.4

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	00	0	--	21.2	--	--	--
24	7	01	0.67	6.5	21.2	1.2	0.0636	2.4
24	7	31	30	5.5	21.2	0.2	0.0096	0.4
24	8	01	60	5.5	21.1	0.2	0.0068	0.4
24	11	01	240	6.0	21.2	0.2	0.0034	0.4
24	3	01	480	5.5	21.3	0.0	0.0024	0.0
25	7	01	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull

Date: 3/9/93

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35167003
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSS2
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.69

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	416.67	414.70	2.0	--	3.9	3.9	0.850mm	96.1
40#	399.64	395.41	4.2	6.2	8.5	12.4	0.425mm	87.6
80#	373.73	353.03	20.7	26.9	41.4	53.8	0.180mm	46.2
100#	377.75	366.67	11.1	38.0	22.2	76.0	0.150mm	24.0
200#	392.42	381.42	11.0	49.0	22.0	98.0	0.075mm	2.0
<200#	415.42	415.41	0.0	49.0	0.0	98.0	<0.075mm	2.0

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	02	0	--	21.2	--	--	--
24	7	03	0.67	7.0	21.2	1.7	0.0633	3.4
24	7	33	30	6.0	21.2	0.7	0.0095	1.4
24	8	03	60	5.5	21.1	0.2	0.0067	0.4
24	11	03	240	6.0	21.2	0.2	0.0034	0.4
24	3	03	480	6.0	21.3	0.0	0.0024	0.0
25	7	03	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull

Date: 3/9/93

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc.:	ABB Environmental	Sample I.D.:	35167004
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSS3
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.67

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	433.19	428.78	4.4	--	8.8	8.8	0.850mm	91.2
40#	403.31	395.06	8.3	12.7	16.5	25.3	0.425mm	74.7
80#	357.58	337.16	20.4	33.1	40.8	66.2	0.180mm	33.8
100#	364.58	357.57	7.0	40.1	14.0	80.2	0.150mm	19.8
200#	383.45	376.37	7.1	47.2	14.2	94.3	0.075mm	5.7
<200#	360.36	360.26	0.1	47.3	0.2	94.5	<0.075mm	5.5

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	03	0	--	21.2	--	--	--
24	7	04	0.67	9.5	21.2	4.2	0.0628	8.4
24	7	34	30	7.5	21.2	2.2	0.0095	4.4
24	8	04	60	7.0	21.1	1.7	0.0067	3.4
24	11	04	240	6.5	21.2	1.2	0.0034	2.4
24	3	04	480	6.0	21.3	0.8	0.0024	1.6
25	7	04	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull Date: 3/9/93

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35167005
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSS4
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.67

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	417.60	414.67	2.9	--	5.9	5.9	0.850mm	94.1
40#	410.61	395.42	15.2	18.1	30.4	36.2	0.425mm	63.8
80#	378.55	353.06	25.5	43.6	51.0	87.2	0.180mm	12.8
100#	370.07	366.66	3.4	47.0	6.8	94.0	0.150mm	6.0
200#	383.52	381.42	2.1	49.1	4.2	98.2	0.075mm	1.8
<200#	415.39	415.39	0.0	49.1	0.0	98.2	<0.075mm	1.8

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	04	0	--	21.2	--	--	--
24	7	05	0.67	7.5	21.2	2.2	0.0635	4.4
24	7	35	30	6.5	21.2	1.2	0.0095	2.4
24	8	05	60	6.0	21.1	0.7	0.0068	1.4
24	11	05	240	6.0	21.2	0.7	0.0034	1.4
24	3	05	480	5.5	21.3	0.3	0.0024	0.6
25	7	05	1440	5.0	22.1	0.0	0.0014	0.0

Approved By: Donald R Hall Date: 3/9/93

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35167006
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSS6
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.67

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	428.90	428.76	0.1	--	0.3	0.3	0.850mm	99.7
40#	395.52	395.06	0.5	0.6	0.9	1.2	0.425mm	98.8
80#	358.65	337.15	21.5	22.1	43.0	44.2	0.180mm	55.8
100#	371.58	357.59	14.0	36.1	28.0	72.2	0.150mm	27.8
200#	389.19	376.38	12.8	48.9	25.6	97.8	0.075mm	2.2
<200#	360.33	360.27	0.1	49.0	0.1	97.9	<0.075mm	2.1

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	05	0	--	21.2	--	--	--
24	7	06	0.67	7.5	21.2	2.2	0.0635	4.4
24	7	36	30	6.0	21.2	0.7	0.0096	1.4
24	8	06	60	5.5	21.1	0.2	0.0068	0.4
24	11	06	240	6.0	21.2	0.2	0.0034	0.4
24	3	06	480	6.0	21.3	0.2	0.0024	0.4
25	7	06	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull

Date: 3/9/93

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35167007
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSS5
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTEN	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont.	%	0.00	Gross Wet Mass	g	5
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	5
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	
Mass of total sample represented			Tare Mass	g	
by mass used in hydrometer test			Dry Soil Mass	g	5
W = (M/B) x 100 =		50.00 g	Moisture Content	%	

Hydrometer No.: 67026 Type: 152H
Dispersing Agent:: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.64

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	414.70	414.68	0.0	--	0.0	0.0	0.850mm	100.0
40#	395.50	395.40	0.1	0.1	0.2	0.2	0.425mm	99.8
80#	367.45	353.40	14.1	14.2	28.1	28.3	0.180mm	71.7
100#	387.36	366.70	20.7	34.8	41.3	69.7	0.150mm	30.3
200#	395.43	381.38	14.1	48.9	28.1	97.8	0.075mm	2.2
<200#	415.37	415.36	0.0	48.9	0.0	97.8	<0.075mm	2.2

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	06	0	--	21.2	--	--	--
24	7	07	0.67	6.5	21.2	1.2	0.0644	2.4
24	7	37	30	6.0	21.2	0.7	0.0096	1.4
24	8	07	60	5.5	21.1	0.2	0.0068	0.4
24	11	07	240	6.0	21.2	0.2	0.0034	0.4
24	3	07	480	5.5	21.3	0.0	0.0024	0.0
25	7	07	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull Date: 3/9/93

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc.:	ABB Environmental	Sample I.D.:	35170001
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSD7
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.66

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	429.53	428.76	0.8	--	1.5	1.5	0.850mm	98.5
40#	396.23	395.06	1.2	1.9	2.3	3.9	0.425mm	96.1
80#	351.40	337.17	14.2	16.2	28.5	32.3	0.180mm	67.7
100#	373.77	357.59	16.2	32.3	32.4	64.7	0.150mm	35.3
200#	392.27	376.36	15.9	48.3	31.8	96.5	0.075mm	3.5
<200#	360.31	360.27	0.0	48.3	0.1	96.6	<0.075mm	3.4

Day	Reading Time Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	07	0	--	21.2	--	--	--
24	7	08	0.67	8.0	21.2	2.7	0.0635	5.4
24	7	38	30	7.0	21.2	1.7	0.0095	3.4
24	8	08	60	6.5	21.1	1.2	0.0068	2.4
24	11	08	240	6.0	21.2	0.7	0.0034	1.4
24	3	08	480	6.0	21.3	0.7	0.0024	1.4
25	7	08	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull

Date: 3/9/93

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35170P01
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSD7
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =	50.00 g		Moisture Content	%	0.00
Hydrometer No.: 87026 Type: 152H					
Dispersing Agent: Sodium Hexametaphosphate					
Amount Used: 50 ml			Specific Gravity:		2.66

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	415.40	414.68	0.7	--	1.4	1.4	0.850mm	98.6
40#	395.65	395.40	0.3	1.0	0.5	1.9	0.425mm	98.1
80#	366.08	353.00	13.1	14.0	26.2	28.1	0.180mm	71.9
100#	385.22	366.69	18.5	32.6	37.1	65.2	0.150mm	34.8
200#	395.98	381.40	14.6	47.2	29.2	94.3	0.075mm	5.7
<200#	415.41	415.40	0.0	47.2	0.0	94.3	<0.075mm	5.7

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	08	0	--	21.2	--	--	--
24	7	09	0.67	8.0	21.2	2.7	0.0635	5.4
24	7	39	30	7.0	21.2	1.7	0.0095	3.4
24	8	09	60	6.5	21.1	1.2	0.0068	2.4
24	11	09	240	6.0	21.2	0.7	0.0034	1.4
24	3	09	480	6.0	21.3	0.7	0.0024	1.4
25	7	09	1440	5.5	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull Date: 3/9/93

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35170002
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSD7
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =	50.00 g		Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml
Specific Gravity: 2.65

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	429.54	428.77	0.8	--	1.5	1.5	0.850mm	98.5
40#	396.23	395.05	1.2	2.0	2.4	3.9	0.425mm	96.1
80#	351.83	337.15	14.7	16.6	29.4	33.3	0.180mm	66.7
100#	374.15	357.61	16.5	33.2	33.1	66.3	0.150mm	33.7
200#	391.42	376.36	15.1	48.2	30.1	96.5	0.075mm	3.5
<200#	360.34	360.28	0.1	48.3	0.1	96.6	<0.075mm	3.4

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	09	0	--	21.2	--	--	--
24	7	10	0.67	8.0	21.2	2.7	0.0637	5.4
24	7	40	30	7.0	21.2	1.7	0.0096	3.4
24	8	10	60	6.0	21.1	0.7	0.0068	1.4
24	11	10	240	6.0	21.2	0.7	0.0034	1.4
24	3	10	480	5.5	21.3	0.3	0.0024	0.6
25	7	10	1440	5.0	22.1	0.0	0.0014	0.0

Approved By: Donald R Hull Date: 3/9/93

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3-8-93
3/9/93

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35170003
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSD6
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTEN	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	5(
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	5(
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	(
Mass of total sample represented			Tare Mass	g	(
by mass used in hydrometer test			Dry Soil Mass	g	5(
W = (M/B) x.100 =		50.00 g	Moisture Content	%	(

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.66

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	419.83	414.66	5.2	--	10.3	10.3	0.850mm	89.7
40#	402.31	395.39	6.9	12.1	13.8	24.2	0.425mm	75.8
80#	369.18	353.00	16.2	28.3	32.4	56.5	0.180mm	43.5
100#	375.25	366.65	8.6	36.9	17.2	73.7	0.150mm	26.3
200#	391.00	381.38	9.6	46.5	19.2	93.0	0.075mm	7.0
<200#	415.41	415.38	0.0	46.5	0.1	93.0	<0.075mm	7.0

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	10	0	--	21.2	--	--	--
24	7	11	0.67	9.5	21.2	4.2	0.0630	8.4
24	7	41	30	8.0	21.2	2.7	0.0095	5.4
24	8	11	60	7.5	21.1	2.2	0.0067	4.4
24	11	11	240	6.5	21.2	1.2	0.0034	2.4
24	3	11	480	6.5	21.3	1.2	0.0024	2.4
25	7	11	1440	6.0	22.1	0.5	0.0014	1.0

Approved By: Donald R Hull Date: 3/9/93

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PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc. :	ABB Environmental	Sample I.D. :	35170004
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	MPTBSD4
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =	50.00 g		Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml
Specific Gravity: 2.68

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	428.89	428.75	0.1	--	0.3	0.3	0.850mm	99.7
40#	395.50	395.04	0.5	0.6	0.9	1.2	0.425mm	98.8
80#	347.59	337.13	10.5	11.1	20.9	22.1	0.180mm	77.9
100#	369.75	357.59	12.2	23.2	24.3	46.4	0.150mm	53.6
200#	397.19	376.36	20.8	44.0	41.7	88.1	0.075mm	11.9
<200#	360.53	360.28	0.3	44.3	0.5	88.6	<0.075mm	11.4

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	11	0	--	21.2	--	--	--
24	7	12	0.67	11.0	21.2	5.7	0.0621	11.3
24	7	42	30	8.0	21.2	2.7	0.0094	5.4
24	8	12	60	7.0	21.1	1.7	0.0067	3.4
24	11	12	240	6.5	21.2	1.2	0.0034	2.4
24	3	12	480	6.0	21.3	0.8	0.0024	1.6
25	7	12	1440	6.0	22.1	0.5	0.0014	1.0

Approved By: Donald R Hull Date: 3/9/93

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3-8-93
3/9/93

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Soils Analysis

PARTICLE SIZE ANALYSIS
ASTM D-422

Proj. Desc.:	ABB Environmental	Sample I.D.:	35195002
Proj. Number:	LRD34817.XY.MP	Sample Desc.:	~~MPTBSW5~~ MPT8S
ATTENTION:	Mr. Greg Brown	Date Analyzed:	03/03/93

INITIAL SAMPLE MASS	Units		HYGROSCOPIC MOISTURE CONTENT	Units	
Mass Dry Sample	g	50.00	Can No.	--	[ ]
Moisture Cont	%	0.00	Gross Wet Mass	g	50.00
Corr. Dry Mass	g	50.00 (M)	Gross Dry Mass	g	50.00
Pass #10 sieve	%	100.00 (B)	Moisture Mass	g	0.00
Mass of total sample represented			Tare Mass	g	0.00
by mass used in hydrometer test			Dry Soil Mass	g	50.00
W = (M/B) x 100 =		50.00 g	Moisture Content	%	0.00

Hydrometer No.: 87026 Type: 152H
Dispersing Agent: Sodium Hexametaphosphate
Amount Used: 50 ml

Specific Gravity: 2.62

Material Retained On 75 um Sieve After Washing

STD Sieve #	Gross Mass	Tare Mass	Net Mass Indiv.	Retained Accumulative	Percent Retained Individual	Percent Retained Accumulative	STD Sieve	Accum. Percent Passing
20#	428.87	428.74	0.1	--	0.3	0.3	0.850mm	99.7
40#	395.36	395.03	0.3	0.5	0.7	0.9	0.425mm	99.1
80#	348.23	337.15	11.1	11.5	22.2	23.1	0.180mm	76.9
100#	372.96	357.58	15.4	26.9	30.8	53.8	0.150mm	46.2
200#	396.66	376.35	20.3	47.2	40.6	94.5	0.075mm	5.5
<200#	360.42	360.26	0.2	47.4	0.3	94.8	<0.075mm	5.2

Reading Time Day	Hr	Min	Elapsed Time (min)	Hydrom Reading	Temp °C	Corr. Hydrom Reading	Particle Diam. (mm)	Pct Soil Susp.
24	7	13	0	--	21.2	--	--	--
24	7	14	0.67	8.5	21.2	3.2	0.0641	6.5
24	7	44	30	7.0	21.2	1.7	0.0097	3.4
24	8	14	60	7.0	21.1	1.7	0.0068	3.4
24	11	14	240	6.5	21.2	1.2	0.0034	2.4
24	3	14	480	6.0	21.3	0.8	0.0024	1.6
25	7	14	1440	6.0	22.1	0.5	0.0014	1.0

Approved By: Donald R Hull Date: 3/9/93

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BJ 3-8-93
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LAW ENGINEERING
3901 CARMICHAEL AVENUE
JACKSONVILLE, FLORIDA 32207
(904) 396-5173

REPORT OF SOIL TESTING

CLIENT: CH2M Hill **DATE:** November 1, 1994

PROJECT: Soil Testing **LAW PROJECT NO.** 446-01953-01

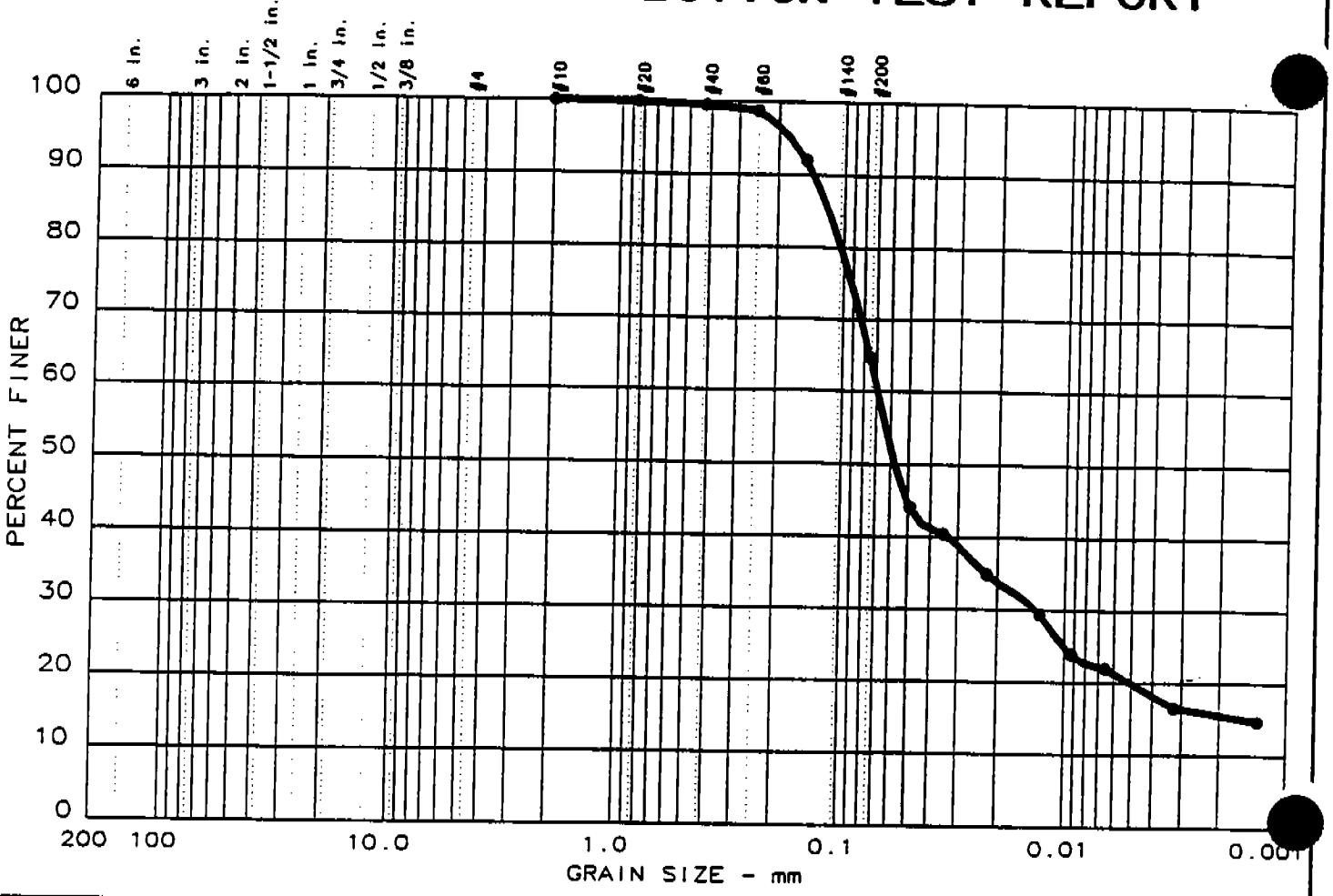
On various dates starting July 15, 1994, thirteen samples of soil were tested for permeability ASTM D-5084, Sieve Analysis ASTM D-422 and Atterburg Limit ASTM D-4318. The samples were delivered to Law Engineering, Inc. (LAW), by Mr. Larry Smith of ABB Environmental. The results of these tests are as follows:

SAMPLE IDENTIFICATION	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	COEFFICIENT OF PERMEABILITY (CM/SEC)
MPT-2-MW38I	126	42	84	87.1	51.2	8.3×10^{-8}
MPT-2-MW36S	108	34	74	83.5	50.1	1.8×10^{-7}
MPT-2-MW37I	43	25	18	45.4	73.5	8.7×10^{-8}
MPT-2-MW29S	87	30	57	121.8	80.5	1.6×10^{-8}
MPT-2-MW3CD	173	63	110	86.1	52.3	1.0×10^{-8}
MPT-2-MW34S	N/P	N/P	N/P	19.9	88.9	5.9×10^{-3}
MPT-2-MW138S	N/P	N/P	N/P	22.6	90.1	6.2×10^{-3}
MPT-2-MW32S	N/P	N/P	N/P	23.0	92.3	9.4×10^{-3}
MPT-28-MW1S	N/P	N/P	N/P	12.0	87.1	5.8×10^{-3}
MPT-2-MW18I	N/P	N/P	N/P	29.4	81.1	2.7×10^{-5}
MPT-2-MW5	117	42	75	71.2	48.2	3.8×10^{-8}
MPT-2-MW34I	126	41	85	114.1	42.9	1.8×10^{-8}
MPT-2-MW33I	69	28	41	79.4	52.4	3.2×10^{-8}

Respectfully Submitted,
LAW ENGINEERING, INC.

Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	35.3	44.9	19.8

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	117	75	0.12		0.06	0.014	0.0014			

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Clayey Very Sandy SILT	CH	A-7-5

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW5

Date: 11-1-94

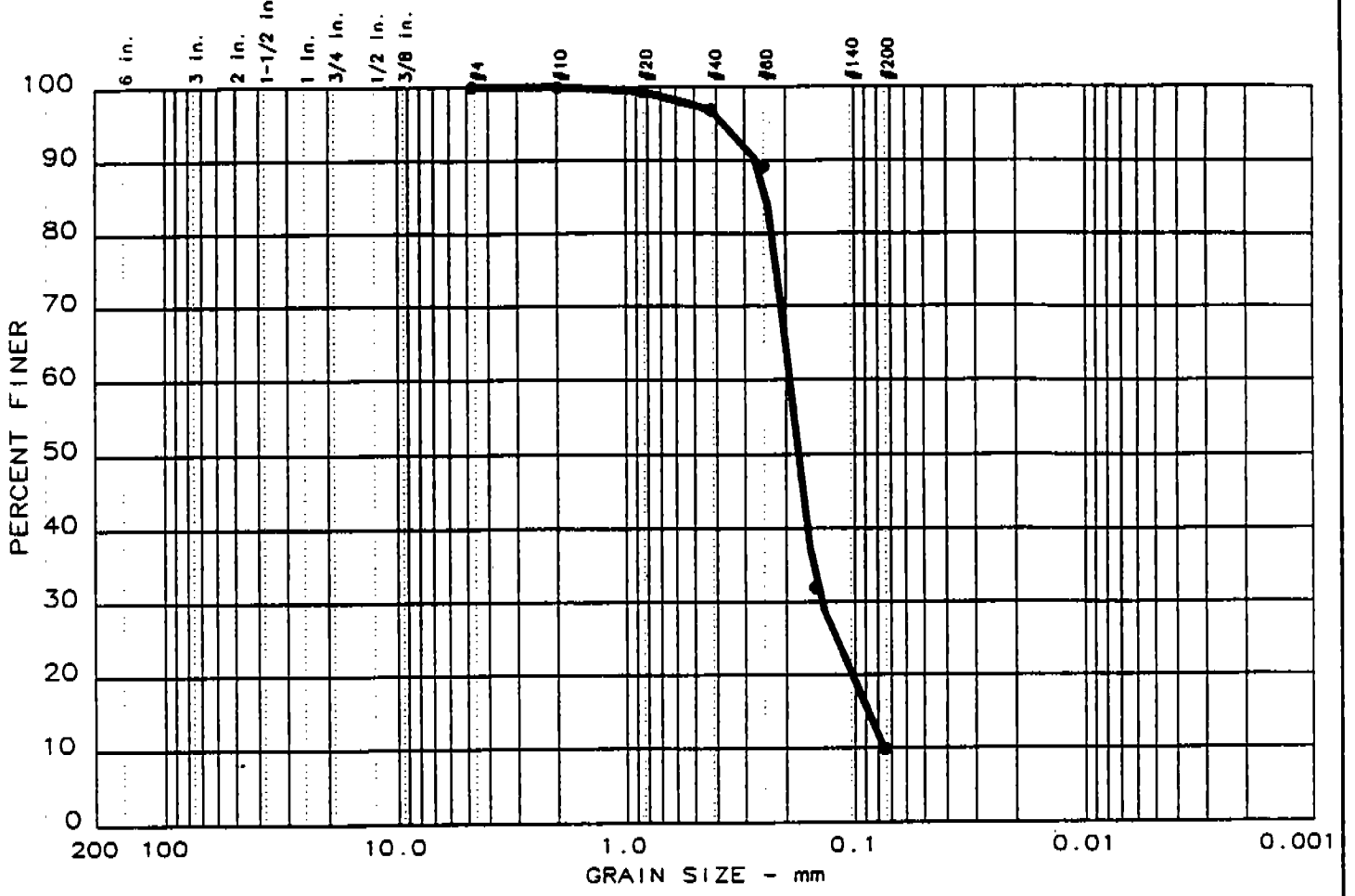
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	90.1	9.9	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.24	0.19	0.18	0.141	0.0879			

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Slightly Silty Fine SAND	SP-SM	A-3

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW18I

Date: 11-1-94

Remarks:

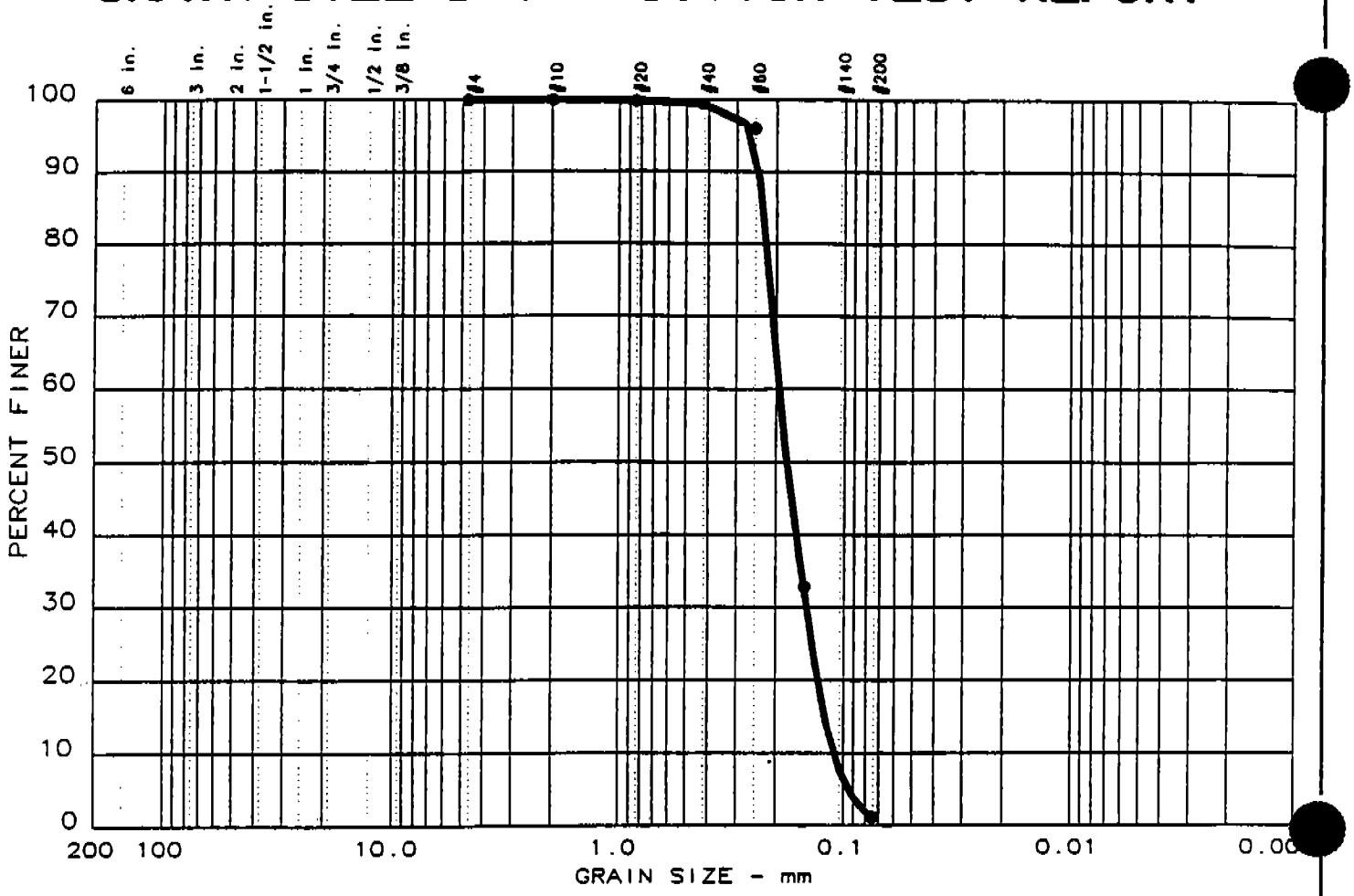
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

Bryant B Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	98.9	1.1	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.23	0.19	0.18	0.146	0.1215	0.1103	1.00	1.8

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Fine SAND	SP	A-3

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-28-MW1S

Date: 11-1-94

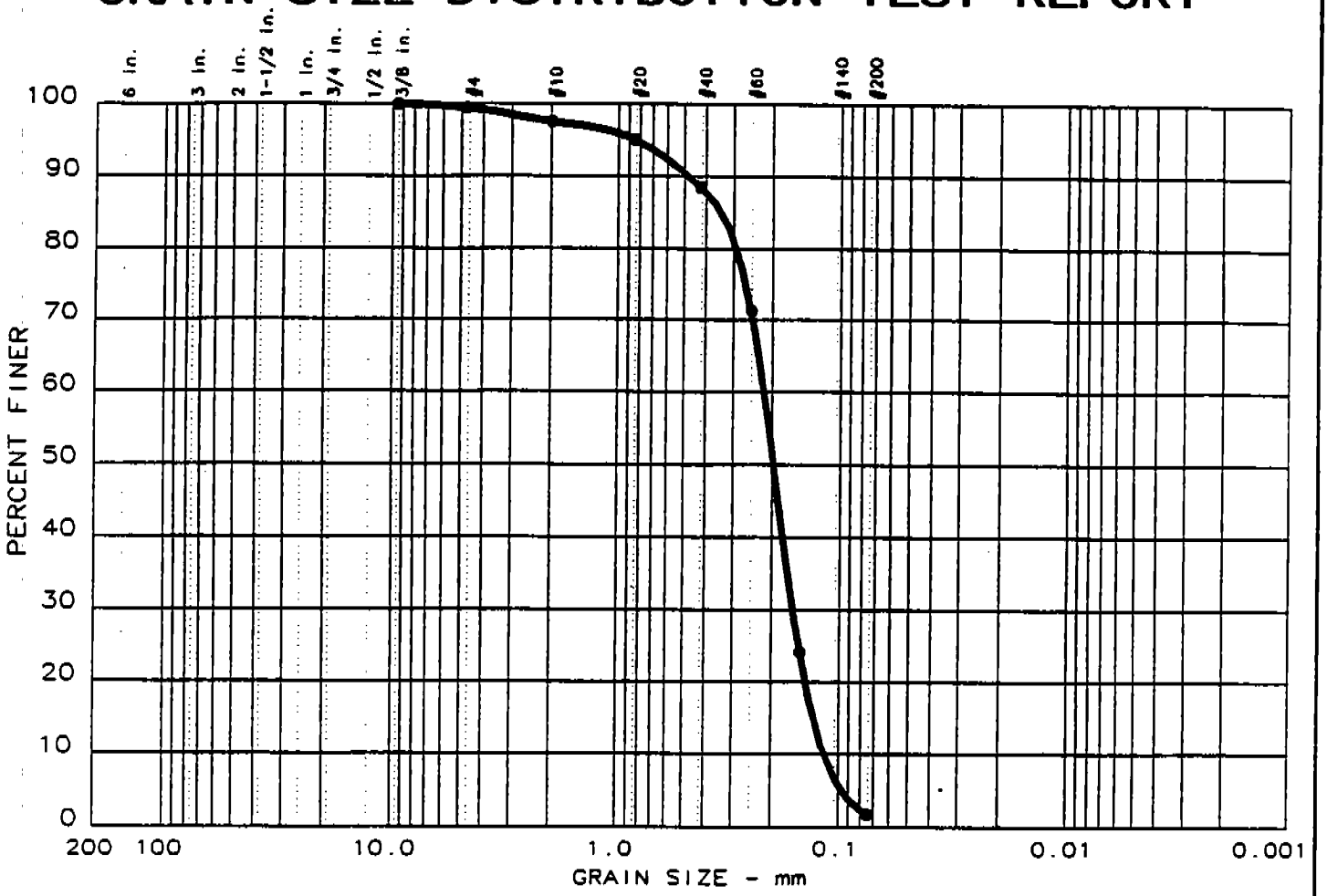
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.6	97.7	1.7	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.34	0.22	0.20	0.161	0.1303	0.1161	1.02	1.9

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Fine SAND w/ shells	SP	A-3

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW29S

Date: 11-1-94

Remarks:

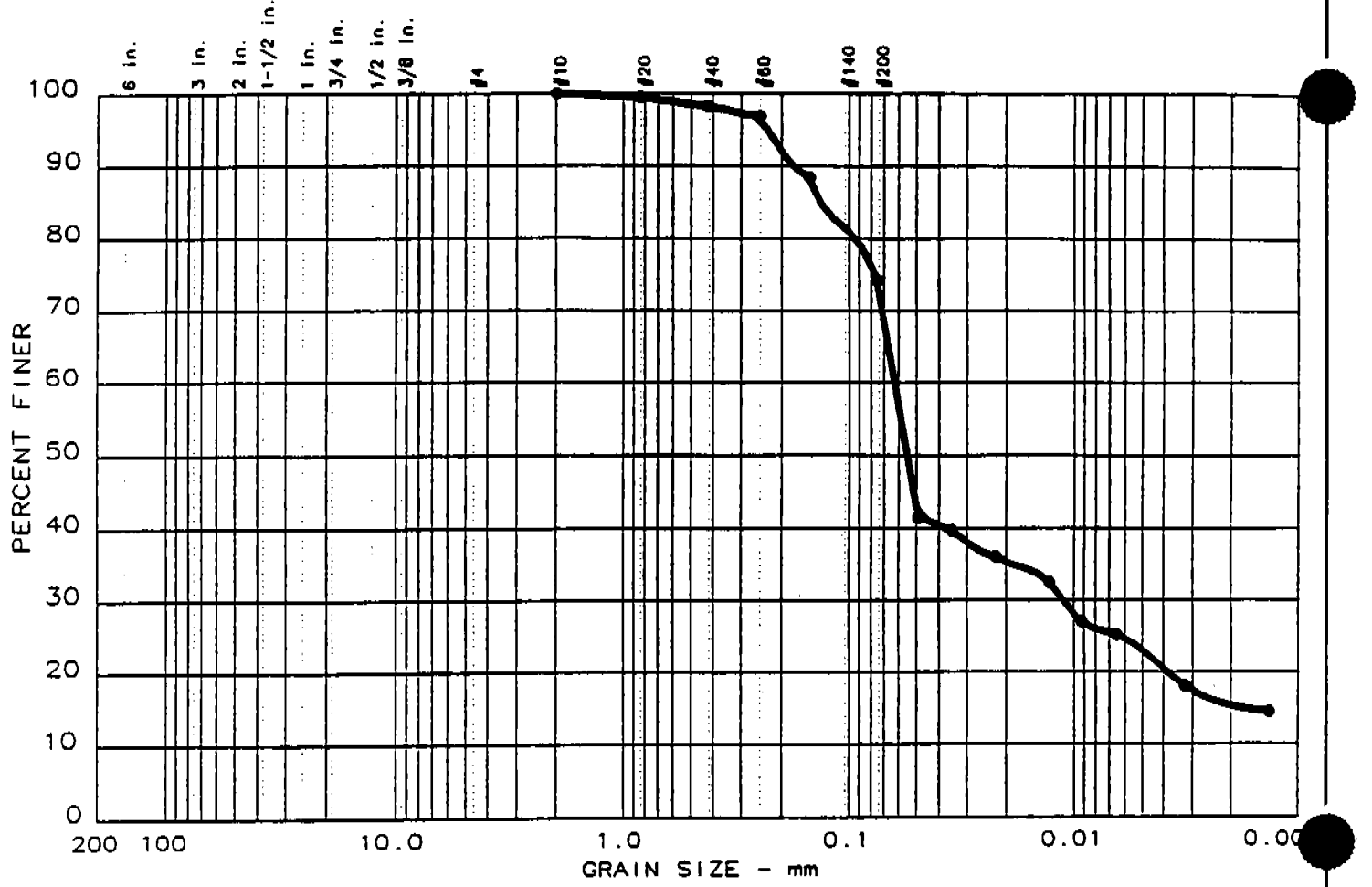
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

Bryant B Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	25.8	51.2	23.0

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	87	57	0.13		0.06	0.011	0.0018			

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Clayey Very Sandy SILT	CH	A-7-5

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW29S

Date: 11-1-94

Remarks:

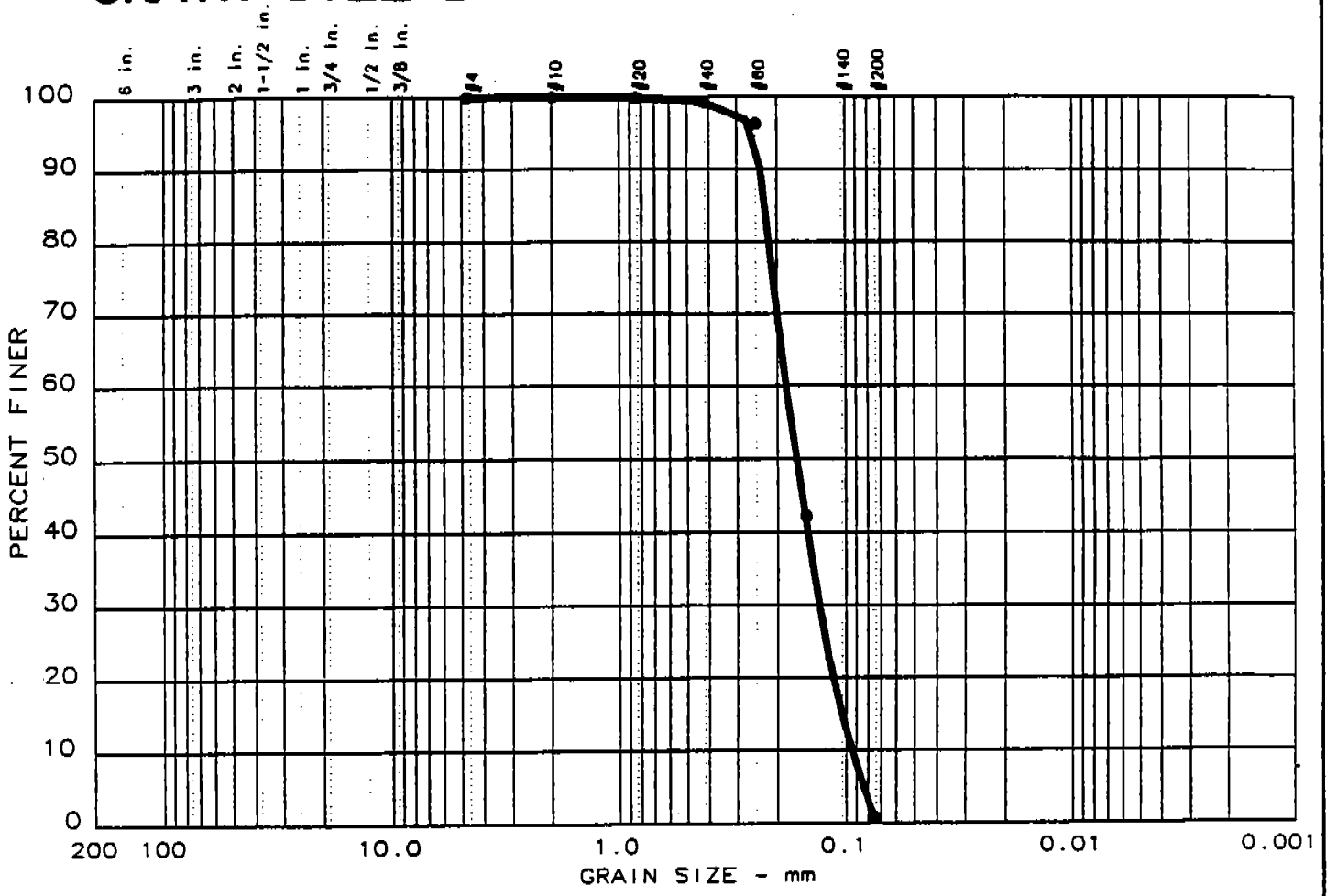
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

Bryant B. Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	99.2	0.8	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.23	0.18	0.16	0.131	0.1044	0.0941	1.00	1.9

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Fine SAND	SP	A-3

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW32S

Date: 11-1-94

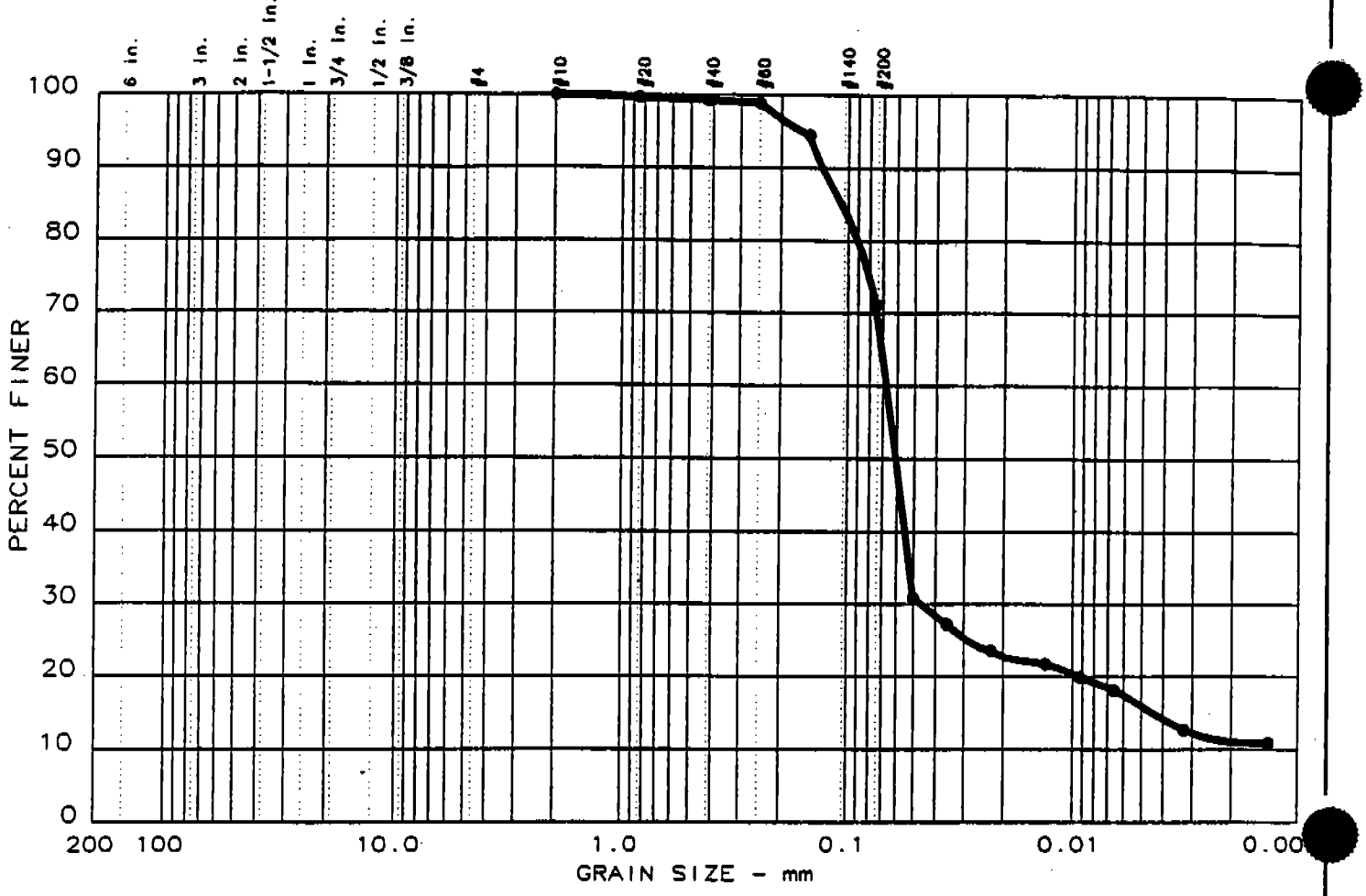
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING

Remarks:

Bryant B. Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	28.9	55.1	16.0

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	69	41	0.11		0.06	0.046	0.0044			

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Clayey Sandy SILT	CH	A-7-6

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW331

Date: 11-1-94

Remarks:

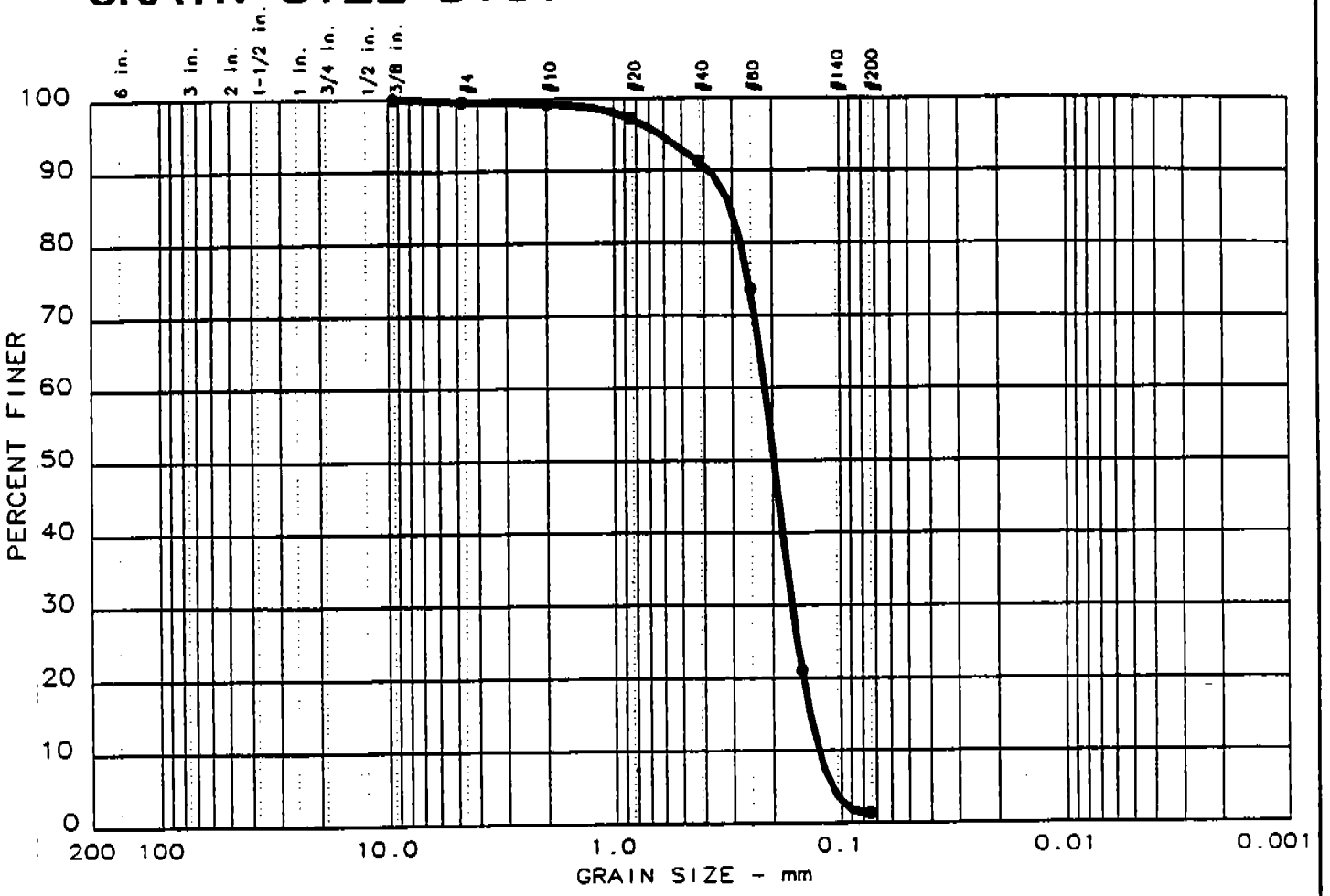
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

Bryant B Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.4	98.3	1.3	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.31	0.22	0.20	0.165	0.1382	0.1265	0.99	1.7

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Fine SAND w/ shells	SP	A-3

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW34S

Date: 11-1-94

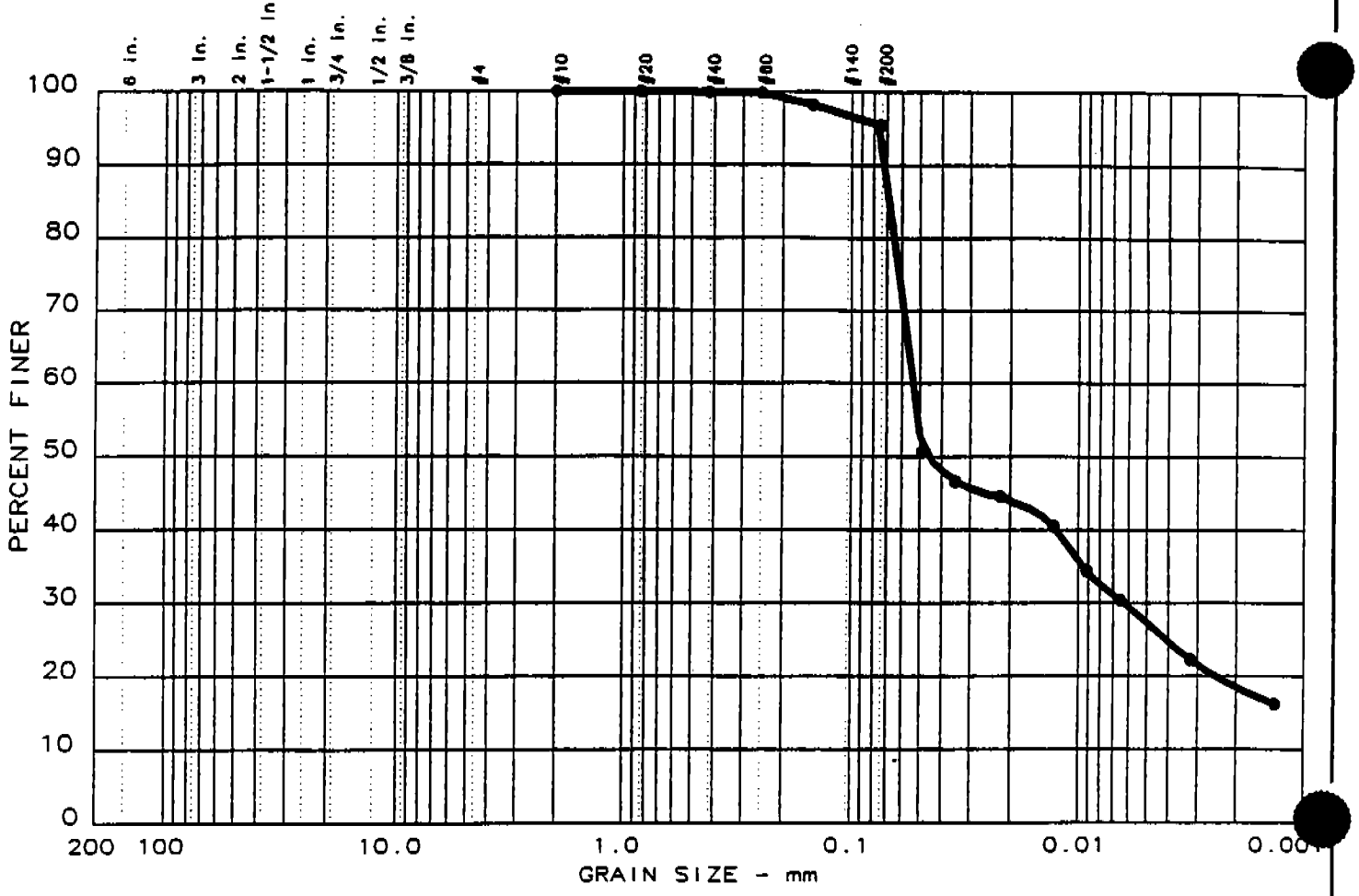
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

REVIEWED BY: Bryant/B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	4.6	68.1	27.3

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	126	85			0.05	0.006				

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Clayey Slightly Sandy SILT	CH	A-7-5

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW341

Date: 11-1-94

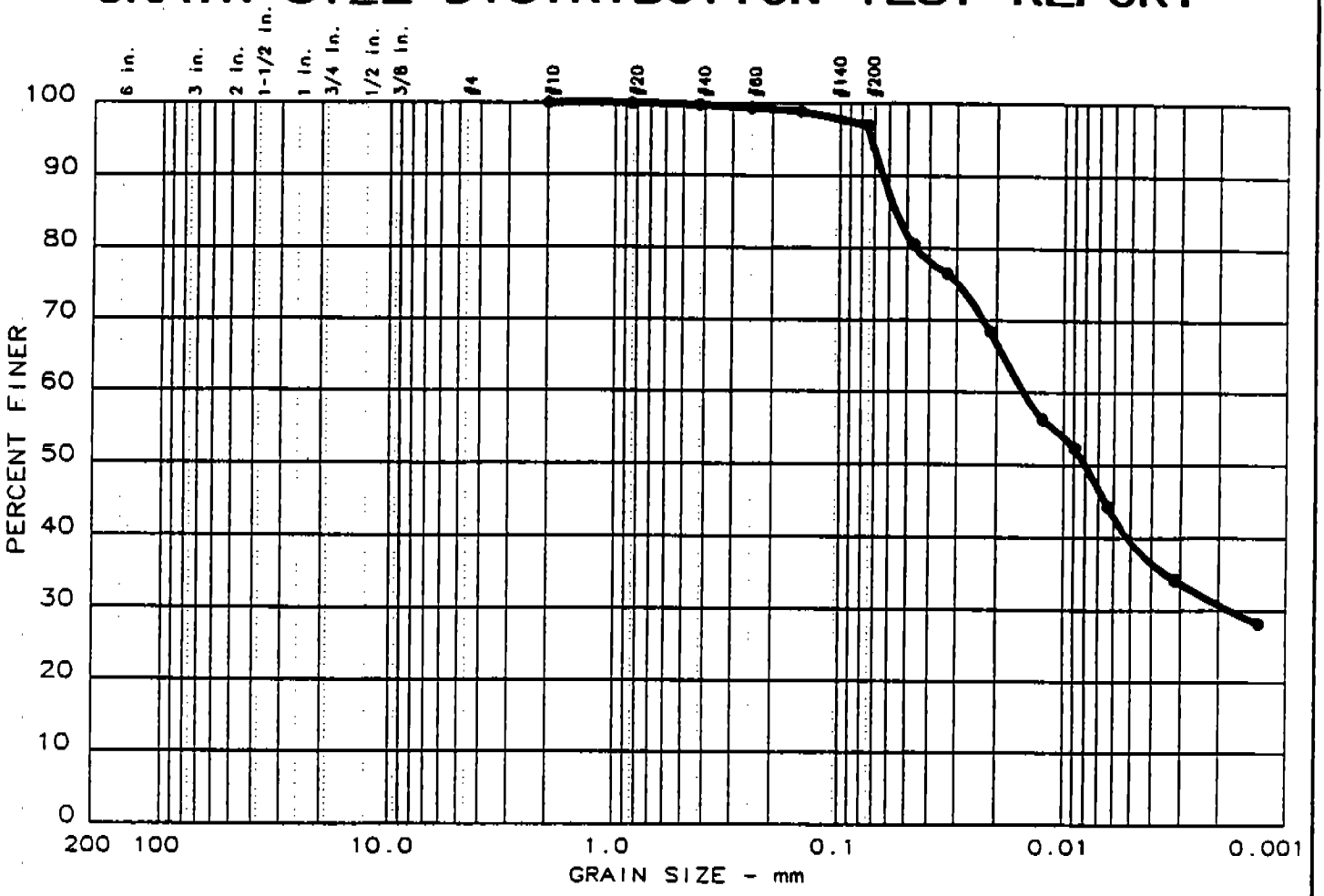
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	3.1	57.5	39.4

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	108	74			0.01	0.002				

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Very Clayey Slightly Sandy SILT	CH	A-7-5

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW36S

Date: 11-1-94

Remarks:

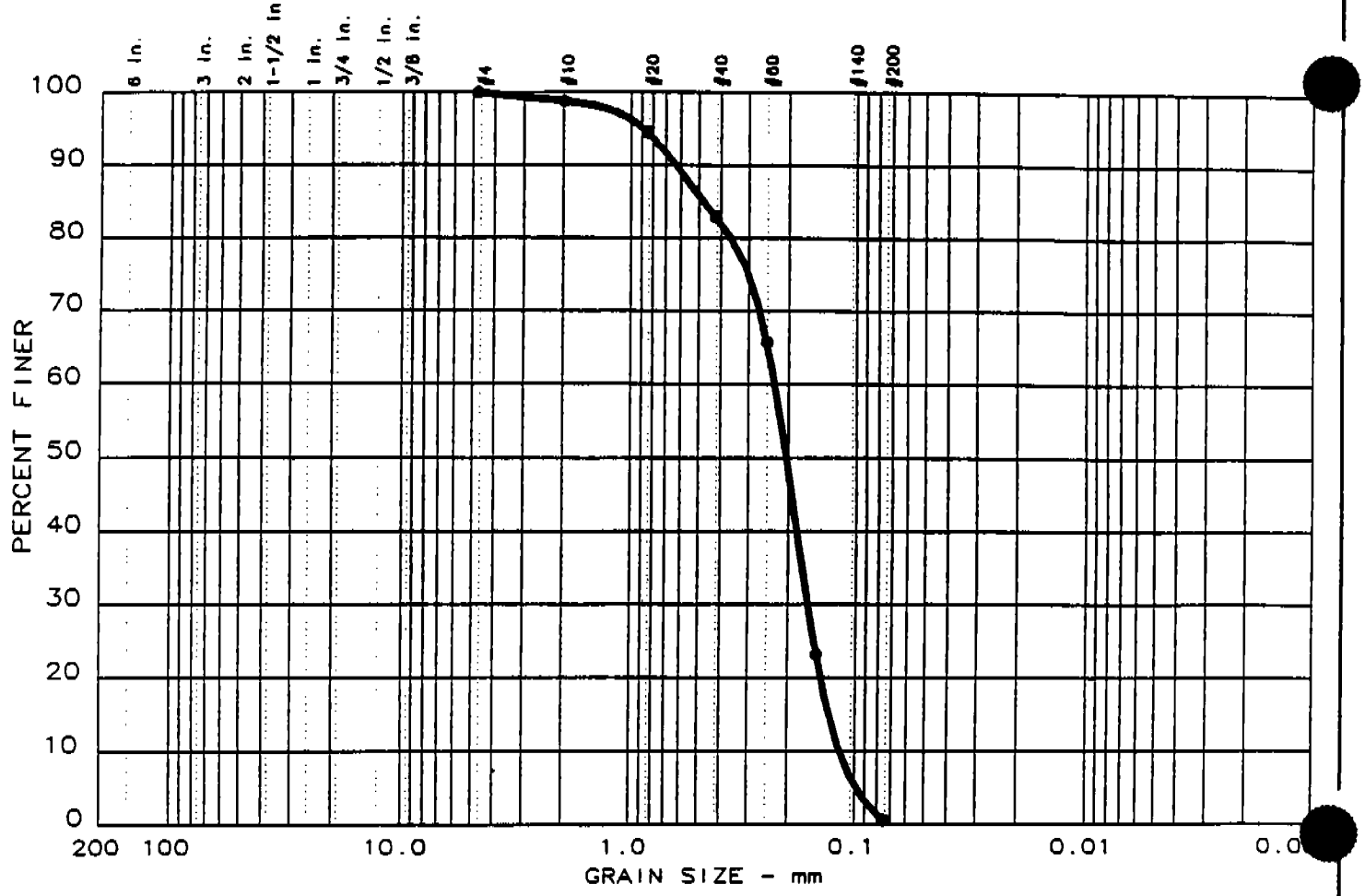
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

Bryant B. Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	99.5	0.5	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.47	0.23	0.20	0.164	0.1309	0.1167	1.00	2.0

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Fine SAND	SP	A-3

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW36S

Date: 11-1-94

Remarks:

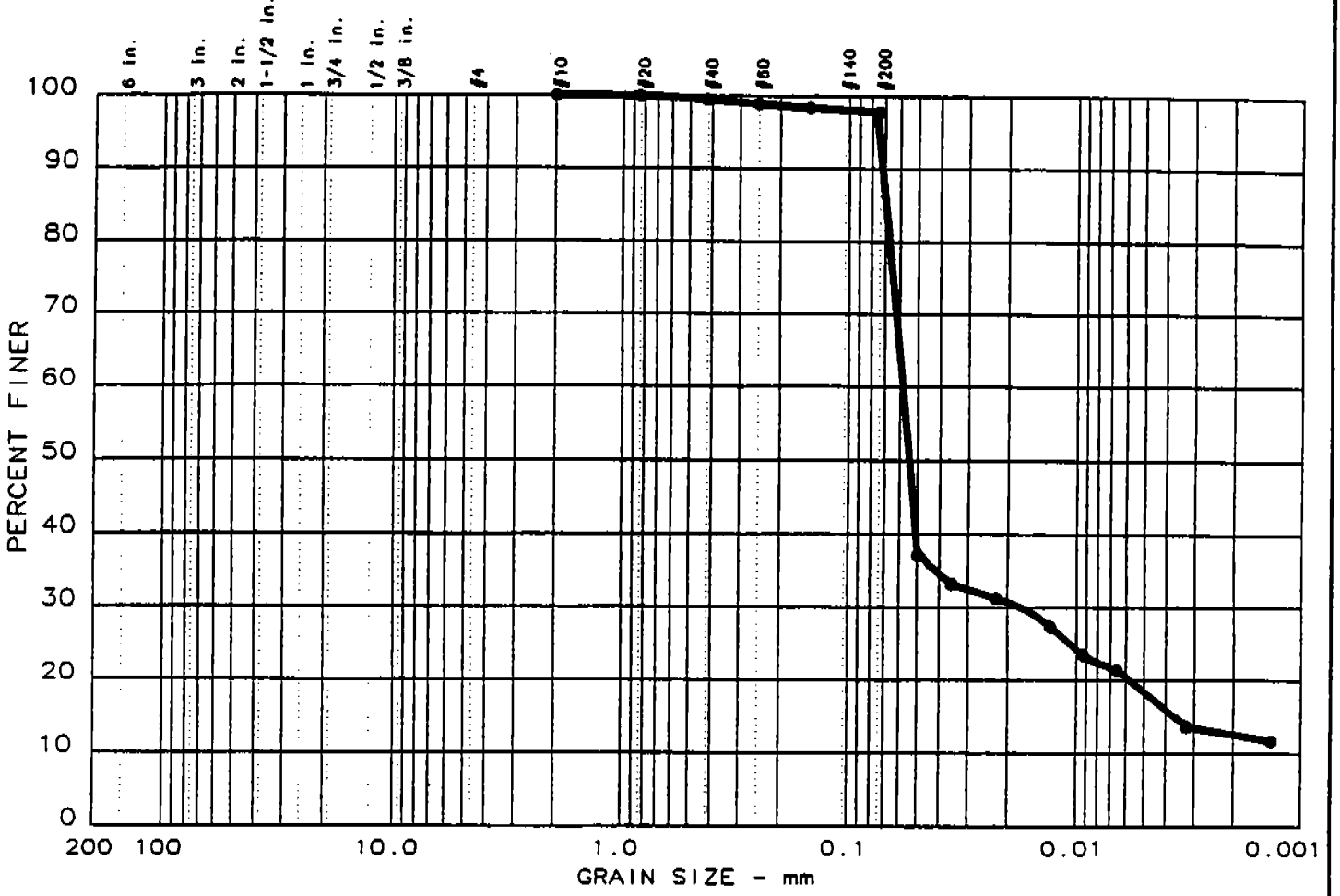
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

Bryant B. Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	2.2	79.4	18.4

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	173	110			0.05	0.017	0.0036			

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Clayey Slightly Sandy SILT	MH	A-7-5

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW3CD

Date: 11-1-94

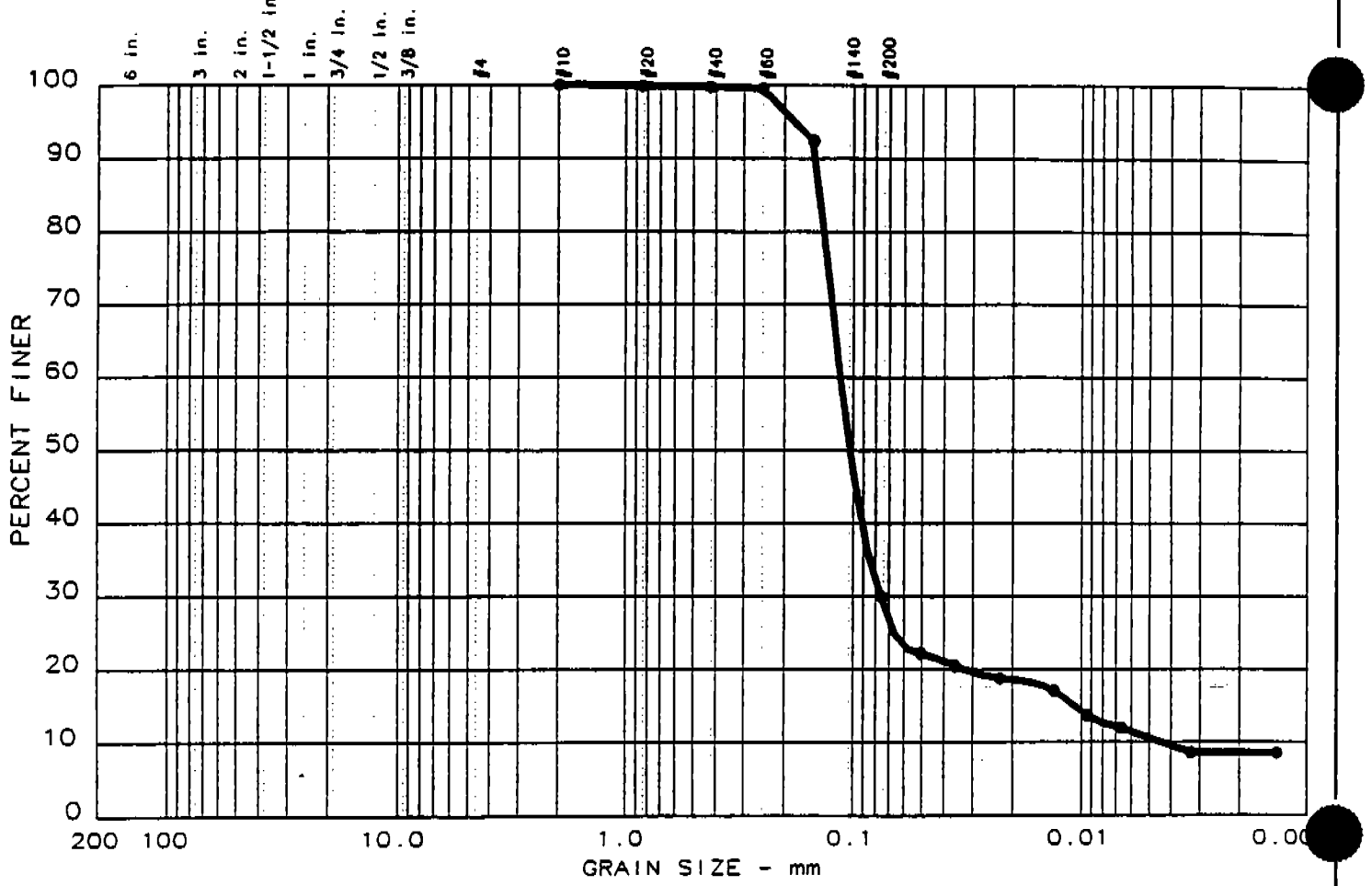
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	70.1	19.4	10.5

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	43	18	0.14	0.11	0.10	0.075	0.0107	0.0044	11.18	25.8

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Slightly Clayey Silty Fine SAND	SC	A-2-7

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW371

Date: 11-1-94

Remarks:

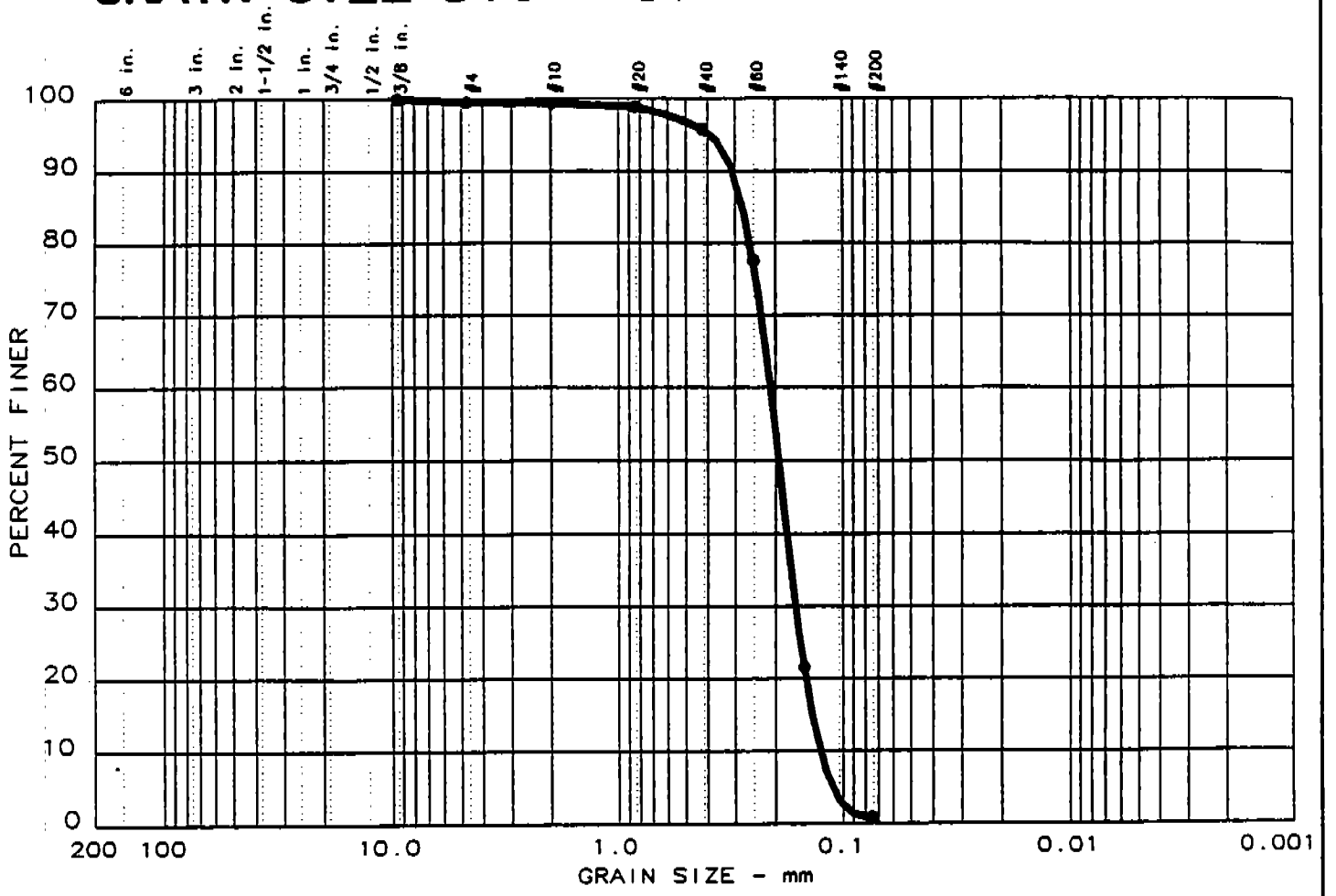
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

Bryant B. Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.5	98.7	0.8	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.28	0.21	0.19	0.163	0.1379	0.1269	1.00	1.7

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Fine SAND w/ shells	SP	A-3

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW138S

Date: 11-1-94

Remarks:

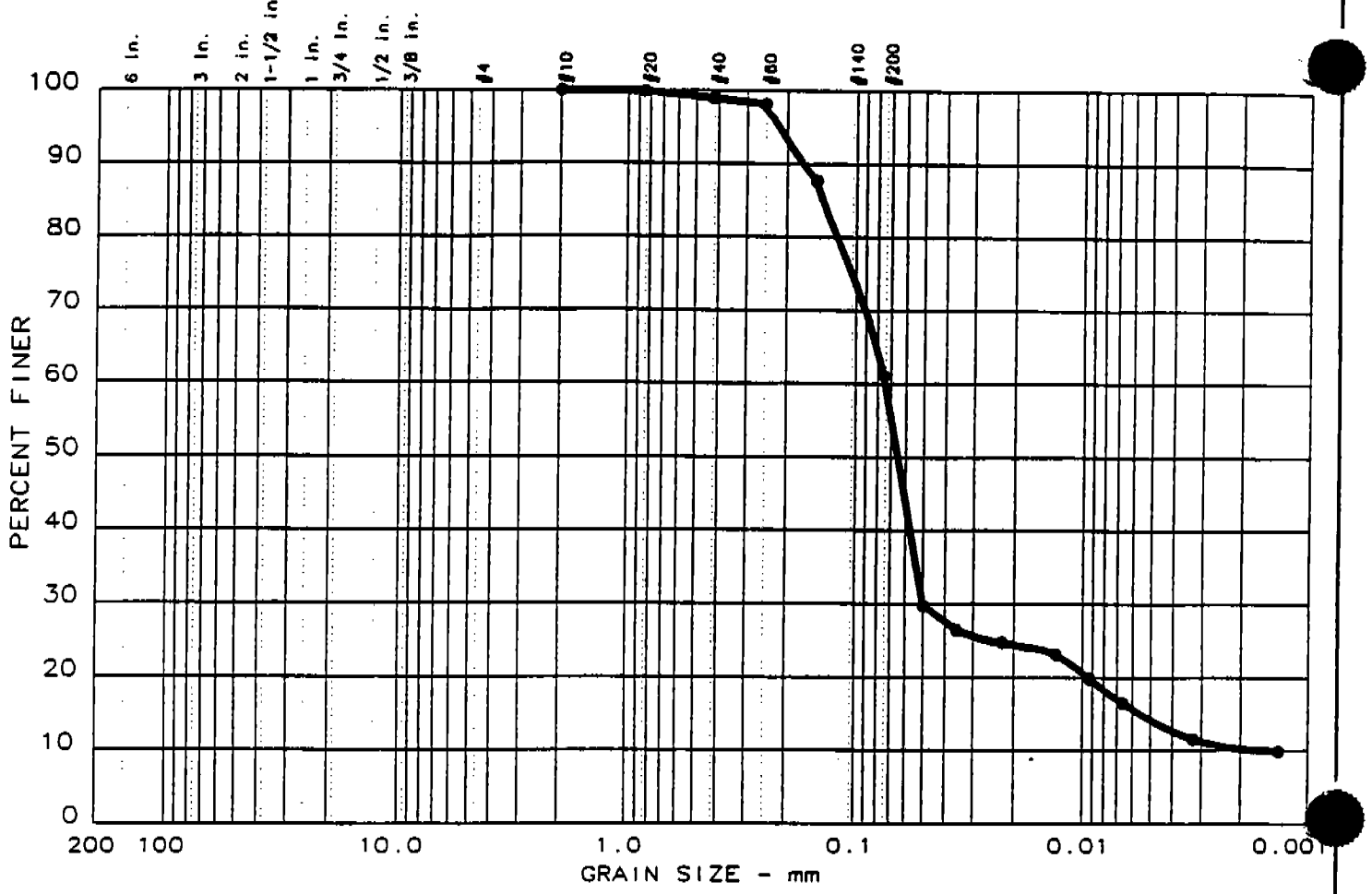
GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

Bryant B. Wildes

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	38.9	46.9	14.2

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	126	84	0.14		0.06	0.050	0.0055	0.0014	23.52	51.1

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Clayey Very Sandy SILT	CH	A-7-5

Project No.: 446-01953-01
Project: Soil Testing
● Location: Boring No. MPT-2-MW381

Date: 11-1-94

Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING

REVIEWED BY: Bryant B. Wildes
Chief Engineering Technician

APPENDIX B

HYDROLOGIC DATA

APPENDIX B-1

MONTHLY WATER LEVELS

TABLE B-1
APPENDIX B, POTENTIOMETRIC SURFACE SURVEY

RCRA Facility Investigation Group II SWMUs
NAVSTA, Mayport
Mayport, Florida

WELL LOCATION	[1] Y NORTHING ST PLN	[1] X EASTING ST PLN	[2] GROUNDWATER ELEVATION, MEAN SEA LEVEL												[3] AVG. ELE.	[4] STAN. DEV
			DATE SURVEYED													
			02/16/92	03/25/92	04/20/92	05/13/92	06/23/92	07/22/92	08/13/92	09/26/92	10/26/92	11/24/92	12/14/92	01/31/93		
MAY-CG-3	2200772.9	362853.3			2.01	1.58	1.37	2.37	1.71			2.78			1.97	0.53
MAY-1330-3	2204182.4	368758.8				4.04	4.92			5.45	5.52	4.74			4.93	0.44
MAY-1601-1	2203117.4	368462.6					4.76			5.24	7.23	4.84			5.52	1.01
MAY-265-5	2200963.7	372858.9					2.80			6.17	6.12	6.11		6.06	5.45	1.44
MPT-1-1	2202286.9	372629.0	5.56	5.11	5.08	4.80	6.04								5.32	0.49
MPT-1-2	2202618.3	372520.3			4.80		5.56								5.18	0.54
MPT-1-P1	2203345.2	372912.0	2.97	2.62	2.78	2.55	3.26	2.09	2.71	3.75	4.01	3.55	2.75	3.17	3.02	0.58
MPT-1-P2	2202891.0	373338.7	4.14	3.85	3.71	3.48	4.46	4.25	4.46	4.79	5.00	4.34	3.84	4.28	4.21	0.46
MPT-1-P3	2202846.0	372166.0	3.72	2.42	3.44	3.10	4.21	3.81	4.13	4.64	4.78	4.28	3.92	4.14	3.89	0.68
MPT-2-1	2199297.5	365498.7	4.23	4.26	4.26	4.15	4.33	7.25	4.47	4.59	4.51	4.44	4.36	4.44	4.60	0.88
MPT-2-2	2199855.4	368573.7	4.11	4.09	3.95	3.50	4.06	3.56	4.09	4.56		4.06	3.92	4.23	4.01	0.30
MPT-2-3	2199038.7	364604.9	8.72	8.05	8.19	7.97	8.53	8.44	9.50	9.44	11.26	9.68	8.92	8.61	8.95	0.96
MPT-2-MW-4SR	2199896.7	365011.2	3.23	3.04	3.15		3.30	2.84	3.39						3.16	0.20
MPT-2-5	2200114.4	365958.5	6.53	6.56	6.42		6.69	6.00	6.46	7.06		6.76	6.55	6.61	6.56	0.29
MPT-2-6	2199779.9	365492.5		6.53	4.97	4.81	5.08	4.88	5.01			4.97	4.92	5.12	5.14	0.61
MPT-2-7D	2197403.6	365934.4	3.12	2.96	3.14	2.99	3.15	2.82				4.43	3.71	3.35	3.29	0.53
MPT-2-7S	2197405.6	365926.7	4.25	4.18	4.05	3.61	4.16	3.88				4.39	4.19	4.49	4.13	0.24
MPT-2-8	2200144.7	365838.5	6.45	6.40	6.28		6.40	5.83	6.27	6.89		6.66	6.41	6.57	6.42	0.29
MPT-2-9D	2200338.7	366127.7	2.91	2.62	2.68	5.56	2.74	2.59	2.75	3.52	3.57	3.17	2.73	3.16	3.16	0.87
MPT-2-9S	2200345.5	366127.4	6.31	6.28	5.95	5.40	6.32	4.89	5.87	6.98	5.99	6.06	5.86	6.41	6.03	0.54
MPT-2-10	2200333.6	366391.8	6.42	6.61	6.08	5.34	6.53	4.95	5.72	7.07	6.05	6.49	6.20	6.61	6.17	0.61
MPT-2-MW-15DR	2200458.0	367585.3	3.09	2.93	2.84	2.92	3.22	2.96		3.91	3.93	3.43	3.14	3.37	3.25	0.40
MPT-2-MW-15SR	2200460.6	367584.9	3.20	2.98	2.86	2.95	3.23	2.96		3.89	3.97	3.52	3.14	3.39	3.28	0.40
MPT-2-MW-11S	2198829.9	368644.3	3.33	3.46	2.71	2.47	3.00	1.97	2.83	4.12	3.91	2.93	3.60	3.59	3.16	0.64
MPT-2-MW-12D	2198211.9	368319.8	1.92	2.27	2.35	2.24	2.71	2.07	2.42	3.44	3.18	2.86	2.47	2.70	2.55	0.47
MPT-2-MW-12S	2198209.8	368318.3	1.71	2.32	2.26	2.07	2.54	1.70	2.11	3.87	3.11	2.88	2.41		2.45	0.64
MPT-2-MW-16D	2200286.8	365475.2	3.13	1.94		2.79	2.99	2.94	3.00	3.23	3.82	3.45	3.20	3.25	3.07	0.49
MPT-2-MW-16S	2200289.0	365475.4	3.87	3.81		3.38	3.91	3.39	3.81	4.13	3.84	3.78	3.59	3.95	3.77	0.23
MPT-2-MW-17D	2197412.0	365773.2	3.69	4.13	4.08	4.02	4.04	4.10	4.05	4.20	4.73	4.69	4.40	4.39	4.21	0.31
MPT-2-MW-17S	2197409.6	365775.4	4.27	4.22	4.08	4.64	4.20	3.91	4.35	4.72	4.41	4.51	4.26	4.52	4.34	0.24
MPT-2-P1	2199063.9	365497.2	4.84	4.82	4.84		4.89	4.82			4.93	5.30	4.88	4.94	4.92	0.16
MPT-2-P2	2198464.0	365498.3	5.15	5.16	5.09		4.08	5.00	5.08	5.31		5.28	5.18	5.22	5.05	0.37
MPT-2-P3	2198074.8	363421.2	6.39	6.24	6.23	6.04	6.21	5.98	6.52	6.78		6.69	6.41	6.43	6.35	0.26
MPT-2-P4	2198966.8	364241.4	5.06	5.94	6.07	5.80	4.93	5.99	6.63	7.20		7.00	6.46	6.44	6.14	0.75
MPT-2-P5	2201086.7	366452.8	2.57	2.50	2.85		2.69	2.15		3.80		3.03		2.61	2.77	0.52
MPT-2-P6	2200321.5	367964.8	2.30	0.68	2.24		2.50	1.77	2.02	3.72		2.73	2.44	2.42	2.28	0.81
MPT-2-P7	2197396.8	366597.0	4.15	4.05	3.95		4.01	4.41	4.19		4.23	4.21	4.06	5.33	4.26	0.14
MPT-2-P8	2197417.0	367731.9	2.85	2.95	3.00	3.57	3.20	2.93	3.11		3.22	3.25	3.25	3.39	3.16	0.21
MPT-2-P9	2197566.0	362977.9	5.98	5.75	7.53	5.63	5.76	5.53	6.26	6.27		6.07	5.88	5.98	6.05	0.57
MPT-2-P10	2195899.8	363415.5	12.27	8.99	8.51	7.53		7.51	10.61	10.62		8.31	7.52	8.57	9.04	1.70

Notes on following page.

TABLE B–1 (Cont')
APPENDIX B, POTENTIOMETRIC SURFACE SURVEY

RCRA Facility Investigation Group II SWMUs
NAVSTA, Mayport
Mayport, Florida

WELL LOCATION	[1] Y NORTHING ST PLN	[1] X EASTING ST PLN	[2] GROUNDWATER ELEVATION, MEAN SEA LEVEL											[3] AVG. ELE.	[4] STAN. DEV
			DATE SURVEYED												
			02/16/92	03/25/92	04/20/92	05/13/92	06/23/92	07/22/92	08/13/92	09/26/92	10/26/92	11/24/92	12/14/92	01/31/93	
MPT–2–P11	2196198.9	364395.6	7.39	5.96	5.84	5.79	5.57	5.56	5.80	6.04		6.00	5.70	5.67	5.93	0.53
MPT–2–P12	2196870.3	365157.0	9.10	8.63	8.49	8.21	7.93	7.78	8.45	8.63		8.62	7.98		8.39	0.40
MPT–2–P13	2199402.7	367408.9			9.38	8.20	9.02	8.35	9.29	10.47	9.99		9.01	10.10	9.31	0.76
MPT–8–1	2204730.6	366284.7		1.16				1.61	1.63		2.19	2.19		1.41	1.70	0.44
MPT–8–2 FPROD	2204968.2	366261.8	1.70		13.93	1.59		1.51	0.96	13.93		2.63				
MPT–8–3 FPROD	2205069.4	366363.4	0.73		13.72	1.02		1.59	0.69	13.72		2.55				
MPT–8D–P1	2204936.8	367186.0	6.79	6.58	6.98	3.66	6.81	7.31	7.67	7.73	8.29	7.19		6.64	6.87	1.25
MPT–9–1	2205218.8	367081.4	1.80	1.75	1.89	1.77	2.30		1.79	3.07	2.83	2.51		2.11	2.18	0.51
MPT–9–2	2205465.4	367012.3		1.66	1.80							2.28			1.91	0.33
MPT–9–3	2205507.6	367183.0		0.67	1.64							2.08			1.46	0.72
MPT–9–P1	2205413.6	367665.5		1.47	1.56	1.27	1.79		1.03	3.03	2.11	2.11		1.54	1.77	0.63
MPT–10–P1	2204745.5	365963.8	2.21	2.07		1.08	2.67	2.13	2.03	3.48	3.12	2.84		2.44	2.41	0.71
MPT–11–1	2205130.9	369851.2		1.22	1.53	1.47					2.45	2.09		1.83	1.77	0.54
MPT–11–2	2205332.0	369902.2	1.06	1.12	1.45						1.88	2.11		1.27	1.48	0.46
MPT–11–MW–3S	2205342.9	369802.8		1.20	1.52	1.48	1.42	1.32	1.70	1.70	1.90	2.22		1.24	1.57	0.31
MPT–13–1	2202051.5	368004.0		5.66	5.56	5.30	6.09	5.72	6.00	6.35	6.16	5.76	5.57	6.07	5.84	0.32
MPT–13–2	2201306.8	367476.4	5.82	5.56	5.53	5.44	5.80	5.42	5.71	5.94	5.78	5.45	5.27	5.77	5.62	0.21
MPT–13–3	2200862.2	367740.6	4.79	4.67	4.46	4.04	4.65	4.19	4.83	5.15	4.41	4.61	4.27	4.81	4.58	0.32
MPT–13–MW–4S	2201085.4	367688.0	5.15	4.79	4.70	1.47	4.90	4.65	4.83	4.97	4.88	6.74	4.58	4.87	4.71	1.22
MPT–13–MW–5S	2201499.2	367718.7	6.30	6.05	6.01		6.36	6.09		6.54	6.49	5.97	5.81		6.18	0.25
MPT–13–MW–6S	2201904.4	367684.0		6.86	6.83	6.68	7.04	6.89	6.97	7.22	7.06	6.96		7.18	6.97	0.16
MPT–13–P1	2201716.0	366075.6			8.24	6.56		6.92	7.48	7.87	7.16	6.68		7.52	7.30	0.62
MPT–13–P3	2201497.1	367715.8	6.28	6.03		5.71	6.31	6.03	6.18	6.45	6.43	5.92	5.78	5.32	6.04	0.26
MPT–13–P4	2201301.3	368068.6	5.69	5.53	5.39	5.10	5.82	5.43	5.53	5.96	5.73	5.34	5.08	5.69	5.53	0.28
MPT–13–P5	2200912.2	367115.3		3.99	3.67	3.00		3.27	3.59	3.80	3.48	3.56	3.40	4.10	3.59	0.29
MPT–13–P6	2202120.1	366879.5		8.34	7.33	7.50		7.51	7.98	9.01	7.66	7.94		8.59	7.99	0.55
MPT–14–1	2203770.9	374860.1	1.84	2.05	2.12	1.60	2.26	2.13	1.52	3.64	2.22	2.38	2.49	1.89	2.17	0.56
MPT–14–2	2203726.0	374680.5		3.12	2.27		2.60	2.17	2.10	3.27	2.79	2.84	3.28	2.38	2.68	0.46
MPT–14–P1	2203675.6	374024.7	0.79	0.96	2.06	1.74	2.34	1.93	−0.20	3.53	2.78	2.78	2.27	2.25	2.13	1.05
MPT–14–P2	2204016.2	375562.2	1.97	1.74	1.99	1.81	2.23	1.61	1.61	3.32	2.63	2.55	1.74	2.09	2.10	0.53
MPT–15–P1	2204181.7	365689.2	4.70	4.28	4.54	4.19	4.72	4.96	4.96	5.27	6.38	5.34		4.80	4.92	0.63
MPT–17–P1	2201071.3	369942.2	3.35	2.59	2.65		3.43	2.92		4.66	4.17	3.61	3.61	3.36	3.44	0.68
MPT–17–P2	2201113.6	370630.3	2.78	2.69	2.68	2.10	3.31	3.17	3.10	4.10		3.62	3.25	2.90	3.07	0.56
MPT–22–MW–1S	2200638.4	366582.7	5.03	4.84	4.72	3.84		3.74	4.37	5.06	4.46	4.05	3.89	4.86	4.44	0.50
MPT–S–1	2204505.6	366904.0	9.38	9.11	9.28	5.71	9.34	9.60	10.02	10.23	10.40	9.78	9.78	9.56	9.36	1.27
MPT–S–2	2205369.7	366493.8		1.59	1.74						1.83	1.83		1.69	1.74	0.11
MPT–S–3	2205411.6	366783.9		1.59	1.82		1.90	1.61	1.16			2.34			1.74	0.39
MPT–S–4	2199526.5	364658.4		2.94	3.17	2.97	3.31	2.87	3.11	3.86			3.21	3.36	3.20	0.31

Notes: [1] X and Y = Florida State Plane coordinate system.

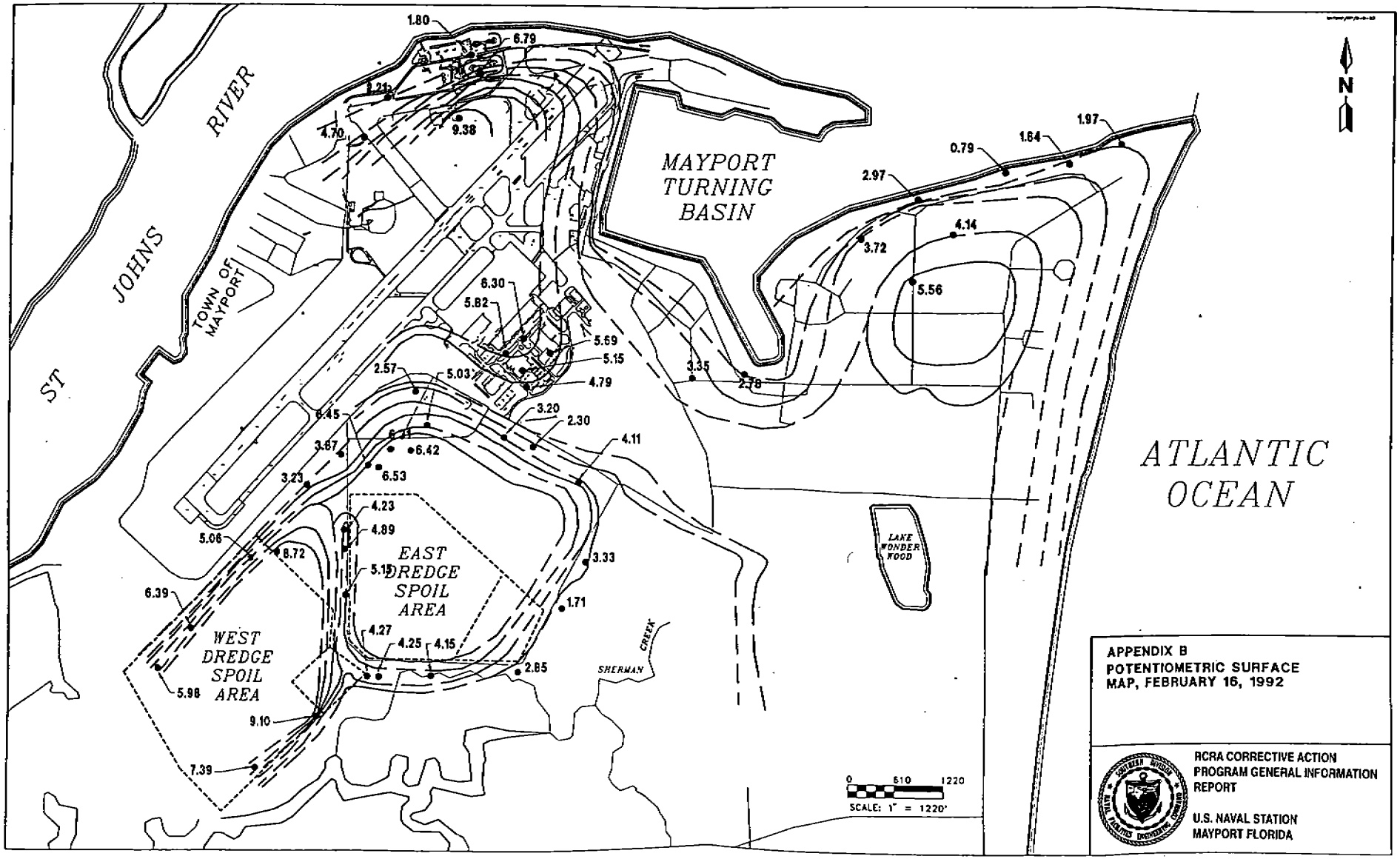
[2] Groundwater elevations computed from surveyed elevation values to reflect Mean Sea Level elevation National Geodatic Vertical datum of 1929.

[3] Average elevation computed by dividing the sum of the elevation reading by the number of readings per well.

[4] Standard deviation was computed as the square root of the variance of all individual values for the mean. The closer the standard deviation approaches 0, the more reliable the mean.

APPENDIX B-2

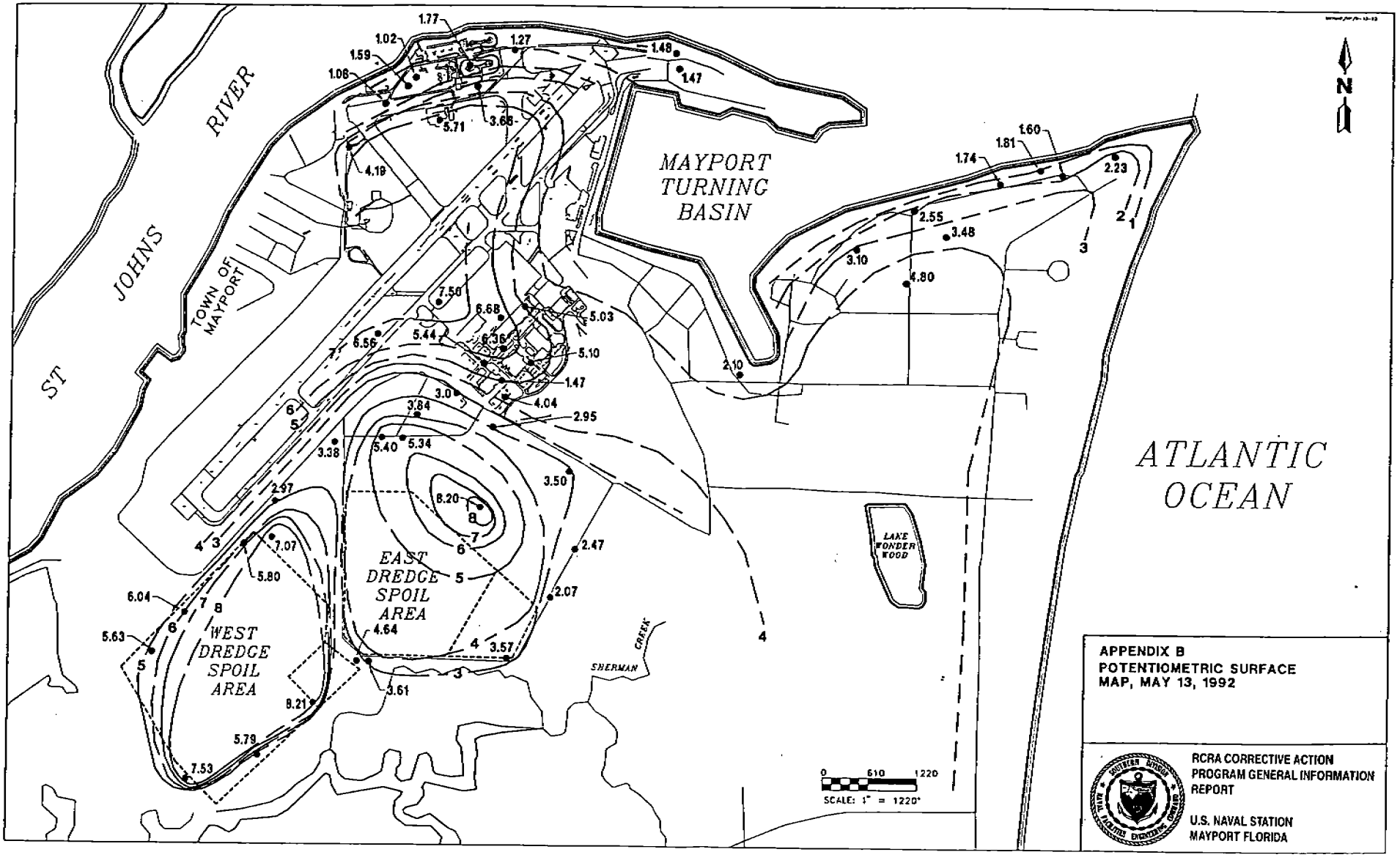
MONTHLY POTENTIOMETRIC SURFACE MAPS

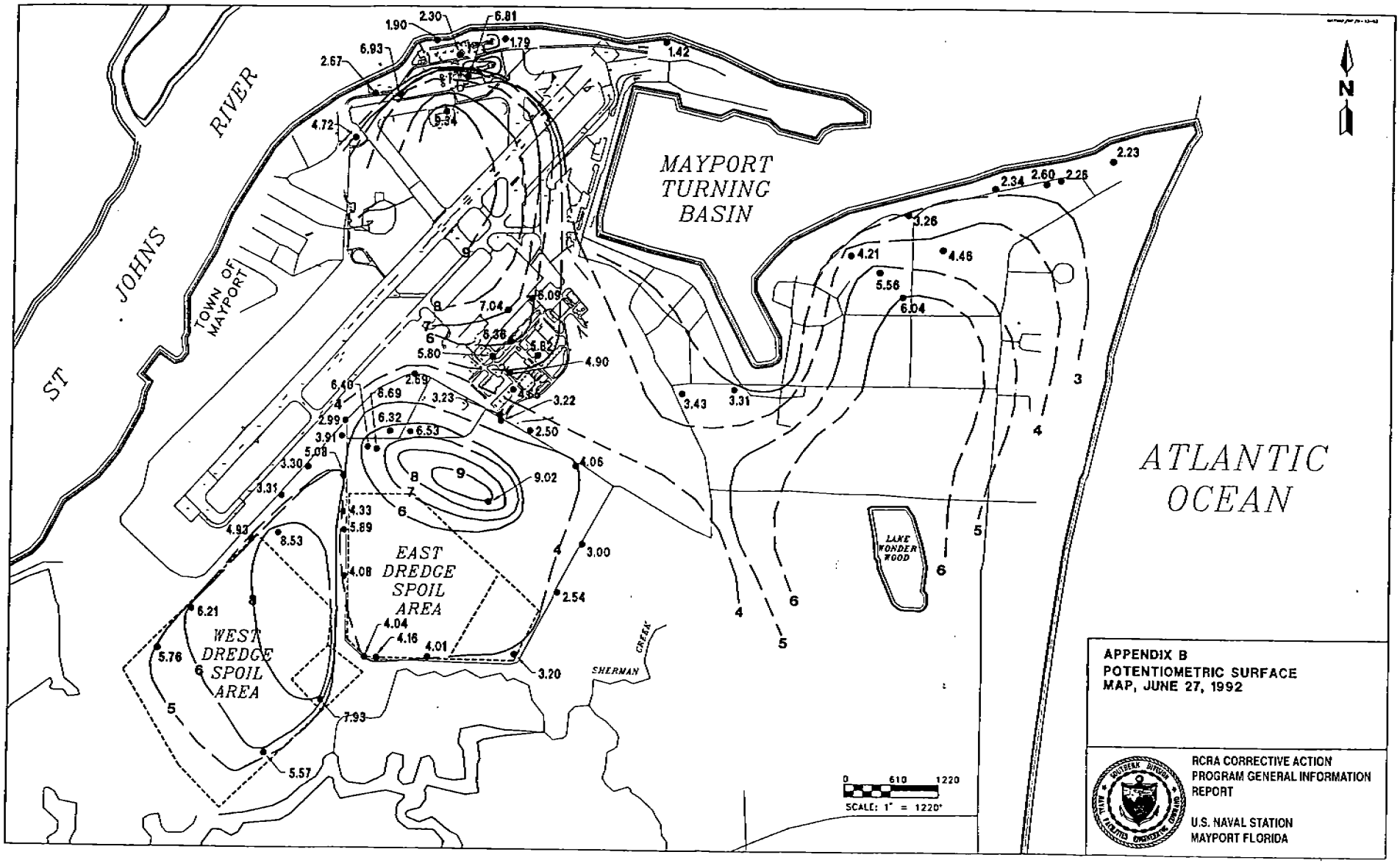


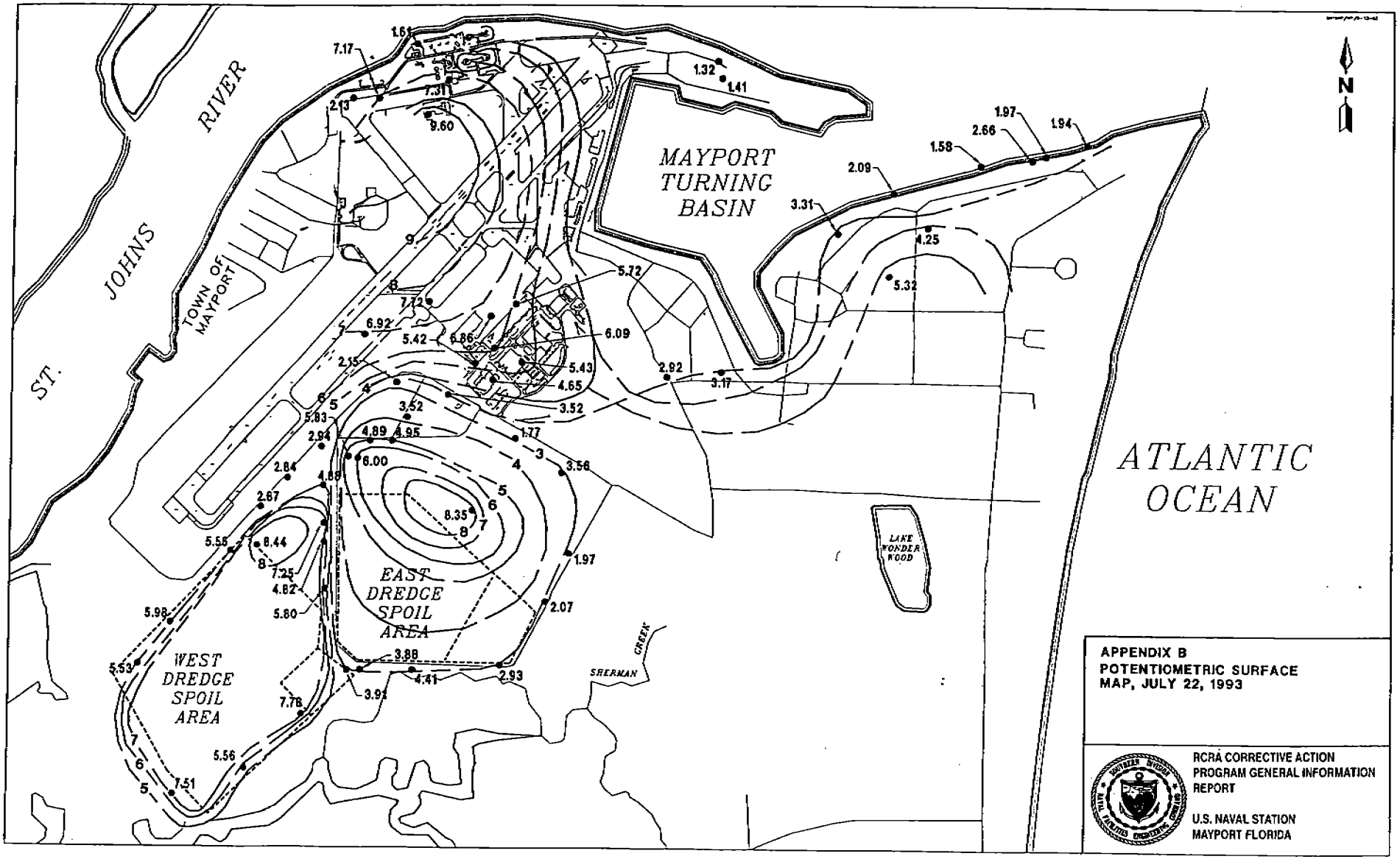
APPENDIX B
POTENTIOMETRIC SURFACE MAP, FEBRUARY 16, 1992

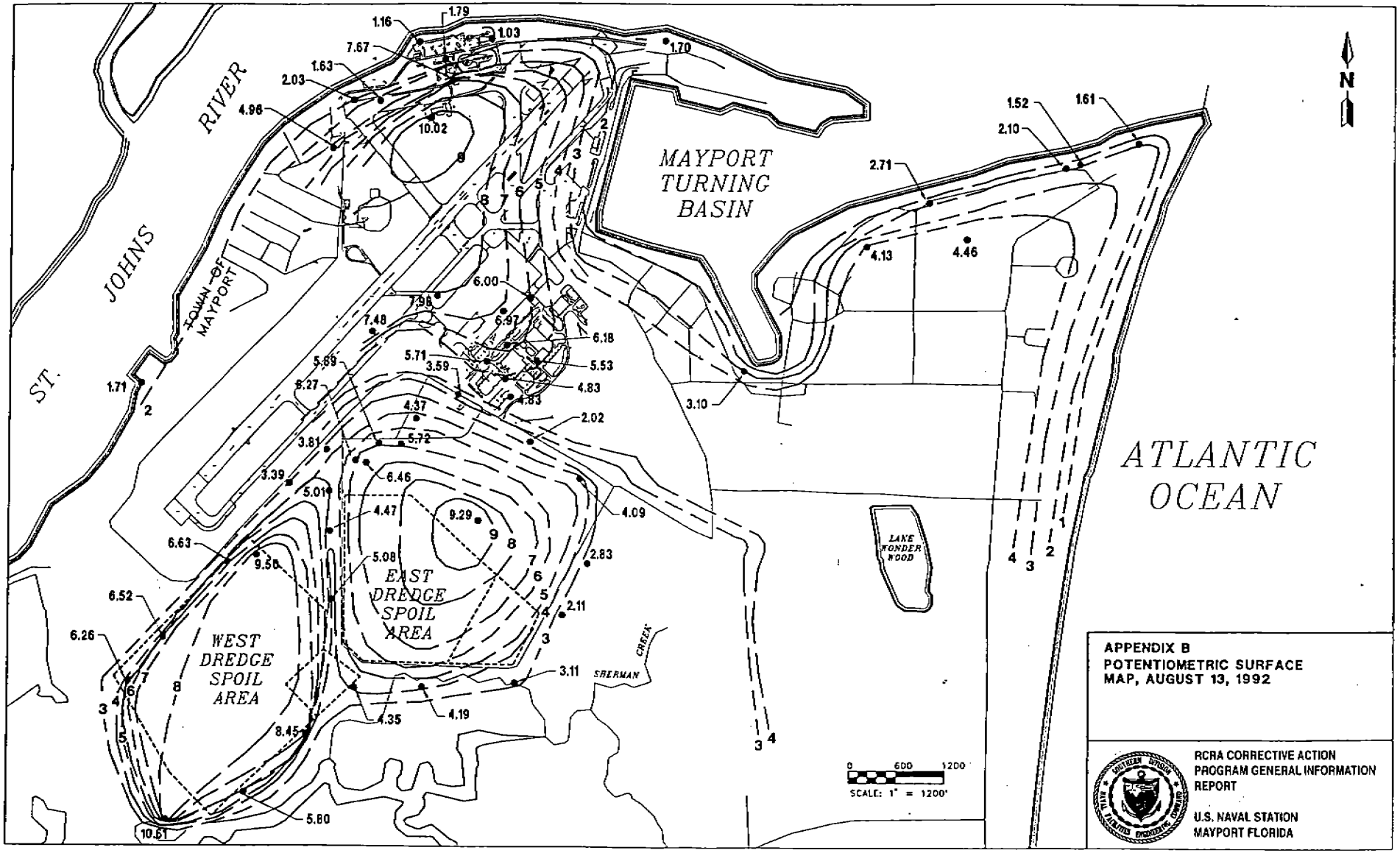
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT

U.S. NAVAL STATION
MAYPORT FLORIDA


ST JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
LAKE WONDER WOOD
SHERMAN CREEK
N
0 610 1220
SCALE: 1" = 1220'
APPENDIX B
POTENTIOMETRIC SURFACE MAP, MAY 13, 1992
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION MAYPORT FLORIDA


ST. JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
LAKE WONDER WOOD
SHERMAN CREEK
N
SCALE: 1" = 1220'
0 610 1220
APPENDIX B
POTENTIOMETRIC SURFACE MAP, JUNE 27, 1992
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION MAYPORT FLORIDA

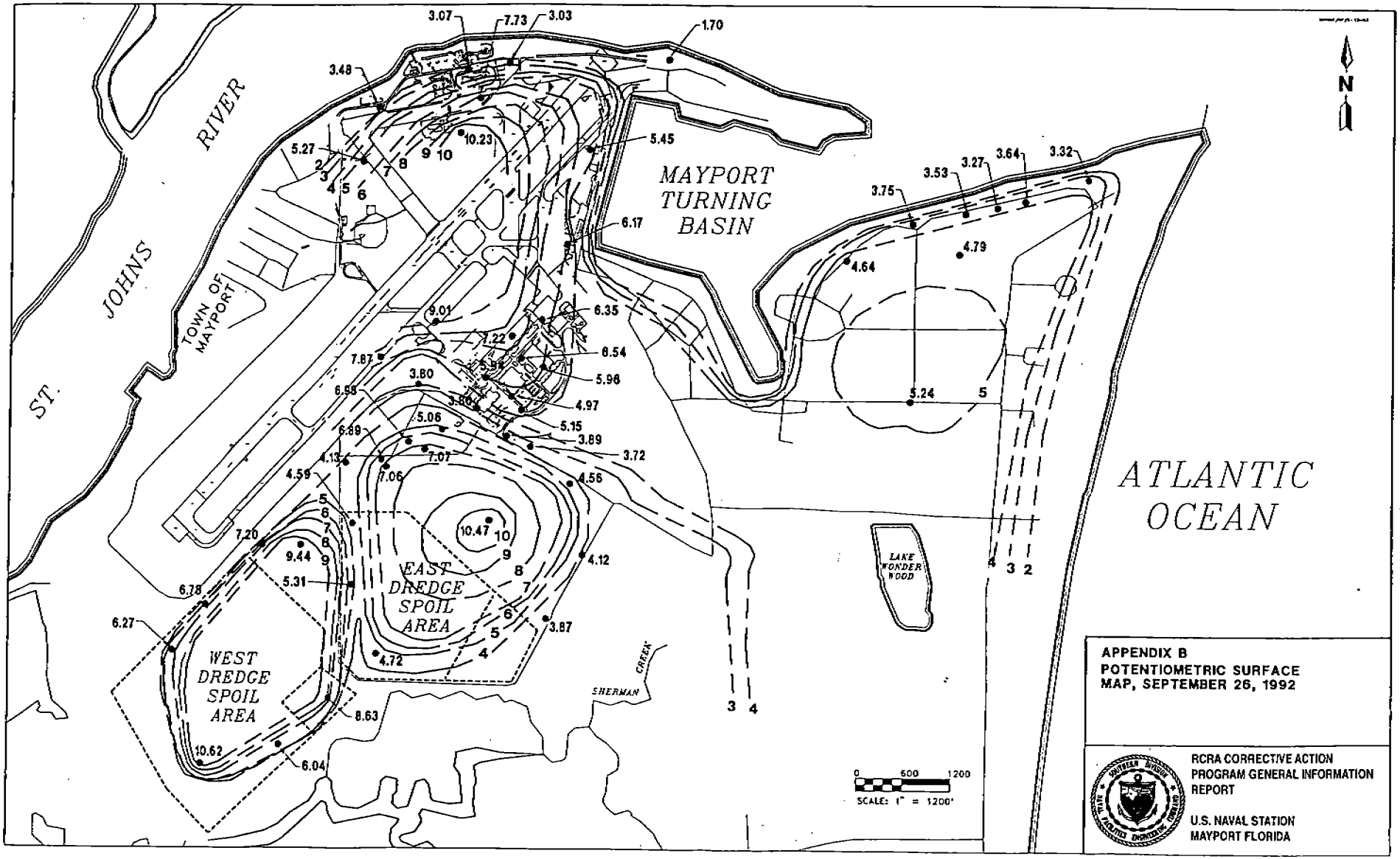

ST. JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
LAKE WONDERWOOD
SHERMAN CREEK
N
APPENDIX B
POTENTIOMETRIC SURFACE MAP, JULY 22, 1993
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION MAYPORT FLORIDA

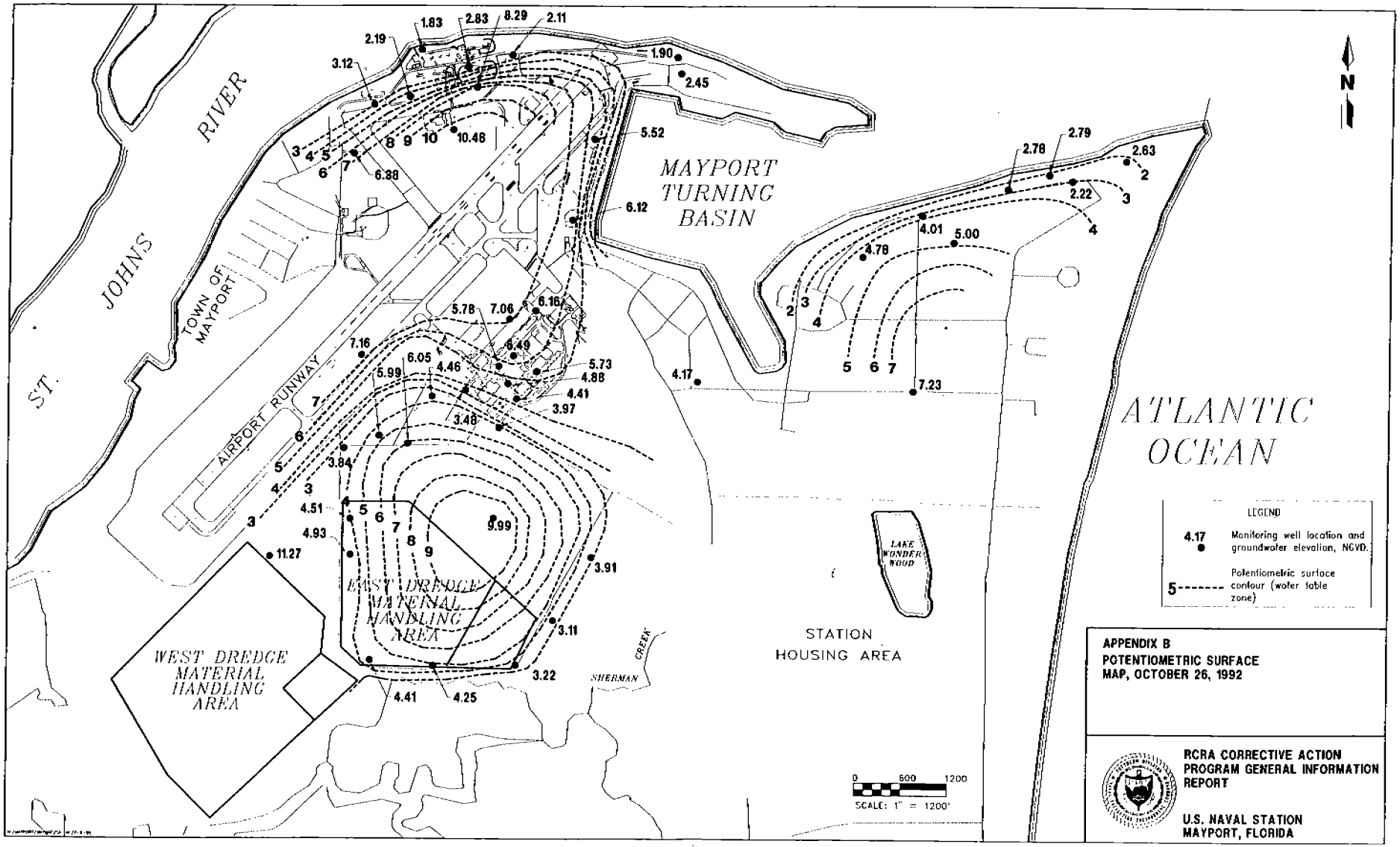


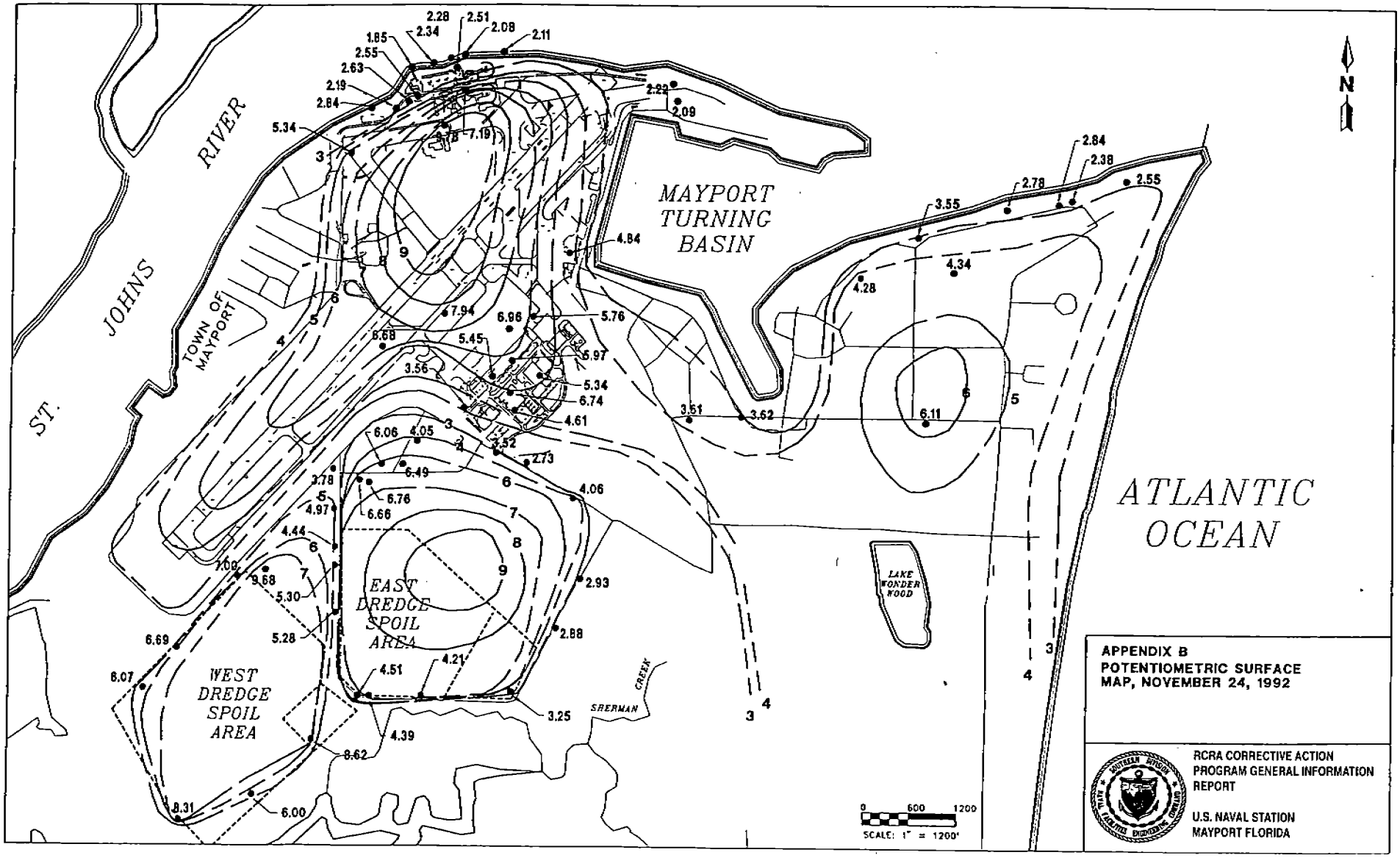
APPENDIX B
POTENTIOMETRIC SURFACE MAP, AUGUST 13, 1992

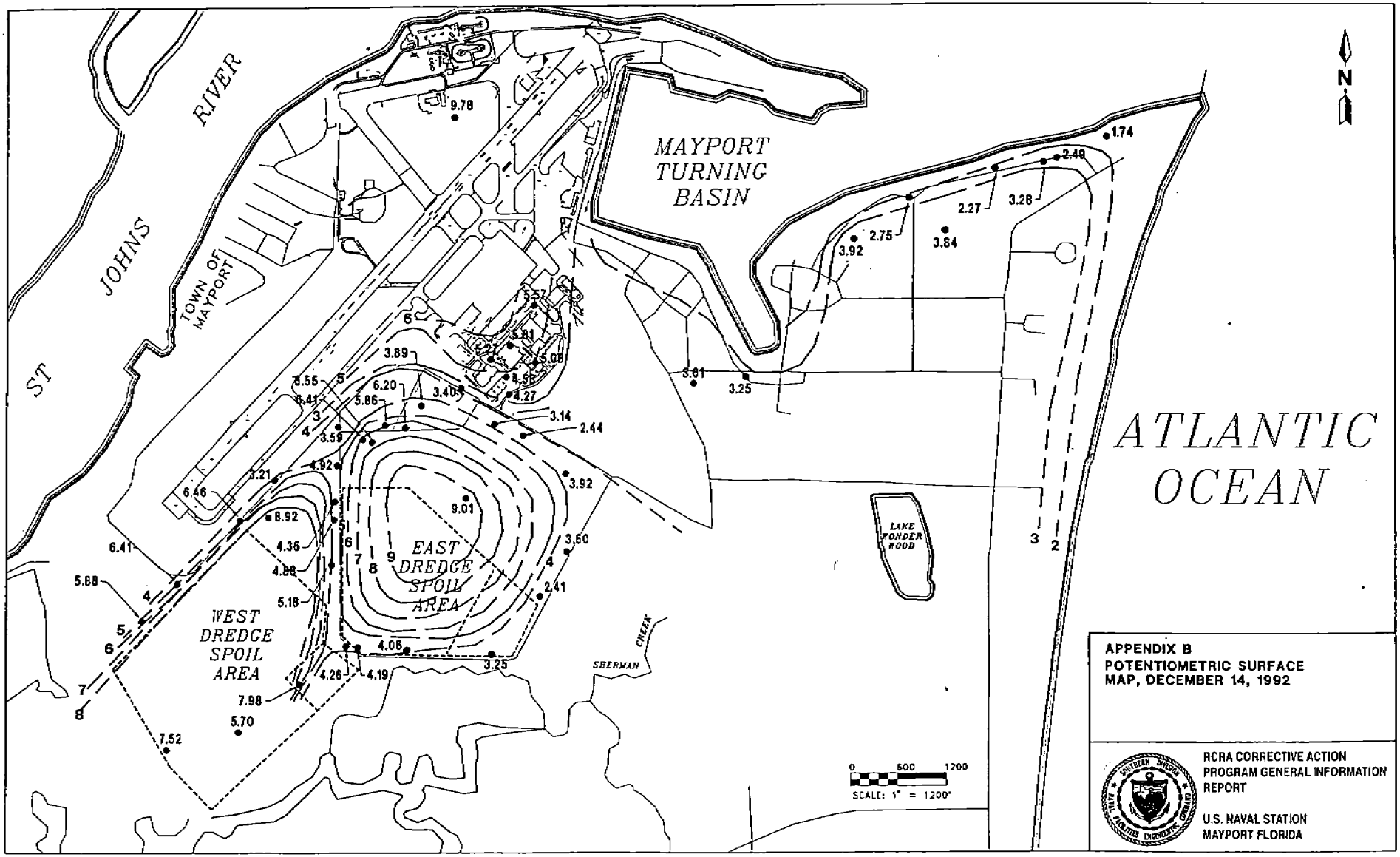
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT

U.S. NAVAL STATION
MAYPORT FLORIDA


ST. JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
LAKE WONDER WOOD
SHERMAN CREEK
N
SCALE: 1" = 1200'
0 600 1200
APPENDIX B
POTENTIOMETRIC SURFACE MAP, SEPTEMBER 26, 1992
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION MAYPORT FLORIDA


ST. JOHNS RIVER
TOWN OF MAYPORT
AIRPORT RUNWAY
MAYPORT TURNING BASIN
ATLANTIC OCEAN
STATION HOUSING AREA
LAKE WONDER ROAD
SHERMAN CREEK
WEST DREDGE MATERIAL HANDLING AREA
EAST DREDGE MATERIAL HANDLING AREA
1.83
2.83
8.29
2.11
2.19
3.12
1.90
2.45
5.52
10.46
6.38
6.12
2.78
2.79
2.63
2.22
4.01
5.00
4.78
5.78
7.06
6.16
6.49
7.16
6.05
4.46
5.99
5.73
4.88
4.41
3.97
3.48
3.84
4.17
7.23
4.51
4.93
11.27
9.99
3.91
3.11
3.22
4.41
4.25
0 600 1200
SCALE: 1" = 1200'
N
LEGEND
4.17 Monitoring well location and groundwater elevation, NGVD.
5 Potentiometric surface contour (water table zone)
APPENDIX B
POTENTIOMETRIC SURFACE MAP, OCTOBER 26, 1992
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION
MAYPORT, FLORIDA

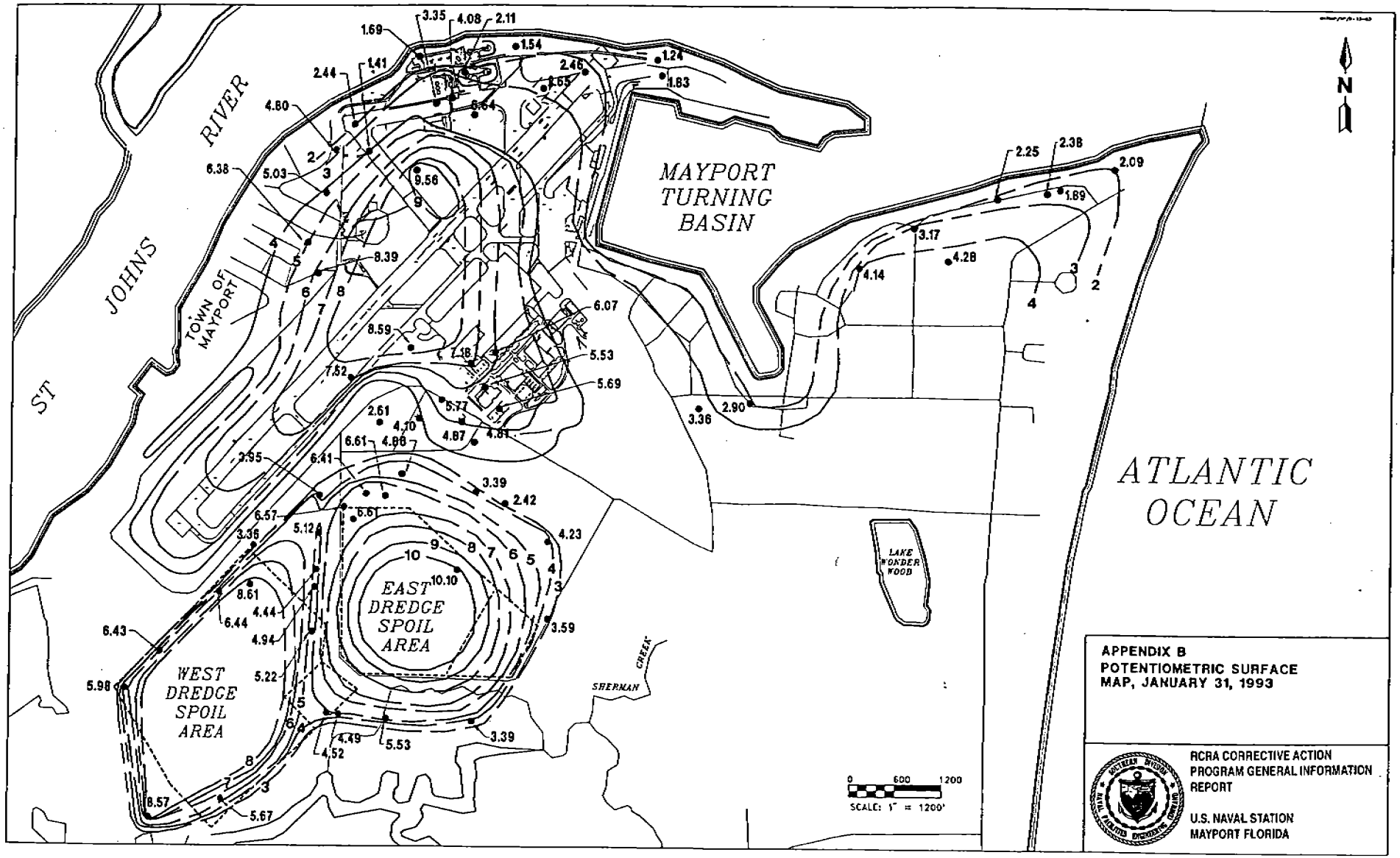

ST. JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
LAKE WONDERWOOD
SHERMAN CREEK
N
0 600 1200
SCALE: 1" = 1200'
APPENDIX B
POTENTIOMETRIC SURFACE MAP, NOVEMBER 24, 1992
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION MAYPORT FLORIDA

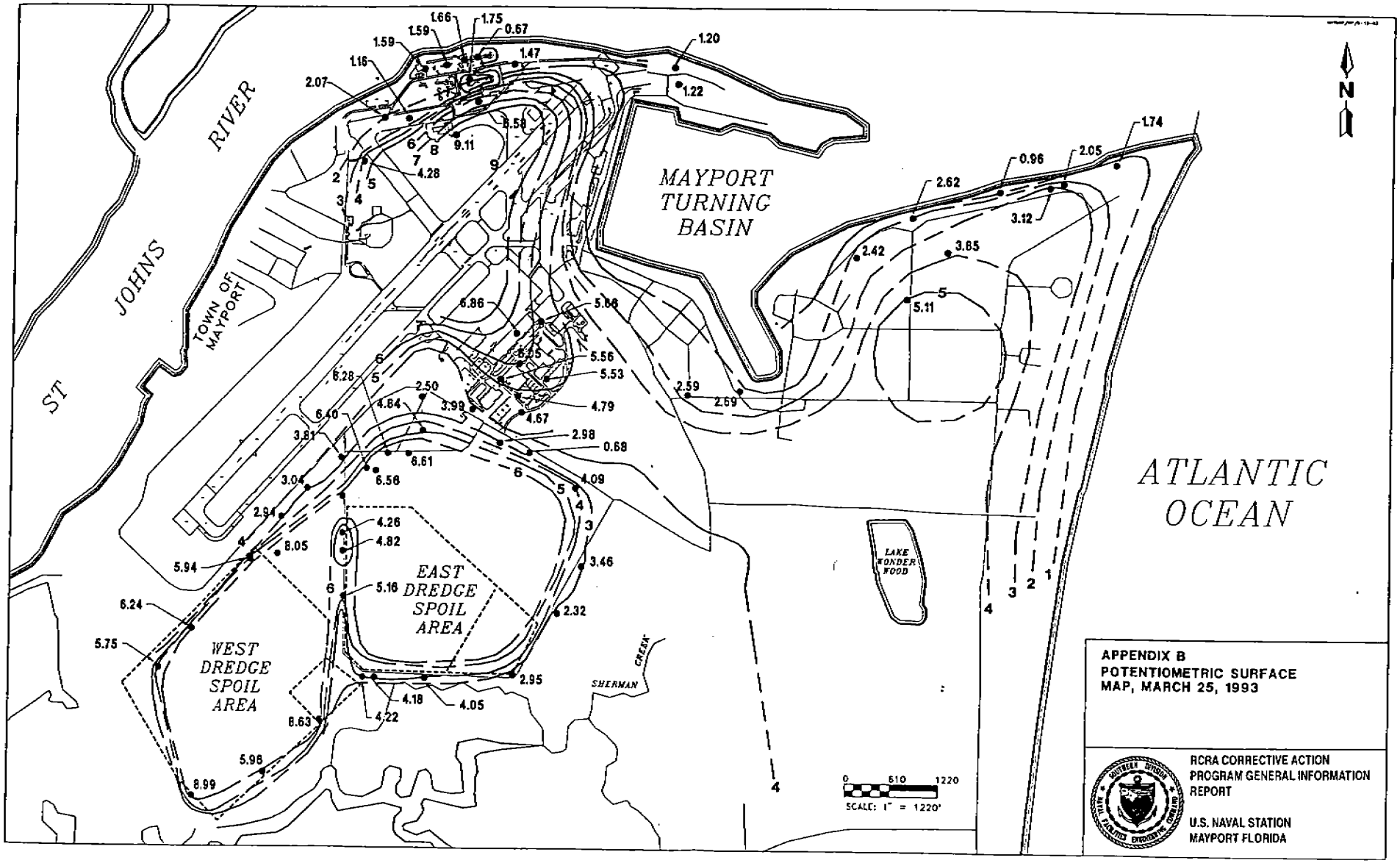


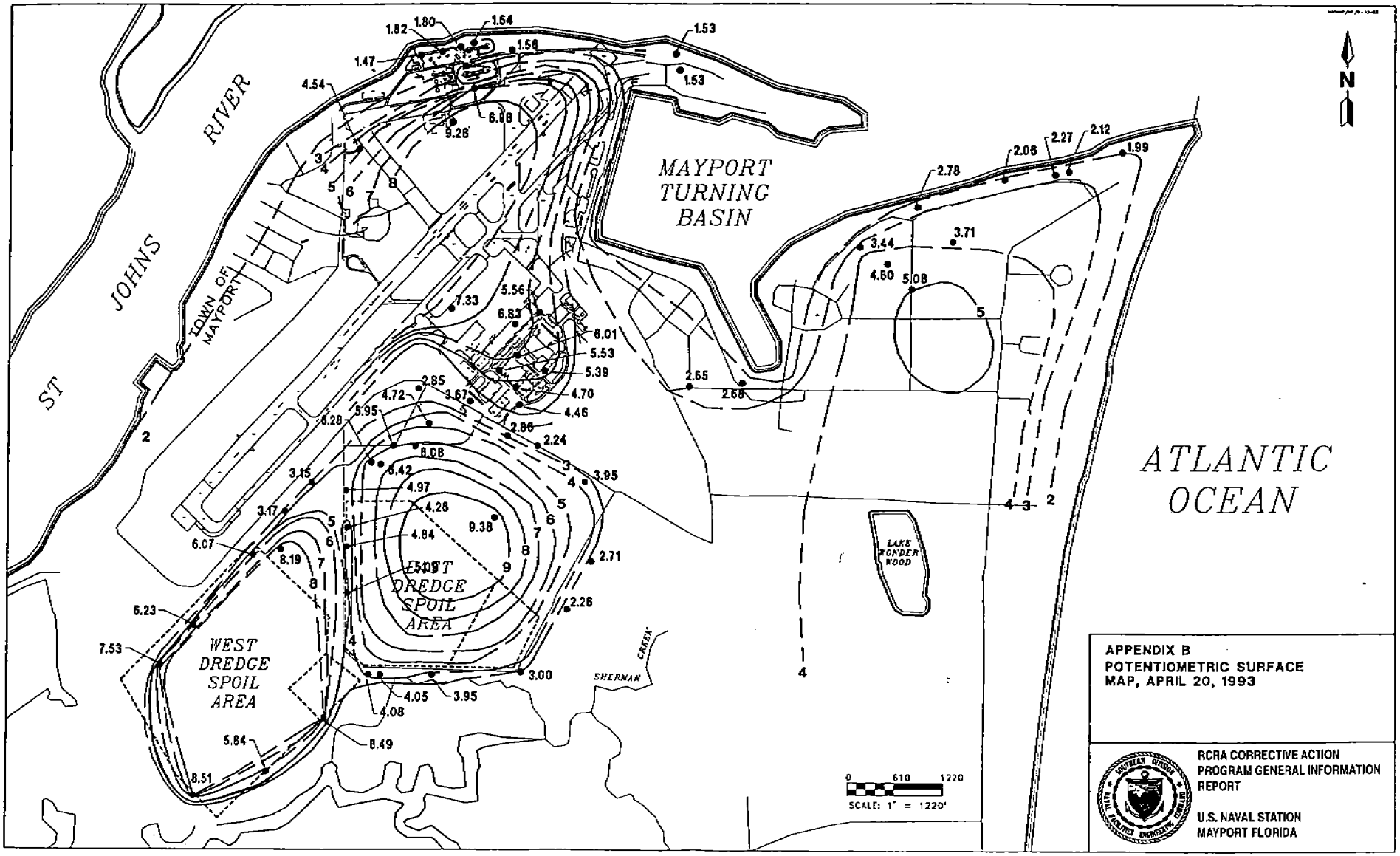
APPENDIX B
POTENTIOMETRIC SURFACE MAP, DECEMBER 14, 1992

RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT

U.S. NAVAL STATION
MAYPORT FLORIDA


ST JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
LAKE WONDER WOOD
SHERMAN CREEK
N
0 600 1200
SCALE: 1" = 1200'
APPENDIX B
POTENTIOMETRIC SURFACE MAP, JANUARY 31, 1993
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION MAYPORT FLORIDA

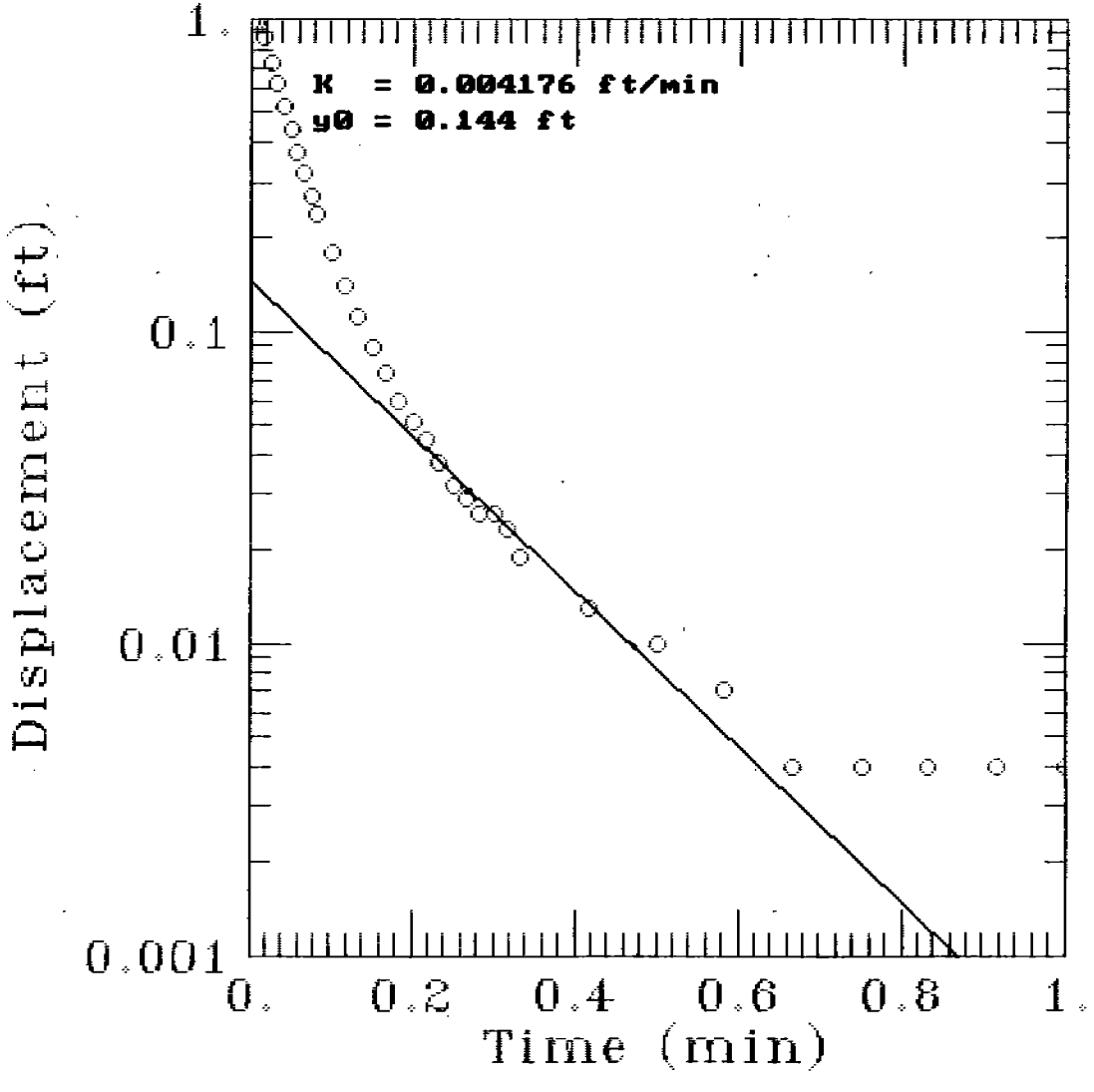

ST JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
LAKE WONDER WOOD
SHERMAN CREEK
N
SCALE: 1" = 1220'
0 610 1220
APPENDIX B
POTENTIOMETRIC SURFACE MAP, MARCH 25, 1993
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION
MAYPORT FLORIDA


ST JOHNS RIVER
TOWN OF MAYPORT
MAYPORT TURNING BASIN
ATLANTIC OCEAN
LAKE TONDERWOOD
EAST DREDGE SPOIL AREA
WEST DREDGE SPOIL AREA
SHERMAN CREEK
N
SCALE: 1" = 1220'
0 610 1220
APPENDIX B
POTENTIOMETRIC SURFACE MAP, APRIL 20, 1993
RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT
U.S. NAVAL STATION MAYPORT FLORIDA

APPENDIX B-3

SLUG TEST DATA

Mayport MPT-8-MW4 RUN#4

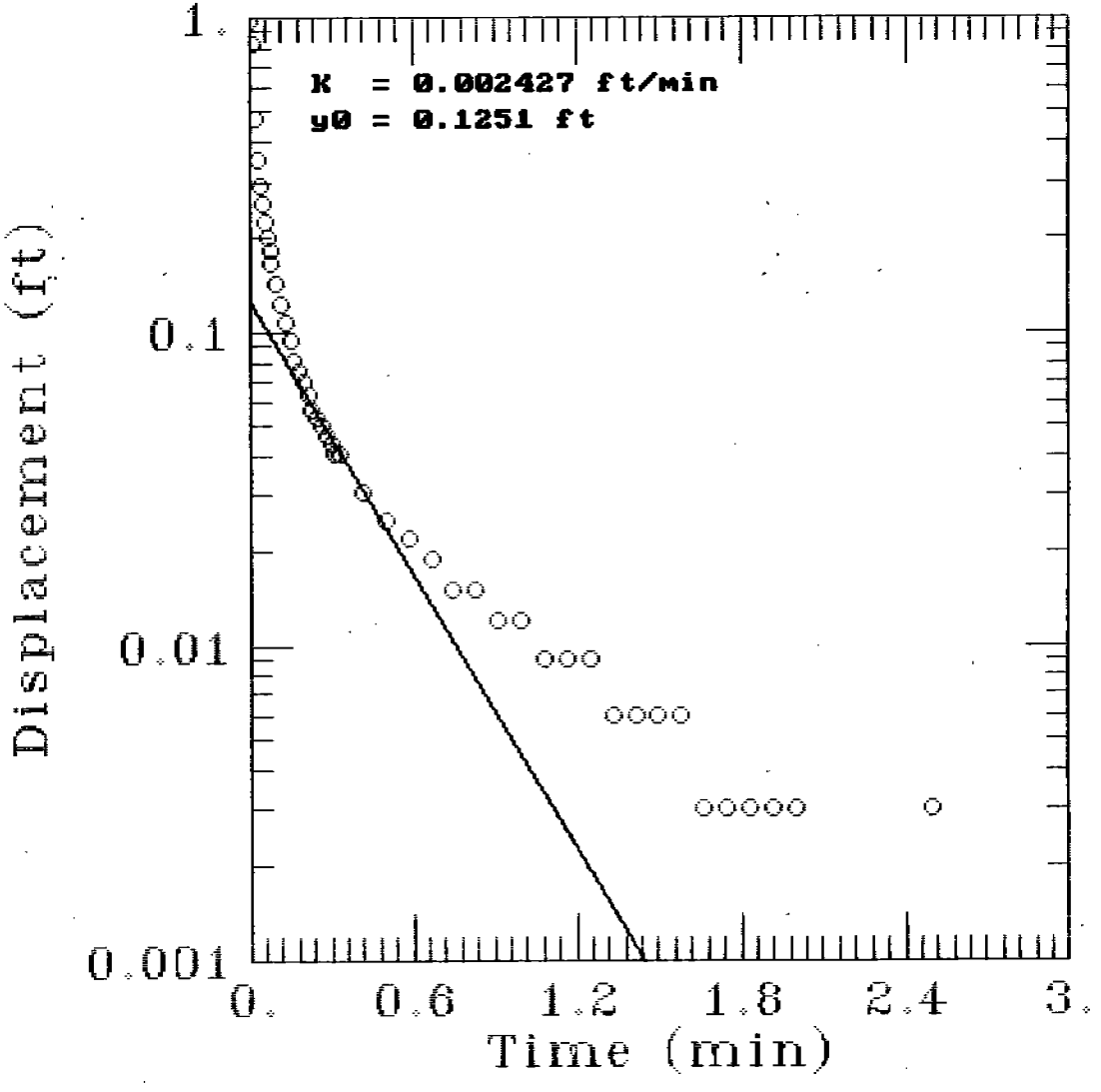


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW4 RUN#3

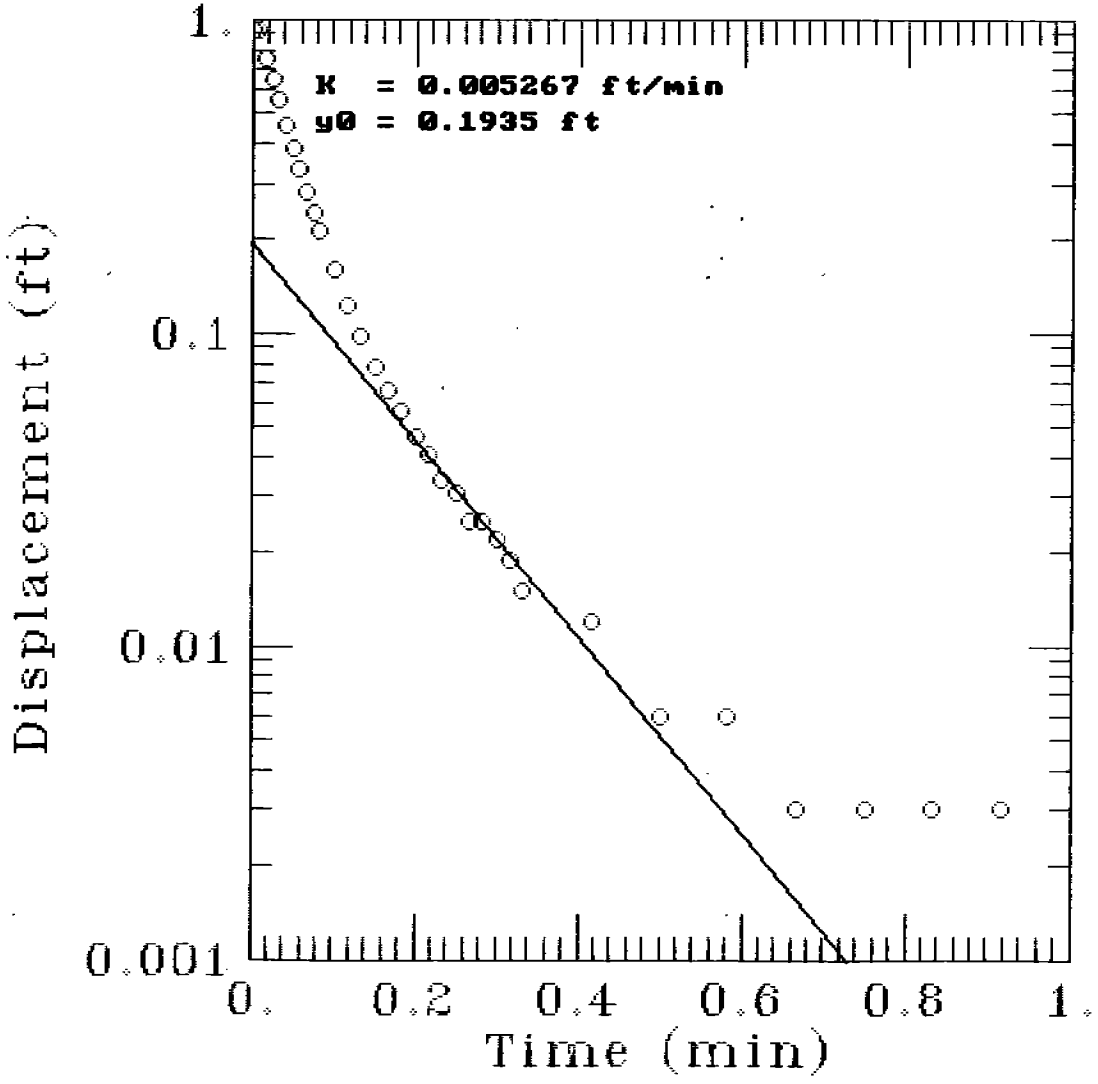


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW4 RUN#2

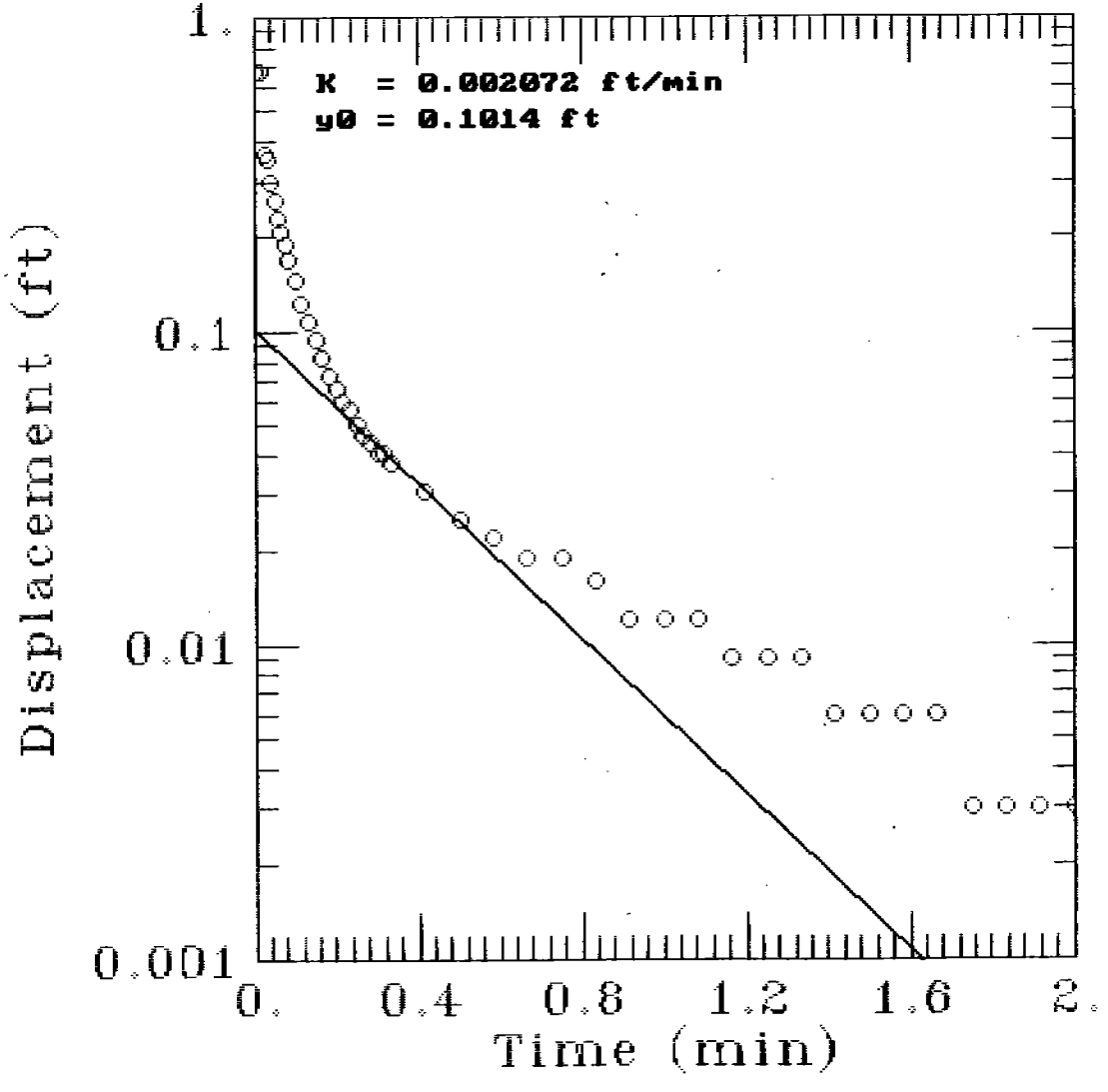


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW4 RUN#1

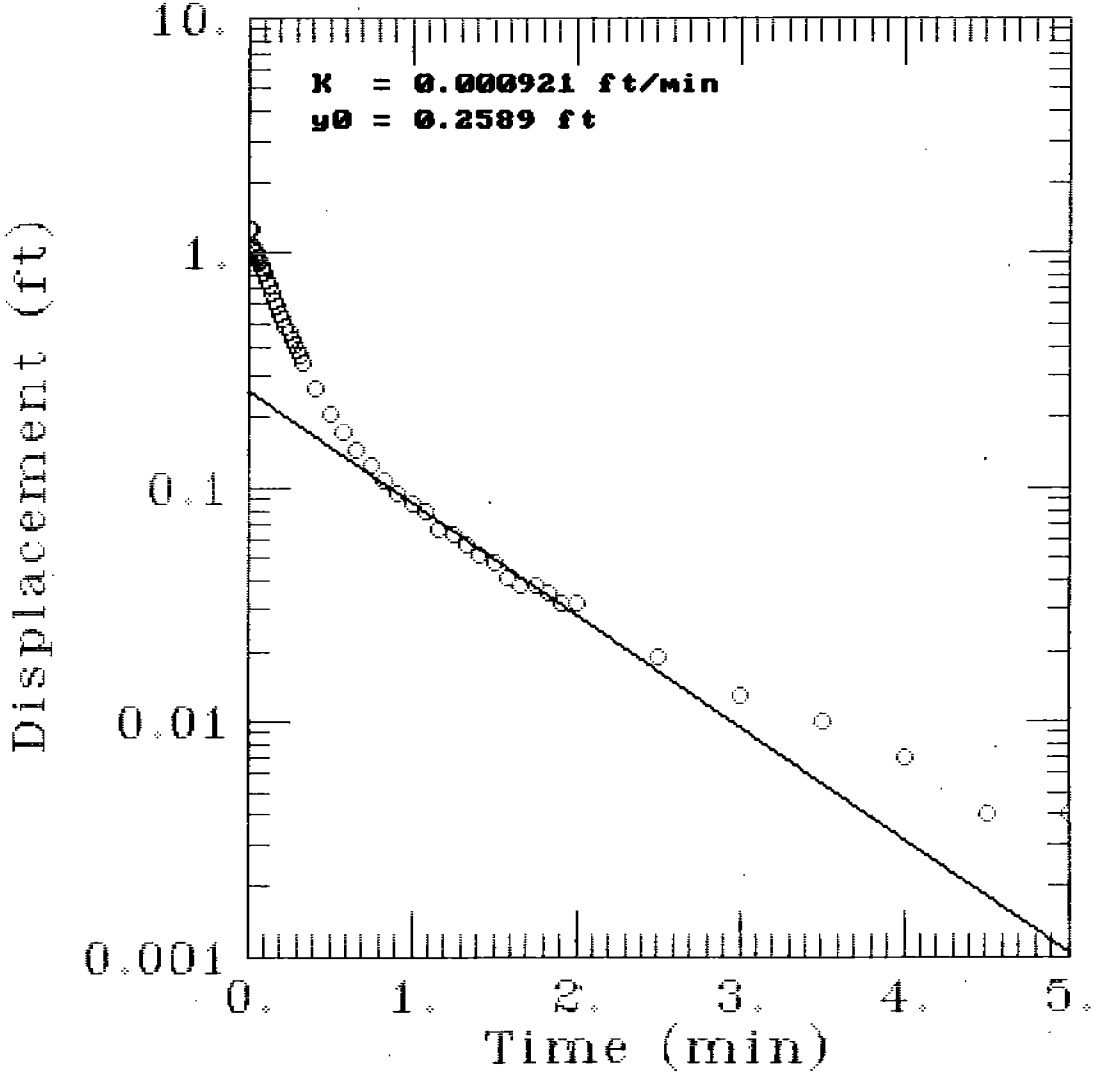


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-5s RUN#4

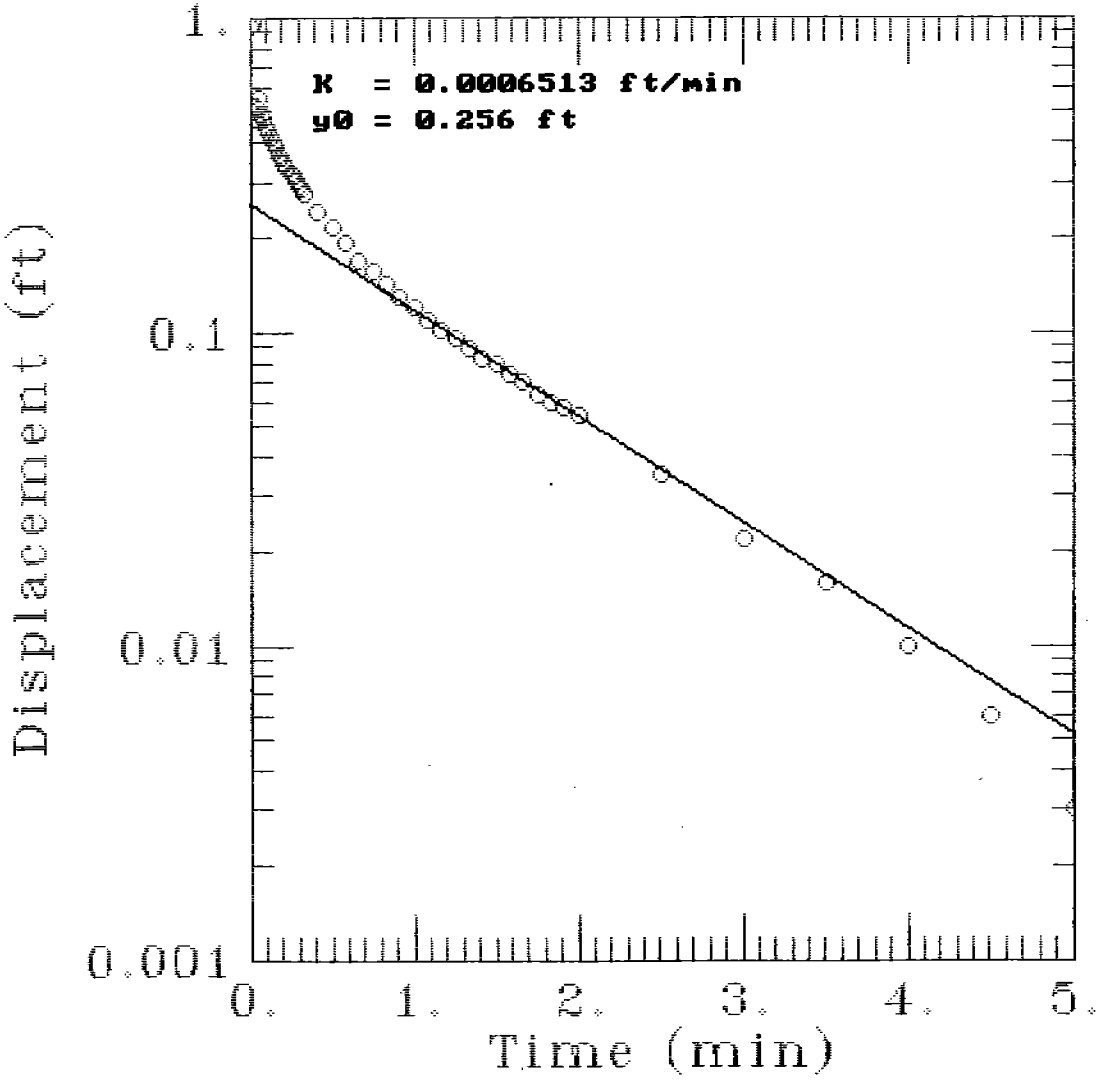


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW5s RUN#3



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

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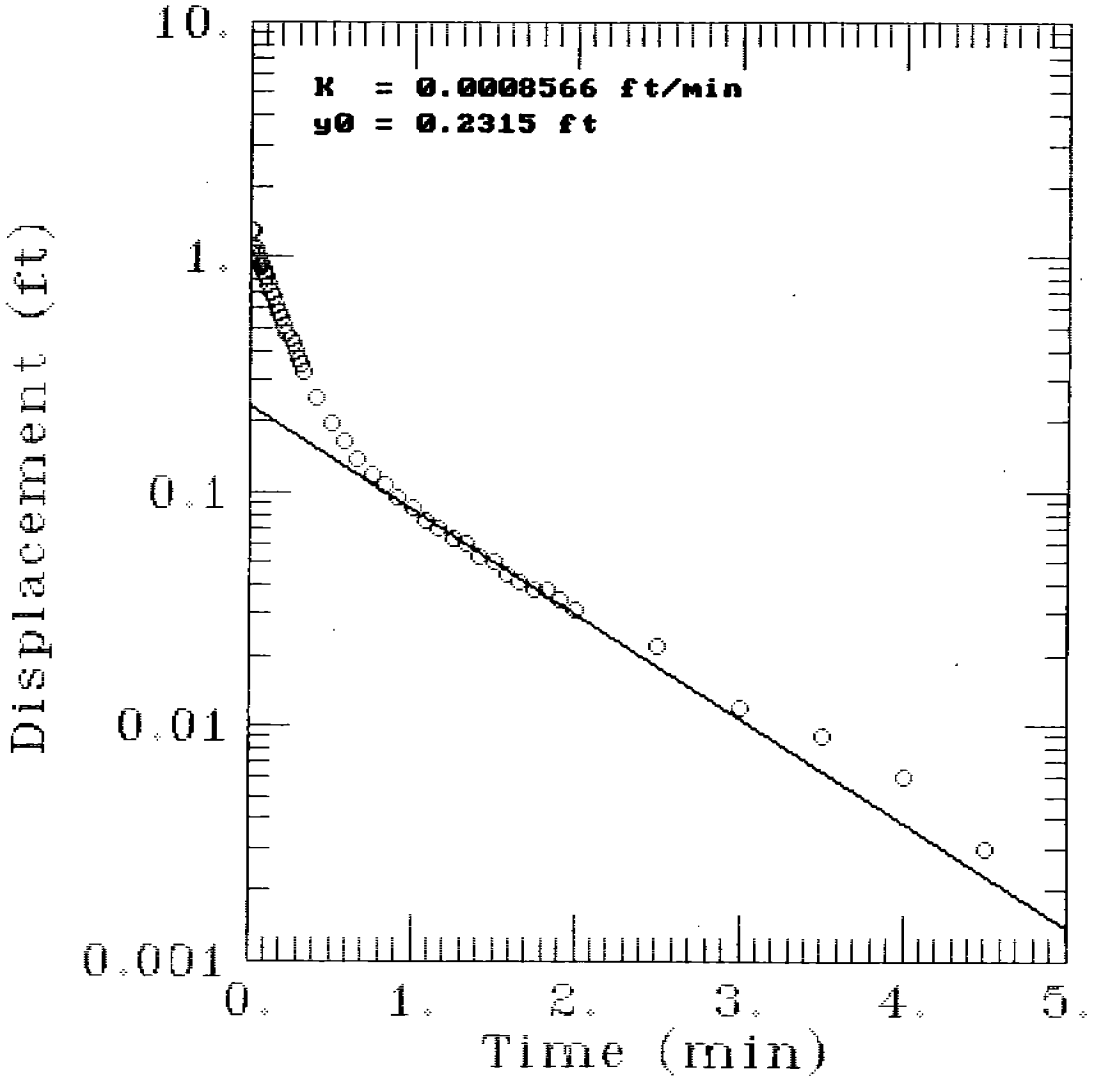
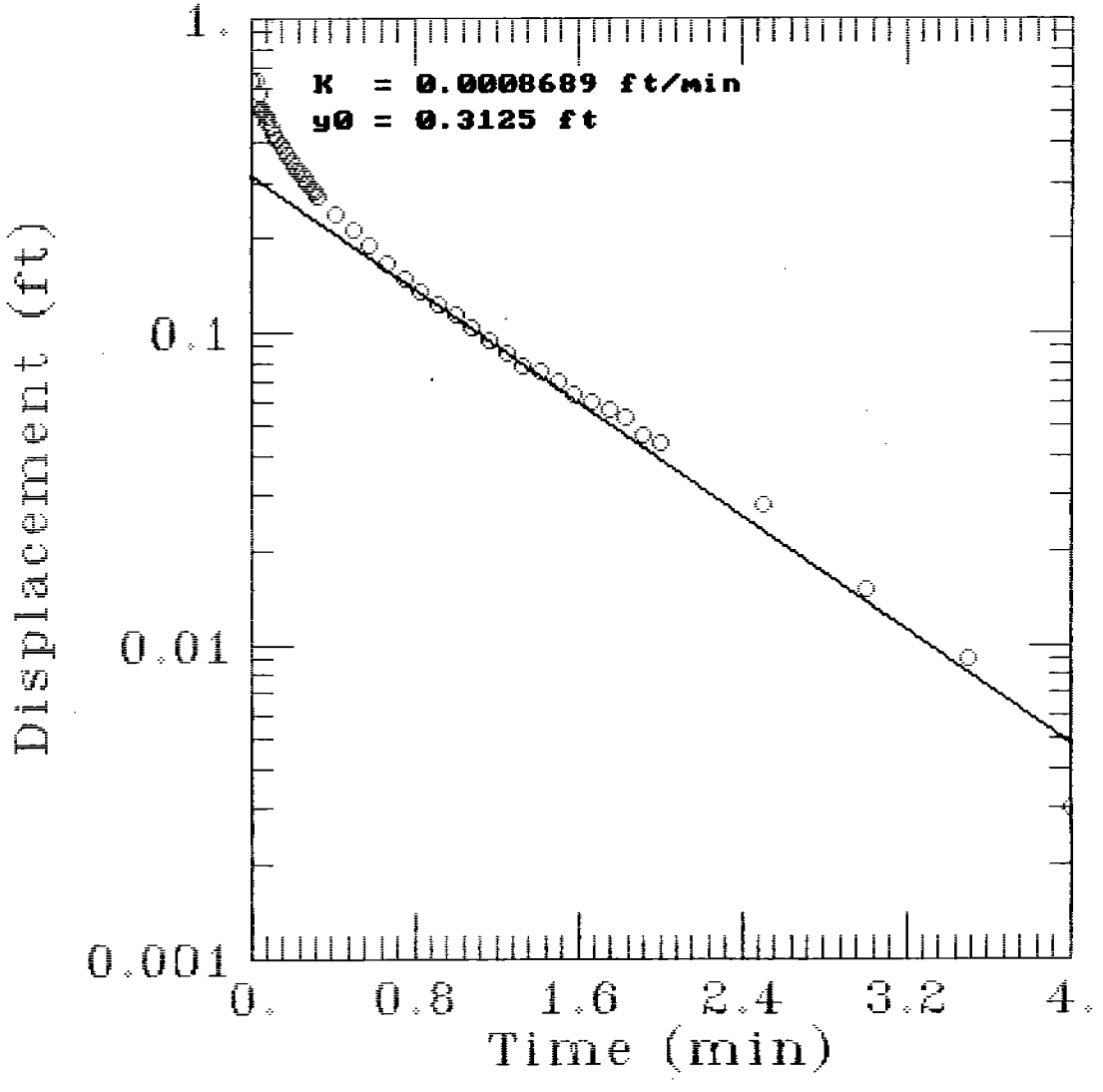


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW5s RUN#1

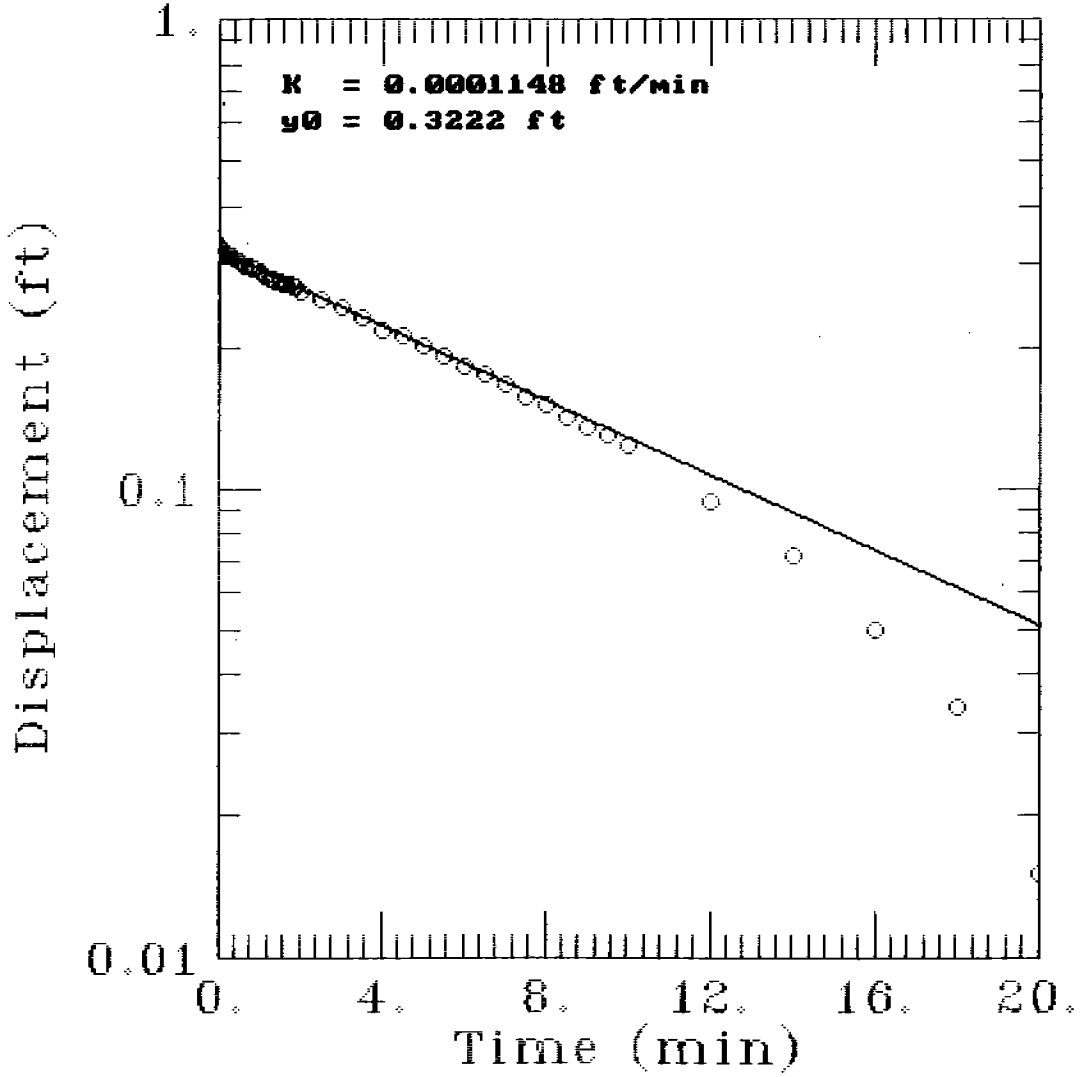


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW5dd RUN#1



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

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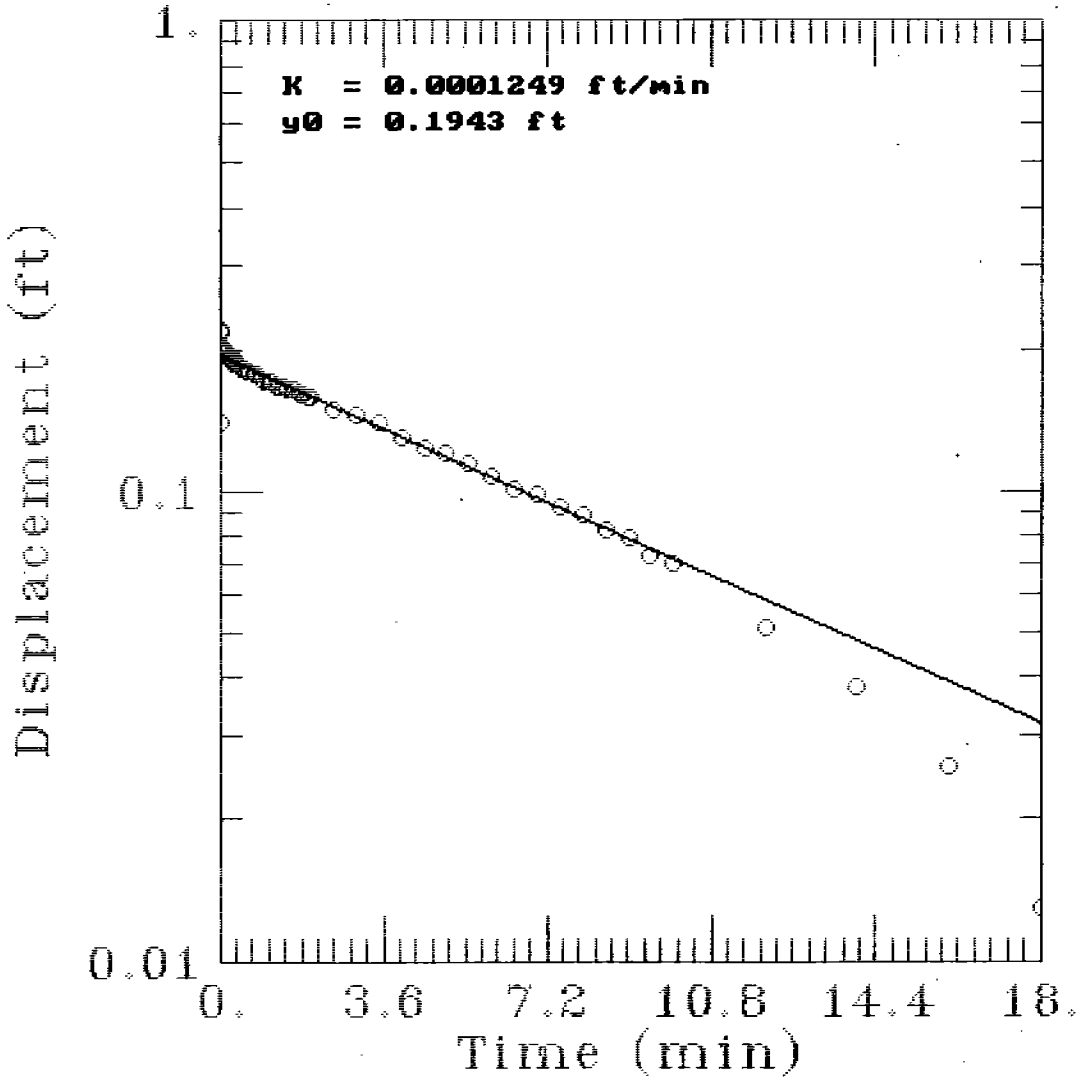
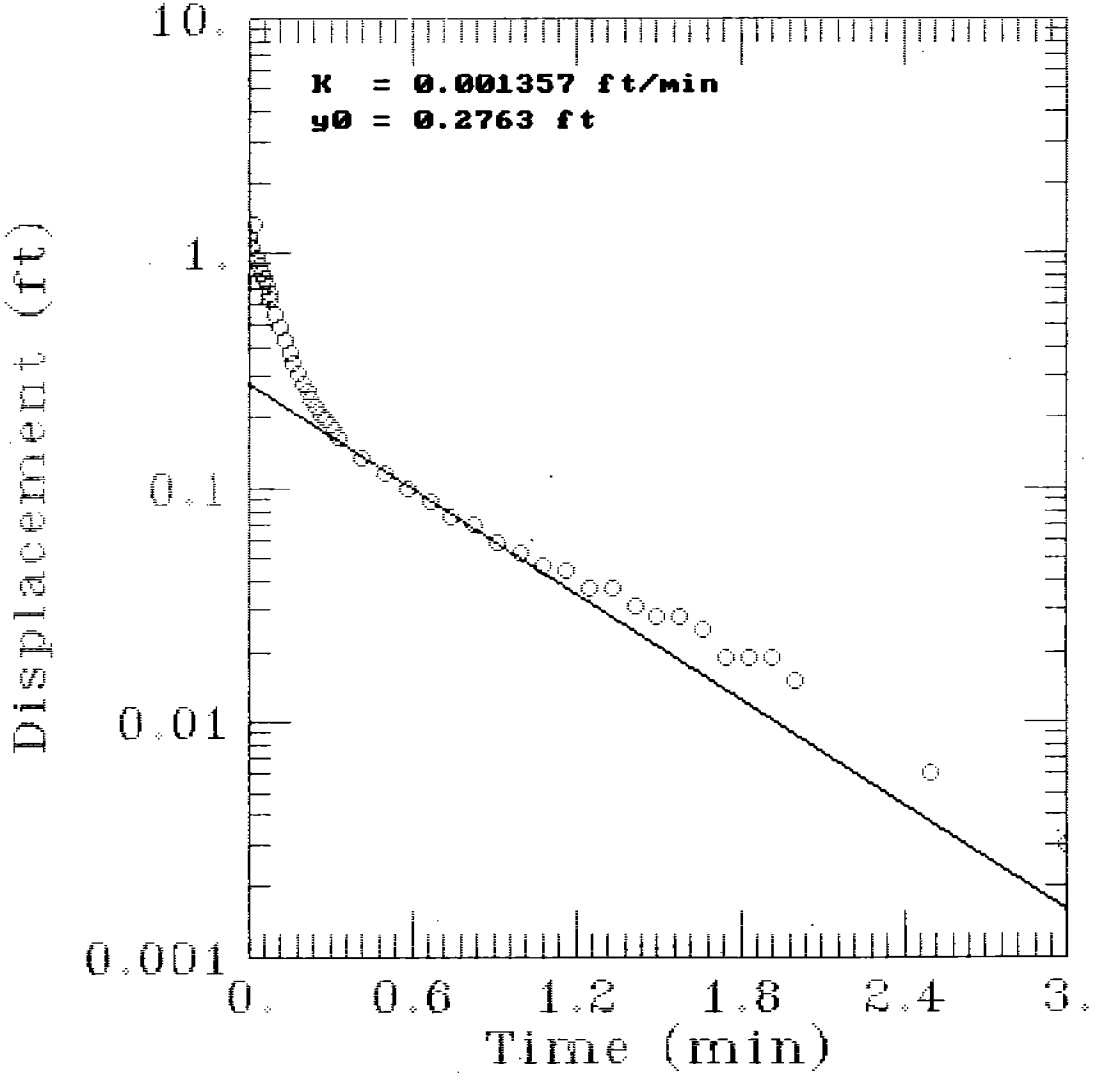


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW6 RUN#6

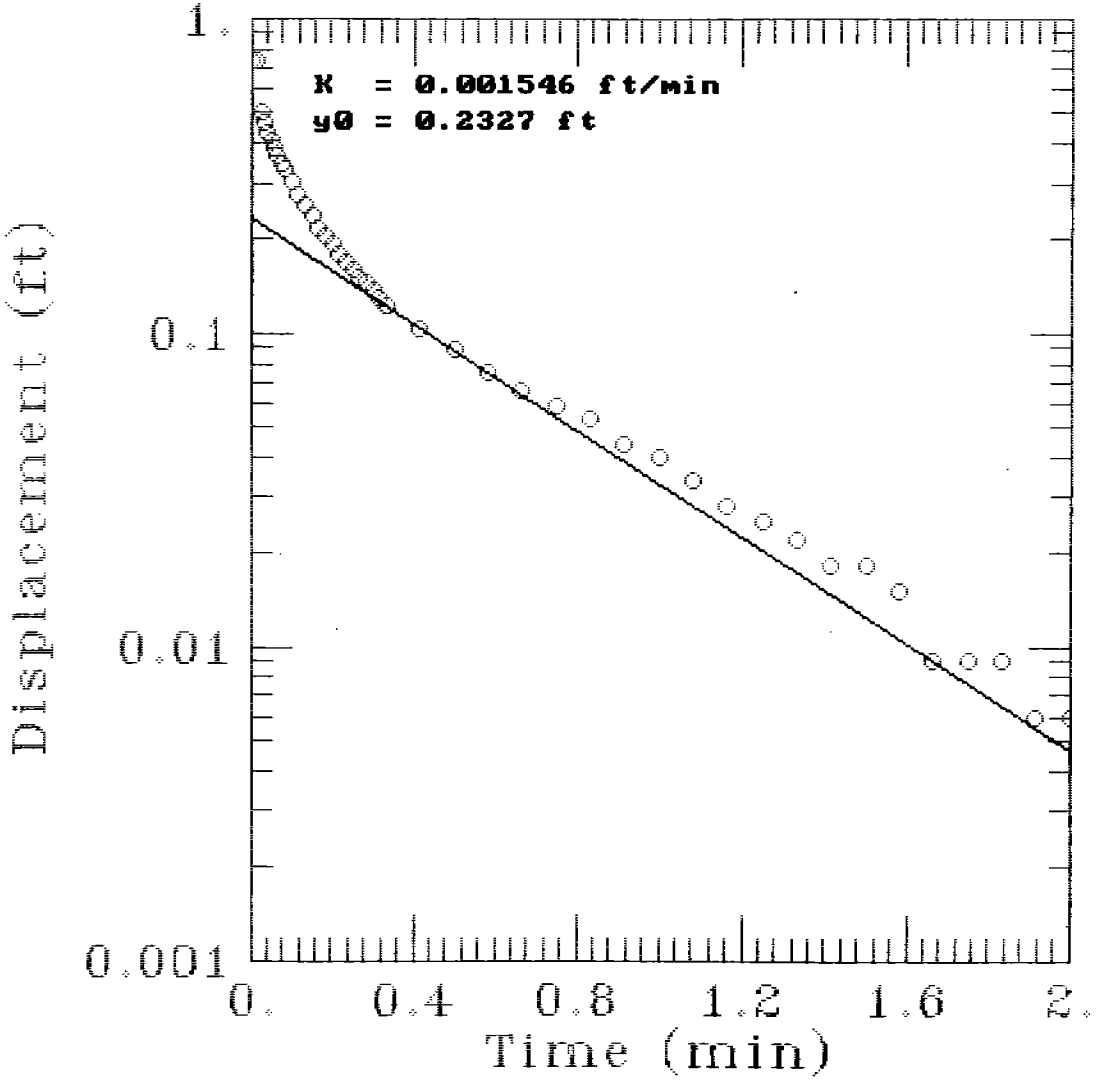


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW6 RUN#5

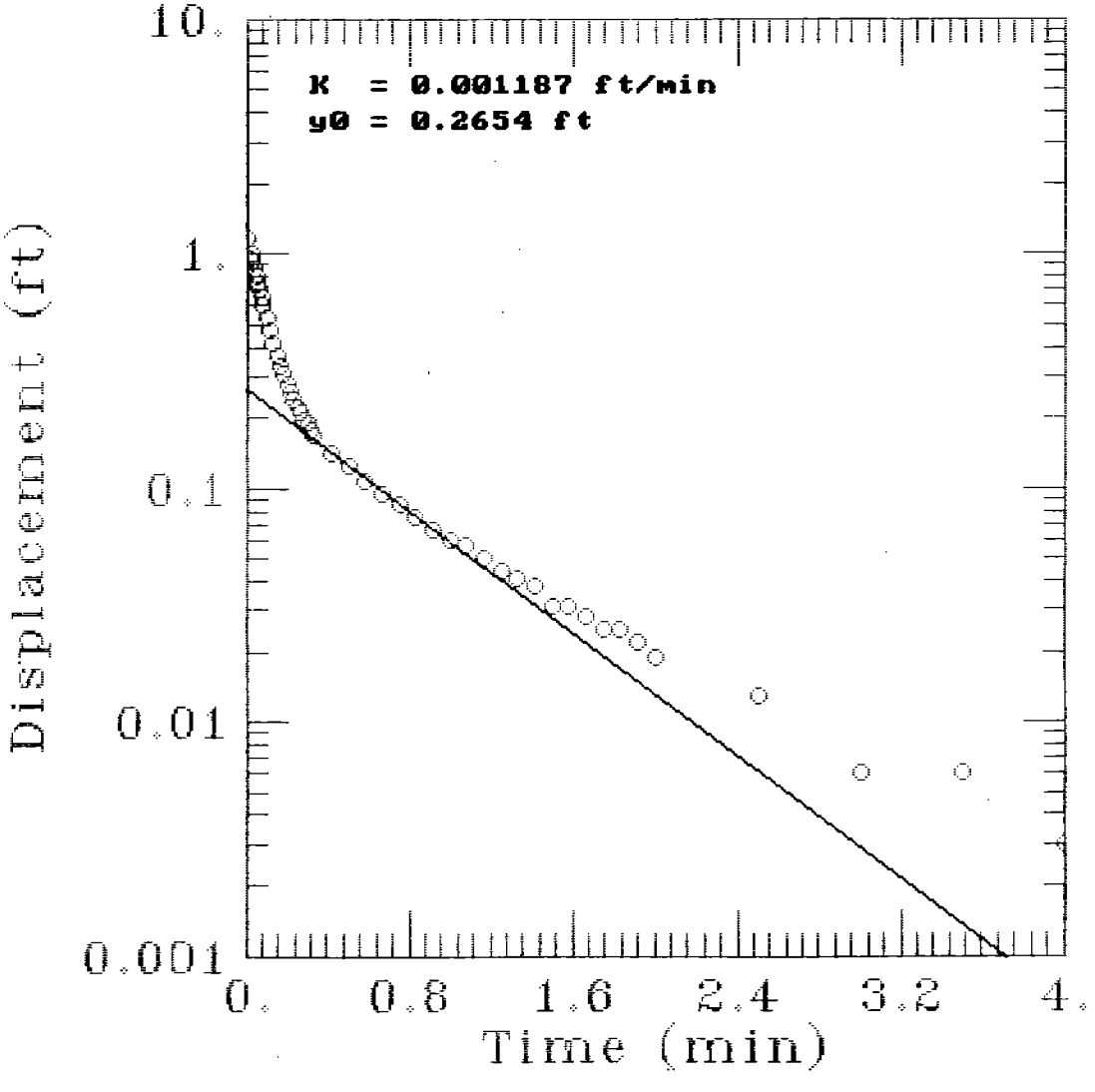


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW6 RUN#4



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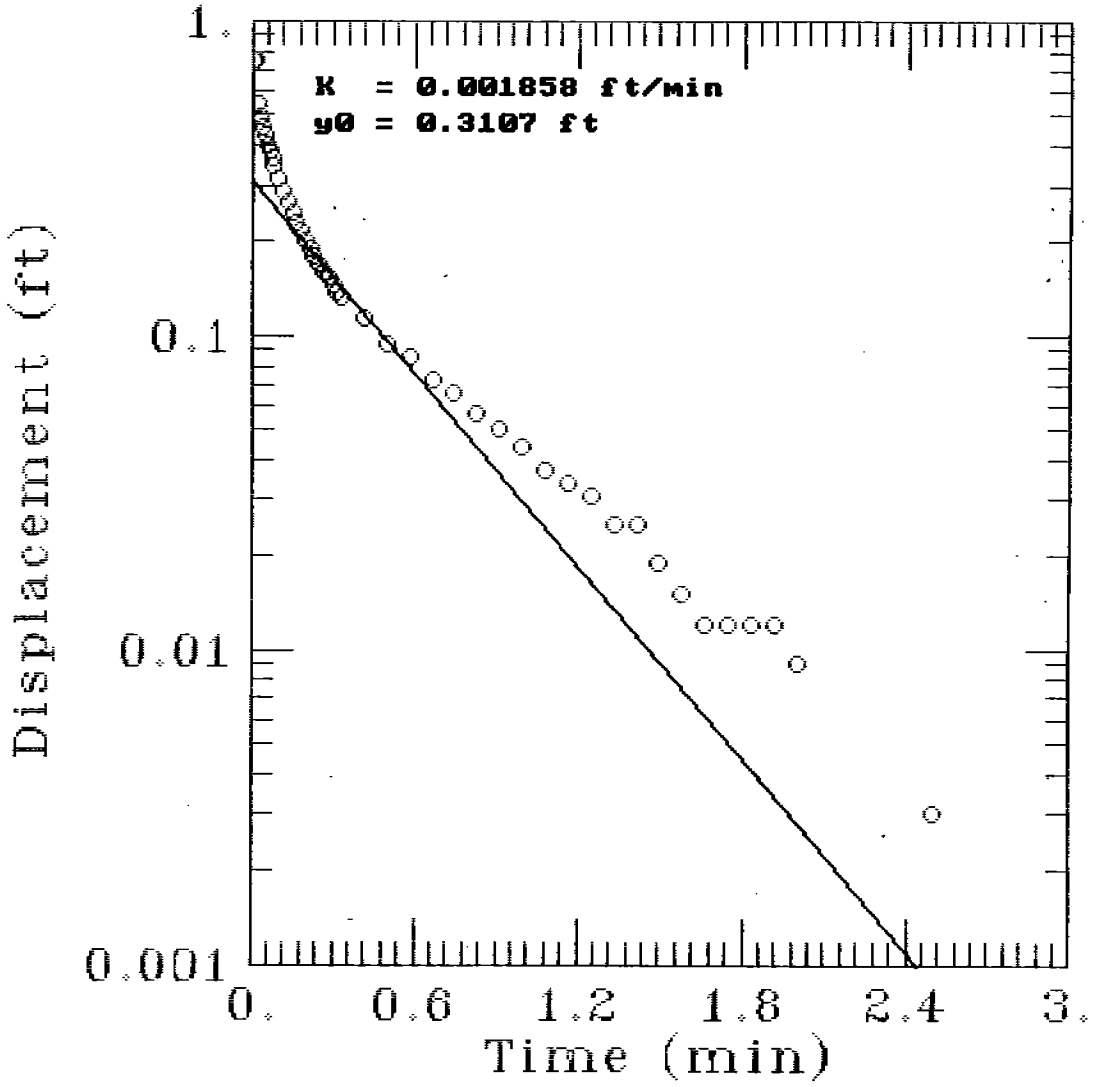
GERAGHTY & MILLER, INC.

Modeling Group

MAayport MPT-8-MW6 RUN#3



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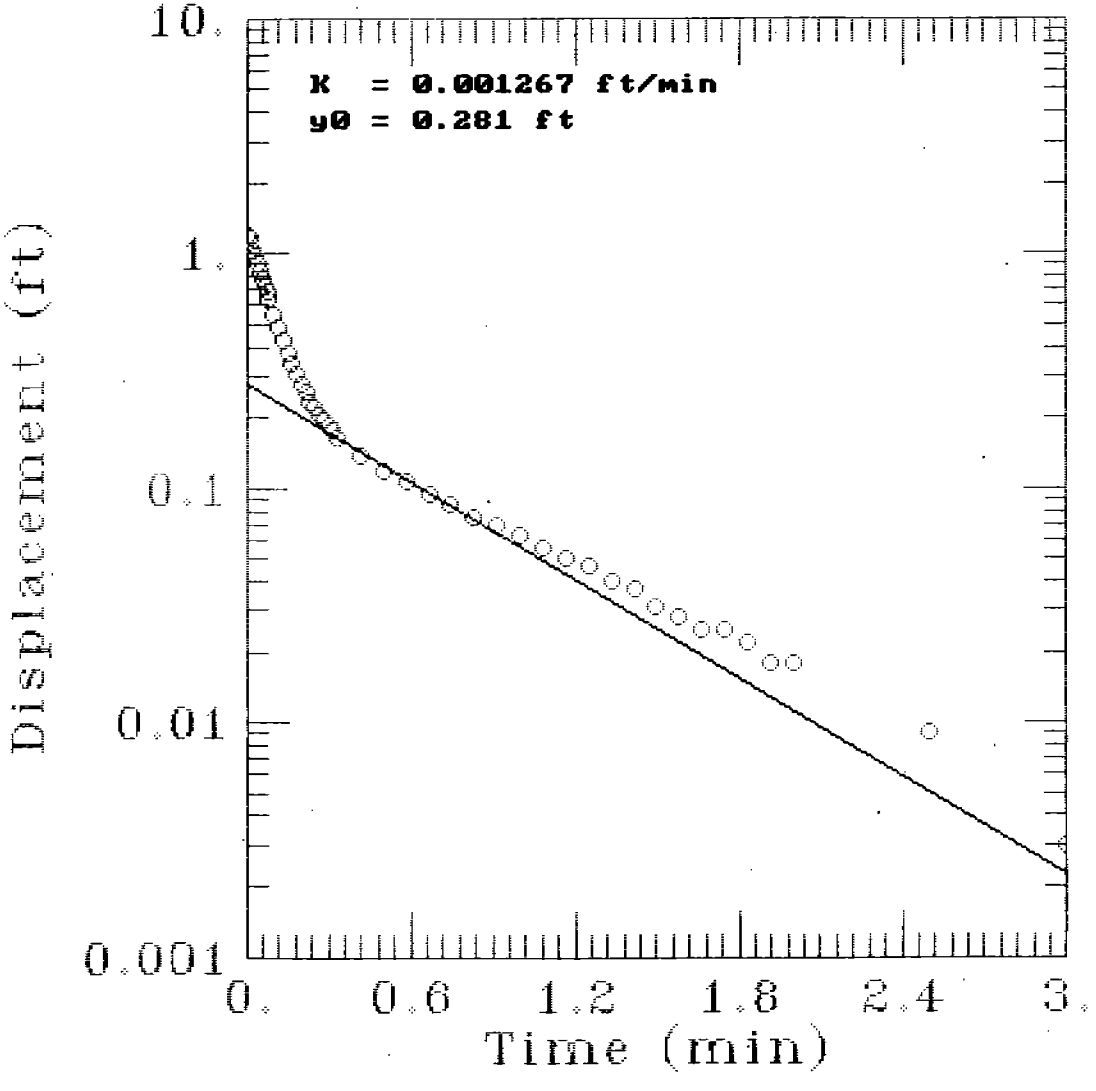
GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW6 RUN#2

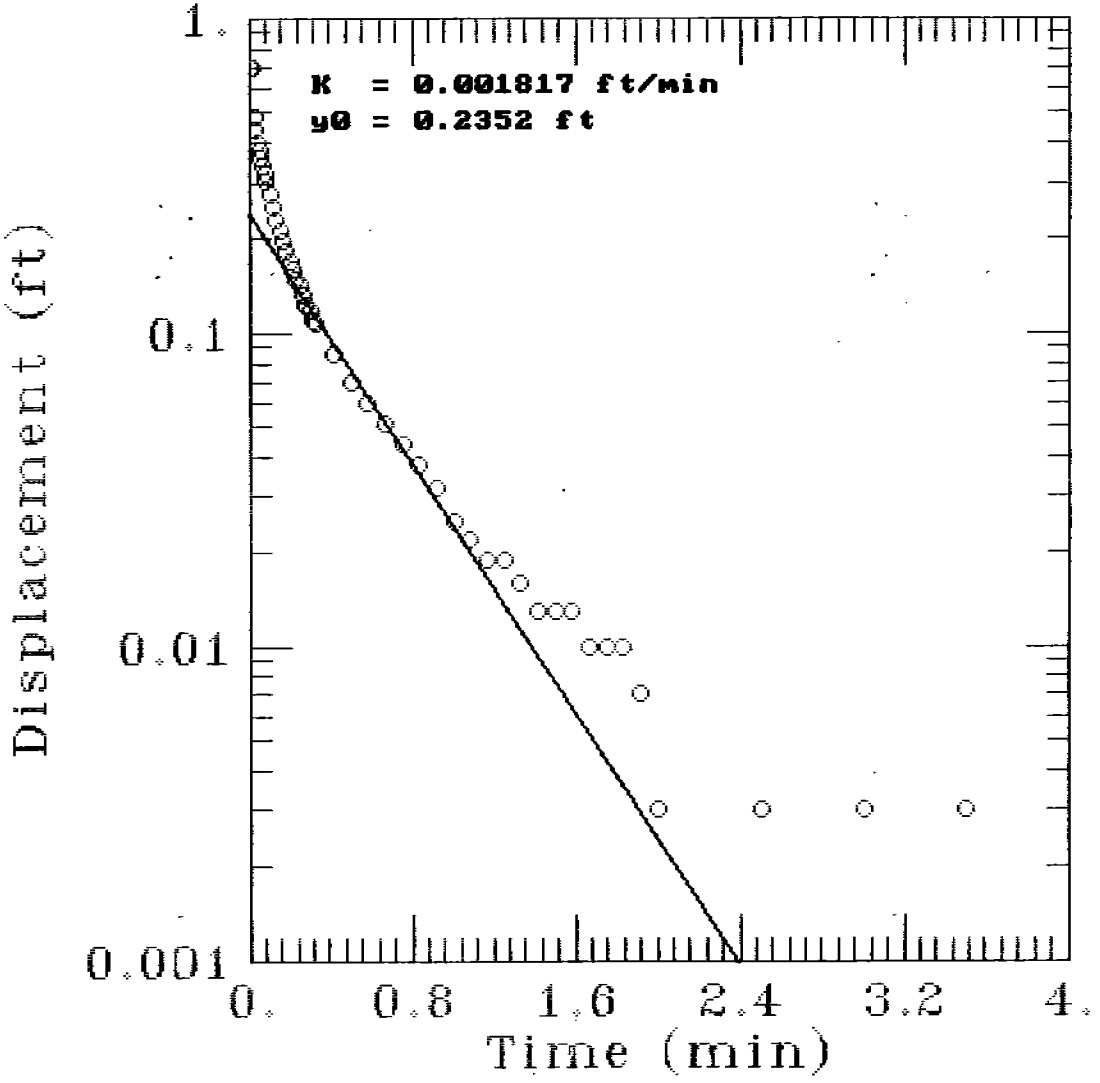


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-MW6 RUN#1



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GERAGHTY & MILLER, INC.

Modeling Group

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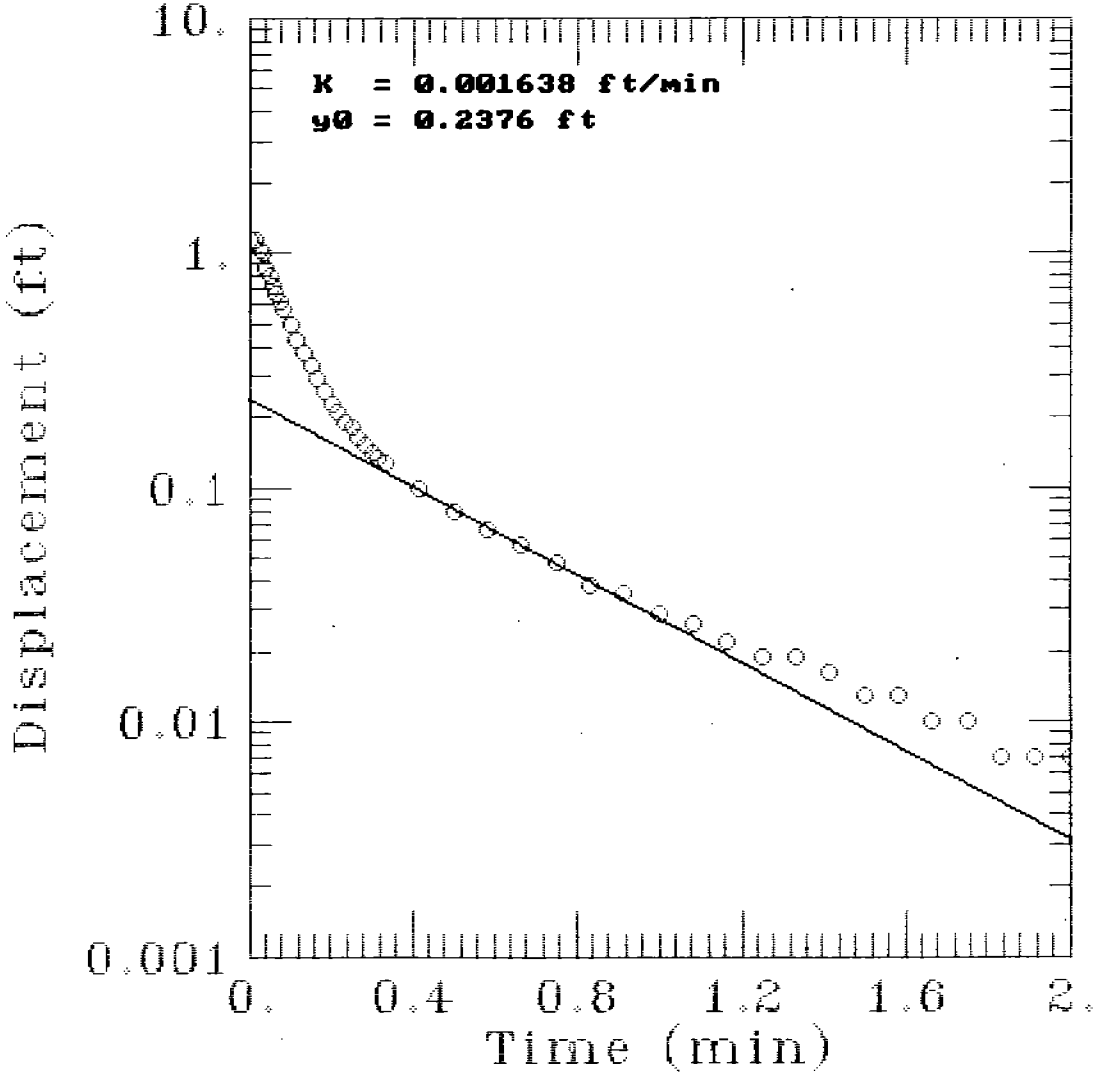

AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

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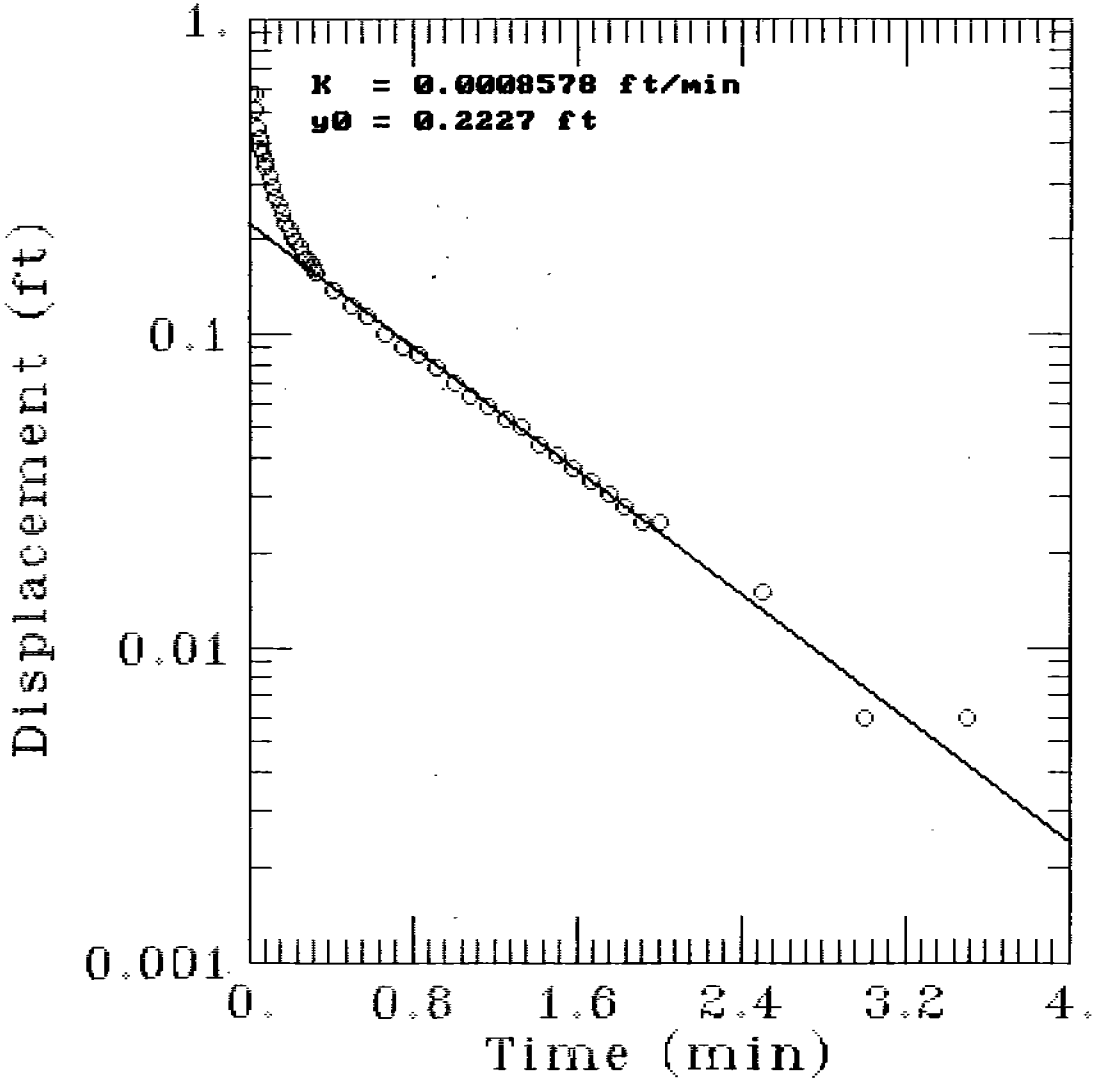

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GERAGHTY & MILLER, INC.

Modeling Group

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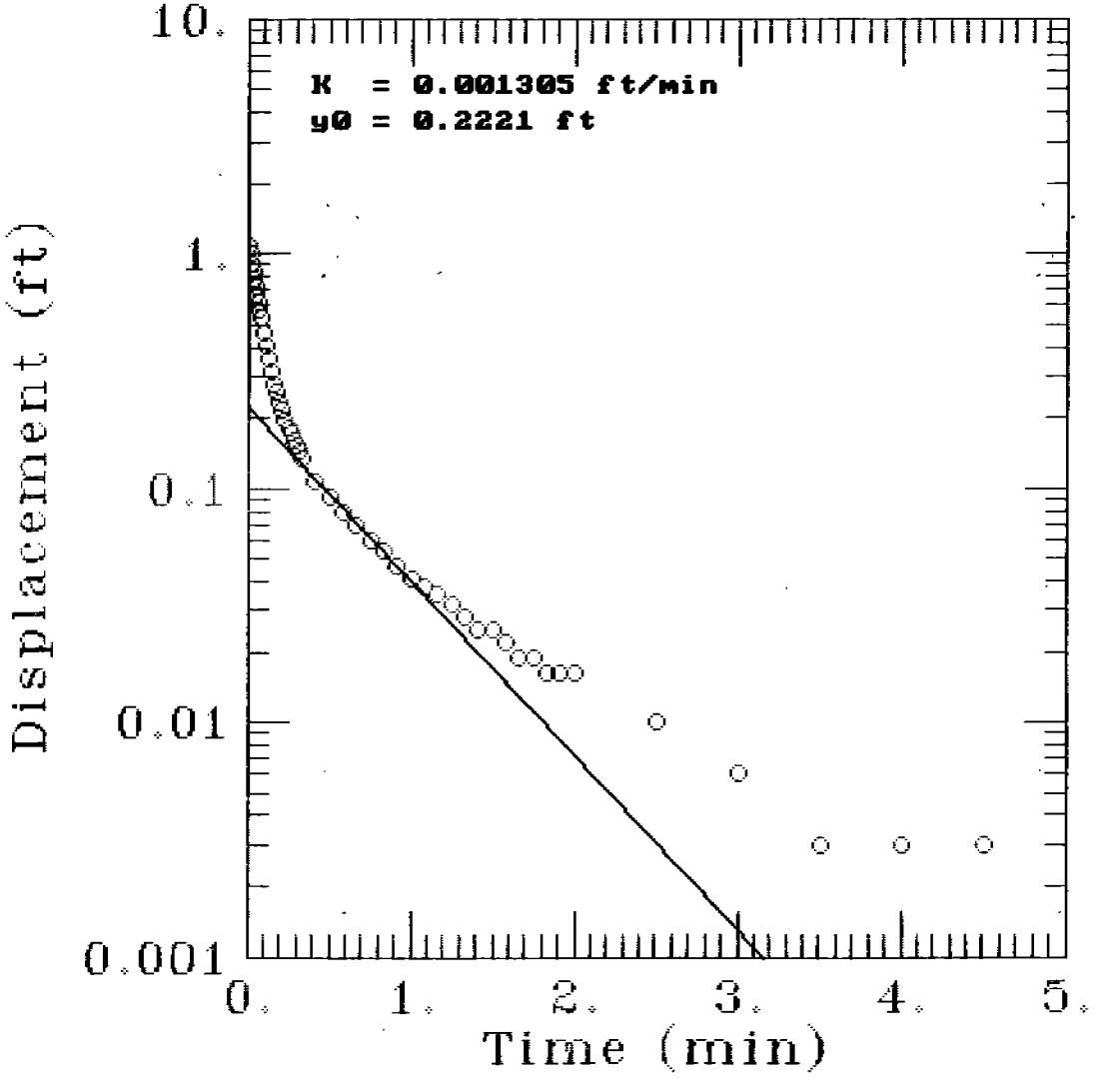

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GERAGHTY & MILLER, INC.

Modeling Group

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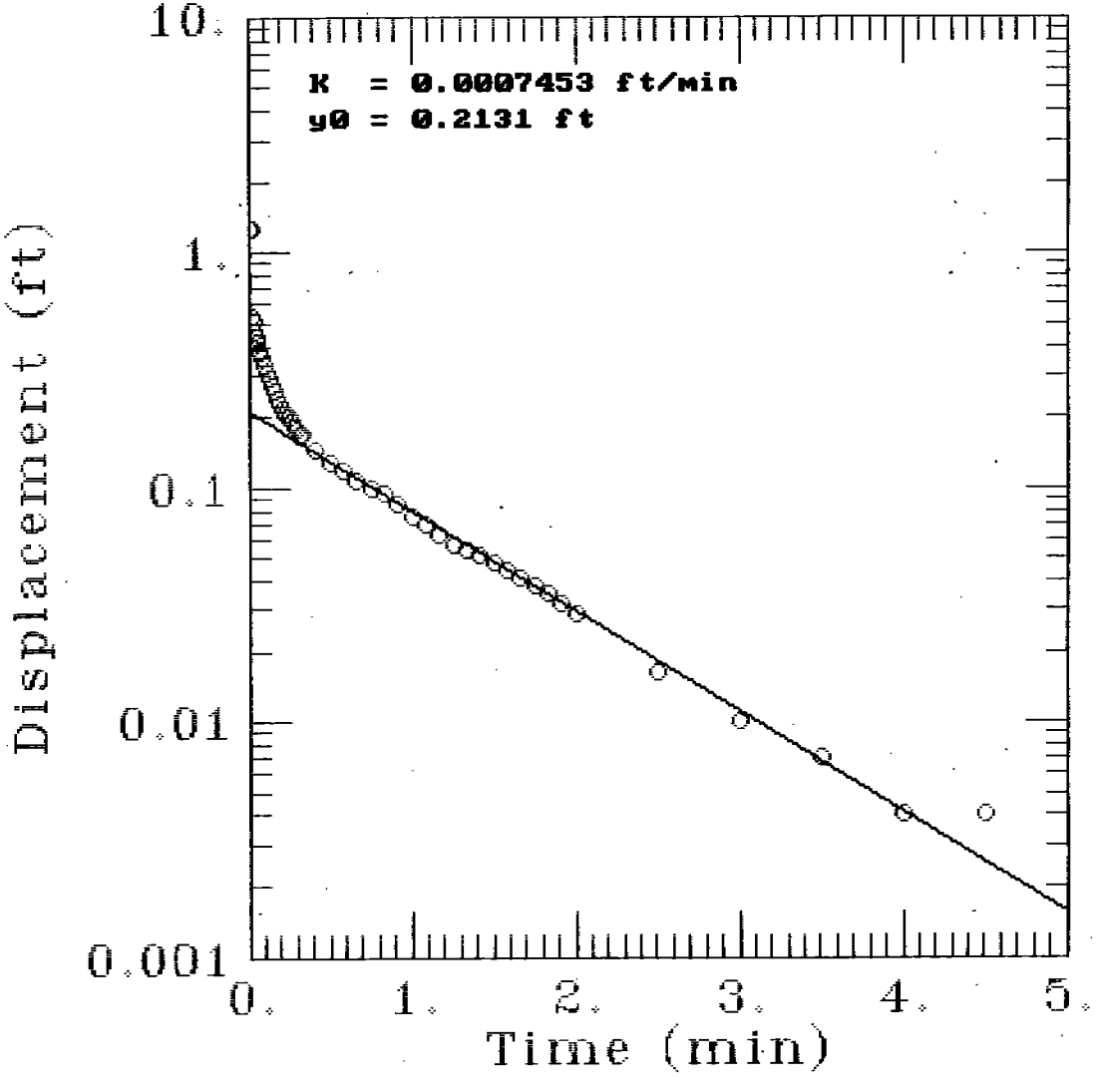

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GERAGHTY & MILLER, INC.

Modeling Group

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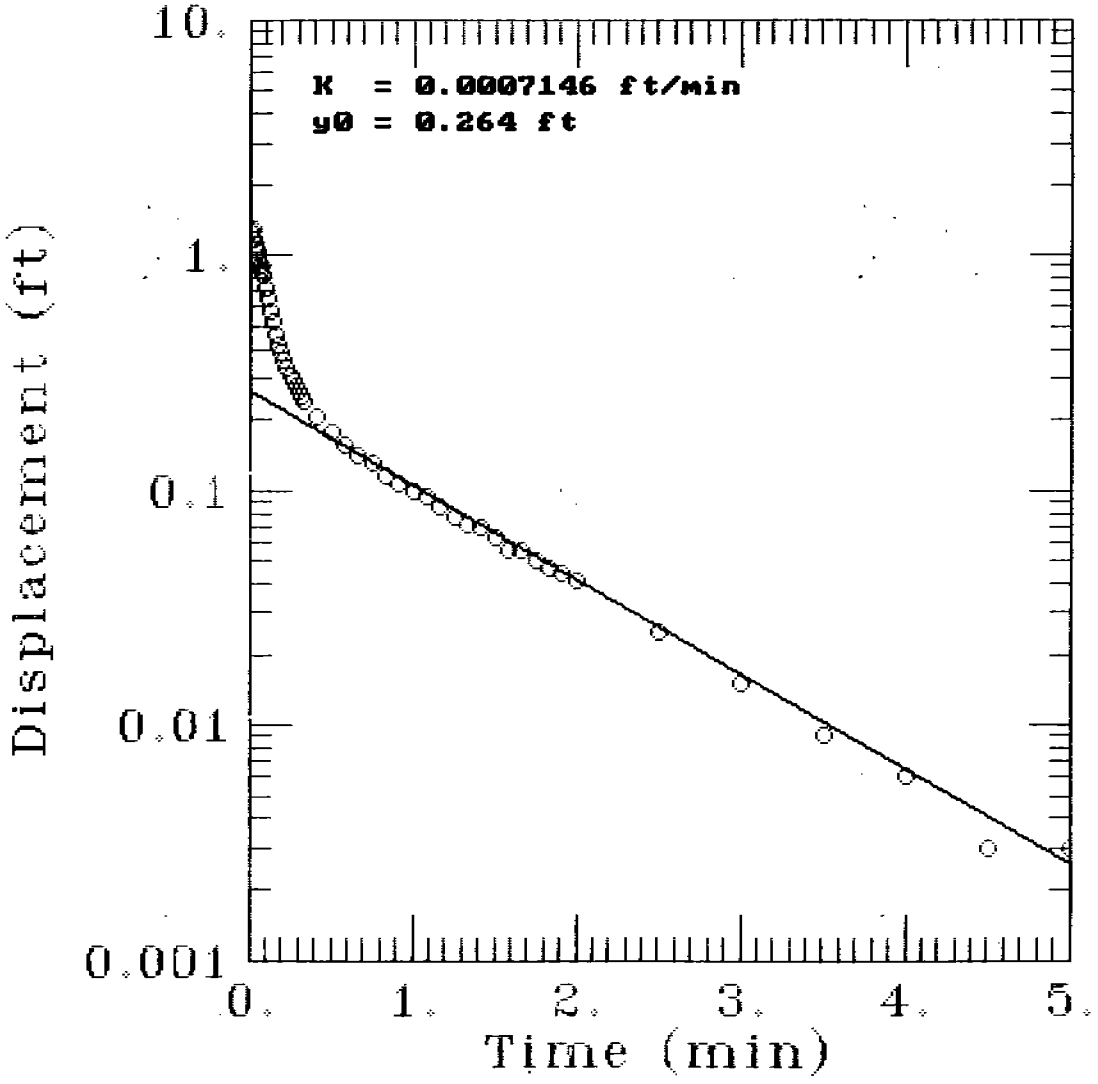

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GERAGHTY & MILLER, INC.

Modeling Group

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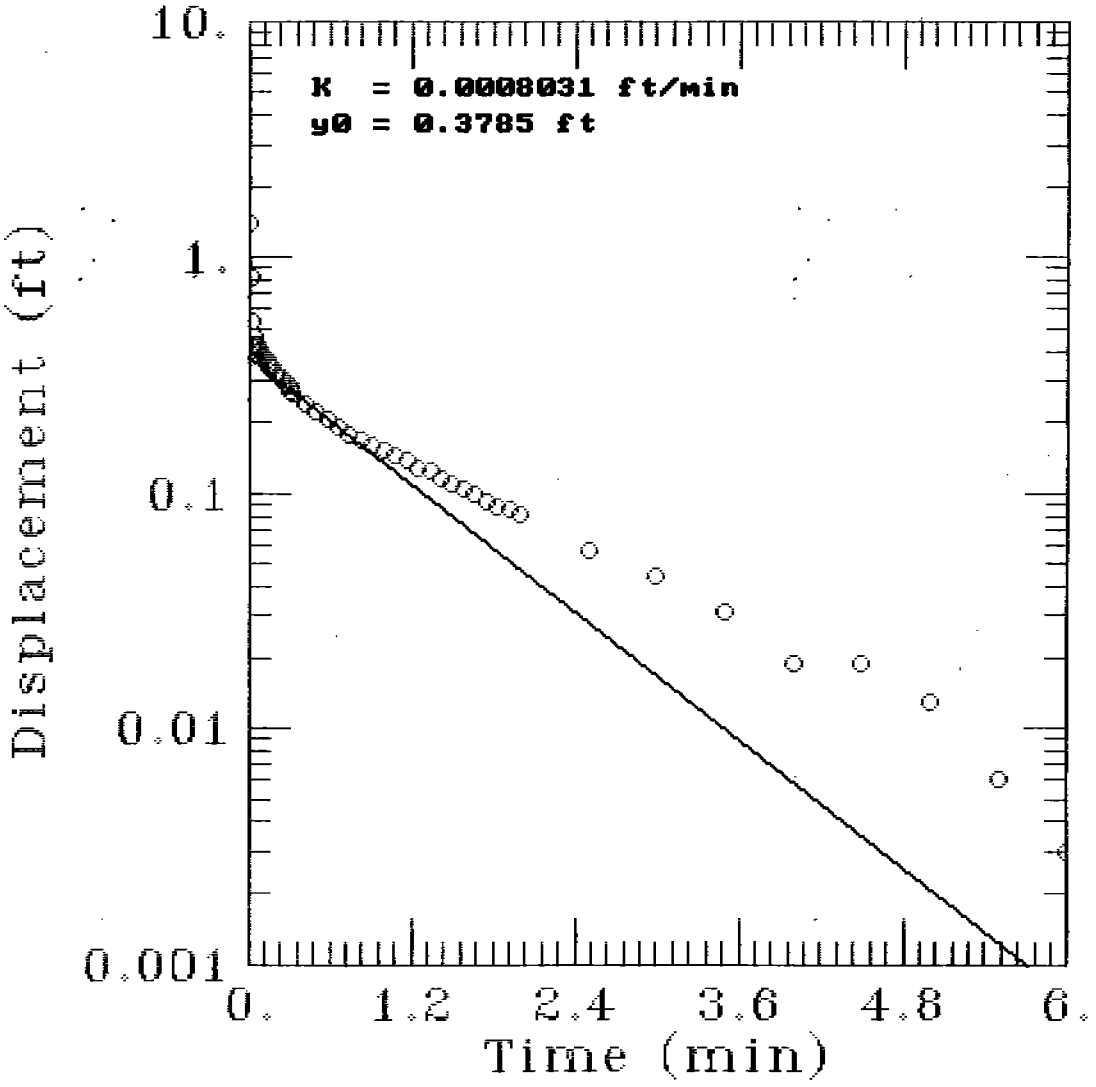

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GERAGHTY & MILLER, INC.

Modeling Group

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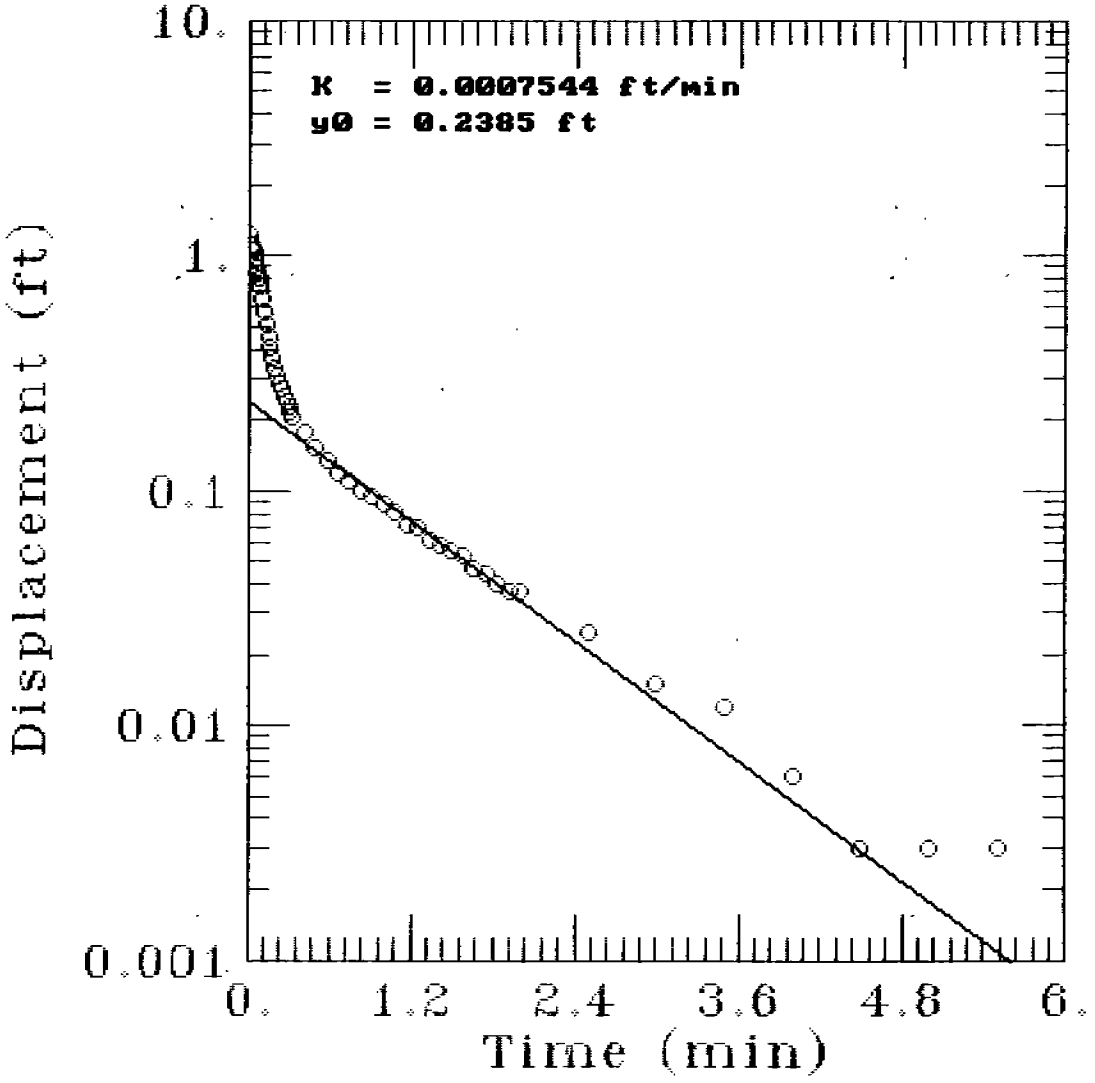

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GERAGHTY & MILLER, INC.

Modeling Group

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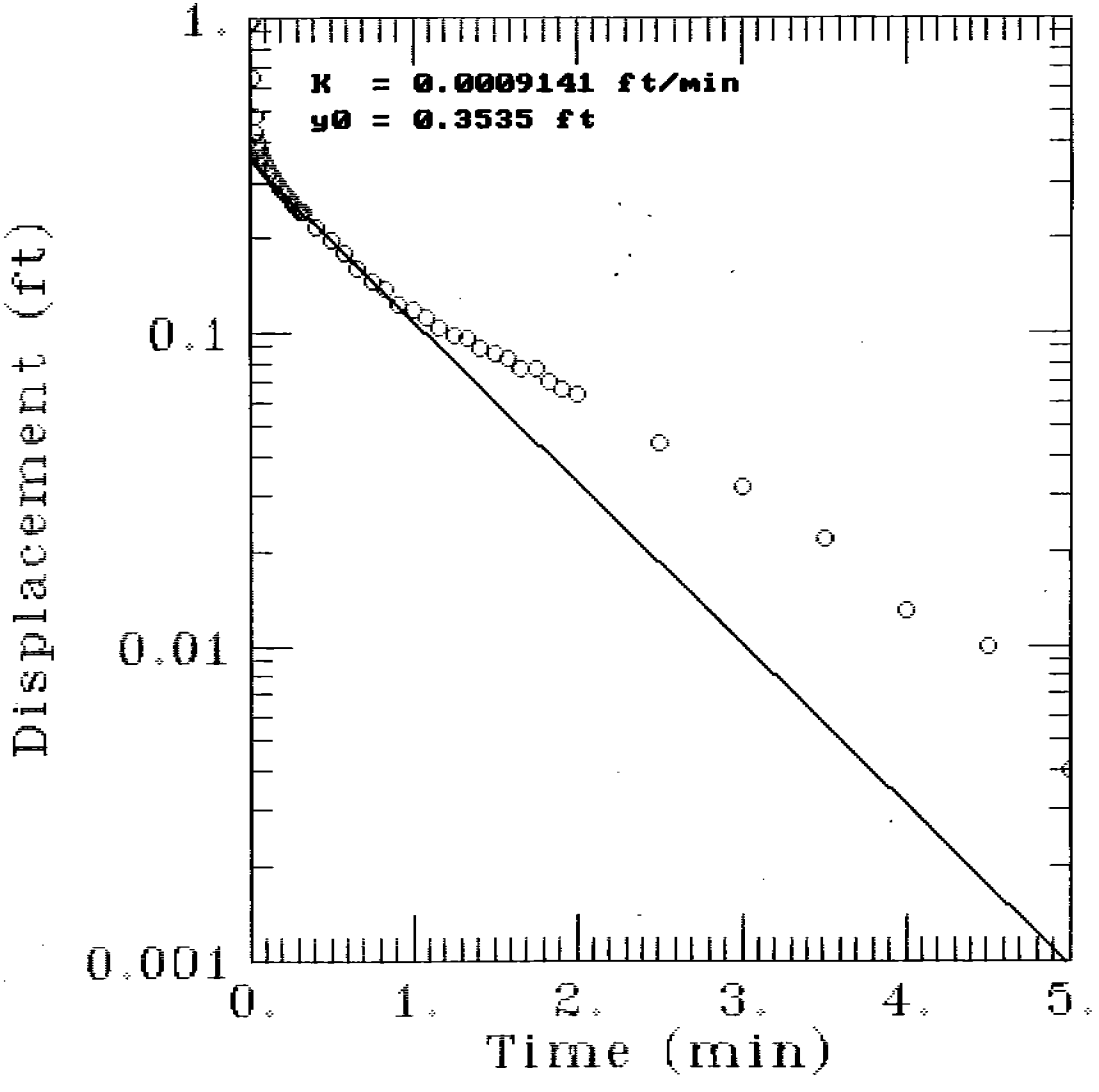

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GERAGHTY & MILLER, INC.

Modeling Group

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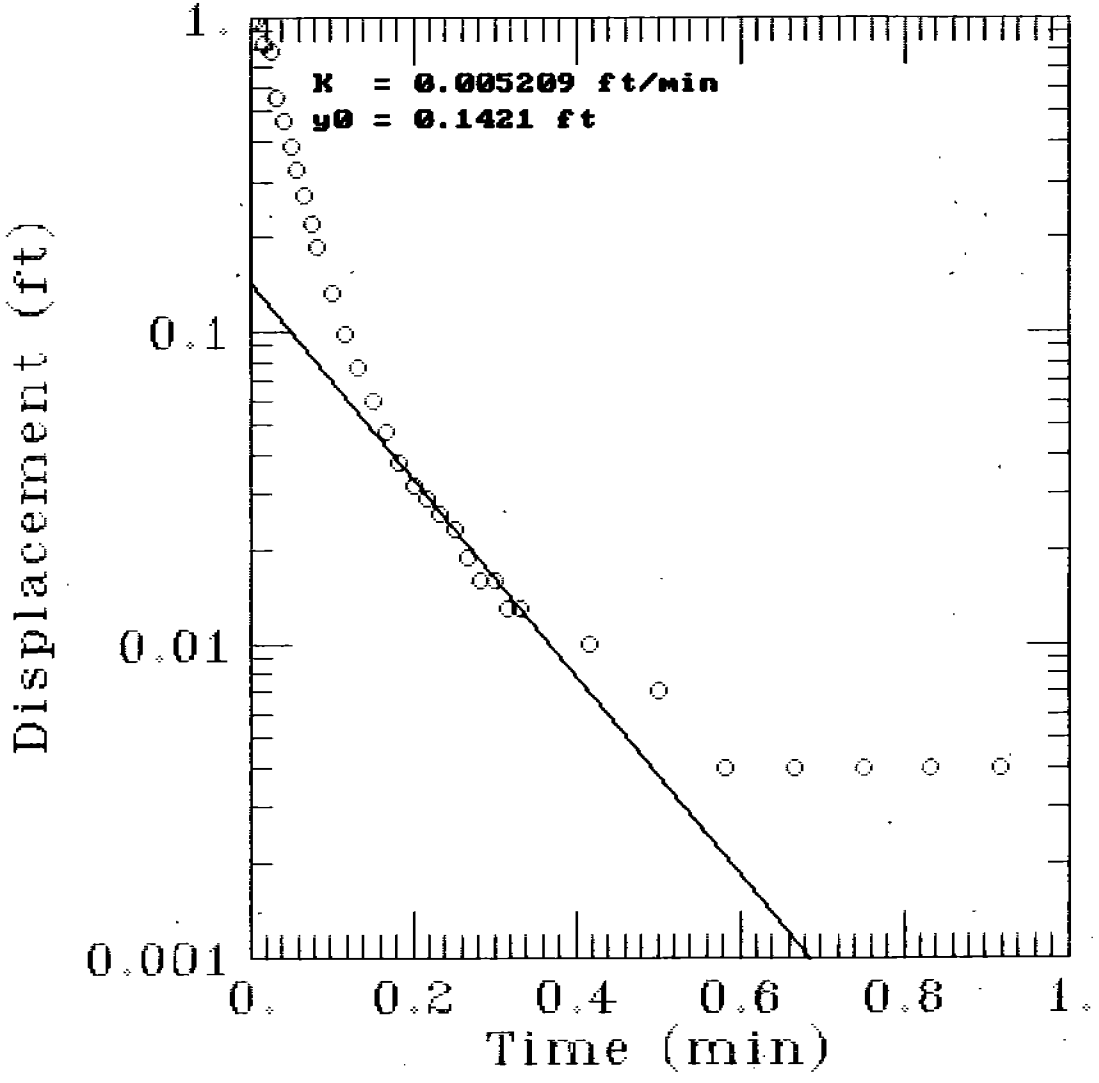

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GERAGHTY & MILLER, INC.

Modeling Group

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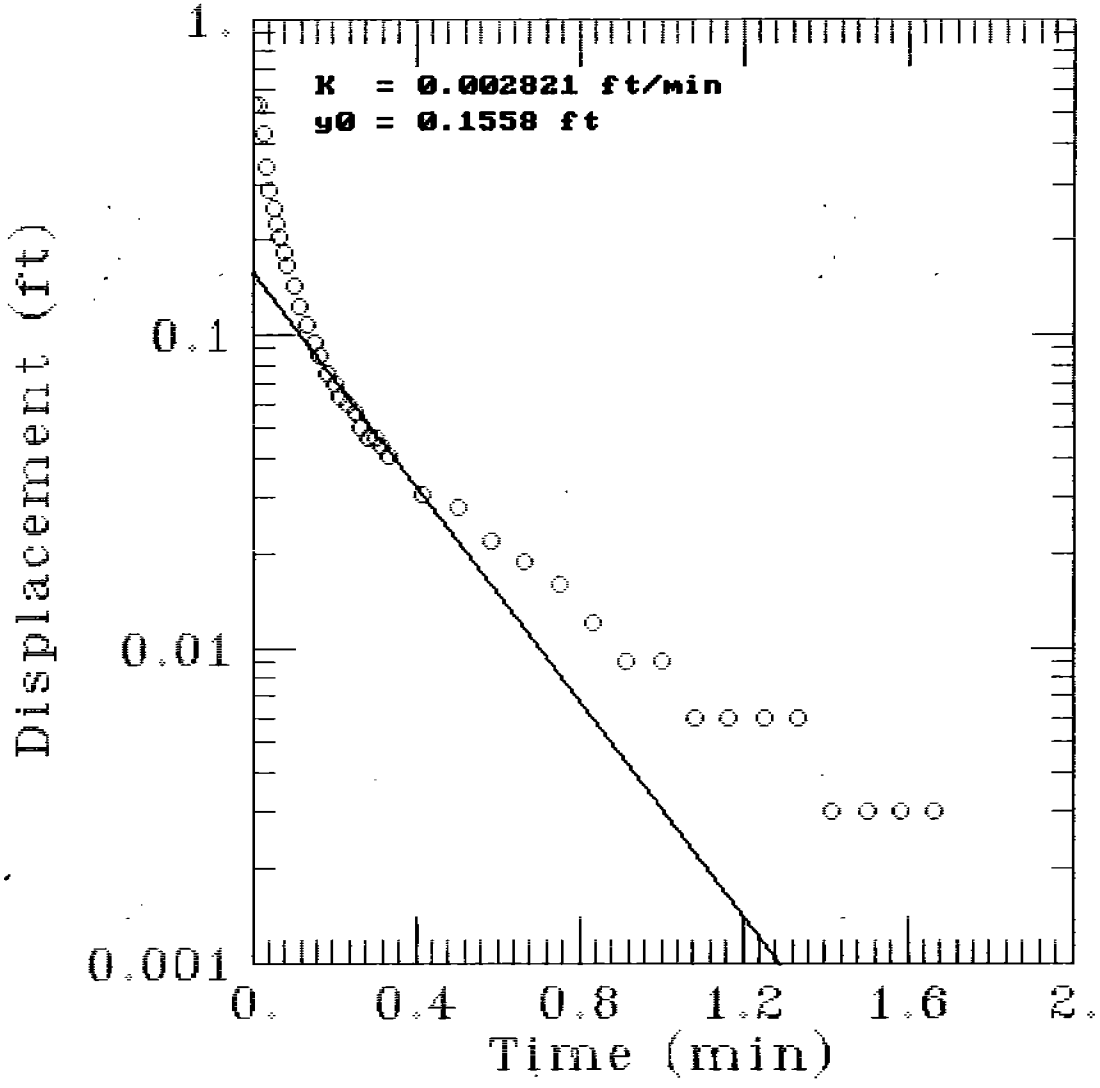

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GERAGHTY & MILLER, INC.

Modeling Group

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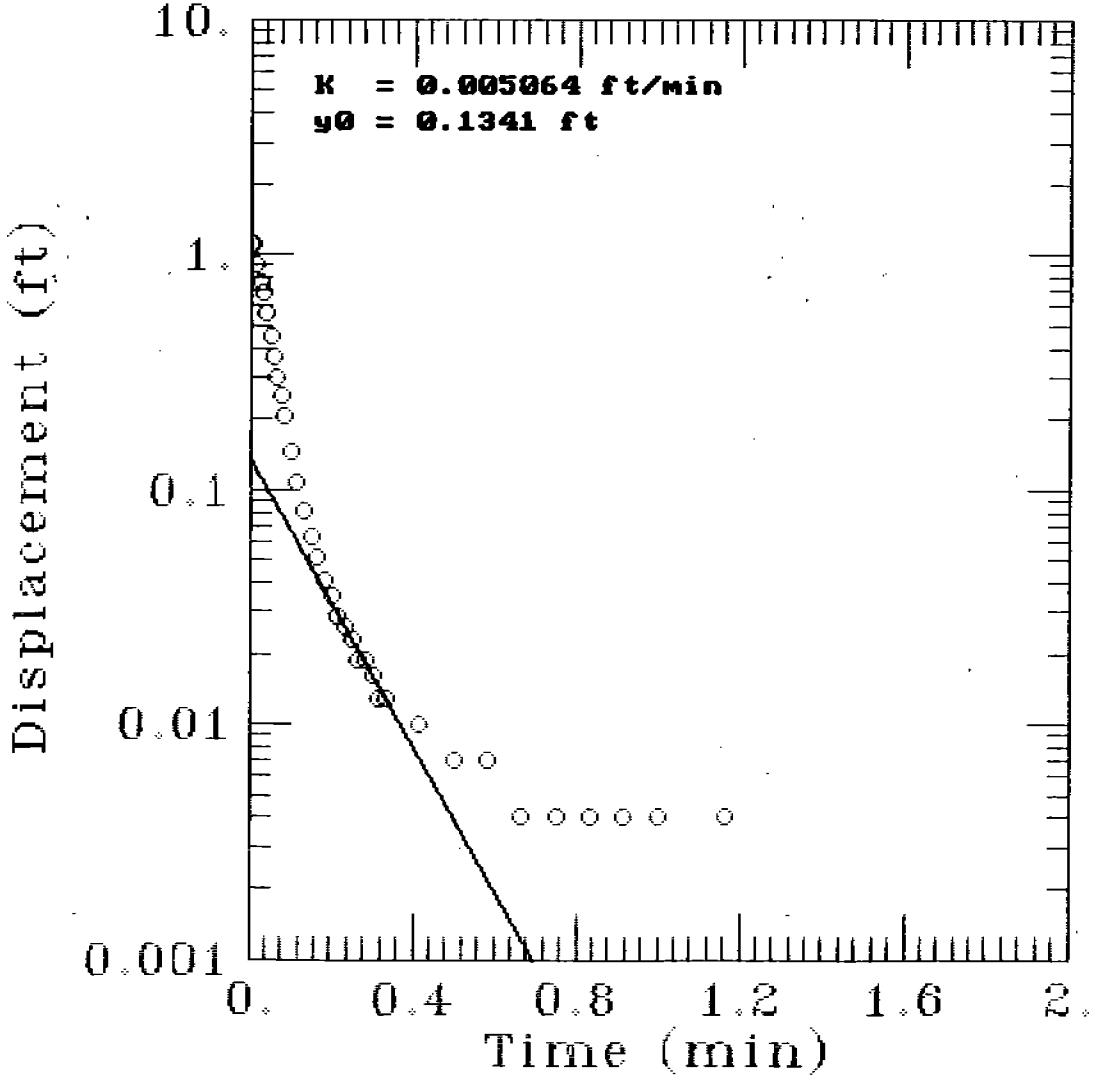

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GERAGHTY & MILLER, INC.

Modeling Group

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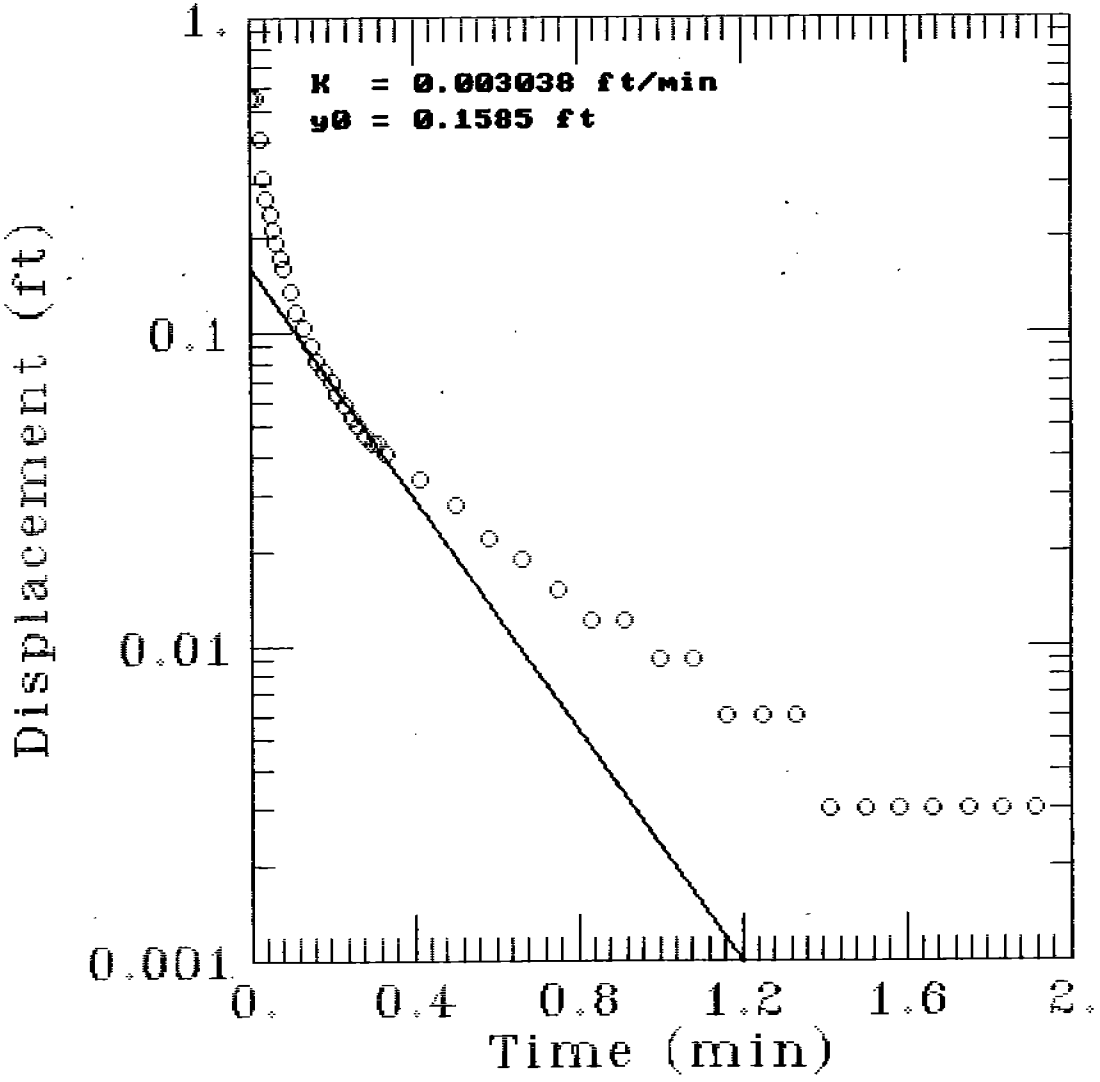

AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

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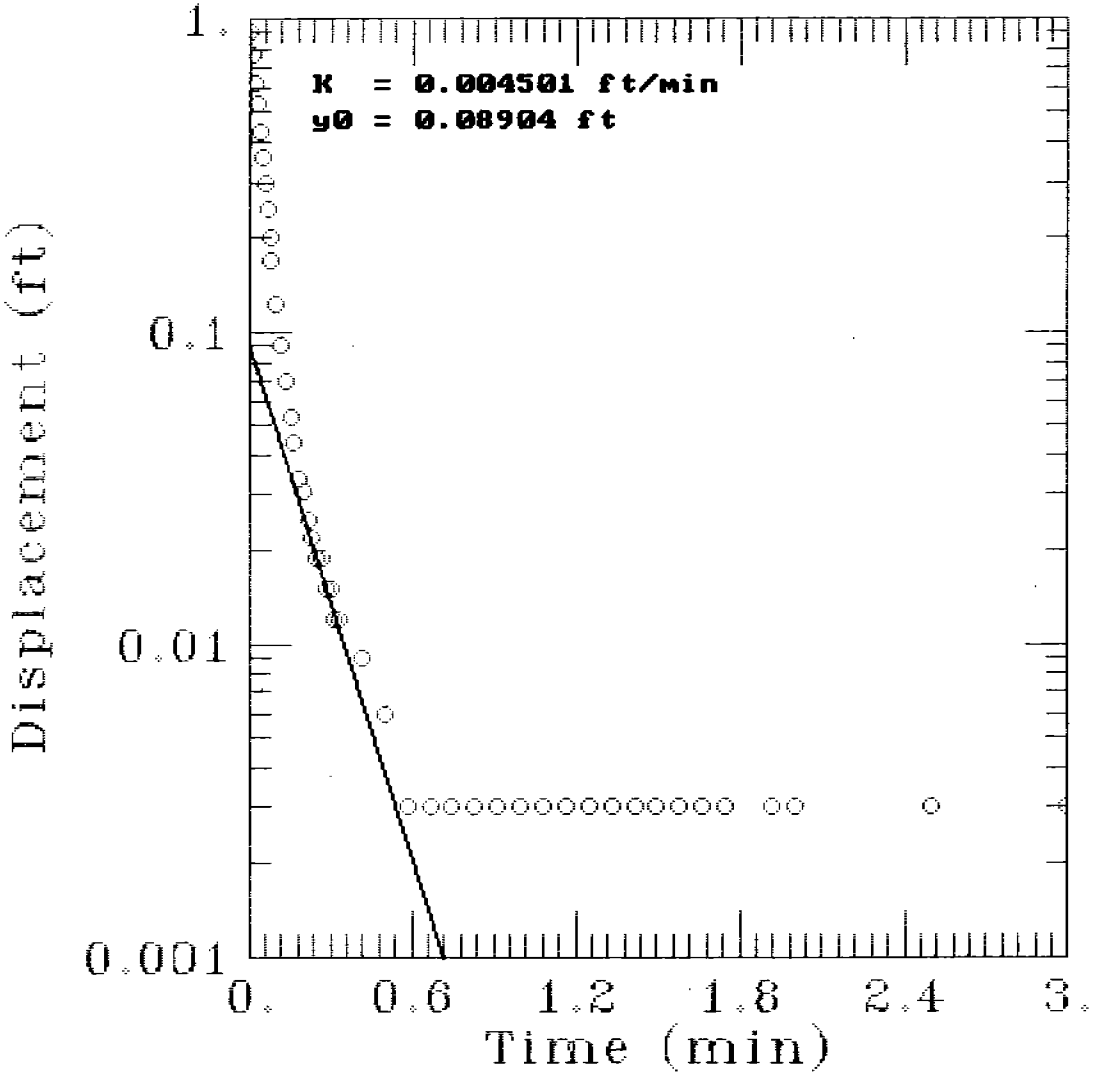

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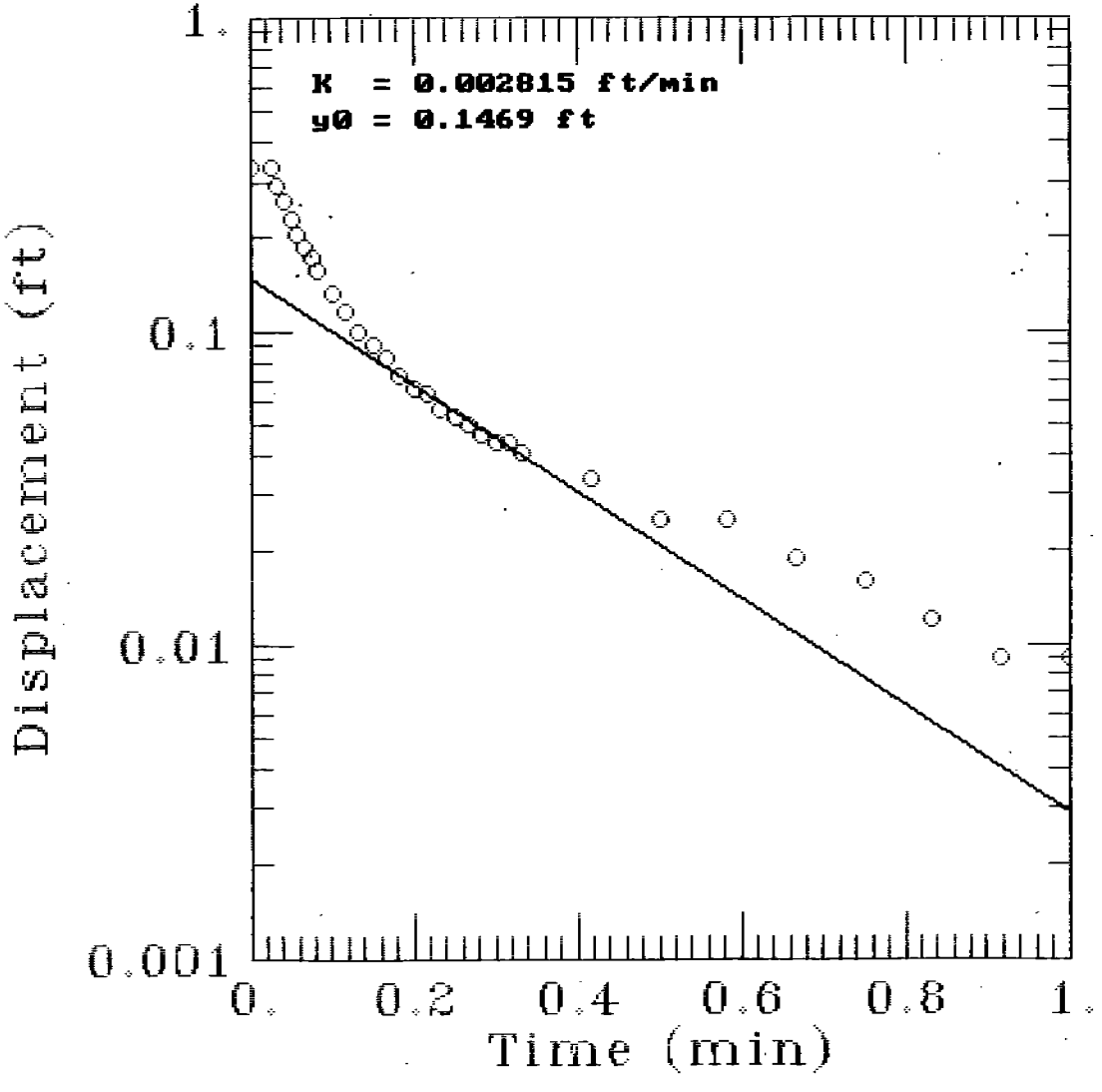
GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-8-P2 RUN#1



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GERAGHTY & MILLER, INC.

Modeling Group

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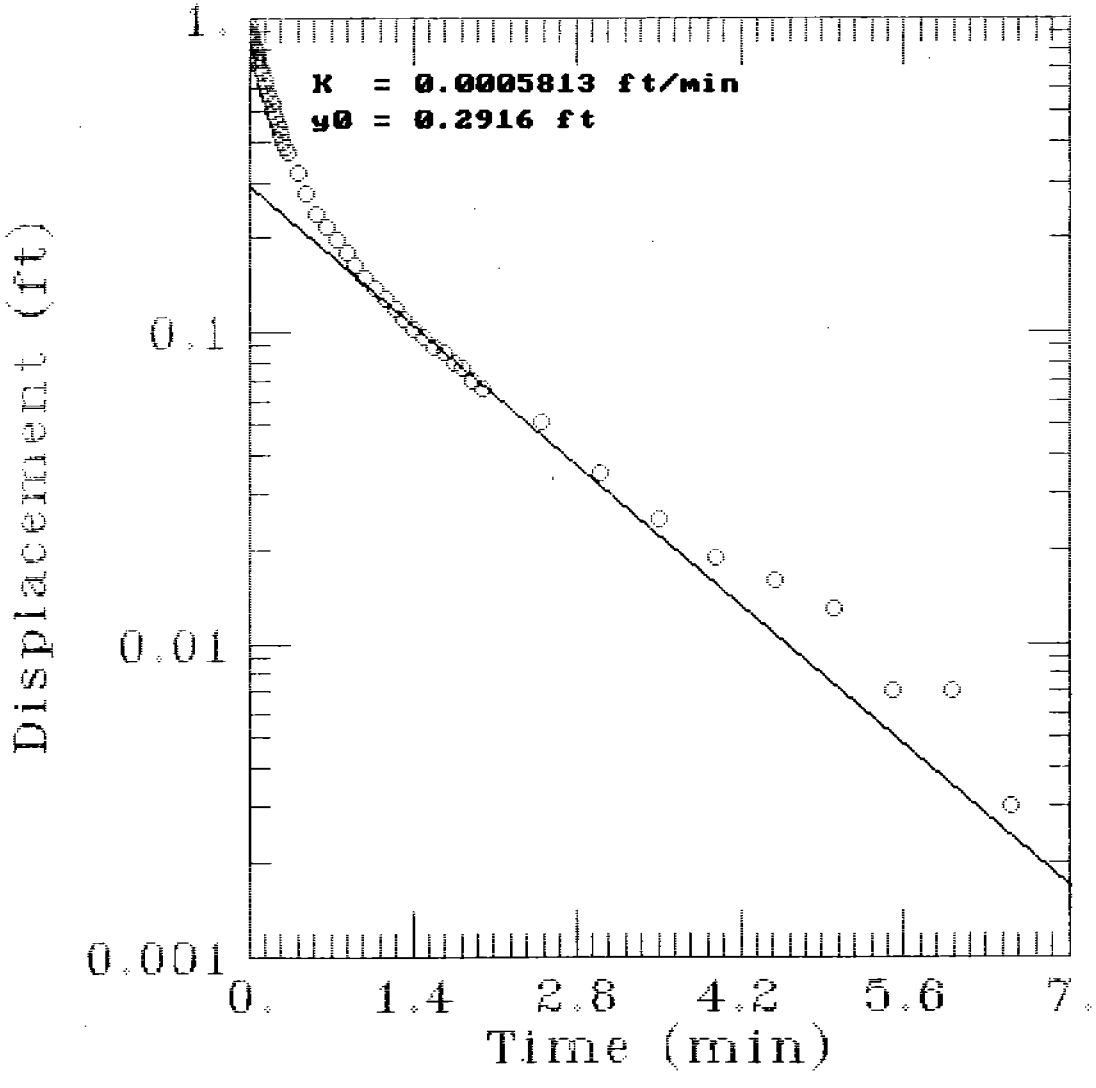

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GERAGHTY & MILLER, INC.

Modeling Group

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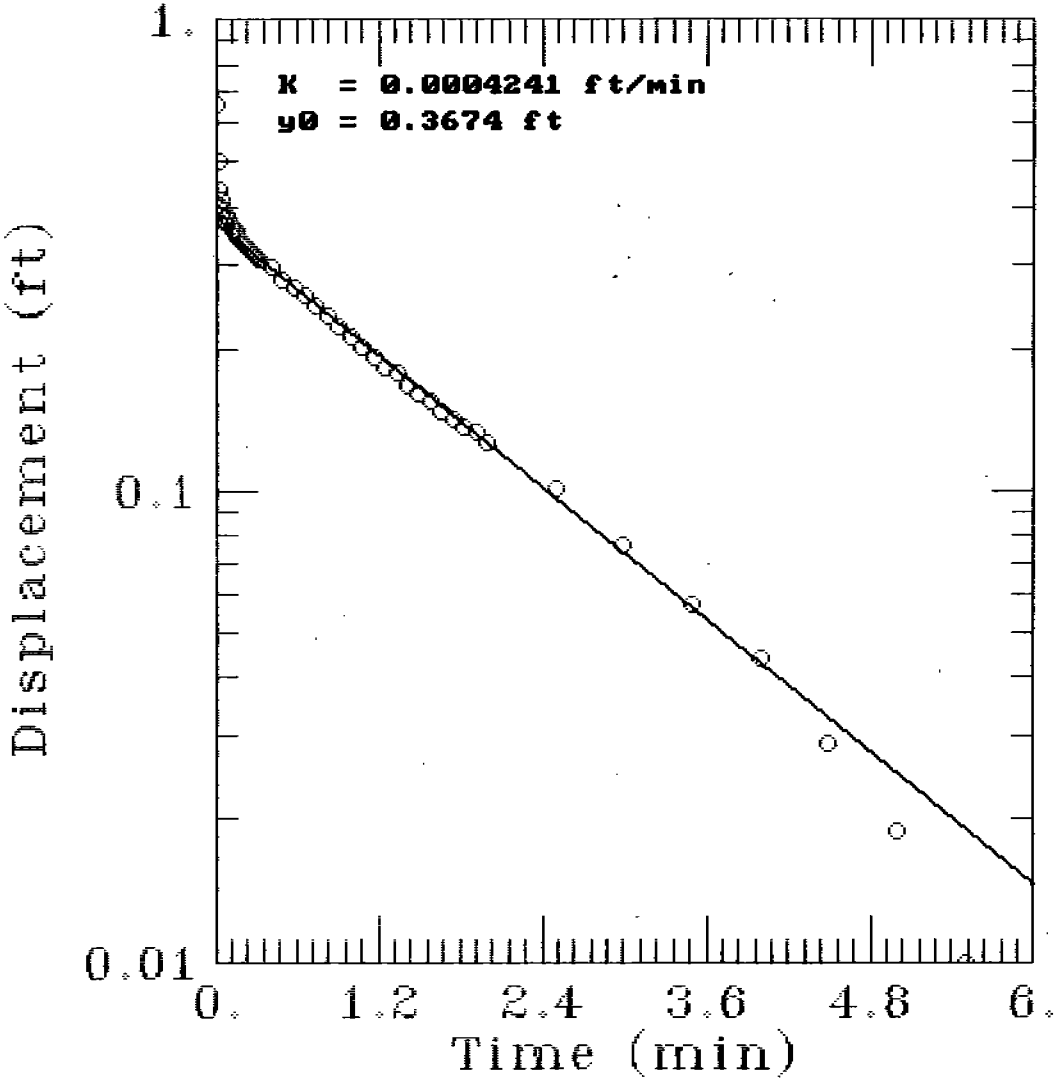

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GERAGHTY & MILLER, INC.

Modeling Group

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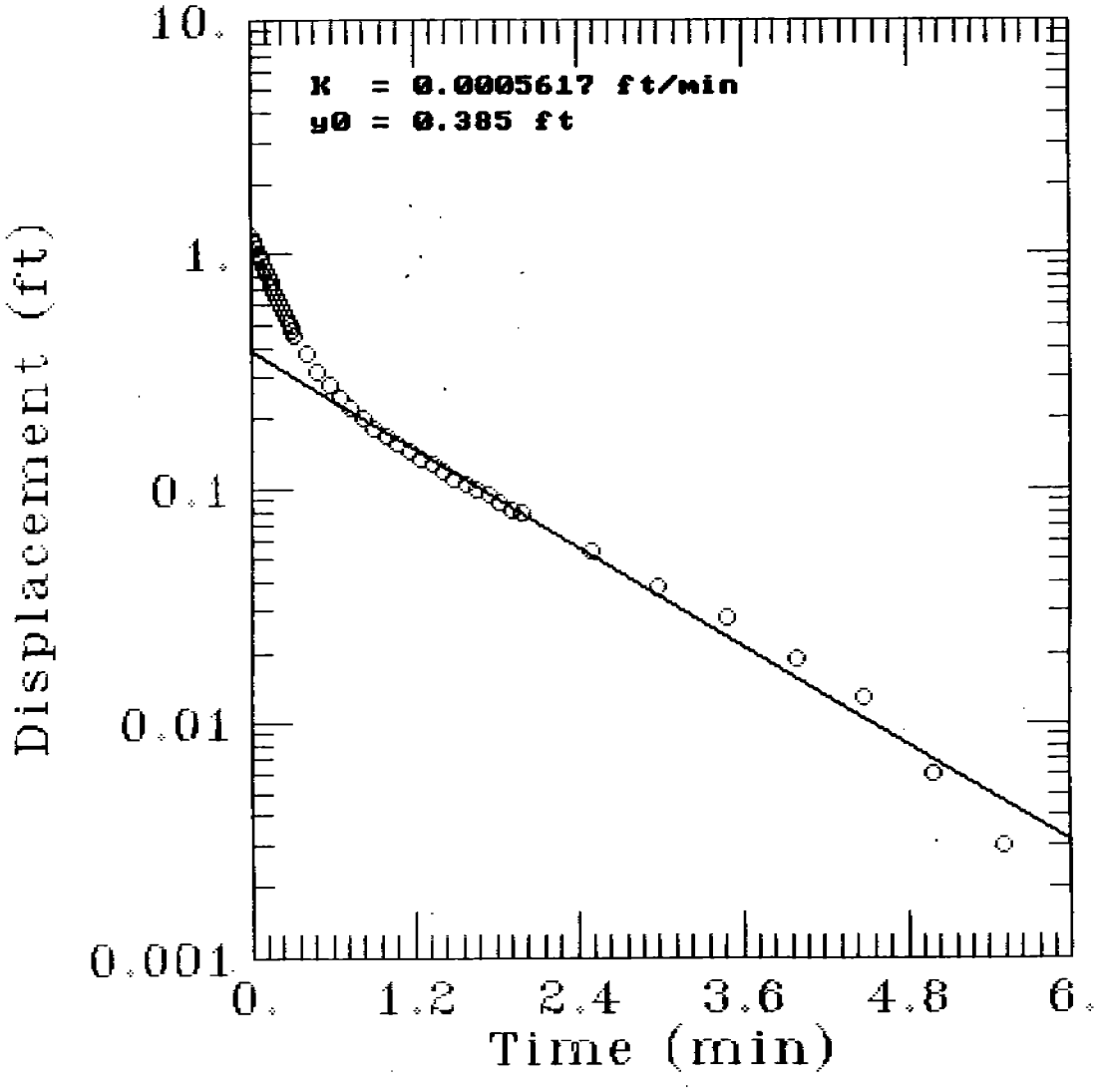

AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

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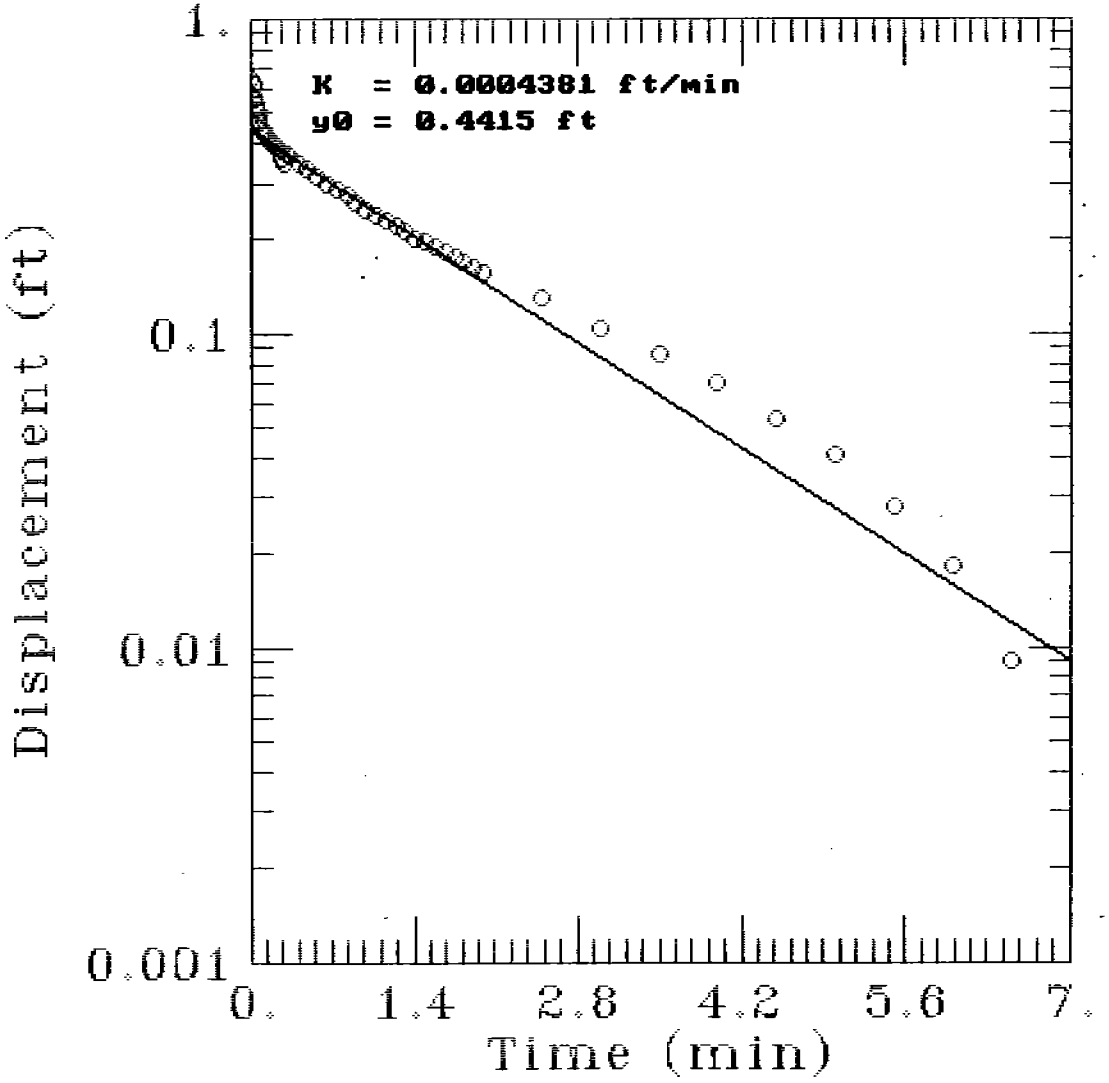

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GERAGHTY & MILLER, INC.

Modeling Group

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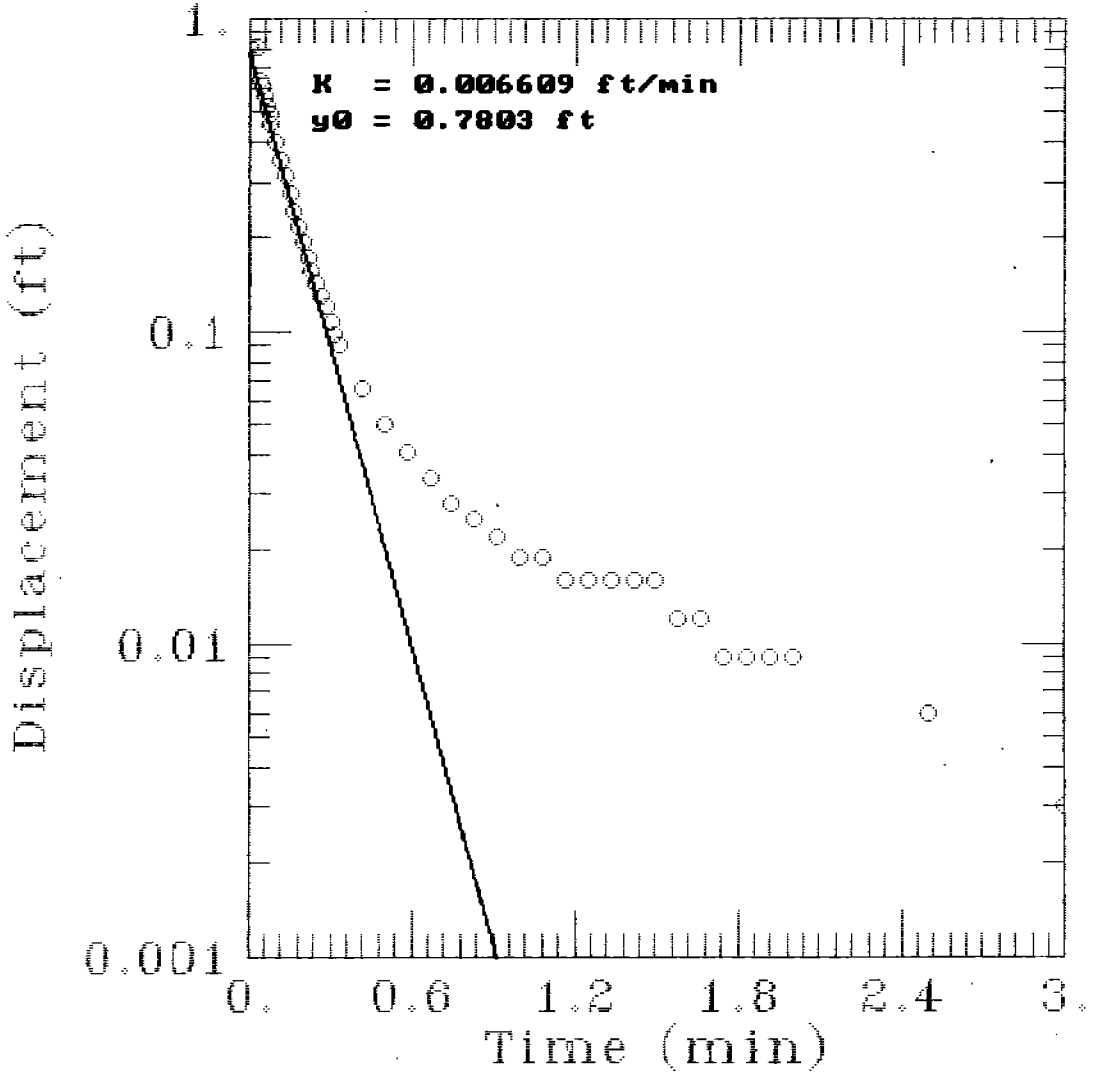

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GERAGHTY & MILLER, INC.

Modeling Group

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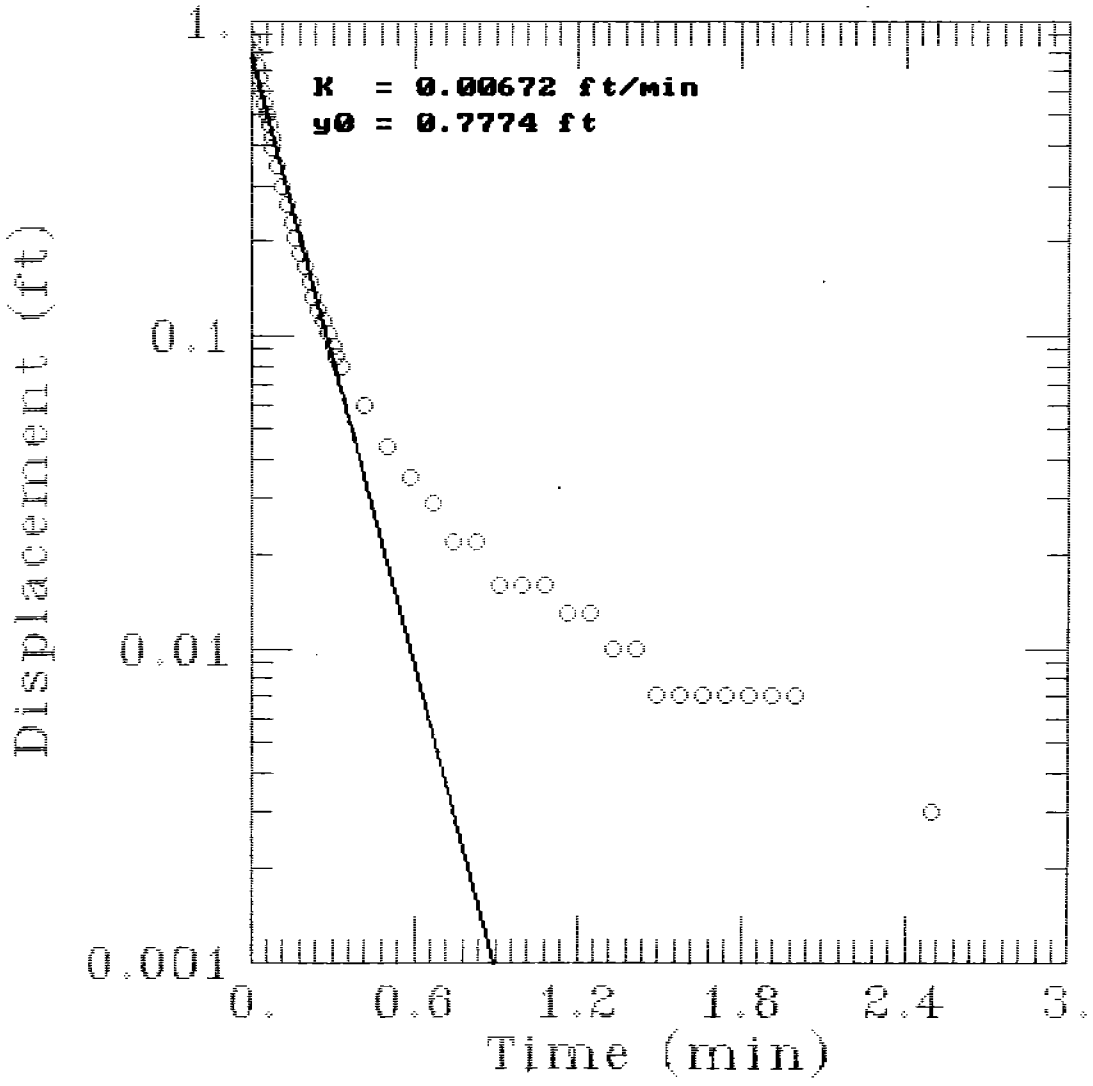

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Modeling Group

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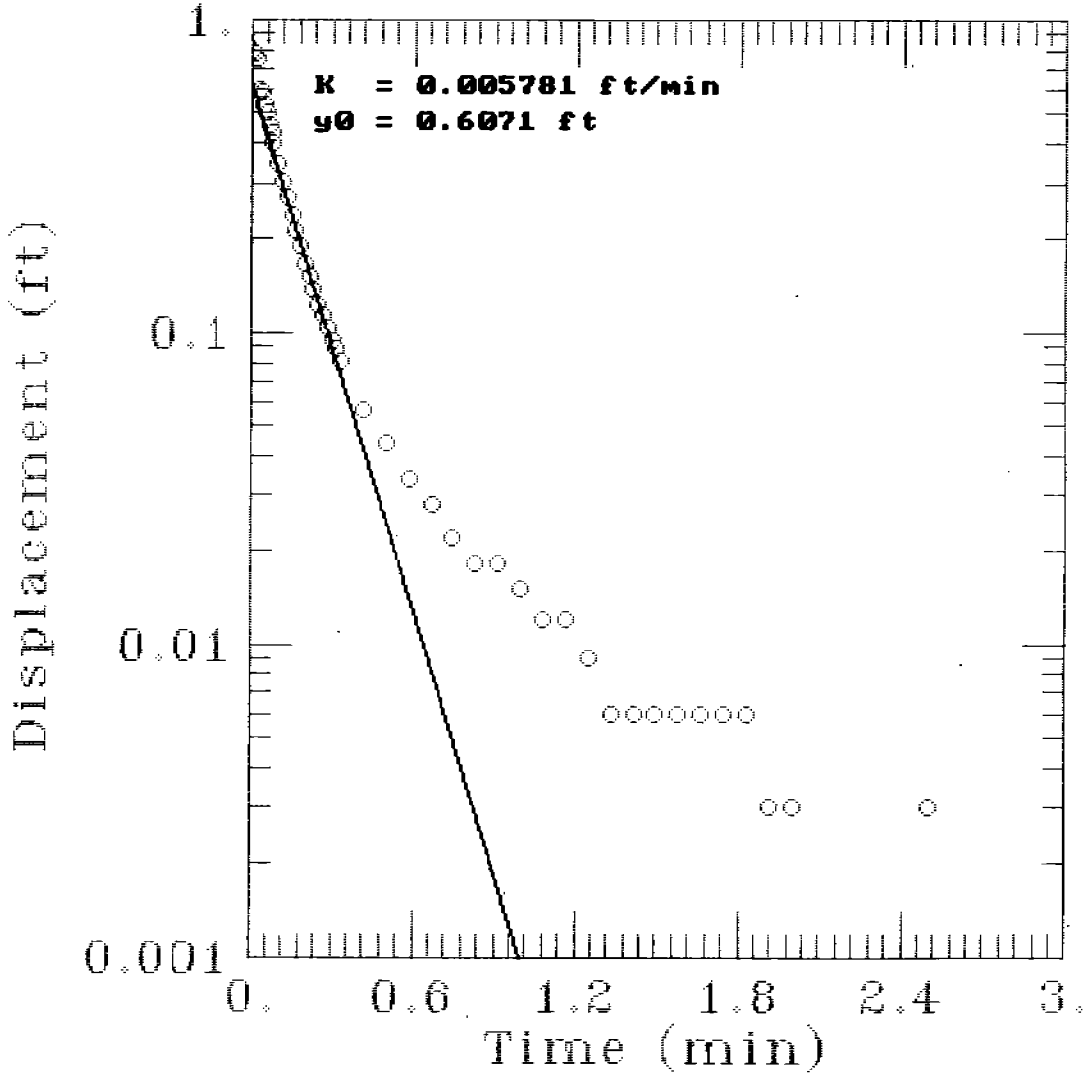

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GERAGHTY & MILLER, INC.

Modeling Group

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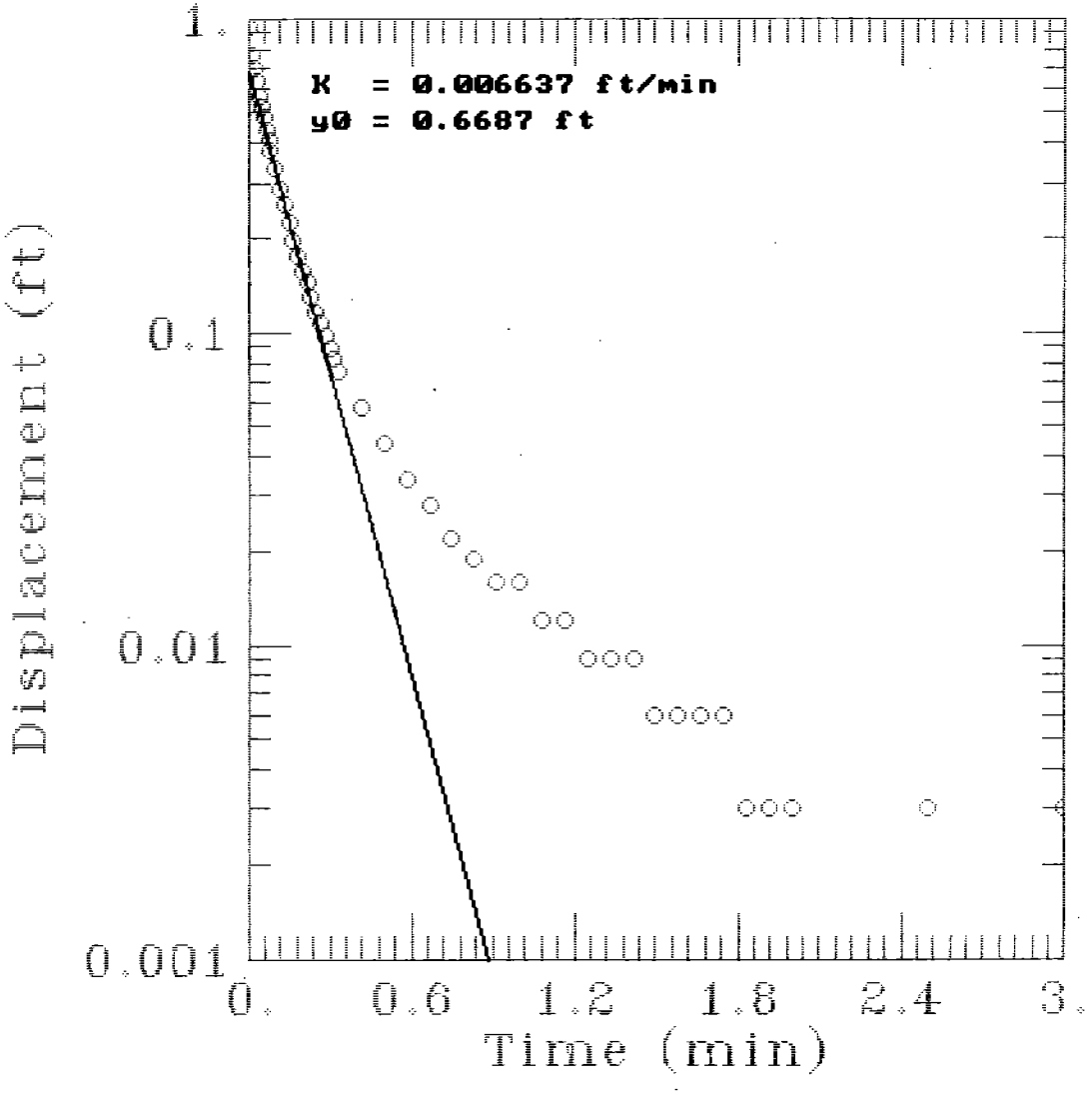

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GERAGHTY & MILLER, INC.

Modeling Group

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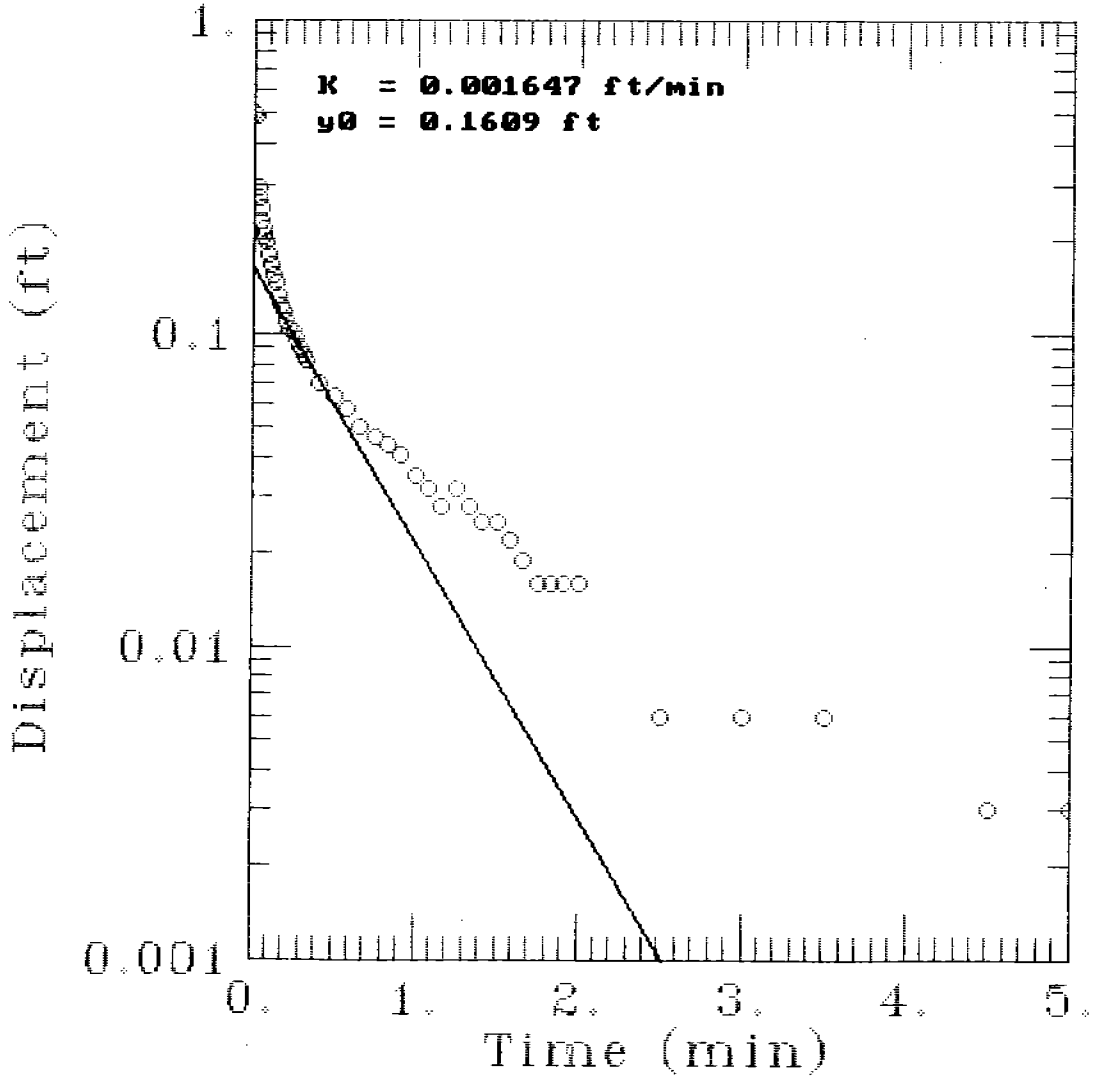

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GERAGHTY & MILLER, INC.

Modeling Group

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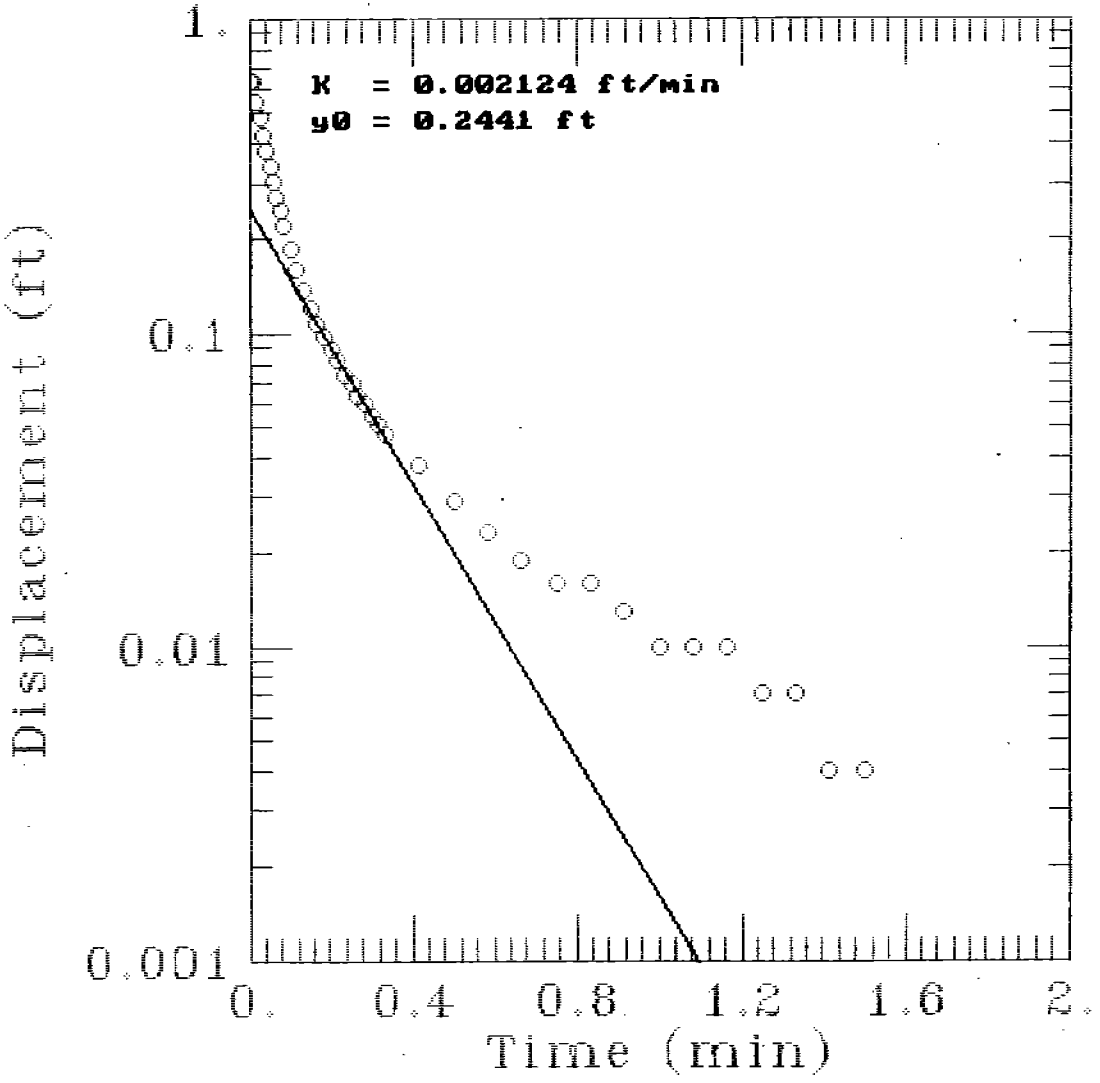

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Modeling Group

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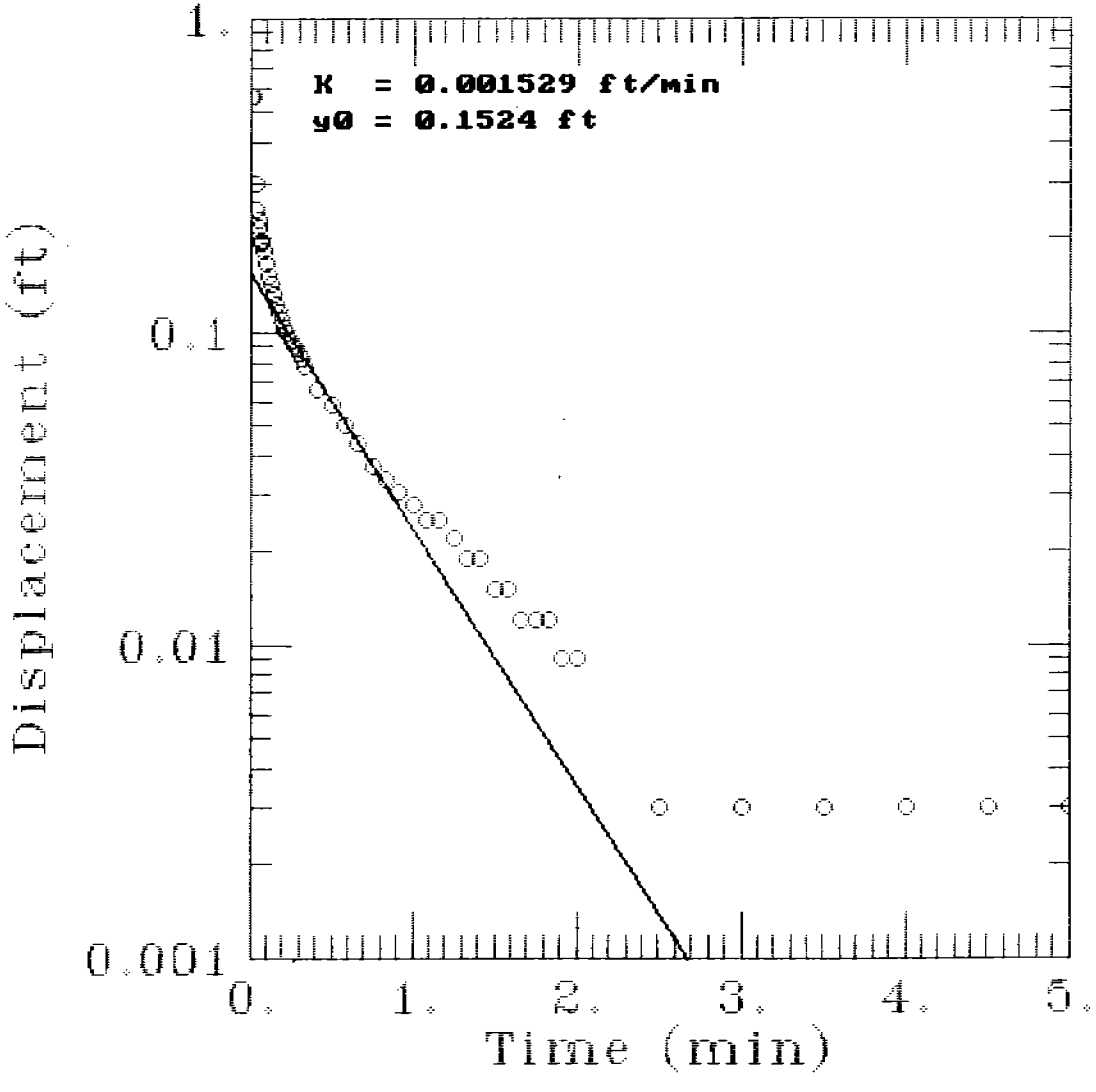

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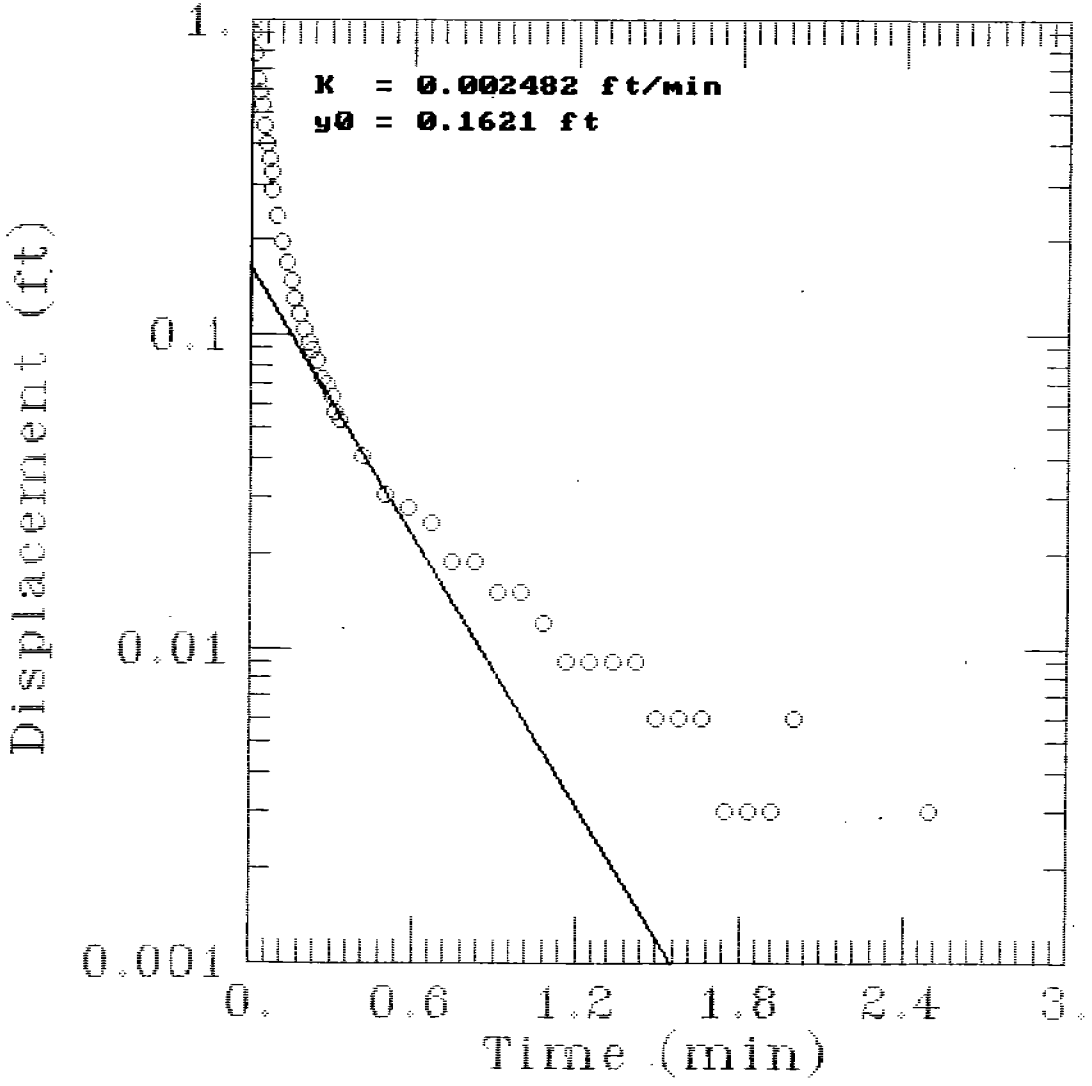

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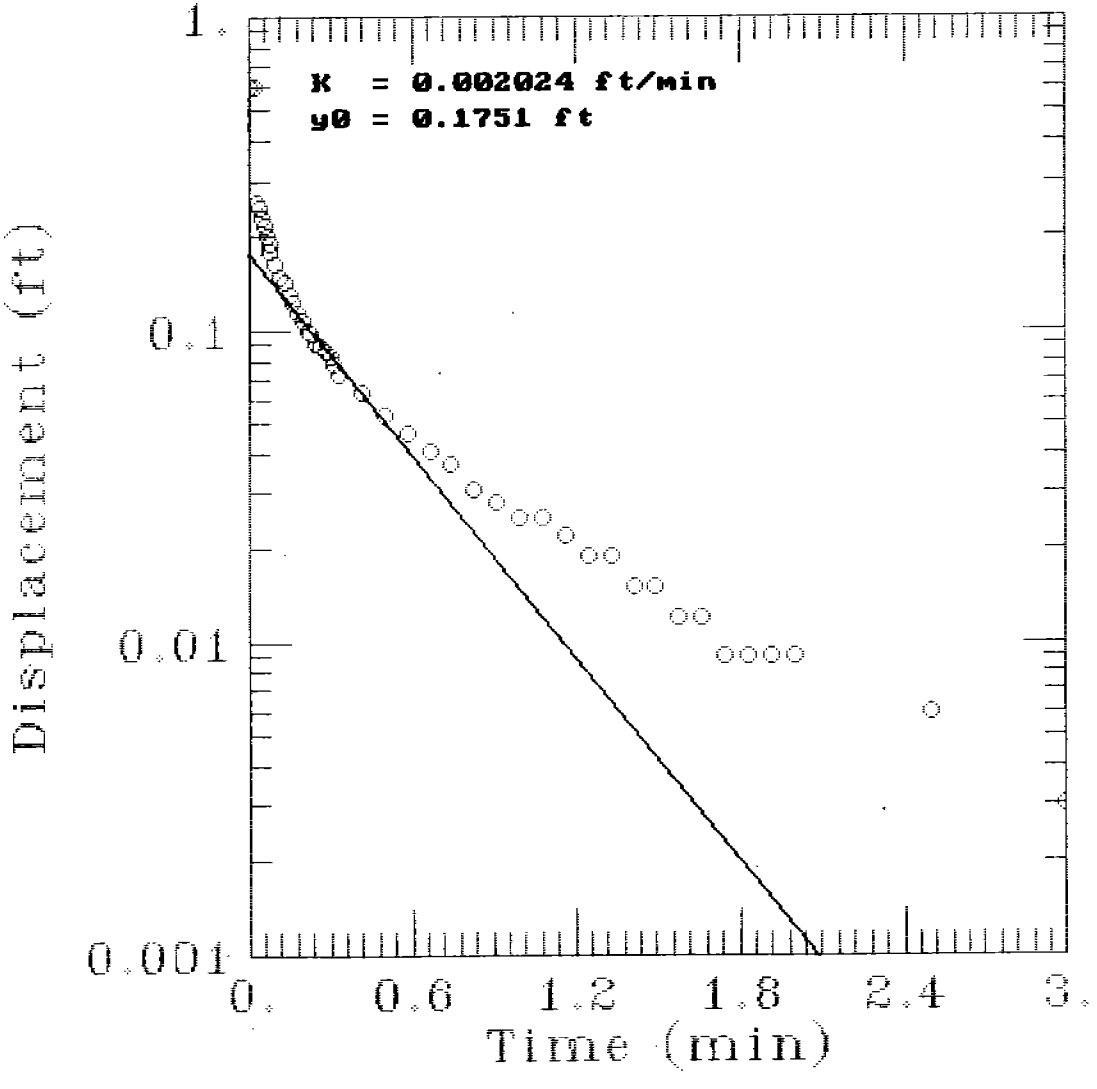

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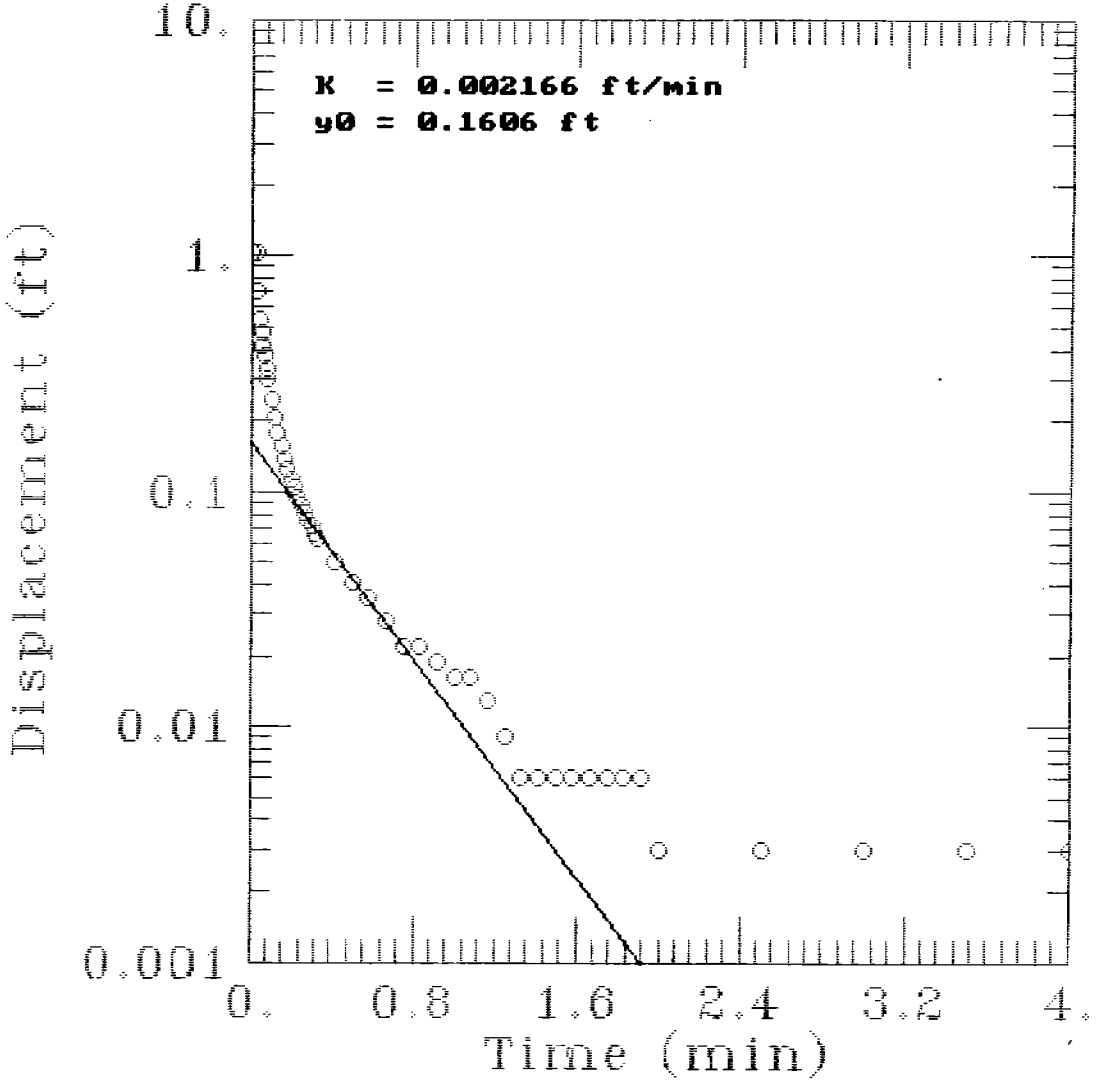
GERAGHTY & MILLER, INC.

Modeling Group

Mayport MPT-15MW-1 Run #6



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GERAGHTY & MILLER, INC.

Modeling Group

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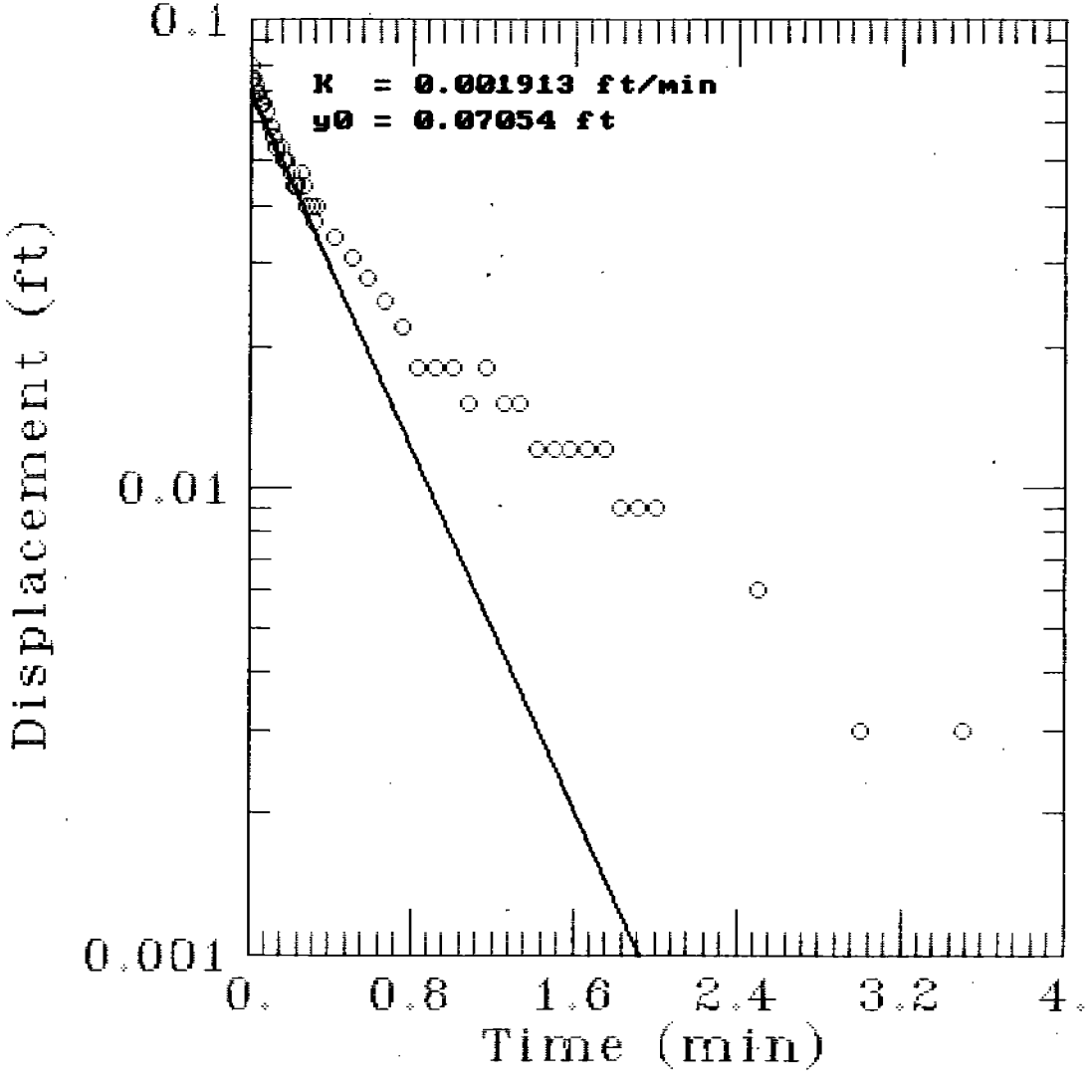

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GERAGHTY & MILLER, INC.

Modeling Group

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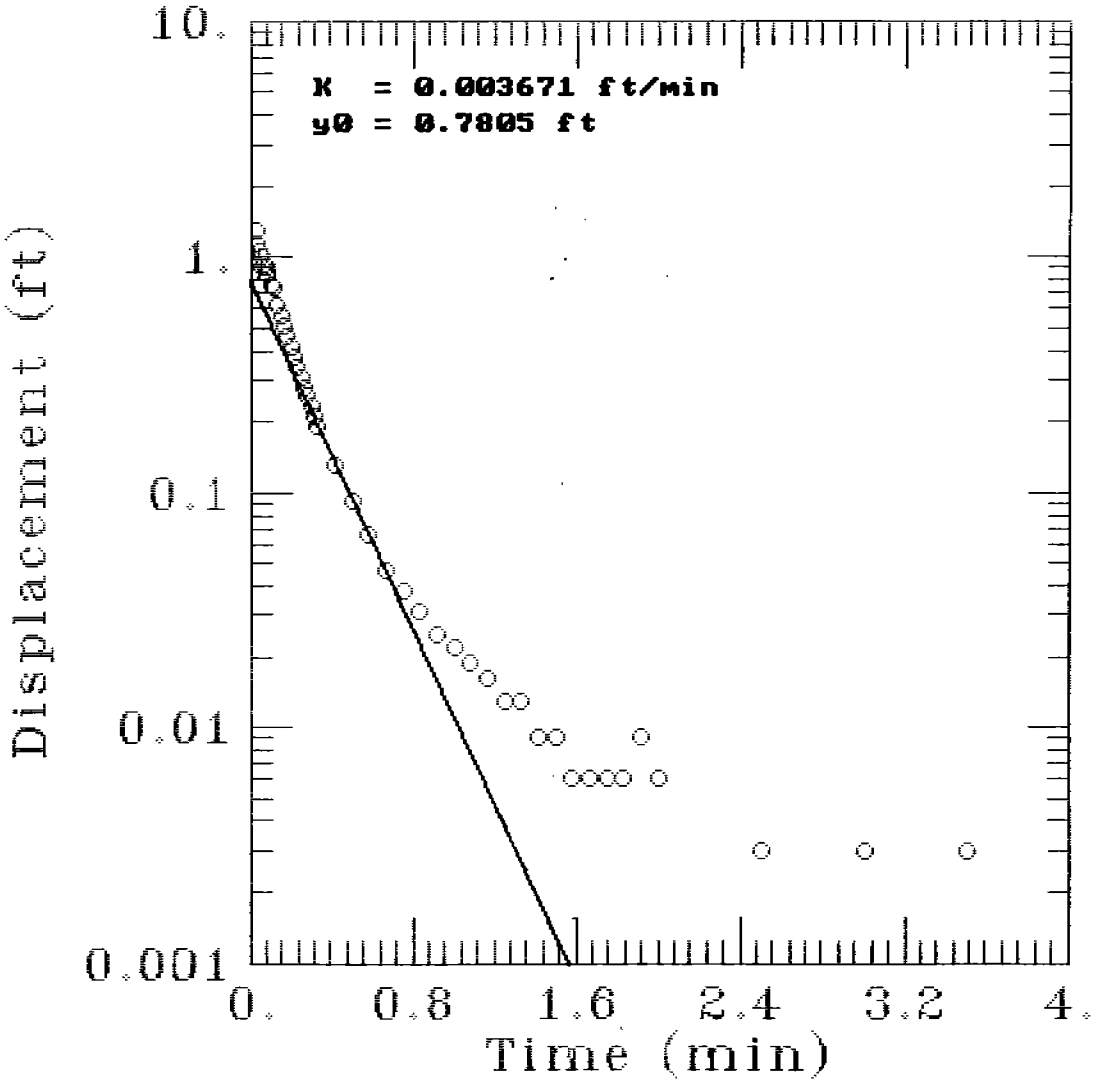

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GERAGHTY & MILLER, INC.

Modeling Group

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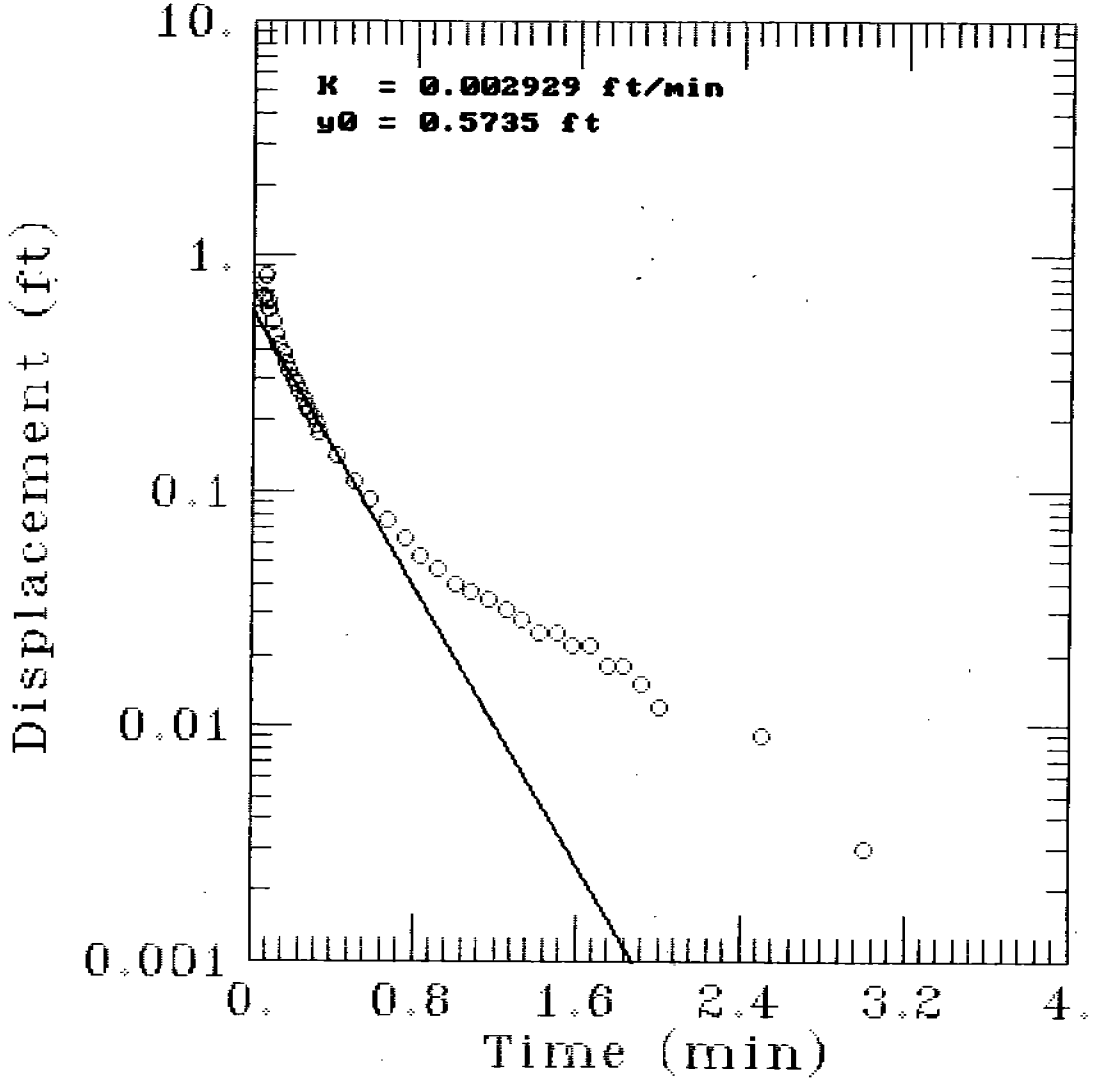

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GERAGHTY & MILLER, INC.

Modeling Group

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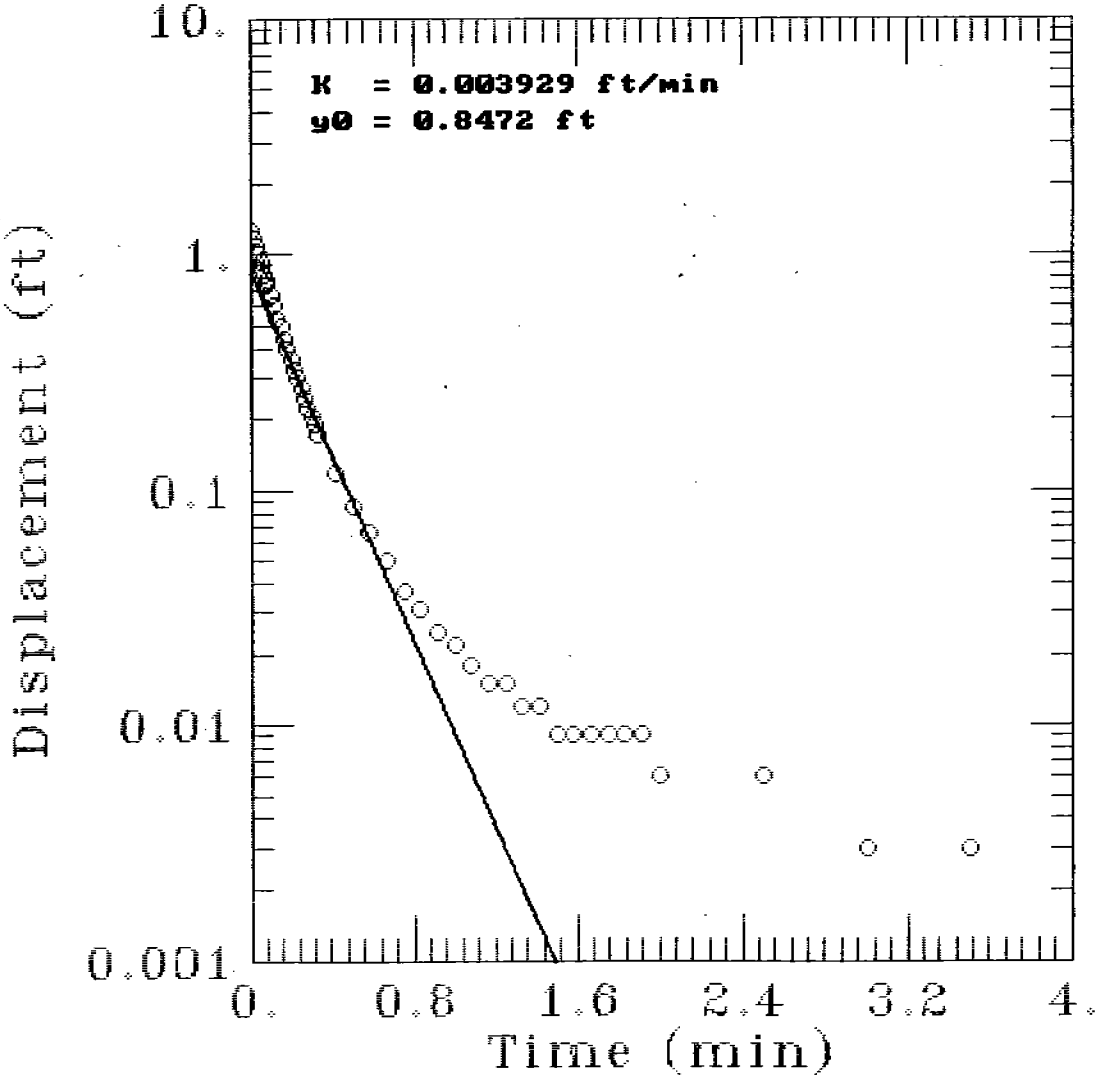

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GERAGHTY & MILLER, INC.

Modeling Group

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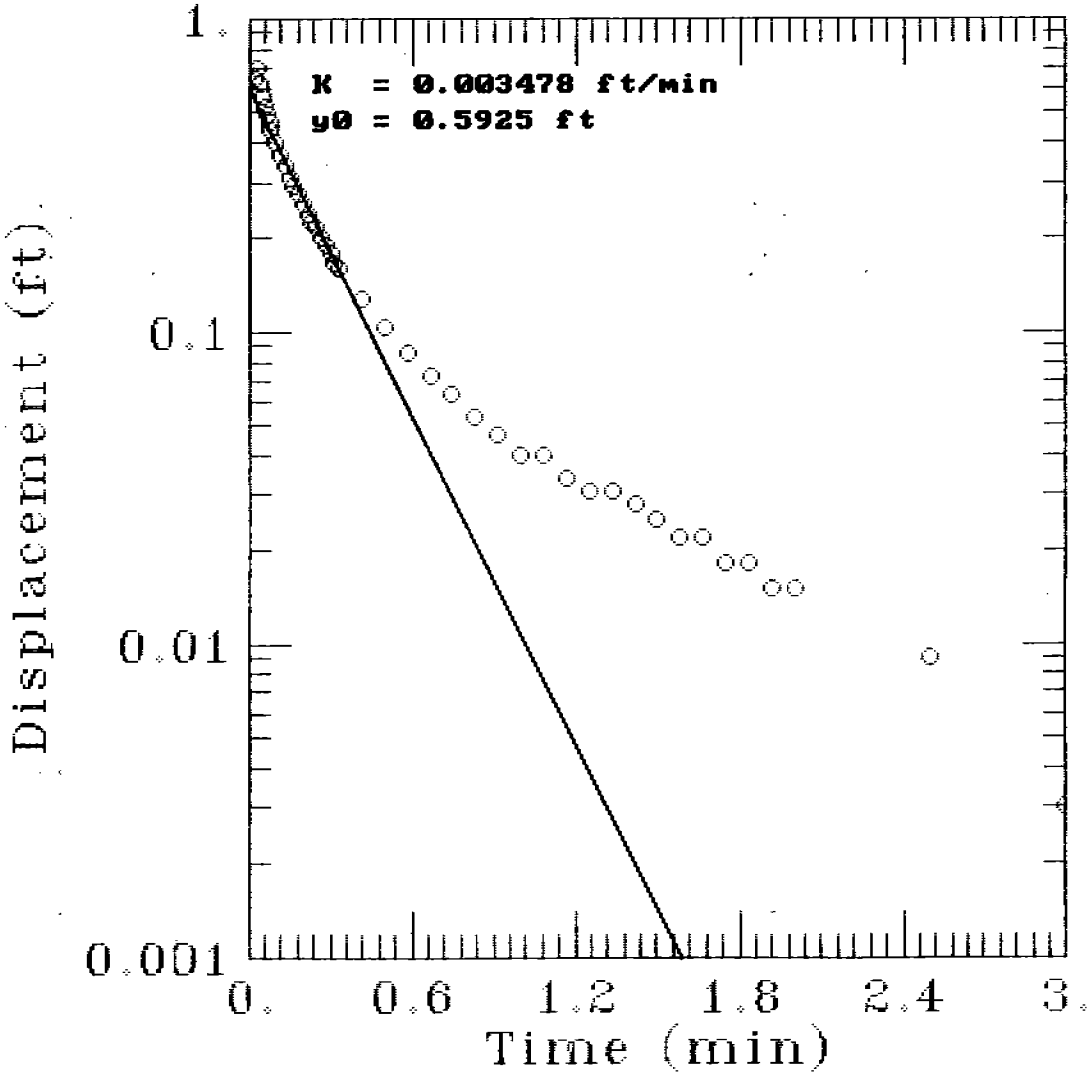

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Modeling Group

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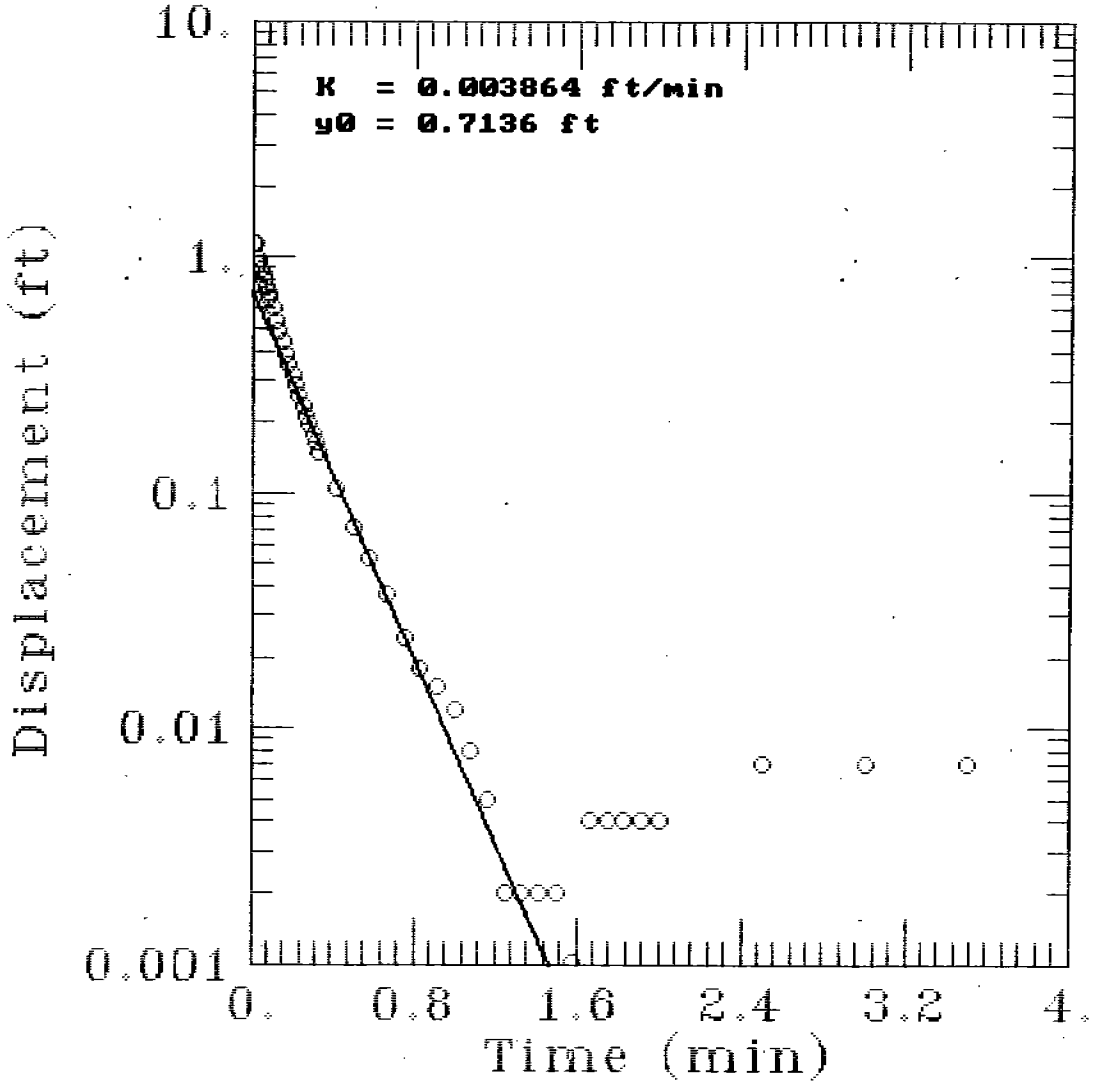

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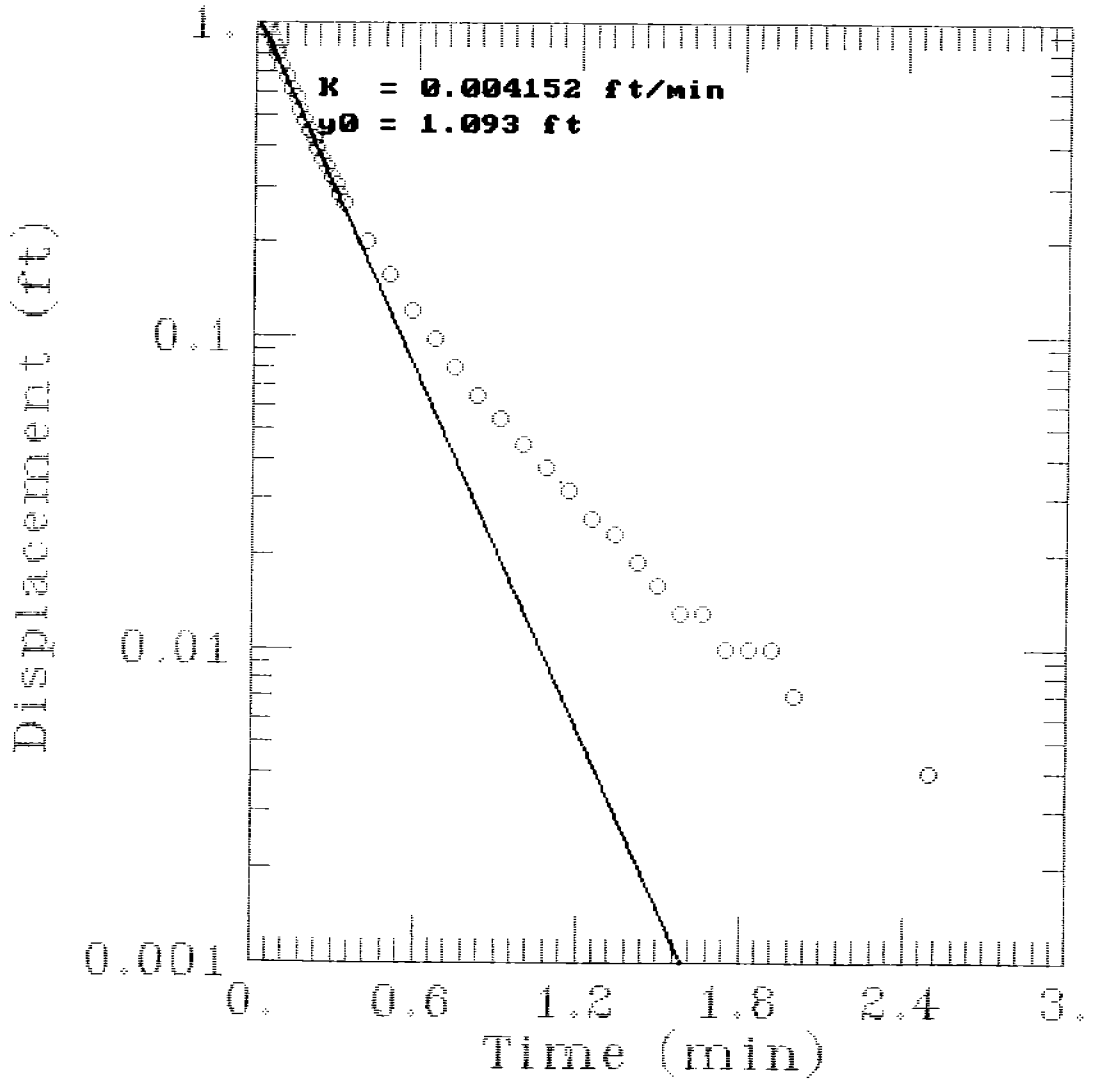

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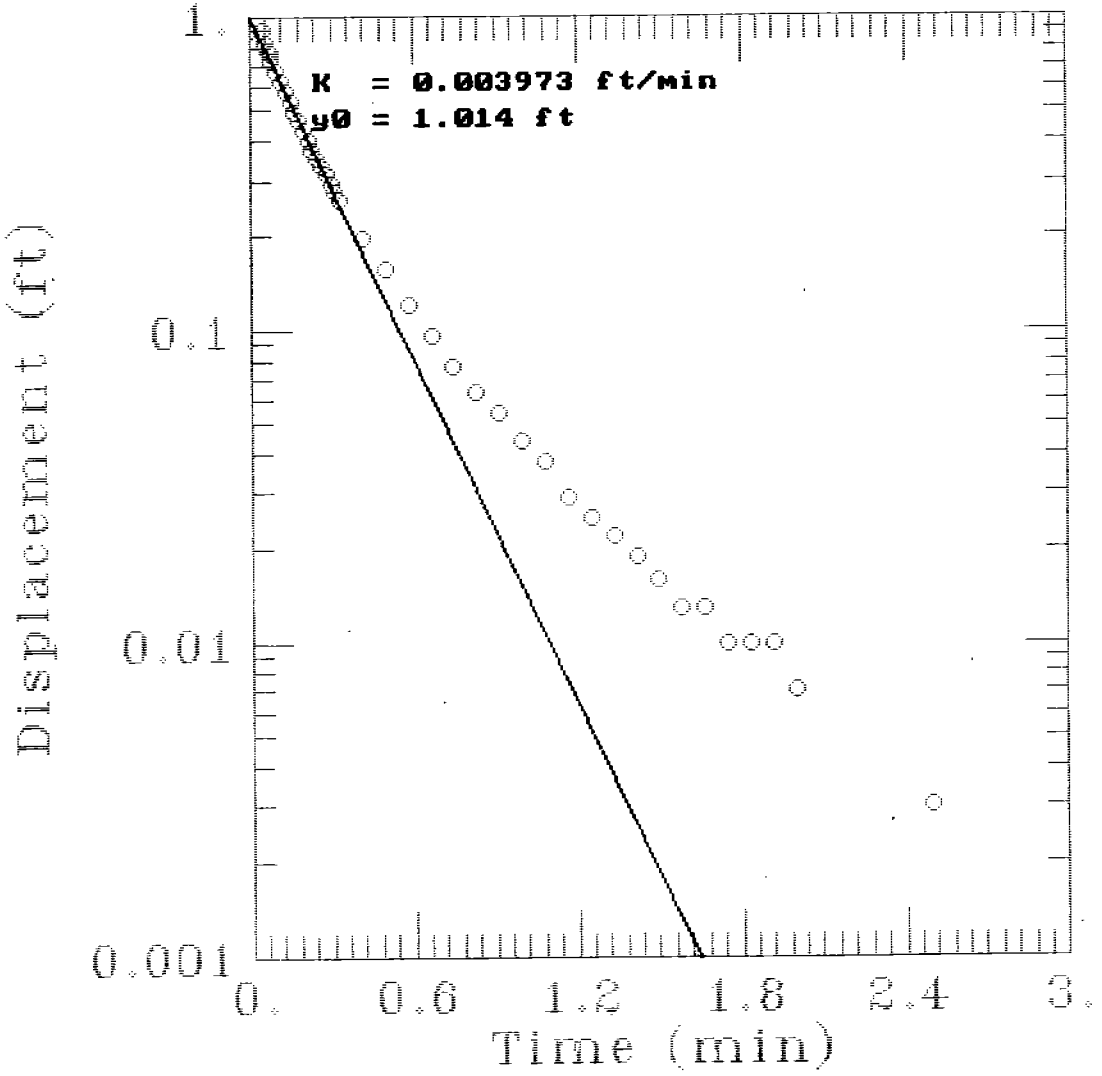

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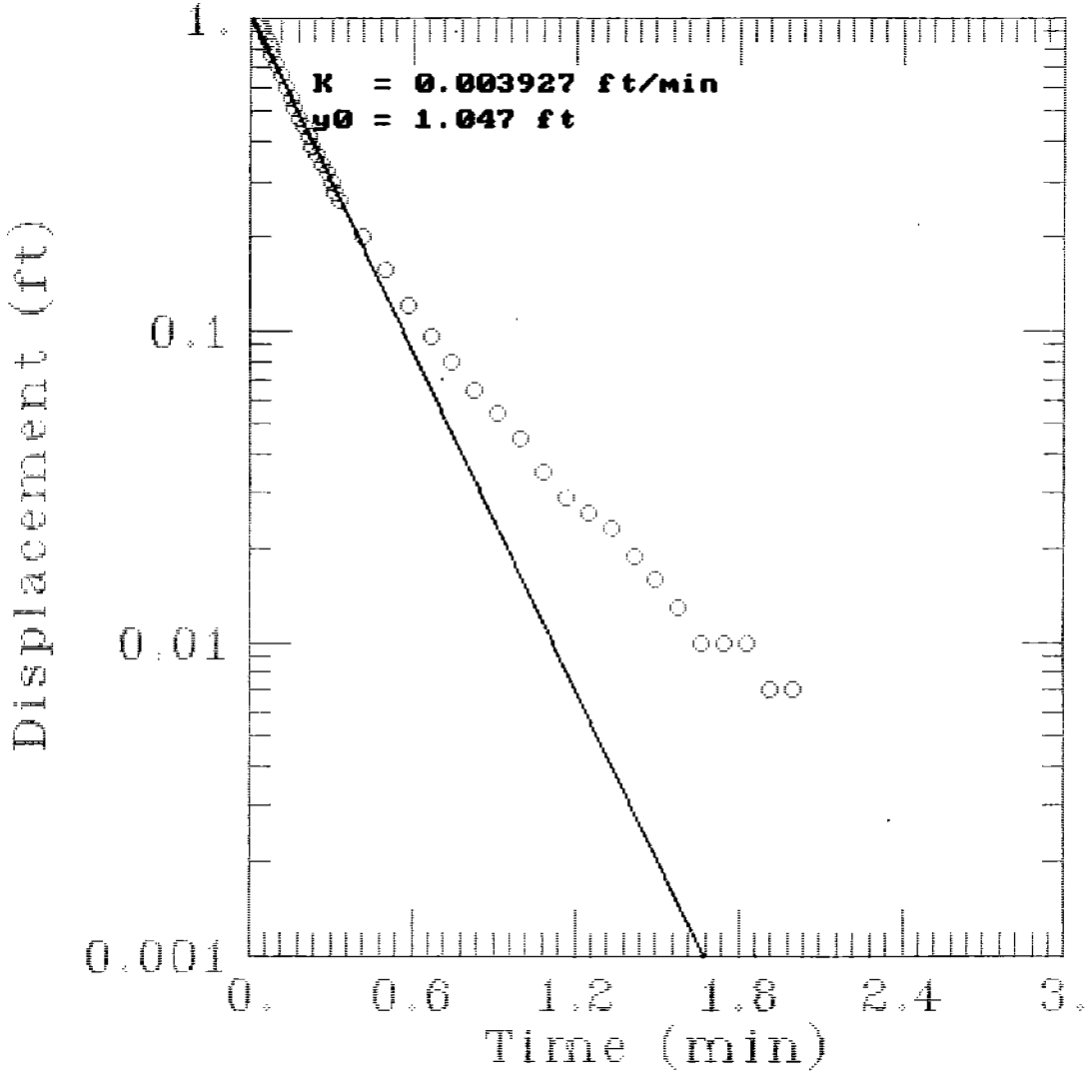

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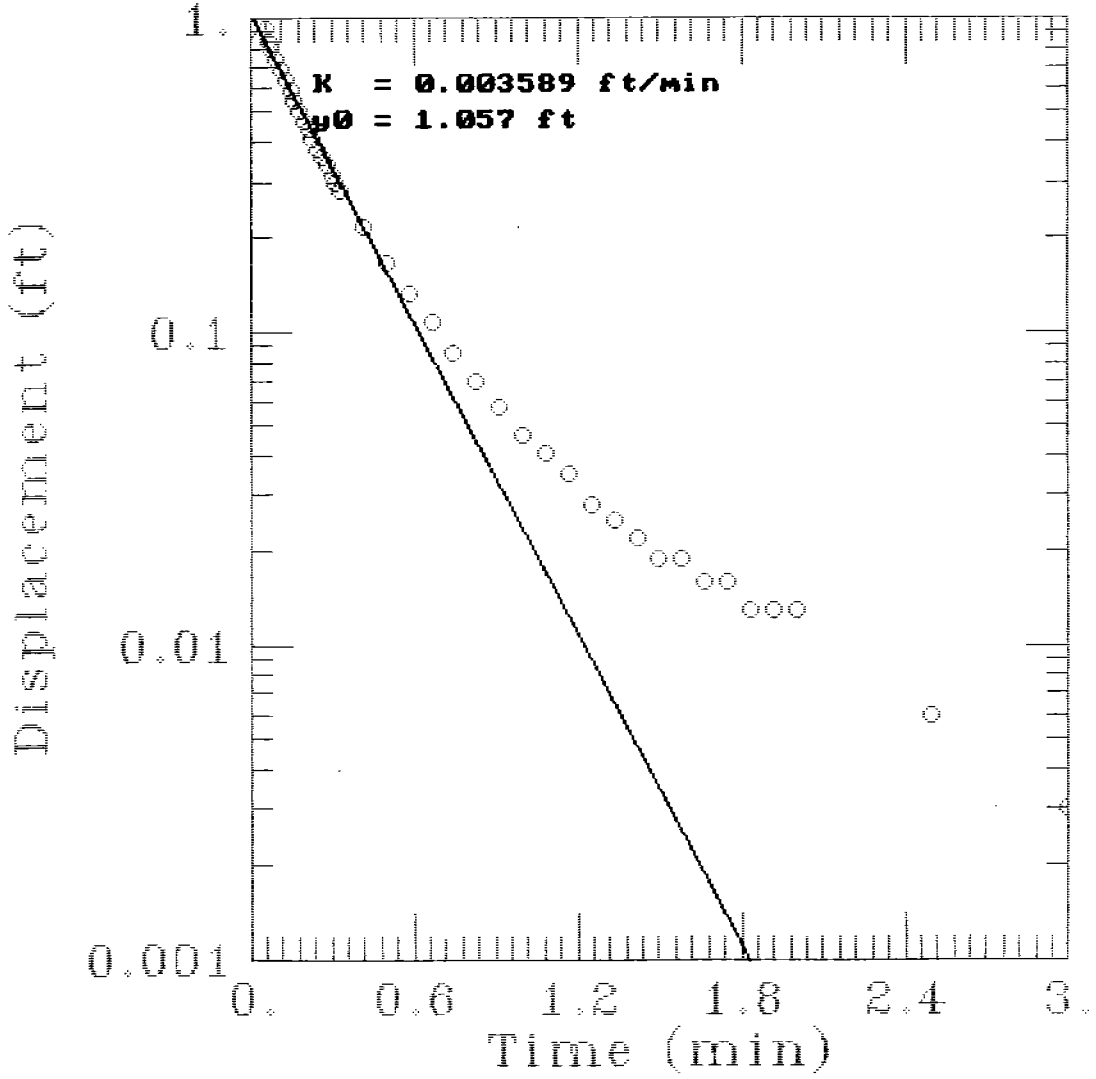

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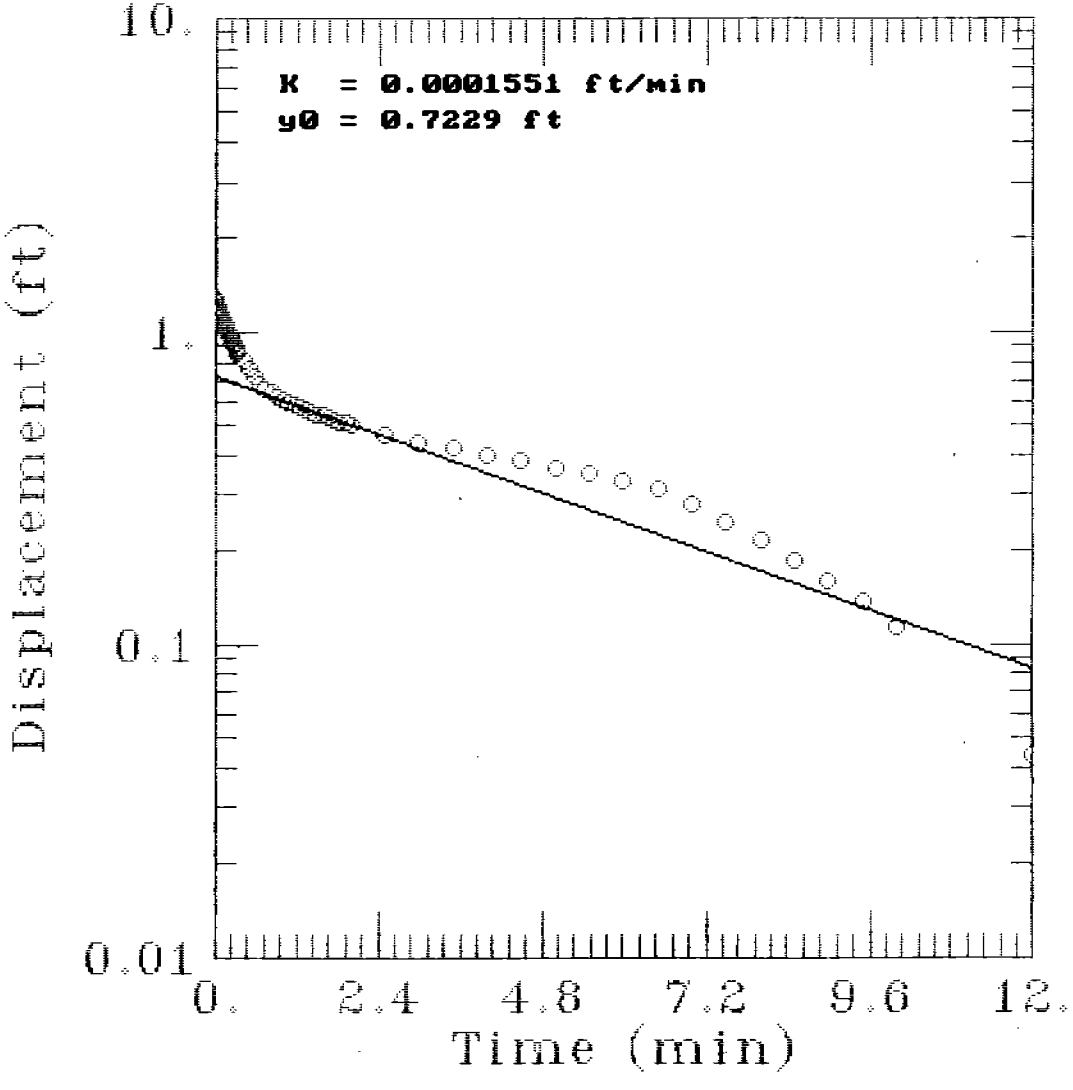

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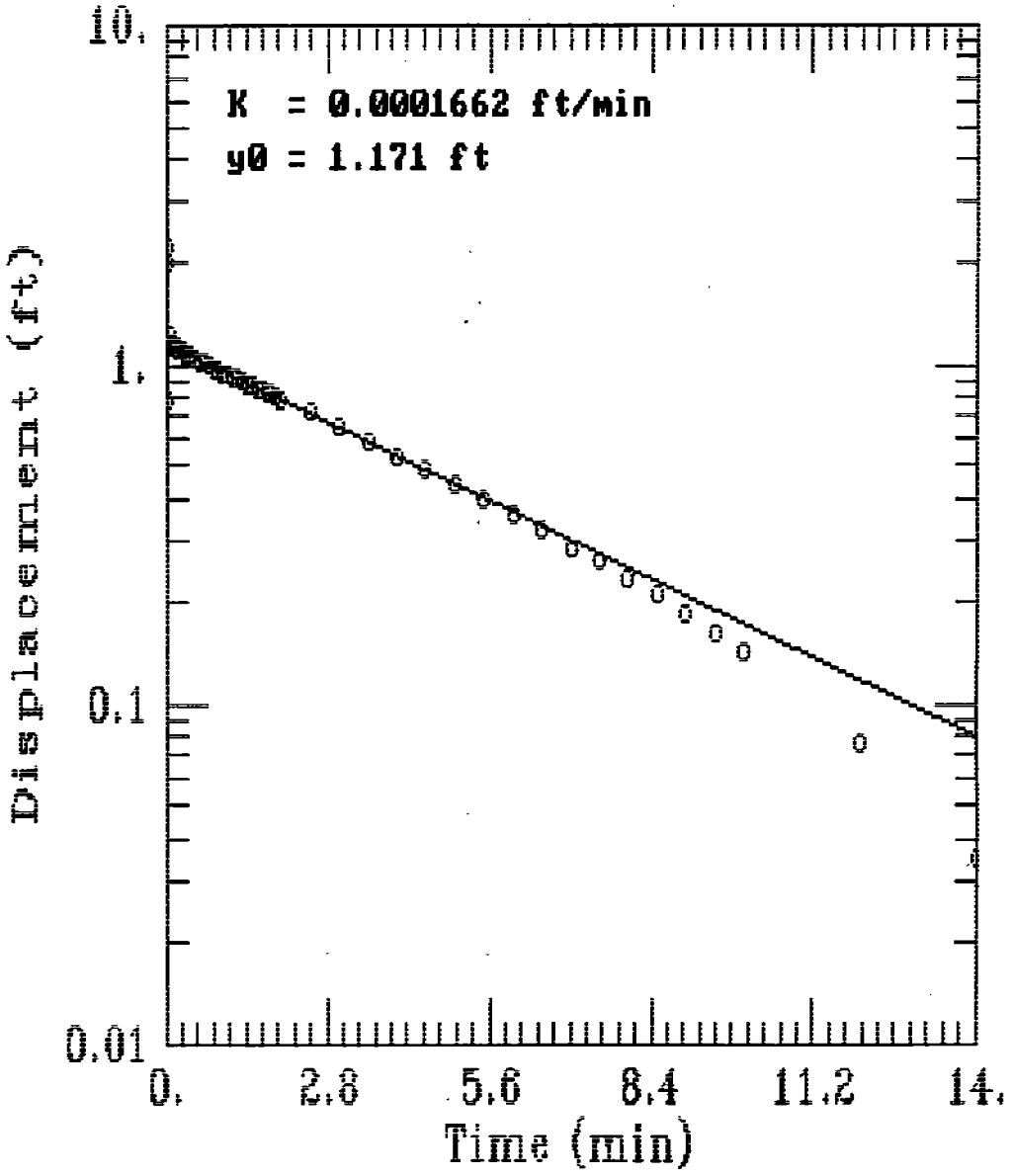

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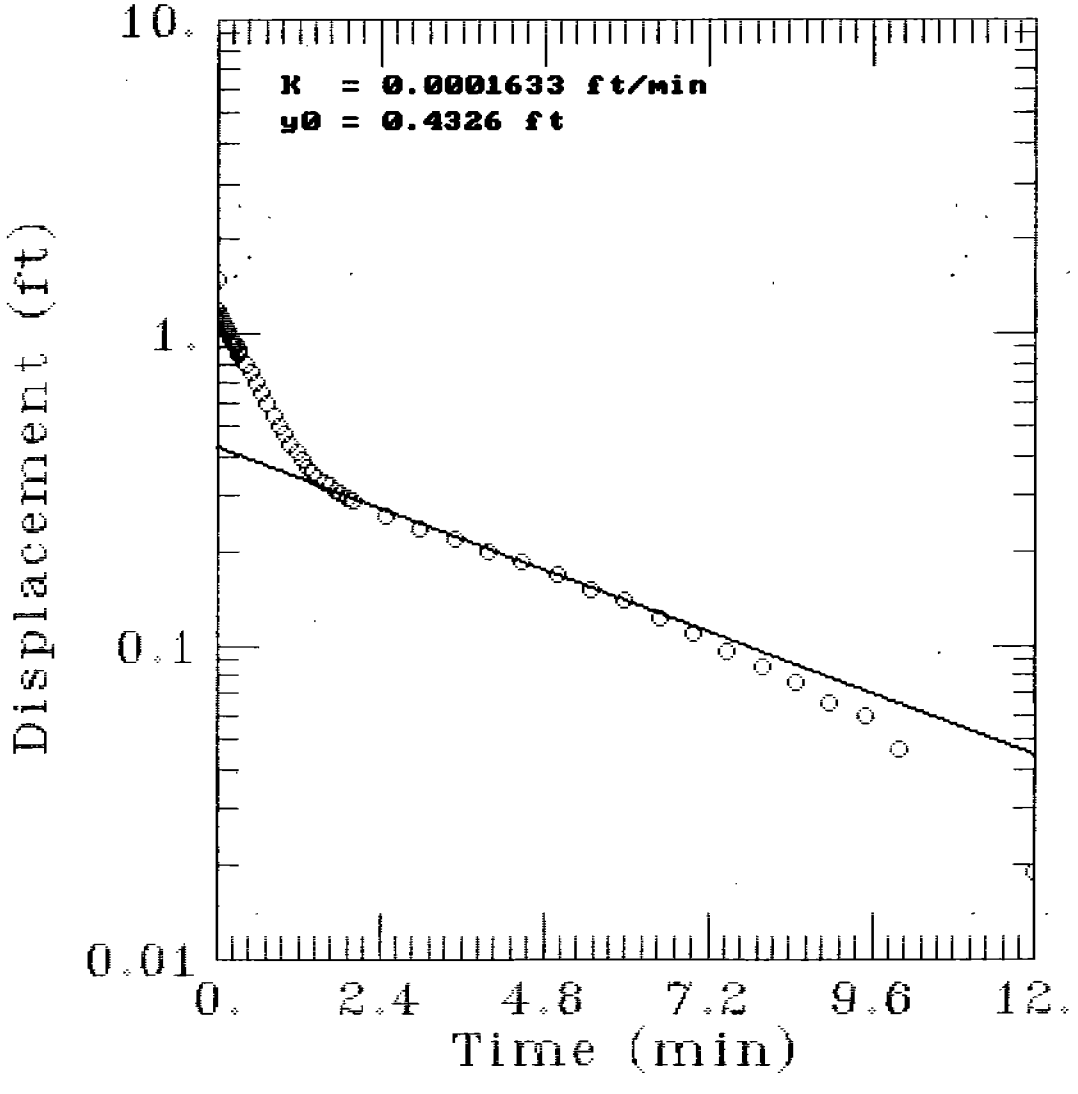

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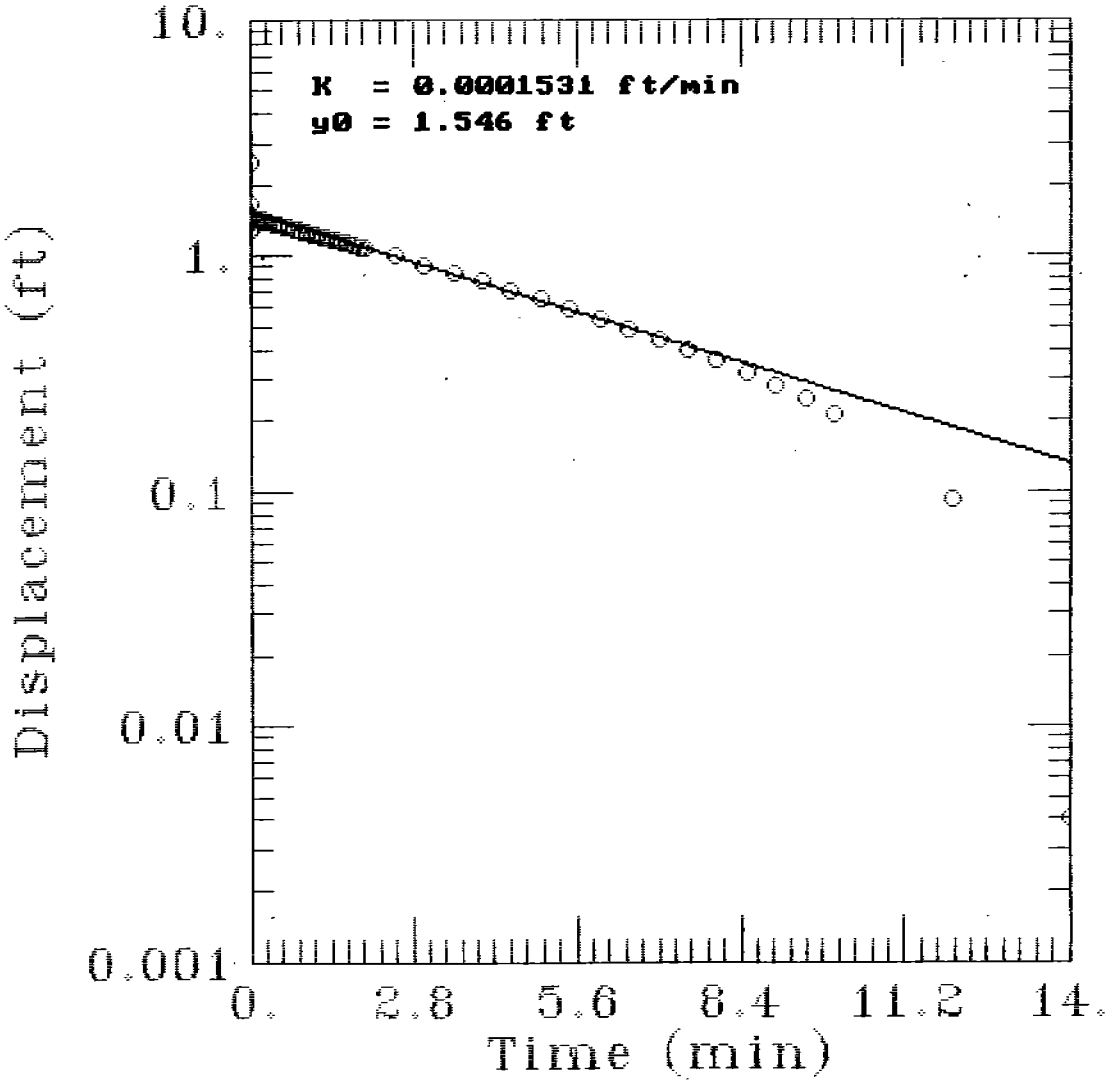

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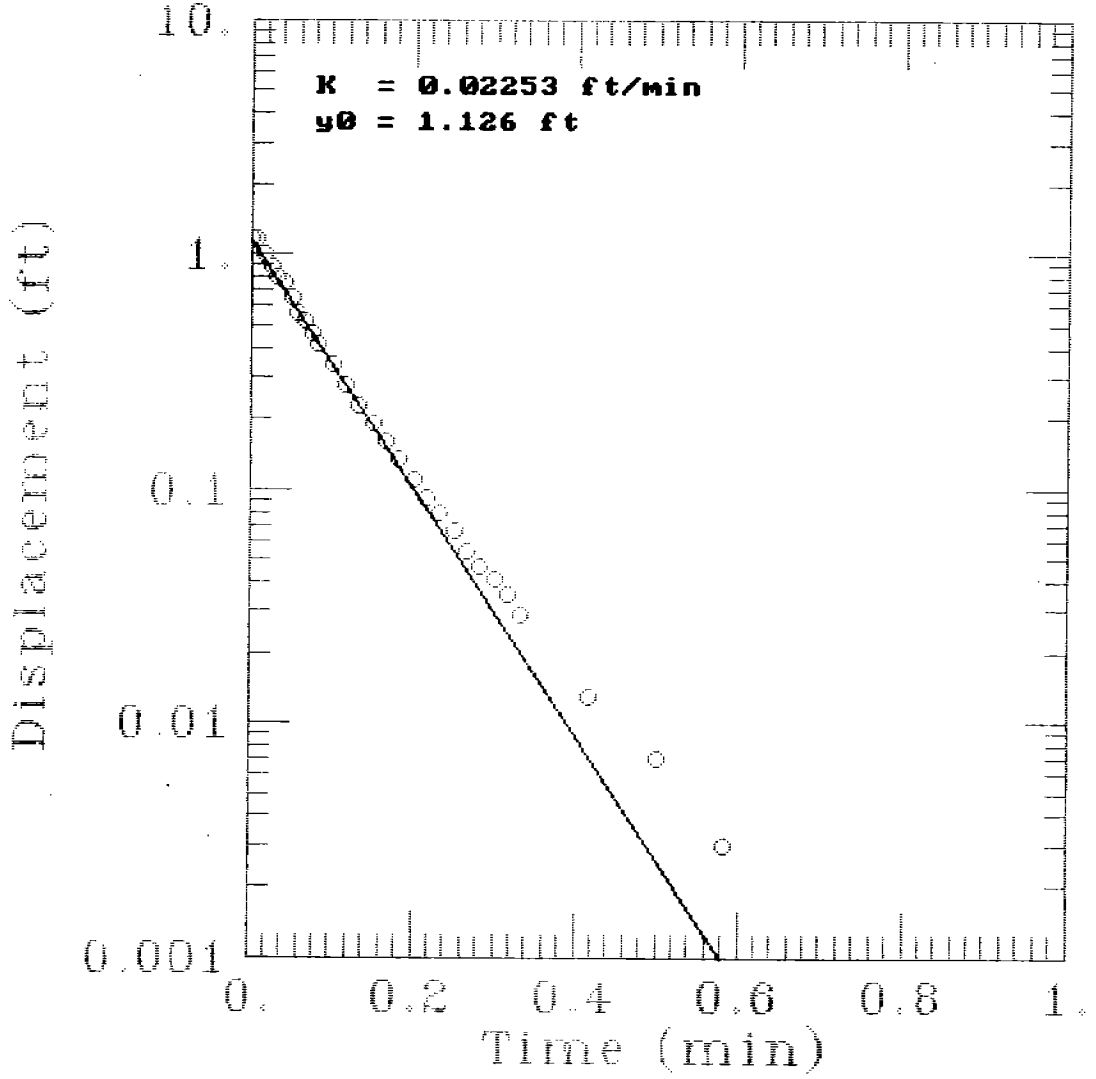

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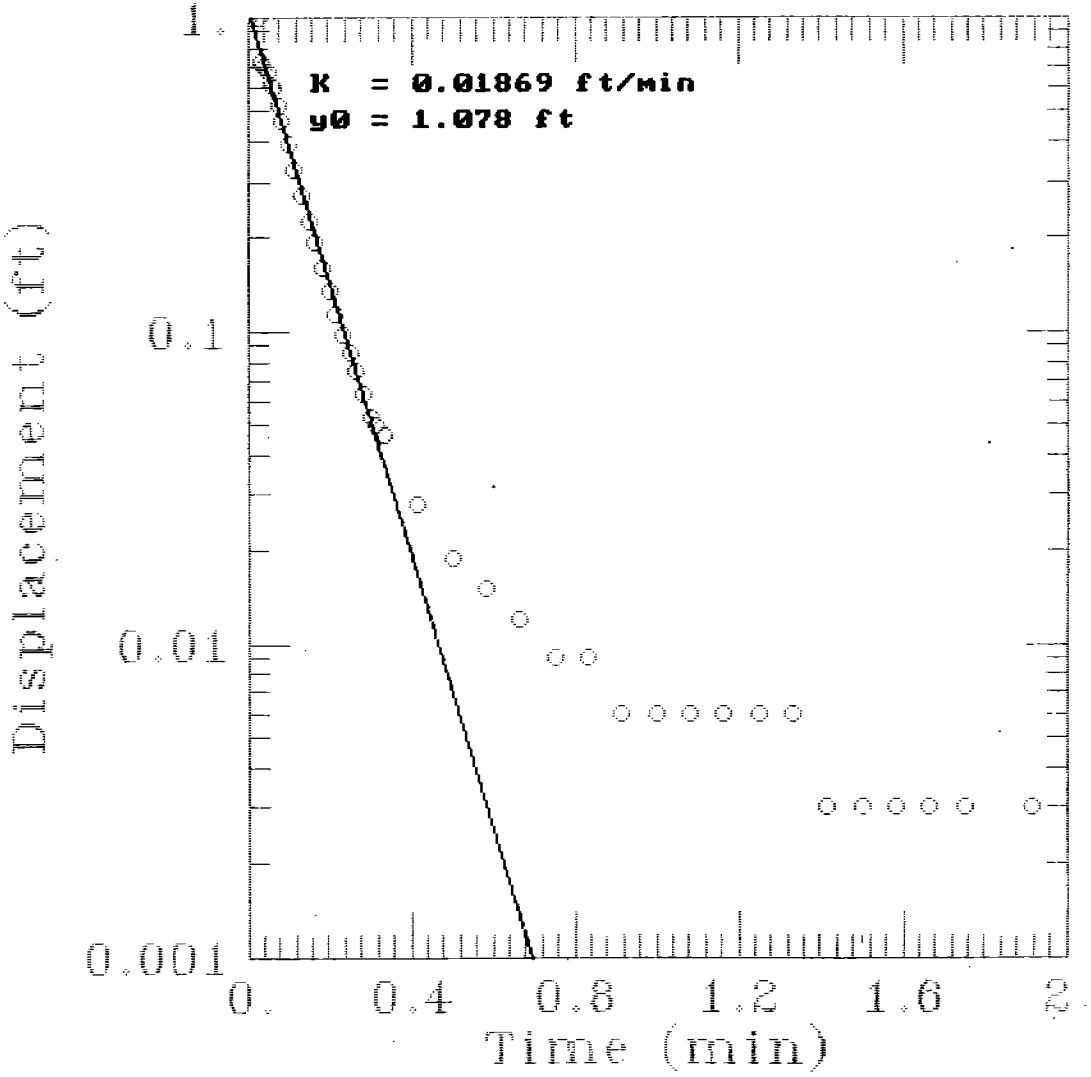

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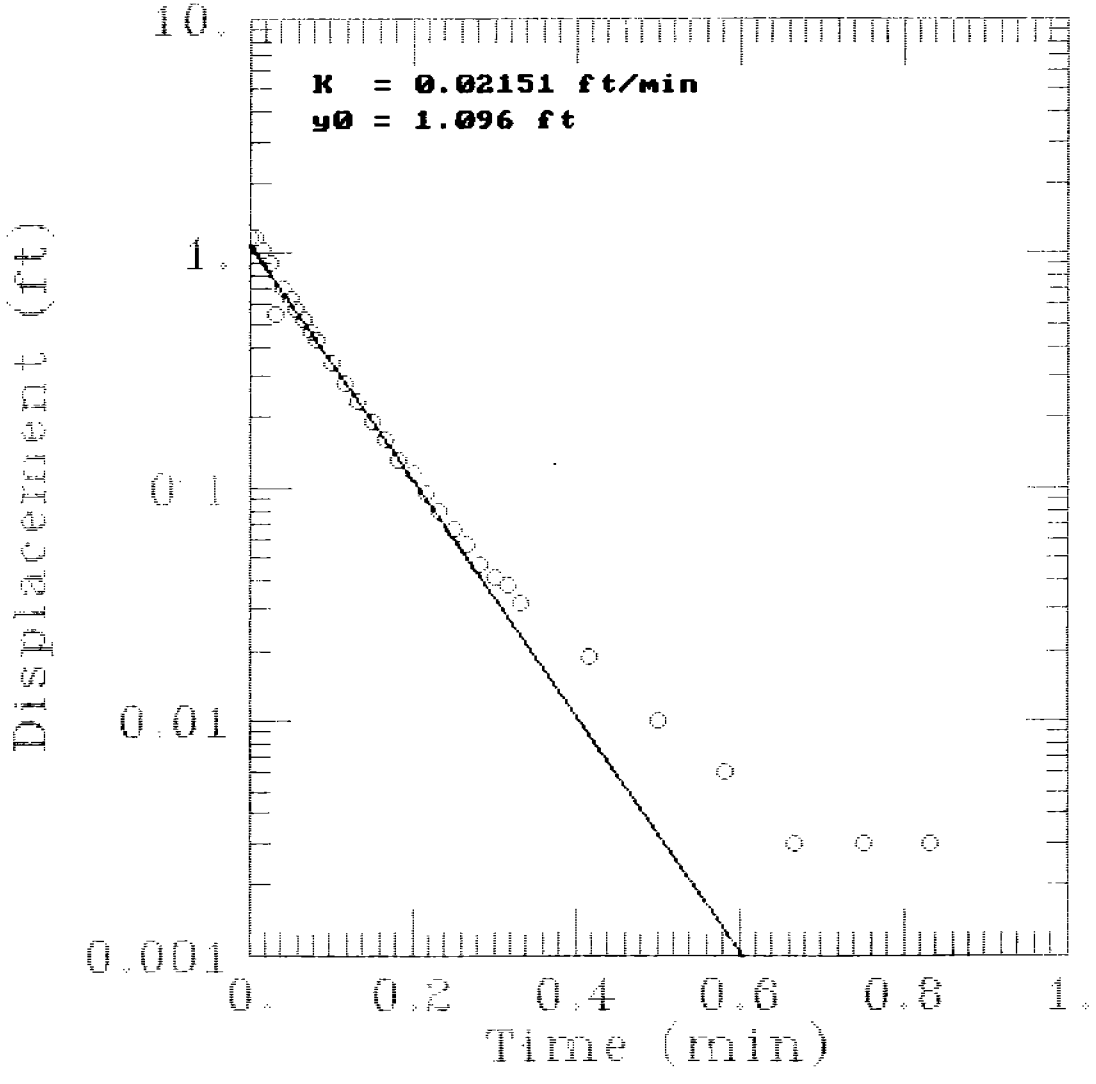

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GERAGHTY & MILLER, INC.

Modeling Group

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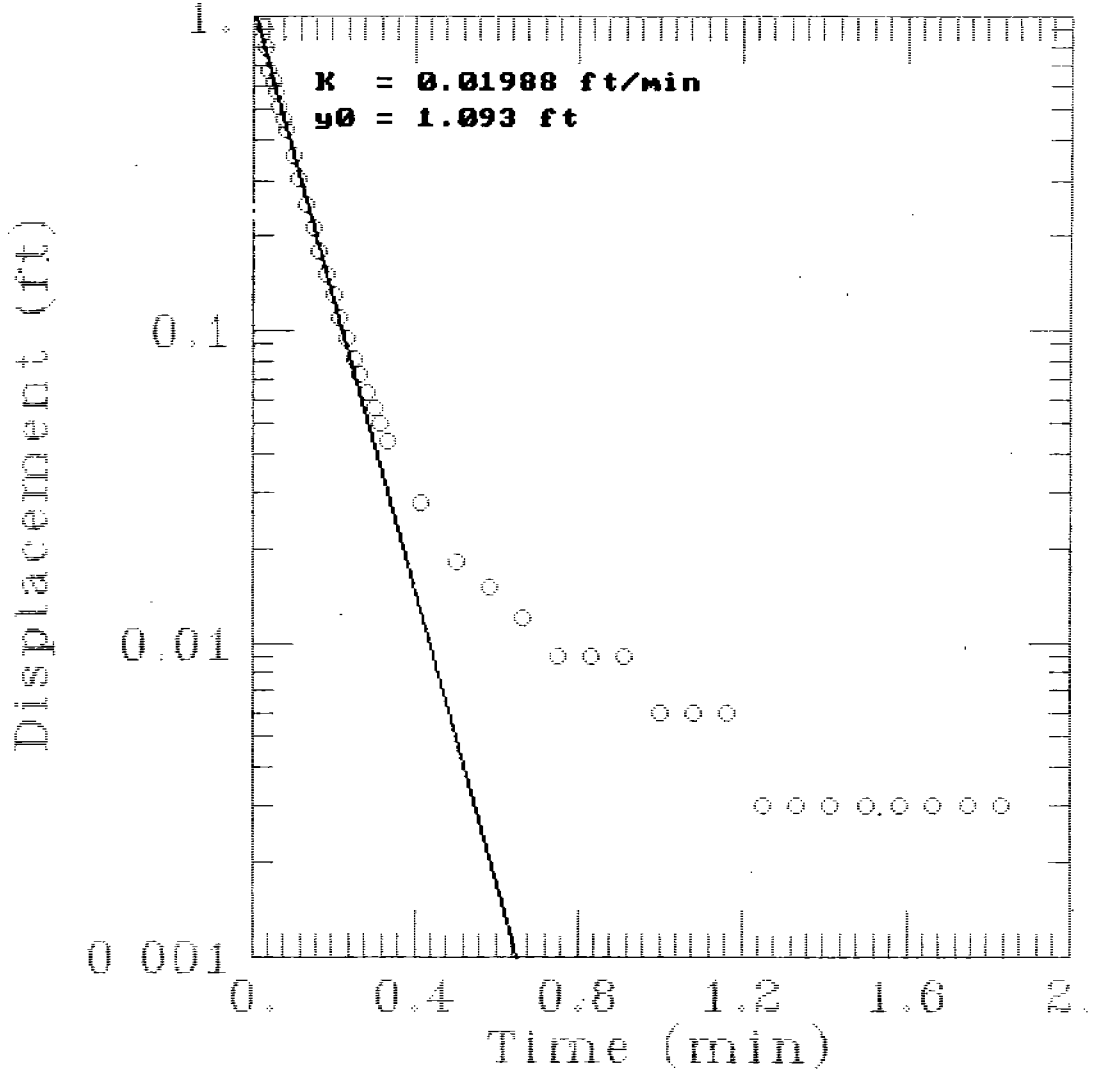

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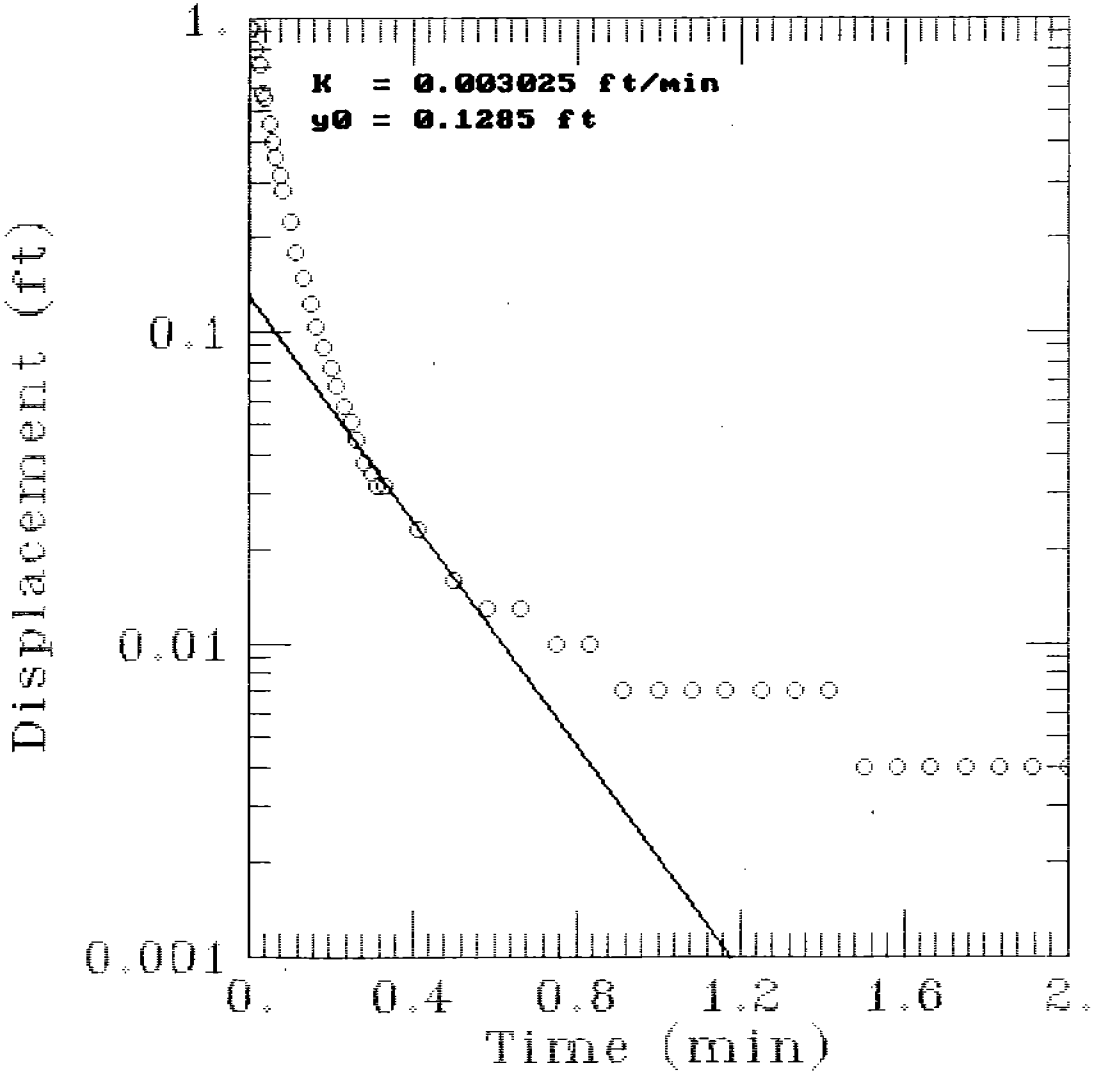

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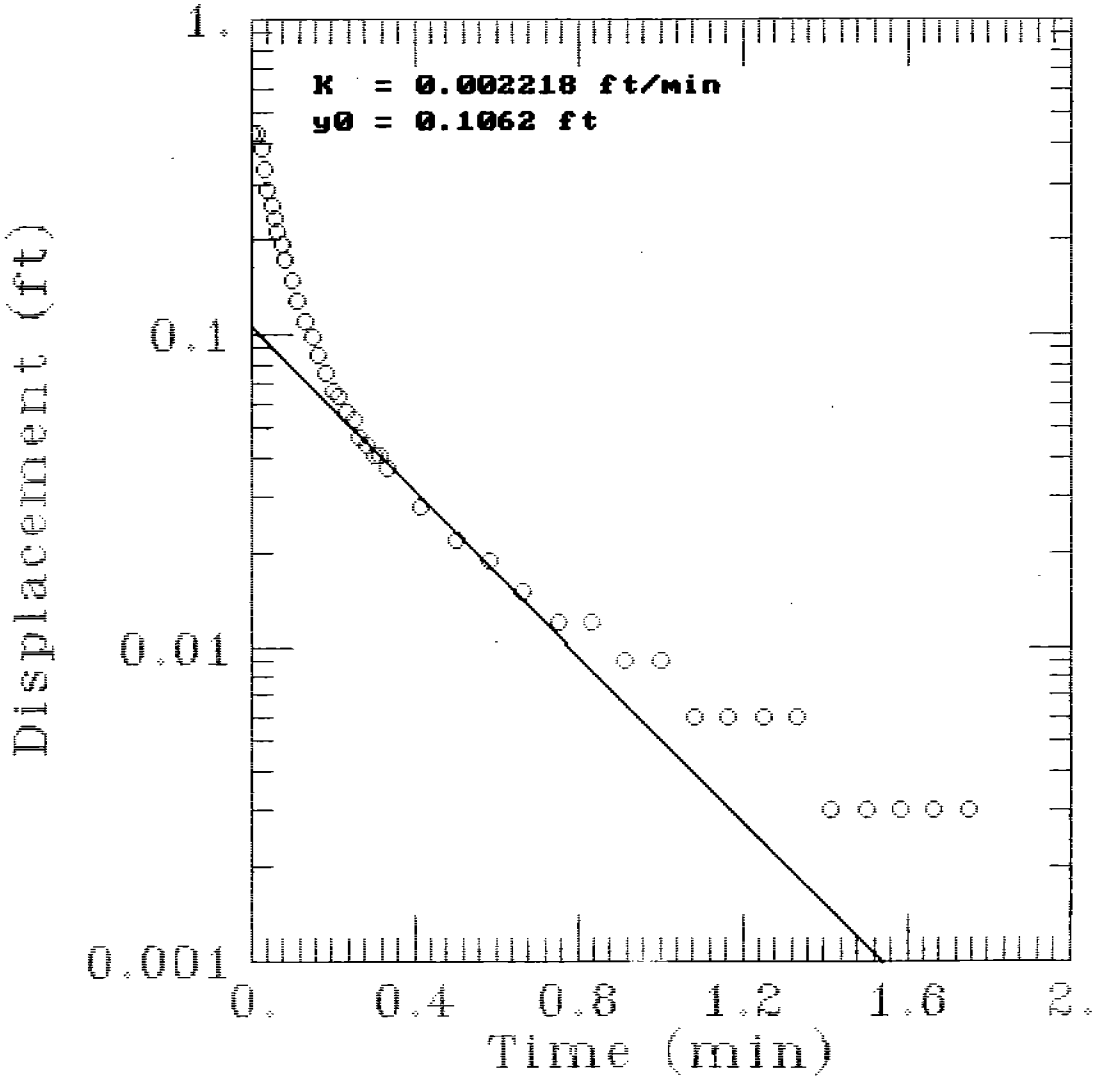

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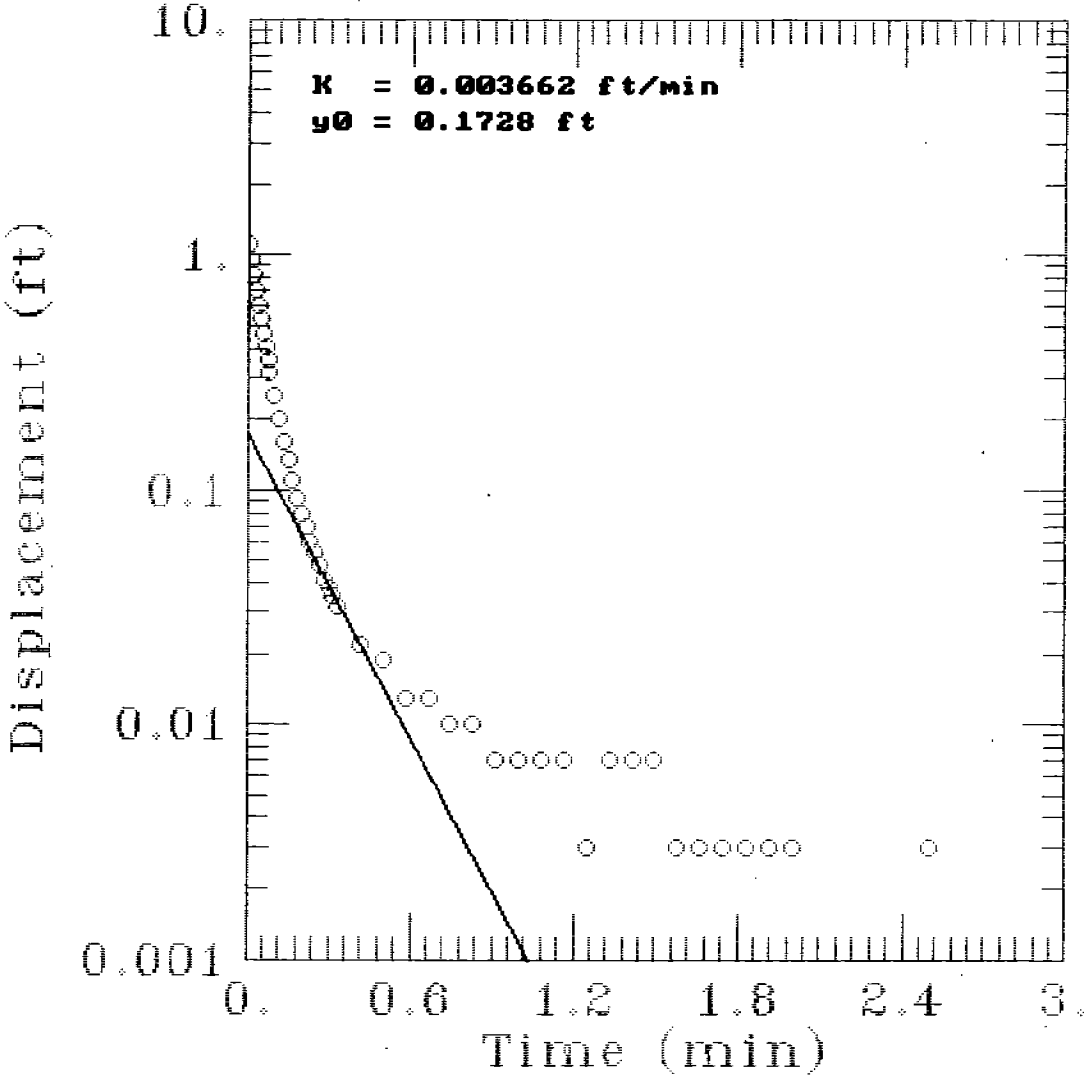

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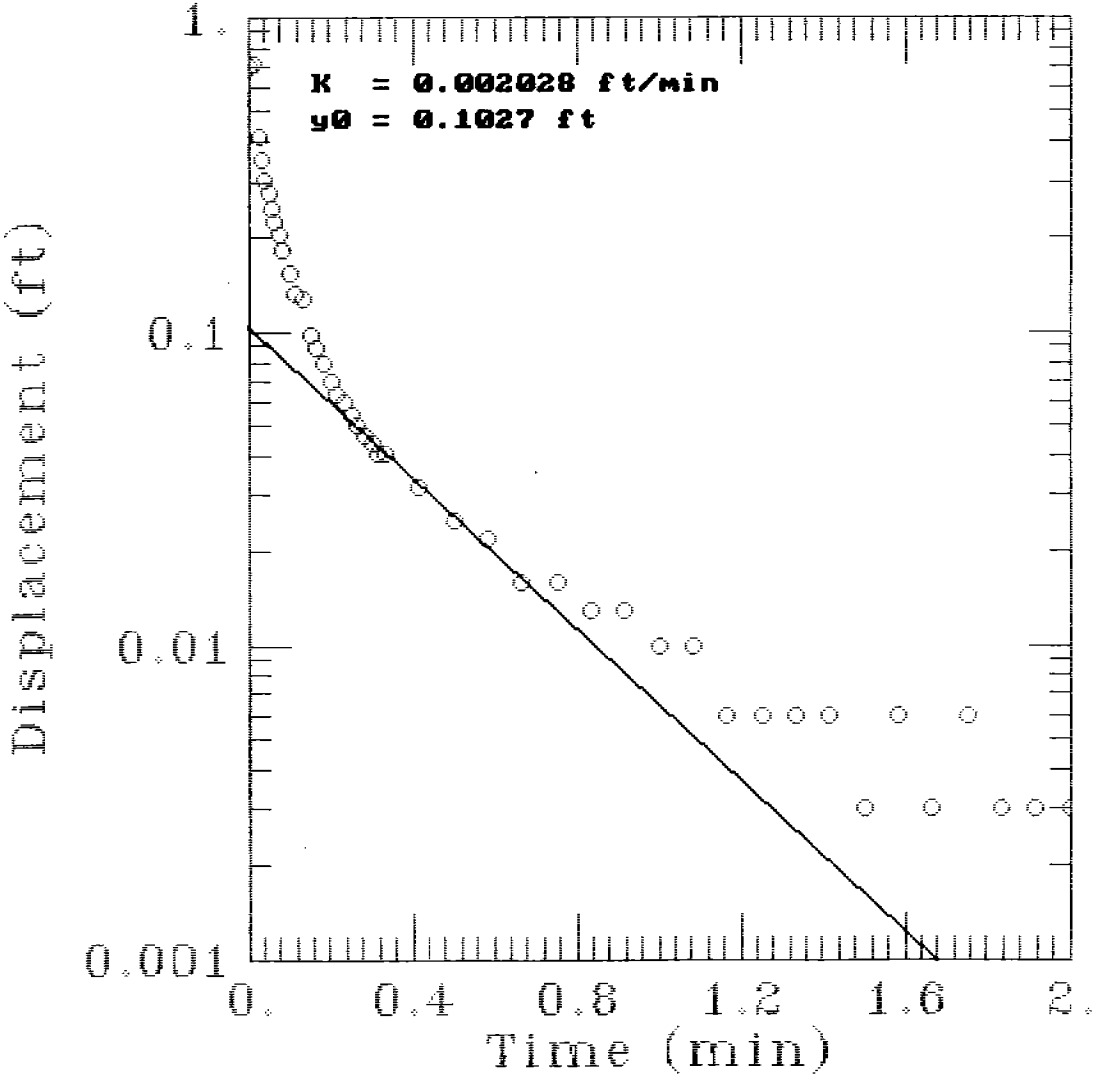

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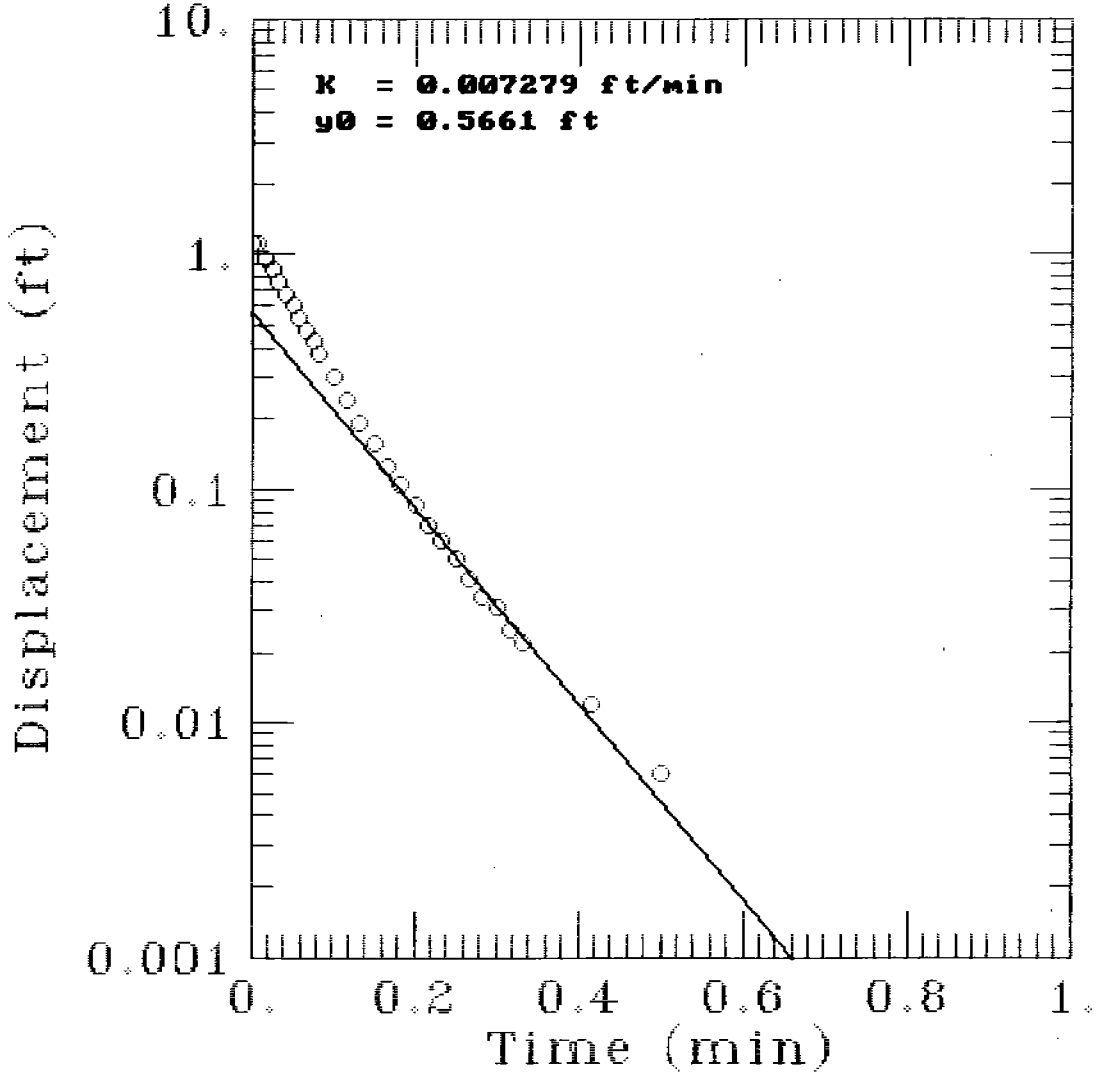

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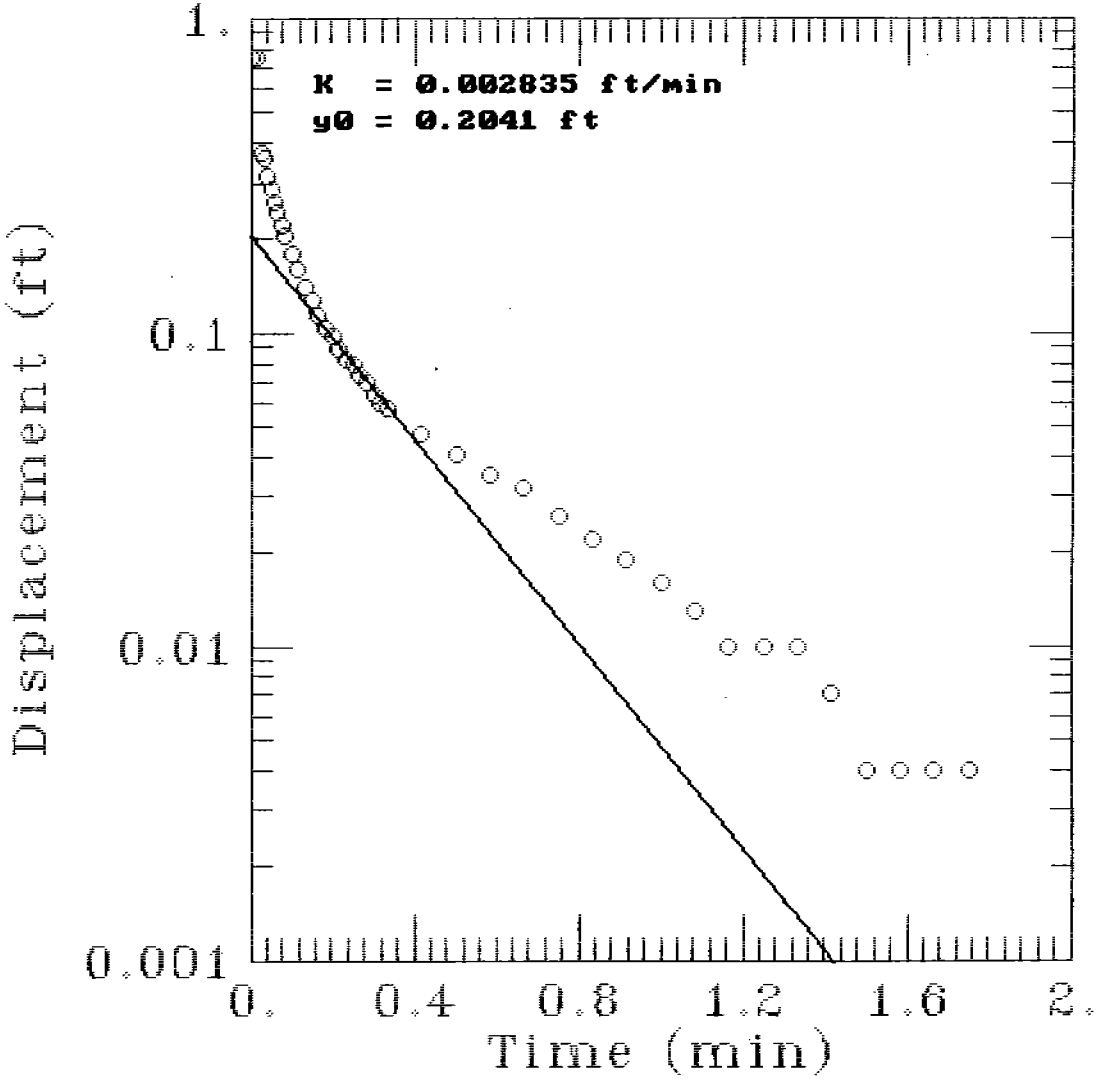

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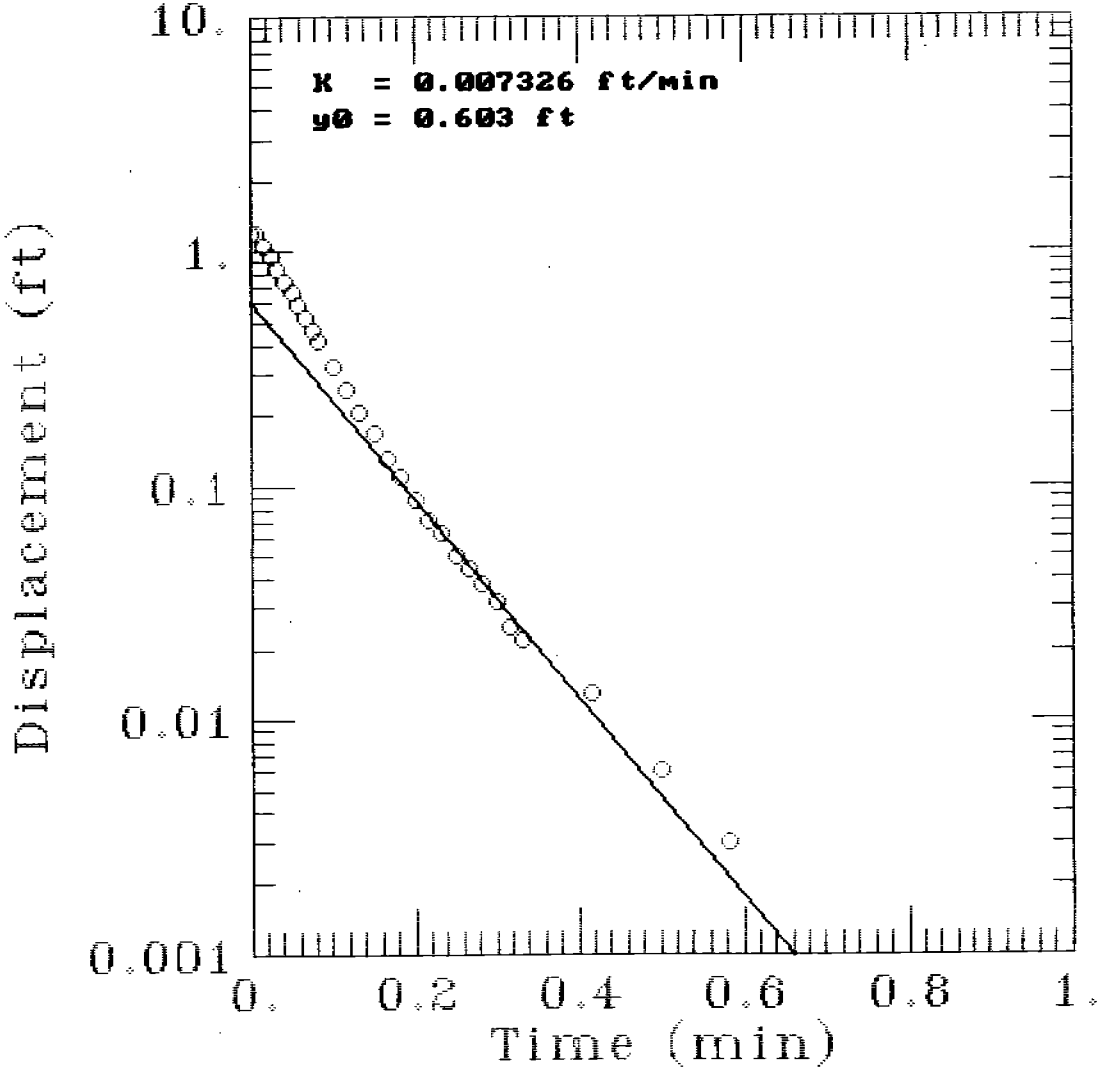

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GERAGHTY & MILLER, INC.

Modeling Group

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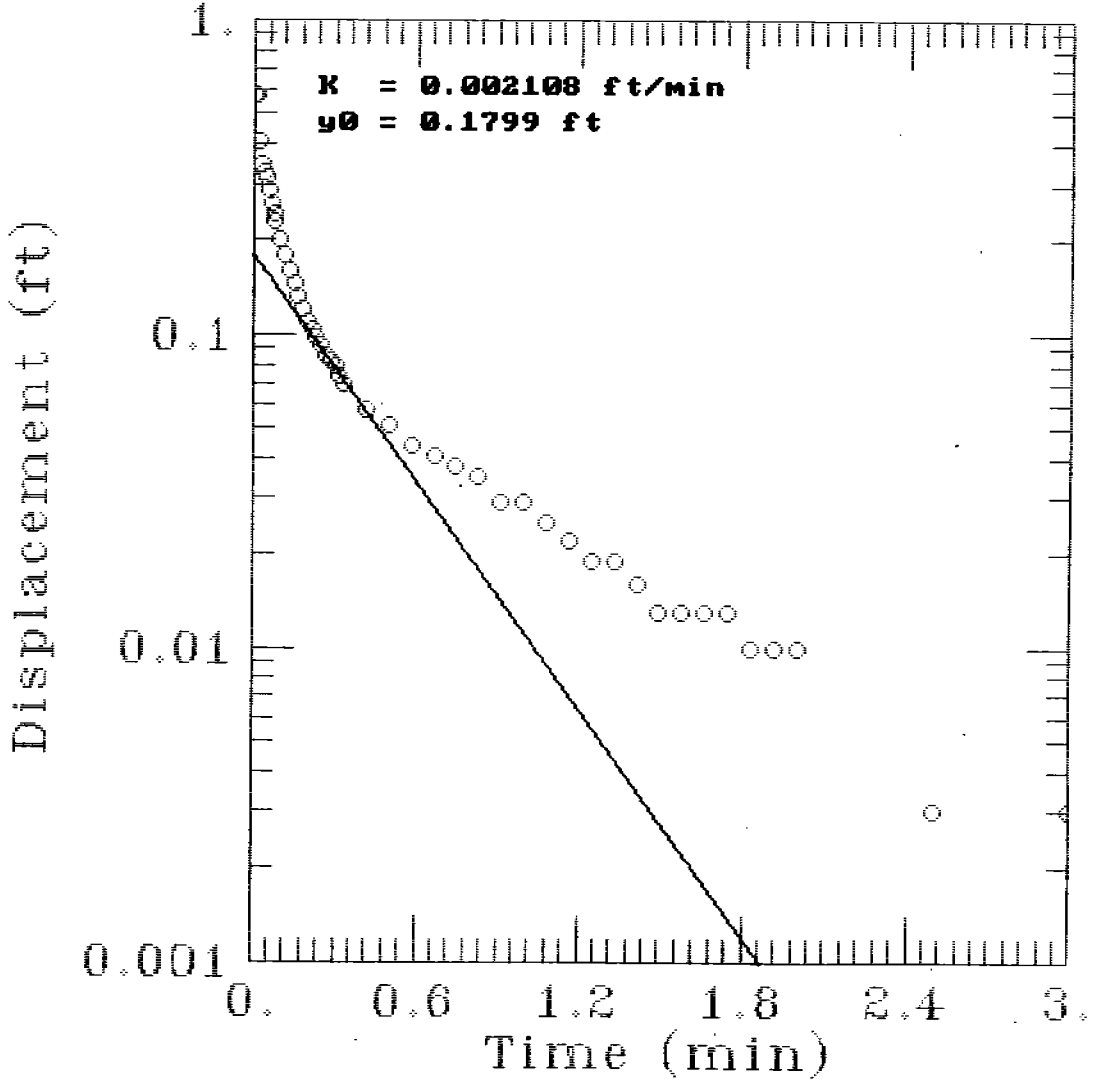

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Modeling Group

APPENDIX C

QUALITY CONTROL AND QUALITY ASSURANCE

APPENDIX C-1

LABORATORY DATA SUMMARY TABLES

SURFACE SOIL

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01539001				35163001				01539002				35163002			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSS1				MPTBSS1				MPTBSS1D				MPTBSS1D			
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93				16-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)																
Chloromethane	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Bromomethane	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Vinyl chloride	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Chloroethane	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Methylene chloride	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Acetone	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Carbon disulfide	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1-Dichloroethene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1-Dichloroethene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dichloroethene (total)	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Chloroform	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dichloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
2-Butanone	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
1,1,1-Trichloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Carbon tetrachloride	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Bromodichloromethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dichloropropane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
cis-1,3-Dichloropropene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Trichloroethene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Dibromochloromethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1,2-Trichloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Benzene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
trans-1,3-Dichloropropene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Bromoform	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
4-Methyl-2-pentanone	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
2-Hexanone	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Tetrachloroethene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Toluene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Chlorobenzene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Ethylbenzene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Styrene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Xylenes (total)	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Trichlorofluoromethane	5	U	ug/kg	5	340	U	ug/kg	340	5	U	ug/kg	5	350	U	ug/kg	350
1,3-Dichlorobenzene	100	U	ug/kg	100	-				100	U	ug/kg	100	-			
Acrolein	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Iodomethane	5	U	ug/kg	5	340	U	ug/kg	340	5	U	ug/kg	5	350	U	ug/kg	350
1,4-Dichlorobenzene	100	R	ug/kg		-				100	R	ug/kg		-			
Acrylonitrile	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Dibromomethane	5	U	ug/kg	5	340	U	ug/kg	340	5	U	ug/kg	5	350	U	ug/kg	350
1,2-Dichlorobenzene	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
2-Chloroethylvinylether	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Ethyl methacrylate	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2,3-Trichloropropane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
trans-1,4-Dichloro-2-butene	1000	R	ug/kg		-				1000	R	ug/kg		-			
Isobutyl alcohol	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1,1,2-Tetrachloroethane	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
1,2-Dibromo-3-chloropropane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dibromoethane	200	R	ug/kg		-				200	R	ug/kg		-			
1,4-Dioxane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
3-Chloropropene																

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01539001			35163001			01539002			35163002		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPTBSS1			MPTBSS1			MPTBSS1D			MPTBSS1D		
Collect Date:	16-FEB-93			16-FEB-93			16-FEB-93			16-FEB-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01539001				35163001				01539002				35163002			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSS1				MPTBSS1				MPTBSS1D				MPTBSS1D			
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93				16-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Acetonitrile	100	U	ug/kg	100	-				100	U	ug/kg	100	-			
Chloroprene	200	R	ug/kg		-				200	R	ug/kg		-			
Methacrylonitrile	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Methyl methacrylate	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Pentachloroethane	10	U	ug/kg	10	-				10	U	ug/kg	10	-			
Propionitrile	100	U	ug/kg	100	-				100	U	ug/kg	100	-			
Vinyl acetate	10	U	ug/kg	10	-				10	U	ug/kg	10	-			

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01539003			35163003			01539004			35163004					
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND					
Locator	MPTBSS2			MPTBSS2			MPTBSS3			MPTBSS3					
Collect Date:	16-FEB-93			16-FEB-93			16-FEB-93			16-FEB-93					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)																
Chloromethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Bromomethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Vinyl chloride	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Chloroethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Methylene chloride	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Acetone	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Carbon disulfide	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,1-Dichloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,1-Dichloroethene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2-Dichloroethene (total)	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Chloroform	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2-Dichloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
2-Butanone	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
1,1,1-Trichloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Carbon tetrachloride	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Bromodichloromethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2-Dichloropropene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
cis-1,3-Dichloropropene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Trichloroethene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Dibromochloromethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,1,2-Trichloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Benzene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
trans-1,3-Dichloropropene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Bromoform	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
4-Methyl-2-pentanone	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
2-Hexanone	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Tetrachloroethene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Toluene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Chlorobenzene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Ethylbenzene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Styrene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Xylenes (total)	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Trichlorofluoromethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,3-Dichlorobenzene	6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	400	U	ug/kg	400
Acrolein	120	U	ug/kg	120	-				120	U	ug/kg	120	-			
Iodomethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
1,4-Dichlorobenzene	6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	400	U	ug/kg	400
Acrylonitrile	120	R	ug/kg		-				120	R	ug/kg		-			
Dibromomethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2-Dichlorobenzene	6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	400	U	ug/kg	400

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01539003				35163003				01539004				35163004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSS2				MPTBSS2				MPTBSS3				MPTBSS3			
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93				16-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
2-Chloroethylvinylether	12	U	ug/kg	12					12	U	ug/kg	12				
Ethyl methacrylate	6	U	ug/kg	6					6	U	ug/kg	6				
1,2,3-Trichloropropane	6	U	ug/kg	6					6	U	ug/kg	6				
trans-1,4-Dichloro-2-butene	6	U	ug/kg	6					6	U	ug/kg	6				
Isobutyl alcohol	1200	R	ug/kg						1200	R	ug/kg					
1,1,1,2-Tetrachloroethane	6	U	ug/kg	6					6	U	ug/kg	6				
1,2-Dibromo-3-chloropropane	12	U	ug/kg	12					12	U	ug/kg	12				
1,2-Dibromoethane	6	U	ug/kg	6					6	U	ug/kg	6				
1,4-Dioxane	240	R	ug/kg						240	R	ug/kg					
3-Chloropropene	6	U	ug/kg	6					6	U	ug/kg	6				
Acetonitrile	120	U	ug/kg	120					120	U	ug/kg	120				
Chloroprene	240	R	ug/kg						240	R	ug/kg					
Methacrylonitrile	6	U	ug/kg	6					6	U	ug/kg	6				
Methyl methacrylate	12	U	ug/kg	12					12	U	ug/kg	12				
Pentachloroethane	12	U	ug/kg	12					12	U	ug/kg	12				
Propionitrile	120	U	ug/kg	120					120	U	ug/kg	120				
Vinyl acetate	12	U	ug/kg	12					12	U	ug/kg	12				

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01539005				35163005				01539007				35163007			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSS4				MPTBSS4				MPTBSS5				MPTBSS5			
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93				16-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)																
Chloromethane	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Bromomethane	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Vinyl chloride	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Chloroethane	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Methylene chloride	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Acetone	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Carbon disulfide	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1-Dichloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1-Dichloroethene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dichloroethene (total)	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Chloroform	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dichloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
2-Butanone	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
1,1,1-Trichloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Carbon tetrachloride	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Bromodichloromethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dichloropropane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
cis-1,3-Dichloropropene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Trichloroethene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Dibromochloromethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1,2-Trichloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Benzene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
trans-1,3-Dichloropropene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Bromoform	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
4-Methyl-2-pentanone	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
2-Hexanone	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Tetrachloroethene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Toluene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Chlorobenzene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Ethylbenzene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Styrene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Xylenes (total)	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Trichlorofluoromethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,3-Dichlorobenzene	5	U	ug/kg	5	350	U	ug/kg	350	5	U	ug/kg	5	340	U	ug/kg	340
Acrolein	110	U	ug/kg	110	-				110	U	ug/kg	110	-			
Iodomethane	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
1,4-Dichlorobenzene	5	U	ug/kg	5	350	U	ug/kg	350	5	U	ug/kg	5	340	U	ug/kg	340
Acrylonitrile	110	R	ug/kg		-				110	U	ug/kg	110	-			
Dibromomethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dichlorobenzene	5	U	ug/kg	5	350	U	ug/kg	350	5	U	ug/kg	5	340	U	ug/kg	340

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01539005				35163005				01539007				35163007			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSS4				MPTBSS4				MPTBSS5				MPTBSS5			
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93				16-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
2-Chloroethylvinylether	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Ethyl methacrylate	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2,3-Trichloropropane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
trans-1,4-Dichloro-2-butene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Isobutyl alcohol	1100	R	ug/kg		-				1100	R	ug/kg		-			
1,1,1,2-Tetrachloroethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,2-Dibromo-3-chloropropane	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
1,2-Dibromoethane	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
1,4-Dioxane	220	R	ug/kg		-				210	R	ug/kg		-			
3-Chloropropene	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Acetonitrile	110	U	ug/kg	110	-				110	U	ug/kg	110	-			
Chloroprene	220	R	ug/kg		-				210	R	ug/kg		-			
Methacrylonitrile	5	U	ug/kg	5	-				5	U	ug/kg	5	-			
Methyl methacrylate	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Pentachloroethane	11	U	ug/kg	11	-				11	U	ug/kg	11	-			
Propionitrile	110	U	ug/kg	110	-				110	U	ug/kg	110	-			
Vinyl acetate	11	U	ug/kg	11	-				11	U	ug/kg	11	-			

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01539006				35163006				
Site	BACKGROUND				BACKGROUND				
Locator	MPTBSS6				MPTBSS6				
Collect Date:	16-FEB-93				16-FEB-93				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
BKG VOCs (8240+11)									
Chloromethane	11	U	ug/kg	11	-				
Bromomethane	11	U	ug/kg	11	-				
Vinyl chloride	11	U	ug/kg	11	-				
Chloroethane	11	U	ug/kg	11	-				
Methylene chloride	5	U	ug/kg	5	-				
Acetone	11	U	ug/kg	11	-				
Carbon disulfide	5	U	ug/kg	5	-				
1,1-Dichloroethane	5	U	ug/kg	5	-				
1,1-Dichloroethene	5	U	ug/kg	5	-				
1,2-Dichloroethene (total)	5	U	ug/kg	5	-				
Chloroform	5	U	ug/kg	5	-				
1,2-Dichloroethane	5	U	ug/kg	5	-				
2-Butanone	11	U	ug/kg	11	-				
1,1,1-Trichloroethane	5	U	ug/kg	5	-				
Carbon tetrachloride	5	U	ug/kg	5	-				
Bromodichloromethane	5	U	ug/kg	5	-				
1,2-Dichloropropane	5	U	ug/kg	5	-				
cis-1,3-Dichloropropene	5	U	ug/kg	5	-				
Trichloroethene	5	U	ug/kg	5	-				
Dibromochloromethane	5	U	ug/kg	5	-				
1,1,2-Trichloroethane	5	U	ug/kg	5	-				
Benzene	5	U	ug/kg	5	-				
trans-1,3-Dichloropropene	5	U	ug/kg	5	-				
Bromoform	5	U	ug/kg	5	-				
4-Methyl-2-pentanone	11	U	ug/kg	11	-				
2-Hexanone	11	U	ug/kg	11	-				
Tetrachloroethene	5	U	ug/kg	5	-				
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	-				
Toluene	5	U	ug/kg	5	-				
Chlorobenzene	5	U	ug/kg	5	-				
Ethylbenzene	5	U	ug/kg	5	-				
Styrene	5	U	ug/kg	5	-				
Xylenes (total)	5	U	ug/kg	5	-				
Trichlorofluoromethane	5	U	ug/kg	5	-				
1,3-Dichlorobenzene	5	U	ug/kg	5	350	U	ug/kg	350	
Acrolein	110	U	ug/kg	110	-				
Iodomethane	11	U	ug/kg	11	-				
1,4-Dichlorobenzene	5	U	ug/kg	5	350	U	ug/kg	350	
Acrylonitrile	110	R	ug/kg		-				
Dibromomethane	5	U	ug/kg	5	-				
1,2-Dichlorobenzene	5	U	ug/kg	5	350	U	ug/kg	350	

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	Lab Sample Number:	01539006			35163006		
	Site	BACKGROUND			BACKGROUND		
	Locator	MPTBSS6			MPTBSS6		
	Collect Date:	16-FEB-93			16-FEB-93		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
2-Chloroethylvinylether		11 U	ug/kg	11	-		
Ethyl methacrylate		5 U	ug/kg	5	-		
1,2,3-Trichloropropane		5 U	ug/kg	5	-		
trans-1,4-Dichloro-2-butene		5 U	ug/kg	5	-		
Isobutyl alcohol		1100 R	ug/kg		-		
1,1,1,2-Tetrachloroethane		5 U	ug/kg	5	-		
1,2-Dibromo-3-chloropropane		11 U	ug/kg	11	-		
1,2-Dibromoethane		5 U	ug/kg	5	-		
1,4-Dioxane		210 R	ug/kg		-		
3-Chloropropene		5 U	ug/kg	5	-		
Acetonitrile		110 U	ug/kg	110	-		
Chloroprene		210 R	ug/kg		-		
Methacrylonitrile		5 U	ug/kg	5	-		
Methyl methacrylate		11 U	ug/kg	11	-		
Pentachloroethane		11 U	ug/kg	11	-		
Propionitrile		110 U	ug/kg	110	-		
Vinyl acetate		11 U	ug/kg	11	-		

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35163001			35163002			35163003			35163004		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPTBSS1			MPTBSS1D			MPTBSS2			MPTBSS3		
Collect Date:	16-FEB-93			16-FEB-93			16-FEB-93			16-FEB-93		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
BKG SVOC (8270+21)												
N-Nitrosodimethylamine	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Phenol	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Aniline	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
bis (2-Chloroethyl) ether	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Benzyl Alcohol	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2-Methylphenol	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
bis(2-Chloroisopropyl)ether	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
N-Nitroso-di-n-propylamine	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Hexachloroethane	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Nitrobenzene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Isophorone	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2-Nitrophenol	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2,4-Dimethylphenol	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Benzoic acid	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
bis(2-Chloroethoxy)methane	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2,4-Dichlorophenol	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
1,2,4-Trichlorobenzene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Naphthalene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
4-Chloroaniline	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Hexachlorobutadiene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
4-Chloro-3-methylphenol	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2-Methylnaphthalene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Hexachlorocyclopentadiene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2,4,6-Trichlorophenol	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Dimethylphthalate	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2,4,5-Trichlorophenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
2-Chloronaphthalene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2-Nitroaniline	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
Acenaphthylene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2,6-Dinitrotoluene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
3-Nitroaniline	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
Acenaphthene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2,4-Dinitrophenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
4-Nitrophenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
Dibenzofuran	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
2,4-Dinitrotoluene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Diethylphthalate	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
4-Chlorophenyl-phenylether	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Fluorene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
4-Nitroaniline	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
4,6-Dinitro-2-methylphenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
N-Nitrosodiphenylamine (1)	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
1,2-Diphenylhydrazine	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
4-Bromophenyl-phenylether	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Hexachlorobenzene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Pentachlorophenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1900 U	ug/kg	1900	1900 U	ug/kg	1900
Phenanthrene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Anthracene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Di-n-Butylphthalate	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Fluoranthene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400
Pyrene	340 U	ug/kg	340	350 U	ug/kg	350	400 U	ug/kg	400	400 U	ug/kg	400

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	Lab Sample Number:	35163001				35163002				35163003				35163004			
	Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
	Locator	MPTBSS1				MPTBSS1D				MPTBSS2				MPTBSS3			
	Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93				16-FEB-93			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Butylbenzylphthalate		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
3,3'-Dichlorobenzidine		690	U	ug/kg	690	690	U	ug/kg	690	800	U	ug/kg	800	800	U	ug/kg	800
Benzo(a)anthracene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Chrysene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
bis(2-Ethylhexyl)phthalate		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Di-n-octylphthalate		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Benzo(b)fluoranthene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Benzo(k)fluoranthene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Benzo(a)pyrene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Indeno(1,2,3-cd)pyrene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Dibenz(a,h)anthracene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Benzo(g,h,i)perylene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
2-Picoline		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
Methyl methanesulfonate		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Ethyl methanesulfonate		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Acetophenone		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
N-Nitrosopiperidine		340	UJ	ug/kg		350	UJ	ug/kg		400	UJ	ug/kg		400	UJ	ug/kg	
Phenyl-tert-butylamine		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
2,6-Dichlorophenol		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
N-Nitroso-di-n-butylamine		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
N-Nitrosodiethylamine		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
N-Nitrosopyrrolidine		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Benzidine		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
1,2,4,5-Tetrachlorobenzene		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
Pentachlorobenzene		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
1-Naphthylamine		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
2-Naphthylamine		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
2,3,4,6-Tetrachlorophenol		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Phenacetin		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
4-Aminobiphenyl		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
Pentachloronitrobenzene		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
Pronamide		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
p-(Dimethylamino)azobenzene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
7,12-Dimethylbenz(A)Anthracene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
3-Methylcholanthrene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Pyridine		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
N-Nitrosomethylethylamine		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
N-Nitrosomorpholine		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
o-Toluidine		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Hexachloropropene		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
p-Phenylenediamine		17000	U	ug/kg	17000	17000	U	ug/kg	17000	19000	U	ug/kg	19000	19000	U	ug/kg	19000
Safrole		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
Isosafrole		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
1,4-Naphthoquinone		34000	U	ug/kg	34000	35000	U	ug/kg	35000	40000	U	ug/kg	40000	40000	U	ug/kg	40000
1,3-Dinitrobenzene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
5-Nitro-o-toluidine		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
1,3,5-Trinitrobenzene		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
4-Nitroquinoline-1-oxide		17000	U	ug/kg	17000	17000	U	ug/kg	17000	19000	U	ug/kg	19000	19000	U	ug/kg	19000
Methapyrilene		1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
3,3'-Dimethylbenzidine		340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
Hexachlorophene		17000	UJ	ug/kg		17000	U	ug/kg	17000	19000	UJ	ug/kg		19000	UJ	ug/kg	
Aramite		1700	R	ug/kg		1700	U	ug/kg	1700	1900	R	ug/kg		1900	R	ug/kg	

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35163001				35163002				35163003				35163004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSS1				MPTBSS1D				MPTBSS2				MPTBSS3			
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93				16-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
2-Chlorophenol	340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400
3- & 4-Methylphenol (2)	-				-				-				-			
Hexachloropropene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1900	U	ug/kg	1900	1900	U	ug/kg	1900
2-Acetylaminofluorene	340	U	ug/kg	340	350	U	ug/kg	350	400	U	ug/kg	400	400	U	ug/kg	400

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35163005				35163007				35163006		
Site	BACKGROUND				BACKGROUND				BACKGROUND		
Locator	MPTBSS4				MPTBSS5				MPTBSS6		
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)												
N-Nitrosodimethylamine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Phenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Aniline	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
bis (2-Chloroethyl) ether	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Benzyl Alcohol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2-Methylphenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
bis(2-Chloroisopropyl)ether	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
N-Nitroso-di-n-propylamine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Hexachloroethane	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Nitrobenzene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Isophorone	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2-Nitrophenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2,4-Dimethylphenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Benzoic acid	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
bis(2-Chloroethoxy)methane	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2,4-Dichlorophenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
1,2,4-Trichlorobenzene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Naphthalene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
4-Chloroaniline	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Hexachlorobutadiene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
4-Chloro-3-methylphenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2-Methylnaphthalene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Hexachlorocyclopentadiene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2,4,6-Trichlorophenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Dimethylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2,4,5-Trichlorophenol	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
2-Chloronaphthalene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2-Nitroaniline	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
Acenaphthylene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2,6-Dinitrotoluene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
3-Nitroaniline	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
Acenaphthene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2,4-Dinitrophenol	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
4-Nitrophenol	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
Dibenzofuran	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2,4-Dinitrotoluene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Diethylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
4-Chlorophenyl-phenylether	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Fluorene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
4-Nitroaniline	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
4,6-Dinitro-2-methylphenol	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35163005				35163007				35163006			
Site	BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSS4				MPTBSS5				MPTBSS6			
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
N-Nitrosodiphenylamine (1)	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
1,2-Diphenylhydrazine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
4-Bromophenyl-phenylether	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Hexachlorobenzene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Pentachlorophenol	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
Phenanthrene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Anthracene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Di-n-Butylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
fluoranthene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Pyrene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Butylbenzylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
3,3'-Dichlorobenzidine	690	U	ug/kg	690	690	U	ug/kg	690	690	U	ug/kg	690
Benzo(a)anthracene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Chrysene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
bis(2-Ethylhexyl)phthalate	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Di-n-octylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Benzo(b)fluoranthene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Benzo(k)fluoranthene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Benzo(a)pyrene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Indeno(1,2,3-cd)pyrene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Dibenz(a,h)anthracene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Benzo(g,h,i)perylene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
2-Picoline	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
Methyl methanesulfonate	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Ethyl methanesulfonate	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Acetophenone	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
N-Nitrosopiperidine	350	UJ	ug/kg		340	UJ	ug/kg		350	UJ	ug/kg	
Phenyl-tert-butylamine	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
2,6-Dichlorophenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
N-Nitroso-di-n-butylamine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
N-Nitrosodiethylamine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
N-Nitrosopyrrolidine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Benzidine	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
1,2,4,5-Tetrachlorobenzene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
Pentachlorobenzene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
1-Naphthylamine	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
2-Naphthylamine	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
2,3,4,6-Tetrachlorophenol	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Phenacetin	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
4-Aminobiphenyl	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
Pentachloronitrobenzene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
Pronamide	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
p-(Dimethylamino)azobenzene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
7,12-Dimethylbenz(A)Anthracene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
3-Methylcholanthrene	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Pyridine	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
N-Nitrosomethylethylamine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
N-Nitrosomorpholine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
o-Toluidine	350	U	ug/kg	350	340	U	ug/kg	340	350	U	ug/kg	350
Hexachloropropene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700
p-Phenylenediamine	17000	U	ug/kg	17000	17000	U	ug/kg	17000	17000	U	ug/kg	17000
Safrole	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35163005			35163007			35163006		
Site	BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPTBSS4			MPTBSS5			MPTBSS6		
Collect Date:	16-FEB-93			16-FEB-93			16-FEB-93		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
Isosafrole	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 U	ug/kg	1700
1,4-Naphthoquinone	35000 U	ug/kg	35000	34000 U	ug/kg	34000	35000 U	ug/kg	35000
1,3-Dinitrobenzene	350 U	ug/kg	350	340 U	ug/kg	340	350 U	ug/kg	350
5-Nitro-o-toluidine	350 U	ug/kg	350	340 U	ug/kg	340	350 U	ug/kg	350
1,3,5-Trinitrobenzene	350 U	ug/kg	350	340 U	ug/kg	340	350 U	ug/kg	350
4-Nitroquinoline-1-oxide	17000 U	ug/kg	17000	17000 U	ug/kg	17000	17000 U	ug/kg	17000
Methapyrilene	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 U	ug/kg	1700
3,3'-Dimethylbenzidine	350 U	ug/kg	350	340 U	ug/kg	340	350 U	ug/kg	350
Hexachlorophene	17000 UJ	ug/kg		17000 UJ	ug/kg		17000 UJ	ug/kg	
Aramite	1700 R	ug/kg		1700 R	ug/kg		1700 R	ug/kg	
2-Chlorophenol	350 U	ug/kg	350	340 U	ug/kg	340	350 U	ug/kg	350
3- & 4-Methylphenol (2)	-			-			-		
Hexachloropropene	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 U	ug/kg	1700
2-Acetylaminofluorene	350 U	ug/kg	350	340 U	ug/kg	340	350 U	ug/kg	350

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01527001				01527002				01527003				01527004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSS1				MPTBSS1D				MPTBSS2				MPTBSS3			
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93				16-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SOILS METALS																
Antimony	5.3	U	mg/kg	5.3	5.2	U	mg/kg	5.2	6	U	mg/kg	6	6	U	mg/kg	6
Arsenic	2.2	U	mg/kg	2.2	1.5	U	mg/kg	1.5	2.5	U	mg/kg	2.5	2.6	U	mg/kg	2.6
Barium	2.7	J	mg/kg		2.6	J	mg/kg		5	J	mg/kg		2.5	J	mg/kg	
Beryllium	.06	U	mg/kg	.06	.06	U	mg/kg	.06	.07	U	mg/kg	.07	.07	U	mg/kg	.07
Cadmium	.83	U	mg/kg	.83	.83	U	mg/kg	.83	1	J	mg/kg		.96	U	mg/kg	.96
Chromium	1.5	J	mg/kg		.72	J	mg/kg		1.2	J	mg/kg		2.5		mg/kg	
Cobalt	.47	U	mg/kg	.47	.47	U	mg/kg	.47	.55	U	mg/kg	.55	.55	U	mg/kg	.55
Copper	2.1	J	mg/kg		.35	U	mg/kg	.35	.41	U	mg/kg	.41	.41	U	mg/kg	.41
Cyanide	.16	U	mg/kg	.16	.16	U	mg/kg	.16	.18	U	mg/kg	.18	.18	U	mg/kg	.18
Lead	1.5	U	mg/kg	1.5	1.2	U	mg/kg	1.2	.25	U	mg/kg	.25	.94	U	mg/kg	.94
Mercury	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.07	U	mg/kg	.07
Nickel	2.6	U	mg/kg	2.6	2.6	U	mg/kg	2.6	3	U	mg/kg	3	3	U	mg/kg	3
Selenium	.72	J	mg/kg		.59	J	mg/kg		.86	J	mg/kg		.71	J	mg/kg	
Silver	.51	U	mg/kg	.51	.51	U	mg/kg	.51	.59	U	mg/kg	.59	.59	U	mg/kg	.59
Thallium	.53	UJ	mg/kg		.54	UJ	mg/kg		.78	J	mg/kg		.62	UJ	mg/kg	
Tin	7.3	U	mg/kg	7.3	7.3	U	mg/kg	7.3	8.4	U	mg/kg	8.4	8.5	U	mg/kg	8.5
Vanadium	1.7	J	mg/kg		1.2	J	mg/kg		1.6	J	mg/kg		2.5	J	mg/kg	
Zinc	1.7	J	mg/kg		.35	J	mg/kg		1.2	J	mg/kg		.71	J	mg/kg	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01527005				01527007				01527006		
Site	BACKGROUND				BACKGROUND				BACKGROUND		
Locator	MPTBSS4				MPTBSS5				MPTBSS6		
Collect Date:	16-FEB-93				16-FEB-93				16-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SOILS METALS												
Antimony	5.2	U	mg/kg	5.2	5.2	U	mg/kg	5.2	5.2	U	mg/kg	5.2
Arsenic	1.4	U	mg/kg	1.4	.76	U	mg/kg	.76	1.7	U	mg/kg	1.7
Barium	3.6	J	mg/kg		.76	J	mg/kg		2	J	mg/kg	
Beryllium	.06	J	mg/kg		.06	U	mg/kg	.06	.09	J	mg/kg	
Cadmium	.84	U	mg/kg	.84	.83	U	mg/kg	.83	.84	U	mg/kg	.84
Chromium	.72	J	mg/kg		.68	J	mg/kg		1.7	J	mg/kg	
Cobalt	.48	U	mg/kg	.48	.47	U	mg/kg	.47	.48	U	mg/kg	.48
Copper	.36	U	mg/kg	.36	.35	U	mg/kg	.35	.36	U	mg/kg	.36
Cyanide	.16	U	mg/kg	.16	.16	U	mg/kg	.16	.16	U	mg/kg	.16
Lead	1	U	mg/kg	1	1.4	U	mg/kg	1.4	1.7	U	mg/kg	1.7
Mercury	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.03	U	mg/kg	.03
Nickel	2.6	U	mg/kg	2.6	2.6	U	mg/kg	2.6	2.6	U	mg/kg	2.6
Selenium	.69	J	mg/kg		.47	J	mg/kg		.45	U	mg/kg	.45
Silver	.51	U	mg/kg	.51	.51	U	mg/kg	.51	.51	U	mg/kg	.51
Thallium	1.1	J	mg/kg		.77	J	mg/kg		.94	J	mg/kg	
Tin	7.4	U	mg/kg	7.4	7.3	U	mg/kg	7.3	7.4	U	mg/kg	7.4
Vanadium	2.3	J	mg/kg		.46	U	mg/kg	.46	2	J	mg/kg	
Zinc	1.4	J	mg/kg		1.9	J	mg/kg		1.8	J	mg/kg	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	24082001			24082002			24082003			24082004		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPTBSS1			MPTBSS1D			MPTBSS2			MPTBSS3		
Collect Date:	16-FEB-93			16-FEB-93			16-FEB-93			16-FEB-93		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)												
alpha-BHC	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
beta-BHC	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.5 U	ug/kg	1.5	1.6 U	ug/kg	1.6
delta-BHC	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
gamma-BHC (Lindane)	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
Heptachlor	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
Aldrin	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
Heptachlor epoxide	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
Endosulfan I	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
Dieldrin	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
4,4-DDE	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.8 U	ug/kg	.8	.81 U	ug/kg	.81
Endrin	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.5 U	ug/kg	1.5	1.6 U	ug/kg	1.6
Endosulfan II	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.5 U	ug/kg	1.5	1.6 U	ug/kg	1.6
4,4-DDD	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.5 U	ug/kg	1.5	1.6 U	ug/kg	1.6
Endosulfan sulfate	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.5 U	ug/kg	1.5	1.6 U	ug/kg	1.6
4,4-DDT	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.5 U	ug/kg	1.5	1.6 U	ug/kg	1.6
Methoxychlor	2.8 U	ug/kg	2.8	2.8 U	ug/kg	2.8	3.2 U	ug/kg	3.2	3.3 U	ug/kg	3.3
Endrin aldehyde	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.5 U	ug/kg	1.5	1.6 U	ug/kg	1.6
Endrin ketone	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.5 U	ug/kg	1.5	1.6 U	ug/kg	1.6
Chlordane	7 U	ug/kg	7	7 U	ug/kg	7	8 U	ug/kg	8	8.1 U	ug/kg	8.1
Chlorobenzilate	21 U	ug/kg	21	21 U	ug/kg	21	24 U	ug/kg	24	24 U	ug/kg	24
Diallate	42 U	ug/kg	42	42 U	ug/kg	42	48 U	ug/kg	48	48 U	ug/kg	48
Toxaphene	34 U	ug/kg	34	34 U	ug/kg	34	39 U	ug/kg	39	40 U	ug/kg	40
Isodrin	.83 U	ug/kg	.83	.83 U	ug/kg	.83	.95 U	ug/kg	.95	.96 U	ug/kg	.96
Kepone	42 U	ug/kg	42	42 U	ug/kg	42	48 U	ug/kg	48	48 U	ug/kg	48
Aroclor-1016	34 U	ug/kg	34	34 U	ug/kg	34	39 U	ug/kg	39	40 U	ug/kg	40
Aroclor-1221	70 U	ug/kg	70	70 U	ug/kg	70	80 U	ug/kg	80	81 U	ug/kg	81
Aroclor-1232	70 U	ug/kg	70	70 U	ug/kg	70	80 U	ug/kg	80	81 U	ug/kg	81
Aroclor-1242	34 U	ug/kg	34	34 U	ug/kg	34	39 U	ug/kg	39	40 U	ug/kg	40
Aroclor-1248	34 U	ug/kg	34	34 U	ug/kg	34	39 U	ug/kg	39	40 U	ug/kg	40
Aroclor-1254	18 U	ug/kg	18	18 U	ug/kg	18	20 U	ug/kg	20	20 U	ug/kg	20
Aroclor-1260	18 U	ug/kg	18	18 U	ug/kg	18	20 U	ug/kg	20	20 U	ug/kg	20

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	24082005			24082007			24082006		
Site	BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPTBSS4			MPTBSS5			MPTBSS6		
Collect Date:	16-FEB-93			16-FEB-93			16-FEB-93		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)									
alpha-BHC	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.7 U	ug/kg	.7
beta-BHC	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4
delta-BHC	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.7 U	ug/kg	.7
gamma-BHC (Lindane)	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.7 U	ug/kg	.7
Heptachlor	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.7 U	ug/kg	.7
Aldrin	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.7 U	ug/kg	.7
Heptachlor epoxide	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.7 U	ug/kg	.7
Endosulfan I	.7 U	ug/kg	.7	.7 U	ug/kg	.7	.7 U	ug/kg	.7
Dieldrin	2.3	ug/kg		.7 U	ug/kg	.7	.7 U	ug/kg	.7
4,4-DDE	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4
Endrin	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4
Endosulfan II	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4
4,4-DDD	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4
Endosulfan sulfate	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4
4,4-DDT	2.8 U	ug/kg	2.8	2.8 U	ug/kg	2.8	2.8 U	ug/kg	2.8
Methoxychlor	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4
Endrin aldehyde	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4	1.4 U	ug/kg	1.4
Endrin ketone	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Chlordane	21 U	ug/kg	21	21 U	ug/kg	21	21 U	ug/kg	21
Chlorobenzilate	42 U	ug/kg	42	42 U	ug/kg	42	42 U	ug/kg	42
Diallate	35 U	ug/kg	35	35 U	ug/kg	35	35 U	ug/kg	35
Toxaphene	.84 U	ug/kg	.84	.84 U	ug/kg	.84	.84 U	ug/kg	.84
Isodrin	42 U	ug/kg	42	42 U	ug/kg	42	42 U	ug/kg	42
Kepone	35 U	ug/kg	35	35 U	ug/kg	35	35 U	ug/kg	35
Aroclor-1016	70 U	ug/kg	70	70 U	ug/kg	70	70 U	ug/kg	70
Aroclor-1221	70 U	ug/kg	70	70 U	ug/kg	70	70 U	ug/kg	70
Aroclor-1232	35 U	ug/kg	35	35 U	ug/kg	35	35 U	ug/kg	35
Aroclor-1242	35 U	ug/kg	35	35 U	ug/kg	35	35 U	ug/kg	35
Aroclor-1248	18 U	ug/kg	18	18 U	ug/kg	18	18 U	ug/kg	18
Aroclor-1254	18 U	ug/kg	18	18 U	ug/kg	18	18 U	ug/kg	18
Aroclor-1260									

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

SUBSURFACE SOIL

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	R9130001					R9130002					R9130005					R9130004				
Lab Sample Number:																				
Site	BACKGROUND					BACKGROUND					BACKGROUND					BACKGROUND				
Locator	08BS00104					08BS00104D					08BS00404					08BS00504				
Collect Date:	22-NOV-94					22-NOV-94					22-NOV-94					22-NOV-94				
	VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL	
BKG VOCs (8240+11)																				
Chloromethane	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
Bromomethane	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
Vinyl chloride	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
Chloroethane	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
Methylene chloride	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Acetone	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
Carbon disulfide	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,1-Dichloroethene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,1-Dichloroethene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,2-Dichloroethene (total)	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Chloroform	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,2-Dichloroethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
2-Butanone	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
1,1,1-Trichloroethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Carbon tetrachloride	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Bromodichloromethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,2-Dichloropropene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
cis-1,3-Dichloropropene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Trichloroethene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Dibromochloromethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,1,2-Trichloroethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Benzene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
trans-1,3-Dichloropropene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Bromoform	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
4-Methyl-2-pentanone	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
2-Hexanone	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
Tetrachloroethene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Toluene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Chlorobenzene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Ethylbenzene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Styrene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Xylenes (total)	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Dichlorodifluoromethane	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
Trichlorofluoromethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,3-Dichlorobenzene	5	U	ug/kg	5		5	U	ug/kg	5		360	U	ug/kg	360		6	U	ug/kg	6	
Acrolein	110	U	ug/kg	110		110	U	ug/kg	110		110	U	ug/kg	110		110	U	ug/kg	110	
Iodomethane	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
1,4-Dichlorobenzene	350	U	ug/kg	350		350	U	ug/kg	350		360	U	ug/kg	360		6	U	ug/kg	6	
Acrylonitrile	110	U	ug/kg	110		110	U	ug/kg	110		110	U	ug/kg	110		110	U	ug/kg	110	
Dibromomethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,2-Dichlorobenzene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		370	U	ug/kg	370	
2-Chloroethylvinylether	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
Ethyl methacrylate	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,2,3-Trichloropropane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
trans-1,4-Dichloro-2-butene	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
Isobutyl alcohol	220	U	ug/kg	220		220	U	ug/kg	220		220	U	ug/kg	220		220	U	ug/kg	220	
1,1,1,2-Tetrachloroethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,2-Dibromo-3-chloropropane	11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11		11	U	ug/kg	11	
1,2-Dibromoethane	5	U	ug/kg	5		5	U	ug/kg	5		5	U	ug/kg	5		6	U	ug/kg	6	
1,4-Dioxane	220	R	ug/kg			220	R	ug/kg			220	R	ug/kg			220	R	ug/kg		

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130001				R9130002				R9130005				R9130004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	08BS00104				08BS00104D				08BS00404				08BS00504			
Collect Date:	22-NOV-94				22-NOV-94				22-NOV-94				22-NOV-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
3-Chloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Acetonitrile	110	U	ug/kg	110	110	U	ug/kg	110	110	U	ug/kg	110	110	U	ug/kg	110
Chloroprene	220	U	ug/kg	220	220	U	ug/kg	220	220	U	ug/kg	220	220	U	ug/kg	220
Methacrylonitrile	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Methyl methacrylate	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11
Pentachloroethane	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11
Propionitrile	110	U	ug/kg	110	110	U	ug/kg	110	110	U	ug/kg	110	110	U	ug/kg	110
Vinyl acetate	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130003
Site	BACKGROUND
Locator	0BBS00604
Collect Date:	22-NOV-94

	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)				
Chloromethane	12	U	ug/kg	12
Bromomethane	12	U	ug/kg	12
Vinyl chloride	12	U	ug/kg	12
Chloroethane	12	U	ug/kg	12
Methylene chloride	6	U	ug/kg	6
Acetone	12	U	ug/kg	12
Carbon disulfide	6	U	ug/kg	6
1,1-Dichloroethane	6	U	ug/kg	6
1,1-Dichloroethene	6	U	ug/kg	6
1,2-Dichloroethene (total)	6	U	ug/kg	6
Chloroform	6	U	ug/kg	6
1,2-Dichloroethane	6	U	ug/kg	6
2-Butanone	12	U	ug/kg	12
1,1,1-Trichloroethane	6	U	ug/kg	6
Carbon tetrachloride	6	U	ug/kg	6
Bromodichloromethane	6	U	ug/kg	6
1,2-Dichloropropane	6	U	ug/kg	6
cis-1,3-Dichloropropene	6	U	ug/kg	6
Trichloroethene	6	U	ug/kg	6
Dibromochloromethane	6	U	ug/kg	6
1,1,2-Trichloroethane	6	U	ug/kg	6
Benzene	6	U	ug/kg	6
trans-1,3-Dichloropropene	6	U	ug/kg	6
Bromoform	6	U	ug/kg	6
4-Methyl-2-pentanone	12	U	ug/kg	12
2-Hexanone	12	U	ug/kg	12
Tetrachloroethene	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6
Toluene	6	U	ug/kg	6
Chlorobenzene	6	U	ug/kg	6
Ethylbenzene	6	U	ug/kg	6
Styrene	6	U	ug/kg	6
Xylenes (total)	6	U	ug/kg	6
Dichlorodifluoromethane	12	U	ug/kg	12
Trichlorofluoromethane	6	U	ug/kg	6
1,3-Dichlorobenzene	6	U	ug/kg	6
Acrolein	120	U	ug/kg	120
Iodomethane	12	U	ug/kg	12
1,4-Dichlorobenzene	380	U	ug/kg	380
Acrylonitrile	120	U	ug/kg	120
Dibromomethane	6	U	ug/kg	6

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number: R9130003
Site: BACKGROUND
Locator: OBBS00604
Collect Date: 22-NOV-94

	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	6	U	ug/kg	6
2-Chloroethylvinylether	12	U	ug/kg	12
Ethyl methacrylate	6	U	ug/kg	6
1,2,3-Trichloropropane	6	U	ug/kg	6
trans-1,4-Dichloro-2-butene	6	U	ug/kg	6
Isobutyl alcohol	230	U	ug/kg	230
1,1,1,2-Tetrachloroethane	6	U	ug/kg	6
1,2-Dibromo-3-chloropropane	12	U	ug/kg	12
1,2-Dibromoethane	6	U	ug/kg	6
1,4-Dioxane	230	R	ug/kg	
3-Chloropropene	6	U	ug/kg	6
Acetonitrile	120	U	ug/kg	120
Chloroprene	230	U	ug/kg	230
Methacrylonitrile	6	U	ug/kg	6
Methyl methacrylate	12	U	ug/kg	12
Pentachloroethane	12	U	ug/kg	12
Propionitrile	120	U	ug/kg	120
Vinyl acetate	12	U	ug/kg	12

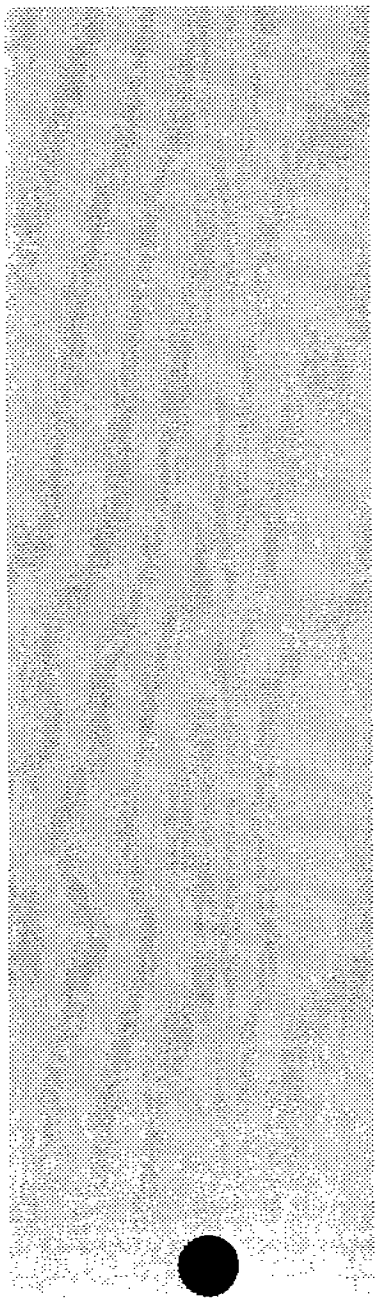
U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

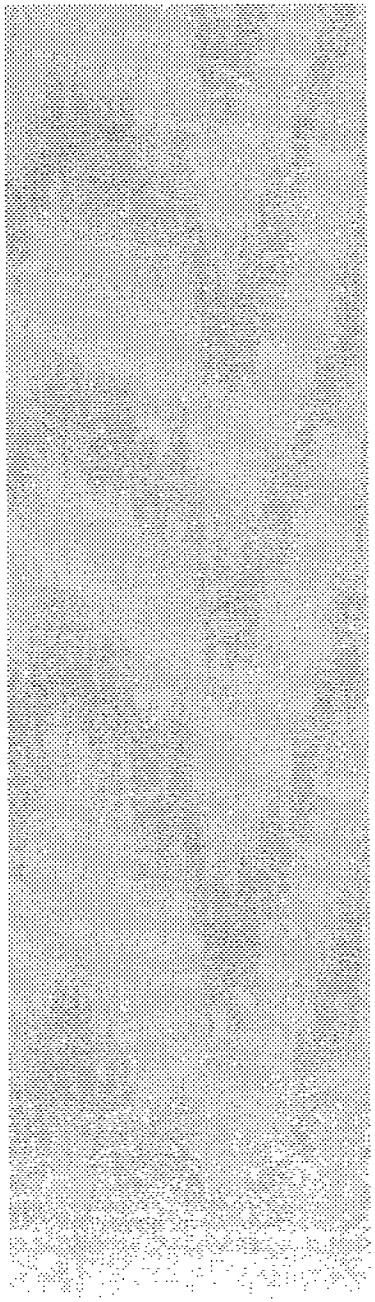
NAVSTA MAYPORT VALIDATED BACKGROUND DATA

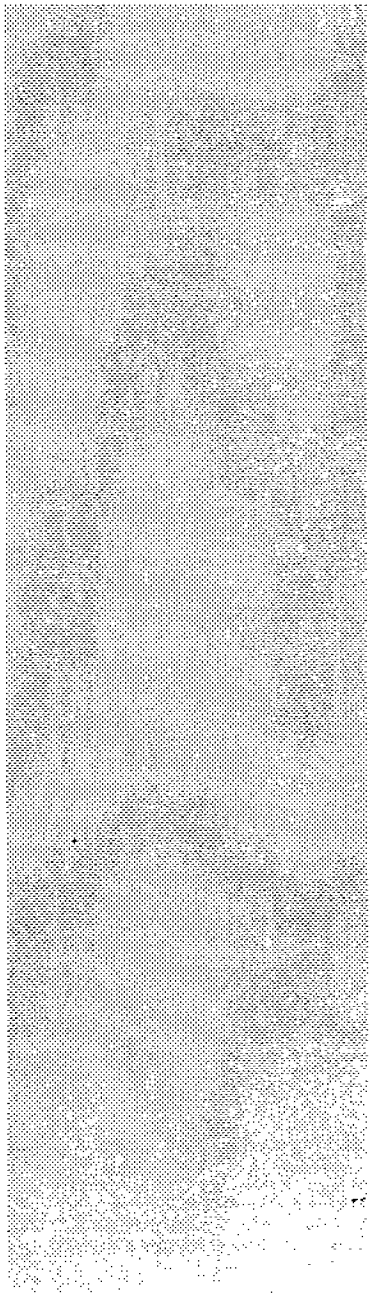
Lab Sample Number:	R9130001			R9130002			R9130005			R9130004		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	OBBS00104			OBBS00104D			OBBS00404			OBBS00504		
Collect Date:	22-NOV-94			22-NOV-94			22-NOV-94			22-NOV-94		
	VALUE QUAL UNITS	DL		VALUE QUAL UNITS	DL		VALUE QUAL UNITS	DL		VALUE QUAL UNITS	DL	
BKG SVOC (8270+21)												
N-Nitrosodimethylamine	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Phenol	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Aniline	350 U	ug/kg	350	350 UJ	ug/kg		360 UJ	ug/kg		370 UJ	ug/kg	
bis (2-Chloroethyl) ether	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Benzyl Alcohol	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2-Methylphenol	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
bis(2-Chloroisopropyl)ether	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
N-Nitroso-di-n-propylamine	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Hexachloroethane	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Nitrobenzene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Isophorone	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2-Nitrophenol	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2,4-Dimethylphenol	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Benzoic acid	1700 U	ug/kg	1700	1700 UJ	ug/kg		1700 UJ	ug/kg		110 J	ug/kg	
bis(2-Chloroethoxy)methane	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2,4-Dichlorophenol	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
1,2,4-Trichlorobenzene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Naphthalene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
4-Chloroaniline	350 UJ	ug/kg		350 UJ	ug/kg		360 UJ	ug/kg		370 UJ	ug/kg	
Hexachlorobutadiene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
4-Chloro-3-methylphenol	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2-Methylnaphthalene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Hexachlorocyclopentadiene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2,4,6-Trichlorophenol	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Dimethylphthalate	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2,4,5-Trichlorophenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1800 U	ug/kg	1800
2-Chloronaphthalene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2-Nitroaniline	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1800 U	ug/kg	1800
Acenaphthylene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2,6-Dinitrotoluene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
3-Nitroaniline	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 UJ	ug/kg		1800 UJ	ug/kg	
Acenaphthene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2,4-Dinitrophenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 UJ	ug/kg		1800 UJ	ug/kg	
4-Nitrophenol	1700 U	ug/kg	1700	1700 UJ	ug/kg		1700 UJ	ug/kg		1800 UJ	ug/kg	
Dibenzofuran	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
2,4-Dinitrotoluene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Diethylphthalate	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
4-Chlorophenyl-phenylether	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Fluorene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
4-Nitroaniline	1700 U	ug/kg	1700	1700 UJ	ug/kg		1700 UJ	ug/kg		1800 UJ	ug/kg	
4,6-Dinitro-2-methylphenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1800 U	ug/kg	1800
N-Nitrosodiphenylamine (1)	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
1,2-Diphenylhydrazine	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 UJ	ug/kg	
4-Bromophenyl-phenylether	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Hexachlorobenzene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Pentachlorophenol	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1700 U	ug/kg	1700	1800 U	ug/kg	1800
Phenanthrene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Anthracene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Di-n-Butylphthalate	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 U	ug/kg	370
Fluoranthene	350 U	ug/kg	350	350 U	ug/kg	350	360 U	ug/kg	360	370 UJ	ug/kg	
Pyrene												

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130001			R9130002			R9130005			R9130004		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	OBBS00104			OBBS00104D			OBBS00404			OBBS00504		
Collect Date:	22-NOV-94			22-NOV-94			22-NOV-94			22-NOV-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL







NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	R9130001				R9130002				R9130005				R9130004			
Lab Sample Number:																
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBBS00104				OBBS00104D				OBBS00404				OBBS00504			
Collect Date:	22-NOV-94				22-NOV-94				22-NOV-94				22-NOV-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Butylbenzylphthalate	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
3,3'-Dichlorobenzidine	710	U	ug/kg	710	710	U	ug/kg	710	720	U	ug/kg	720	730	U	ug/kg	730
Benzo(a)anthracene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Chrysene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
bis(2-Ethylhexyl)phthalate	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Di-n-octylphthalate	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Benzo(b)fluoranthene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Benzo(k)fluoranthene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Benzo(a)pyrene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Indeno(1,2,3-cd)pyrene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Dibenz(a,h)anthracene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Benzo(g,h,i)perylene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
2-Picoline	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Methyl methanesulfonate	350	UJ	ug/kg		350	U	ug/kg	350	360	UJ	ug/kg		370	U	ug/kg	370
Ethyl methanesulfonate	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Acetophenone	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
N-Nitrosopiperidine	350	U	ug/kg	350	350	U	ug/kg	350	360	UJ	ug/kg		370	U	ug/kg	370
Phenyl-tert-butylamine	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	UJ	ug/kg		1800	U	ug/kg	1800
2,6-Dichlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
N-Nitroso-di-n-butylamine	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
N-Nitrosodiethylamine	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
N-Nitrosopyrrolidine	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Benzidine	1700	UJ	ug/kg		1700	UJ	ug/kg		1700	U	ug/kg	1700	1800	UJ	ug/kg	
1,2,4,5-Tetrachlorobenzene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Pentachlorobenzene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800
1-Naphthylamine	1700	U	ug/kg	1700	1700	UJ	ug/kg		1700	UJ	ug/kg		1800	UJ	ug/kg	
2-Naphthylamine	1700	U	ug/kg	1700	1700	UJ	ug/kg		1700	UJ	ug/kg		1800	UJ	ug/kg	
2,3,4,6-Tetrachlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Phenacetin	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
4-Aminobiphenyl	1700	U	ug/kg	1700	1700	UJ	ug/kg		1700	UJ	ug/kg		1800	UJ	ug/kg	
Pentachloronitrobenzene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Pronamide	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
p-(Dimethylamino)azobenzene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
7,12-Dimethylbenz(A)Anthracene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
3-Methylcholanthrene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Pyridine	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	UJ	ug/kg		1800	U	ug/kg	1800
N-Nitrosomethylethylamine	350	U	ug/kg	350	350	UJ	ug/kg		360	UJ	ug/kg		370	U	ug/kg	370
N-Nitrosomorpholine	350	U	ug/kg	350	350	U	ug/kg	350	360	UJ	ug/kg		370	U	ug/kg	370
o-Toluidine	350	U	ug/kg	350	350	U	ug/kg	350	360	UJ	ug/kg		370	UJ	ug/kg	
Hexachloropropene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800
p-Phenylenediamine	17000	U	ug/kg	17000	17000	UJ	ug/kg		17000	UJ	ug/kg		18000	UJ	ug/kg	
Safrole	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Isosafrole	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800
1,4-Naphthoquinone	35000	UJ	ug/kg		35000	U	ug/kg	35000	36000	U	ug/kg	36000	37000	U	ug/kg	37000
1,3-Dinitrobenzene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
5-Nitro-o-toluidine	350	U	ug/kg	350	350	UJ	ug/kg		360	UJ	ug/kg		370	UJ	ug/kg	
1,3,5-Trinitrobenzene	350	U	ug/kg	350	350	U	ug/kg	350	360	UJ	ug/kg		370	U	ug/kg	370
4-Nitroquinoline-1-oxide	17000	U	ug/kg	17000	17000	UJ	ug/kg		17000	UJ	ug/kg		18000	UJ	ug/kg	
Methapyrilene	1700	U	ug/kg	1700	1700	UJ	ug/kg		1700	U	ug/kg	1700	1800	U	ug/kg	1800
3,3'-Dimethylbenzidine	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Hexachlorophene	17000	U	ug/kg	17000	17000	R	ug/kg		17000	UJ	ug/kg		18000	R	ug/kg	
Aramite	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130001				R9130002				R9130005				R9130004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBBS00104				OBBS00104D				OBBS00404				OBBS00504			
Collect Date:	22-NOV-94				22-NOV-94				22-NOV-94				22-NOV-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
2-Chlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
3- & 4-Methylphenol (2)	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370
Hexachloropropene	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1700	U	ug/kg	1700	1800	U	ug/kg	1800
2-Acetylaminofluorene	350	U	ug/kg	350	350	U	ug/kg	350	360	U	ug/kg	360	370	U	ug/kg	370

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130003
Site	BACKGROUND
Locator	08BS00604
Collect Date:	22-NOV-94

	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)				
N-Nitrosodimethylamine	380	U	ug/kg	380
Phenol	380	U	ug/kg	380
Aniline	380	UJ	ug/kg	
bis (2-Chloroethyl) ether	380	UJ	ug/kg	
Benzyl Alcohol	380	U	ug/kg	380
2-Methylphenol	380	U	ug/kg	380
bis(2-Chloroisopropyl)ether	380	U	ug/kg	380
N-Nitroso-di-n-propylamine	380	U	ug/kg	380
Hexachloroethane	380	U	ug/kg	380
Nitrobenzene	380	U	ug/kg	380
Isophorone	380	U	ug/kg	380
2-Nitrophenol	380	U	ug/kg	380
2,4-Dimethylphenol	380	U	ug/kg	380
Benzoic acid	1900	UJ	ug/kg	
bis(2-Chloroethoxy)methane	380	U	ug/kg	380
2,4-Dichlorophenol	380	U	ug/kg	380
1,2,4-Trichlorobenzene	380	U	ug/kg	380
Naphthalene	380	U	ug/kg	380
4-Chloroaniline	380	UJ	ug/kg	
Hexachlorobutadiene	380	U	ug/kg	380
4-Chloro-3-methylphenol	380	U	ug/kg	380
2-Methylnaphthalene	380	U	ug/kg	380
Hexachlorocyclopentadiene	380	U	ug/kg	380
2,4,6-Trichlorophenol	380	U	ug/kg	380
Dimethylphthalate	380	U	ug/kg	380
2,4,5-Trichlorophenol	1900	U	ug/kg	1900
2-Chloronaphthalene	380	U	ug/kg	380
2-Nitroaniline	1900	U	ug/kg	1900
Acenaphthylene	380	U	ug/kg	380
2,6-Dinitrotoluene	380	U	ug/kg	380
3-Nitroaniline	1900	UJ	ug/kg	
Acenaphthene	380	U	ug/kg	380
2,4-Dinitrophenol	1900	UJ	ug/kg	
4-Nitrophenol	1900	UJ	ug/kg	
Dibenzofuran	380	U	ug/kg	380
2,4-Dinitrotoluene	380	U	ug/kg	380
Diethylphthalate	380	U	ug/kg	380
4-Chlorophenyl-phenylether	380	U	ug/kg	380
Fluorene	380	U	ug/kg	380
4-Nitroaniline	1900	UJ	ug/kg	
4,6-Dinitro-2-methylphenol	1900	U	ug/kg	1900

Lab Sample Number: R9130003
Site BACKGROUND
Locator 08BS00604
Collect Date: 22-NOV-94

	VALUE	QUAL	UNITS	DL
N-Nitrosodiphenylamine (1)	380	U	ug/kg	380
1,2-Diphenylhydrazine	380	UJ	ug/kg	
4-Bromophenyl-phenylether	380	U	ug/kg	380
Hexachlorobenzene	380	U	ug/kg	380
Pentachlorophenol	1900	U	ug/kg	1900
Phenanthrene	380	U	ug/kg	380
Anthracene	380	U	ug/kg	380
Di-n-Butylphthalate	380	U	ug/kg	380
Fluoranthene	380	U	ug/kg	380
Pyrene	380	UJ	ug/kg	
Butylbenzylphthalate	380	U	ug/kg	380
3,3'-Dichlorobenzidine	770	U	ug/kg	770
Benzo(a)anthracene	380	U	ug/kg	380
Chrysene	380	U	ug/kg	380
bis(2-Ethylhexyl)phthalate	380	U	ug/kg	380
Di-n-octylphthalate	380	U	ug/kg	380
Benzo(b)fluoranthene	380	U	ug/kg	380
Benzo(k)fluoranthene	380	U	ug/kg	380
Benzo(a)pyrene	380	U	ug/kg	380
Indeno(1,2,3-cd)pyrene	380	U	ug/kg	380
Dibenz(a,h)anthracene	380	U	ug/kg	380
Benzo(g,h,i)perylene	380	U	ug/kg	380
2-Picoline	1900	U	ug/kg	1900
Methyl methanesulfonate	380	U	ug/kg	380
Ethyl methanesulfonate	380	U	ug/kg	380
Acetophenone	380	U	ug/kg	380
N-Nitrosopiperidine	380	U	ug/kg	380
Phenyl-tert-butylamine	1900	U	ug/kg	1900
2,6-Dichlorophenol	380	U	ug/kg	380
N-Nitroso-di-n-butylamine	380	U	ug/kg	380
N-Nitrosodiethylamine	380	U	ug/kg	380
N-Nitrosopyrrolidine	380	U	ug/kg	380
Benzidine	1900	UJ	ug/kg	
1,2,4,5-Tetrachlorobenzene	1900	U	ug/kg	1900
Pentachlorobenzene	1900	U	ug/kg	1900
1-Naphthylamine	1900	UJ	ug/kg	
2-Naphthylamine	1900	UJ	ug/kg	
2,3,4,6-Tetrachlorophenol	380	U	ug/kg	380
Phenacetin	380	U	ug/kg	380
4-Aminobiphenyl	1900	UJ	ug/kg	
Pentachloronitrobenzene	1900	U	ug/kg	1900
Pronamide	380	U	ug/kg	380
p-(Dimethylamino)azobenzene	380	U	ug/kg	380
7,12-Dimethylbenz(A)Anthracene	380	U	ug/kg	380
3-Methylcholanthrene	380	U	ug/kg	380
Pyridine	1900	U	ug/kg	1900
N-Nitrosomethylethylamine	380	U	ug/kg	380
N-Nitrosomorpholine	380	U	ug/kg	380
o-Toluidine	380	UJ	ug/kg	
Hexachloropropene	1900	U	ug/kg	1900
p-Phenylenediamine	19000	UJ	ug/kg	
Safrole	1900	U	ug/kg	1900

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130003
Site	BACKGROUND
Locator	OBBS00604
Collect Date:	22-NOV-94

	VALUE	QUAL	UNITS	DL
Isosafrole	1900	U	ug/kg	1900
1,4-Naphthoquinone	38000	U	ug/kg	38000
1,3-Dinitrobenzene	380	U	ug/kg	380
5-Nitro-o-toluidine	380	UJ	ug/kg	
1,3,5-Trinitrobenzene	380	U	ug/kg	380
4-Nitroquinoline-1-oxide	19000	UJ	ug/kg	
Methapyrilene	1900	U	ug/kg	1900
3,3'-Dimethylbenzidine	380	U	ug/kg	380
Hexachlorophene	19000	R	ug/kg	
Aramite	1900	U	ug/kg	1900
2-Chlorophenol	380	U	ug/kg	380
3- & 4-Methylphenol (2)	380	U	ug/kg	380
Hexachloropropene	1900	U	ug/kg	1900
2-Acetylaminofluorene	380	U	ug/kg	380

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130001				R9130002				R9130005				R9130004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBBS00104				OBBS00104D				OBBS00404				OBBS00504			
Collect Date:	22-NOV-94				22-NOV-94				22-NOV-94				22-NOV-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)																
alpha-BHC	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
beta-BHC	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4
delta-BHC	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
gamma-BHC (Lindane)	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
Heptachlor	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
Aldrin	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
Heptachlor epoxide	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
Endosulfan I	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
Dieldrin	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
4,4-DDE	.72	U	ug/kg	.72	.72	U	ug/kg	.72	3.5		ug/kg		.74	U	ug/kg	.74
Endrin	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4
Endosulfan II	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4
4,4-DDD	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4
Endosulfan sulfate	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4
4,4-DDT	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4
Methoxychlor	2.9	U	ug/kg	2.9	2.9	U	ug/kg	2.9	2.9	U	ug/kg	2.9	3	U	ug/kg	3
Endrin aldehyde	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4
Endrin ketone	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4	1.4	U	ug/kg	1.4
Chlordane	7.2	U	ug/kg	7.2	7.2	U	ug/kg	7.2	7.3	U	ug/kg	7.3	7.4	U	ug/kg	7.4
Chlorobenzilate	22	U	ug/kg	22	22	U	ug/kg	22	22	U	ug/kg	22	22	U	ug/kg	22
Diallate	43	U	ug/kg	43	43	U	ug/kg	43	44	U	ug/kg	44	44	U	ug/kg	44
Toxaphene	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	37	U	ug/kg	37
Isodrin	.72	U	ug/kg	.72	.72	U	ug/kg	.72	.73	U	ug/kg	.73	.74	U	ug/kg	.74
Kepone	43	UJ	ug/kg		43	UJ	ug/kg		44	UJ	ug/kg		44	UJ	ug/kg	
Aroclor-1016	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	37	U	ug/kg	37
Aroclor-1221	72	U	ug/kg	72	72	U	ug/kg	72	73	U	ug/kg	73	74	U	ug/kg	74
Aroclor-1232	72	U	ug/kg	72	72	U	ug/kg	72	73	U	ug/kg	73	74	U	ug/kg	74
Aroclor-1242	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	37	U	ug/kg	37
Aroclor-1248	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	37	U	ug/kg	37
Aroclor-1254	17	U	ug/kg	17	17	U	ug/kg	17	17	U	ug/kg	17	18	U	ug/kg	18
Aroclor-1260	17	U	ug/kg	17	17	U	ug/kg	17	17	U	ug/kg	17	18	U	ug/kg	18

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130003
Site	BACKGROUND
Locator	08BS00604
Collect Date:	22-NOV-94

	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)				
alpha-BHC	.78	U	ug/kg	.78
beta-BHC	1.5	U	ug/kg	1.5
delta-BHC	.78	U	ug/kg	.78
gamma-BHC (Lindane)	.78	U	ug/kg	.78
Heptachlor	.78	U	ug/kg	.78
Aldrin	.78	U	ug/kg	.78
Heptachlor epoxide	.78	U	ug/kg	.78
Endosulfan I	.78	U	ug/kg	.78
Dieldrin	.78	U	ug/kg	.78
4,4-DDE	.78	U	ug/kg	.78
Endrin	1.5	U	ug/kg	1.5
Endosulfan II	1.5	U	ug/kg	1.5
4,4-DDD	1.5	U	ug/kg	1.5
Endosulfan sulfate	1.5	U	ug/kg	1.5
4,4-DDT	1.5	U	ug/kg	1.5
Methoxychlor	3.1	U	ug/kg	3.1
Endrin aldehyde	1.5	U	ug/kg	1.5
Endrin ketone	1.5	U	ug/kg	1.5
Chlordane	7.8	U	ug/kg	7.8
Chlorobenzilate	23	U	ug/kg	23
Dialiate	47	U	ug/kg	47
Toxaphene	38	U	ug/kg	38
Isodrin	.78	U	ug/kg	.78
Kepone	47	UJ	ug/kg	
Aroclor-1016	38	U	ug/kg	38
Aroclor-1221	78	U	ug/kg	78
Aroclor-1232	78	U	ug/kg	78
Aroclor-1242	38	U	ug/kg	38
Aroclor-1248	38	U	ug/kg	38
Aroclor-1254	19	U	ug/kg	19
Aroclor-1260	19	U	ug/kg	19

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130001				R9130002				R9130005				R9130004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBBS00104				OBBS00104D				OBBS00404				OBBS00504			
Collect Date:	22-NOV-94				22-NOV-94				22-NOV-94				22-NOV-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SOILS METALS																
Antimony	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1
Arsenic	.58	J	mg/kg		.43	J	mg/kg		.5	J	mg/kg		.13	U	mg/kg	.13
Barium	3.3	J	mg/kg		3.9	J	mg/kg		6.8	J	mg/kg		2.1	J	mg/kg	
Beryllium	.07	J	mg/kg		.07	J	mg/kg		.07	U	mg/kg	.07	.07	U	mg/kg	.07
Cadmium	.22	U	mg/kg	.22	.22	U	mg/kg	.22	.22	U	mg/kg	.22	.22	U	mg/kg	.22
Chromium	1.5	J	mg/kg		3		mg/kg		.57	U	mg/kg	.57	1.4	J	mg/kg	
Cobalt	.67	U	mg/kg	.67	.71	J	mg/kg		.67	U	mg/kg	.67	.69	U	mg/kg	.69
Copper	2	J	mg/kg		2.3	J	mg/kg		.2	U	mg/kg	.2	.9	U	mg/kg	.9
Cyanide	.58		mg/kg		.15	U	mg/kg	.15	.15	U	mg/kg	.15	.15	U	mg/kg	.15
Lead	.93		mg/kg		.75		mg/kg		.59	U	mg/kg	.59	1.9		mg/kg	
Mercury	.03	U	mg/kg	.03	.03	J	mg/kg		.03	J	mg/kg		.03	J	mg/kg	
Nickel	1.3	U	mg/kg	1.3	1.3	U	mg/kg	1.3	1.3	U	mg/kg	1.3	1.3	U	mg/kg	1.3
Selenium	.13	U	mg/kg	.13	.13	U	mg/kg	.13	.13	UJ	mg/kg		.13	U	mg/kg	.13
Silver	.45	U	mg/kg	.45	.45	U	mg/kg	.45	.46	U	mg/kg	.46	.47	U	mg/kg	.47
Thallium	.13	U	mg/kg	.13	.13	U	mg/kg	.13	.13	U	mg/kg	.13	.13	U	mg/kg	.13
Tin	4	J	mg/kg		2.8	J	mg/kg		2.2	J	mg/kg		2.2	J	mg/kg	
Vanadium	1.7	J	mg/kg		1.9	J	mg/kg		2.5	J	mg/kg		.71	J	mg/kg	
Zinc	2.9	J	mg/kg		2.8	J	mg/kg		2	J	mg/kg		2.5	J	mg/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R9130003
Site	BACKGROUND
Locator	OBBS00604
Collect Date:	22-NOV-94

	VALUE	QUAL	UNITS	DL
BKG SOILS METALS				
Antimony	1.2	U	mg/kg	1.2
Arsenic	.33	J	mg/kg	
Barium	1.9	J	mg/kg	
Beryllium	.07	U	mg/kg	.07
Cadmium	.23	U	mg/kg	.23
Chromium	1.5	J	mg/kg	
Cobalt	.72	U	mg/kg	.72
Copper	1.4	J	mg/kg	
Cyanide	.16	U	mg/kg	.16
Lead	.58	U	mg/kg	.58
Mercury	.03	U	mg/kg	.03
Nickel	1.4	U	mg/kg	1.4
Selenium	.14	U	mg/kg	.14
Silver	.49	U	mg/kg	.49
Thallium	.14	U	mg/kg	.14
Tin	3	J	mg/kg	
Vanadium	1.2	J	mg/kg	
Zinc	2.4	J	mg/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

SURFACE WATER

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SW-1				MPT-B-SW-2				MPT-B-SW-3				MPTBSWDUP1			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPT-B-SW-1				MPT-B-SW-2				MPT-B-SW-3				MPTBSWDUP1			
Collect Date:	21-JAN-92				21-JAN-92				21-JAN-92				21-JAN-92			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs WATER (8240+11)																
Chloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	6	U	ug/l	6	5	U	ug/l	5	8	U	ug/l	8	5	U	ug/l	5
Acetone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chloroform	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Butanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Trichloroethene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dibromochloromethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromoform	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2,2-Tetrachloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Toluene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Styrene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane	-				-				-				-			
Trichlorofluoromethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,3-Dichlorobenzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acrolein	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100
Iodomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	5	U	ug/l	5	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5
Acrylonitrile	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100
Dibromomethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichlorobenzene	5	U	ug/l	5	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5
2-Chloroethylvinylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethyl methacrylate	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2,3-Trichloropropane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Isobutyl alcohol	200	U	ug/l	200	200	U	ug/l	200	200	U	ug/l	200	200	U	ug/l	200
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dibromo-3-chloropropane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dibromoethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,4-Dioxane	200	U	ug/l	200	200	U	ug/l	200	200	U	ug/l	200	200	U	ug/l	200

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Collect Date:	21-JAN-92			21-JAN-92			21-JAN-92			21-JAN-92		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
3-Chloropropene	5 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5
Acetonitrile	100 U	ug/l	100	100 U	ug/l	100	100 U	ug/l	100	100 U	ug/l	100
Chloroprene	200 U	ug/l	200	200 U	ug/l	200	200 U	ug/l	200	200 U	ug/l	200
Methacrylonitrile	5 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5
Methyl methacrylate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Propionitrile	100 U	ug/l	100	100 U	ug/l	100	100 U	ug/l	100	100 U	ug/l	100
Vinyl acetate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538005				35168005				01537004				35196004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSW4				MPTBSW4				MPTBSW5				MPTBSW5			
Collect Date:	17-FEB-93				17-FEB-93				18-FEB-93				18-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs WATER (8240+11)																
Chloromethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Bromomethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Vinyl chloride	10	U	ug/l	10	-				10	U	ug/l	10	-			
Chloroethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Methylene chloride	5	U	ug/l	5	-				5	U	ug/l	5	-			
Acetone	10	U	ug/l	10	-				10	U	ug/l	10	-			
Carbon disulfide	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,1-Dichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,1-Dichloroethene	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2-Dichloroethene (total)	5	U	ug/l	5	-				5	U	ug/l	5	-			
Chloroform	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2-Dichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
2-Butanone	10	U	ug/l	10	-				10	U	ug/l	10	-			
1,1,1-Trichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
Carbon tetrachloride	5	U	ug/l	5	-				5	U	ug/l	5	-			
Bromodichloromethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2-Dichloropropane	5	U	ug/l	5	-				5	U	ug/l	5	-			
cis-1,3-Dichloropropene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Trichloroethene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Dibromochloromethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,1,2-Trichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
Benzene	5	U	ug/l	5	-				5	U	ug/l	5	-			
trans-1,3-Dichloropropene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Bromoform	5	U	ug/l	5	-				5	U	ug/l	5	-			
4-Methyl-2-pentanone	10	U	ug/l	10	-				10	U	ug/l	10	-			
2-Hexanone	10	U	ug/l	10	-				10	U	ug/l	10	-			
Tetrachloroethene	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,1,2,2-Tetrachloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
Toluene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Chlorobenzene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Ethylbenzene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Styrene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Xylenes (total)	5	U	ug/l	5	-				5	U	ug/l	5	-			
Dichlorodifluoromethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Trichlorofluoromethane	5	U	ug/l	5	-				5	UJ	ug/l		-			
1,3-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
Acrolein	100	R	ug/l		-				100	R	ug/l		-			
Iodomethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
1,4-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
Acrylonitrile	100	U	ug/l	100	-				100	U	ug/l	100	-			
Dibromomethane	5	U	ug/l	5	-				5	U	ug/l	5	-			

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538005				35168005				01537004				35196004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSW4				MPTBSW4				MPTBSW5				MPTBSW5			
Collect Date:	17-FEB-93				17-FEB-93				18-FEB-93				18-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
2-Chloroethylvinylether	10	U	ug/l	10	-				10	U	ug/l	10	-			
Ethyl methacrylate	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2,3-Trichloropropane	5	U	ug/l	5	-				5	U	ug/l	5	-			
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Isobutyl alcohol	1000	R	ug/l		-				1000	R	ug/l		-			
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2-Dibromo-3-chloropropane	10	U	ug/l	10	-				10	U	ug/l	10	-			
1,2-Dibromoethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,4-Dioxane	200	R	ug/l		-				200	R	ug/l		-			
3-Chloropropene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Acetonitrile	100	R	ug/l		-				100	R	ug/l		-			
Chloroprene	200	R	ug/l		-				200	R	ug/l		-			
Methacrylonitrile	5	U	ug/l	5	-				5	U	ug/l	5	-			
Methyl methacrylate	10	U	ug/l	10	-				10	U	ug/l	10	-			
Pentachloroethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Propionitrile	100	U	ug/l	100	-				100	U	ug/l	100	-			
Vinyl acetate	10	U	ug/l	10	-				10	U	ug/l	10	-			

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		01538004				35168004				01538002				35168002		
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND		
Locator		MPTBSW6				MPTBSW6				MPTBSW7				MPTBSW7		
Collect Date:		17-FEB-93				17-FEB-93				17-FEB-93				17-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs WATER (8240+11)																
Chloromethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Bromomethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Vinyl chloride	10	U	ug/l	10	-				10	U	ug/l	10	-			
Chloroethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Methylene chloride	5	U	ug/l	5	-				5	U	ug/l	5	-			
Acetone	10	U	ug/l	10	-				10	U	ug/l	10	-			
Carbon disulfide	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,1-Dichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,1-Dichloroethene	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2-Dichloroethene (total)	5	U	ug/l	5	-				5	U	ug/l	5	-			
Chloroform	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2-Dichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
2-Butanone	10	U	ug/l	10	-				10	U	ug/l	10	-			
1,1,1-Trichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
Carbon tetrachloride	5	U	ug/l	5	-				5	U	ug/l	5	-			
Bromodichloromethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2-Dichloropropane	5	U	ug/l	5	-				5	U	ug/l	5	-			
cis-1,3-Dichloropropene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Trichloroethene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Dibromochloromethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,1,2-Trichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
Benzene	5	U	ug/l	5	-				5	U	ug/l	5	-			
trans-1,3-Dichloropropene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Bromoform	5	U	ug/l	5	-				5	U	ug/l	5	-			
4-Methyl-2-pentanone	10	U	ug/l	10	-				10	U	ug/l	10	-			
2-Hexanone	10	U	ug/l	10	-				10	U	ug/l	10	-			
Tetrachloroethene	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,1,2,2-Tetrachloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
Toluene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Chlorobenzene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Ethylbenzene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Styrene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Xylenes (total)	5	U	ug/l	5	-				5	U	ug/l	5	-			
Dichlorodifluoromethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Trichlorofluoromethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,3-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
Acrolein	100	R	ug/l		-				100	R	ug/l		-			
Iodomethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
1,4-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
Acrylonitrile	100	U	ug/l	100	-				100	U	ug/l	100	-			
Dibromomethane	5	U	ug/l	5	-				5	U	ug/l	5	-			

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538004				35168004				01538002				35168002			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSW6				MPTBSW6				MPTBSW7				MPTBSW7			
Collect Date:	17-FEB-93				17-FEB-93				17-FEB-93				17-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
2-Chloroethylvinylether	10	U	ug/l	10	-				10	U	ug/l	10	-			
Ethyl methacrylate	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2,3-Trichloropropane	5	U	ug/l	5	-				5	U	ug/l	5	-			
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Isobutyl alcohol	1000	R	ug/l		-				1000	R	ug/l		-			
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,2-Dibromo-3-chloropropane	10	J	ug/l		-				10	J	ug/l		-			
1,2-Dibromoethane	5	U	ug/l	5	-				5	U	ug/l	5	-			
1,4-Dioxane	200	R	ug/l		-				200	R	ug/l		-			
3-Chloropropene	5	U	ug/l	5	-				5	U	ug/l	5	-			
Acetonitrile	100	R	ug/l		-				100	R	ug/l		-			
Chloroprene	200	R	ug/l		-				200	R	ug/l		-			
Methacrylonitrile	5	U	ug/l	5	-				5	U	ug/l	5	-			
Methyl methacrylate	10	U	ug/l	10	-				10	U	ug/l	10	-			
Pentachloroethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Propionitrile	100	U	ug/l	100	-				100	U	ug/l	100	-			
Vinyl acetate	10	U	ug/l	10	-				10	U	ug/l	10	-			

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538003				35168003				M7840014				M7840015		
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND		
Locator	MPTBSW7D				MPTBSW7D				OBSW010				OBSW011		
Collect Date:	17-FEB-93				17-FEB-93				08-SEP-94				08-SEP-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs WATER (8240+11)																
Chloromethane	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Acetone	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Chloroform	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
2-Butanone	10	U	ug/l	10	-				3	J	ug/l		3	J	ug/l	
1,1,1-Trichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Trichloroethene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Dibromochloromethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Benzene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Bromoform	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
4-Methyl-2-pentanone	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,1,2,2-Tetrachloroethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Toluene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Styrene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Trichlorofluoromethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,3-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
Acrolein	100	R	ug/l		-				100	U	ug/l	100	100	U	ug/l	100
Iodomethane	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
Acrylonitrile	100	U	ug/l	100	-				100	U	ug/l	100	100	U	ug/l	100
Dibromomethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538003				35168003				M7840014				M7840015			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSW7D				MPTBSW7D				OBSW010				OBSW011			
Collect Date:	17-FEB-93				17-FEB-93				08-SEP-94				08-SEP-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	10	U	ug/l	10	5	U	ug/l	5
2-Chloroethylvinylether	10	U	ug/l	10	-				10	UJ	ug/l		10	UJ	ug/l	
Ethyl methacrylate	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,2,3-Trichloropropane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Isobutyl alcohol	1000	R	ug/l		-				200	U	ug/l	200	200	U	ug/l	200
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,2-Dibromo-3-chloropropane	10	J	ug/l		-				10	U	ug/l	10	10	U	ug/l	10
1,2-Dibromoethane	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
1,4-Dioxane	200	R	ug/l		-				200	R	ug/l		200	R	ug/l	
3-Chloropropene	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Acetonitrile	100	R	ug/l		-				100	U	ug/l	100	100	U	ug/l	100
Chloroprene	200	R	ug/l		-				200	U	ug/l	200	200	U	ug/l	200
Methacrylonitrile	5	U	ug/l	5	-				5	U	ug/l	5	5	U	ug/l	5
Methyl methacrylate	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Pentachloroethane	10	U	ug/l	10	-				10	U	ug/l	10	10	U	ug/l	10
Propionitrile	100	U	ug/l	100	-				100	U	ug/l	100	100	U	ug/l	100
Vinyl acetate	10	U	ug/l	10	-				10	UJ	ug/l		10	UJ	ug/l	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		M7840012			M7840011			M7840010			M7840009		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		OBSW012			OBSW013			OBSW014			OBSW015		
Collect Date:		08-SEP-94			08-SEP-94			08-SEP-94			08-SEP-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs WATER (8240+11)																
Chloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	5	J	ug/l	
Carbon disulfide	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chloroform	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Butanone	2	J	ug/l		10	U	ug/l	10	2	J	ug/l		10	U	ug/l	10
1,1,1-Trichloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Trichloroethene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dibromochloromethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromoform	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2,2-Tetrachloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Toluene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Styrene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichlorofluoromethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,3-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acrolein	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100
Iodomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acrylonitrile	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100
Dibromomethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7840012				M7840011				M7840010				M7840009			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBSW012				OBSW013				OBSW014				OBSW015			
Collect Date:	08-SEP-94				08-SEP-94				08-SEP-94				08-SEP-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5	5	U	ug/l	5
2-Chloroethylvinylether	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
Ethyl methacrylate	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2,3-Trichloropropane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Isobutyl alcohol	200	U	ug/l	200	200	U	ug/l	200	200	U	ug/l	200	200	U	ug/l	200
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dibromo-3-chloropropane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dibromoethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,4-Dioxane	200	R	ug/l		200	R	ug/l		200	R	ug/l		200	R	ug/l	
3-Chloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetonitrile	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100
Chloroprene	200	U	ug/l	200	200	U	ug/l	200	200	U	ug/l	200	200	U	ug/l	200
Methacrylonitrile	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Methyl methacrylate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Propionitrile	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100
Vinyl acetate	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7654001
Site	BACKGROUND
Locator	00SW001
Collect Date:	03-AUG-94

	VALUE	QUAL	UNITS	DL
BKG VOCs WATER (8240+11)				
Chloromethane	10	U	ug/l	10
Bromomethane	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10
Chloroethane	10	U	ug/l	10
Methylene chloride	5	U	ug/l	5
Acetone	10	U	ug/l	10
Carbon disulfide	5	U	ug/l	5
1,1-Dichloroethane	5	U	ug/l	5
1,1-Dichloroethene	5	U	ug/l	5
1,2-Dichloroethene (total)	5	U	ug/l	5
Chloroform	5	U	ug/l	5
1,2-Dichloroethane	5	U	ug/l	5
2-Butanone	10	U	ug/l	10
1,1,1-Trichloroethane	5	U	ug/l	5
Carbon tetrachloride	5	U	ug/l	5
Bromodichloromethane	5	U	ug/l	5
1,2-Dichloropropane	5	U	ug/l	5
cis-1,3-Dichloropropene	5	U	ug/l	5
Trichloroethene	5	U	ug/l	5
Dibromochloromethane	5	U	ug/l	5
1,1,2-Trichloroethane	5	U	ug/l	5
Benzene	5	U	ug/l	5
trans-1,3-Dichloropropene	5	U	ug/l	5
Bromoform	5	U	ug/l	5
4-Methyl-2-pentanone	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10
Tetrachloroethene	5	U	ug/l	5
1,1,2,2-Tetrachloroethane	5	U	ug/l	5
Toluene	5	U	ug/l	5
Chlorobenzene	5	U	ug/l	5
Ethylbenzene	5	U	ug/l	5
Styrene	5	U	ug/l	5
Xylenes (total)	5	U	ug/l	5
Dichlorodifluoromethane	10	UJ	ug/l	
Trichlorofluoromethane	5	U	ug/l	5
1,3-Dichlorobenzene	5	U	ug/l	5
Acrolein	100	U	ug/l	100
Iodomethane	10	U	ug/l	10
1,4-Dichlorobenzene	5	U	ug/l	5
Acrylonitrile	100	U	ug/l	100
Dibromomethane	5	U	ug/l	5

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7654001
Site	BACKGROUND
Locator	00SW001
Collect Date:	03-AUG-94

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

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Collect Date:	21-JAN-92			21-JAN-92			21-JAN-92			21-JAN-92		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
BKG SVOC (8270+21)												
N-Nitrosodimethylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Aniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis (2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzyl Alcohol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroisopropyl)ether	-			-			-			-		
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzoic acid	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
bis(2-Chloroethoxy)methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
4-Nitrophenol	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Nitroaniline	50 UJ	ug/l		50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
4,6-Dinitro-2-methylphenol	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Diphenylhydrazine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-Butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Collect Date:	21-JAN-92			21-JAN-92			21-JAN-92			21-JAN-92		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3,3'-Dichlorobenzidine	20 U	ug/l	20	20 U	ug/l	20	20 U	ug/l	20	20 U	ug/l	20
Benzo(a)anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chrysene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl)phthalate	10 U	ug/l	10	3 J	ug/l		10 U	ug/l	10	10 U	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo(b)fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo(k)fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo(a)pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Indeno(1,2,3-cd)pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibenz(a,h)anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo(g,h,i)perylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Picoline	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Methyl methanesulfonate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethyl methanesulfonate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetophenone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitrosopiperidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Phenyl-tert-butylamine	50 R	ug/l		50 R	ug/l		50 R	ug/l		50 R	ug/l	
2,6-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-butylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitrosodiethylamine	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
N-Nitrosopyrrolidine	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
Benzidine	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
1,2,4,5-Tetrachlorobenzene	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Pentachlorobenzene	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
1-Naphthylamine	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
2-Naphthylamine	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
2,3,4,6-Tetrachlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Phenacetin	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Aminobiphenyl	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Pentachloronitrobenzene	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Pronamide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
p-(Dimethylamino)azobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
7,12-Dimethylbenz(A)Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Methylcholanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pyridine	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
N-Nitrosomethylethylamine	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
N-Nitrosomorpholine	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
o-Toluidine	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
Hexachloropropene	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l	
p-Phenylenediamine	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l	
Safrole	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l	
Isosafrole	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l	
1,4-Naphthoquinone	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l	
1,3-Dinitrobenzene	20 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
5-Nitro-o-toluidine	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
1,3,5-Trinitrobenzene	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
4-Nitroquinoline-1-oxide	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
Methapyrilene	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l	
3,3'-Dimethylbenzidine	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	
Hexachlorophene	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l	
Aramite	-			-			-			-		

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Collect Date:	21-JAN-92			21-JAN-92			21-JAN-92			21-JAN-92		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3- & 4-Methylphenol (2)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloropropene	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l	
2-Acetylaminofluorene	10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l		10 UJ	ug/l	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35168005				35196004				35168004				35168002			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSW4				MPTBSW5				MPTBSW6				MPTBSW7			
Collect Date:	17-FEB-93				18-FEB-93				17-FEB-93				17-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)																
N-Nitrosodimethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Aniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis (2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzyl Alcohol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroisopropyl)ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzoic acid	50	UJ	ug/l		50	U	ug/l	50	50	UJ	ug/l		50	UJ	ug/l	
bis(2-Chloroethoxy)methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutediene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4-Nitrophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	Lab Sample Number:	35168005				35196004				35168004				35168002			
	Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
	Locator	MPTBSW4				MPTBSW5				MPTBSW6				MPTBSW7			
	Collect Date:	17-FEB-93				18-FEB-93				17-FEB-93				17-FEB-93			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
N-Nitrosodiphenylamine (1)		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Diphenylhydrazine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Phenanthrene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-Butylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3'-Dichlorobenzidine		20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20
Benzo(a)anthracene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl)phthalate		10	U	ug/l	10	40	U	ug/l	40	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo(b)fluoranthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo(k)fluoranthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo(a)pyrene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno(1,2,3-cd)pyrene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz(a,h)anthracene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo(g,h,i)perylene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Picoline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Methyl methanesulfonate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethyl methanesulfonate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetophenone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopiperidine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenyl-tert-butylamine		50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50	50	U	ug/l	50
2,6-Dichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-butylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosodiethylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopyrrolidine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzidine		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,2,4,5-Tetrachlorobenzene		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachlorobenzene		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1-Naphthylamine		50	R	ug/l		50	U	ug/l	50	50	R	ug/l		50	R	ug/l	
2-Naphthylamine		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2,3,4,6-Tetrachlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenacetin		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Aminobiphenyl		50	UJ	ug/l		50	U	ug/l	50	50	UJ	ug/l		50	UJ	ug/l	
Pentachloronitrobenzene		50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50	50	U	ug/l	50
Pronamide		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
p-(Dimethylamino)azobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
7,12-Dimethylbenz(A)Anthracene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Methylcholanthrene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyridine		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
N-Nitrosomethylethylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosomorpholine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
o-Toluidine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloropropene		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
p-Phenylenediamine		500	U	ug/l	500	500	R	ug/l		500	U	ug/l	500	500	U	ug/l	500
Safrole		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	Lab Sample Number:	35168005			35196004			35168004			35168002		
	Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
	Locator	MPTBSW4			MPTBSW5			MPTBSW6			MPTBSW7		
	Collect Date:	17-FEB-93			18-FEB-93			17-FEB-93			17-FEB-93		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
Isosafrole		50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
1,4-Naphthoquinone		1000 U	ug/l	1000	1000 U	ug/l	1000	1000 U	ug/l	1000	1000 U	ug/l	1000
1,3-Dinitrobenzene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
5-Nitro-o-toluidine		10 U	ug/l	10	10 R	ug/l		10 U	ug/l	10	10 U	ug/l	10
1,3,5-Trinitrobenzene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Nitroquinoline-1-oxide		500 R	ug/l		500 R	ug/l		500 R	ug/l		500 R	ug/l	
Methapyrilene		50 U	ug/l	50	50 UJ	ug/l		50 U	ug/l	50	50 U	ug/l	50
3,3'-Dimethylbenzidine		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorophene		500 U	ug/l	500	500 R	ug/l		500 U	ug/l	500	500 U	ug/l	500
Aramite		50 R	ug/l		50 R	ug/l		50 R	ug/l		50 R	ug/l	
2-Chlorophenol		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3- & 4-Methylphenol (2)		-			-			-			-		
Hexachloropropene		50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
2-Acetylaminofluorene		10 U	ug/l	10	10	ug/l		10 U	ug/l	10	10 U	ug/l	10

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		35168003				M7840014				M7840015				M7840012				
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND				
Locator		MPTBSW7D				OBSW010				OBSW011				OBSW012				
Collect Date:		17-FEB-93				08-SEP-94				08-SEP-94				08-SEP-94				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
BKG SVOC (8270+21)																		
N-Nitrosodimethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Aniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
bis (2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzyl Alcohol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
bis(2-Chloroisopropyl)ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzoic acid	50	UJ	ug/l		50	UJ	ug/l		50	UJ	ug/l		50	UJ	ug/l			
bis(2-Chloroethoxy)methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2,4,5-Trichlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
3-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2,4-Dinitrophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
4-Nitrophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
4-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		35168003				M7840014				M7840015				M7840012				
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND				
Locator		MPTBSW7D				OBSW010				OBSW011				OBSW012				
Collect Date:		17-FEB-93				08-SEP-94				08-SEP-94				08-SEP-94				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
1,2-Diphenylhydrazine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pentachlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Di-n-Butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
3,3'-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20		
Benzo(a)anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
bis(2-Ethylhexyl)phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo(b)fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo(k)fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo(a)pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Indeno(1,2,3-cd)pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Dibenz(a,h)anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo(g,h,i)perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Methyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Phenyl-tert-butylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosodiethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosopyrrolidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzidine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
1-Naphthylamine	50	R	ug/l		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
2-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Phenacetin	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
4-Aminobiphenyl	50	UJ	ug/l		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pentachloronitrobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pronamide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
p-(Dimethylamino)azobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pyridine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
N-Nitrosomethylethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosomorpholine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
o-Toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachloropropene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
p-Phenylenediamine	500	U	ug/l	500	500	U	ug/l	500	500	U	ug/l	500	500	U	ug/l	500		
Safrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		35168003				M7840014				M7840015				M7840012	
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND	
Locator		MPTBSW7D				OBSW010				OBSW011				OBSW012	
Collect Date:		17-FEB-93				08-SEP-94				08-SEP-94				08-SEP-94	
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Isosafrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,4-Naphthoquinone	1000	U	ug/l	1000	1000	U	ug/l	1000	1000	U	ug/l	1000	1000	U	ug/l	1000
1,3-Dinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
5-Nitro-o-toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3,5-Trinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroquinoline-1-oxide	500	R	ug/l		500	UJ	ug/l		500	UJ	ug/l		500	UJ	ug/l	
Methapyrilene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
3,3'-Dimethylbenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorophene	500	U	ug/l	500	500	R	ug/l		500	R	ug/l		500	R	ug/l	
Aramite	50	R	ug/l		50	UJ	ug/l		50	UJ	ug/l		50	UJ	ug/l	
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3- & 4-Methylphenol (2)	-				10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloropropene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Acetylaminofluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	Lab Sample Number:	M7840011				M7840010				M7840009				M7654001			
	Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
	Locator	OBSW013				OBSW014				OBSW015				OOSW001			
	Collect Date:	08-SEP-94				08-SEP-94				08-SEP-94				03-AUG-94			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)																	
N-Nitrosodimethylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Aniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	
bis (2-Chloroethyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzyl Alcohol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroisopropyl)ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	
N-Nitroso-di-n-propylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzoic acid		50	UJ	ug/l		50	UJ	ug/l		50	UJ	ug/l		50	UJ	ug/l	
bis(2-Chloroethoxy)methane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dimethylphthalate		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2,4,5-Trichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chloronaphthalene		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	UJ	ug/l	
2-Nitroaniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
3-Nitroaniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthene		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2,4-Dinitrophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4-Nitrophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenzofuran		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4,6-Dinitro-2-methylphenol																	

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		M7840011				M7840010				M7840009				M7654001				
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND				
Locator		OBSW013				OBSW014				OBSW015				OOSW001				
Collect Date:		08-SEP-94				08-SEP-94				08-SEP-94				03-AUG-94				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
1,2-Diphenylhydrazine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l			
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pentachlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Di-n-Butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
3,3'-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20		
Benzo(a)anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
bis(2-Ethylhexyl)phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	1	J	ug/l			
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo(b)fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo(k)fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo(a)pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Indeno(1,2,3-cd)pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Dibenz(a,h)anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo(g,h,i)perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Methyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l			
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Phenyl-tert-butylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	UJ	ug/l			
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosodiethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosopyrrolidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzidine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
1-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
2-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Phenacetin	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l			
4-Aminobiphenyl	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pentachloronitrobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pronamide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
p-(Dimethylamino)azobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pyridine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
N-Nitrosomethylethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosomorpholine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
o-Toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachloropropene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
p-Phenylenediamine	500	U	ug/l	500	500	U	ug/l	500	500	U	ug/l	500	500	U	ug/l	500		
Safrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7840011			M7840010			M7840009			M7654001		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	OBSW013			OBSW014			OBSW015			OOSW001		
Collect Date:	08-SEP-94			08-SEP-94			08-SEP-94			03-AUG-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
Isosafrole	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
1,4-Naphthoquinone	1000 U	ug/l	1000	1000 U	ug/l	1000	1000 U	ug/l	1000	1000 U	ug/l	1000
1,3-Dinitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	
5-Nitro-o-toluidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3,5-Trinitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Nitroquinoline-1-oxide	500 UJ	ug/l		500 UJ	ug/l		500 UJ	ug/l		500 U	ug/l	500
Methapyrilene	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 UJ	ug/l	
3,3'-Dimethylbenzidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorophene	500 R	ug/l		500 R	ug/l		500 R	ug/l		500 U	ug/l	500
Aramite	50 UJ	ug/l		50 UJ	ug/l		50 UJ	ug/l		50 U	ug/l	50
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3- & 4-Methylphenol (2)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	-		
Hexachloropropene	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
2-Acetylaminofluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-B-SW-1			MPT-B-SW-2			MPT-B-SW-3			MPTBSWDUP1		
Collect Date:	21-JAN-92			21-JAN-92			21-JAN-92			21-JAN-92		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)												
alpha-BHC	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01
beta-BHC	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
delta-BHC	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01
gamma-BHC (Lindane)	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01
Heptachlor	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01
Aldrin	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01
Heptachlor epoxide	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01	.01 U	ug/l	.01
Endosulfan I	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Dieldrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
4,4-DDE	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endosulfan II	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
4,4-DDD	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endosulfan sulfate	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
4,4-DDT	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Methoxychlor	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endrin aldehyde	-			-			-			-		
Endrin ketone	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Chlordane	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
Chlorobenzilate	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Diallate	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toxaphene	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Isodrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Kepone	-			-			-			-		
Aroclor-1016	.8 U	ug/l	.8	.8 U	ug/l	.8	.8 U	ug/l	.8	.8 U	ug/l	.8
Aroclor-1221	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1232	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1242	.8 U	ug/l	.8	.8 U	ug/l	.8	.8 U	ug/l	.8	.8 U	ug/l	.8
Aroclor-1248	.4 U	ug/l	.4	.4 U	ug/l	.4	.4 U	ug/l	.4	.4 U	ug/l	.4
Aroclor-1254	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Aroclor-1260	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	24081005			24099004			24081004			24081002		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPTBSW4			MPTBSW5			MPTBSW6			MPTBSW7		
Collect Date:	17-FEB-93			18-FEB-93			17-FEB-93			17-FEB-93		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)												
alpha-BHC	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
beta-BHC	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
delta-BHC	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
gamma-BHC (Lindane)	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Heptachlor	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Aldrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Heptachlor epoxide	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endosulfan I	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Dieldrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
4,4-DDE	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endrin	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endosulfan II	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
4,4-DDD	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endosulfan sulfate	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
4,4-DDT	.08 U	ug/l	.08	.08 U	ug/l	.08	.08 U	ug/l	.08	.08 U	ug/l	.08
Methoxychlor	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endrin aldehyde	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endrin ketone	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Chlordane	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Chlorobenzilate	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Diallate	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toxaphene	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Isodrin	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Kepone	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1016	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1221	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1232	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1242	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1248	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Aroclor-1254	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Aroclor-1260												

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		24081003			M7840014			M7840015			M7840012				
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND				
Locator		MPTBSW7D			OBSW010			OBSW011			OBSW012				
Collect Date:		17-FEB-93			08-SEP-94			08-SEP-94			08-SEP-94				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)																
alpha-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
beta-BHC	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
delta-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
gamma-BHC (Lindane)	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Aldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor epoxide	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endosulfan I	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Dieldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
4,4-DDE	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endrin	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan II	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDD	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan sulfate	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDT	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Methoxychlor	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08
Endrin aldehyde	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endrin ketone	.02	U	ug/l	.02	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Chlordane	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Chlorobenzilate	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Diallate	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toxaphene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Isodrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Kepone	1	U	ug/l	1	1	UJ	ug/l		1	UJ	ug/l		1	UJ	ug/l	
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Aroclor-1260	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		01528005			01529001			01528004			01528002		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		MPTBSW4			MPTBSW5			MPTBSW6			MPTBSW7		
Collect Date:		17-FEB-93			18-FEB-93			17-FEB-93			17-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony	24.6	U	ug/l	24.6	24.6	U	ug/l	24.6	24.6	U	ug/l	24.6	24.6	U	ug/l	24.6
Arsenic	6.9	U	ug/l	6.9	3.8	J	ug/l		6.1	J	ug/l		5.1	U	ug/l	5.1
Barium	11.7	J	ug/l		10.6	J	ug/l		11.6	J	ug/l		6.8	J	ug/l	
Beryllium	.27	U	ug/l	.27	.27	U	ug/l	.27	.27	U	ug/l	.27	.27	U	ug/l	.27
Cadmium	4	U	ug/l	4	4	U	ug/l	4	4	U	ug/l	4	4	U	ug/l	4
Calcium	168000	J	ug/l		166000	J	ug/l		159000	J	ug/l		71600	J	ug/l	
Chromium	2.4	U	ug/l	2.4	2.4	U	ug/l	2.4	2.4	U	ug/l	2.4	2.4	U	ug/l	2.4
Cobalt	2.3	U	ug/l	2.3	2.3	U	ug/l	2.3	2.3	U	ug/l	2.3	2.3	U	ug/l	2.3
Copper	1.7	U	ug/l	1.7	2.4	J	ug/l		1.7	U	ug/l	1.7	1.7	U	ug/l	1.7
Cyanide	3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3
Iron	435		ug/l		187	U	ug/l	187	155		ug/l		92.5	J	ug/l	
Lead	2.6	R	ug/l		2.6	UJ	ug/l		2.6	R	ug/l		2.6	R	ug/l	
Magnesium	490000		ug/l		453000		ug/l		345000		ug/l		54600		ug/l	
Manganese	10.4	J	ug/l		23.7		ug/l		36.5		ug/l		94		ug/l	
Mercury	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Nickel	12.5	U	ug/l	12.5	13	J	ug/l		12.5	U	ug/l	12.5	12.5	U	ug/l	12.5
Selenium	10.6	U	ug/l	10.6	10.6	U	ug/l	10.6	10.6	U	ug/l	10.6	10.6	U	ug/l	10.6
Silver	2.4	U	ug/l	2.4	2.4	U	ug/l	2.4	2.4	U	ug/l	2.4	2.4	U	ug/l	2.4
Sodium	55.6	U	ug/l	55.6	55.6	U	ug/l	55.6	55.6	U	ug/l	55.6	386000		ug/l	
Thallium	12.7	R	ug/l		73.7	J	ug/l		12.7	R	ug/l		12.7	R	ug/l	
Tin	34.8	U	ug/l	34.8	776		ug/l		34.8	U	ug/l	34.8	34.8	U	ug/l	34.8
Vanadium	4.5	J	ug/l		5	J	ug/l		5.2	J	ug/l		3.5	J	ug/l	
Zinc	1.6	UJ	ug/l		6.6	U	ug/l	6.6	1.6	UJ	ug/l		1.6	UJ	ug/l	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		01528003			M7840014			M7840015			M7840012				
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND				
Locator		MPTBSW7D			OBSW010			OBSW011			OBSW012				
Collect Date:		17-FEB-93			08-SEP-94			08-SEP-94			08-SEP-94				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SKG WATER METALS																
Antimony	24.6	U	ug/l	24.6	22.3	UJ	ug/l		22.3	UJ	ug/l		22.3	UJ	ug/l	
Arsenic	4.8	U	ug/l	4.8	9	UJ	ug/l		9	UJ	ug/l		9	UJ	ug/l	
Barium	7.6	J	ug/l		6.2	J	ug/l		5.6	J	ug/l		6.5	J	ug/l	
Beryllium	.27	U	ug/l	.27	.18	U	ug/l	.18	.18	U	ug/l	.18	.18	U	ug/l	.18
Cadmium	4	U	ug/l	4	8.3		ug/l		3	U	ug/l	3	5.2		ug/l	
Calcium	71100	J	ug/l		-				-				-			
Chromium	2.4	U	ug/l	2.4	2	UJ	ug/l		2	UJ	ug/l		2	UJ	ug/l	
Cobalt	2.3	U	ug/l	2.3	2.7	UJ	ug/l		2.7	UJ	ug/l		2.7	UJ	ug/l	
Copper	1.7	U	ug/l	1.7	5.4	J	ug/l		4	U	ug/l	4	4	U	ug/l	4
Cyanide	3	U	ug/l	3	.32	U	ug/l	.32	.69	J	ug/l		.39	J	ug/l	
Iron	85.7	J	ug/l		-				-				-			
Lead	2.6	R	ug/l		20.5	UJ	ug/l		20.5	UJ	ug/l		20.5	UJ	ug/l	
Magnesium	54000		ug/l		-				-				-			
Manganese	98.7		ug/l		-				-				-			
Mercury	.1	U	ug/l	.1	.16	U	ug/l	.16	.16	U	ug/l	.16	.16	U	ug/l	.16
Nickel	12.5	U	ug/l	12.5	7.3	UJ	ug/l		7.3	UJ	ug/l		7.3	UJ	ug/l	
Selenium	10.6	U	ug/l	10.6	22.6	J	ug/l		13.2	UJ	ug/l		16.7	J	ug/l	
Silver	2.4	U	ug/l	2.4	2.1	U	ug/l	2.1	2.1	U	ug/l	2.1	2.1	U	ug/l	2.1
Sodium	380000		ug/l		-				-				-			
Thallium	12.7	R	ug/l		13	UJ	ug/l		13	UJ	ug/l		13	UJ	ug/l	
Tin	34.8	U	ug/l	34.8	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	12.3	J	ug/l	
Vanadium	2.2	U	ug/l	2.2	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7
Zinc	3.2	J	ug/l		2.3	J	ug/l		1.3	U	ug/l	1.3	1.8	J	ug/l	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7656001
Site	BACKGROUND
Locator	00SW001
Collect Date:	03-AUG-94

	VALUE	QUAL	UNITS	DL
GWQ				
Alkalinity as CaCO3	88		mg/l	
Ammonia-N	.3	U	mg/l	.3
Chloride	11500		mg/l	
Color	50		APHA	
Hardness as CaCO3	3370		mg/l	
Nitrate/Nitrite-N	.1	U	mg/l	.1
Oil and Grease	-			
Phosphorous-P, Total	.1	U	mg/l	.1
Sulfate	1320		mg/l	
Sulfide	1	U	mg/l	1
Total Dissolved Solids	-			
Total Kjeldahl Nitrogen	.3		mg/l	
Total Organic Carbon	-			
pH	7.9		units	

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

SEDIMENT

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1					
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND					
Locator		MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1					
Collect Date:		21-JAN-92				21-JAN-92				21-JAN-92				21-JAN-92					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
BKG VOCs (8240+11)																			
Chloromethane	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
Bromomethane	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
Vinyl chloride	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
Chloroethane	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
Methylene chloride	18	U	ug/kg	18	21	U	ug/kg	21	29	U	ug/kg	29	25	U	ug/kg	25			
Acetone	14	U	ug/kg	14	15	U	ug/kg	15	190	U	ug/kg	190	95	U	ug/kg	95			
Carbon disulfide	7	U	ug/kg	7	7	U	ug/kg	7	83		ug/kg		19		ug/kg				
1,1-Dichloroethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,1-Dichloroethene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,2-Dichloroethene (total)	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Chloroform	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,2-Dichloroethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
2-Butanone	14	U	ug/kg	14	14	U	ug/kg	14	42	U	ug/kg	42	39	U	ug/kg	39			
1,1,1-Trichloroethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Carbon tetrachloride	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Bromodichloromethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,2-Dichloropropane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
cis-1,3-Dichloropropene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Trichloroethene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Dibromochloromethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,1,2-Trichloroethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Benzene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
trans-1,3-Dichloropropene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Bromoform	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
4-Methyl-2-pentanone	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
2-Hexanone	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
Tetrachloroethene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,1,2,2-Tetrachloroethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Toluene	7	U	ug/kg	7	3	J	ug/kg		14	U	ug/kg	14	16	U	ug/kg	16			
Chlorobenzene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Ethylbenzene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Styrene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Xylenes (total)	-				-				-				-						
Dichlorodifluoromethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Trichlorofluoromethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,3-Dichlorobenzene	140	U	ug/kg	140	130	U	ug/kg	130	290	U	ug/kg	290	320	U	ug/kg	320			
Acrolein	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
Iodomethane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,4-Dichlorobenzene	140	U	ug/kg	140	130	U	ug/kg	130	290	U	ug/kg	290	320	U	ug/kg	320			
Acrylonitrile	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Dibromomethane	440	U	ug/kg	440	430	U	ug/kg	430	14	U	ug/kg	14	16	U	ug/kg	16			
1,2-Dichlorobenzene	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
2-Chloroethylvinylether	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
Ethyl methacrylate	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,2,3-Trichloropropane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
trans-1,4-Dichloro-2-butene	270	U	ug/kg	270	260	U	ug/kg	260	570	U	ug/kg	570	650	U	ug/kg	650			
Isobutyl alcohol	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,1,1,2-Tetrachloroethane	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32			
1,2-Dibromo-3-chloropropane	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16			
1,2-Dibromoethane	270	U	ug/kg	270	260	U	ug/kg	260	570	U	ug/kg	570	650	U	ug/kg	650			
1,4-Dioxane																			

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1			
Collect Date:	21-JAN-92				21-JAN-92				21-JAN-92				21-JAN-92			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
3-Chloropropene	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16
Acetonitrile	140	U	ug/kg	140	130	U	ug/kg	130	290	U	ug/kg	290	320	U	ug/kg	320
Chloroprene	270	U	ug/kg	270	260	U	ug/kg	260	570	U	ug/kg	570	650	U	ug/kg	650
Methacrylonitrile	7	U	ug/kg	7	7	U	ug/kg	7	14	U	ug/kg	14	16	U	ug/kg	16
Methyl methacrylate	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32
Pentachloroethane	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32
Propionitrile	140	U	ug/kg	140	130	U	ug/kg	130	290	U	ug/kg	290	320	U	ug/kg	320
Vinyl acetate	14	U	ug/kg	14	13	U	ug/kg	13	29	U	ug/kg	29	32	U	ug/kg	32

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538011				35168011				01537006				35196006			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSD4				MPTBSD4				MPTBSD5				MPTBSD5			
Collect Date:	17-FEB-93				17-FEB-93				18-FEB-93				18-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)																
Chloromethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Bromomethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Vinyl chloride	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Chloroethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Methylene chloride	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Acetone	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Carbon disulfide	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,1-Dichloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,1-Dichloroethene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2-Dichloroethene (total)	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Chloroform	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2-Dichloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
2-Butanone	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
1,1,1-Trichloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Carbon tetrachloride	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Bromodichloromethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2-Dichloropropane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
cis-1,3-Dichloropropene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Trichloroethene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Dibromochloromethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,1,2-Trichloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Benzene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
trans-1,3-Dichloropropene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Bromoform	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
4-Methyl-2-pentanone	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
2-Hexanone	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Tetrachloroethene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Toluene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Chlorobenzene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Ethylbenzene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Styrene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Xylenes (total)	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Dichlorodifluoromethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Trichlorofluoromethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,3-Dichlorobenzene	6	U	ug/kg	6	840	U	ug/kg	840	6	U	ug/kg	6	410	U	ug/kg	410
Acrolein	120	U	ug/kg	120	-				120	U	ug/kg	120	-			
Iodomethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
1,4-Dichlorobenzene	6	U	ug/kg	6	840	U	ug/kg	840	6	U	ug/kg	6	410	U	ug/kg	410
Acrylonitrile	120	U	ug/kg	120	-				120	U	ug/kg	120	-			
Dibromomethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538011				35168011				01537006				35196006			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSD4				MPTBSD4				MPTBSD5				MPTBSD5			
Collect Date:	17-FEB-93				17-FEB-93				18-FEB-93				18-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	6	U	ug/kg	6	840	U	ug/kg	840	6	U	ug/kg	6	410	U	ug/kg	410
2-Chloroethylvinylether	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Ethyl methacrylate	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2,3-Trichloropropane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
trans-1,4-Dichloro-2-butene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Isobutyl alcohol	1200	R	ug/kg		-				1200	R	ug/kg		-			
1,1,1,2-Tetrachloroethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,2-Dibromo-3-chloropropane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
1,2-Dibromoethane	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
1,4-Dioxane	240	R	ug/kg		-				250	R	ug/kg		-			
3-Chloropropene	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Acetonitrile	120	U	ug/kg	120	-				120	U	ug/kg	120	-			
Chloroprene	240	R	ug/kg		-				250	R	ug/kg		-			
Methacrylonitrile	6	U	ug/kg	6	-				6	U	ug/kg	6	-			
Methyl methacrylate	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Pentachloroethane	12	U	ug/kg	12	-				12	U	ug/kg	12	-			
Propionitrile	120	U	ug/kg	120	-				120	U	ug/kg	120	-			
Vinyl acetate	12	U	ug/kg	12	-				12	U	ug/kg	12	-			

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538010				35168010				01538008				35168008		
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND		
Locator	MPTBSD6				MPTBSD6				MPTBSD7				MPTBSD7		
Collect Date:	17-FEB-93				17-FEB-93				17-FEB-93				17-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)																
Chloromethane	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Bromomethane	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Vinyl chloride	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Chloroethane	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Methylene chloride	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Acetone	14	U	ug/kg	14	-				20	U	ug/kg	20	-			
Carbon disulfide	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,1-Dichloroethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,1-Dichloroethene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,2-Dichloroethene (total)	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Chloroform	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,2-Dichloroethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
2-Butanone	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
1,1,1-Trichloroethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Carbon tetrachloride	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Bromodichloromethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,2-Dichloropropane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
cis-1,3-Dichloropropene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Trichloroethene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Dibromochloromethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,1,2-Trichloroethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Benzene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
trans-1,3-Dichloropropene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Bromoform	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
4-Methyl-2-pentanone	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
2-Hexanone	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Tetrachloroethene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,1,2,2-Tetrachloroethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Toluene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Chlorobenzene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Ethylbenzene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Styrene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Xylenes (total)	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Dichlorodifluoromethane	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Trichlorofluoromethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,3-Dichlorobenzene	7	U	ug/kg	7	960	U	ug/kg	960	7	U	ug/kg	7	940	U	ug/kg	940
Acrolein	140	U	ug/kg	140	-				140	U	ug/kg	140	-			
Iodomethane	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
1,4-Dichlorobenzene	7	U	ug/kg	7	960	U	ug/kg	960	7	U	ug/kg	7	940	U	ug/kg	940
Acrylonitrile	140	U	ug/kg	140	-				140	U	ug/kg	140	-			
Dibromomethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538010				35168010				01538008				35168008			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSD6				MPTBSD6				MPTBSD7				MPTBSD7			
Collect Date:	17-FEB-93				17-FEB-93				17-FEB-93				17-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	7	U	ug/kg	7	960	U	ug/kg	960	7	U	ug/kg	7	940	U	ug/kg	940
2-Chloroethylvinylether	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Ethyl methacrylate	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,2,3-Trichloropropane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
trans-1,4-Dichloro-2-butene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Isobutyl alcohol	1400	R	ug/kg		-				1400	R	ug/kg		-			
1,1,1,2-Tetrachloroethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,2-Dibromo-3-chloropropane	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
1,2-Dibromoethane	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
1,4-Dioxane	270	R	ug/kg		-				270	R	ug/kg		-			
3-Chloropropene	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Acetonitrile	140	U	ug/kg	140	-				140	R	ug/kg		-			
Chloroprene	270	R	ug/kg		-				270	R	ug/kg		-			
Methacrylonitrile	7	U	ug/kg	7	-				7	U	ug/kg	7	-			
Methyl methacrylate	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Pentachloroethane	14	U	ug/kg	14	-				14	U	ug/kg	14	-			
Propionitrile	140	U	ug/kg	140	-				140	U	ug/kg	140	-			
Vinyl acetate	14	U	ug/kg	14	-				14	U	ug/kg	14	-			

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538009				35168009				M7840006				M7840007			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSD7D				MPTBSD7D				OBSD010				OBSD011			
Collect Date:	17-FEB-93				17-FEB-93				08-SEP-94				08-SEP-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)																
Chloromethane	14	U	ug/kg	14	-				62	UJ	ug/kg		53	UJ	ug/kg	
Bromomethane	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
Vinyl chloride	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
Chloroethane	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
Methylene chloride	7	U	ug/kg	7	-				22	J	ug/kg		26	U	ug/kg	26
Acetone	14	U	ug/kg	14	-				390	J	ug/kg		540	J	ug/kg	
Carbon disulfide	7	U	ug/kg	7	-				25	J	ug/kg		34		ug/kg	
1,1-Dichloroethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,1-Dichloroethene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,2-Dichloroethene (total)	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Chloroform	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,2-Dichloroethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
2-Butanone	14	U	ug/kg	14	-				39	J	ug/kg		88	J	ug/kg	
1,1,1-Trichloroethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Carbon tetrachloride	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Bromodichloromethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,2-Dichloropropane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
cis-1,3-Dichloropropene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Trichloroethene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Dibromochloromethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,1,2-Trichloroethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Benzene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
trans-1,3-Dichloropropene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Bromoform	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
4-Methyl-2-pentanone	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
2-Hexanone	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
Tetrachloroethene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,1,2,2-Tetrachloroethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Toluene	7	U	ug/kg	7	-				32		ug/kg		26	U	ug/kg	26
Chlorobenzene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Ethylbenzene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Styrene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Xylenes (total)	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Dichlorodifluoromethane	14	U	ug/kg	14	-				62	UJ	ug/kg		53	UJ	ug/kg	
Trichlorofluoromethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,3-Dichlorobenzene	7	U	ug/kg	7	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700
Acrolein	140	U	ug/kg	140	-				620	U	ug/kg	620	530	U	ug/kg	530
Iodomethane	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
1,4-Dichlorobenzene	7	U	ug/kg	7	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700
Acrylonitrile	140	U	ug/kg	140	-				620	U	ug/kg	620	530	U	ug/kg	530
Dibromomethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01538009				35168009				M7840006				M7840007			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSD7D				MPTBSD7D				OBSD010				OBSD011			
Collect Date:	17-FEB-93				17-FEB-93				08-SEP-94				08-SEP-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	7	U	ug/kg	7	930	U	ug/kg	930	31	U	ug/kg	31	1700	U	ug/kg	1700
2-Chloroethylvinylether	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
Ethyl methacrylate	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,2,3-Trichloropropane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
trans-1,4-Dichloro-2-butene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Isobutyl alcohol	1400	R	ug/kg		-				1200	U	ug/kg	1200	1000	U	ug/kg	1000
1,1,1,2-Tetrachloroethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,2-Dibromo-3-chloropropane	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
1,2-Dibromoethane	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
1,4-Dioxane	270	R	ug/kg		-				1200	R	ug/kg		1000	R	ug/kg	
3-Chloropropene	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Acetonitrile	140	U	ug/kg	140	-				620	U	ug/kg	620	530	U	ug/kg	530
Chloroprene	270	R	ug/kg		-				1200	U	ug/kg	1200	1000	U	ug/kg	1000
Methacrylonitrile	7	U	ug/kg	7	-				31	U	ug/kg	31	26	U	ug/kg	26
Methyl methacrylate	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
Pentachloroethane	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53
Propionitrile	140	U	ug/kg	140	-				620	U	ug/kg	620	530	U	ug/kg	530
Vinyl acetate	14	U	ug/kg	14	-				62	U	ug/kg	62	53	U	ug/kg	53

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	Lab Sample Number:	M7840004			M7840003			M7840002			M7840001		
	Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
	Locator	OBSD012			OBSD013			OBSD014			OBSD015		
	Collect Date:	08-SEP-94			08-SEP-94			08-SEP-94			08-SEP-94		
		VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL
BKG VOCs (8240+11)													
Chloromethane		16 UJ	ug/kg		14 UJ	ug/kg		14 UJ	ug/kg		14 UJ	ug/kg	
Bromomethane		16 U	ug/kg	16	14 U	ug/kg	14	14 U	ug/kg	14	14 U	ug/kg	14
Vinyl chloride		16 U	ug/kg	16	14 U	ug/kg	14	14 U	ug/kg	14	14 U	ug/kg	14
Chloroethane		16 U	ug/kg	16	14 U	ug/kg	14	14 U	ug/kg	14	14 U	ug/kg	14
Methylene chloride		8 U	ug/kg	8	7 U	ug/kg	7	9 U	ug/kg	9	7 U	ug/kg	7
Acetone		36 UJ	ug/kg		14 UJ	ug/kg		14 UJ	ug/kg		16 UJ	ug/kg	
Carbon disulfide		6 J	ug/kg		7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
1,1-Dichloroethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
1,1-Dichloroethene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
1,2-Dichloroethene (total)		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Chloroform		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
1,2-Dichloroethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
2-Butanone		5 J	ug/kg		14 R	ug/kg		14 R	ug/kg		14 R	ug/kg	
1,1,1-Trichloroethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Carbon tetrachloride		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Bromodichloromethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
1,2-Dichloropropene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
cis-1,3-Dichloropropene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Trichloroethene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Dibromochloromethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
1,1,2-Trichloroethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Benzene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
trans-1,3-Dichloropropene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Bromoform		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
4-Methyl-2-pentanone		16 U	ug/kg	16	14 U	ug/kg	14	14 U	ug/kg	14	14 U	ug/kg	14
2-Hexanone		16 U	ug/kg	16	14 U	ug/kg	14	14 U	ug/kg	14	14 U	ug/kg	14
Tetrachloroethene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
1,1,2,2-Tetrachloroethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Toluene		8 UJ	ug/kg		4 J	ug/kg		7 U	ug/kg	7	7 U	ug/kg	7
Chlorobenzene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Ethylbenzene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Styrene		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Xylenes (total)		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
Dichlorodifluoromethane		16 UJ	ug/kg		14 UJ	ug/kg		14 UJ	ug/kg		14 UJ	ug/kg	
Trichlorofluoromethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7
1,3-Dichlorobenzene		480 U	ug/kg	480	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410
Acrolein		160 U	ug/kg	160	140 U	ug/kg	140	140 U	ug/kg	140	140 U	ug/kg	140
Iodomethane		16 U	ug/kg	16	14 U	ug/kg	14	14 U	ug/kg	14	14 U	ug/kg	14
1,4-Dichlorobenzene		480 U	ug/kg	480	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410
Acrylonitrile		160 U	ug/kg	160	140 U	ug/kg	140	140 U	ug/kg	140	140 U	ug/kg	140
Dibromomethane		8 U	ug/kg	8	7 U	ug/kg	7	7 U	ug/kg	7	7 U	ug/kg	7

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7840004				M7840003				M7840002				M7840001			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBSD012				OBSD013				OBSD014				OBSD015			
Collect Date:	08-SEP-94				08-SEP-94				08-SEP-94				08-SEP-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	480	U	ug/kg	480	400	U	ug/kg	400	7	U	ug/kg	7	410	U	ug/kg	410
2-Chloroethylvinylether	16	U	ug/kg	16	14	U	ug/kg	14	14	U	ug/kg	14	14	U	ug/kg	14
Ethyl methacrylate	8	U	ug/kg	8	7	U	ug/kg	7	7	U	ug/kg	7	7	U	ug/kg	7
1,2,3-Trichloropropane	8	U	ug/kg	8	7	U	ug/kg	7	7	U	ug/kg	7	7	U	ug/kg	7
trans-1,4-Dichloro-2-butene	8	U	ug/kg	8	7	U	ug/kg	7	7	U	ug/kg	7	7	U	ug/kg	7
Isobutyl alcohol	320	U	ug/kg	320	270	U	ug/kg	270	270	U	ug/kg	270	270	U	ug/kg	270
1,1,1,2-Tetrachloroethane	8	U	ug/kg	8	7	U	ug/kg	7	7	U	ug/kg	7	7	U	ug/kg	7
1,2-Dibromo-3-chloropropane	16	U	ug/kg	16	14	U	ug/kg	14	14	U	ug/kg	14	14	U	ug/kg	14
1,2-Dibromoethane	8	U	ug/kg	8	7	U	ug/kg	7	7	U	ug/kg	7	7	U	ug/kg	7
1,4-Dioxane	320	R	ug/kg		270	R	ug/kg		270	R	ug/kg		270	R	ug/kg	
3-Chloropropene	8	U	ug/kg	8	7	U	ug/kg	7	7	U	ug/kg	7	7	U	ug/kg	7
Acetonitrile	160	U	ug/kg	160	140	U	ug/kg	140	140	U	ug/kg	140	140	U	ug/kg	140
Chloroprene	320	U	ug/kg	320	270	U	ug/kg	270	270	U	ug/kg	270	270	U	ug/kg	270
Methacrylonitrile	8	U	ug/kg	8	7	U	ug/kg	7	7	U	ug/kg	7	7	U	ug/kg	7
Methyl methacrylate	16	U	ug/kg	16	14	U	ug/kg	14	14	U	ug/kg	14	14	U	ug/kg	14
Pentachloroethane	16	U	ug/kg	16	14	U	ug/kg	14	14	U	ug/kg	14	14	U	ug/kg	14
Propionitrile	160	U	ug/kg	160	140	U	ug/kg	140	140	U	ug/kg	140	140	U	ug/kg	140
Vinyl acetate	16	U	ug/kg	16	14	U	ug/kg	14	14	U	ug/kg	14	14	U	ug/kg	14

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7654010
Site	BACKGROUND
Locator	00SD001
Collect Date:	03-AUG-94

	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)				
Chloromethane	24	U	ug/kg	24
Bromomethane	24	U	ug/kg	24
Vinyl chloride	24	U	ug/kg	24
Chloroethane	24	U	ug/kg	24
Methylene chloride	24	U	ug/kg	24
Acetone	50	U	ug/kg	50
Carbon disulfide	12	U	ug/kg	12
1,1-Dichloroethane	12	U	ug/kg	12
1,1-Dichloroethene	12	U	ug/kg	12
1,2-Dichloroethene (total)	12	U	ug/kg	12
Chloroform	12	U	ug/kg	12
1,2-Dichloroethane	12	U	ug/kg	12
2-Butanone	24	R	ug/kg	
1,1,1-Trichloroethane	12	U	ug/kg	12
Carbon tetrachloride	12	U	ug/kg	12
Bromodichloromethane	12	U	ug/kg	12
1,2-Dichloropropane	12	U	ug/kg	12
cis-1,3-Dichloropropene	12	U	ug/kg	12
Trichloroethene	12	U	ug/kg	12
Dibromochloromethane	12	U	ug/kg	12
1,1,2-Trichloroethane	12	U	ug/kg	12
Benzene	12	U	ug/kg	12
trans-1,3-Dichloropropene	12	U	ug/kg	12
Bromoform	12	U	ug/kg	12
4-Methyl-2-pentanone	24	U	ug/kg	24
2-Hexanone	24	U	ug/kg	24
Tetrachloroethene	12	U	ug/kg	12
1,1,2,2-Tetrachloroethane	12	U	ug/kg	12
Toluene	12	U	ug/kg	12
Chlorobenzene	12	U	ug/kg	12
Ethylbenzene	12	U	ug/kg	12
Styrene	12	U	ug/kg	12
Xylenes (total)	12	U	ug/kg	12
Dichlorodifluoromethane	24	U	ug/kg	24
Trichlorofluoromethane	12	U	ug/kg	12
1,3-Dichlorobenzene	12	U	ug/kg	12
Acrolein	240	U	ug/kg	240
Iodomethane	24	U	ug/kg	24
1,4-Dichlorobenzene	12	U	ug/kg	12
Acrylonitrile	240	U	ug/kg	240
Dibromomethane	12	U	ug/kg	12

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number: M7654010
Site BACKGROUND
Locator 00SD001
Collect Date: 03-AUG-94

	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	12	U	ug/kg	12
2-Chloroethylvinylether	24	U	ug/kg	24
Ethyl methacrylate	12	U	ug/kg	12
1,2,3-Trichloropropane	12	U	ug/kg	12
trans-1,4-Dichloro-2-butene	12	U	ug/kg	12
Isobutyl alcohol	480	U	ug/kg	480
1,1,1,2-Tetrachloroethane	12	U	ug/kg	12
1,2-Dibromo-3-chloropropane	250	U	ug/kg	250
1,2-Dibromoethane	12	U	ug/kg	12
1,4-Dioxane	480	R	ug/kg	
3-Chloropropene	12	U	ug/kg	12
Acetonitrile	240	U	ug/kg	240
Chloroprene	480	U	ug/kg	480
Methacrylonitrile	12	U	ug/kg	12
Methyl methacrylate	24	U	ug/kg	24
Pentachloroethane	24	U	ug/kg	24
Propionitrile	240	U	ug/kg	240
Vinyl acetate	24	U	ug/kg	24

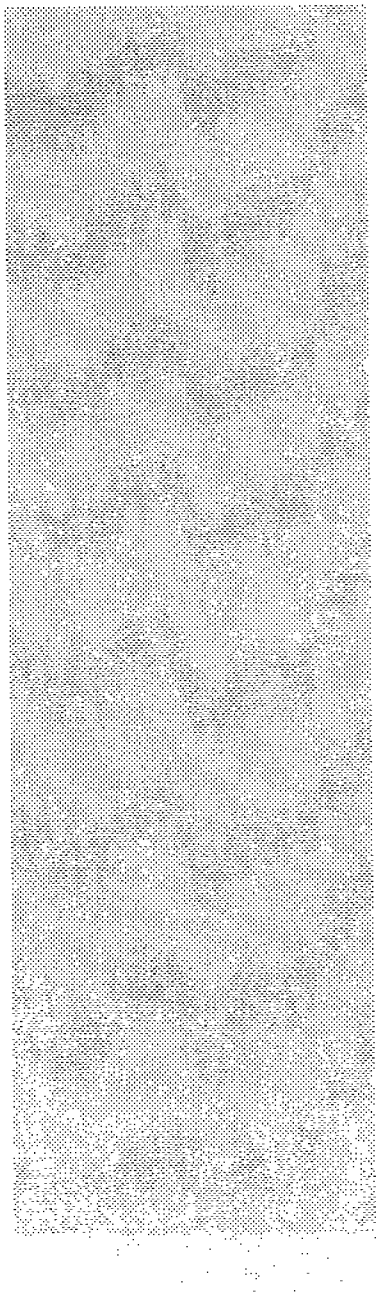
U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

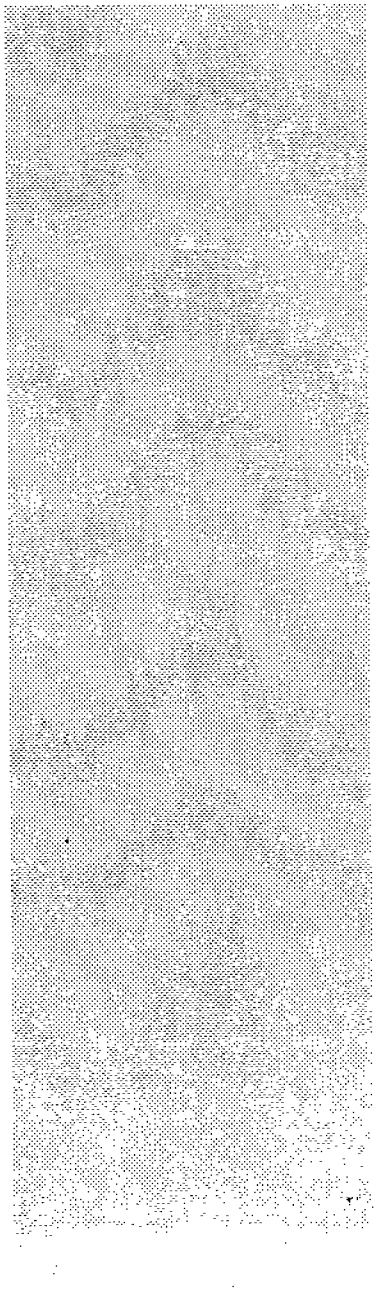
NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1				
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND				
Locator		MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1				
Collect Date:		21-JAN-92				21-JAN-92				21-JAN-92				21-JAN-92				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
BKG SVOC (8270+21)																		
N-Nitrosodimethylamine	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Phenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Aniline	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
bis (2-Chloroethyl) ether	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Benzyl Alcohol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2-Methylphenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
bis(2-Chloroisopropyl)ether	-				-				-				-					
N-Nitroso-di-n-propylamine	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Hexachloroethane	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Nitrobenzene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Isophorone	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2-Nitrophenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2,4-Dimethylphenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Benzoic acid	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
bis(2-Chloroethoxy)methane	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2,4-Dichlorophenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
1,2,4-Trichlorobenzene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Naphthalene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
4-Chloroaniline	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Hexachlorobutadiene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
4-Chloro-3-methylphenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2-Methylnaphthalene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Hexachlorocyclopentadiene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2,4,6-Trichlorophenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Dimethylphthalate	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2,4,5-Trichlorophenol	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
2-Chloronaphthalene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2-Nitroaniline	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
Acenaphthylene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2,6-Dinitrotoluene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
3-Nitroaniline	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
Acenaphthene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2,4-Dinitrophenol	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
4-Nitrophenol	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
Dibenzofuran	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
2,4-Dinitrotoluene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Diethylphthalate	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
4-Chlorophenyl-phenylether	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Fluorene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
4-Nitroaniline	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
4,6-Dinitro-2-methylphenol	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
N-Nitrosodiphenylamine (1)	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
1,2-Diphenylhydrazine	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
4-Bromophenyl-phenylether	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Hexachlorobenzene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Pentachlorophenol	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100		
Phenanthrene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Anthracene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Di-n-Butylphthalate	440	U	ug/kg	440	54	J	ug/kg		70	J	ug/kg		71	J	ug/kg			
Fluoranthene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		
Pyrene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650		

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SD-1			MPT-B-SD-2			MPT-B-SD-3			MPTBSDDUP1		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-B-SD-1			MPT-B-SD-2			MPT-B-SD-3			MPTBSDDUP1		
Collect Date:	21-JAN-92			21-JAN-92			21-JAN-92			21-JAN-92		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL





NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1			
Collect Date:	21-JAN-92				21-JAN-92				21-JAN-92				21-JAN-92			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Butylbenzylphthalate	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
3,3'-Dichlorobenzidine	880	U	ug/kg	880	870	U	ug/kg	870	1200	U	ug/kg	1200	1300	U	ug/kg	1300
Benzo(a)anthracene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Chrysene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
bis(2-Ethylhexyl)phthalate	440	U	ug/kg	440	430	U	ug/kg	430	260	J	ug/kg		650	U	ug/kg	650
Di-n-octylphthalate	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Benzo(b)fluoranthene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Benzo(k)fluoranthene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Benzo(a)pyrene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Indeno(1,2,3-cd)pyrene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Dibenz(a,h)anthracene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Benzo(g,h,i)perylene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
2-Picoline	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
Methyl methanesulfonate	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Ethyl methanesulfonate	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Acetophenone	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
N-Nitrosopiperidine	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Phenyl-tert-butylamine	2100	R	ug/kg		2100	R	ug/kg		3000	R	ug/kg		3100	R	ug/kg	
2,6-Dichlorophenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
N-Nitroso-di-n-butylamine	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
N-Nitrosodiethylamine	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
N-Nitrosopyrrolidine	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
Benzidine	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
1,2,4,5-Tetrachlorobenzene	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
Pentachlorobenzene	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
1-Naphthylamine	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
2-Naphthylamine	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
2,3,4,6-Tetrachlorophenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Phenacetin	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
4-Aminobiphenyl	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
Pentachloronitrobenzene	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
Pronamide	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
p-(Dimethylamino)azobenzene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
7,12-Dimethylbenz(A)Anthracene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
3-Methylcholanthrene	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Pyridine	2100	U	ug/kg	2100	2100	U	ug/kg	2100	3000	U	ug/kg	3000	3100	U	ug/kg	3100
N-Nitrosomethylethylamine	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
N-Nitrosomorpholine	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
o-Toluidine	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
Hexachloropropene	2100	UJ	ug/kg		2100	UJ	ug/kg		3000	UJ	ug/kg		3100	UJ	ug/kg	
p-Phenylenediamine	2100	UJ	ug/kg		2100	UJ	ug/kg		3000	UJ	ug/kg		3100	UJ	ug/kg	
Safrole	2100	UJ	ug/kg		2100	UJ	ug/kg		3000	UJ	ug/kg		3100	UJ	ug/kg	
Isosafrole	2100	UJ	ug/kg		2100	UJ	ug/kg		3000	UJ	ug/kg		3100	UJ	ug/kg	
1,4-Naphthoquinone	2100	UJ	ug/kg		2100	UJ	ug/kg		3000	UJ	ug/kg		3100	UJ	ug/kg	
1,3-Dinitrobenzene	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
5-Nitro-o-toluidine	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
1,3,5-Trinitrobenzene	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
4-Nitroquinoline-1-oxide	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
Methapyrilene	2100	UJ	ug/kg		2100	UJ	ug/kg		3000	UJ	ug/kg		3100	UJ	ug/kg	
3,3'-Dimethylbenzidine	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	
Hexachlorophene	2100	UJ	ug/kg		2100	UJ	ug/kg		3000	UJ	ug/kg		3100	UJ	ug/kg	
Aramite	-				-				-				-			

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1			
Collect Date:	21-JAN-92				21-JAN-92				21-JAN-92				21-JAN-92			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
2-Chlorophenol	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
3- & 4-Methylphenol (2)	440	U	ug/kg	440	430	U	ug/kg	430	610	U	ug/kg	610	650	U	ug/kg	650
Hexachloropropene	2100	UJ	ug/kg		2100	UJ	ug/kg		3000	UJ	ug/kg		3100	UJ	ug/kg	
2-Acetylaminofluorene	440	UJ	ug/kg		430	UJ	ug/kg		610	UJ	ug/kg		650	UJ	ug/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		35168011			35196006			35168010			35168008		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		MPTBSD4			MPTBSD5			MPTBSD6			MPTBSD7		
Collect Date:		17-FEB-93			18-FEB-93			17-FEB-93			17-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)																
N-Nitrosodimethylamine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Phenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Aniline	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
bis (2-Chloroethyl) ether	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Benzyl Alcohol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2-Methylphenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
bis(2-Chloroisopropyl)ether	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
N-Nitroso-di-n-propylamine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Hexachloroethane	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Nitrobenzene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Isophorone	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2-Nitrophenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2,4-Dimethylphenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Benzoic acid	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
bis(2-Chloroethoxy)methane	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2,4-Dichlorophenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
1,2,4-Trichlorobenzene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Naphthalene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
4-Chloroaniline	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Hexachlorobutadiene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
4-Chloro-3-methylphenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2-Methylnaphthalene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Hexachlorocyclopentadiene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2,4,6-Trichlorophenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Dimethylphthalate	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2,4,5-Trichlorophenol	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
2-Chloronaphthalene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2-Nitroaniline	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
Acenaphthylene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2,6-Dinitrotoluene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
3-Nitroaniline	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
Acenaphthene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2,4-Dinitrophenol	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
4-Nitrophenol	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
Dibenzofuran	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
2,4-Dinitrotoluene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Diethylphthalate	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
4-Chlorophenyl-phenylether	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Fluorene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
4-Nitroaniline	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
4,6-Dinitro-2-methylphenol	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35168011				35196006				35168010				35168008					
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND					
Locator	MPTBSD4				MPTBSD5				MPTBSD6				MPTBSD7					
Collect Date:	17-FEB-93				18-FEB-93				17-FEB-93				17-FEB-93					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
N-Nitrosodiphenylamine (1)	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
1,2-Diphenylhydrazine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
4-Bromophenyl-phenylether	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Hexachlorobenzene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Pentachlorophenol	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
Phenanthrene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Anthracene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Di-n-Butylphthalate	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Fluoranthene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Pyrene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	99	J	ug/kg			
Butylbenzylphthalate	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
3,3'-Dichlorobenzidine	1700	U	ug/kg	1700	820	U	ug/kg	820	1900	U	ug/kg	1900	1900	U	ug/kg	1900		
Benzo(a)anthracene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Chrysene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
bis(2-Ethylhexyl)phthalate	840	U	ug/kg	840	45	U	ug/kg	45	960	U	ug/kg	960	140	J	ug/kg			
Di-n-octylphthalate	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Benzo(b)fluoranthene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Benzo(k)fluoranthene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Benzo(a)pyrene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Indeno(1,2,3-cd)pyrene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Dibenz(a,h)anthracene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Benzo(g,h,i)perylene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
2-Picoline	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
Methyl methanesulfonate	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Ethyl methanesulfonate	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Acetophenone	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
N-Nitrosopiperidine	840	UJ	ug/kg		410	UJ	ug/kg		960	UJ	ug/kg		940	UJ	ug/kg			
Phenyl-tert-butylamine	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
2,6-Dichlorophenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
N-Nitroso-di-n-butylamine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
N-Nitrosodiethylamine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
N-Nitrosopyrrolidine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Benzidine	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
1,2,4,5-Tetrachlorobenzene	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
Pentachlorobenzene	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
1-Naphthylamine	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
2-Naphthylamine	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
2,3,4,6-Tetrachlorophenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Phenacetin	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
4-Aminobiphenyl	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
Pentachloronitrobenzene	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
Pronamide	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
p-(Dimethylamino)azobenzene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
7,12-Dimethylbenz(A)Anthracene	840	UJ	ug/kg		410	U	ug/kg	410	960	UJ	ug/kg		940	UJ	ug/kg			
3-Methylcholanthrene	840	UJ	ug/kg		410	U	ug/kg	410	960	UJ	ug/kg		940	UJ	ug/kg			
Pyridine	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
N-Nitrosomethylethylamine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
N-Nitrosomorpholine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
o-Toluidine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940		
Hexachloropropene	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		
p-Phenylenediamine	41000	U	ug/kg	41000	20000	U	ug/kg	20000	46000	U	ug/kg	46000	46000	U	ug/kg	46000		
Safrole	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600		

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35168011				35196006				35168010				35168008			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSD4				MPTBSD5				MPTBSD6				MPTBSD7			
Collect Date:	17-FEB-93				18-FEB-93				17-FEB-93				17-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Isosafrole	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
1,4-Naphthoquinone	84000	U	ug/kg	84000	41000	U	ug/kg	41000	96000	U	ug/kg	96000	94000	U	ug/kg	94000
1,3-Dinitrobenzene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
5-Nitro-o-toluidine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
1,3,5-Trinitrobenzene	840	UJ	ug/kg		410	U	ug/kg	410	960	UJ	ug/kg		940	UJ	ug/kg	
4-Nitroquinoline-1-oxide	41000	U	ug/kg	41000	20000	U	ug/kg	20000	46000	U	ug/kg	46000	46000	U	ug/kg	46000
Methapyrilene	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
3,3'-Dimethylbenzidine	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
Hexachlorophene	41000	U	ug/kg	41000	20000	UJ	ug/kg		46000	U	ug/kg	46000	46000	U	ug/kg	46000
Aramite	4100	R	ug/kg		2000	R	ug/kg		4600	R	ug/kg		4600	R	ug/kg	
2-Chlorophenol	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940
3- & 4-Methylphenol (2)	-				-				-				-			
Hexachloropropene	4100	U	ug/kg	4100	2000	U	ug/kg	2000	4600	U	ug/kg	4600	4600	U	ug/kg	4600
2-Acetylaminofluorene	840	U	ug/kg	840	410	U	ug/kg	410	960	U	ug/kg	960	940	U	ug/kg	940

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	35168009				M7840006				M7840007				M7840004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSD7D				OBSD010				OBSD011				OBSD012			
Collect Date:	17-FEB-93				08-SEP-94				08-SEP-94				08-SEP-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)																
N-Nitrosodimethylamine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Phenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Aniline	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
bis (2-Chloroethyl) ether	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Benzyl Alcohol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2-Methylphenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
bis(2-Chloroisopropyl)ether	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
N-Nitroso-di-n-propylamine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Hexachloroethane	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Nitrobenzene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Isophorone	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2-Nitrophenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2,4-Dimethylphenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Benzoic acid	4500	U	ug/kg	4500	8700	UJ	ug/kg		8200	UJ	ug/kg		2400	UJ	ug/kg	
bis(2-Chloroethoxy)methane	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2,4-Dichlorophenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
1,2,4-Trichlorobenzene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Naphthalene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
4-Chloroaniline	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Hexachlorobutadiene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
4-Chloro-3-methylphenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2-Methylnaphthalene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Hexachlorocyclopentadiene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2,4,6-Trichlorophenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Dimethylphthalate	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2,4,5-Trichlorophenol	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
2-Chloronaphthalene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2-Nitroaniline	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
Acenaphthylene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2,6-Dinitrotoluene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
3-Nitroaniline	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
Acenaphthene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2,4-Dinitrophenol	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
4-Nitrophenol	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
Dibenzofuran	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2,4-Dinitrotoluene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Diethylphthalate	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
4-Chlorophenyl-phenylether	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Fluorene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
4-Nitroaniline	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
4,6-Dinitro-2-methylphenol	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		35168009			M7840006			M7840007			M7840004		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		MPTBSD7D			OBSD010			OBSD011			OBSD012		
Collect Date:		17-FEB-93			08-SEP-94			08-SEP-94			08-SEP-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
N-Nitrosodiphenylamine (1)	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
1,2-Diphenylhydrazine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
4-Bromophenyl-phenylether	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Hexachlorobenzene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Pentachlorophenol	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
Phenanthrene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Anthracene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Di-n-Butylphthalate	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Fluoranthene	930	U	ug/kg	930	97	J	ug/kg		1700	U	ug/kg	1700	480	U	ug/kg	480
Pyrene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	55	J	ug/kg	
Butylbenzylphthalate	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	970	U	ug/kg	970
3,3'-Dichlorobenzidine	1900	U	ug/kg	1900	3500	U	ug/kg	3500	3300	U	ug/kg	3300	480	U	ug/kg	480
Benzo(a)anthracene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Chrysene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
bis(2-Ethylhexyl)phthalate	200	J	ug/kg		1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Di-n-octylphthalate	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Benzo(b)fluoranthene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Benzo(k)fluoranthene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Benzo(a)pyrene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Indeno(1,2,3-cd)pyrene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Dibenz(a,h)anthracene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Benzo(g,h,i)perylene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
2-Picoline	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
Methyl methanesulfonate	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Ethyl methanesulfonate	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Acetophenone	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
N-Nitrosopiperidine	930	UJ	ug/kg		1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Phenyl-tert-butylamine	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
2,6-Dichlorophenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
N-Nitroso-di-n-butylamine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
N-Nitrosodiethylamine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
N-Nitrosopyrrolidine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Benzidine	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
1,2,4,5-Tetrachlorobenzene	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
Pentachlorobenzene	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
1-Naphthylamine	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
2-Naphthylamine	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
2,3,4,6-Tetrachlorophenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Phenacetin	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
4-Aminobiphenyl	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
Pentachloronitrobenzene	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
Pronamide	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
p-(Dimethylamino)azobenzene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
7,12-Dimethylbenz(A)Anthracene	930	UJ	ug/kg		1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
3-Methylcholanthrene	930	UJ	ug/kg		1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Pyridine	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
N-Nitrosomethylethylamine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
N-Nitrosomorpholine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
o-Toluidine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Hexachloropropene	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
p-Phenylenediamine	45000	U	ug/kg	45000	87000	U	ug/kg	87000	82000	U	ug/kg	82000	24000	U	ug/kg	24000
Safrole	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		35168009				M7840006				M7840007				M7840004		
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND		
Locator		MPTBSD7D				OBSD010				OBSD011				OBSD012		
Collect Date:		17-FEB-93				08-SEP-94				08-SEP-94				08-SEP-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Isosafrole	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
1,4-Naphthoquinone	93000	U	ug/kg	93000	170000	U	ug/kg	170000	160000	U	ug/kg	160000	48000	U	ug/kg	48000
1,3-Dinitrobenzene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
5-Nitro-o-toluidine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
1,3,5-Trinitrobenzene	930	UJ	ug/kg		1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
4-Nitroquinoline-1-oxide	45000	U	ug/kg	45000	87000	UJ	ug/kg		82000	UJ	ug/kg		24000	UJ	ug/kg	
Methapyrilene	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
3,3'-Dimethylbenzidine	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Hexachlorophene	45000	U	ug/kg	45000	87000	R	ug/kg		82000	R	ug/kg		24000	R	ug/kg	
Aramite	4500	R	ug/kg		8700	UJ	ug/kg		8200	UJ	ug/kg		2400	UJ	ug/kg	
2-Chlorophenol	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
3- & 4-Methylphenol (2)	-				1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480
Hexachloropropene	4500	U	ug/kg	4500	8700	U	ug/kg	8700	8200	U	ug/kg	8200	2400	U	ug/kg	2400
2-Acetylaminofluorene	930	U	ug/kg	930	1800	U	ug/kg	1800	1700	U	ug/kg	1700	480	U	ug/kg	480

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		M7840003			M7840002			M7840001			M7654010		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		OBSD013			OBSD014			OBSD015			OOSD001		
Collect Date:		08-SEP-94			08-SEP-94			08-SEP-94			03-AUG-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)																
N-Nitrosodimethylamine	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Phenol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Aniline	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	UJ	ug/kg	
bis (2-Chloroethyl) ether	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Benzyl Alcohol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2-Methylphenol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
bis(2-Chloroisopropyl)ether	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	UJ	ug/kg	
N-Nitroso-di-n-propylamine	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Hexachloroethane	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Nitrobenzene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Isophorone	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2-Nitrophenol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2,4-Dimethylphenol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Benzoic acid	2000	UJ	ug/kg		2100	UJ	ug/kg		29	J	ug/kg		36000	UJ	ug/kg	
bis(2-Chloroethoxy)methane	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2,4-Dichlorophenol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
1,2,4-Trichlorobenzene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Naphthalene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
4-Chloroaniline	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Hexachlorobutadiene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
4-Chloro-3-methylphenol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2-Methylnaphthalene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Hexachlorocyclopentadiene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2,4,6-Trichlorophenol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Dimethylphthalate	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2,4,5-Trichlorophenol	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	U	ug/kg	36000
2-Chloronaphthalene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2-Nitroaniline	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	UJ	ug/kg	
Acenaphthylene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2,6-Dinitrotoluene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
3-Nitroaniline	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	U	ug/kg	36000
Acenaphthene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2,4-Dinitrophenol	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	U	ug/kg	36000
4-Nitrophenol	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	U	ug/kg	36000
Dibenzofuran	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
2,4-Dinitrotoluene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Diethylphthalate	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
4-Chlorophenyl-phenylether	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Fluorene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
4-Nitroaniline	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	U	ug/kg	36000
4,6-Dinitro-2-methylphenol	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	U	ug/kg	36000

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7840003			M7840002			M7840001			M7654010		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	OBSD013			OBSD014			OBSD015			OOSD001		
Collect Date:	08-SEP-94			08-SEP-94			08-SEP-94			03-AUG-94		
	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL
N-Nitrosodiphenylamine (1)	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
1,2-Diphenylhydrazine	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 UJ	ug/kg	
4-Bromophenyl-phenylether	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Hexachlorobenzene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Pentachlorophenol	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
Phenanthrene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Anthracene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Di-n-Butylphthalate	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Fluoranthene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Pyrene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Butylbenzylphthalate	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
3,3'-Dichlorobenzidine	790 U	ug/kg	790	830 U	ug/kg	830	820 U	ug/kg	820	14000 U	ug/kg	14000
Benzo(a)anthracene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Chrysene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
bis(2-Ethylhexyl)phthalate	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Di-n-octylphthalate	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Benzo(b)fluoranthene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Benzo(k)fluoranthene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Benzo(a)pyrene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Indeno(1,2,3-cd)pyrene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Dibenz(a,h)anthracene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Benzo(g,h,i)perylene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
2-Picoline	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
Methyl methanesulfonate	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Ethyl methanesulfonate	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 UJ	ug/kg	
Acetophenone	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
N-Nitrosopiperidine	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Phenyl-tert-butylamine	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 UJ	ug/kg	
2,6-Dichlorophenol	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
N-Nitroso-di-n-butylamine	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
N-Nitrosodiethylamine	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
N-Nitrosopyrrolidine	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Benzidine	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
1,2,4,5-Tetrachlorobenzene	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
Pentachlorobenzene	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
1-Naphthylamine	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
2-Naphthylamine	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
2,3,4,6-Tetrachlorophenol	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Phenacetin	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 UJ	ug/kg	
4-Aminobiphenyl	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
Pentachloronitrobenzene	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
Pronamide	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
p-(Dimethylamino)azobenzene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
7,12-Dimethylbenz(A)Anthracene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
3-Methylcholanthrene	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Pyridine	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
N-Nitrosomethylethylamine	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
N-Nitrosomorpholine	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
o-Toluidine	400 U	ug/kg	400	420 U	ug/kg	420	410 U	ug/kg	410	7200 U	ug/kg	7200
Hexachloropropene	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000
p-Phenylenediamine	20000 U	ug/kg	20000	21000 U	ug/kg	21000	20000 U	ug/kg	20000	360000 U	ug/kg	360000
Safrole	2000 U	ug/kg	2000	2100 U	ug/kg	2100	2000 U	ug/kg	2000	36000 U	ug/kg	36000

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7840003				M7840002				M7840001				M7654010			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBSD013				OBSD014				OBSD015				OOSD001			
Collect Date:	08-SEP-94				08-SEP-94				08-SEP-94				03-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Isosafrole	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	U	ug/kg	36000
1,4-Naphthoquinone	39000	U	ug/kg	39000	41000	U	ug/kg	41000	41000	U	ug/kg	41000	720000	U	ug/kg	720000
1,3-Dinitrobenzene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	UJ	ug/kg	
5-Nitro-o-toluidine	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
1,3,5-Trinitrobenzene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
4-Nitroquinoline-1-oxide	20000	UJ	ug/kg		21000	UJ	ug/kg		20000	UJ	ug/kg		360000	U	ug/kg	360000
Methapyrilene	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	UJ	ug/kg	
3,3'-Dimethylbenzidine	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
Hexachlorophene	20000	R	ug/kg		21000	R	ug/kg		20000	R	ug/kg		360000	U	ug/kg	360000
Aramite	2000	UJ	ug/kg		2100	UJ	ug/kg		2000	UJ	ug/kg		36000	U	ug/kg	36000
2-Chlorophenol	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200
3- & 4-Methylphenol (2)	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	-			
Hexachloropropene	2000	U	ug/kg	2000	2100	U	ug/kg	2100	2000	U	ug/kg	2000	36000	U	ug/kg	36000
2-Acetylaminofluorene	400	U	ug/kg	400	420	U	ug/kg	420	410	U	ug/kg	410	7200	U	ug/kg	7200

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SD-1			MPT-B-SD-2			MPT-B-SD-3			MPTBSDDUP1		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-B-SD-1			MPT-B-SD-2			MPT-B-SD-3			MPTBSDDUP1		
Collect Date:	21-JAN-92			21-JAN-92			21-JAN-92			21-JAN-92		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)												
alpha-BHC	.5 U	ug/kg	.5	.5 U	ug/kg	.5	3.7 U	ug/kg	3.7	.8 U	ug/kg	.8
beta-BHC	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
delta-BHC	.5 U	ug/kg	.5	.5 U	ug/kg	.5	3.7 U	ug/kg	3.7	.8 U	ug/kg	.8
gamma-BHC (Lindane)	.5 U	ug/kg	.5	.5 U	ug/kg	.5	3.7 U	ug/kg	3.7	.8 U	ug/kg	.8
Heptachlor	.5 U	ug/kg	.5	.5 U	ug/kg	.5	3.7 U	ug/kg	3.7	.8 U	ug/kg	.8
Aldrin	.5 U	ug/kg	.5	.5 U	ug/kg	.5	3.7 U	ug/kg	3.7	.8 U	ug/kg	.8
Heptachlor epoxide	.5 U	ug/kg	.5	.5 U	ug/kg	.5	3.7 U	ug/kg	3.7	.8 U	ug/kg	.8
Endosulfan I	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
Dieldrin	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
4,4-DDE	3	ug/kg		1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
Endrin	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
Endosulfan II	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
4,4-DDD	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
Endosulfan sulfate	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
4,4-DDT	.8 J	ug/kg		1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
Methoxychlor	2.1 U	ug/kg	2.1	2.1 U	ug/kg	2.1	15 U	ug/kg	15	3.1 U	ug/kg	3.1
Endrin aldehyde	-			-			-			-		
Endrin ketone	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
Chlordane	5 U	ug/kg	5	5 U	ug/kg	5	37 U	ug/kg	37	8 U	ug/kg	8
Chlorobenzilate	27 U	ug/kg	27	26 U	ug/kg	26	180 U	ug/kg	180	39 U	ug/kg	39
Dialiate	53 U	ug/kg	53	53 U	ug/kg	53	370 U	ug/kg	370	78 U	ug/kg	78
Toxaphene	27 U	ug/kg	27	26 U	ug/kg	26	180 U	ug/kg	180	39 U	ug/kg	39
Isodrin	1.1 U	ug/kg	1.1	1 U	ug/kg	1	7.4 U	ug/kg	7.4	1.6 U	ug/kg	1.6
Kepone	-			-			-			-		
Aroclor-1016	43 U	ug/kg	43	42 U	ug/kg	42	300 U	ug/kg	300	63 U	ug/kg	63
Aroclor-1221	110 U	ug/kg	110	100 U	ug/kg	100	740 U	ug/kg	740	160 U	ug/kg	160
Aroclor-1232	110 U	ug/kg	110	100 U	ug/kg	100	740 U	ug/kg	740	160 U	ug/kg	160
Aroclor-1242	43 U	ug/kg	43	42 U	ug/kg	42	300 U	ug/kg	300	63 U	ug/kg	63
Aroclor-1248	21 U	ug/kg	21	21 U	ug/kg	21	150 U	ug/kg	150	31 U	ug/kg	31
Aroclor-1254	11 U	ug/kg	11	10 U	ug/kg	10	74 U	ug/kg	74	16 U	ug/kg	16
Aroclor-1260	11 U	ug/kg	11	10 U	ug/kg	10	74 U	ug/kg	74	16 U	ug/kg	16

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPTBSDDUP1				24081011				24099006				24081010			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSDDUP1DL				MPTBSD4				MPTBSD5				MPTBSD6			
Collect Date:	21-JAN-92				17-FEB-93				18-FEB-93				17-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)																
alpha-BHC	3.9	U	ug/kg	3.9	.7	U	ug/kg	.7	.82	U	ug/kg	.82	.89	U	ug/kg	.89
beta-BHC	7.8	U	ug/kg	7.8	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7
delta-BHC	3.9	U	ug/kg	3.9	.7	U	ug/kg	.7	.82	U	ug/kg	.82	.89	U	ug/kg	.89
gamma-BHC (Lindane)	3.9	U	ug/kg	3.9	.7	U	ug/kg	.7	.82	U	ug/kg	.82	.89	U	ug/kg	.89
Heptachlor	3.9	U	ug/kg	3.9	.7	U	ug/kg	.7	.82	U	ug/kg	.82	.89	U	ug/kg	.89
Aldrin	3.9	U	ug/kg	3.9	.7	U	ug/kg	.7	.82	U	ug/kg	.82	.89	U	ug/kg	.89
Heptachlor epoxide	3.9	U	ug/kg	3.9	.7	U	ug/kg	.7	.82	U	ug/kg	.82	.89	U	ug/kg	.89
Endosulfan I	7.8	U	ug/kg	7.8	.7	U	ug/kg	.7	.82	U	ug/kg	.82	.89	U	ug/kg	.89
Dieldrin	7.8	U	ug/kg	7.8	.7	U	ug/kg	.7	.82	U	ug/kg	.82	.89	U	ug/kg	.89
4,4-DDE	7.8	U	ug/kg	7.8	.7	U	ug/kg	.7	.82	U	ug/kg	.82	7.9		ug/kg	
Endrin	7.8	U	ug/kg	7.8	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7
Endosulfan II	7.8	U	ug/kg	7.8	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7
4,4-DDD	7.8	U	ug/kg	7.8	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	4.2		ug/kg	
Endosulfan sulfate	7.8	U	ug/kg	7.8	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7
4,4-DDT	7.8	U	ug/kg	7.8	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7
Methoxychlor	16	U	ug/kg	16	3.2	U	ug/kg	3.2	3.3	U	ug/kg	3.3	3.6	U	ug/kg	3.6
Endrin aldehyde	-				1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7
Endrin ketone	7.8	U	ug/kg	7.8	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7
Chlordane	39	U	ug/kg	39	7	U	ug/kg	7	8.2	U	ug/kg	8.2	8.9	U	ug/kg	8.9
Chlorobenzilate	20	U	ug/kg	20	24	U	ug/kg	24	24	U	ug/kg	24	27	U	ug/kg	27
Dialiate	390	U	ug/kg	390	48	U	ug/kg	48	49	U	ug/kg	49	53	U	ug/kg	53
Toxaphene	200	U	ug/kg	200	39	U	ug/kg	39	40	U	ug/kg	40	44	U	ug/kg	44
Isodrin	7.8	U	ug/kg	7.8	.95	U	ug/kg	.95	.98	U	ug/kg	.98	1.1	U	ug/kg	1.1
Kepone	-				48	U	ug/kg	48	49	U	ug/kg	49	53	U	ug/kg	53
Aroclor-1016	310	U	ug/kg	310	39	U	ug/kg	39	40	U	ug/kg	40	44	U	ug/kg	44
Aroclor-1221	780	U	ug/kg	780	70	U	ug/kg	70	82	U	ug/kg	82	89	U	ug/kg	89
Aroclor-1232	780	U	ug/kg	780	70	U	ug/kg	70	82	U	ug/kg	82	89	U	ug/kg	89
Aroclor-1242	310	U	ug/kg	310	39	U	ug/kg	39	40	U	ug/kg	40	44	U	ug/kg	44
Aroclor-1248	160	U	ug/kg	160	39	U	ug/kg	39	40	U	ug/kg	40	44	U	ug/kg	44
Aroclor-1254	78	U	ug/kg	78	20	U	ug/kg	20	21	U	ug/kg	21	23	U	ug/kg	23
Aroclor-1260	78	U	ug/kg	78	20	U	ug/kg	20	21	U	ug/kg	21	23	U	ug/kg	23

U = NOT DETECTED R = RESULT IS REJECTED
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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	24081008			24081009			M7840006			M7840007		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPTBSD7			MPTBSD7D			OBSD010			OBSD011		
Collect Date:	17-FEB-93			17-FEB-93			08-SEP-94			08-SEP-94		
	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL
PESTICIDES/PCBs (SW-846,8080)												
alpha-BHC	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
beta-BHC	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8	6.8 U	ug/kg	6.8	6.5 U	ug/kg	6.5
delta-BHC	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
gamma-BHC (Lindane)	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
Heptachlor	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
Aldrin	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
Heptachlor epoxide	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
Endosulfan I	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
Dieldrin	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
4,4-DDE	.89 U	ug/kg	.89	.9 U	ug/kg	.9	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
Endrin	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8	6.8 U	ug/kg	6.8	6.5 U	ug/kg	6.5
Endosulfan II	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8	6.8 U	ug/kg	6.8	6.5 U	ug/kg	6.5
4,4-DDD	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8	6.8 U	ug/kg	6.8	6.5 U	ug/kg	6.5
Endosulfan sulfate	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8	6.8 U	ug/kg	6.8	6.5 U	ug/kg	6.5
4,4-DDT	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8	6.8 U	ug/kg	6.8	6.5 U	ug/kg	6.5
Methoxychlor	3.6 U	ug/kg	3.6	3.6 U	ug/kg	3.6	14 U	ug/kg	14	14 U	ug/kg	14
Endrin aldehyde	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8	6.8 U	ug/kg	6.8	6.5 U	ug/kg	6.5
Endrin ketone	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8	6.8 U	ug/kg	6.8	6.5 U	ug/kg	6.5
Chlordane	12 U	ug/kg	12	9 U	ug/kg	9	35 U	ug/kg	35	34 U	ug/kg	34
Chlorobenzilate	27 U	ug/kg	27	27 U	ug/kg	27	100 U	ug/kg	100	100 U	ug/kg	100
Dialiate	53 U	ug/kg	53	44 U	ug/kg	44	210 U	ug/kg	210	200 U	ug/kg	200
Toxaphene	44 U	ug/kg	44	44 U	ug/kg	44	170 U	ug/kg	170	160 U	ug/kg	160
Isodrin	1.1 U	ug/kg	1.1	1.1 U	ug/kg	1.1	3.5 U	ug/kg	3.5	3.4 U	ug/kg	3.4
Kepone	53 U	ug/kg	53	54 U	ug/kg	54	210 UJ	ug/kg		200 UJ	ug/kg	
Aroclor-1016	44 U	ug/kg	44	44 U	ug/kg	44	170 U	ug/kg	170	160 U	ug/kg	160
Aroclor-1221	89 U	ug/kg	89	90 U	ug/kg	90	350 U	ug/kg	350	340 U	ug/kg	340
Aroclor-1232	89 U	ug/kg	89	90 U	ug/kg	90	350 U	ug/kg	350	340 U	ug/kg	340
Aroclor-1242	44 U	ug/kg	44	44 U	ug/kg	44	170 U	ug/kg	170	160 U	ug/kg	160
Aroclor-1248	44 U	ug/kg	44	44 U	ug/kg	44	170 U	ug/kg	170	160 U	ug/kg	160
Aroclor-1254	23 U	ug/kg	23	23 U	ug/kg	23	89 U	ug/kg	89	85 U	ug/kg	85
Aroclor-1260	23 U	ug/kg	23	23 U	ug/kg	23	89 U	ug/kg	89	85 U	ug/kg	85

U = NOT DETECTED R = RESULT IS REJECTED
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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7840004				M7840003				M7840002				M7654010			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBSD012				OBSD013				OBSD014				OOSD001			
Collect Date:	08-SEP-94				08-SEP-94				08-SEP-94				03-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)																
alpha-BHC	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
beta-BHC	1.9	U	ug/kg	1.9	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	2.4	U	ug/kg	2.4
delta-BHC	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
gamma-BHC (Lindane)	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
Heptachlor	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
Aldrin	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
Heptachlor epoxide	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
Endosulfan I	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
Dieldrin	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
4,4-DDE	.97	U	ug/kg	.97	6.2	J	ug/kg		.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
Endrin	1.9	U	ug/kg	1.9	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	2.4	U	ug/kg	2.4
Endosulfan II	1.9	U	ug/kg	1.9	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	2.4	U	ug/kg	2.4
4,4-DDD	1.9	U	ug/kg	1.9	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	2.4	U	ug/kg	2.4
Endosulfan sulfate	1.9	U	ug/kg	1.9	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	2.4	U	ug/kg	2.4
4,4-DDT	1.9	U	ug/kg	1.9	3.6		ug/kg		1.6	U	ug/kg	1.6	2.4	U	ug/kg	2.4
Methoxychlor	3.9	U	ug/kg	3.9	3.2	U	ug/kg	3.2	3.4	U	ug/kg	3.4	5	U	ug/kg	5
Endrin aldehyde	1.9	U	ug/kg	1.9	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	2.4	U	ug/kg	2.4
Endrin ketone	1.9	U	ug/kg	1.9	1.5	U	ug/kg	1.5	1.6	U	ug/kg	1.6	2.4	U	ug/kg	2.4
Chlordane	9.7	U	ug/kg	9.7	8	U	ug/kg	8	8.4	U	ug/kg	8.4	1.2	U	ug/kg	1.2
Chlorobenzilate	29	U	ug/kg	29	24	U	ug/kg	24	25	U	ug/kg	25	36	U	ug/kg	36
Dialiate	58	U	ug/kg	58	48	U	ug/kg	48	50	U	ug/kg	50	73	U	ug/kg	73
Toxaphene	48	U	ug/kg	48	39	U	ug/kg	39	41	U	ug/kg	41	60	U	ug/kg	60
Isodrin	.97	U	ug/kg	.97	.8	U	ug/kg	.8	.84	U	ug/kg	.84	1.2	U	ug/kg	1.2
Kepone	58	UJ	ug/kg		48	UJ	ug/kg		50	UJ	ug/kg		87	U	ug/kg	87
Aroclor-1016	48	U	ug/kg	48	39	U	ug/kg	39	41	U	ug/kg	41	60	U	ug/kg	60
Aroclor-1221	97	U	ug/kg	97	80	U	ug/kg	80	84	U	ug/kg	84	120	U	ug/kg	120
Aroclor-1232	97	U	ug/kg	97	80	U	ug/kg	80	84	U	ug/kg	84	120	U	ug/kg	120
Aroclor-1242	48	U	ug/kg	48	39	U	ug/kg	39	41	U	ug/kg	41	60	U	ug/kg	60
Aroclor-1248	48	U	ug/kg	48	39	U	ug/kg	39	41	U	ug/kg	41	60	U	ug/kg	60
Aroclor-1254	25	U	ug/kg	25	20	U	ug/kg	20	21	U	ug/kg	21	31	U	ug/kg	31
Aroclor-1260	25	U	ug/kg	25	20	U	ug/kg	20	21	U	ug/kg	21	31	U	ug/kg	31

U = NOT DETECTED R = RESULT IS REJECTED
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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7840001
Site	BACKGROUND
Locator	OBSD015
Collect Date:	08-SEP-94

	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)				
alpha-BHC	.83	U	ug/kg	.83
beta-BHC	1.6	U	ug/kg	1.6
delta-BHC	.83	U	ug/kg	.83
gamma-BHC (Lindane)	.83	U	ug/kg	.83
Heptachlor	.83	U	ug/kg	.83
Aldrin	.83	U	ug/kg	.83
Heptachlor epoxide	.83	U	ug/kg	.83
Endosulfan I	.83	U	ug/kg	.83
Dieldrin	.83	U	ug/kg	.83
4,4-DDE	1.6	U	ug/kg	1.6
Endrin	1.6	U	ug/kg	1.6
Endosulfan II	1.6	U	ug/kg	1.6
4,4-DDD	1.6	U	ug/kg	1.6
Endosulfan sulfate	1.6	U	ug/kg	1.6
4,4-DDT	3.3	U	ug/kg	3.3
Methoxychlor	1.6	U	ug/kg	1.6
Endrin aldehyde	1.6	U	ug/kg	1.6
Endrin ketone	8.3	U	ug/kg	8.3
Chlordane	25	U	ug/kg	25
Chlorobenzilate	49	U	ug/kg	49
Diallate	41	U	ug/kg	41
Toxaphene	.83	U	ug/kg	.83
Isodrin	49	UJ	ug/kg	
Kepone	41	U	ug/kg	41
Aroclor-1016	83	U	ug/kg	83
Aroclor-1221	83	U	ug/kg	83
Aroclor-1232	41	U	ug/kg	41
Aroclor-1242	41	U	ug/kg	41
Aroclor-1248	21	U	ug/kg	21
Aroclor-1254	21	U	ug/kg	21
Aroclor-1260				

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPT-B-SD-1				MPT-B-SD-2				MPT-B-SD-3				MPTBSDDUP1			
Collect Date:	21-JAN-92				21-JAN-92				21-JAN-92				21-JAN-92			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SOILS METALS																
Antimony	11.4	UJ	mg/kg		11	UJ	mg/kg		18.2	UJ	mg/kg		16.4	UJ	mg/kg	
Arsenic	.68	J	mg/kg		.21	U	mg/kg	.21	4.2	J	mg/kg		6.6		mg/kg	
Barium	3.6	J	mg/kg		7.4	J	mg/kg		16.1	J	mg/kg		15.2	J	mg/kg	
Beryllium	.059	U	mg/kg	.059	.045	U	mg/kg	.045	.59	U	mg/kg	.59	.54	U	mg/kg	.54
Cadmium	.46	U	mg/kg	.46	.44	U	mg/kg	.44	.82	J	mg/kg		.66	U	mg/kg	.66
Chromium	2.5	J	mg/kg		4.4		mg/kg		28.1		mg/kg		26.6		mg/kg	
Cobalt	2.1	U	mg/kg	2.1	1.5	U	mg/kg	1.5	6.4	U	mg/kg	6.4	4.9	U	mg/kg	4.9
Copper	2	J	mg/kg		2.3	J	mg/kg		3.1	J	mg/kg		3.5	J	mg/kg	
Cyanide	-				-				-				-			
Lead	3.4		mg/kg		3		mg/kg		8.5		mg/kg		10		mg/kg	
Mercury	.078	U	mg/kg	.078	.068	U	mg/kg	.068	.15	U	mg/kg	.15	.13	U	mg/kg	.13
Nickel	2	U	mg/kg	2	5.5	J	mg/kg		7.1	J	mg/kg		6.4	J	mg/kg	
Selenium	.39	J	mg/kg		.32	J	mg/kg		.52	J	mg/kg		.62	J	mg/kg	
Silver	.66	U	mg/kg	.66	.64	U	mg/kg	.64	1.1	U	mg/kg	1.1	.95	U	mg/kg	.95
Thallium	.4	UJ	mg/kg		.39	UJ	mg/kg		.64	UJ	mg/kg		.58	UJ	mg/kg	
Tin	59.1	U	mg/kg	59.1	57.3	U	mg/kg	57.3	94.8	U	mg/kg	94.8	85.4	U	mg/kg	85.4
Vanadium	2.2	J	mg/kg		3.7	J	mg/kg		28.4		mg/kg		26.2		mg/kg	
Zinc	7.7		mg/kg		6.1		mg/kg		26.7		mg/kg		32.1		mg/kg	

U = NOT DETECTED R = RESULT IS REJECTED
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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	01528010				01529002				01528009				01528007			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	MPTBSD4				MPTBSD5				MPTBSD6				MPTBSD7			
Collect Date:	17-FEB-93				18-FEB-93				17-FEB-93				17-FEB-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SOILS METALS																
Antimony	6.3	U	mg/kg	6.3	6.1	U	mg/kg	6.1	7.2	U	mg/kg	7.2	7.1	U	mg/kg	7.1
Arsenic	.01	U	mg/kg	.01	1.3	J	mg/kg		.02	U	mg/kg	.02	.01	U	mg/kg	.01
Barium	6.5	J	mg/kg		4.7	J	mg/kg		4.4	J	mg/kg		4	J	mg/kg	
Beryllium	.07	U	mg/kg	.07	.07	U	mg/kg	.07	.08	U	mg/kg	.08	.08	U	mg/kg	.08
Cadmium	1	U	mg/kg	1	.98	U	mg/kg	.98	1.2	U	mg/kg	1.2	1.1	U	mg/kg	1.1
Chromium	1.3	J	mg/kg		2.4	J	mg/kg		3.1		mg/kg		3		mg/kg	
Cobalt	.57	U	mg/kg	.57	.56	U	mg/kg	.56	.66	U	mg/kg	.66	.65	U	mg/kg	.65
Copper	.43	U	mg/kg	.43	5	J	mg/kg		2.6	J	mg/kg		.88	J	mg/kg	
Cyanide	.19	U	mg/kg	.19	.19	U	mg/kg	.19	.22	U	mg/kg	.22	.22	U	mg/kg	.22
Lead	1.2	U	mg/kg	1.2	1.5	J	mg/kg		.2	U	mg/kg	.2	3.1		mg/kg	
Mercury	.04	UJ	mg/kg		.24	U	mg/kg	.24	.24	J	mg/kg		.22	J	mg/kg	
Nickel	3.2	U	mg/kg	3.2	3.1	U	mg/kg	3.1	3.6	U	mg/kg	3.6	3.6	U	mg/kg	3.6
Selenium	.71	J	mg/kg		1.1	U	mg/kg	1.1	.81	J	mg/kg		.65	J	mg/kg	
Silver	.62	U	mg/kg	.62	.6	U	mg/kg	.6	.71	U	mg/kg	.71	.7	U	mg/kg	.7
Thallium	.65	UJ	mg/kg		.63	U	mg/kg	.63	.74	UJ	mg/kg		.88	J	mg/kg	
Tin	8.9	U	mg/kg	8.9	12.3	J	mg/kg		10.2	U	mg/kg	10.2	10.1	U	mg/kg	10.1
Vanadium	1.6	J	mg/kg		1.8	J	mg/kg		3.3	J	mg/kg		2.7	J	mg/kg	
Zinc	3	J	mg/kg		2.1	J	mg/kg		11.6	J	mg/kg		9.5	J	mg/kg	

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		01528008			M7840006			M7840007			M7840004		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		MPTBSD7D			OBSD010			OBSD011			OBSD012		
Collect Date:		17-FEB-93			08-SEP-94			08-SEP-94			08-SEP-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SOILS METALS																
Antimony	6.9	U	mg/kg	6.9	2.5	U	mg/kg	2.5	2.3	U	mg/kg	2.3	.67	U	mg/kg	.67
Arsenic	.01	U	mg/kg	.01	14.4		mg/kg		11.6		mg/kg		1.1	J	mg/kg	
Barium	4	J	mg/kg		21	J	mg/kg		26.3	J	mg/kg		3.1	J	mg/kg	
Beryllium	.1	J	mg/kg		.9	J	mg/kg		1.2	J	mg/kg		.13	J	mg/kg	
Cadmium	1.1	U	mg/kg	1.1	3.4	U	mg/kg	3.4	3.1	U	mg/kg	3.1	.91	U	mg/kg	.91
Chromium	2.8		mg/kg		33.6		mg/kg		41.6		mg/kg		4.1		mg/kg	
Cobalt	.63	U	mg/kg	.63	5.2	J	mg/kg		7	J	mg/kg		.8	U	mg/kg	.8
Copper	.88	J	mg/kg		98.2		mg/kg		85.7		mg/kg		3	U	mg/kg	3
Cyanide	.21	U	mg/kg	.21	.18	U	mg/kg	.18	.16	U	mg/kg	.16	.05	U	mg/kg	.05
Lead	2.5		mg/kg		21.8		mg/kg		15.6		mg/kg		1.7		mg/kg	
Mercury	.04	UJ	mg/kg		1.4		mg/kg		.72		mg/kg		.28		mg/kg	
Nickel	3.5	U	mg/kg	3.5	37	J	mg/kg		26.6	J	mg/kg		2.2	U	mg/kg	2.2
Selenium	.6	U	mg/kg	.6	1.5	U	mg/kg	1.5	1.4	U	mg/kg	1.4	.4	U	mg/kg	.4
Silver	.68	U	mg/kg	.68	2.4	U	mg/kg	2.4	2.1	U	mg/kg	2.1	.62	U	mg/kg	.62
Thallium	.72	UJ	mg/kg		1.5	U	mg/kg	1.5	1.3	UJ	mg/kg		.39	J	mg/kg	
Tin	9.8	U	mg/kg	9.8	19.6	J	mg/kg		18.6	J	mg/kg		4.6	J	mg/kg	
Vanadium	2.2	J	mg/kg		33.9	J	mg/kg		47.3	J	mg/kg		3.3	J	mg/kg	
Zinc	7.9	J	mg/kg		101		mg/kg		94.3		mg/kg		10.8		mg/kg	

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7840003				M7840002				M7840001				M7654010			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	OBSD013				OBSD014				OBSD015				OOSD001			
Collect Date:	08-SEP-94				08-SEP-94				08-SEP-94				03-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SOILS METALS																
Antimony	.55	U	mg/kg	.55	.63	U	mg/kg	.63	.6	U	mg/kg	.6	.94	U	mg/kg	.94
Arsenic	.92	J	mg/kg		.44	J	mg/kg		.48	J	mg/kg		3.6	J	mg/kg	
Barium	6.5	J	mg/kg		1.5	J	mg/kg		1.7	J	mg/kg		12.3	J	mg/kg	
Beryllium	.06	J	mg/kg		.05	U	mg/kg	.05	.05	U	mg/kg	.05	.47	J	mg/kg	
Cadmium	.74	U	mg/kg	.74	.86	U	mg/kg	.86	.81	U	mg/kg	.81	1.3	U	mg/kg	1.3
Chromium	2	J	mg/kg		1.6	J	mg/kg		1.6	J	mg/kg		17.1		mg/kg	
Cobalt	.66	U	mg/kg	.66	.76	U	mg/kg	.76	.72	U	mg/kg	.72	2.4	J	mg/kg	
Copper	3.1	U	mg/kg	3.1	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	7.5	J	mg/kg	
Cyanide	.04	U	mg/kg	.04	.04	U	mg/kg	.04	.04	U	mg/kg	.04	.07	U	mg/kg	.07
Lead	1.2		mg/kg		.58	U	mg/kg	.58	.95		mg/kg		7.7		mg/kg	
Mercury	.07	U	mg/kg	.07	.09	U	mg/kg	.09	.1	U	mg/kg	.1	1.1	J	mg/kg	
Nickel	1.8	U	mg/kg	1.8	2.1	U	mg/kg	2.1	1.9	U	mg/kg	1.9	5.1	J	mg/kg	
Selenium	.32	U	mg/kg	.32	.37	U	mg/kg	.37	.35	U	mg/kg	.35	.56	UJ	mg/kg	
Silver	.51	U	mg/kg	.51	.58	U	mg/kg	.58	.55	U	mg/kg	.55	.87	U	mg/kg	.87
Thallium	.32	U	mg/kg	.32	.37	U	mg/kg	.37	.35	U	mg/kg	.35	.55	U	mg/kg	.55
Tin	2.3	U	mg/kg	2.3	3.7	J	mg/kg		2.6	J	mg/kg		5	U	mg/kg	5
Vanadium	1.6	J	mg/kg		1	J	mg/kg		.83	J	mg/kg		17	J	mg/kg	
Zinc	1.7	J	mg/kg		1.9	J	mg/kg		1.8	J	mg/kg		34.3		mg/kg	

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GROUNDWATER

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

		R8403002				R8403001				23943002				23943002RE			
Lab Sample Number:																	
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator		08MW005S				08MW005I				8MW5DD				8MW5DD			
Collect Date:		26-JUL-94				26-JUL-94				02-FEB-93				02-FEB-93			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)	ug/l																
Chloromethane		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Bromomethane		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Vinyl chloride		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Chloroethane		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Acetone		10	U	ug/l	10	44	U	ug/l	44	-		ug/l		-		ug/l	
Carbon disulfide		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
1,1-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
1,1-Dichloroethene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
1,2-Dichloroethene (total)		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Chloroform		5	U	ug/l	5	2	J	ug/l		-		ug/l		-		ug/l	
1,2-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
2-Butanone		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
1,1,1-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Carbon tetrachloride		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Bromodichloromethane		5	U	ug/l	5	2	J	ug/l		-		ug/l		-		ug/l	
1,2-Dichloropropane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
cis-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Trichloroethene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Dibromochloromethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
1,1,2-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Benzene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
trans-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Bromoform		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
2-Hexanone		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Tetrachloroethene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Toluene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Chlorobenzene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Ethylbenzene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Styrene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Xylenes (total)		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Dichlorodifluoromethane		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Trichlorofluoromethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
1,3-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	10	UJ	ug/l		10	R	ug/l	
Acrolein		100	UJ	ug/l		100	UJ	ug/l		-		ug/l		-		ug/l	
Iodomethane		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
1,4-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	10	UJ	ug/l		10	R	ug/l	
Acrylonitrile		100	U	ug/l	100	100	U	ug/l	100	-		ug/l		-		ug/l	
Dibromomethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		MPT-1-MW1-			M7490001			23886002			35070002		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		MPT-1-MW1-1			01MW001			8MW5S			8MW5S		
Collect Date:		12-FEB-92			08-JUL-94			27-JAN-93			27-JAN-93		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)	ug/l																
Chloromethane		10	U	ug/l	10	10	UJ	ug/l			-	ug/l		10	U	ug/l	10
Bromomethane		10	U	ug/l	10	10	U	ug/l		10	-	ug/l		10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10	10	U	ug/l		10	-	ug/l		10	U	ug/l	10
Chloroethane		10	U	ug/l	10	10	U	ug/l		10	-	ug/l		10	U	ug/l	10
Methylene chloride		7	U	ug/l	7	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Acetone		3	U	ug/l	3	10	UJ	ug/l			-	ug/l		10	UJ	ug/l	
Carbon disulfide		5	U	ug/l	5	5	UJ	ug/l			-	ug/l		5	U	ug/l	5
1,1-Dichloroethene		5	U	ug/l	5	5	UJ	ug/l			-	ug/l		5	U	ug/l	5
1,1-Dichloroethene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
1,2-Dichloroethene (total)		5	U	ug/l	5	5	UJ	ug/l			-	ug/l		5	U	ug/l	5
Chloroform		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
1,2-Dichloroethane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
2-Butanone		10	U	ug/l	10	10	U	ug/l		10	-	ug/l		10	UJ	ug/l	
1,1,1-Trichloroethane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Carbon tetrachloride		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Bromodichloromethane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
1,2-Dichloropropane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
cis-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Trichloroethene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Dibromochloromethane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
1,1,2-Trichloroethane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Benzene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
trans-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Bromoform		5	U	ug/l	5	5	UJ	ug/l			-	ug/l		5	U	ug/l	5
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l		10	-	ug/l		10	U	ug/l	10
2-Hexanone		10	U	ug/l	10	10	U	ug/l		10	-	ug/l		10	U	ug/l	10
Tetrachloroethene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Toluene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Chlorobenzene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Ethylbenzene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Styrene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		5	U	ug/l	5
Xylenes (total)		5	U	ug/l	5	5	U	ug/l		5	-	ug/l		-		ug/l	
Dichlorodifluoromethane		-		ug/l		10	U	ug/l		10	-	ug/l		10	U	ug/l	10
Trichlorofluoromethane		5	U	ug/l	5	5	UJ	ug/l			-	ug/l		5	U	ug/l	5
1,3-Dichlorobenzene		5	U	ug/l	5	10	U	ug/l		10	10	U	ug/l	10	5	U	ug/l	5
Acrolein		100	U	ug/l	100	100	R	ug/l			-	ug/l			100	U	ug/l	100
Iodomethane		10	U	ug/l	10	10	UJ	ug/l			-	ug/l			10	U	ug/l	10
1,4-Dichlorobenzene		5	U	ug/l	5	10	U	ug/l		10	10	U	ug/l	10	5	U	ug/l	5
Acrylonitrile		100	U	ug/l	100	100	UJ	ug/l			-	ug/l			100	U	ug/l	100
Dibromomethane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l			5	U	ug/l	5
1,2-Dichlorobenzene		10	U	ug/l	10	10	U	ug/l		10	10	U	ug/l	10	5	U	ug/l	5
2-Chloroethylvinylether		10	U	ug/l	10	10	UJ	ug/l			-	ug/l			10	U	ug/l	10
Ethyl methacrylate		5	U	ug/l	5	5	U	ug/l		5	-	ug/l			5	U	ug/l	5
1,2,3-Trichloropropane		5	U	ug/l	5	5	U	ug/l		5	-	ug/l			5	U	ug/l	5
trans-1,4-Dichloro-2-butene		5	U	ug/l	5	5	U	ug/l		5	-	ug/l			5	U	ug/l	5
Isobutyl alcohol		200	UJ	ug/l		200	R	ug/l			-	ug/l			200	U	ug/l	200
1,1,1,2-Tetrachloroethane		5	UJ	ug/l		5	U	ug/l		5	-	ug/l			5	U	ug/l	5
1,2-Dibromo-3-chloropropane		10	UJ	ug/l		10	UJ	ug/l			-	ug/l			10	U	ug/l	10
1,2-Dibromoethane		5	UJ	ug/l		5	U	ug/l		5	-	ug/l			5	U	ug/l	5
1,4-Dioxane		200	R	ug/l		200	R	ug/l			-	ug/l			200	R	ug/l	

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-1-MW1-			M7490001			23886002			35070002		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-1-MW1-1			01MW001			8MW5S			8MW5S		
Collect Date:	12-FEB-92			08-JUL-94			27-JAN-93			27-JAN-93		
	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL
3-Chloropropene	5 UJ	ug/l		5 UJ	ug/l		-	ug/l		5 U	ug/l	5
Acetonitrile	100 UJ	ug/l		100 UJ	ug/l		-	ug/l		100 U	ug/l	100
Chloroprene	200 UJ	ug/l		200 UJ	ug/l		-	ug/l		200 U	ug/l	200
Methacrylonitrile	5 UJ	ug/l		5 U	ug/l	5	-	ug/l		5 U	ug/l	5
Methyl methacrylate	10 UJ	ug/l		10 U	ug/l	10	-	ug/l		10 U	ug/l	10
Pentachloroethane	10 UJ	ug/l		10 UJ	ug/l		-	ug/l		10 U	ug/l	10
Propionitrile	100 UJ	ug/l		100 UJ	ug/l		-	ug/l		100 U	ug/l	100
Vinyl acetate	10 U	ug/l	10	10 UJ	ug/l		-	ug/l		10 U	ug/l	10

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R8403002			R8403001			23943002			23943002RE		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	08MW005S			08MW005I			8MW5DD			8MW5DD		
Collect Date:	26-JUL-94			26-JUL-94			02-FEB-93			02-FEB-93		
	VALUE QUAL UNITS	DL		VALUE QUAL UNITS	DL		VALUE QUAL UNITS	DL		VALUE QUAL UNITS	DL	
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l		10 R	ug/l	
2-Chloroethylvinylether	10 U	ug/l	10	10 U	ug/l	10	-	ug/l		-	ug/l	
Ethyl methacrylate	5 U	ug/l	5	5 U	ug/l	5	-	ug/l		-	ug/l	
1,2,3-Trichloropropane	5 U	ug/l	5	5 U	ug/l	5	-	ug/l		-	ug/l	
trans-1,4-Dichloro-2-butene	5 U	ug/l	5	5 U	ug/l	5	-	ug/l		-	ug/l	
Isobutyl alcohol	200 R	ug/l		200 R	ug/l		-	ug/l		-	ug/l	
1,1,1,2-Tetrachloroethane	5 U	ug/l	5	5 U	ug/l	5	-	ug/l		-	ug/l	
1,2-Dibromo-3-chloropropane	10 U	ug/l	10	10 U	ug/l	10	-	ug/l		-	ug/l	
1,2-Dibromoethane	5 U	ug/l	5	5 U	ug/l	5	-	ug/l		-	ug/l	
1,4-Dioxane	200 R	ug/l		200 R	ug/l		-	ug/l		-	ug/l	
3-Chloropropene	5 U	ug/l	5	5 U	ug/l	5	-	ug/l		-	ug/l	
Acetonitrile	100 UJ	ug/l		100 UJ	ug/l		-	ug/l		-	ug/l	
Chloroprene	200 UJ	ug/l		200 UJ	ug/l		-	ug/l		-	ug/l	
Methacrylonitrile	5 U	ug/l	5	5 U	ug/l	5	-	ug/l		-	ug/l	
Methyl methacrylate	10 U	ug/l	10	10 U	ug/l	10	-	ug/l		-	ug/l	
Pentachloroethane	10 U	ug/l	10	10 U	ug/l	10	-	ug/l		-	ug/l	
Propionitrile	100 UJ	ug/l		100 UJ	ug/l		-	ug/l		-	ug/l	
Vinyl acetate	10 U	ug/l	10	10 U	ug/l	10	-	ug/l		-	ug/l	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		35080002				GN-0131200				R8634005				MPT-S-1-1					
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND					
Locator		8MW50D				8MW50D				08MW005D				MPT-S-1-1					
Collect Date:		02-FEB-93				02-FEB-93				29-AUG-94				12-FEB-92					
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
BKG VOCs (8240+11)	ug/l																		
Chloromethane		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Bromomethane		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Vinyl chloride		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Chloroethane		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Methylene chloride		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	7	U	ug/l	7		
Acetone		10	U	ug/l	10	-		ug/l		16		ug/l		5	U	ug/l	5		
Carbon disulfide		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	1	J	ug/l			
1,1-Dichloroethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,1-Dichloroethene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,2-Dichloroethene (total)		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Chloroform		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,2-Dichloroethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
2-Butanone		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
1,1,1-Trichloroethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Carbon tetrachloride		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Bromodichloromethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,2-Dichloropropane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
cis-1,3-Dichloropropene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Trichloroethene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Dibromochloromethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,1,2-Trichloroethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Benzene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
trans-1,3-Dichloropropene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Bromoform		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
4-Methyl-2-pentanone		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2-Hexanone		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Tetrachloroethene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Toluene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Chlorobenzene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Ethylbenzene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Styrene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Xylenes (total)		-		ug/l		-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Dichlorodifluoromethane		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	-		ug/l			
Trichlorofluoromethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,3-Dichlorobenzene		5	U	ug/l	5	1	U	ug/l	1	10	U	ug/l	10	5	U	ug/l	5		
Acrolein		100	U	ug/l	100	-		ug/l		100	U	ug/l	100	100	U	ug/l	100		
Iodomethane		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
1,4-Dichlorobenzene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Acrylonitrile		100	U	ug/l	100	-		ug/l		100	U	ug/l	100	100	U	ug/l	100		
Dibromomethane		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		35080002				GN-0131200				R8634005				MPT-S-1-1				
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND				
Locator		8MW5DD				8MW5DD				08MW005D				MPT-S-1-1				
Collect Date:		02-FEB-93				02-FEB-93				29-AUG-94				12-FEB-92				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
1,2-Dichlorobenzene	5	U	ug/l	5	1	U	ug/l	1	10	U	ug/l	10	5	U	ug/l	5		
2-Chloroethylvinylether	10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Ethyl methacrylate	5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
1,2,3-Trichloropropane	5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Isobutyl alcohol	200	U	ug/l	200	-		ug/l		200	R	ug/l		200	UJ	ug/l			
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	UJ	ug/l			
1,2-Dibromo-3-chloropropene	10	U	ug/l	10	-		ug/l		10	UJ	ug/l		10	UJ	ug/l			
1,2-Dibromoethane	5	U	ug/l	5	-		ug/l		5	UJ	ug/l		5	UJ	ug/l			
1,4-Dioxane	200	U	ug/l	200	-		ug/l		200	R	ug/l		200	R	ug/l			
3-Chloropropene	5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	UJ	ug/l			
Acetonitrile	100	U	ug/l	100	-		ug/l		100	UJ	ug/l		100	UJ	ug/l			
Chloroprene	200	U	ug/l	200	-		ug/l		200	U	ug/l	200	200	UJ	ug/l			
Methacrylonitrile	5	U	ug/l	5	-		ug/l		5	UJ	ug/l		5	UJ	ug/l			
Methyl methacrylate	10	U	ug/l	10	-		ug/l		10	UJ	ug/l		10	UJ	ug/l			
Pentachloroethane	10	U	ug/l	10	-		ug/l		10	UJ	ug/l		10	UJ	ug/l			
Propionitrile	100	U	ug/l	100	-		ug/l		100	UJ	ug/l		100	UJ	ug/l			
Vinyl acetate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		23886003				35070003				M7480002				M7480003		
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND		
Locator		S-1				S-1				OSMW001R				OSMW001RD		
Collect Date:		28-JAN-93				28-JAN-93				08-JUL-94				08-JUL-94		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)	ug/l																
Chloromethane		-		ug/l		10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
Bromomethane		-		ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride		-		ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane		-		ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetone		-		ug/l		8	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
Carbon disulfide		-		ug/l		5	U	ug/l	5	5	UJ	ug/l		5	UJ	ug/l	
1,1-Dichloroethane		-		ug/l		5	U	ug/l	5	5	UJ	ug/l		5	UJ	ug/l	
1,1-Dichloroethene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)		-		ug/l		5	U	ug/l	5	5	UJ	ug/l		5	UJ	ug/l	
Chloroform		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethane		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Butanone		-		ug/l		1	UJ	ug/l		10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Trichloroethene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dibromochloromethane		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromoform		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
4-Methyl-2-pentanone		-		ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone		-		ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2,2-Tetrachloroethane		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Toluene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Styrene		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane		-		ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichlorofluoromethane		-		ug/l		5	U	ug/l	5	5	UJ	ug/l		5	UJ	ug/l	
1,3-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acrolein		-		ug/l		100	U	ug/l	100	100	R	ug/l		100	R	ug/l	
Iodomethane		-		ug/l		10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
1,4-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acrylonitrile		-		ug/l		100	U	ug/l	100	100	UJ	ug/l		100	UJ	ug/l	
Dibromomethane		-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		23886003				35070003				M7480002				M7480003		
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND		
Locator		S-1				S-1				OSMW001R				OSMW001RD		
Collect Date:		28-JAN-93				28-JAN-93				08-JUL-94				08-JUL-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5
2-Chloroethylvinylether	-		ug/l		10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
Ethyl methacrylate	-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2,3-Trichloropropane	-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,4-Dichloro-2-butene	-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Isobutyl alcohol	-		ug/l		200	U	ug/l	200	200	R	ug/l		200	R	ug/l	
1,1,1,2-Tetrachloroethane	-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dibromo-3-chloropropane	-		ug/l		10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
1,2-Dibromoethane	-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,4-Dioxane	-		ug/l		200	R	ug/l		200	R	ug/l		200	R	ug/l	
3-Chloropropene	-		ug/l		5	U	ug/l	5	5	UJ	ug/l		5	UJ	ug/l	
Acetonitrile	-		ug/l		100	U	ug/l	100	100	UJ	ug/l		100	UJ	ug/l	
Chloroprene	-		ug/l		200	U	ug/l	200	200	UJ	ug/l		200	UJ	ug/l	
Methacrylonitrile	-		ug/l		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Methyl methacrylate	-		ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachloroethane	-		ug/l		10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
Propionitrile	-		ug/l		100	U	ug/l	100	100	UJ	ug/l		100	UJ	ug/l	
Vinyl acetate	-		ug/l		10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		M7480004				M7490002				M7480005			
Site		BACKGROUND				BACKGROUND				BACKGROUND			
Locator		OBMW001S				OBMW001I				OBMW001D			
Collect Date:		08-JUL-94				09-JUL-94				08-JUL-94			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG VOCs (8240+11)	ug/l												
Chloromethane		10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
Bromomethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetone		10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
Carbon disulfide		5	UJ	ug/l		5	UJ	ug/l		5	UJ	ug/l	
1,1-Dichloroethane		5	UJ	ug/l		5	UJ	ug/l		5	UJ	ug/l	
1,1-Dichloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)		5	UJ	ug/l		5	UJ	ug/l		5	UJ	ug/l	
Chloroform		5	U	ug/l	5	3	J	ug/l		5	U	ug/l	5
1,2-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Butanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Trichloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dibromochloromethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromoform		5	UJ	ug/l		5	UJ	ug/l		5	UJ	ug/l	
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Toluene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Styrene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichlorofluoromethane		5	UJ	ug/l		5	UJ	ug/l		5	UJ	ug/l	
1,3-Dichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acrolein		100	R	ug/l		100	R	ug/l		100	R	ug/l	
Iodomethane		10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
1,4-Dichlorobenzene		5	U	ug/l	5	10	U	ug/l	10	10	U	ug/l	10
Acrylonitrile		100	UJ	ug/l		100	UJ	ug/l		100	UJ	ug/l	
Dibromomethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7480004				M7490002				M7480005		
Site	BACKGROUND				BACKGROUND				BACKGROUND		
Locator	OBMW001S				OBMW001I				OBMW001D		
Collect Date:	08-JUL-94				09-JUL-94				08-JUL-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chloroethylvinylether	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
Ethyl methacrylate	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2,3-Trichloropropane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Isobutyl alcohol	200	R	ug/l		200	R	ug/l		200	R	ug/l	
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dibromo-3-chloropropane	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
1,2-Dibromoethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,4-Dioxane	200	R	ug/l		200	R	ug/l		200	R	ug/l	
3-Chloropropene	5	UJ	ug/l		5	UJ	ug/l		5	UJ	ug/l	
Acetonitrile	100	UJ	ug/l		100	UJ	ug/l		100	UJ	ug/l	
Chloroprene	200	UJ	ug/l		200	UJ	ug/l		200	UJ	ug/l	
Methacrylonitrile	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Methyl methacrylate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachloroethane	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
Propionitrile	100	UJ	ug/l		100	UJ	ug/l		100	UJ	ug/l	
Vinyl acetate	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		MPT-1-MW1-				M7490001				23886002				R8403002					
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND					
Locator		MPT-1-MW1-1				01MW001				8MW5S				08MW005S					
Collect Date:		12-FEB-92				08-JUL-94				27-JAN-93				26-JUL-94					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
BKG SVOC (8270+21)																			
N-Nitrosodimethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Aniline	10	U	ug/l	10	10	UJ	ug/l		10	U	ug/l	10	10	UJ	ug/l				
bis (2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Benzyl Alcohol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
bis(2-Chloroisopropyl)ether	-				10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	UJ	ug/l		10	U	ug/l	10	10	U	ug/l	10			
Hexachloroethane	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10	10	U	ug/l	10			
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Benzoic acid	50	U	ug/l	50	50	UJ	ug/l		50	U	ug/l	50	50	U	ug/l	50			
bis(2-Chloroethoxy)methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2,4,5-Trichlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50			
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50			
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
3-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50			
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2,4-Dinitrophenol	50	U	ug/l	50	50	UJ	ug/l		50	U	ug/l	50	50	U	ug/l	50			
4-Nitrophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	UJ	ug/l				
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
4-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50			
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50			
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	UJ	ug/l		10	U	ug/l	10	10	U	ug/l	10			
1,2-Diphenylhydrazine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Pentachlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50			
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Di-n-Butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10			

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-1-MW1-	M7490001	23886002	R8403002
Site	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND
Locator	MPT-1-MW1-1	01MW001	8MW5S	08MW005S
Collect Date:	12-FEB-92	08-JUL-94	27-JAN-93	26-JUL-94

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

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-1-MW1-			M7490001			23886002			R8403002		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-1-MW1-1			01MW001			BMW5S			08MW005S		
Collect Date:	12-FEB-92			08-JUL-94			27-JAN-93			26-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3- & 4-Methylphenol (2)	10 U	ug/l	10	10 U	ug/l	10	-			29	ug/l	
Hexachloropropene	50 UJ	ug/l		50 U	ug/l	50	50 U	ug/l	50	50 UJ	ug/l	
2-Acetylaminofluorene	10 UJ	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	R8403001				23943002				23943002RE				R8634005			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	08MW005I				8MW5DD				8MW5DD				08MW005D			
Collect Date:	26-JUL-94				02-FEB-93				02-FEB-93				29-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)																
N-Nitrosodimethylamine	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Aniline	10	UJ	ug/l		10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
bis (2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Benzyl Alcohol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
bis(2-Chloroisopropyl)ether	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Benzoic acid	50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50
bis(2-Chloroethoxy)methane	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	UJ	ug/l	
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Dimethylphthalate	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
2,4,5-Trichlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50
2-Chloronaphthalene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
2-Nitroaniline	50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
Acenaphthylene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
3-Nitroaniline	50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
Acenaphthene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
2,4-Dinitrophenol	50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	UJ	ug/l	
4-Nitrophenol	50	UJ	ug/l		50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50
Dibenzofuran	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
4-Nitroaniline	50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

	Lab Sample Number:	R8403001				23943002				23943002RE				R8634005			
	Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
	Locator	08MW005I				8MW5DD				8MW5DD				08MW005D			
	Collect Date:	26-JUL-94				02-FEB-93				02-FEB-93				29-AUG-94			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
N-Nitrosodiphenylamine (1)		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
1,2-Diphenylhydrazine		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
4-Bromophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Hexachlorobenzene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Pentachlorophenol		50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50
Phenanthrene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Anthracene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Di-n-Butylphthalate		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Fluoranthene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Pyrene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	UJ	ug/l	
Butylbenzylphthalate		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	UJ	ug/l	
3,3'-Dichlorobenzidine		20	U	ug/l	20	20	UJ	ug/l		20	R	ug/l		20	U	ug/l	20
Benzo(a)anthracene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Chrysene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
bis(2-Ethylhexyl)phthalate		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Di-n-octylphthalate		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Benzo(b)fluoranthene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Benzo(k)fluoranthene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Benzo(a)pyrene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Indeno(1,2,3-cd)pyrene		10	UJ	ug/l		10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Dibenz(a,h)anthracene		10	UJ	ug/l		10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Benzo(g,h,i)perylene		10	UJ	ug/l		10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
2-Picoline		50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
Methyl methanesulfonate		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	UJ	ug/l	
Ethyl methanesulfonate		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Acetophenone		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
N-Nitrosopiperidine		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Phenyl-tert-butylamine		50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50
2,6-Dichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
N-Nitroso-di-n-butylamine		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
N-Nitrosodiethylamine		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
N-Nitrosopyrrolidine		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Benzidine		50	UJ	ug/l		50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
1,2,4,5-Tetrachlorobenzene		50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
Pentachlorobenzene		50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
1-Naphthylamine		50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50
2-Naphthylamine		50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50
2,3,4,6-Tetrachlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
Phenacetin		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
4-Aminobiphenyl		50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
Pentachloronitrobenzene		50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
Pronamide		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
p-(Dimethylamino)azobenzene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	UJ	ug/l	
7,12-Dimethylbenz(A)Anthracene		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
3-Methylcholanthrene		10	UJ	ug/l		10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Pyridine		50	U	ug/l	50	50	U	ug/l	50	50	R	ug/l		50	U	ug/l	50
N-Nitrosomethylethylamine		10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10
N-Nitrosomorpholine		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
o-Toluidine		10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10
Hexachloropropene		50	UJ	ug/l		50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50
p-Phenylenediamine		500	UJ	ug/l		50	U	ug/l	50	50	R	ug/l		500	U	ug/l	500
Safrole		50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		R8403001				23943002				23943002RE				R8634005				
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND				
Locator		08MW0051				8MW5DD				8MW5DD				08MW005D				
Collect Date:		26-JUL-94				02-FEB-93				02-FEB-93				29-AUG-94				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
Isosafrole	50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50		
1,4-Naphthoquinone	1000	UJ	ug/l		50	U	ug/l	50	50	R	ug/l		1000	U	ug/l	1000		
1,3-Dinitrobenzene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10		
5-Nitro-o-toluidine	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10		
1,3,5-Trinitrobenzene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10		
4-Nitroquinoline-1-oxide	500	UJ	ug/l		10	U	ug/l	10	10	R	ug/l		500	R	ug/l			
Methapyrilene	50	UJ	ug/l		50	UJ	ug/l		50	R	ug/l		50	UJ	ug/l			
3,3'-Dimethylbenzidine	10	UJ	ug/l		10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10		
Hexachlorophene	500	R	ug/l		50	UJ	ug/l		50	R	ug/l		500	R	ug/l			
Aramite	50	U	ug/l	50	50	UJ	ug/l		50	R	ug/l		50	UJ	ug/l			
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l		10	U	ug/l	10		
3- & 4-Methylphenol (2)	10	U	ug/l	10	-				-				10	U	ug/l	10		
Hexachloropropene	50	UJ	ug/l		50	UJ	ug/l		50	R	ug/l		50	U	ug/l	50		
2-Acetylaminofluorene	10	U	ug/l	10	10	UJ	ug/l		10	R	ug/l		10	U	ug/l	10		

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-S-1-1			23886003			M7480002			M7480003		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-S-1-1			S-1			OSMW001R			OSMW001RD		
Collect Date:	12-FEB-92			28-JAN-93			08-JUL-94			08-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
BKG SVOC (8270+21)												
N-Nitrosodimethylamine	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l		10 UJ	ug/l	
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Aniline	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l		10 UJ	ug/l	
bis (2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzyl Alcohol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroisopropyl)ether	-			10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzoic acid	50 U	ug/l	50	50 U	ug/l	50	50 UJ	ug/l		50 UJ	ug/l	
bis(2-Chloroethoxy)methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l		10 UJ	ug/l	
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	50 U	ug/l	50	50 U	ug/l	50	50 UJ	ug/l		50 UJ	ug/l	
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	50 U	ug/l	50	50 U	ug/l	50	50 UJ	ug/l		50 UJ	ug/l	
4-Nitrophenol	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Nitroaniline	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
4,6-Dinitro-2-methylphenol	50 U	ug/l	50	50 U	ug/l	50	50 UJ	ug/l		50 UJ	ug/l	

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		MPT-S-1-1			23886003			M7480002			M7480003		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		MPT-S-1-1			S-1			OSMW001R			OSMW001RD		
Collect Date:		12-FEB-92			28-JAN-93			08-JUL-94			08-JUL-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Diphenylhydrazine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-Butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3'-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20
Benzo(a)anthracene	2	J	ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl)phthalate	6	J	ug/l		10	U	ug/l	10	10	U	ug/l	10	6	J	ug/l	
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo(b)fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
Benzo(k)fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo(a)pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno(1,2,3-cd)pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz(a,h)anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo(g,h,i)perylene	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Methyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
Phenyl-tert-butylamine	50	R	ug/l		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
N-Nitrosodiethylamine	10	UJ	ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopyrrolidine	10	UJ	ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzidine	50	UJ	ug/l		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	UJ	ug/l		50	UJ	ug/l	
2-Naphthylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
Phenacetin	50	U	ug/l	50	50	U	ug/l	50	50	UJ	ug/l		50	UJ	ug/l	
4-Aminobiphenyl	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachloronitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pronamide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
p-(Dimethylamino)azobenzene	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l		10	UJ	ug/l	
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	50	U	ug/l	50	50	U	ug/l	50
Pyridine	50	U	ug/l	50	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosomethylethylamine	10	UJ	ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosomorpholine	10	UJ	ug/l		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
o-Toluidine	10	UJ	ug/l		10	U	ug/l	10	50	U	ug/l	50	50	U	ug/l	50
Hexachloropropene	50	UJ	ug/l		50	U	ug/l	50	500	U	ug/l	500	500	U	ug/l	500
p-Phenylenediamine	50	UJ	ug/l		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Safrole	50	UJ	ug/l													

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		MPT-S-1-1			23886003			M7480002			M7480003		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		MPT-S-1-1			S-1			OSMW001R			OSMW001RD		
Collect Date:		12-FEB-92			28-JAN-93			08-JUL-94			08-JUL-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Isosafrole		50 UJ	ug/l			50 U	ug/l	50		50 U	ug/l	50		50 U	ug/l	50
1,4-Naphthoquinone		50 UJ	ug/l			50 U	ug/l	50		1000 UJ	ug/l			1000 UJ	ug/l	
1,3-Dinitrobenzene		10 UJ	ug/l			10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10
5-Nitro-o-toluidine		10 UJ	ug/l			10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10
1,3,5-Trinitrobenzene		10 UJ	ug/l			10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10
4-Nitroquinoline-1-oxide		10 UJ	ug/l			10 U	ug/l	10		500 UJ	ug/l			500 UJ	ug/l	
Methapyrilene		50 UJ	ug/l			50 U	ug/l	50		50 UJ	ug/l			50 UJ	ug/l	
3,3'-Dimethylbenzidine		10 UJ	ug/l			10 U	ug/l	10		10 UJ	ug/l			10 UJ	ug/l	
Hexachlorophene		50 UJ	ug/l			50 U	ug/l	50		500 UJ	ug/l			500 UJ	ug/l	
Aramite		-				50 U	ug/l	50		50 U	ug/l	50		50 U	ug/l	50
2-Chlorophenol		10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10
3- & 4-Methylphenol (2)		10 U	ug/l	10		20 U	ug/l	20		10 U	ug/l	10		10 U	ug/l	10
Hexachloropropene		50 UJ	ug/l			50 U	ug/l	50		50 U	ug/l	50		50 U	ug/l	50
2-Acetylaminofluorene		10 UJ	ug/l			10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7480004				M7490002				M7480005		
Site	BACKGROUND				BACKGROUND				BACKGROUND		
Locator	OBMW001S				OBMW001I				OBMW001D		
Collect Date:	08-JUL-94				09-JUL-94				08-JUL-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG SVOC (8270+21)												
N-Nitrosodimethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Aniline	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
bis (2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzyl Alcohol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroisopropyl)ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l	
Hexachloroethane	10	R	ug/l		10	R	ug/l		10	R	ug/l	
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzoic acid	50	UJ	ug/l		50	UJ	ug/l		50	UJ	ug/l	
bis(2-Chloroethoxy)methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	50	UJ	ug/l		50	UJ	ug/l		50	UJ	ug/l	
4-Nitrophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		M7480004				M7490002				M7480005			
Site		BACKGROUND				BACKGROUND				BACKGROUND			
Locator		08MW001S				08MW001I				08MW001D			
Collect Date:		08-JUL-94				09-JUL-94				08-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	UJ	ug/l		10	U	ug/l	10	
1,2-Diphenylhydrazine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Pentachlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Di-n-Butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
3,3'-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20	
Benzo(a)anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
bis(2-Ethylhexyl)phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Benzo(b)fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Benzo(k)fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Benzo(a)pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Indeno(1,2,3-cd)pyrene	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l		
Dibenz(a,h)anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Benzo(g,h,i)perylene	10	UJ	ug/l		10	UJ	ug/l		10	UJ	ug/l		
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
Methyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Phenyl-tert-butylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
N-Nitrosodiethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
N-Nitrosopyrrolidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Benzidine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
1-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
2-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Phenacetin	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
4-Aminobiphenyl	50	R	ug/l		50	R	ug/l		50	R	ug/l		
Pentachloronitrobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
Pronamide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
p-(Dimethylamino)azobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Pyridine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
N-Nitrosomethylethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
N-Nitrosomorpholine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
o-Toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Hexachloropropene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
p-Phenylenediamine	500	UJ	ug/l		500	UJ	ug/l		500	UJ	ug/l		
Safrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		M7480004				M7490002				M7480005			
Site		BACKGROUND				BACKGROUND				BACKGROUND			
Locator		OBMW001S				OBMW001I				OBMW001D			
Collect Date:		08-JUL-94				09-JUL-94				08-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
Isosafrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
1,4-Naphthoquinone	1000	UJ	ug/l		1000	UJ	ug/l		1000	UJ	ug/l		
1,3-Dinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
5-Nitro-o-toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
1,3,5-Trinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
4-Nitroquinoline-1-oxide	500	UJ	ug/l		500	UJ	ug/l		500	UJ	ug/l		
Nethapyrilene	50	UJ	ug/l		50	UJ	ug/l		50	UJ	ug/l		
3,3'-Dimethylbenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Hexachlorophene	500	R	ug/l		500	R	ug/l		500	R	ug/l		
Aramite	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
3- & 4-Methylphenol (2)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Hexachloropropene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	
2-Acetylaminofluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	

U = NOT DETECTED R = RESULT IS REJECTED
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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-1-MW1-			M7490001			23886002			R8403002		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	MPT-1-MW1-1			01MW001			8MW5S			08MW005S		
Collect Date:	12-FEB-92			08-JUL-94			27-JAN-93			26-JUL-94		
	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL	VALUE QUAL UNITS		DL
PESTICIDES/PCBs (SW-846,8080)												
alpha-BHC	.01 U	ug/l	.01	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
beta-BHC	.02 U	ug/l	.02	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
delta-BHC	.01 U	ug/l	.01	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
gamma-BHC (Lindane)	.01 U	ug/l	.01	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Heptachlor	.01 U	ug/l	.01	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Aldrin	.01 U	ug/l	.01	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Heptachlor epoxide	.01 U	ug/l	.01	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endosulfan I	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Dieldrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
4,4-DDE	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endrin	.02 U	ug/l	.02	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endosulfan II	.02 U	ug/l	.02	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
4,4-DDD	.02 U	ug/l	.02	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endosulfan sulfate	.02 U	ug/l	.02	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
4,4-DDT	.02 U	ug/l	.02	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Methoxychlor	.04 U	ug/l	.04	.08 U	ug/l	.08	.08 U	ug/l	.08	.08 U	ug/l	.08
Endrin aldehyde	.02 U	ug/l	.02	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endrin ketone	.02 U	ug/l	.02	.04 U	ug/l	.04	-			.04 U	ug/l	.04
Chlordane	.1 U	ug/l	.1	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Chlorobenzilate	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Diallate	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toxaphene	.5 U	ug/l	.5	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Isodrin	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Kepone	-			1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	
Aroclor-1016	.8 U	ug/l	.8	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1221	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1232	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1242	.8 U	ug/l	.8	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1248	.4 U	ug/l	.4	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1254	.2 U	ug/l	.2	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Aroclor-1260	.2 U	ug/l	.2	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		R8403001				23943002				R8634005				MPT-S-1-1			
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator		08MW005I				8MW5DD				08MW005D				MPT-S-1-1			
Collect Date:		26-JUL-94				02-FEB-93				29-AUG-94				12-FEB-92			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)																
alpha-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.01	U	ug/l	.01
beta-BHC	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
delta-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.01	U	ug/l	.01
gamma-BHC (Lindane)	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.01	U	ug/l	.01
Heptachlor	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.01	U	ug/l	.01
Aldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.01	U	ug/l	.01
Heptachlor epoxide	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endosulfan I	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Dieldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
4,4-DDE	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endrin	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
Endosulfan II	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
4,4-DDD	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
Endosulfan sulfate	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
4,4-DDT	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
Methoxychlor	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08	.04	U	ug/l	.04
Endrin aldehyde	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
Endrin ketone	.04	U	ug/l	.04	-				.04	U	ug/l	.04	.02	U	ug/l	.02
Chlordane	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.1	U	ug/l	.1
Chlorobenzilate	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Diallate	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toxaphene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	.5	U	ug/l	.5
Isodrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Kepone	1	UJ	ug/l		1	U	ug/l	1	1	UJ	ug/l		-			
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	.8	U	ug/l	.8
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	.8	U	ug/l	.8
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	.4	U	ug/l	.4
Aroclor-1254	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.2	U	ug/l	.2
Aroclor-1260	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.2	U	ug/l	.2

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	23886003				M7480002				M7480003				M7480004			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	S-1				OSMW001R				OSMW001RD				OBMW001S			
Collect Date:	28-JAN-93				08-JUL-94				08-JUL-94				08-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs (SW-846,8080)																
alpha-BHC	.02	U	ug/l	.02	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
beta-BHC	.04	U	ug/l	.04	.08	U	ug/l	.08	.08	U	ug/l	.08	.04	U	ug/l	.04
delta-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
gamma-BHC (Lindane)	.02	U	ug/l	.02	.04	U	ug/l	.04	.04	U	ug/l	.04	.02	U	ug/l	.02
Heptachlor	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Aldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor epoxide	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endosulfan I	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Dieldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
4,4-DDE	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endrin	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan II	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDD	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan sulfate	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDT	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Methoxychlor	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08
Endrin aldehyde	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endrin ketone	.02	U	ug/l	.02	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Chlordane	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Chlorobenzilate	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Dialiate	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toxaphene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Isodrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Kepone	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	4	U	ug/l	4	4	U	ug/l	4	2	U	ug/l	2
Aroclor-1232	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Aroclor-1260	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		M7490002				M7480005			
Site		BACKGROUND				BACKGROUND			
Locator		OBMW001I				OBMW001D			
Collect Date:		09-JUL-94				08-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
PESTICIDES/PCBs (SW-846,8080)									
alpha-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	
beta-BHC	.04	U	ug/l	.04	.04	U	ug/l	.04	
delta-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	
gamma-BHC (Lindane)	.02	U	ug/l	.02	.02	U	ug/l	.02	
Heptachlor	.02	U	ug/l	.02	.02	U	ug/l	.02	
Aldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	
Heptachlor epoxide	.02	U	ug/l	.02	.02	U	ug/l	.02	
Endosulfan I	.02	U	ug/l	.02	.02	U	ug/l	.02	
Dieldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	
4,4-DDE	.02	U	ug/l	.02	.02	U	ug/l	.02	
Endrin	.04	U	ug/l	.04	.04	U	ug/l	.04	
Endosulfan II	.04	U	ug/l	.04	.04	U	ug/l	.04	
4,4-DDD	.04	U	ug/l	.04	.04	U	ug/l	.04	
Endosulfan sulfate	.04	U	ug/l	.04	.04	U	ug/l	.04	
4,4-DDT	.04	U	ug/l	.04	.04	U	ug/l	.04	
Methoxychlor	.08	U	ug/l	.08	.08	U	ug/l	.08	
Endrin aldehyde	.04	U	ug/l	.04	.04	U	ug/l	.04	
Endrin ketone	.04	U	ug/l	.04	.04	U	ug/l	.04	
Chlordane	.2	U	ug/l	.2	.2	U	ug/l	.2	
Chlorobenzilate	.5	U	ug/l	.5	.5	U	ug/l	.5	
Diallate	1	U	ug/l	1	1	U	ug/l	1	
Toxaphene	1	U	ug/l	1	1	U	ug/l	1	
Isodrin	.02	U	ug/l	.02	.02	U	ug/l	.02	
Kepone	1	U	ug/l	1	1	U	ug/l	1	
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	
Aroclor-1232	2	U	ug/l	2	2	U	ug/l	2	
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	
Aroclor-1254	.5	U	ug/l	.5	.5	U	ug/l	.5	
Aroclor-1260	.5	U	ug/l	.5	.5	U	ug/l	.5	

U = NOT DETECTED R = RESULT IS REJECTED
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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		MPT-1-MW1-			M7491001				M7491010				23886002			
Site		BACKGROUND			BACKGROUND				BACKGROUND				BACKGROUND			
Locator		MPT-1-MW1-1			01MW001				01MW001F				BMW5S			
Collect Date:		12-FEB-92			08-JUL-94				08-JUL-94				27-JAN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony	10.1	U	ug/l	10.1	2.2	U	ug/l	2.2	3.7	J	ug/l		16.4	U	ug/l	16.4
Arsenic	14.3		ug/l		6	J	ug/l		5.2	J	ug/l		2.9	J	ug/l	
Barium	.82	J	ug/l		3.3	U	ug/l	3.3	3.3	U	ug/l	3.3	6.5	J	ug/l	
Beryllium	.3	U	ug/l	.3	.18	U	ug/l	.18	.18	U	ug/l	.18	.26	U	ug/l	.26
Cadmium	1	U	ug/l	1	3	U	ug/l	3	3	U	ug/l	3	2.8	U	ug/l	2.8
Calcium	69400		ug/l		65000		ug/l		63100		ug/l		89500		ug/l	
Chromium	2	U	ug/l	2	2.09	U	ug/l	2.09	2.09	U	ug/l	2.09	6.6	J	ug/l	
Cobalt	3.1	U	ug/l	3.1	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	2.6	U	ug/l	2.6
Copper	1.4	J	ug/l		12.7	U	ug/l	12.7	12.7	U	ug/l	12.7	1.2	U	ug/l	1.2
Cyanide	3	U	ug/l	3	.95	J	ug/l		-				-			
Iron	3540		ug/l		15.4	J	ug/l		33	J	ug/l		2760	J	ug/l	
Lead	2.5	J	ug/l		.97	U	ug/l	.97	.97	U	ug/l	.97	2.3	U	ug/l	2.3
Magnesium	3100	J	ug/l		2860	J	ug/l		2840	J	ug/l		15400		ug/l	
Manganese	397		ug/l		7.1	J	ug/l		37.7		ug/l		39.9		ug/l	
Mercury	.1	U	ug/l	.1	.1	J	ug/l		.08	J	ug/l		.07	U	ug/l	.07
Nickel	6.5	U	ug/l	6.5	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3	9.4	U	ug/l	9.4
Selenium	.63	J	ug/l		1.3	UJ	ug/l		13.2	UJ	ug/l		1.8	U	ug/l	1.8
Silver	1.2	U	ug/l	1.2	2.3	U	ug/l	2.3	2.3	U	ug/l	2.3	2	U	ug/l	2
Sodium	5880		ug/l		9300		ug/l		9500		ug/l		-			
Thallium	.9	UJ	ug/l		1.3	UJ	ug/l		1.3	UJ	ug/l		2.3	U	ug/l	2.3
Tin	14.5	U	ug/l	14.5	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	12.7	U	ug/l	12.7
Vanadium	9.4	J	ug/l		4.4	J	ug/l		3.2	J	ug/l		7.2	J	ug/l	
Zinc	10.2	J	ug/l		6.1	U	ug/l	6.1	4.2	U	ug/l	4.2	23.9	J	ug/l	

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		23887002			R8404002			R8404001			23943001		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		8MW5S			08MW005S			08MW005I			8MW5DD		
Collect Date:		27-JAN-93			26-JUL-94			26-JUL-94			02-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony	-				5	U	ug/l	5	5	U	ug/l	5	16.4	U	ug/l	16.4
Arsenic	-				.6	U	ug/l	.6	.6	J	ug/l		.68	U	ug/l	.68
Barium	-				1.4	U	ug/l	1.4	1.2	U	ug/l	1.2	45.3	J	ug/l	
Beryllium	-				.3	UJ	ug/l		.3	UJ	ug/l		.26	U	ug/l	.26
Cadmium	-				1	U	ug/l	1	1	U	ug/l	1	2.8	U	ug/l	2.8
Calcium	-				84500	J	ug/l		82000	J	ug/l		158000		ug/l	
Chromium	-				2.6	UJ	ug/l		2.6	UJ	ug/l		2.8	U	ug/l	2.8
Cobalt	-				3.1	UJ	ug/l		3.1	UJ	ug/l		3.2	J	ug/l	
Copper	-				.9	U	ug/l	.9	.9	U	ug/l	.9	1.2	U	ug/l	1.2
Cyanide	5	U	ug/l	5	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	-			
Iron	-				78.6	UJ	ug/l		68.2	UJ	ug/l		182		ug/l	
Lead	-				.6	U	ug/l	.6	.6	U	ug/l	.6	.93	U	ug/l	.93
Magnesium	-				18800	U	ug/l	18800	19700	U	ug/l	19700	314000		ug/l	
Manganese	-				23.6	UJ	ug/l		20.1	UJ	ug/l		101		ug/l	
Mercury	-				.1	U	ug/l	.1	.1	U	ug/l	.1	.07	UJ	ug/l	
Nickel	-				5.9	UJ	ug/l		5.9	UJ	ug/l		9.4	UJ	ug/l	
Selenium	-				.6	U	ug/l	.6	.6	UJ	ug/l		1.8	UJ	ug/l	
Silver	-				2.1	U	ug/l	2.1	2.1	U	ug/l	2.1	3.7	J	ug/l	
Sodium	-				31500	U	ug/l	31500	39500	U	ug/l	39500	-			
Thallium	-				.6	U	ug/l	.6	.6	U	ug/l	.6	2.3	U	ug/l	2.3
Tin	-				8	U	ug/l	8	8	U	ug/l	8	12.7	UJ	ug/l	
Vanadium	-				1.5	UJ	ug/l		2.3	J	ug/l		2.8	J	ug/l	
Zinc	-				1.82	U	ug/l	1.82	3.1	U	ug/l	3.1	15.6	J	ug/l	

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		23944001				R8635006				MPT-S-1-1				23886003				
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND				
Locator		8MW5DD				08MW005D				MPT-S-1-1				S-1				
Collect Date:		02-FEB-93				29-AUG-94				12-FEB-92				28-JAN-93				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
BKG WATER METALS																		
Antimony		-			50	UJ	ug/l		10.1	U	ug/l	10.1	16.4	U	ug/l	16.4		
Arsenic		-			6	U	ug/l	6	.4	U	ug/l	.4	.68	U	ug/l	.68		
Barium		-			75.5	J	ug/l		.66	J	ug/l		3.2	U	ug/l	3.2		
Beryllium		-			.3	UJ	ug/l		.3	U	ug/l	.3	.26	U	ug/l	.26		
Cadmium		-			1	U	ug/l	1	1	U	ug/l	1	2.8	U	ug/l	2.8		
Calcium		-			130000		ug/l		91400		ug/l		90000		ug/l			
Chromium		-			2.6	U	ug/l	2.6	2	U	ug/l	2	3.7	J	ug/l			
Cobalt		-			3.1	U	ug/l	3.1	3.1	U	ug/l	3.1	2.6	U	ug/l	2.6		
Copper		-			.9	U	ug/l	.9	1.4	U	ug/l	1.4	1.2	U	ug/l	1.2		
Cyanide		5	U	ug/l 5	2.7	U	ug/l	2.7	3	U	ug/l	3	-					
Iron		-			108		ug/l		156		ug/l		284	J	ug/l			
Lead		-			6	UJ	ug/l		1.4	J	ug/l		1.7	U	ug/l	1.7		
Magnesium		-			253000		ug/l		17600		ug/l		15500		ug/l			
Manganese		-			49.5		ug/l		33.2		ug/l		36		ug/l			
Mercury		-			.5	UJ	ug/l		.1	U	ug/l	.1	.07	U	ug/l	.07		
Nickel		-			5.9	U	ug/l	5.9	6.5	U	ug/l	6.5	9.4	U	ug/l	9.4		
Selenium		-			6	UJ	ug/l		.6	UJ	ug/l		1.8	U	ug/l	1.8		
Silver		-			2.1	U	ug/l	2.1	1.2	U	ug/l	1.2	2	U	ug/l	2		
Sodium		-			2640000		ug/l		7330		ug/l		-					
Thallium		-			6	UJ	ug/l		.9	UJ	ug/l		2.3	U	ug/l	2.3		
Tin		-			8	U	ug/l	8	14.5	U	ug/l	14.5	12.7	U	ug/l	12.7		
Vanadium		-			3.6	J	ug/l		2.2	J	ug/l		2.6	U	ug/l	2.6		
Zinc		-			4.3	J	ug/l		2.4	J	ug/l		63.4	J	ug/l			

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		23887003			M7481006			M7481007			M7481001		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		S-1			OSMW001R			OSMW001RD			OSMW001RF		
Collect Date:		28-JAN-93			08-JUL-94			08-JUL-94			08-JUL-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony	-				3	U	ug/l	3	2.2	U	ug/l	2.2	2.2	U	ug/l	2.2
Arsenic	-				1.9	J	ug/l		1.9	J	ug/l		1.9	J	ug/l	
Barium	-				9.2	J	ug/l		9.2	J	ug/l		9.2	J	ug/l	
Beryllium	-				.18	U	ug/l	.18	.18	U	ug/l	.18	.18	U	ug/l	.18
Cadmium	-				3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3
Calcium	-				113000		ug/l		113000		ug/l		109000		ug/l	
Chromium	-				2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Cobalt	-				2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7
Copper	-				9.86	U	ug/l	9.86	9.86	U	ug/l	9.86	10.5	U	ug/l	10.5
Cyanide	1.4	U	ug/l	1.4	.81	U	ug/l	.81	.81	U	ug/l	.81	-			
Iron	-				95	J	ug/l		75	J	ug/l		11.7	J	ug/l	
Lead	-				2	U	ug/l	2	.97	U	ug/l	.97	2	U	ug/l	2
Magnesium	-				7670		ug/l		7450		ug/l		7510		ug/l	
Manganese	-				67.8		ug/l		64.7		ug/l		64.3		ug/l	
Mercury	-				.08	J	ug/l		.08	U	ug/l	.08	.08	U	ug/l	.08
Nickel	-				7.3	U	ug/l	7.3	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3
Selenium	-				-				-				-			
Silver	-				2.1	U	ug/l	2.1	2.1	U	ug/l	2.1	2.1	U	ug/l	2.1
Sodium	-				13800	J	ug/l		13300	J	ug/l		13500	J	ug/l	
Thallium	-				1.3	UJ	ug/l		1.3	U	ug/l	1.3	1.3	U	ug/l	1.3
Tin	-				9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4
Vanadium	-				5.8	J	ug/l		5.8	J	ug/l		4.3	J	ug/l	
Zinc	-				4.2	U	ug/l	4.2	4.2	U	ug/l	4.2	4.5	U	ug/l	4.5

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		M7481008				M7481003				M7491002				M7491011		
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND		
Locator		OBMW001S				OBMW001SF				OBMW001I				OBMW001IF		
Collect Date:		08-JUL-94				08-JUL-94				09-JUL-94				09-JUL-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony	2.2	U	ug/l	2.2	3.4	U	ug/l	3.4	2.2	U	ug/l	2.2	3.1	U	ug/l	3.1
Arsenic	3.3	J	ug/l		3.5	J	ug/l		.9	U	ug/l	.9	.9	U	ug/l	.9
Barium	8.2	J	ug/l		8.2	J	ug/l		6.4	J	ug/l		6	J	ug/l	
Beryllium	.18	U	ug/l	.18	.18	U	ug/l	.18	.18	U	ug/l	.18	.18	U	ug/l	.18
Cadmium	3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3
Calcium	79000		ug/l		79300		ug/l		100000		ug/l		98700		ug/l	
Chromium	2	U	ug/l	2	2	U	ug/l	2	2.09	U	ug/l	2.09	2.09	U	ug/l	2.09
Cobalt	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7
Copper	10.1	U	ug/l	10.1	10.1	U	ug/l	10.1	4	U	ug/l	4	4	U	ug/l	4
Cyanide	.81	U	ug/l	.81	-				.81	U	ug/l	.81	-			
Iron	425		ug/l		177		ug/l		660		ug/l		309		ug/l	
Lead	2	UJ	ug/l		16.9		ug/l		1.5	J	ug/l		.97	U	ug/l	.97
Magnesium	12300		ug/l		11800		ug/l		23600		ug/l		23200		ug/l	
Manganese	70.9		ug/l		70.4		ug/l		119		ug/l		114		ug/l	
Mercury	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08	.09	J	ug/l	
Nickel	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3
Selenium	-				-				1.3	UJ	ug/l		1.3	UJ	ug/l	
Silver	2.1	U	ug/l	2.1	2.1	U	ug/l	2.1	2.3	U	ug/l	2.3	2.3	U	ug/l	2.3
Sodium	10500	J	ug/l		10600	J	ug/l		79500		ug/l		79000		ug/l	
Thallium	1.3	UJ	ug/l		1.3	U	ug/l	1.3	1.3	U	ug/l	1.3	1.3	UJ	ug/l	
Tin	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4
Vanadium	2.8	J	ug/l		2.7	J	ug/l		3.6	J	ug/l		3	J	ug/l	
Zinc	8.8	U	ug/l	8.8	5	U	ug/l	5	8	U	ug/l	8	4.2	U	ug/l	4.2

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7481009
Site	BACKGROUND
Locator	OBMW001D
Collect Date:	08-JUL-94

	VALUE	QUAL	UNITS	DL
BKG WATER METALS				
Antimony	22.3	UJ	ug/l	
Arsenic	5.5	J	ug/l	
Barium	48.9	J	ug/l	
Beryllium	.18	U	ug/l	.18
Cadmium	3	U	ug/l	3
Calcium	251000		ug/l	
Chromium	2	U	ug/l	2
Cobalt	2.7	U	ug/l	2.7
Copper	9.86	U	ug/l	9.86
Cyanide	.81	U	ug/l	.81
Iron	609		ug/l	
Lead	2.6	U	ug/l	2.6
Magnesium	419000		ug/l	
Manganese	228		ug/l	
Mercury	.08	U	ug/l	.08
Nickel	7.3	U	ug/l	7.3
Selenium	13.2	UJ	ug/l	
Silver	2.1	U	ug/l	2.1
Sodium	3310000	J	ug/l	
Thallium	1.3	UJ	ug/l	
Tin	9.4	U	ug/l	9.4
Vanadium	1.7	U	ug/l	1.7
Zinc	5.8	U	ug/l	5.8

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	MPT-1-MW1-	M7491001	M7491010	23886002
Site	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND
Locator	MPT-1-MW1-1	01MW001	01MW001F	8MW5S
Collect Date:	12-FEB-92	08-JUL-94	08-JUL-94	27-JAN-93

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony	10.1	U	ug/l	10.1	2.2	U	ug/l	2.2	3.7	J	ug/l		16.4	U	ug/l	16.4
Arsenic	14.3		ug/l		6	J	ug/l		5.2	J	ug/l		2.9	J	ug/l	
Barium	.82	J	ug/l		3.3	U	ug/l	3.3	3.3	U	ug/l	3.3	6.5	J	ug/l	
Beryllium	.3	U	ug/l	.3	.18	U	ug/l	.18	.18	U	ug/l	.18	.26	U	ug/l	.26
Cadmium	1	U	ug/l	1	3	U	ug/l	3	3	U	ug/l	3	2.8	U	ug/l	2.8
Calcium	69400		ug/l		65000		ug/l		63100		ug/l		89500		ug/l	
Chromium	2	U	ug/l	2	2.09	U	ug/l	2.09	2.09	U	ug/l	2.09	6.6	J	ug/l	
Cobalt	3.1	U	ug/l	3.1	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	2.6	U	ug/l	2.6
Copper	1.4	J	ug/l		12.7	U	ug/l	12.7	12.7	U	ug/l	12.7	1.2	U	ug/l	1.2
Cyanide	3	U	ug/l	3	.95	J	ug/l		-				-			
Iron	3540		ug/l		15.4	J	ug/l		33	J	ug/l		2760	J	ug/l	
Lead	2.5	J	ug/l		.97	U	ug/l	.97	.97	U	ug/l	.97	2.3	U	ug/l	2.3
Magnesium	3100	J	ug/l		2860	J	ug/l		2840	J	ug/l		15400		ug/l	
Manganese	397		ug/l		7.1	J	ug/l		37.7		ug/l		39.9		ug/l	
Mercury	.1	U	ug/l	.1	.1	J	ug/l		.08	J	ug/l		.07	U	ug/l	.07
Nickel	6.5	U	ug/l	6.5	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3	9.4	U	ug/l	9.4
Selenium	.63	J	ug/l		1.3	UJ	ug/l		13.2	UJ	ug/l		1.8	U	ug/l	1.8
Silver	1.2	U	ug/l	1.2	2.3	U	ug/l	2.3	2.3	U	ug/l	2.3	2	U	ug/l	2
Sodium	5880		ug/l		9300		ug/l		9500		ug/l		-			
Thallium	.9	UJ	ug/l		1.3	UJ	ug/l		1.3	UJ	ug/l		2.3	U	ug/l	2.3
Tin	14.5	U	ug/l	14.5	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	12.7	U	ug/l	12.7
Vanadium	9.4	J	ug/l		4.4	J	ug/l		3.2	J	ug/l		7.2	J	ug/l	
Zinc	10.2	J	ug/l		6.1	U	ug/l	6.1	4.2	U	ug/l	4.2	23.9	J	ug/l	

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		23887002			R8404002			R8404001			23943001		
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator		8MW5S			08MW005S			08MW005I			8MW5DD		
Collect Date:		27-JAN-93			26-JUL-94			26-JUL-94			02-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony					5	U	ug/l	5	5	U	ug/l	5	16.4	U	ug/l	16.4
Arsenic					.6	U	ug/l	.6	.6	J	ug/l		.68	U	ug/l	.68
Barium					1.4	U	ug/l	1.4	1.2	U	ug/l	1.2	45.3	J	ug/l	
Beryllium					.3	UJ	ug/l		.3	UJ	ug/l		.26	U	ug/l	.26
Cadmium					1	U	ug/l	1	1	U	ug/l	1	2.8	U	ug/l	2.8
Calcium					84500	J	ug/l		82000	J	ug/l		158000		ug/l	
Chromium					2.6	UJ	ug/l		2.6	UJ	ug/l		2.8	U	ug/l	2.8
Cobalt					3.1	UJ	ug/l		3.1	UJ	ug/l		3.2	J	ug/l	
Copper					.9	U	ug/l	.9	.9	U	ug/l	.9	1.2	U	ug/l	1.2
Cyanide	5	U	ug/l	5	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	-			
Iron					78.6	UJ	ug/l		68.2	UJ	ug/l		182		ug/l	
Lead					.6	U	ug/l	.6	.6	U	ug/l	.6	.93	U	ug/l	.93
Magnesium					18800	U	ug/l	18800	19700	U	ug/l	19700	314000		ug/l	
Manganese					23.6	UJ	ug/l		20.1	UJ	ug/l		101		ug/l	
Mercury					.1	U	ug/l	.1	.1	U	ug/l	.1	.07	UJ	ug/l	
Nickel					5.9	UJ	ug/l		5.9	UJ	ug/l		9.4	UJ	ug/l	
Selenium					.6	U	ug/l	.6	.6	UJ	ug/l		1.8	UJ	ug/l	
Silver					2.1	U	ug/l	2.1	2.1	U	ug/l	2.1	3.7	J	ug/l	
Sodium					31500	U	ug/l	31500	39500	U	ug/l	39500	-			
Thallium					.6	U	ug/l	.6	.6	U	ug/l	.6	2.3	U	ug/l	2.3
Tin					8	U	ug/l	8	8	U	ug/l	8	12.7	UJ	ug/l	
Vanadium					1.5	UJ	ug/l		2.3	J	ug/l		2.8	J	ug/l	
Zinc					1.82	U	ug/l	1.82	3.1	U	ug/l	3.1	15.6	J	ug/l	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	23944001				R8635006				MPT-S-1-1				23886003			
Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
Locator	8MW5DD				08MW005D				MPT-S-1-1				S-1			
Collect Date:	02-FEB-93				29-AUG-94				12-FEB-92				28-JAN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony	-				50	UJ	ug/l		10.1	U	ug/l	10.1	16.4	U	ug/l	16.4
Arsenic	-				6	U	ug/l	6	.4	U	ug/l	.4	.68	U	ug/l	.68
Barium	-				75.5	J	ug/l		.66	J	ug/l		3.2	U	ug/l	3.2
Beryllium	-				.3	UJ	ug/l		.3	U	ug/l	.3	.26	U	ug/l	.26
Cadmium	-				1	U	ug/l	1	1	U	ug/l	1	2.8	U	ug/l	2.8
Calcium	-				130000		ug/l		91400		ug/l		90000		ug/l	
Chromium	-				2.6	U	ug/l	2.6	2	U	ug/l	2	3.7	J	ug/l	
Cobalt	-				3.1	U	ug/l	3.1	3.1	U	ug/l	3.1	2.6	U	ug/l	2.6
Copper	-				.9	U	ug/l	.9	1.4	U	ug/l	1.4	1.2	U	ug/l	1.2
Cyanide	5	U	ug/l	5	2.7	U	ug/l	2.7	3	U	ug/l	3	-			
Iron	-				108		ug/l		156		ug/l		284	J	ug/l	
Lead	-				6	UJ	ug/l		1.4	J	ug/l		1.7	U	ug/l	1.7
Magnesium	-				253000		ug/l		17600		ug/l		15500		ug/l	
Manganese	-				49.5		ug/l		33.2		ug/l		36		ug/l	
Mercury	-				.5	UJ	ug/l		.1	U	ug/l	.1	.07	U	ug/l	.07
Nickel	-				5.9	U	ug/l	5.9	6.5	U	ug/l	6.5	9.4	U	ug/l	9.4
Selenium	-				6	UJ	ug/l		.6	UJ	ug/l		1.8	U	ug/l	1.8
Silver	-				2.1	U	ug/l	2.1	1.2	U	ug/l	1.2	2	U	ug/l	2
Sodium	-				2640000		ug/l		7330		ug/l		-			
Thallium	-				6	UJ	ug/l		.9	UJ	ug/l		2.3	U	ug/l	2.3
Tin	-				8	U	ug/l	8	14.5	U	ug/l	14.5	12.7	U	ug/l	12.7
Vanadium	-				3.6	J	ug/l		2.2	J	ug/l		2.6	U	ug/l	2.6
Zinc	-				4.3	J	ug/l		2.4	J	ug/l		63.4	J	ug/l	

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		23887003			M7481006			M7481001			M7481008			
Site		BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND			
Locator		S-1			OSMW001R			OSMW001RF			OBMW001S			
Collect Date:		28-JAN-93			08-JUL-94			08-JUL-94			08-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																
Antimony	-				3	U	ug/l	3	2.2	U	ug/l	2.2	2.2	U	ug/l	2.2
Arsenic	-				1.9	J	ug/l		1.9	J	ug/l		3.3	J	ug/l	
Barium	-				9.2	J	ug/l		9.2	J	ug/l		8.2	J	ug/l	
Beryllium	-				.18	U	ug/l	.18	.18	U	ug/l	.18	.18	U	ug/l	.18
Cadmium	-				3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3
Calcium	-				113000		ug/l		109000		ug/l		79000		ug/l	
Chromium	-				2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Cobalt	-				2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7
Copper	-				9.86	U	ug/l	9.86	10.5	U	ug/l	10.5	10.1	U	ug/l	10.1
Cyanide	-	1.4	U ug/l	1.4	.81	U	ug/l	.81	-				.81	U	ug/l	.81
Iron	-				95	J	ug/l		11.7	J	ug/l		425		ug/l	
Lead	-				2	U	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	
Magnesium	-				7670		ug/l		7510		ug/l		12300		ug/l	
Manganese	-				67.8		ug/l		64.3		ug/l		70.9		ug/l	
Mercury	-				.08	J	ug/l		.08	U	ug/l	.08	.08	U	ug/l	.08
Nickel	-				7.3	U	ug/l	7.3	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3
Selenium	-				-				-				-			
Silver	-				2.1	U	ug/l	2.1	2.1	U	ug/l	2.1	2.1	U	ug/l	2.1
Sodium	-				13800	J	ug/l		13500	E	ug/l		10500	J	ug/l	
Thallium	-				1.3	UJ	ug/l		1.3	U	ug/l	1.3	1.3	UJ	ug/l	
Tin	-				9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4
Vanadium	-				5.8	J	ug/l		4.3	J	ug/l		2.8	J	ug/l	
Zinc	-				4.2	U	ug/l	4.2	4.5	U	ug/l	4.5	8.8	U	ug/l	8.8

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NAVSTA NAYPORT VALIDATED BACKGROUND DATA

	Lab Sample Number:	M7481003				M7491002				M7491011				M7481009			
	Site	BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND			
	Locator	OBMW001SF				OBMW001I				OBMW001IF				OBMW001D			
	Collect Date:	08-JUL-94				09-JUL-94				09-JUL-94				08-JUL-94			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BKG WATER METALS																	
Antimony		3.4	U	ug/l	3.4	2.2	U	ug/l	2.2	3.1	U	ug/l	3.1	22.3	UJ	ug/l	
Arsenic		3.5	J	ug/l		.9	U	ug/l	.9	.9	U	ug/l	.9	5.5	J	ug/l	
Barium		8.2	J	ug/l		6.4	J	ug/l		6	J	ug/l		48.9	J	ug/l	
Beryllium		.18	U	ug/l	.18	.18	U	ug/l	.18	.18	U	ug/l	.18	.18	U	ug/l	.18
Cadmium		3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3
Calcium		79300		ug/l		100000		ug/l		98700		ug/l		251000		ug/l	
Chromium		2	U	ug/l	2	2.09	U	ug/l	2.09	2.09	U	ug/l	2.09	2	U	ug/l	2
Cobalt		2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7	2.7	U	ug/l	2.7
Copper		10.1	U	ug/l	10.1	4	U	ug/l	4	4	U	ug/l	4	9.86	U	ug/l	9.86
Cyanide		-				.81	U	ug/l	.81	-				.81	U	ug/l	.81
Iron		177		ug/l		660		ug/l		309		ug/l		609		ug/l	
Lead		16.9		ug/l		1.5	J	ug/l		.97	U	ug/l	.97	2.6	U	ug/l	2.6
Magnesium		11800		ug/l		23600		ug/l		23200		ug/l		419000		ug/l	
Manganese		70.4		ug/l		119		ug/l		114		ug/l		228		ug/l	
Mercury		.08	U	ug/l	.08	.08	U	ug/l	.08	.09	J	ug/l		.08	U	ug/l	.08
Nickel		7.3	U	ug/l	7.3	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3	7.3	U	ug/l	7.3
Selenium		-				1.3	UJ	ug/l		1.3	UJ	ug/l		13.2	UJ	ug/l	
Silver		2.1	U	ug/l	2.1	2.3	U	ug/l	2.3	2.3	U	ug/l	2.3	2.1	U	ug/l	2.1
Sodium		10600	E	ug/l		79500		ug/l		79000		ug/l		3310000	J	ug/l	
Thallium		1.3	U	ug/l	1.3	1.3	U	ug/l	1.3	1.3	UJ	ug/l		1.3	UJ	ug/l	
Tin		9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4	9.4	U	ug/l	9.4
Vanadium		2.7	J	ug/l		3.6	J	ug/l		3	J	ug/l		1.7	U	ug/l	1.7
Zinc		5	U	ug/l	5	8	U	ug/l	8	4.2	U	ug/l	4.2	5.8	U	ug/l	5.8

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:		23887002				R8405002				R8405001				23944002		
Site		BACKGROUND				BACKGROUND				BACKGROUND				BACKGROUND		
Locator		8MW5S				08MW005S				08MW0051				8MW5DD		
Collect Date:		27-JAN-93				26-JUL-94				26-JUL-94				02-FEB-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
GWQ																
Alkalinity as CaCO3	250		mg/l		242		mg/l		270		mg/l		577		mg/l	
Ammonia-N	.2	U	mg/l	.2	1.3		mg/l		1.1		mg/l		.2		mg/l	
Chloride	8.5		mg/l		31.7		mg/l		39.7		mg/l		6080		mg/l	
Color	15	J	APHA		30		APHA		20		APHA		100		APHA	
Hardness as CaCO3	288		mg/l		262		mg/l		262		mg/l		2140		mg/l	
Nitrate/Nitrite-N	.05	U	mg/l	.05	.1	U	mg/l	.1	.1	U	mg/l	.1	.05	U	mg/l	.05
Oil and Grease	1.5		mg/l		5	U	mg/l	5	5	U	mg/l	5	12200		mg/l	
Phosphorous-P, Total	.24		mg/l		-				-				.74		mg/l	
Sulfate	45.2		mg/l		36.4		mg/l		49.3		mg/l		1100		mg/l	
Sulfide	.1	U	mg/l	.1	6		mg/l		3		mg/l		8.5		mg/l	
Total Dissolved Solids	388		mg/l		417		mg/l		460		mg/l		12200		mg/l	
Total Kjeldahl Nitrogen	.6		mg/l		3.4		mg/l		1.3		mg/l		2.8		mg/l	
Total Organic Carbon	4.7		mg/l		5.2		mg/l		5.8		mg/l		12		mg/l	
pH	7.5		units		7.47		units		7.55		units		7.6		units	

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	23887003			M7482001			M7482002			M7482003		
Site	BACKGROUND			BACKGROUND			BACKGROUND			BACKGROUND		
Locator	S-1			OSMW001R			OSMW001RD			OBMW001S		
Collect Date:	28-JAN-93			08-JUL-94			08-JUL-94			08-JUL-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
GWQ																
Alkalinity as CaCO3	290		mg/l		248		mg/l		254		mg/l		166		mg/l	
Ammonia-N	.4		mg/l		.3	U	mg/l	.3	.3	U	mg/l	.3	.3	U	mg/l	.3
Chloride	38.8		mg/l		15		mg/l		15.1		mg/l		20		mg/l	
Color	25	J	APHA		10		APHA		10		APHA		70		APHA	
Hardness as CaCO3	290		mg/l		243		mg/l		316		mg/l		251		mg/l	
Nitrate/Nitrite-N	.05	U	mg/l	.05	.15		mg/l		.15		mg/l		.1	U	mg/l	.1
Oil and Grease	.1		mg/l		5	U	mg/l	5	5	U	mg/l	5	5	U	mg/l	5
Phosphorous-P, Total	.56		mg/l		.23		mg/l		.22		mg/l		.42		mg/l	
Sulfate	58.9		mg/l		57.7		mg/l		59		mg/l		67		mg/l	
Sulfide	4.4		mg/l		1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1
Total Dissolved Solids	442		mg/l		776		mg/l		470		mg/l		824		mg/l	
Total Kjeldahl Nitrogen	1.3		mg/l		.4		mg/l		.4		mg/l		4.7		mg/l	
Total Organic Carbon	3.7		mg/l		4.3		mg/l		3.8		mg/l		20.7		mg/l	
pH	7.4		units		7.4		units		7.4		units		7.4		units	

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NAVSTA MAYPORT VALIDATED BACKGROUND DATA

Lab Sample Number:	M7492001				M7482004			
Site	BACKGROUND				BACKGROUND			
Locator	OBMW001I				OBMW001D			
Collect Date:	09-JUL-94				08-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
GWQ								
Alkalinity as CaCO3	228		mg/l		334		mg/l	
Ammonia-N	.3	U	mg/l	.3	.7		mg/l	
Chloride	146		mg/l		6600		mg/l	
Color	70		APHA		70		APHA	
Hardness as CaCO3	356		mg/l		239		mg/l	
Nitrate/Nitrite-N	.1	U	mg/l	.1	.1	U	mg/l	.1
Oil and Grease	5	U	mg/l	5	5	U	mg/l	5
Phosphorous-P, Total	.38		mg/l		.25		mg/l	
Sulfate	99.6		mg/l		1230		mg/l	
Sulfide	1	U	mg/l	1	1.5		mg/l	
Total Dissolved Solids	811		mg/l		8150		mg/l	
Total Kjeldahl Nitrogen	1.4		mg/l		1.7		mg/l	
Total Organic Carbon	12.6		mg/l		16.9		mg/l	
pH	6.9		units		7.4		units	

U = NOT DETECTED R = RESULT IS REJECTED
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APPENDIX C-2

CHAIN OF CUSTODIES

CHAIN OF CUSTODY RECORD

PROJECT NO.: 7533-61

PROJECT NAME: MAYPort Naval Station RFI

SAMPLERS (SIGNATURE): Cathy Long Winter

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	SAMPLE TYPE	REMARKS: INDICATE SOIL/WATER/AIR SEDIMENT/SLUDGE
MPT-B-SW/SD-1	1/21/92	1030		X	MPT-B-SW/SD-1 008 009 #12	3	40 ML VOA Vial Pres. / Perf. Pres.	Surface water
MPT-B-SW/SD-1		1030	X		MPT-B-SW/SD-1 001	2	2 L Amber Glass Jar Pres. / Sem.-VOCs	Sediment
MPT-B-SW/SD-2		1235		X	MPT-B-SW/SD-2 009 010 #12	3	2 L Amber Unpres. / Pest.	009 Surface water
MPT-B-SW/SD-2		1235	X		MPT-B-SW/SD-2 002	2	500 mL Plastic / Nitric Pres.	008 Sediment
MPT-B SW/SD-3		1420		X	MPT-B-SW/SD-3 010 011 #12	3	250 mL Plastic / Unpres.	010 Surface water
MPT-B SW/SD-3		1420	X		MPT-B-SW/SD-3 003	2	1 L Plastic / Unpres.	003 Sediment
MPT-MS-1				X	MPT-MS-1 012 011 #12	3	1 L Plastic / Nitric Pres.	011 P012 Surface water
MPT-MS-1			X		MPT-MS-1 005 004 #2	2	0.16 Glass / Unpres.	004 005 Sediment
MPT-MS-1 Dupe				X	MPT-MS-1 Dupe 013 012 #12	3	1 L Amber Unpres. / VOCs	011 P012 Surface water
MPT-MS-1 Dupe			X		MPT-MS-1 Dupe 005 004 #2	2	1 L Plastic Unpres. / Metals	004 005 Sediment
MPT-B-SW/SD-Dup1	1/21/92			X	MPT-B-SW/SD-Dup-1 012 011 #12	3	1 L Plastic Nitric Pres. / Anions	011 P012 Surface water
MPT-B-SW/SD-Dup1			X		MPT-B-SW/SD-Dup-1 005 004 #2	2	1 L Plastic Unpres. / Cyanide	004 005 Sediment
MPT-EB-1	1/22/92			X	MPT-ER-1 007 006 #14	3	40 ML VOA Vial Pres. / Perf. Pres.	006 Water
					Trip Blank 013 015 #2	2	40 ML VOA Vial Pres. / Perf. Pres.	013 Water

MPP — MMG — MVSG SVSG PPSG

Page 1 of 2

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
[signature]	1/21/92 1040	
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
Cathy Long Winter	1/22/92 0900	[signature]
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR DISPOSAL BY (SIGNATURE)

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
		AGAT # 20723
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
1/23/92 0945		
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	REMARKS
		AirBill # 103715180

WITH 8 COOLERS

C-E Environmental, I

LIMS: 1/23/92

000302

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2

20723

PROJECT NO.	PROJECT NAME
7533-61	MAYPORT Naval Station RFI

SAMPLERS (SIGNATURE)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS
MPT-B-SW/SD-1	1/21/92	1030		X	MPT-B-SW/SD-1	2
MPT-B-SW/SD-2		1235		X	MPT-B-SW/SD-2	2
MPT-B-SW/SD-3		1420		X	MPT-B-SW/SD-3	2
MPT-MS-1				X	MPT-MS-1	2
MPT-MS-1DUP				X	MPT-MS-1 DUP	2
MPT-B-SW/SD-DUP-1	1/21/92			X	MPT-B-SW/SD-DUP-1	2
MPT-ER-1	1/21/92			X	MPT-ER-1	2
MPT-FB-1	1/21/92			X	MPT-FB-1	2

SAMPLE TYPE LM633186. XV, MA

SHIP VIA: Fed Ex

REMARKS

INDICATE SOIL/WATER/AIR SEDIMENT/SLUDGE

001	SEDiment	BIH	MD4, DD4, PD4	
002		BIS	ML, DI1, P11	
003		ZW1, ZS1		
004				
005				
006	SED.ment			
007	WATER			
008	WATER			

See QAP QAS

ANALYSIS TOC, 415.1

QC LEVEL II DATE DUE 2/15/92

REPORT TO E. RAMUCHAK/LMG

SHIP BY LAB LCN INIT DF

102EW.020

Send Vol. Analyses - Do Analyze all pH checked 1/23/92

BIK SPK/LCS Sil with

MS: MPTMS-1

MSD: MPTMS-1

Method Blank

102191209 n

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
	1/21/92 1941	
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
	1/22/92 0910	1/23/92 0945
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR DISPOSAL BY: (SIGNATURE)

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)

DATE / TIME | REMARKS

Not COC ABB Page #1

C-E Environmental, Inc.

Chas. PP 1/23/92 CIN59376

1/23/92

000303

ABB-ES Field Trailer
(904) 246-0205

CH2M HILL
QUALITY ANALYTICAL LABORATORIES

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M HILL Project #: _____
Purchase Order #:
Project Name: NS Mayport - Phase II
Company Name/CH2M HILL Office: Montgomery, AL
ABB-ES Tallahassee
Project Manager & Phone #: Mr. [ ] Ms. [ ] Dr. [ ] Peggy Layne (904) 1-56-1393
Report Copy to: Greg Brown
Requested Completion Date: Bull Std Turnaround
Sampling Requirements: SDWA [ ] NPDES [ ] RCRA [X] OTHER ____
Sample Disposal: Dispose [X] Return [ ]

LAB TEST CODES / ANALYSES REQUESTED

Sampling Date	Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	1- Metals w/HNO3	2- VOAs 8240 w/HCl	2a- VOAs 8240 EDB	3- SVOAs	4- Pest./PCB	5- CN w/NaOH	6- Sulfide w/NaOH Zn OAC	7- Hexanal 2,4	8- Hexanal 1,2 SO4	9- Oil & Grease 1,2 SO4	10- TOC	REMARKS	LAB 1 ID	LAB 2 ID
1/27	1700		X	X		1 5* m w 1	16	1	3	3	1	1	1	1	3	1	1			
1/27	1745		X	X		8 m w 5* S	16	1	3	3	1	1	1	1	3	1	1			
1/28	1115		X	X		S - 1	16	1	3	3	1	1	1	1	3	1	1			
1/28	1200		X	X		8 m w 6	16	1	3	3	1	1	1	1	3	1	1			
1/28	1200		X	X		8 m w 6 D	10	1	3	3	1	1	1					[illegible]		
1/28	1200		X	X		8 m w 6 m S	10	1	3	3	1	1	1					[illegible]		
1/28	1200		X	X		8 m w 6 m S D	10	1	3	3	1	1	1					[illegible]		
1/28			X	X		[illegible]	3		3				L					[illegible]		

These analysis cancelled by voice communication with Spencer Hamill also Analysis 5 field checked for Sulfide during sampling.

SHADED AREA -- FOR LAB USE ONLY
Lab 1 #: | Lab 2 #:
Quote #: | Kit Request #:
Project #:
No. of Samples: | Page: | of:
COC Rev: | Login: | LIMS Ver: | Ack Gen:

Sampled By & Title (Please sign and print name): [illegible] Smith [illegible] Smith — Date/Time: 1/28 [illegible]
Received By (Please sign and print name): — Date/Time:
Received By (Please sign and print name): — Date/Time:
Received By (Please sign and print name): — Date/Time:
Work Authorized By (Please sign and print name):
Relinquished By (Please sign and print name): — Date/Time:
Relinquished By (Please sign and print name): — Date/Time:
Relinquished By (Please sign and print name): — Date/Time:
Shipped Via: UPS BUS Fed-Ex Hand Other ____
Shipping #: [illegible]
Remarks: #5 : * / [illegible]

HAZWRAP/NESSA: Y N
QC Level: 1 2 3 Other: ____
COC Rec | ICE
Ana Req | TEMP
Cust Seal | Ph

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yellow - LAB, Pink - Client

CH2M HILL

QUALITY ANALYTICAL LABORATORIES

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M HILL Project #

Purchase Order #

Project Name: Mayport Phase II

Company Name/CH2M HILL Office: ARB: EC / Montgomery

Project Manager & Phone #: Mr. [ ] Peggy Layne Ms. [X] Dr. [ ] (904) 656-1293

Report Copy to:

Requested Completion Date: Std 3 wk T.A.T. 2/24/93

Sampling Requirements: SDWA NPDES RCRA OTHER — [ ] [ ] [X] ____

Sample Disposal: Dispose [X] Return [ ]

LAB TEST CODES: 2/4/93 8010 only conversation with Spencer Hawaii 1640

ANALYSES REQUESTED

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	VOA 8240 w/HCl	VOA 8010, 624	VOA 40 ml HCl 8240	VOA 2,3,5,6 Trimethyl Benzene 8020	Pest/PCB 2,3,5,6 Trimethyl 1 w/HNO3 1 NP	Metals w/ NaOH	Sulfide	Oil - Field Analysis Only	H2O Chem	O. Nitrogen	TOC
2/2/93	10:00		X	X		2FB0006	10	3	3	1	1	1	1					
2/2/93	11:50		X	X		SMWSDD	16	3	3	1	1	1	1	1	3	1	1	
						TRIPBLANK	3											
							29											

SHADED AREA -- FOR LAB USE ONLY

Lab 1 # | Lab 2 #

Quote # | Kit Request #

Project #

No. of Samples | Page | of

COC Rev | Login | LIMS Ver | Ack Gen

REMARKS | LAB 1 ID | LAB 2 ID

Sampled By & Title: Laura W. Smith — Date/Time: 2/3/93 1500

Received By — Date/Time

Received By — Date/Time

Received By — Date/Time

Work Authorized By

Relinquished By: Laura W. Smith — Date/Time: 2/3/93 1500

Relinquished By — Date/Time

Relinquished By — Date/Time

Shipped Via: UPS BUS (Fed-Ex) Hand Other ____ — Shipping #: FedEx 1924 [illegible] 1150

HAZWRAP/NESSA: Y N

QC Level: 1 2 3 Other: ____

COC Rec | ICE

Ana Req | TEMP

Cust Seal | Ph

Remarks: 5 / Last shipment call Tallahassee office if problems [illegible]

Instructions: Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yellow, Pink - Client

1/92 FORM 340

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: 07533-61	PROJECT NAME: NS/NAS Mayport
CLIENT NAME: ABB Environmental Services	
PROJECT MANAGER: Phil Georgaxion	COPY TO: Greg Brown
REQUESTED COMP. DATE:	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ☐

CLIENT ADDRESS AND PHONE NUMBER: 2590 Executive Center Circle East, Berkley Building, Tallahassee, FL 32301 (904) 656-1293

FOR LAB USE ONLY: LAB#; LAB#; PROJECT NO.; ACK; VERIFIED; QUOTE#; BS; NO. OF SAMP; PG; OF

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	1,2,3 (1L Plastic w/ HNO3)	4 (40 ml Vials w/ HCL)	5,21 (2L Amber Bottles)	6 (½ Gal Plastic w/ NaOH)	7 (500 ml Plastic w/ NaOH+ZnAc)	8,9,11,12,13,18 (1L Plastic w/o)	10,14,15,16,17 (1L Plastic w/ H2SO4)	19 (1L Amber w/ H2SO4)	20 (250ml plastic w/ H2SO4)	22 (40 ml Vials w/ HCl)	LAB ID
	2/12/92	8:30		X		MPT-BR-MB-05	7	1	3	2	1							
	2/12/92	12:30		X		MPT-2-MW-17S	12	1	3	2	1	1	1	1	1	1	X	
	2/12/92	13:00		X		MPT-2-MW-12D	15	1	3	2	1	1	1	1	1	1	X	
	2/12/92	11:00		X		MPT-5-1-01	15	1	3	2	1	1	1	1	1	1	3	
	2/12/92	10:00		X		MPT-1-MW-1-01	15	1	3	2	1	1	1	1	1	1	3	
	2/12/92					Trip Blank	3		3									

SAMPLED BY AND TITLE: Rondy Holloway/Mike Jones	DATE/TIME: 2/12/92 17:00	RELINQUISHED BY: Gina (W) Smith	DATE/TIME: 2/13/92 17:00
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER	AIR BILL# 203425833 2

HAZWRAP/NEESA Y N; QC LEVEL 1 2 3; COC; ICE; ANA REQ; TEMP; CUST SEAL; Ph; SAMPLE COND.

REMARKS: Itemized by number. Analytical from enclosed is referenced to numbers above.

ENTERED INTO LIMS _____ COC REVIEWED _____

Field Trailer Phone (904) 246-0205
Mobile Phone (904) 571-1693

CH2M HILL
QUALITY ANALYTICAL LABORATORIES

CHAIN OF CUSTODY RECO[illegible] T TO PERFORM SERVICES

CH2M HILL Project #	Purchase Order #
Project Name: Maywood Phase II	
Company Name/CH2M HILL Office: ABB-ES / Redding Calif.	
Project Manager & Phone #: Mr. [ ] Ms. [x] Dr. [ ] Reggy Wayne (904) 656-1293	Report Copy to: Mr. Greg Brand
Requested Completion Date: Bank Std T.A.T. 3/9/93	Sampling Requirements: SDWA [ ] NPDES [ ] RCRA [x] OTHER ____
Sample Disposal: Dispose [x] Return [ ]	

SHADED AREA -- FOR LAB USE ONLY

Lab 1 #	Lab 2 #
Quote #	Kit Request #
Project #	
No. of Samples	Page of
COC Rev / Login	LIMS Ver / Ack Gen

Sampling Date	Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	VOA 2oz	Metals CN⁻ 2oz	Red/PCB 2oz	General Soil Parameters 2oz	VOA 40ml HCl	SVOA/Red/PCB 250 amber	Metals 1 L	Field Cleaned for Silica	CN⁻ 1 L	REMARKS	LAB 1 ID	LAB 2 ID
2/16/93	13:0	X			X														
	13:0	X			X														
	13:0	X			X														
	13:0	X			X														
	13:0	X			X														
					X														
					X														
		X			X														
	13:0	X			X														
	12:45											3	2	1					
	11:10	X		X		2 F B 0 0 7						3	2	1	1				

3-40ml VOAs as Trip Blanks also included

Sampled By & Title (Please sign and print name): Larry W. Smith [signature]	Date/Time: 2/16/93 1700	Relinquished By (Please sign and print name): [signature] Larry W. Smith	Date/Time: 2/16/93 1700
Received By (Please sign and print name):	Date/Time:	Relinquished By (Please sign and print name):	Date/Time:
Received By (Please sign and print name):	Date/Time:	Relinquished By (Please sign and print name):	Date/Time:
Received By (Please sign and print name):	Date/Time:	Shipped Via: UPS BUS Fed-Ex Hand Other ____	Shipping #: 1924853531
Work Authorized By (Please sign and print name):	Remarks: except VOA, + # denotes S;		

HAZWRAP/NESSA: Y N
QC Level: 1 2 3 Other: ____
COC Rec | ICE
Ana Req | TEMP
Cust Seal | Ph

Instructions [illegible] Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yell[illegible] 3, Pink - Client
R[illegible] /92 FORM 340

CH2M HI[illegible]

QUALITY ANALYTICAL LABORATORIES — **CHAIN OF CUSTODY REC[illegible]** — **PERFORM SERVICES**

CH2M HILL Project #	Purchase Order #
Project Name	[illegible]
Company Name/CH2M HILL Office	[illegible]
Project Manager & Phone # Mr. [ ] Ms. [X] Dr. [ ]	[illegible]
Report Copy to:	[illegible]
Requested Completion Date:	[illegible]
Sampling Requirements: SDWA [ ] NPDES [ ] RCRA [X] OTHER ____	Sample Disposal: Dispose [X] Return [ ]

SHADED AREA -- FOR LAB USE ONLY

Lab 1 #	Lab 2 #
Quote #	Kit Request #
Project #	
No. of Samples	Page of
COC Rev / Login	LIMS Ver / Ack Gen

ANALYSES REQUESTED

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	REMARKS	LAB 1 ID	LAB 2 ID
2/17/93	0945		X	X		2QS012	7					3	2	1	1	[illegible]		
	1100	X			X	MATBSD7	4	1	1	1	1							
	1100	X			X	MATBSD7D	4	1	1	1	1					[illegible]		
	1100	X			X	MATBSD7MS	4	1	1	1	1					[illegible]		
	1100	X			X	MATBSD7MD	4	1	1	1	1					[illegible]		
	1210	X			X	M[illegible]BSD6	4	1	1	1	1							
	1530	X			X	MATBSD4	4	1	1	1	1							
						TRIPBLANK	3					3				[illegible]		

Sampled By & Title (Please sign and print name) MIKE JAMES [signature]	Date/Time 2/17/93	Relinquished By (Please sign and print name) MIKE JAMES [signature]	Date/Time [illegible]
Received By (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Shipped Via: UPS BUS (Fed-Ex) Hand Other ____	Shipping # [illegible]
Work Authorized By (Please sign and print name)	Remarks: EXCEPT VOAs		

HAZWRAP/NESSA: Y N

QC Level: 1 2 3 Other: ____

COC Rec	ICE
Ana Req	TEMP
Cust Seal	Ph

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yellow - LAB, Pink - Client

REV 11/92 FORM 340

CH2M HILL

QUALITY ANALYTICAL LABORATORIES

CHAIN OF CUSTODY RE

PERFORM SERVICES

CH2M HILL Project #	Purchase Order #

Project Name

Company Name/CH2M HILL Office

Project Manager & Phone #	Report Copy to:
Mr. [ ] Ms. [✓] Dr. [ ]	

Requested Completion Date:	Sampling Requirements	Sample Disposal:
	SDWA NPDES RCRA OTHER	Dispose Return
	[ ] [ ] [✓] ____	[✓] [ ]

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	ANALYSES REQUESTED

SHADED AREA -- FOR LAB USE ONLY

Lab 1 #	Lab 2 #
Quote #	Kit Request #
Project #	
No. of Samples	Page / of
COC Rev / Login	LIMS Ver / Ack Gen
REMARKS	LAB 1 ID / LAB 2 ID

Sampled By & Title (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Shipped Via UPS BUS Fed-Ex Hand Other____	Shipping #
Work Authorized By (Please sign and print name)	Remarks		

HAZWRAP/NESSA: Y N

QC Level: 1 2 3 Other: ____

COC Rec	ICE
Ana Req	TEMP
Cust Seal	Ph

Instructions / Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yello[illegible], Pink - Client

92 FORM 340

CH2M HI[illegible]

QUALITY ANALYTICAL LABORATORIES — **CHAIN OF CUSTODY RECO[illegible]ERFORM SERVICES**

CH2M HILL Project #	
Purchase Order #	
Project Name	[illegible] - PHASE 2
Company Name/CH2M HILL Office	[illegible]
Project Manager & Phone #	Mr. [ ] Ms. [X] Dr. [ ] [illegible]
Report Copy to:	[illegible]
Requested Completion Date:	[illegible] 3/[illegible]/93
Sampling Requirements	SDWA [ ] NPDES [ ] RCRA [X] OTHER ____
Sample Disposal:	Dispose [X] Return [ ]

SHADED AREA -- FOR LAB USE ONLY

Lab 1 #	Lab 2 #
Quote #	Kit Request #
Project #	
No. of Samples	Page of
COC Rev / Login	LIMS Ver / Ack Gen

ANALYSES REQUESTED

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	1. METALS	2. VOAs	3. [illegible]	4. [illegible]/PCB	5. CN	6. [illegible]	7. [illegible]	8. [illegible]	9. [illegible]	10. [illegible]	REMARKS	LAB 1 ID	LAB 2 ID
[illegible]	1030		X	X		M P T 8 S W 1	3		3											
	1030		X	X		M P T 8 S W 1 D	3		3											
	1040		X	X		M P T 8 S W 2	3		3											
	1040		X	X		M P T 8 S W 2 M S	3		3											
	1040		X	X		M P T 8 S W 2 M D	3		3											
	1350		X	X		M P T B S W 5		1	3	1	1	1	1	1	2	1	1			
						[illegible]	3		3											
						SEDIMENT SAMPLE														
	[illegible]	X		X		M P T B S D 5	4	1	1	1	1									

Sampled By & Title (Please sign and print name)	[illegible]	Date/Time	[illegible]/93
Relinquished By (Please sign and print name)	MIKE JAYNES [illegible]	Date/Time	[illegible]
Received By (Please sign and print name)		Date/Time	
Relinquished By (Please sign and print name)		Date/Time	
Received By (Please sign and print name)		Date/Time	
Relinquished By (Please sign and print name)		Date/Time	
Received By (Please sign and print name)		Date/Time	
Shipped Via	UPS BUS Fed-Ex Hand Other____	Shipping #	[illegible]
Work Authorized By (Please sign and print name)		Remarks	EXCEPT VOAs

HAZWRAP/NESSA: Y N

QC Level: 1 2 3 Other: ____

COC Rec	ICE
Ana Req	TEMP
Cust Seal	Ph

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yellow - LAB, Pink - Client

REV 11/92 FORM 340

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 070894A DATE: 07/08/94

ABB-ES
Task Order #: 028
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO: PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 08/08/94

Lab Batch No.

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	LAB TEST CODES 1 TOTAL CONTAINERS	2 MVW9 VOC 8240 HCL 40 ml	3 SVW9MP SVOC 8270 NONE 2.5L	4 PPW91 P/PCB 8080 M NONE 2.5L	5 HEW9 HERB 8150 NONE 2.5L	6 OPW9 ORGANOPEST 8140 NONE 2.5L	7 APP9MET METALS 6000/7000 HNO3 1L	8 CNW CYANIDE 9010/9012M NaOH 0.5 GAL	TICS (Y/N)	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME
	0BR003	07/08/94	09:00	W		X	5	3	1	1					N	
MATRIX SPIKE	0SMW001R MS	07/08/94	09:45	W		X	5	3	1	1					N	
MATRIX SPIKE DUP	0SMW001R MSD	07/08/94	09:45	W		X	5	3	1	1					N	
	0SMW001R	07/08/94	09:45	W		X	5	3	1	1					N	
	0SMW001RD	07/08/94	09:45	W		X	5	3	1	1					N	
	0BMW001S	07/08/94	15:35	W		X	5	3	1	1					Y	
	0BMW001D	07/08/94	17:00	W		X	5	3	1	1					N	
	0BT014	07/08/94	08:30	W		X	3	3							N	
TOTAL PARAMETERS PER COLUMN							38	24	7	7	0	0	0	0		

NEESA QC LEVEL C

NOTES: SENT TO QAL MONTGOMERY, AL LAB

RELINQUISHED BY	DATE	TIME	RECEIVED BY:
Mark S. Lisk	7/8/94 6/8/94	18:40	Larry W Smith
Larry W Smith	7/8/94 6/8/94	18:50	

RELINQUISHED BY	DATE	TIME	RECEIVED BY:

RELINQUISHED BY	DATE	TIME	RECEIVED BY:

SHIPPING AIRBILL NUMBER:
0133637313 SHIPPED VIA FEDERAL EXPRESS

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PAGE ___ OF ___

001EGW.WK3

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 070894B DATE: 07/08/94

ABB-ES
Task Order #: 028
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO: PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 08/08/94

LAB TEST CODES

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	1 TOTAL CONTAINERS	2 MVW9 VOC 8240 HCL 40 ml	3 SVW9MP SVOC 8270 NONE 2.5L	4 PPW91 P/PCB 8080 M NONE 2.5L	5 HEW9 HERB 8150 NONE 2.5L	6 OPW9 ORGANOPEST 8140 NONE 2.5L	7 APP9MET METALS 6000/7000 HNO3 1L	8 CNW CYANIDE 9010/9012M NaOH 0.5 GAL	TICS (Y/N)	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	Lab Batch No.
	0BR003	07/08/94	09:45	W		X	2						1	1	N		
MATRIX SPIKE	0SMW001R MS	07/08/94	09:45	W		X	2						1	1	N		
MATRIX SPIKE DUP	0SMW001R MSD	07/08/94	09:45	W		X	2						1	1	N		
	0SMW001R	07/08/94	09:45	W		X	2						1	1	N		
	0SMW001RD	07/08/94	09:45	W		X	2						1	1	N		
	0BMW001S	07/08/94	15:35	W		X	2						1	1	N		
	0BMW001D	07/08/94	17:00	W		X	2						1	1	N		
TOTAL PARAMETERS PER COLUMN							14	0	0	0	0	0	7	7			NEESA QC LEVEL D

NOTES: SENT TO MONTGOMERY, AL LAB

RELINQUISHED BY	DATE	TIME	RECEIVED BY:
Mark S. Lait	7/8/94 4/8/94	1840	

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	7/8/94				
	6/8/94	18:50			

SHIPPING AIRBILL NUMBER:

0133637313 SHIPPED VIA FEDERAL EXPRESS

WHITE/YELLOW COPY - LABORATORY PINK COPY - ABB-ES

PAGE ___ OF ___

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 070894B1 DATE: 07/08/94

ABB-ES
Task Order #: 028
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 08/08/94

Lab Batch No.

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	LAB TEST CODES 1 TOTAL CONTAINERS	2 MVW9 VOC 8240 HCL 40 ml	3 SVW9MP SVOC 8270 NONE 2.5L	4 PPW91 P/PCB 8080 M NONE 2.5L	5 HEW9 HERB 8150 NONE 2.5L	6 OPW9 ORGANOPEST 8140 NONE 2.5L	7 APP9MET METALS 6000/7000 HNO3 1 L	8 CNW CYANIDE 9010/9012M NaOH 0.5 GAL	TICS (Y/N)	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME
MATRIX SPIKE	0SMW001RF MS	07/08/94	09:45	W		X	1						1		N	
MATRIX SPIKE DUP	0SMW001RF MSD	07/08/94	09:45	W		X	1						1		N	
	0SMW001RF	07/08/94	09:45	W		X	1						1		N	
	0SMW001RDF	07/08/94	09:45	W		X	1						1		N	
	0BMW001SF	07/08/94	15:35	W		X	1						1		N	
	0BMW001DF	07/08/94	17:00	W		X	1						1		N	
TOTAL PARAMETERS PER COLUMN							6	0	0	0	0	0	6	0		

NEESA QC LEVEL D

NOTES: SENT TO MONTGOMERY, AL LAB

RELINQUISHED BY	DATE	TIME	RECEIVED BY:
Mark S. Lent	7/8/94	1840	Gary W Smith
	DATE	TIME	RECEIVED BY:

RELINQUISHED BY	DATE	TIME	RECEIVED BY
Gary W Smith	7/8/94	18:50	
RELINQUISHED BY	DATE	TIME	RECEIVED BY
RELINQUISHED BY	DATE	TIME	RECEIVED BY

SHIPPING AIRBILL NUMBER:

0133637313 SHIPPED VIA FEDERAL EXPRESS

PAGE ___ OF ___

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001EGW_M.WK3

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 070894C DATE: 07/08/94

ABB-ES
Task Order #:
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO: PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 08/08/94

Sample Type	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TOTAL CONTAINERS	TDS (1) TDS See Below NONE 1 L	TKN (2) TKN See Below H2SO4 1 L	SW1 SULFIDE 376.1 NaOH/ZnAc 500 mL	TOC TOC 415.1/415.2 H2SO4 250 mL	O&GLI OIL/GREASE 413.1 H2SO4 1 L	TPHW TRPH 418.1 H2SO4 1 L	7	8
							LAB TEST CODES 1	2	3	4	5	6			
	0SMW001R	07/08/94	09:45	W		X	5	1	1	1	1	1			
	0SMW001RD	07/08/94	09:45	W		X	5	1	1	1	1	1			
	0BMW001S	07/08/94	15:35	W		X	5	1	1	1	1	1			
	0BMW001D	07/08/94	17:00	W		X	5	1	1	1	1	1			
TOTAL PARAMETERS/CONTAINERS SAMPLED							20	4	4	4	4	4	0		

Lab Batch No.

QAL LAB CODE
PARAMETER
METHOD
PRESERVATIVE
VOLUME

NEESA QC LEVEL E

NOTES:
(1) Parameters analyzed in this bottle include: TDS (160.1), CL (325.1/325.2/325.3/300), ALK (310.1), hard (130.2), SO4 (375.4/375.2/300), APHA (110.2), and pH (150.1).
(2) Parameters analyzed in this bottle include: TKN (351.3), NH3 (350.1/350.2), N/NAW (353.2/353.3/300), TPO4 (365.1/365.2/365.3/365.4).

SENT TO QAL LAB - MONTGOMERY, AL LWS

RELINQUISHED BY	DATE	TIME	RECEIVED BY
Mark S. Lot	7/8/94	1840	Larry W Smith
RELINQUISHED BY	DATE	TIME	RECEIVED BY
RELINQUISHED BY	DATE	TIME	RECEIVED BY

LWS

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Larry W Smith	7/8/94	18:50			
RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPING AIRBILL NUMBER:
0133637313 SHIPPED VIA FEDERAL EXPRESS

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ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 072694A DATE: 07/26/94

ABB-ES
Task Order #: 028
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO: PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 08/26/94

Lab Batch No.

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	LAB TEST CODES 1 TOTAL CONTAINERS	2 MVW9 VOC 8240 HCL 40 ml	3 SVW9MP SVOC 8270 NONE 2.5L	4 PPW91 P/PCB 8080 M NONE 2.5L	5 HEW9 HERB 8150 NONE 2.5L	6 OPW9 ORGANOPEST 8140 NONE 2.5L	7 APPSMET METALS 6000/7000 HNO3 1L	8 CNW CYANIDE 9010/9012M NaOH 0.5GAL	TICS (Y/N)	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME
	08MW005I	7/26/94	10:45	W		X	5	3	1	1					N	
	08MW005S	7/26/94	11:55	W		X	5	3	1	1					Y	
	15MW004S	7/26/94	14:45	W		X	5	3	1	1					Y	
	08T030	7/26/94	07:30	W		X	3	3							N	
TOTAL PARAMETERS PER COLUMN							18	12	3	3	0	0	0	0		

NEESA QC LEVEL C

NOTES: SENT TO QAL REDDING, CA LAB

RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Larry W Smith	7/26/94	17:13							
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPING AIRBILL NUMBER:

0035130174 SHIPPED VIA FEDERAL EXPRESS

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1EGW WK3

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 072694B DATE: 07/26/94

ABB-ES
Task Order #: 028
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO: PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 08/26/94

LAB TEST CODES

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	1 TOTAL CONTAINERS	2 MVW9 VOC 8240 HCL 40 ml	3 SVW9MP SVOC 8270 NONE 2.5L	4 PPW91 P/PCB 8080 M NONE 2.5L	5 HEW9 HERB 8150 NONE 2.5L	6 OPW9 ORGANOPEST 8140 NONE 2.5L	7 APP9MET METALS 6000/7000 HNO3 1L	8 CNW CYANIDE 9010/9012M NaOH 0.5GAL		TICS (Y/N)	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	Lab Batch No.
	08MW005I	7/26/94	10:45	W		X	2						1	1		N		
	08MW005S	7/26/94	11:55	W		X	2						1	1		N		
Sulfide Removed for CN-	15MW004S	7/26/94	14:45	W		X	2						1	1		N		
TOTAL PARAMETERS PER COLUMN							6	0	0	0	0	0	3	3				

NOTES: SENT TO REDDING, CA LAB

NEESA QC LEVEL D

RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[signature]	7/26/94	17:14							
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPING AIRBILL NUMBER:

0035130174 SHIPPED VIA FEDERAL EXPRESS

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201EGW_M WK3

ABB ENVIRONMENTAL SERVICES, INC.

SDG # | COC # 072694C | DATE: 07/26/94

ABB-ES
Task Order #:
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO: PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 08/26/94

Lab Batch No.

Sample Type	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	LAB TEST CODES 1 TOTAL CONTAINERS	2 TDS (1) TDS See Below NONE 1 L	3 TKN (2) TKN See Below H2SO4 1 L	4 SW1 SULFIDE 376.1 NaOH/ZnAc 500 mL	5 TOC TOC 415.1/415.2 H2SO4 250 mL	6 O&GLI OIL/GREASE 413.1 H2SO4 1 L	7 TPHW TRPH 418.1 H2SO4 1 L	8	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME
	08MW005I	7/26/94	10:45	W		X	5	1	1	1	1	1			
	08MW005S	7/26/94	11:55	W		X	5	1	1	1	1	1			
	15MW004S	7/26/94	14:45	W		X	5	1	1	1	1	1			
TOTAL PARAMETERS/CONTAINERS SAMPLED							15	3	3	3	3	3	0		

NEESA QC LEVEL E

NOTES:
(1) Parameters analyzed in this bottle include: TDS (160.1), CL (325.1/325.2/325.3/300), ALK (310.1), hard (130.2), SO4 (375.4/375.2/300), APHA (110.2); and pH (150.1).
(2) Parameters analyzed in this bottle include: TKN (351.3), NH3 (350.1/350.2), N/NAW (353.2/353.3/300), TPO4 (365.1/365.2/365.3/365.4).

SENT TO CAL LAB - REDDING, CA

RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Larry W Smith	7/26/94	17:15							
RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPING AIRBILL NUMBER:
0035130174 SHIPPED VIA FEDERAL EXPRESS

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COC-ENVM.WK3

ABB ENVIRONMENTAL SERVICES, INC.

SDG # [redacted] COC # 090894A DATE: 09/08/94

ABB-ES
Task Order #: 028
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO: PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 10/08/94

LAB TEST CODES

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	1 TOTAL CONTAINERS	2 MW9 VOC 8240 HCL 40 ml	3 SVW9MP SVOC 8270 NONE 2.5L	4 PPW91 P/PCB 8080 M NONE 2.5L	5 HEW9 HERB 8150 NONE 2.5L	6 OPW9 ORGANOPEST 8140 NONE 2.5L	7 APP9MET METALS 6000/7000 HNO3 1L	8 CNW CYANIDE 9010/9012M NaOH 0.5GAL	TICS (Y/N)	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	Lab Batch No.
	0BSW015	09/08/94	08:10	W		X	7	3	1	1			1	1	N		
	0BSW014	09/08/94	08:45	W		X	7	3	1	1			1	1	N		
	0BSW013	09/08/94	09:20	W		X	7	3	1	1			1	1	N		
	0BSW012	09/08/94	10:10	W		X	7	3	1	1			1	1	N		
	0BSW012D	09/08/94	10:10	W		X	7	3	1	1			1	1	N		
	0BSW012MS	09/08/94	10:10	W		X	7	3	1	1			1	1	N		
	0BSW012MSD	09/08/94	10:10	W		X	7	3	1	1			1	1	N		
	0BSW010	09/08/94	10:45	W		X	7	3	1	1			1	1	N		
	0BSW011	09/08/94	11:10	W		X	7	3	1	1			1	1	N		
	0BT075	09/08/94	07:00	W		X	3	3							N		
TOTAL PARAMETERS PER COLUMN							66	30	9	9	0	0	9	9			

NOTES: SENT TO QAL MONTGOMERY, AL LAB

NEESA QC LEVEL C

SAMPLED/RELINQUISHED BY	DATE	TIME	RECEIVED BY:
Michael O. Jaynes	9/8/94	1630	Amy D. Johnson
RELINQUISHED BY	DATE	TIME	RECEIVED BY:
RELINQUISHED BY	DATE	TIME	RECEIVED BY:

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Amy D. Johnson	9/8/94	1900			
RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPING AIRBILL NUMBER:

01 33637626 SHIPPED VIA FEDERAL EXPRESS

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[redacted]

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 082994B DATE: 08/29/94

ABB-ES
Task Order #: 028
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 09/29/94

Lab Batch No.

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE: COMP	SAMPLE TYPE: GRAB	LAB TEST CODES 1: TOTAL CONTAINERS	2: MVWS VOC 8240 HCL 40 ml	3: SVWSMP SVOC 8270 NONE 2.5L	4: PPW91 P/PCB 8080 M NONE 2.5L	5: HEW9 HERB 8150 NONE 2.5L	6: OPW9 ORGANOPEST 8140 NONE 2.5L	7: APPSMET METALS 6000/7000 HNO3 1L	8: CNW CYANIDE 9010/9012M NaOH 0.5 GAL	TICS (Y/N)	CAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME
Sulfide Removed	02MW038I	08/28/94	10:45	W		X	2						1	1	N	
Sulfide Removed	02MW038D	08/28/94	15:40	W		X	2						1	1	N	
Filtered Metals	02MW038DF	08/28/94	15:40	W		X	1						1		N	
	02MW036D	08/28/94	18:00	W		X	2						1	1	N	
Sulfide Removed	02MW034I	08/28/94	19:00	W		X	2						1	1	N	
	08MW005D	08/29/94	10:15	W		X	2						1	1	N	
TOTAL PARAMETERS PER COLUMN							11	0	0	0	0	0	6	5		

NEESA QC LEVEL D

NOTES: SENT TO REDDING CA. LAB

SAMPLED/RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Robert F. Burns Jr.	8-29-94	16:00	Michael O. Jaynes	Michael O. Jaynes	8/29/94	1630			
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPING AIRBILL NUMBER:
0035130340 SHIPPED VIA FEDERAL EXPRESS

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C8533B.WK3

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 082994C DATE: 08/29/94

ABB-ES
Task Order #:
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 09/29/94

LAB TEST CODES

Lab Batch No.

Sample Type	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TOTAL CONTAINERS	1 TDS (1) TDS See Below NONE 1 L	2 TKN (2) TKN See Below H2SO4 1 L	3 SW1 SULFIDE 376.1 NaOH/ZnAc 500 mL	4 TOC TOC 415.1/415.2 H2SO4 250 mL	5 O&GLI OIL/GREASE 413.1 H2SO4 1 L	6 TPHW TRPH 418.1 H2SO4 1 L	7	8	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME
	02MW038I	08/28/94	10:45	W		X	5	1	1	1	1	1				
	02MW038D	08/28/94	15:40	W		X	5	1	1	1	1	1				
	02MW036D	08/28/94	18:00	W		X	5	1	1	1	1	1				
	02MW034I	08/28/94	19:00	W		X	5	1	1	1	1	1				
TOTAL PARAMETERS/CONTAINERS SAMPLED							20	4	4	4	4	4	0			

NEESA QC LEVEL E

NOTES:
(1) Parameters analyzed in this bottle include: TDS (160.1), CL (325.1/325.2/325.3/300), ALK (310.1), hard (130.2), SO4 (375.4/375.2/300), APHA (110.2), and pH (150.1).
(2) Parameters analyzed in this bottle include: TKN (351.3), NH3 (350.1/350.2), N/NAW (353.2/353.3/300), TPO4 (365.1/365.2/365.3/365.4).

SENT TO QAL LAB - REDDING, CA

SAMPLED/RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Robert J. Hummel	8-29-94	16:00	Michael O. Jayner	Michael O. Jayner	8/29/94	1630			
RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPING AIRBILL NUMBER:
0035130340 SHIPPED VIA FEDERAL EXPRESS

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082994C.WK3

ABB ENVIRONMENTAL SERVICES, INC.

SDG

COC # 090894E

DATE: 9/08/94

ABB-ES
Task Order #:
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 Fax

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO: PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 10/08/94

Lab Batch No.

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	LAB TEST CODES 1 TOTAL CONTAINERS	2 MVW9 VOC 8240 HCL 3 x 40 ml	3 MVS9 VOC 8240 NONE 2 X 2 oz	4 SVS9MP/PPS91 SVOC/PEST/PCB 8270/8080M NONE 8 oz	5 APP9MET/CNS METALS/CN 6000/7000 NONE 8 oz	6 MVS9 VOC 8240 NONE SLEEVE	7 SVS9MP/PPS91/APP9MET/CNS SVOC/PEST/PCB/METALS/CN 8270/8080M/6000/7000 NONE SLEEVE	8 TOC TOC 415.1/415.2 NONE 4 oz	TICS (Y/N)	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME
	0BSD015	09/08/94	08:00	S		X	4		2	1	1				N	
	0BSD014	09/08/94	08:35	S		X	4		2	1	1				N	
	0BSD013	09/08/94	09:10	S		X	4		2	1	1				N	
	0BSD012	09/08/94	10:00	S		X	4		2	1	1				N	
**See Note Below	0BSD012D	09/08/94	10:00	S		X	0								N	
	0BSD012MS	09/08/94	10:00	S		X	4		2	1	1				N	
**See Note Below	0BSD012MSD	09/08/94	10:00	S		X	0								N	
	0BSD010	09/08/94	10:35	S		X	4		2	1	1				N	
	0BSD011	09/08/94	11:00	S		X	4		2	1	1				N	
	0BT075	09/08/94	07:00	W		X	3	3							N	
TOTAL PARAMETERS PER COLUMN							31	3	14	7	7	0	0	0		NEESA QC LEVEL C

NOTES: SENT TO QAL LAB MONTGOMERY, AL

**0BSD012 and 0BSD012D should be taken from same bottle set.
0BSD012MS and 0BSD012MSD should also be taken from same bottle set.

SAMPLE(S) RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Michael O. Jayne	9/8/94	1630	Amy D. Johnson	Amy D. Johnson	9/8/94	1900			
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPING AIRBILL NUMBER:

01 33637626 SHIPPED VIA FEDERAL EXPRESS

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ABB ENVIRONMENTAL SERVICES, INC.

SDG # [redacted] COC # 082994A DATE: 08/29/94

ABB-ES
Task Order #: 028
Job #: 8533-04

Tallahassee Ph#:
(904) 656-1293
Field Office Ph#:
(904) 246-0205
(904) 246-7473 FAX

PROJECT NAME: NAVSTA MAYPORT
SITE NAME: MAYPORT
PROJECT MANAGER: PEGGY LAYNE
COPY TO:PEGGY LAYNE & FRANK LESESNE
REQ. COMPLETION DATE: 09/29/94

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	LAB TEST CODES 1 TOTAL CONTAINERS	2 MW9 VOC 8240 HCL 40 ml	3 SVW9MP SVOC 8270 NONE 2.5L	4 PPW91 P/PCB 8080 M NONE 2.5L	5 HEW9 HERB 8150 NONE 2.5L	6 OPW9 ORGANOPEST 8140 NONE 2.5L	7 APP9MET METALS 6000/7000 HNO3 1L	8 CNW CYANIDE 9010/9012M NaOH 0.5GAL	HCW VOC 8010 HCL 40 ml	TICS (Y/N)	QAL LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	Lab Batch No.
	02MW038I	08/28/94	10:45	W		X	5	3	1	1						N		
	02MW038D	08/28/94	15:40	W		X	5	3	1	1						N		
	02MW036D	08/28/94	18:00	W		X	5	3	1	1						N		
	02MW034I	08/28/94	19:00	W		X	5	3	1	1						N		
	08MW005D	08/29/94	10:15	W		X	5	3	1	1						N		
	02T068	08/28/94	10:00	W		X	3	3								N		
	08T070	08/29/94	07:45	W		X	3	3								N		
TOTAL PARAMETERS PER COLUMN							31	21	5	5	0	0	0	0	0			

NOTES: SENT TO QAL REDDING, CA LAB

NEESA QC LEVEL C

SAMPLED/RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Robert J. Barnes	8-29-94	16:00	Michael O. Jaynes	Michael O. Jaynes	8/29/94	1630			
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY	DATE	TIME	RECEIVED BY:	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

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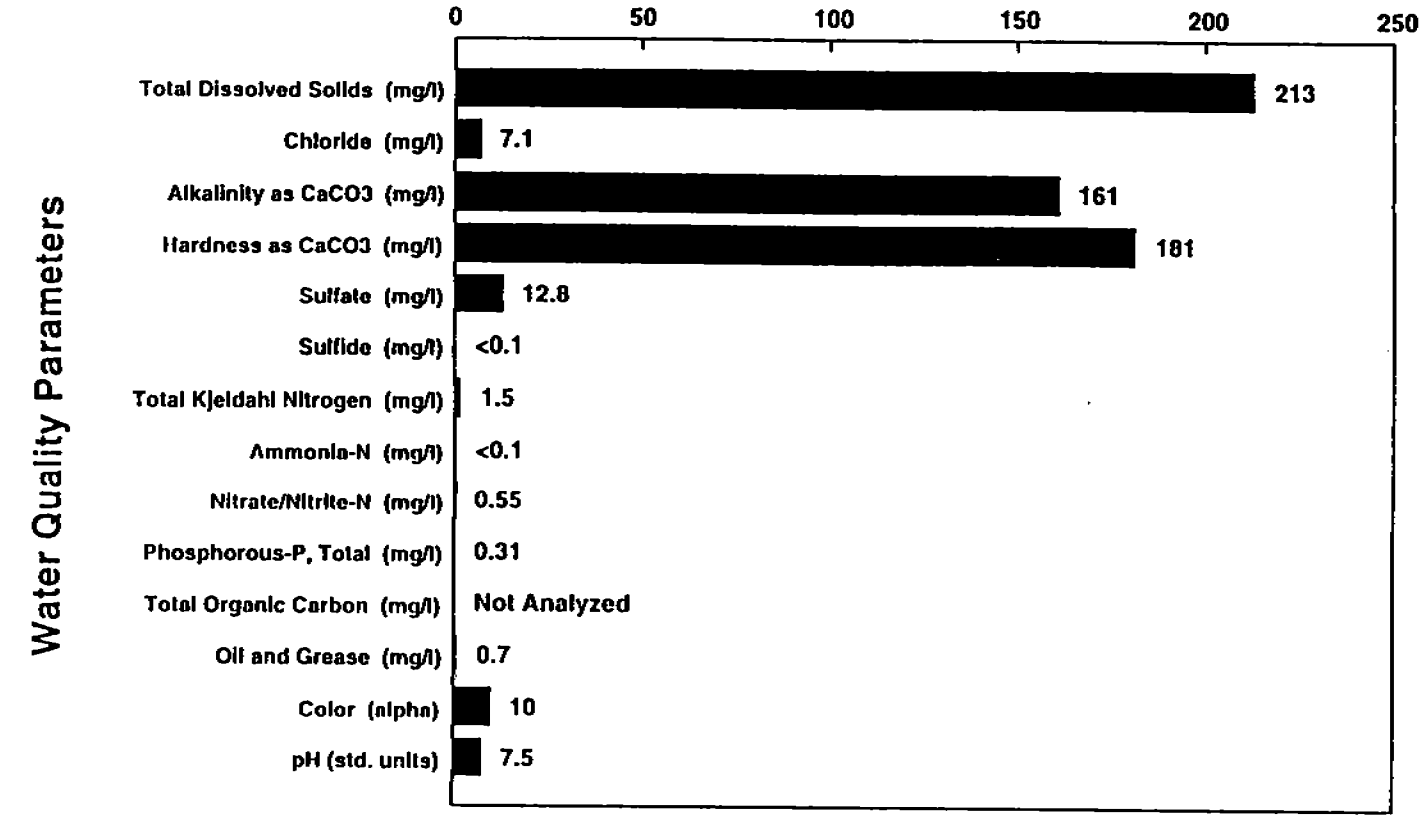
APPENDIX C-3

GROUNDWATER QUALITY BAR GRAPHS

NAVSTA MAYPORT RCRA FACILITY INVESTIGATION



General Groundwater Quality at Monitor Well MPT-1-MW1S

FIGURE C-3-1

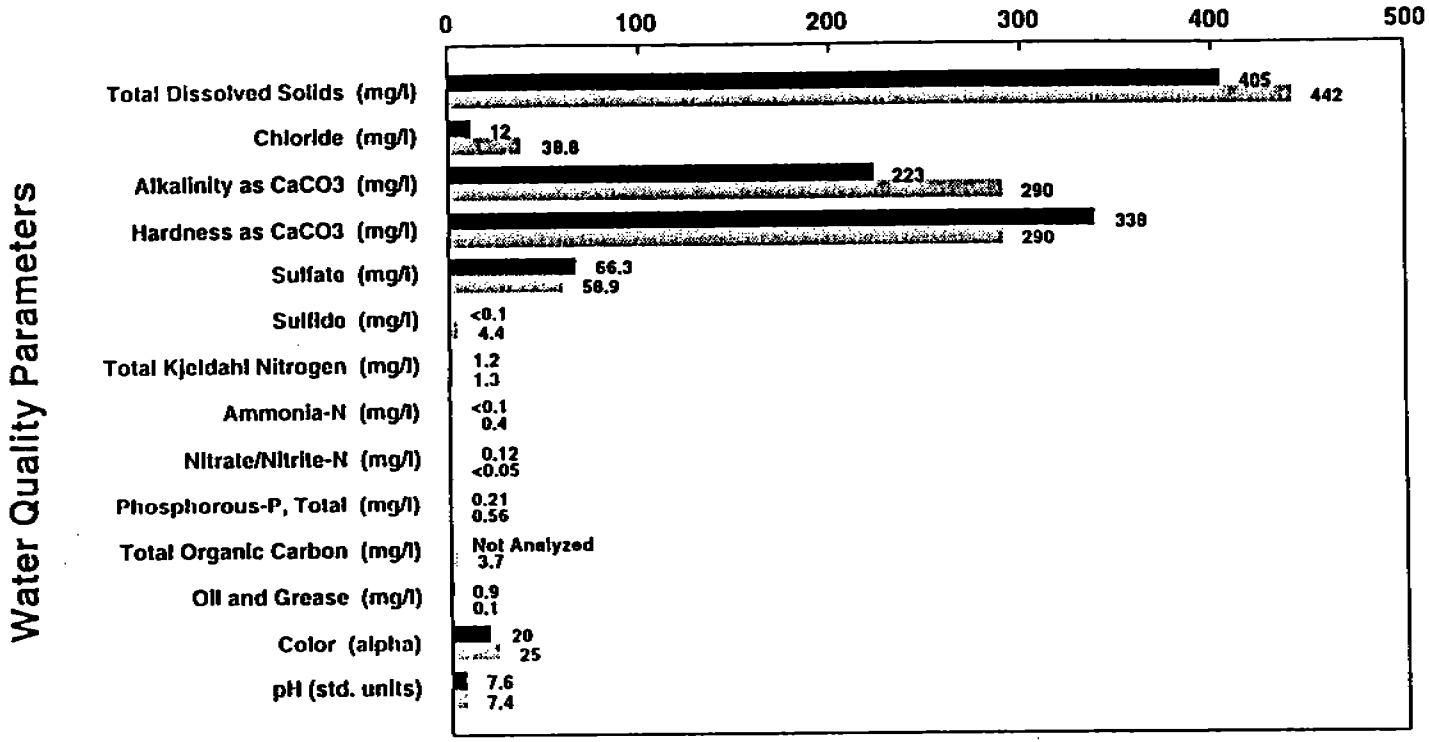
GENERAL GROUNDWATER QUALITY AT MONITOR WELL LOCATION MPT-1-MW1S

RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT

U.S. NAVAL STATION MAYPORT FLORIDA

8533-29 071195MAW

NAVSTA MAYPORT RCRA FACILITY INVESTIGATION



General Groundwater Quality at Monitor Well MPT-S-MW1S

Sample Collected on February 12, 1992 Sample Collected on January 28, 1993

FIGURE C-3-2

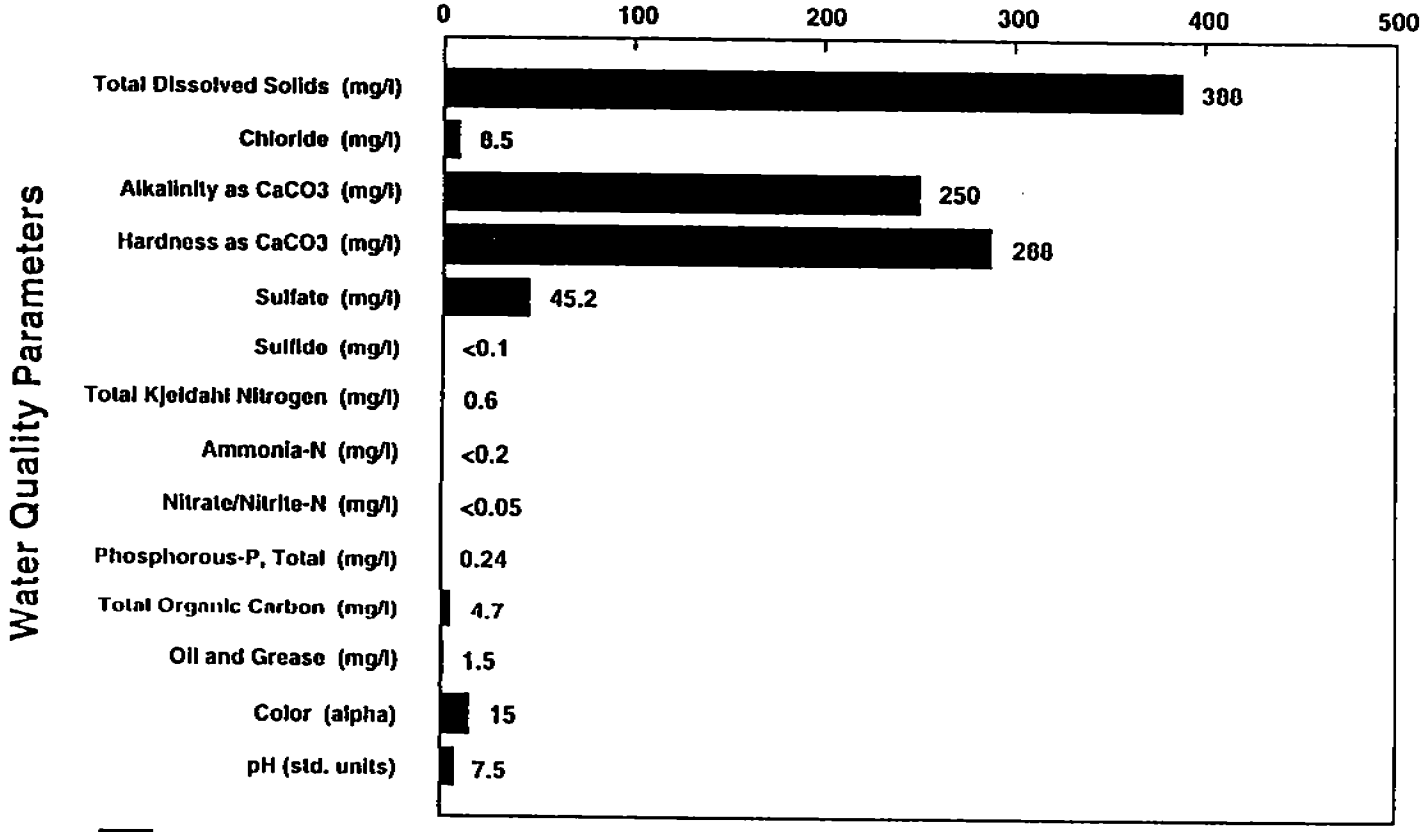
GENERAL GROUNDWATER QUALITY AT MONITOR WELL LOCATION MPT-S-MW1S

RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT

U.S. NAVAL STATION MAYPORT FLORIDA

8533-29 071195MAW

NAVSTA MAYPORT RCRA FACILITY INVESTIGATION



General Groundwater Quality at Monitor Well MPT-8-MW5S

FIGURE C-3-3

GENERAL GROUNDWATER QUALITY AT MONITOR WELL LOCATION MPT-8-MW5S

RCRA CORRECTIVE ACTION PROGRAM GENERAL INFORMATION REPORT

U.S. NAVAL STATION MAYPORT FLORIDA

8533-29 071195MAW

APPENDIX D

HUMAN HEALTH

APPENDIX D-1

HUMAN HEALTH SCREENING VALUES

Table D-1-1
Identification of Background Screening Concentrations
Surface Soil

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Chemical	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Concentration[4]
Pesticides/PCBs (µg/kg)					
4,4'-DDE	1/6	2.3 - 2.3	0.7 - 2.3	2.3	NA
Inorganics (mg/kg)					
Barium	6/6	0.76 - 5	NR	2.8	5.6
Beryllium	2/6	0.06 - 0.09	0.06 - 0.07	0.08	0.16
Cadmium	1/6	1 - 1	0.83 - 0.96	1	2
Chromium	6/6	0.68 - 2.5	NR	1.3	2.6
Copper	1/6	1.1375* - 1.1375*	0.35 - 0.41	1.1	2.2
Selenium	5/6	0.47 - 0.86	0.45 - 0.45	0.68	1.36
Thallium	4/6	0.77 - 1.1	0.53 - 0.62	0.9	1.8
Vanadium	5/6	1.45* - 2.5	0.46 - 0.46	2	4
Zinc	6/6	0.71 - 1.9	NR	1.3	2.6

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values). The following samples were analyzed: MPT-B-SS1, MPT-B-SS2, MPT-B-SS3, MPT-B-SS4, MPT-B-SS5, MPT-B-SS6, and a duplicate, MPT-B-SS1DUP.

[2] A value indicated by an asterisk is the average of the detected concentrations in a sample and its duplicate. For nondetect values, one-half the contract-requited quantitation limit/contract-required deteciton limit (CRQL/CRDL) is used as a surrogate.

[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.

[4] The background screening value is two times the mean detected concentration for inorganic analytes.

Notes: PCBs = polychlorinated biphenyls.
µg/kg = micrograms per kilograms.
DDE = Dichlorodiphenyldichloroethane.
NA = not applicable
mg/kg = milligrams per kilograms.
NR = range of reporting limits not applicable because the analyte was detected in every sample.

Table D-1-2
Identification of Background Screening Concentrations
Subsurface Soil

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Chemical	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Concentration[4]
Semivolatiles (µg/kg)					
Benzoic acid	1/4	110 - 110	110 - 1,900	110	NA
Pesticides/PCBs (µg/kg)					
4,4'-DDE	1/4	3.5 - 3.5	0.7 - 3.5	3.5	NA
Inorganics (mg/kg)					
Arsenic	3/4	0.33 - 0.505*	0.13 - 0.13	0.45	0.9
Barium	4/4	1.9 - 6.8	NR	3.6	7.2
Beryllium	1/4	0.07* - 0.07*	0.07 - 0.07	0.07	0.14
Chromium	3/4	1.4 - 2.25*	0.57 - 0.57	1.7	3.4
Cobalt	1/4	0.52* - 0.52*	0.335 - 0.7	0.52	1.04
Copper	2/4	1.4 - 2.15*	0.2 - 0.9	1.8	3.6
Lead	2/4	0.84* - 1.9	0.58 - 0.59	1.4	2.8
Mercury	3/4	0.03 - 0.04*	0.015 - 0.03	0.03	0.06
Tin	4/4	2.2 - 3.4*	NR	2.7	5.4
Vanadium	4/4	0.71 - 2.5	NR	1.6	3.2
Zinc	4/4	2 - 2.85*	NR	2.4	4.8
Cyanide	1/4	0.32* - 0.32*	2.7 - 2.7	0.33	0.66

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed. The following samples were analyzed: MPT-B-BS1, MPT-B-BS4, MPT-B-BS5, MPT-B-BS6, and a duplicate, MPT-B-BS1DUP.

[2] A value indicated by an asterisk is the average of the detected concentrations in a sample and its duplicate. For nondetect values, one-half the contract-requited quantitation limit/contract-required deteciton limit (CRQL/CRDL) is used as a surrogate.

[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.

[4] The background screening concentration is two times the mean detected concentration for inorganic analytes.

Notes: µg/kg = micrograms per kilograms.
NA = not applicable
PCBs = polychlorinated biphenyls.
DDE = Dichlorodiphenyldichloroethane.
mg/kg = milligrams per kilograms.
NR = range of reporting limits not applicable because the analyte was detected in every sample.

Table D-1-3
Background Screening Concentrations
Groundwater

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Chemical	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Concentration[4]
Volatiles (µg/ℓ)					
Acetone	1/12	16 - 16	3 - 44	16	NA
Bromodichloromethane	1/12	2 - 2	5 - 5	2	NA
Carbon disulfide	1/12	1 - 1	5 - 5	1	NA
Chloroform	2/12	2 - 3	5 - 5	2.5	NA
Semivolatiles (µg/ℓ)					
3- & 4-Methylphenol (2)	1/12	29 - 29	10 - 20	29	NA
Benzo(a)anthracene	1/12	2 - 2	10 - 10	2	NA
bis(2-Ethylhexyl)phthalate	3/12	5.5* - 7	5 - 10	6.2	NA
Inorganics (µg/ℓ)					
Arsenic	7/12	0.6 - 14.3	0.4 - 6	4.9	9.8
Barium	8/12	0.66 - 75.5	1.2 - 3.3	19.5	39.0
Calcium	12/12	65,000 - 251,000	NR	103,733	207,466
Chromium	2/12	3.7 - 6.6	2 - 2.6	5.2	10.4
Copper	1/12	1.4 - 1.4	0.9 - 12.7	1.4	2.8
Iron	10/12	15.4 - 3,540	68.2 - 78.6	864	1,728
Lead	3/12	1.4 - 2.5	0.6 - 6	1.8	2.6
Magnesium	10/12	2,860 - 419,000	18,800 - 19,700	76,992	153,984
Manganese	10/12	7.1 - 397	20.1 - 23.6	105	210
Mercury	2/12	0.06* - 0.1	0.04 - 0.5	0.08	0.16
Selenium	3/12	0.63 - 15.1*	0.6 - 13.2	5.9	11.8
Sodium	8/10	5,880 - 3,310,000	31,500 - 39,500	759,508	1,519,016
Vanadium	9/12	2.2 - 9.4	1.5 - 2.6	4.6	9.2
Zinc	5/12	2.4 - 63.4	1.82 - 8.8	20.8	41.6
Cyanide	1/12	0.95 - 0.95	0.81 - 5	0.95	1.9

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed. Samples are from shallow and intermediate wells. The following samples were analyzed: 01MW001, 08MW005S, 0BMW001S, 0SMW001R, 8MW5S, MPT-1-MW1-1, MPT-S-1-S, S-1, 08MW005I, 0BMW001I, 08MW005D, and 0BMW001D, and a duplicate, 0SMW001RD.

[2] A value indicated by an asterisk is the average of the detected concentrations in a sample and its duplicate. For nondetect values, one-half the contract-requited quantitation limit/contract-required deteciton limit (CRQL/CRDL) is used as a surrogate.

[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.

[3] The background screening concentration is two times the mean of detected concentrations for inorganic analytes.

Notes: µg/l = micrograms per liter.
NA = not applicable.

Table D-1-4
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Acephate	30560191	C	330	73			
Acetaldehyde	75070	NA	NA	NA			
Acetochlor	34256821	N	2,050	160			
Acetone	67641	N	10,000	780	130	89	1.4
Acetone cyanohydrin	75865	N	7,000	550			
Acetonitrile	75078	N	600	47			
Acetophenone	98862	N	10,000	780			
Acifluorfen	62476599	N	1,350	100			
Acrolein	107028	N	2,050	160	0.2	0.13	0.3
Acrylamide	79061	C	0.65	0.14			
Acrylic acid	79107	N	50,000	3,900			
Acrylonitrile	107131	C	5.5	1.2	0.08	0.1	0.02
Alachlor	15972608	C	36	8	14	56	NC
Alar	1596845	N	15,500	1,200			
Aldicarb	116063	N	100	7.8			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Aldicarb sulfone	1646884	N	100	7.8			
Aldrin	309002	C	0.17	0.038	0.06	0.2	0.05
Ally	74223646	N	25,500	2,000			
Allyl alcohol	107186	N	500	39			
Allyl chloride	107051	N	5,000	390			
Aluminum	7429905	N	50,000	7,800	75,000	NS[5]	NC
Aluminum phosphide	20859738	N	41	3.1			
Amdro	67485294	N	30.5	2.3			
Ametryn	834128	N	900	70			
m-Aminophenol	591275	N	7,000	550			
4-Aminopyridine	504245	N	2.05	0.16			
Amitraz	33089611	N	255	20			
Ammonia	7664417	NA	NA	NA			
Ammonium sulfamate	7773060	N	20,500	1,600			
Aniline	62533	C	500	110			
Antimony and compounds	7440360	N	41	3.1	26	21	NC
Antimony pentoxide	1314609	N	50	3.9			

See notes at end of table

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Antimony potassium tartrate	304610	N	90	7			
Antimony tetroxide	1332316	N	41	3.1			
Antimony trioxide	1309644	N	41	3.1			
Apollo	74115245	N	1,350	100			
Aramite	140578	C	115	26			
Arsenic	7440382	N	30.5	2.3			
Arsenic (as carcinogen)	7440382	C	1.65	0.37	0.7	3	NC
Arsine	7784421	N	NA	NA			
Assure	76578148	N	900	70			
Asulam	3337711	N	5,000	390			
Atrazine	1912249	C	13	2.9	5	20	0.2
Avermectin B1	65195553	N	41	3.1			
Azobenzene	103333	C	26	5.8			
Barium and compounds	7440393	N	7,000	550	5,000	7,400	NC
Baygon	114261	N	410	31			
Bayleton	43121433	N	3,050	230			
Baythroid	68359375	N	2,550	200			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Benefin	1861401	N	30,500	2,300			
Benomyl	17804352	N	5,000	390			
Bentazon	25057890	N	255	20			
Benzaldehyde	100527	N	10,000	780			
Benzene	71432	C	100	22	0.8	1.1	0.003
Benzoenethiol	108985	N	1	0.078			
Benzidine	92875	C	0.0125	0.0028			
Benzoic acid	65850	N	50,000	31,000	83,000	68,000	56
Benzotrichloride	98077	C	0.22	0.049			
Benzyl alcohol	100516	N	30,500	2,300	23,000	48,000	4.6
Benzyl chloride	100447	C	17	3.8			
Beryllium and compounds	7440417	C	0.65	0.15	0.1	0.2	NC
alpha-BHC	319846	C	0.4555	0.1	0.2	0.5	0.002
beta-BHC	319857	C	1.6	0.35	0.6	2.3	0.005
delta-BHC	319868	N			23	46	0.007
Bidrin	141662	N	10	0.78			
Biphenthrin (Talstar)	82657043	N	1,550	120			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
1,1-Biphenyl	92524	N	5,000	390			
Bis(2-chloroethoxy)methane	111911	N			150	210	0.03
Bis(2-chloroethyl)ether	111444	C	2.6	0.58	0.3	0.5	0.005
Bis(2-chloroisopropyl)ether	39638329	C	41	9.1			
Bis(chloromethyl)ether	542881	C	0.013	0.0029			
Bis(2-chloro-1-methylethyl)ether	NA	C	41	9.1			
Bis(2-ethylhexyl)phthalate (DEHP)	117817	C	205	46	45	100	11
Bisphenol A	80057	N	5,000	390			
Boron (and borates)	7440428	N	9,000	700	7,000	18,000	NC
Boron trifluoride	7637072	NA	NA	NA			
Bromodichloromethane	75274	C	46	10	0.4	0.5	0.002
Bromoethene	593602	NA	NA	NA			
Bromoform (tribromomethane)	75252	C	360	81	43	75	0.02
Bromomethane	74839	N	145	11			
4-Bromophenyl phenyl ether	101553	N	6,000	450			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Bromophos	2104963	N	500	39			
Bromoxynil	1689845	N	2,050	160			
Bromoxynil octanoate	1689992	N	2,050	160			
1,3-Butadiene	106990	NA	NA	NA			
1-Butanol	71363	N	10,000	780			
2-Butanone	78933	N	50,000	4,700	2,500	1,700	8.8
Butyl benzyl phthalate	85687	N	20,500	1,600	15,000	30,000	960
Butylate	2008415	N	5,000	390			
sec-Butylbenzene	135988	N	1,000	78			
tert-Butylbenzene	104518	N	1,000	78			
Butylphthalyl butylglycolate	85701	N	50,000	7,800			
Cacodylic acid	75605	N	305	23			
Cadmium and compounds	7440439	N	50	3.9	37	60	NC
Calcium		N	1,000,000[6]				
Caprolactam	105602	N	50,000	3,900			
Captafol	2425061	C	335	74			
Captan	133062	C	800	180			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Carbaryl	63252	N	10,000	780	7,500	15,000	4.6
Carbofuran	1563662	N	500	39	370	740	0.1
Carbon disulfide	75150	N	10,000	780	2.6	1.8	2.5
Carbon tetrachloride	56235	C	22	4.9	0.3	0.4	0.02
Carbosulfan	55285148	N	1,000	78			
Carboxin	5234684	N	10,000	780			
Chloral	75876	N	205	16			
Chloramben	133904	N	1,550	120			
Chloranil	118752	C	7	1.6			
Chlordane	57749	C	2.2	0.49	0.8	2.8	2.1
Chlorimuron-ethyl	90982324	N	2,050	160			
Chlorine	7782505	N	10,000	780			
Chlorine dioxide	10049044	NA	NA	NA			
Chloroacetaldehyde	107200	N	700	54			
Chloroacetic acid	79118	N	205	16			
2-Chloroacetophenone	532274	NA	NA	NA			
4-Chloroaniline	106478	N	410	31	190	230	0.08

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Chlorobenzene	108907	N	2,050	160	19	13	0.6
Chlorobenzilate	510156	C	10.5	2.4			
p-Chlorobenzoic acid	74113	N	20,500	1,600			
4-Chlorobenzotrifluoride	98566	N	2,050	160			
2-Chloro-1,3-butadiene	126998	N	2,050	160			
1-Chlorobutane	109693	N	41,000	3,100			
Chlorodibromomethane	124481	C	34	7.6			
Chlorodifluoromethane	75456	NA	NA	NA			
Chloroethane	75003	N	41,000	3,100			
2-Chloroethyl vinyl ether	110758	N	2,550	200	130	92	0.003
Chloroform	67663	C	470	100	0.3	0.4	0.02
Chloromethane	74873	C	220	49	0.1	0.2	0.01
4-Chloro-2,2-methylaniline hydrochloride	3165933	C	6	1.4			
4-Chloro-2-methylaniline	95692	C	4.95	1.1			
p-Chloro-m-cresol	59507	N			1,200	1,800	42
beta-Chloronaphthalene	91587	N	8,000	630	1,700	1,400	55

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
o-Chloronitrobenzene	88733	C	115	26			
p-Chloronitrobenzene	121733	C	160	35			
2-Chlorophenol	95578	N	500	39	220	250	0.3
2-Chloropropane	75296	NA	NA	NA			
Chlorothalonil	1897456	C	260	58			
o-Chlorotoluene	95498	N	2,050	160			
Chlorpropham	101213	N	20,500	1,600			
Chlorpyrifos	2921882	N	305	23	170	220	3.8
Chlorpyrifos-methyl	5598130	N	1,000	78			
Chlorsulfuron	64902723	N	5,000	390			
Chlorthiophos	60238564	N	80	6.3			
Chromium III and compounds	16065831	N	50,000	7,800	66,000	54,000	NC
Chromium VI and compounds	7440473	N	500	39	150	22	NC
Coal tar	8001589	NA	NA	NA			
Cobalt	7440484	N	6,000	470	4,700	11,000	NC
Coke Oven Emissions	8007452	NA	NA	NA			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Copper and compounds	7440508	N	3,800	290	2,900	7,200	NC
Coumaphos	56724	N			19	40	NC
Crotonaldehyde	123739	C	1.5	0.34			
Cumene	98828	N	4,100	310			
Cyanides:							
Barium cyanide	542621	N	10,000	780			
Calcium cyanide	592018	N	4,100	310			
Copper cyanide	544923	N	500	39			
Cyanazine	21725462	C	3.4	0.76			
Cyanogen	460195	N	4,100	310			
Cyanogen bromide	506683	N	9,000	700			
Cyanogen chloride	506774	N	5,000	390			
Free cyanide	57125	N	2,050	160	1,600	4,000	NC
Hydrogen cyanide	74908	N	2,050	160			
Potassium cyanide	151508	N	5,000	390			
Potassium silver cyanide	506616	N	20,500	1,600			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

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Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Silver cyanide	506649	N	10,000	780			
Sodium cyanide	143339	N	4,100	310			
Zinc cyanide	557211	N	5,000	390			
Cyclohexanone	108941	N	50,000	39,000			
Cyclohexlamine	108918	N	20,500	1,600			
Cyhalothrin/Karate	68085858	N	500	39			
Cypermethrin	52315078	N	1,000	78			
Cyromazine	66215278	N	750	59			
Dacthal (DCPA)	1861321	N	1,000	78			
Dalapon	75990	N	3,050	230	2,300	4,800	NC
Danitol	39515418	N	2,550	200			
4,4'DDD	72548	C	12	2.7	4.4	17	0.2
4,4'DDE	72559	C	8.5	1.9	2.9	9.9	0.2
4,4'DDT	50293	C	8.5	1.9	3.1	12	0.5
Decabromodiphenyl ether	1163195	N	1,000	78			
Demeton	8065483	N	4.1	0.31	3.1	6.4	NC
Diallate	2303164	C	47	10			

See notes at end of table

Table D-1-4 (Continued)
Soil Screening Values

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Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[2]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Diazinon	333415	N	90	7	64	120	0.04
Dibenzofuran	132649	N	410	31	200	240	NC
1,4-Dibromobenzene	106376	N	1,000	78			
Dibromochloromethane (Not in current RBC table)	124481	C			0.6	0.9	0.004
1,2-Dibromo-3-chloropropane (DBCP)	96128	C	2.05	0.46			
1,2-Dibromoethane	106934	C	0.0335	0.0075	0.01	0.04	0.00006
Dibutyl phthalate	84742	N	10,000	780	7,500	15,000	240
Dicamba	1918009	N	3,050	230	2	1.3	0.4
1,2-Dichlorobenzene	95501	N	9,000	700	420	300	5.8
1,3-Dichlorobenzene	541731	N	9,000	700	960	710	0.4
1,4-Dichlorobenzene	106467	C	120	27	4.2	6	0.9
3,3'-Dichlorobenzidine	91941	C	6.5	1.4			
1,4-Dichloro-2-butene	764410	NA	NA	NA			
Dichlorodifluoromethane	75718	N	20,500	1,600			
1,1-Dichloroethane	75343	N	10,000	780	160	110	2.3
1,2-Dichloroethane (EDC)	107062	C	31.5	7	0.4	0.5	0.008

See notes at end of table.

Table D-1-4 (Continued)
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Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
1,1-Dichloroethylene	75354	C	4.75	1.1			
1,2-Dichloroethylene (cis)	156592	N	1,000	78	13	9	0.2
1,2-Dichloroethylene (trans)	156605	N	2,050	160	33	22	0.3
1,2-Dichloroethylene (mixture)	540590	N	900	70			
2,4-Dichlorophenol	120832	N	305	23	210	350	0.02
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	N	1,000	78	59	42	0.2
4-(2,4-Dichlorophenoxy)butyric Acid	94826	N	800	63	610	1,200	NC
1,2-Dichloropropane	78875	C	42	9.4	0.4	0.6	0.02
2,3-Dichloropropanol	616239	N	305	23			
1,3-Dichloropropene	542756	C	16.5	3.7	0.1	0.2	0.003
Dichlorprop	120365	N			3.8	1.5	NC
Dichlorvos	62737	C	10	2.2	3.8	15	0.0003
Dicofol	115322	C	6.5	1.5	92	1,800	NC
Dicyclopentadiene	77736	N	3,050	230			
Dieldrin	60571	C	0.18	0.04	0.07	0.3	0.02

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

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Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Diesel emissions	NA	NA	NA	NA			
Diethyl phthalate	84662	N	50,000	6,300	51,000	78,000	20
Diethylene glycol, monobutyl ether	112345	NA	NA	NA			
Diethylene glycol, monoethyl ether	111900	N	50,000	16,000			
Diethylforamide	617845	N	1,100	86			
Di(2-ethylhexyl)adipate	103231	C	2,400	530			
Diethylstilbestrol	56531	C	0.0006	0.00014			
Difenzoquat (Avenge)	43222486	N	8,000	630			
Diflubenzuron	35367385	N	2,050	160			
1,1-Difluoroethane	75376	NA	NA	NA			
Diisopropyl methylphosphonate (DIMP)	1445756	N	8,000	630			
Dimethipin	55290647	N	2,050	160			
Dimethoate	60515	N	20.5	1.6			
3,3'-Dimethoxybenzidine	119904	C	205	46			
Dimethylamine	124403	NA	NA	NA			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

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Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
2,4-Dimethylaniline hydro-chloride	21436964	C	4.95	1.1			
2,4-Dimethylaniline	95681	C	3.8	0.85			
N-N-Dimethylaniline	121697	N	205	16			
3,3'-Dimethylbenzidine	119937	C	0.31	0.069			
N,N-Dimethylformamide	68122	N	10,000	780	1100	1600	1.5
1,1-Dimethylhydrazine	57147	C	1.1	0.25			
1,2-Dimethylhydrazine	540738	C	0.075	0.017			
2,4-Dimethylphenol	105679	N	2,050	160	960	1,100	1.8
2,6-Dimethylphenol	576261	N	60	4.7			
3,4-Dimethylphenol	95658	N	100	7.8			
Dimethyl phthalate	131113	N	50,000	78,000	540,000	NS[5]	200
Dimethyl terephthalate	120616	N	10,000	780			
1,2-Dinitrobenzene	528290	N	41	3.1			
1,3-Dinitrobenzene	99650	N	10	0.78			
1,4-Dinitrobenzene	100254	N	41	3.1			
4,6-Dinitro-o-cyclohexyl phenol	131895	N	205	16			

See notes at end of table.

Table D-1-4 (Continued)
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2,4-Dinitrophenol	51285	N	205	16			
Dinitrotoluene mixture	NA	C	4.2	0.94			
2,4-Dinitrotoluene	121142	N	205	16	1.2	0.3	0.0006
2,6-Dinitrotoluene	606202	N	100	7.8	1.4	0.44	0.0006
Dinoseb	88857	N	100	7.8	31	29	0.5
di-n-Octyl phthalate	117840	N	2,050	160	1,500	3200	NS[6]
1,4-Dioxane	123911	C	260	58			
Diphenamid	957517	N	3,050	230			
Diphenylamine	122394	N	2,550	200			
1,2-Diphenylhydrazine	122667	C	3.6	0.8			
Diquat	85007	N	225	17			
Direct black 38	1937377	C	0.335	0.074			
Direct blue 6	2602462	C	0.355	0.079			
Direct brown 95	16071866	C	0.31	0.069			
Disulfoton	298044	N	4.1	0.31	2.8	5.1	0.05
1,4-Dithiane	505293	N	1,000	78			
Diuron	330541	N	205	16	120	170	0.2

See notes at end of table.

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Soil Screening Values

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Dodine	2439103	N	410	31			
Endosulfan	115297	N	600	47	340	440	0.006
Endothall	145733	N	2,050	160			
Endrin	72208	N	30.5	2.3	23	45	0.4
Endrin aldehyde	7421934	N			23	48	0.05
Epichlorohydrin	106898	C	290	65			
1,2-Epoxybutane	106887	NA	NA	NA			
Ethephon(2-chloroethyl phosphonic acid)	16672870	N	500	39			
Ethion	563122	N	50	3.9			
Ethoprop	13194484	N			1.2	2.5	NC
Ethyl chloride	75003	N			4,100	2,700	0.6
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	N			0.7	1.5	0.008
2-Ethoxyethanol acetate	111159	N	30,500	2,300			
2-Ethoxyethanol	110805	N	41,000	3,100			
Ethyl acrylate	140885	C	60	13			

See notes at end of table.

Table D-1-4 (Continued)
Soil Screening Values

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EPTC (S-Ethyl dipropylthiocarbamate)	759944	N	2,550	200	1,900	3,800	NC
Ethyl ether	60297	N	20,500	1,600			
Ethyl methacrylate	97632	N	9,000	700			
Ethyl acetate	141786	N	50,000	7,000			
Ethylbenzene	100414	N	10,000	780	770	550	0.2
Ethylene cyanohydrin	109784	N	30,500	2,300			
Ethylene diamine	107153	N	2,050	160			
Ethylene dibromide	106934	C	0.0335	0.0075	0.01	0.04	0.00006
Ethylene glycol	107211	N	50,000	16,000			
Ethylene glycol, monobutyl ether	111762	NA	NA	NA			
Ethylene oxide	75218	C	2.8	0.63			
Ethylene thiourea (ETU)	96457	C	24	5.4			
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	N	1	0.078			
Ethylnitrosourea	759739	C	0.0205	0.0046			
Ethylphthalyl ethyl glycolate	84720	N	50,000	23,000			

See notes at end of table.

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Express	10120	N	800	63			
Fenamiphos	22224926	N	25.5	2	19	42	NC
Fensulfothion	115902	N			19	41	NC
Fenthion	55389	N			3.8	8	NC
Fluometuron	2164172	N	1,350	100			
Fluoride	7782414	N	6,000	470	4,700	12,000	NC
Fluoridone	59756604	N	8,000	630			
Flurprimidol	56425913	N	2,050	160			
Flutolanil	66332965	N	6,000	470			
Fluvalinate	69409945	N	1,000	78			
Folpet	133073	C	800	180			
Fomesafen	72178020	C	15	3.4			
Fonofos	944229	N	205	16			
Formaldehyde	50000	N	20,500	1,600			
Formic Acid	64186	N	50,000	16,000			
Fosetyl-al	39148248	N	50,000	23,000			
Furan	110009	N	100	7.8			

See notes at end of table.

Table D-1-4 (Continued)
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Furazolidone	67458	C	0.75	0.17			
Furfural	98011	N	305	23			
Furium	531828	C	0.055	0.013			
Furmecyclox	60568050	C	95	21			
Glufosinate-ammonium	77182822	N	41	3.1			
Glycidaldehyde	765344	N	41	3.1			
Glyphosate	1071836	N	10,000	780			
Guthion	86500	N			120	250	0.1
Haloxyfop-methyl	69806402	N	5	0.39			
Harmony	79277273	N	1,350	100			
HCH (alpha)	319846	C	0.455	0.1	0.2	0.5	0.002
HCH (beta)	319857	C	1.6	0.35	0.6	2.3	0.005
HCH (delta)	319868	N			23	46	0.007
HCH (gamma) Lindane	58899	C	2.2	0.49	0.8	2.6	0.006
HCH-technical	608731	C	1.6	0.35			
Heptachlor	76448	C	0.65	0.14	0.2	0.4	0.06
Heptachlor epoxide	1024573	C	0.315	0.07	0.1	0.3	0.03

See notes at end of table.

Table D-1-4 (Continued)
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Hexabromobenzene	87821	N	205	16			
Hexachlorobenzene	118741	C	1.8	0.4	0.5	1.2	0.8
Hexachlorobutadiene	87683	C	36.5	8.2	1.7	2.6	2.1
Hexachlorocyclopentadiene	77474	N	700	55	0.3	0.2	9.7
Hexachlorodibenzo-p-dioxin mixture	19408743	C	0.00045	0.0001			
Hexachloroethane	67721	C	205	46	17	73	0.4
Hexachlorophene	70304	N	30.5	2.3			
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121824	C	26	5.8			
1,6-Hexamethylene diisocyanate	822060	NA	NA	NA			
n-Hexane	110543	N	6,000	470	37	25	1
Hexazinone	51235042	N	3,350	260	2,500	5,200	NC
Hydrazine, hydrazine sulfate	302012	C	0.95	0.21			
Hydrogen chloride	7647010	NA	NA	NA			
Hydrogen sulfide	7783064	N	305	23			
Hydroquinone	123319	N	4,100	310			

See notes at end of table.

Table D-1-4 Continued)
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Imazalil	35554440	N	1,350	100			
Imazaquin	81335377	N	25,500	2,000			
Iprodione	36734197	N	4,100	310			
Iron		N	47,824[6]				
Isobutanol	78831	N	30,500	2,300			
Isophorone	78591	C	3,000	670			
Isopropalin	33820530	N	1,550	120			
Isopropyl methyl phosphonic acid	1832548	N	10,000	780			
Isoxaben	82558507	N	5,000	390			
Kepone	143500	C	0.16	0.035			
Lactofen	77501634	N	205	16			
Lead	7439921		400[7]	400[7]	500	1000	NC
Lead (tetraethyl)	78002	N	0.01	0.00078			
Lindane	58899	C	2.2	0.49	0.8	2.6	0.006
Linuron	330552	N	205	16	150	320	NC
Lithium	7439932	N	2,050	160	1600	4000	NC

See notes at end of table.

Table D-1-4 Continued)
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Londax	83056996	N	20,500	1,600			
Magnesium		N	460,468[9]				
Malathion	121755	N	2,050	160	1,500	2,300	3.1
Maleic anhydride	108316	N	10,000	780			
Maleic hyrazide	123331	N	50,000	3,900			
Malononitrile	109773	N	2.05	0.16			
Mancozeb	8018017	N	3,050	230			
Maneb	12427382	N	500	39			
Manganese and compounds	7439965	N	500	39	10,000	17,000	NC
Mephosfolan	950107	N	9	0.7			
Mepiquat chloride	24307264	N	3,050	230			
Mercury (inorganic)	7439976	N	30.5	2.3	23	48	NC
Mercury (methyl)	22967926	N	30.5	2.3			
Merphos	150505	N	3.05	0.23	2.3	4.8	NC
Merphos oxide	78488	N	3.05	0.23			
Mesurol (Methiocarb)	2082657	N			260	330	NC

See notes at end of table.

Table D-1-4 Continued)
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Metalaxyl	57837191	N	6,000	470			
Methacrylonitrile	126987	N	10	0.78			
Methamidophos	10265926	N	5	0.39			
Methanol	67561	N	50,000	3,900			
Methidathion	950378	N	100	7.8			
Methomyl	16752775	N	2,550	200	1,900	4,100	0.6
Methoxychlor	72435	N	500	39	380	750	62
2-Methoxyethanol acetate	110496	N	205	16			
2-Methoxyethanol	109864	N	100	7.8			
2-Methoxy-5-nitroaniline	99592	C	60	14			
Methyl acetate	79209	N	50,000	7,800			
Methyl acrylate	96333	N	3,050	230			
2-Methylaniline hydrochloride	636215	C	16	3.5			
2-Methylaniline	95534	C	12	2.7			
Methyl chlorocarbonate	79221	N	50,000	7,800			

See notes at end of table.

Table D-1-4 Continued)
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4-(2-Methyl-4-chlorophenoxy)butyric acid	94815	N	1,000	78			
2-Methyl-4-chlorophenoxyacetic acid	94746	N	50	3.9	39	100	NC
2-(2-Methyl-4-chlorophenoxy)propionic acid	93652	N	100	7.8	77	160	NC
Methylcyclohexane	108872	NA	NA	NA			
Methylene bromide	74953	N	1,000	78			
Methylene chloride	75092	C	380	85	9.3	13	0.01
4,4'-Methylene bis(2-chloroaniline)	101144	C	22	4.9			
4,4'-Methylenebisbenzeneamine	101779	C	11.5	2.6			
4,4'-Methylene bis(N,N'-dimethyl)aniline	101611	C	60	14			
4,4'-Methylenediphenyl isocyanate	101688	NA	NA	NA			
Methyl ethyl ketone (2-butanone)	78933	N	50,000	4,700	2500	1,700	8.8

See notes at end of table.

Table D-1-4 Continued)
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Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Methyl hydrazine	60344	C	2.6	0.58			
Methyl isobutyl ketone (MIBK)	108101	N	8,000	630	310	220	1.1
Methyl methacrylate	80626	N	8,000	630			
2-Methyl-5-nitroaniline	99558	C	85	19			
Methyl parathion	298000	N	25.5	2	18	33	0.1
2-Methylphenol (o-cresol)	95487	N	5,000	390	1,900	1,900	1.1
3-Methylphenol (m-cresol)	103394	N	5,000	390	3,000	4,200	4.2
4-Methylphenol (p-cresol)	106445	N	500	39	300	420	0.4
Methyl styrene (mixture)	25013154	N	600	47			
Methyl styrene (alpha)	98839	N	7,000	550			
Methyl tertbutyl ether (MTBE)	1634044	N	500	39	1,900	1,300	0.1
Metolaclor (Dual)	51218452	N	15,500	1,200			
Metribuzin	21807649	N	2,550	200	1,900	4,200	NC
Mevinphos	7786347	N			19	42	NC
Mirex	2385855	C	1.6	0.35	0.3	0.5	0.01
Molinate	2212671	N	205	16			

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Molybdenum	7439987	N	500	39	390	950	NC
Monochloramine	10599903	N	10,000	780			
Monuron	150685	N			9.6	19	NC
Naled	300765	N	205	16	150	320	NC
2-Naphthylamine	91598	C	0.022	0.0049			
Napropamide	15299997	N	10,000	780			
Nickel refinery dust	NA	N	NA	NA	7,200	1,100	NC
Nickel and compounds	7440020	N	2,050	160	1,500	1,100	NC
Nickel subsulfide	12035722	N	NA	NA	3,600	530	NC
Nitrapyrin	1929824	N	155	12			
Nitrate	14797558	N	50,000	13,000	120,000	NS[5]	NC
Nitric Oxide	10102439	N	10,000	780			
Nitrite	14797650	N	10,000	780	7,800	20,000	NC
2-Nitroaniline	88744	N	6	0.47	3.7	5.9	0.02
3-Nitroaniline	99092	N	305	23			
4-Nitroaniline	100016	N	305	23	230	460	NC

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Nitrobenzene	98953	N	50	3.9	33	55	0.04
Nitrofurantoin	67209	N	7,000	550			
Nitrofurazone	59870	C	1.9	0.43			
Nitrogen dioxide	10102440	N	50,000	7,800			
Nitroguanidine	556887	N	10,000	780			
4-Nitrophenol	100027	N	6,500	480			
2-Nitropropane	79469	NA	NA	NA			
N-Nitrosodi-n-butylamine	924163	C	0.55	0.12			
N-Nitrosodiethanolamine	1116547	C	1	0.23			
N-Nitrosodiethylamine	55185	C	0.019	0.0043			
N-Nitrosodimethylamine	62759	C	0.055	0.013	0.001	0.002	0.02
N-Nitrosodiphenylamine	86306	C	600	130	44	69	0.06
N-Nitroso-di-n-propylamine	621647	C	0.41	0.091	0.01	0.02	0.009
N-Nitroso-N-methylethylamine	10595956	C	0.13	0.029			
N-Nitrosopyrrolidine	930552	C	1.35	0.3			
m-Nitrotoluene	99081	N	1,000	78			

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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o-Nitrotoluene	88722	N	1,000	78			
p-Nitrotoluene	99990	N	1,000	78			
Norflurazon	27314132	N	4,100	310			
NuStar	85509199	N	70	5.5			
Octabromodiphenyl ether	32536520	N	305	23			
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	N	5,000	390			
Octamethylpyrophosphoramide	152169	N	205	16			
Oryzalin	19044883	N	5,000	390			
Oxadiazon	19666309	N	500	39			
Oxamyl	23135220	N	2,550	200	1,900	4,200	NC
Oxyfluorfen	42874033	N	305	23			
Paclobutrazol	76738620	N	1,350	100			
Paraquat	1910425	N	460	35			
Parathion	56382	N	600	47	450	880	6.9
Pebulate	1114712	N	5,000	390			

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Pendimethalin	40487421	N	4,100	310			
Pentabromo-6-chloro cyclohexane	87843	C	125	28			
Pentabromodiphenyl ether	32534819	N	205	16			
Pentachlorobenzene	608935	N	80	6.3			
Pentachloronitrobenzene	82688	C	11	2.5			
Pentachlorophenol	87865	C	24	5.3	5.5	12	0.01
Permethrin	52645531	N	5,000	390			
Phenmedipham	13684634	N	25,500	2,000			
Phenol	108952	N	50,000	4,700	27,000	29,000	0.02
m-Phenylenediamine	108452	N	600	47			
p-Phenylenediamine	106503	N	19,500	1,500			
Phenylmercuric acetate	62384	N	8	0.63			
2-Phenylphenol	90437	C	1,500	330			
Phorate	298022	N	20.5	1.6	13	20	0.05
Phosmet	732116	N	2,050	160			

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Phosphine	7803512	N	30.5	2.3			
Phosphorus (white)	7723140	N	2.05	0.16			
p-Phthalic acid	100210	N	50,000	7,800			
Phthalic anhydride	85449	N	50,000	16,000			
Picloram	1918021	N	7,000	550			
Pirimiphos-methyl	29232937	N	1,000	78			
Polybrominated biphenyls	NA	C	0.32	0.072			
Polychlorinated biphenyls (PCBs)	1336363	C	0.37	0.083	1	3.5	44
Aroclor 1016	12674112	N	7	0.55			
Aroclor 1254	11097691	N	2.05	0.16			
Polychlorinated terphenyls (PCTs)	NA	C	0.65	0.14			
Polynuclear aromatic hydrocarbons							
Acenaphthene	83329	N	6,000	470	2,000	1,900	2
Acenaphthylene	208968	N			320	230	11
Anthracene	120127	N	30,500	2,300	16,000	20,000	890

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Benzo(a)pyrene	50328	C	0.39	0.088	0.14	0.5	3.7
Benzo(b)fluoranthene	205992	C	3.9	0.88	1.4	4.9	71
Benzo(k)fluoranthene	207089	C	39	8.8	14	47	44
Benz(a)anthracene	56553	C	3.9	0.88	1.4	4.9	29
Benzo(g,h,i)perylene	191242	N			14	5	320
Carbazole	86748	C	145	32	35	81	0.4
Chrysene	218019	C	390	88	140	490	31
Dibenz[a,h]anthracene	53703	C	0.39	0.088	0.14	0.5	270
Fluoranthene	206440	N	4,100	310	2,800	4,400	280
Fluorene	86737	N	4,100	310	1,900	2,100	45
Indeno[1,2,3-cd]pyrene	193395	C	3.9	0.88	1.4	5	650
1-Methylnaphthalene	90120	N			210	150	NC
2-Methylnaphthalene	91576	N	4,100[9]	310[9]	700	580	NC
Naphthalene	91203	N	4,100	310	840	680	0.1
Phenanthrene	85018	N			1,200	1,100	2.8
Pyrene	129000	N	3,050	230	2,200	3,700	290

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Potassium		N	1000000[9]				
Prochloraz	67747095	C	19	4.3			
Profluralin	26399360	N	600	47			
Prometon	1610180	N	1,550	120			
Prometryn	7287196	N	410	31			
Pronamide	23950585	N	7,500	590			
Propachlor	1918167	N	1,350	100			
Propanil	709988	N	500	39			
Propargite	2312358	N	2,050	160			
Propargyl alcohol	107197	N	205	16			
Propazine	139402	N	2,050	160	1,500	3,200	2.3
Propham	122429	N	2,050	160			
Propiconazole	60207901	N	1,350	100			
Propylene glycol	57556	N	50,000	100,000			
Propylene glycol, monoethyl ether	52125538	N	50,000	5,500			

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Propylene glycol, monomethyl ether	107982	N	50,000	5,500			
Propylene oxide	75569	C	12	2.7			
Pursuit	81335775	N	25,500	2,000			
Pydrin	51630581	N	2,550	200			
Pyridine	110861	N	100	7.8	0.2	0.16	0.02
Quinalphos	13593038	N	50	3.9			
Quinoline	91225	C	0.24	0.053			
Resmethrin	10463868	N	3,050	230			
Ronnel	299843	N	5,000	390	3,600	6,500	NC
Rotenone	83794	N	410	31			
Savey	78587050	N	2,550	200			
Selenious acid	7783008	N	500	39			
Selenium	7782492	N	500	39	390	990	NC
Selenourea	630104	N	500	39			
Sethoxydim	74051802	N	9,000	700			

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Silver and compounds	7440224	N	500	39	380	800	NC
Simazine	122349	C	24	5.3			
Sodium		N	1,000,000[6]				
Sodium azide	26628228	N	410	31			
Sodium diethyldithiocarbamate	148185	C	10.5	2.4	4.1	17	NC
Sodium fluoroacetate	62748	N	2.05	0.16			
Sodium metavanadate	13718268	N	100	7.8			
Strontium, stable	7440246	N	50,000	4,700	47,000	NS[5]	NC
Strychnine	57249	N	30.5	2.3			
Styrene	100425	N	20,500	1,600	1,700	1,200	2
Systhane	88671890	N	2,550	200			
2,3,7,8-TCDD (dioxin)	1746016	C	200,000	4,000,000			
Tebuthiuron	34014181	N	7,000	550			
Temephos	3383968	N	2,050	160			
Terbacil	5902512	N	1,350	100			
Terbufos	13071799	N	2.55	0.2			

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Contaminant	CASRN	Basis of RBC[1]	RBC Industrial Soil (mg/kg)[2]	RBC Residential Soil (mg/kg)[3]	Florida Soil Clean-up Goal Residential (mg/kg)[4]	Florida Soil Clean-up Goal Industrial (mg/kg)[4]	Florida Soil Leaching Value (mg/kg)[4]
Terbutryn	886500	N	100	7.8			
1,2,4,5-Tetrachlorobenzene	95943	N	30.5	2.3			
1,1,1,2-Tetrachloroethane	630206	C	110	25	3.2	4.7	0.003
1,1,2,2-Tetrachloroethane	79345	C	14.5	3.2	0.5	0.8	0.0007
Tetrachloroethylene (PCE)	127184	C	55	12	9.2	18	0.03
2,3,4,6-Tetrachlorophenol	58902	N	3,050	230			
p,a,a,a-Tetrachlorotoluene	5216251	C	0.145	0.032			
Tetrachlorovinphos	961115	C	120	27	45	180	NC
Tetraethyldithiopyrophosphate	3689245	N	50	3.9	31	47	0.06
Tetraethylpyrophosphate (TEPP)	107493	N			2.5	5.1	NC
Thallic oxide	1314325	N	7	0.55			
Thallium	NA	NA	NA	NA			
Thallium acetate	563688	N	9	0.7			
Thallium carbonate	6533739	N	8	0.63			
Thallium chloride	7791120	N	8	0.63			
Thallium nitrate	10102451	N	9	0.7			

See notes at end of table.

Table D-1-4 Continued)
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Thallium selenite	12039520	N	9	0.7			
Thallium sulfate	7446186	N	8	0.63			
Thiobencarb	28249776	N	1,000	78			
2-(Thiocyanomethylthio)-benzothiazole	21564170	N	3,050	230			
Thiofanox	39196184	N	30.5	2.3			
Thiophanate-methyl	23564058	N	8,000	630			
Thiram	137268	N	500	39			
Tin and compounds	NA	N	50,000	4,700	44,000	66,000	NC
Tokuthion	34643464	N			68	140	NC
Toluene	108883	N	20,500	1,600	270	180	0.2
Toluene-2,4-diamine	95807	C	0.9	0.2			
Toluene-2,5-diamine	95705	N	50,000	4,700			
Toluene-2,6-diamine	823405	N	20,500	1,600			
p-Toluidine	106490	C	15	3.4			
Toxaphene	8001352	C	2.6	0.58	0.8	2.6	0.04

See notes at end of table.

Table D-1-4 Continued)
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Tralomethrin	66841256	N	750	59			
Triallate	2303175	N	1,350	100			
Triasulfuron	82097505	N	1,000	78			
1,2,4-Tribromobenzene	615543	N	500	39			
Tributyltin oxide (TBTO)	56359	N	3.05	0.23			
2,4,6-Trichloroaniline hydrochloride	33663502	C	100	22			
2,4,6-Trichloroaniline	634935	C	85	19			
1,2,4-Trichlorobenzene	120821	N	1,000	78	480	560	2.3
1,1,1-Trichloroethane	71556	N	9,000	700	320	220	0.9
1,1,2-Trichloroethane	79005	C	50	11	1.1	1.6	0.02
Trichloroethylene (TCE)	79016	C	260	58	3.4	4.8	0.01
Trichlorofluoromethane	75694	N	30,500	2,300	3.4	2.3	400
2,4,5-Trichlorophenol	95954	N	10,000	780	6,700	11,000	0.1
2,4,6-Trichlorophenol	88062	C	260	58	77	210	0.08
2,4,5-Trichlorophenoxyacetic acid	93765	N	1,000	78	750	1,500	NC

See notes at end of table.

Table D-1-4 Continued)
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2-(2,4,5-Trichlorophenoxy)propionic acid	93721	N	800	63	610	1,200	2.7
1,1,2-Trichloropropane	598776	N	500	39			
1,2,3-Trichloropropane (TCP)	96184	C	0.41	0.091			
1,2,3-Trichloropropene	96195	N	500	39			
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	N	50,000	100,000	1,900	1,300	13,000
Tridiphane	58138082	N	305	23			
Triethylamine	121448	NA	NA	NA			
Trifluralin	1582098	C	370	83			
Trimethyl phosphate	512561	C	75	17			
1,2,3-Trimethylbenzene	526738	N			3.8	2.7	0.2
1,2,4-Trimethylbenzene	95636	N	50	3.9	3.5	2.5	0.2
1,3,5-Trimethylbenzene	108678	N	41	3.1	2	1.4	0.1
1,3,5-Trinitrobenzene	99354	N	5	0.39			
Trinitrophenylmethylnitramine	479458	N	1,000	78			
2,4,6-Trinitrotoluene	118967	C	95	21			

See notes at end of table.

Table D-1-4 Continued)
Soil Screening Values

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Uranium (soluble salts)	7440611	N	305	23	120	41	NC
Vanadium	7440622	N	700	55	480	480	NC
Vanadium pentoxide	1314621	N	900	70			
Vanadium sulfate	36907423	N	2,050	160			
Vernam	1929777	N	100	7.8			
Vinclozolin	50471448	N	2,550	200			
Vinyl acetate	108054	N	50,000	7,800	92	61	0.5
Vinyl bromide	593602	NA	NA	NA			
Vinyl chloride	75014	C	1.5	0.34	0.003	0.004	0.005
Warfarin	81812	N	30.5	2.3			
m-Xylene	108323	N	50,000	16,000			
o-Xylene	95476	N	50,000	16,000			
p-Xylene	106423	NA	NA	NA			
Xylene (mixed)	1330207	N	50,000	16,000	6400	4,400	0.1
Zinc	7440666	N	30,500	2,300	23,000	55,000	NC

See notes at end of table.

Table D-1-4 Continued)
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Zinc phosphide	1314847	N	30.5	2.3			
Zineb	12122677	N	5,000	390			

[1] The risk-based concentration (RBC) is based on carcinogenic (C) or noncarcinogenic (N) effects.
[2] USEPA Region III RBC table (February 9, 1995). The values have been adjusted to account for 100 percent of soil ingestion at work. Noncarcinogenic values have been adjusted for an HQ of 0.1.
[3] USEPA Region III RBC table (February 9, 1995). The noncarcinogenic values have been adjusted for an HQ of 0.1.
[4] Florida Department of Environmental Protection "Soil Cleanup Goals for the Military Sites" (April 5, 1995). Industrial noncarcinogenic values have been adjusted for an HQ of 1.
[5] Extremely limited toxicity data in soil under assumed exposure conditions are available; therefore, no upper limit on concentration has been established.
[6] Extremely limited solubility data are available; therefore, no upper limit on concentration has been established.
[7] No RBC is available for lead in soil due to a lack of toxicity data. Based on USEPA recommendation, this target level for cleanup at Superfund sites is used as the RBC for soil.
[8] Based on information provided in Appendix D-2 to this document, Derivation of Surface Soil and Groundwater Screening Concentrations of Essential Nutrients for HHCPC Selection.
[9] The values for naphthalene are used as surrogates for 2-methylnaphthalene.

Notes: RBC = risk-based concentration.
mg/kg = milligram per kilogram.
NA = not applicable.
BHC = hexachlorocyclohexane.
µg/kg = microgram per kilogram.
NC = not calculated.
NS = not specified.
HCH = hexachlorocyclohexane.

Table D-1-5
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Acephate	30560191	C	7.7		7.5
Acetaldehyde	75070	N	9.4		
Acetochlor	34256821	N	73		
Acetone	67641	N	370		700
Acetone cyanohydrin	75865	N	260		
Acetonitrile	75078	N	22		500
Acetophenone	98862	N	0.0042		700
Acifluorfen	62476599	N	47		4
Acrolein	107028	N	73		110
Acrylamide	79061	C	0.015	TT	1
Acrylic acid	79107	N	1,800		
Acrylonitrile	107131	C	0.12		8
Alachlor	15972608	C	0.84	2	2
Alar	1596845	N	550		
Aldicarb	116063	N	3.7	7[5]	7
Aldicarb sulfone	1646884	N	3.7	7[5]	7
Aldicarb sulfoxide		N		7[5]	10
Aldrin	309002	C	0.004		0.05
Ally	74223646	N	910		
Allyl alcohol	107186	N	18		250
Allyl chloride	107051	N	180		
Aluminum	7429905	N	3,700		200
Aluminum phosphide	20859738	N	1.5		
Amdro	67485294	N	1.1		
Ametryn	834128	N	33		63
m-Aminophenol	591275	N	260		
4-Aminopyridine	504245	N	0.073		
Amitraz	33089611	N	9.1		
Ammonia	7664417	N	100		
Ammonium sulfamate	7773060	N	730		
Aniline	62533	N	1		6
Antimony and compounds	7440360	N	1.5	6	6
Antimony pentoxide	1314609	N	1.8		
Antimony potassium tartrate	304610	N	3.3		
Antimony tetroxide	1332316	N	1.5		
Antimony trioxide	1309644	N	1.5		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Apollo	74115245	N	47		
Aramite	140578	C	2.7		
Arsenic	7440382	N	1.1		
Arsenic (as carcinogen)	7440382	C	0.038	50	50
Arsine	7784421	N	0.052		
Assure	76578148	N	33		
Asulam	3337711	N	180		
Atrazine	1912249	C	0.3	3	3
Avermectin B1	65195553	N	1.5		
Azobenzene	103333	C	0.61		4
Barium and compounds	7440393	N	260	2,000	2,000
Baygon	114261	N	15		28
Bayleton	43121433	N	110		
Baythroid	68359375	N	91		
Benefin	1861401	N	1,100		
Benomyl	17804352	N	180		350
Bentazon	25057890	N	9.1		17.5
Benzaldehyde	100527	N	61		700
Benzene	71432	C	0.36	5	1
Benzoenethiol	108985	N	0.037		
Benzidine	92875	C	0.00029		250
Benzoic acid	65850	N	15,000		28,000
Benzotrichloride	98077	C	0.0052		
Benzyl alcohol	100516	N	1,100		2,100
Benzyl chloride	100447	C	0.062		0.5
Beryllium and compounds	7440417	C	0.016	4	4
alpha-BHC	319846	C	0.011		0.05
beta-BHC	319857	C	0.037		0.1
delta-BHC	319868	N			0.05
Bidrin	141662	N	0.37		1
Biphenthrin (Talstar)	82657043	N	55		
1,1-Biphenyl	92524	N	180		0.5
Bis(2-chloroethoxy)methane	111911	N			10
Bis(2-chloroethyl)ether	111444	C	0.0092		1.5
Bis(2-chloroisopropyl)ether	39638329	C	0.26		7.5
Bis(chloromethyl)ether	542881	C	0.00005		10
Bis(2-chloro-1-methylethyl)ether	NA	C	0.96		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC ($\mu g/\ell$)[2]	Federal MCL ($\mu g/\ell$)[3]	Florida Guidance Concentration ($\mu g/\ell$)[4]
Bis(2-ethylhexyl)phthalate (BEHP)	117817	C	4.8	6	6
Bisphenol A	80057	N	180		350
Boron (and borates)	7440428	N	330		630
Boron trifluoride	7637072	N	0.73		
Bromacil	314409	N			90
Bromate				10	
Bromodichloromethane	75274	C	0.17	100/80[7]	0.6
p-Bromodiphenyl ether	101553	N			10
Bromoethene	593602	C	0.096		
Bromoform (tribromomethane)	75252	C	2.4	100/80[7]	4
Bromomethane	74839	N	0.87		10
4-Bromophenyl phenyl ether	101553	N	210		
Bromophos	2104963	N	18		
Bromoxynil	1689845	N	73		140
Bromoxynil octanoate	1689992	N	73		
1,3-Butadiene	106990	C	0.011		
1-Butanol	71363	N	370		700
2-Butanone	78933	N	190		4,200
n-Butyl acetate	123864	N			2,500
Butyl benzyl phthalate	85687	N	730	100	1,400
Butylate	2008415	N	180		350
sec-Butylbenzene	135988	N	6.1		
tert-Butylbenzene	104518	N	6.1		
Butylphthalyl butylglycolate	85701	N	3,700		7,000
Cacodylic acid	75605	N	11		
Cadmium and compounds	7440439	N	1.8	5	5
Calcium			1,055,398[12]		
Caprolactam	105602	N	1,800		
Captafol	2425061	C	7.8		100
Captan	133062	C	19		250
Carbaryl	63252	N	370		700
Carbofuran	1563662	N	18	40	40
Carbon disulfide	75150	N	2.1		700
Carbon tetrachloride	56235	C	0.16	5	3
Carbosulfan	55285148	N	37		
Carboxin	5234684	N	370		700
Chloral	75876	N	7.3		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Chloral hydrate				60[8]	
Chloramben	133904	N	55		105
Chloramine				4,000	
Chloranil	118752	C	0.17		
Chlordane	57749	C	0.052	2	2
Chloride	16887006				250,000
Chlorimuron-ethyl	90982324	N	73		
Chlorine	7782505	N	370	4,000	
Chlorine dioxide	10049044	N	0.21	800	
Chlorite		N		1,000	
Chloroacetaldehyde	107200	N	25		
Chloroacetic acid	79118	N	7.3		14
2-Chloroacetophenone	532274	N	0.031		
4-Chloroaniline	106478	N	15		28
Chlorobenzene	108907	N	3.9	100	100
Chlorobenzilate	510156	C	0.25		0.13
p-Chlorobenzoic acid	74113	N	730		
4-Chlorobenzotrifluoride	98566	N	73		
2-Chloro-1,3-butadiene	126998	N	1.4		
1-Chlorobutane	109693	N	240		
Chlorodibromomethane	124481	C	0.13	100/80[7]	
Chlorodifluoromethane	75456	N	8,700		
1-Chloro-2,3-epoxypropane	106898	C	6.8	TT	3
Chloroethane	75003	N	860		140
2-Chloroethyl vinyl ether	110758	N	15		1
Chloroform	67663	C	0.15	100/80[7]	6
Chloromethane	74873	C	1.4		2.7
4-Chloro-2,2-methylaniline hydrochloride	3165933	C	0.15		
4-Chloro-2-methylaniline	95692	C	0.12		
4-Chloro-3-methyl phenol	59507	N			3,000
4-Chloro-2-methylphenoxy acetic acid (MCPA)	94746	N			1,000
2-Chloronaphthalene	91587	N	290		560
2-Chloronitrobenzene	88733	C	0.42		
4-Chloronitrobenzene	100005	C	0.59		250
2-Chlorophenol	95578	N	18		35
3-Chlorophenol	108430	N			10

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
4-Chlorophenol	106489	N			5.5
4-Chlorophenylphenyl ether	7005723	N			10
Chloropicrin	76062	N			7.3
2-Chloropropane	75296	N	17		
Chlorothalonil	1897456	C	6.1		3.18
2-Chlorotoluene	95498	N	12		140
Chlorpropham	101213	N	730		
Chlorpyrifos	2921882	N	11		21
Chlorpyrifos-methyl	5598130	N	37		70
Chlorsulfuron	64902723	N	180		
Chlorthiophos	60238564	N	2.9		
Chromium III and compounds	16065831	N	3,700		100
Chromium VI and compounds	7440473	N	18	100	
Coal tar	8001589	NA	NA		
Cobalt	7440484	N	220		
Coke Oven Emissions	8007452	NA	NA		
Copper and compounds	7440508	N	140	1,300[10]	1,000
Crotonaldehyde	123739	C	0.035		
Cumene	98828	N	150		0.8
Cyanides:					
Barium cyanide	542621	N	370		
Calcium cyanide	592018	N	150		
Copper cyanide	544923	N	18		
Cyanazine	21725462	C	0.08		14
Cyanogen	460195	N	150		10,000
Cyanogen bromide	506683	N	330		
Cyanogen chloride	506774	N	180		350
Free cyanide	57125	N	73	200	200
Hydrogen cyanide	74908	N	73		10,000
Potassium cyanide	151508	N	180		
Potassium silver cyanide	506616	N	730		
Silver cyanide	506649	N	370		
Sodium cyanide	143339	N	150		
Zinc cyanide	557211	N	180		
Cyclohexanone	108941	N	3,000		35,000
Cyclohexylamine	108918	N	730		5,000
Cyhalothrin/Karate	68085858	N	18		

See notes at end of table.

Table D-1-5 (Continued)
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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Cypermethrin	52315078	N	37		70
Cyromazine	66215278	N	27		
Dacthal (DCPA)	1861321	N	37		3,500
Dalapon	75990	N	110	200	200
Danitol	39515418	N	91		
4,4'DDD	72548	C	0.28		0.1
4,4'DDE	72559	C	0.2		0.1
4,4'DDT	50293	C	0.2		0.1
Decabromodiphenyl ether	1163195	N	6.1		
Demeton	8065483	N	0.15		
Diallate	2303164	C	0.17		0.57
Diazinon	333415	N	3.3		6.3
Dibenzofuran	132649	N	15		
1,4-Dibromobenzene	106376	N	6.1		
Dibromochloromethane	124481	C			1
1,2-Dibromo-3-chloropropane (DBCP)	96128	C	0.048	0.2	0.2
1,2-Dibromoethane	106934	C	0.00075	0.05	0.02
Dibutyl phthalate	84742	N	370		700
Dicamba	1918009	N	110		210
Dichloroacetic acid				60[8]	
1,2-Dichlorobenzene	95501	N	27	600	600
1,3-Dichlorobenzene	541731	N	54	600[7]	10
1,4-Dichlorobenzene	106467	C	0.44	75	75
3,3'-Dichlorobenzidine	91941	C	0.15		7.5
1,4-Dichloro-2-butene	764410	C	0.0011		
Dichlorodifluoromethane	75718	N	39		1,400
1,1-Dichloroethane	75343	N	81		700
1,2-Dichloroethane (EDC)	107062	C	0.12	5	3
1,1-Dichloroethylene	75354	C	0.044	7	7
1,2-Dichloroethylene (cis)	156592	N	6.1	70	70
1,2-Dichloroethylene (trans)	156605	N	12	100	100
1,2-Dichloroethylene (mixture)	540590	N	5.5		
Dichloromethane (methylene chloride)	75092	C	4.1	5	5
2,3-Dichlorophenol	576249	N			10
2,4-Dichlorophenol	120832	N	11		4
2,5-Dichlorophenol	583788	N			10
2,6-Dichlorophenol	87650	N			4

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
3,4-Dichlorophenol	95772	N			10
2,4-Dichlorophenoxyacetic acid (2,4-D)	94757	N	6.1	70	70
4-(2,4-Dichlorophenoxy)butyric acid	94826	N	29		
1,2-Dichloropropane	78875	C	0.16	5	5
2,3-Dichloropropanol	616239	N	11		
1,3-Dichloropropene	542756	C	0.077		1
Dichlorvos	62737	C	0.23		0.1
Dicofol	115322	C	0.15		
Dicyclopentadiene	77736	N	0.042		
Dieldrin	60571	C	0.0042		0.1
Diesel emissions	NA	N	5.2		
Diethyl phthalate	84662	N	2,900		5,600
Diethylene glycol, monobutyl ether	112345	N	21		
Diethylene glycol, monoethyl ether	111900	N	7,300		
Diethylforamide	617845	N	40		
Di(2-ethylhexyl)adipate	103231	C	56	400	400
Diethylstilbestrol	56531	C	0.00001		100
Difenzoquat (Avenge)	43222486	N	290		
Diflubenzuron	35367385	N	73		
1,1-Difluoroethane	75376	N	6,900		
Diisopropyl methylphosphonate (DIMP)	1445756	N	290		
Dimethipin	55290647	N	73		
Dimethrin	70382	N			2,000
Dimethoate	60515	N	0.73		5
3,3'-Dimethoxybenzidine	119904	C	4.8		250
Dimethylamine	124403	N	0.021		
2,4-Dimethylaniline hydrochloride	21436964	C	0.12		
2,4-Dimethylaniline	95681	C	0.09		
N-N-Dimethylaniline	121697	N	7.3		12,500
3,3'-Dimethylbenzidine	119937	C	0.0073		250
N,N-Dimethylformamide	68122	N	370		700
1,1-Dimethylhydrazine	57147	C	0.026		
1,2-Dimethylhydrazine	540738	C	0.0018		
2,4-Dimethylphenol	105679	N	73		400
2,6-Dimethylphenol	576261	N	2.2		
3,4-Dimethylphenol	95658	N	3.7		
Dimethyl phthalate	131113	N	37,000		70,000

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Dimethyl terephthalate	120616	N	370		
1,2-Dinitrobenzene	528290	N	1.5		200
1,3-Dinitrobenzene	99650	N	0.37		50
1,4-Dinitrobenzene	100254	N	1.5		50
4,6-Dinitro-o-cyclohexyl phenol	131895	N	7.3		500
2,4-Dinitrophenol	51285	N	7.3		30
Dinitrotoluene mixture	NA	C	0.099		0.2
2,4-Dinitrotoluene	121142	N	7.3		
2,6-Dinitrotoluene	606202	N	3.7		
Dinoseb	88857	N	3.7	7	7
di-n-Octyl phthalate	117840	N	73		140
1,4-Dioxane	123911	C	6.1		5
Diphenamid	957517	N	110		210
Diphenylamine	122394	N	91		175
1,2-Diphenylhydrazine	122667	C	0.084		10
Diquat	85007	N	8	20	20
Direct black 38	1937377	C	0.0078		
Direct blue 6	2602462	C	0.0083		
Direct brown 95	16071866	C	0.0072		
Disulfoton	298044	N	0.15		0.5
1,4-Dithiane	505293	N	37		
Diuron	330541	N	7.3		14
Dodine	2439103	N	15		
Endosulfan	115297	N	22		0.35
Endosulfan Sulfate	1031078				0.3
Endothall	145733	N	73	100	100
Endrin	72208	N	1.1	2	2
Endrin aldehyde	7421934				0.1
Epichlorohydrin	106898	C	6.8	TT	3
1,2-Epoxybutane	106887	N	21		
Ethephon(2-chloroethyl phosphonic acid)	16672870	N	18		
Ethion	563122	N	1.8		3.5
2-Ethoxyethanol acetate	111159	N	1100		
2-Ethoxyethanol	110805	N	15,00		25,000
Ethyl acrylate	140885	C	1.4		5,000
EPTC (S-Ethyl dipropylthiocarbamate)	759944	N	91		
Ethyl ether	60297	N	120		750

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Ethyl methacrylate	97632	N	330		630
Ethyl acetate	141786	N	3,300		
Ethylbenzene	100414	N	130	700	30
Ethylene cyanohydrin	109784	N	1100		
Ethylene diamine	107153	N	73		10,000
Ethylene dibromide	106934	C	0.00075	0.05	0.02
Ethylene glycol	107211	N	7,300		14,000
Ethylene glycol, monobutyl ether	111762	N	21		
Ethylene oxide	75218	C	0.066		10
Ethylene thiourea (ETU)	96457	C	0.57		15
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	N	0.037		0.2
Ethylnitrosourea	759739	C	0.00048		
Ethylphthalyl ethyl glycolate	84720	N	11,000		21,000
Express	10120	N	29		
Fenamiphos	22224926	N	0.91		1.75
Fluometuron	2164172	N	47		91
Fluoride	7782414	N	220	4,000	2,000
Fluoridone	59756604	N	290		
Flurprimidol	56425913	N	73		
Flutolanil	66332965	N	220		
Fluvalinate	69409945	N	37		
Folpet	133073	C	19		
Fomesafen	72178020	C	0.35		
Fonofos	944229	N	7.3		14
Formaldehyde	50000	N	730		600
Formic acid	64186	N	7,300		14,000
Fosetyl-al	39148248	N	11,000		
Furan	110009	N	3.7		
Furazolidone	67458	C	0.018		
Furfural	98011	N	11		
Furium	531828	C	0.0013		
Furmecyclox	60568050	C	2.2		
Glufosinate-ammonium	77182822	N	1.5		
Glycidaldehyde	765344	N	1.5		
Glyphosate	1071836	N	370	700	700
Haloxyfop-methyl	69806402	N	0.18		
Harmony	79277273	N	47		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
HCH (alpha)	319846	C	0.011		0.05
HCH (beta)	319857	C	0.037		0.1
HCH (delta)	319868	N			0.05
HCH (gamma) Lindane	58899	C	0.052	0.2	0.2
HCH-technical	608731	C	0.037		
Heptachlor	76448	C	0.0023	0.4	0.4
Heptachlor epoxide	1024573	C	0.0012	0.2	0.2
Hexabromobenzene	87821	N	1.2		
Hexachlorobenzene	118741	C	0.0066	1	1
Hexachlorobutadiene	87683	C	0.14		15
Hexachlorocyclopentadiene	77474	N	0.015	50	50
Hexachlorodibenzo-p-dioxin mixture	19408743	C	0.00001		0.00025
Hexachloroethane	67721	C	0.75		10
Hexachlorophene	70304	N	1.1		6
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121824	C	0.61		10
1,6-Hexamethylene diisocyanate	822060	N	0.01		
n-Hexane	110543	N	35		10
Hexazinone	51235042	N	120		231
Hydrazine, hydrazine sulfate	302012	C	0.022		
Hydrogen chloride	7647010	N	7.3		
Hydrogen sulfide	7783064	N	11		
Hydroquinone	123319	N	150		280
Imazalil	35554440	N	47		
Imazaquin	81335377	N	910		
Iprodione	36734197	N	150		280
Iron	7439896	N	13,267[12]		300
Isobutanol	78831	N	180		2,100
Isophorone	78591	C	71		40
Isopropalin	33820530	N	55		105
Isopropyl methyl phosphonic acid	1832548	N	370		
Isoxaben	82558507	N	180		
Kepone	143500	C	0.0037		
Lactofen	77501634	N	7.3		
Lead	7439921		15[11]	15[11]	15
Lead (tetraethyl)	78002	N	0.00037		
Linuron	330552	N	7.3		14
Lithium	7439932	N	73		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Londax	83056996	N	730		
Magnesium		N	118,807[12]		
Malathion	121755	N	73		140
Maleic anhydride	108316	N	370		
Maleic hydrazide	123331	N	1,800		
Malononitrile	109773	N	0.073		
Mancozeb	8018017	N	110		
Maneb	12427382	N	18		75
Manganese and compounds	7439965	N	18		50
Mephosfolan	950107	N	0.33		
Mepiquat chloride	24307264	N	110		
Mercury (inorganic)	7439976	N	1.1	2	2
Mercury (methyl)	22967926	N	1.1		
Merphos	150505	N	0.11		
Merphos oxide	78488	N	0.11		
Metalaxyl	57837191	N	220		420
Methacrylonitrile	126987	N	0.37		50
Methamidophos	10265926	N	0.18		5
Methanol	67561	N	1,800		5,000
Methidathion	950378	N	3.7		
Methomyl	16752775	N	91		175
Methoxychlor	72435	N	18	40	40
2-Methoxyethanol acetate	110496	N	7.3		
2-Methoxyethanol	109864	N	3.7		
2-Methoxy-5-nitroaniline	99592	C	1.5		50
Methyl acetate	79209	N	3,700		5,000
Methyl acrylate	96333	N	110		
2-Methylaniline hydrochloride	636215	C	0.37		
2-Methylaniline	95534	C	0.28		50
Methyl chlorocarbonate	79221	N	3,700		
4-(2-Methyl-4-chlorophenoxy)butyric acid	94815	N	37		
2-Methyl-4-chlorophenoxyacetic acid	94746	N	1.8		
2-(2-Methyl-4-chlorophenoxy)propionic acid	93652	N	3.7		
Methylcyclohexane	108872	N	3,100		
Methylene bromide	74953	N	6.1		
Methylene chloride (dichloromethane)	75092	C	4.1	5	5
4,4'-Methylene bis(2-chloroaniline)	101144	C	0.52		50

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
4,4'-Methylenebisbenzeneamine	101779	C	0.27		
4,4'-Methylene bis(N,N'-dimethyl)aniline	101611	C	1.5		
4,4'-Methylenediphenyl isocyanate	101688	N	0.0035		
Methyl ethyl ketone (2-butanone)	78933	N	190		4,200
Methyl hydrazine	60344	C	0.061		10
Methyl isobutyl ketone	108101	N	290		350
Methyl methacrylate	80626	N	290		25
2-Methylnaphthalene			150		6.8
2-Methyl-5-nitroaniline	99558	C	2		
Methyl parathion	298000	N	0.91		10
2-Methylphenol (o-cresol)	95487	N	180		350
3-Methylphenol (m-cresol)	103394	N	180		350
4-Methylphenol (p-cresol)	106445	N	18		35
Methyl styrene (mixture)	25013154	N	6		
Methyl styrene (alpha)	98839	N	43		
Methyl tertbutyl ether (MTBE)	1634044	N	18		50
Metalachlor (Dual)	51218452	N	550		1,050
Metribuzin	21807649	N	91		175
Mirex	2385855	C	0.037		0.1
Molinate	2212671	N	7.3		
Molybdenum	7439987	N	18		35
Monochloramine	10599903	N	370		
Naled	300765	N	7.3		14
2-Naphthylamine	91598	C	0.00052		
Napropamide	15299997	N	370		
Nickel refinery dust	NA	NA	NA		
Nickel and compounds	7440020	N	73	100	100
Nickel subsulfide	12035722	NA	NA		
Nitrapyrin	1929824	N	5.5		
Nitrate	14797558	N	5,800	10,000	10,000
Nitric Oxide	10102439	N	370		10,000
Nitrite	14797650	N	370	1,000	1,000
2-Nitroaniline	88744	N	0.22		7.5
3-Nitroaniline	99092	N	11		
4-Nitroaniline	100016	N	11		
Nitrobenzene	98953	N	0.34		9.5
Nitrofurantoin	67209	N	260		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC ($\mu g/\ell$)[2]	Federal MCL ($\mu g/\ell$)[3]	Florida Guidance Concentration ($\mu g/\ell$)[4]
Nitrofurazone	59870	C	0.045		
Nitrogen dioxide	10102440	N	3,700		7,000
Nitroguanidine	556887	N	370		
2-Nitrophenol	88755				20
4-Nitrophenol	100027	N	230		15
2-Nitropropane	79469	N	21		
N-Nitrosodi-n-butylamine	924163	C	0.012		4
N-Nitrosodiethanolamine	1116547	C	0.024		
N-Nitrosodiethylamine	55185	C	0.00045		4
N-Nitrosodimethylamine	62759	C	0.0013		7.5
N-Nitrosodiphenylamine	86306	C	14		7
N-Nitroso di-n-propylamine	621647	C	0.0096		4
N-Nitroso-N-methylethylamine	10595956	C	0.0031		7.5
N-Nitrosopyrrolidine	930552	C	0.032		4
m-Nitrotoluene	99081	N	6.1		
o-Nitrotoluene	88722	N	6.1		
p-Nitrotoluene	99990	N	6.1		
Norflurazon	27314132	N	150		280
NuStar	85509199	N	2.6		
Octabromodiphenyl ether	32536520	N	11		
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	N	180		
Octamethylpyrophosphoramide	152169	N	7.3		1,000
Oryzalin	19044883	N	180		350
Oxadiazon	19666309	N	18		35
Oxamyl	23135220	N	91	200	200
Oxyfluorfen	42874033	N	11		
Paclobutrazol	76738620	N	47		
Paraquat	1910425	N	16		31.5
Parathion	56382	N	22		42
Pebulate	1114712	N	180		
Pendimethalin	40487421	N	150		280
Pentabromo-6-chloro cyclohexane	87843	C	2.9		
Pentabromodiphenyl ether	32534819	N	7.3		
Pentachlorobenzene	608935	N	0.49		5.6
Pentachloronitrobenzene	82688	C	0.041		15
Pentachlorophenol	87865	C	0.56	1	1
Permethrin	52645531	N	180		350

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
pH	c-006				6.5-8.5
Phenmedipham	13684634	N	910		
Phenol	108952	N	2,200		10
m-Phenylenediamine	108452	N	22		
p-Phenylenediamine	106503	N	690		1,330
Phenylmercuric acetate	62384	N	0.29		
2-Phenylphenol	90437	C	35		18
Phorate	298022	N	0.73		1.4
Phosmet	732116	N	73		140
Phosphine	7803512	N	1.1		125
Phosphorus (white)	7723140	N	0.073		
p-Phthalic acid	100210	N	3,700		
Phthalic anhydride	85449	N	7,300		14,000
Picloram	1918021	N	260	500	500
Pirimiphos-methyl	29232937	N	37		
Polybrominated biphenyls	NA	C	0.0076		
Polychlorinated biphenyls (PCBs)	1336363	C	0.0087	0.5	0.5
Aroclor 1016	12674112	N	0.26		
Aroclor 1254	11097691	N	0.073		
Polychlorinated terphenyls (PCTs)	NA	C	0.015		
Polynuclear aromatic hydrocarbons					
Acenaphthene	83329	N	220		20
Acenaphthylene	208968				10
Anthracene	120127	N	1,100		2,100
Benzo(a)pyrene	50328	C	0.0092	0.2	0.2
Benzo(b)fluoranthene	205992	C	0.092	0.2	4
Benzo(k)fluoranthene	207089	C	0.92	0.2	4
Benz(a)anthracene	56553	C	0.092	0.1	4
Benzo(g,h,i)perylene	191242				10
Carbazole	86748	C	3.4		7.5
Chrysene	218019	C	9.2	0.2	5
Dibenz(a,h)anthracene	53703	C	0.0092	0.3	7.5
Fluoranthene	206440	N	150		280
Fluorene	86737	N	150		280
Indeno[1,2,3-cd]pyrene	193395	C	0.092	0.4	7.5
Naphthalene	91203	N	150		6.8
Phenanthrene	85018	N			10

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Pyrene	129000	N	110		210
Potassium		N	297,016[12]		
Prochloraz	67747095	C	0.45		
Profluralin	26399360	N	22		
Prometon	1610180	N	55		105
Prometryn	7287196	N	15		28
Pronamide	23950585	N	270		525
Propachlor	1918167	N	47		91
Propanil	709988	N	18		
Propargite	2312358	N	73		
Propargyl alcohol	107197	N	7.3		
Propazine	139402	N	73		140
Propham	122429	N	73		140
Propiconazole	60207901	N	47		
Propylene glycol	57556	N	73,000		
Propylene glycol, monoethyl ether	52125538	N	2,600		
Propylene glycol, monomethyl ether	107982	N	2,600		
Propylene oxide	75569	C	0.28		5,000
Pursuit	81335775	N	910		
Pydrin	51630581	N	91		
Pyridine	110861	N	3.7		7
Quinalphos	13593038	N	1.8		
Quinoline	91225	C	0.0056		
Resmethrin	10463868	N	110		
Ronnel	299843	N	180		
Rotenone	83794	N	15		28
Savey	78587050	N	91		
Selenious acid	7783008	N	18		
Selenium	7782492	N	18	50	50
Selenourea	630104	N	18		
Sethoxydim	74051802	N	330		
Silver and compounds	7440224	N	18		100
Simazine	122349	C	0.56	4	4
Sodium	7440280	N	396,022[12]		160,000
Sodium azide	26628228	N	15		
Sodium diethyldithiocarbamate	148185	C	0.25		
Sodium fluoroacetate	62748	N	0.073		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC ($\mu g/\ell$)[2]	Federal MCL ($\mu g/\ell$)[3]	Florida Guidance Concentration ($\mu g/\ell$)[4]
Sodium metavanadate	13718268	N	3.7		
Strontium, stable	7440246	N	2,200		4,200
Strychnine	57249	N	1.1		
Styrene	100425	N	160	100	100
Sulfate	14808798				250,000
Systhane	88671890	N	91		
2,3,7,8-TCDD (dioxin)	1746016	C	$4x10^{-7}$	$3x10^{-5}$	$3x10^{-6}$
Tebuthiuron	34014081	N	260		490
Temephos	3383968	N	73		
Terbacil	5902512	N	47		91
Terbufos	13071799	N	0.091		0.18
Terbutryn	886500	N	3.7		
1,2,4,5-Tetrachlorobenzene	95943	N	0.18		4
1,1,1,2-Tetrachloroethane	630206	C	0.41		1
1,1,2,2-Tetrachloroethane	79345	C	0.052		0.2
Tetrachloroethylene (PCE)	127184	C	1.1	5	3
2,3,4,6-Tetrachlorophenol	58902	N	110		210
p,a,a,a-Tetrachlorotoluene	5216251	C	0.00053		
Tetrachlorovinphos	961115	C	2.8		
Tetraethyldithiopyrophosphate	3689245	N	1.8		3.5
Thallic oxide	1314325	N	0.26		
Thallium	NA	N		2	2
Thallium acetate	563688	N	0.33		
Thallium carbonate	6533739	N	0.29		
Thallium chloride	7791120	N	0.29		
Thallium nitrate	10102451	N	0.33		
Thallium selenite	12039520	N	0.33		
Thallium sulfate	7446186	N	0.29		
Thiobencarb	28249776	N	37		
2-(Thiocyanomethylthio)-benzothiazole	21564170	N	110		210
Thiofanox	39196184	N	1.1		
Thiophanate-methyl	23564058	N	290		
Thiram	137268	N	18		35
Tin and compounds	NA	N	2,200		4,200
Toluene	108883	N	75	1,000	40
Toluene-2,4-diamine	95807	C	0.021		100
Toluene-2,5-diamine	95705	N	2,200		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Toluene-2,6-diamine	823405	N	730		
o-Toluidine	95534	C			50
p-Toluidine	106490	C	0.35		150
Toxaphene	8001352	C	0.061	3	3
Tralomethrin	66841256	N	27		
Triallate	2303175	N	47		
Triasulfuron	82097505	N	37		
1,2,4-Tribromobenzene	615543	N	3		
Tributyltin oxide (TBTO)	56359	N	0.11		
Trichloroacetic acid				60[8]	
2,4,6-Trichloroaniline hydrochloride	33663502	C	2.3		
2,4,6-Trichloroaniline	634935	C	2		
1,2,4-Trichlorobenzene	120821	N	19	70	70
1,1,1-Trichloroethane	71556	N	130	200	200
1,1,2-Trichloroethane	79005	C	0.19	5	5
Trichloroethylene (TCE)	79016	C	1.6	5	3
Trichlorofluoromethane	75694	N	130		2,100
2,4,5-Trichlorophenol	95954	N	370		4
2,4,6-Trichlorophenol	88062	C	6.1		10
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	93765	N	37		70
(2,4,5-Trichlorophenoxy)propionic acid (2,4,5-TP)	93721	N	29	50	50
1,1,2-Trichloropropane	598776	N	3		
1,2,3-Trichloropropane (TCP)	96184	C	0.0015		42
1,2,3-Trichloropropene	96195	N	3		
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	N	5,900		500,000
Tridiphane	58138082	N	11		
Triethylamine	121448	N	7.3		
Trifluralin	1582098	C	8.7		5
Trimethyl phosphate	512561	C	1.8		50
1,2,4-Trimethylbenzene	95636	N	0.3		
1,3,5-Trimethylbenzene	108678	N	0.24		
1,3,5-Trinitrobenzene	99354	N	0.18		60
Trinitrophenylmethylnitramine	479458	N	37		
2,4,6-Trinitrotoluene	118967	C	2.2		10
Trithion	786196	N			12
Uranium (soluble salts)	7440611	N	11		

See notes at end of table.

Table D-1-5 (Continued)
Water Screening Values

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Contaminant	CASRN	Basis of RBC[1]	Tap Water RBC (µg/ℓ)[2]	Federal MCL (µg/ℓ)[3]	Florida Guidance Concentration (µg/ℓ)[4]
Vanadium	7440622	N	26		49
Vanadium pentoxide	1314621	N	33		
Vanadium sulfate	36907423	N	73		
Vernam	1929777	N	3.7		
Vinclozolin	50471448	N	91		
Vinyl acetate	108054	N	3700		250
Vinyl bromide	593602	N	0.52		
Vinyl chloride	75014	C	0.019	2	1
Warfarin	81812	N	1.1		
m-Xylene	108323	N	140		
o-Xylene	95476	N	140		
p-Xylene	106423	N	52		
Xylene (mixed)	1330207	N	1,200	10,000	20
Zinc	7440666	N	1,100		5,000
Zinc phosphate	1314847	N	1.1		
Zineb	12122677	N	180		350

[1] The risk-based concentration (RBC) is based on carcinogenic (C) or noncarcinogenic (N) effects.
[2] USEPA Region III RBC Table (February 9, 1995). Noncarcinogenic values have been adjusted for an HQ of 0.1.
[3] The USEPA Maximum Contaminant Levels (MCLs) are from "Drinking Water Regulations and Health Advisories" (November 1994).
[4] Florida Department of Environmental Protection Groundwater Guidance Concentrations (June 1994).
[5] The value is based on the treatment technology (TT) concentration.
[6] The MCL value for any two or more of these three chemicals should remain at 7 µg/l because they have a similar mode of action.
[7] 1994 Proposed rule for disinfection by-products: the total concentration of all trihalomethanes combined cannot exceed 80 µg/ℓ (100 µg/l is the current MCL).
[8] The total concentration of all haloacetic acids cannot exceed 60 µg/ℓ.
[9] The values for 1,3-dichlorobenzene are based on data for 1,2-dichlorobenzene.
[10] This value is the action level for copper.
[11] This value is the action level for lead.
[12] Based on information provided in Appendix D-2 of this document, Derivation of Surface Soil and Groundwater Screening Concentrations of Essential Nutrients for HHCPC Selection.
[13] The values for naphthalene were used as surrogates for 2-methylnaphthalene.

Notes: BHC = hexachlorocyclohexane.
µg/l = microgram per liter.
mg/l = milligram per liter
TT = Treatment Technology.
HCH = hexachlorocyclohexane.
NA = not applicable.

Table D-1-6
Identification of Background Screening Concentrations
Surface Water

RCRA Corrective Action Program, General Information Report
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Chemical	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Concentration[4]
Volatiles (µg/l)					
1,2-Dibromo-3-chloropropane	2/8	10 - 10	10 - 10	10	NA
Semivolatiles (µg/l)					
2-Acetylaminofluorene	1/8	10 - 10	10 - 10	10	NA
bis(2-Ethylhexyl)phthalate	2/8	1 - 3	10 - 40	3	NA
Inorganics (µg/l)					
Antimony	1/8	38.75* - 38.75*	3.1 - 40	38.8	77.6
Arsenic	5/8	0.86 - 8.1	0.9 - 6.9	3.1	6.2
Barium	8/8	7.2* - 15.4*	NR	11.3	22.6
Cadmium	1/8	1.6* - 1.6*	0.8 - 4.0	1.6	3.2
Calcium	4/4	71,350* - 168,000	NR	141,088	282,176
Chromium	1/8	2.5* - 2.5*	0.95 - 2.4	2.5	5
Cobalt	2/8	5.6 - 9.7*	2.3 - 5.1	7.7	15.4
Copper	3/8	1.5* - 37.2	0.7 - 27.5	13.7	27.4
Iron	3/4	89.1* - 435	187 - 187	226	452
Lead	2/8	1.2* - 1.3	0.78 - 2.6	1.3	2.6
Magnesium	4/4	54,300* - 490,000	NR	335,575	671,150
Manganese	4/4	10.4 - 96.35*	NR	41.7	83.4
Nickel	1/8	13 - 13	7 - 19.8	13	26
Selenium	3/8	1.2* - 13.7	0.65 - 10.6	5.8	11.6
Sodium	1/4	383,000* - 383,000*	55.6 - 55.6	383,000	766,000
Thallium	2/8	1.8 - 73.7	1.4 - 1.4	37.8	75.6
Tin	1/8	776 - 776	9.4 - 208	776	1,552
Vanadium	6/8	2.3* - 5.2	1.1 - 2.7	4	8
Zinc	1/8	2* - 2*	0.8 - 23.5	2	4
Cyanide	2/8	0.92 - 3	1.8 - 3	1.5	3

See notes at end of table.

Table D-1-6 (Continued)
Identification of Background Screening Concentrations
Surface Water

RCRA Corrective Action Program, General Information Report
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Chemical	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Concentration[4]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values). The following samples were analyzed: MPT-B-SW1, MPT-B-SW2, MPT-B-SW3, MPT-B-SW4, MPT-B-SW5, MPT-B-SW6, MPT-B-SW7, OOSWOO1 (MPT-B-SWs), and two duplicates, MPT-B-SW-3D and MPTBSW7D.
[2] A value indicated by an asterisk is the average of the detected conccentrations in a sample and its duplicate. For nondetect values, one-half the contract-required detection limit/contract-required quantitation limit (CRQL/CRDL) is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.
[4] The background screening value is two times the mean detected concentration for inorganic analytes.

Notes: NA = not applicable.
NR = range of reporting limits not applicable because the analyte was detected in every sample.
$\mu g/\ell$ = micrograms per liter.

Table D-1-7
Identification of Background Screening Concentrations
Sediment

RCRA Corrective Action Program, General Information Report
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Chemical	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Concentration[4]
Volatiles (µg/kg)					
Carbon disulfide	1/8	51* - 51*	6 - 12	51	NA
Toluene	1/8	3 - 3	6 - 15	3	NA
Semivolatiles (µg/kg)					
bis(2-Ethylhexyl)phthalate	2/8	170* - 292.5*	45 - 7,200	231	NA
Di-n-butylphthalate	2/8	54 - 70.5*	410 - 7,200	62.3	NA
Pyrene	1/8	282* - 282*	410 - 7,200	282	NA
Pesticides/PCBs (µg/kg)					
4,4'-DDD	1/8	4.2 - 4.2	1 - 4.5	4.2	NA
4,4'-DDE	2/8	3 - 7.9	0.7 - 4.5	5.5	NA
4,4'-DDT	1/8	0.8 - 0.8	1 - 4.5	0.8	NA
Inorganics (mg/kg)					
Arsenic	4/8	0.68 - 5.4*	0.01 - 0.21	2.7	5.4
Barium	8/8	3.6 - 15.65*	NR	7.3	14.6
Beryllium	2/8	0.07* - 0.47*	0.04 - 0.56	0.27	0.54
Cadmium	1/8	0.575* - 0.575*	0.33 - 1.3	0.57	1.14
Chromium	8/8	1.3 - 27.35*	NR	7.6	15.2
Cobalt	1/8	2.4 - 2.4	0.56 - 5.65	2.4	4.8
Copper	7/8	0.88* - 7.5	0.43 - 0.43	3.4	6.8
Lead	6/8	1.5 - 9.25*	0.2 - 1.2	4.6	9.2
Mercury	3/8	0.12* - 1.1	0.02 - 0.24	0.49	0.98
Nickel	3/8	5.1 - 6.75*	2 - 3.6	5.8	11.6
Selenium	6/8	0.32 - 0.81	0.3 - 1.1	0.55	1.1
Thallium	1/8	0.62* - 0.62*	0.36 - 0.74	0.62	1.24
Tin	1/8	12.3 - 12.3	5 - 90.1	12.3	24.6
Vanadium	8/8	1.6 - 27.3*	NR	7.4	14.8
Zinc	8/8	2.1- 34.3*	NR	12.9	25.8

See notes at end of table.

Table D-1-7 (Continued)
Identification of Background Screening Concentrations
Sediment

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Chemical	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Concentration[4]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values). The following samples were analyzed: MPT-B-SD1, MPT-B-SD2, MPT-B-SD3, MPT-B-SD4, MPT-B-SD5, MPT-B-SD6, MPT-B-SD7, 00SD001, and two duplicates, MPT-B-SD-3D and MPTBSD7D.
[2] A value indicated by an asterisk is the average of the detected concentrations in a sample and its duplicate. For nondetect values, one-half the contract-required detection limit/contract required quantitation limit (CRQL/CRDL) is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.
[4] The background screening value is two times the mean detected concentration for inorganic analytes.

Notes: 4,4'DDD = dichlorodiphenyldichloroethene.
4,4'DDE = dichlorodiphenyldichloroethane.
4,4'DDT = dichlorodiphenyltrichloroetheane.
NA = not applicable.
NR = range of reporting limits not applicable because the analyte was detected in every sample.
µg/kg = micrograms per kilogram.
mg/kg = milligrams per kilogram.
PCBs = polychlorinated biphenyls.

APPENDIX D-2

DERIVATION OF SURFACE SOIL AND GROUNDWATER SCREENING CONCENTRATIONS OF ESSENTIAL NUTRIENTS FOR HHCPC SELECTION

DERIVATION OF SURFACE SOIL AND GROUNDWATER SCREENING CONCENTRATIONS FOR HHCPC SELECTION

Certain inorganics (calcium, iron, magnesium, potassium, and sodium) that are present as naturally-occurring constituents in soil and groundwater are required in limited intakes to maintain normal human physiological functions, and are therefore considered essential nutrients. The Risk Assessment Guidance for Superfund (RAGS), Volume I, Part A, regarding the treatment of essential nutrients in selection of human health contaminants of potential concern (HHCPCs), states that essential nutrients need not be quantitatively evaluated in a public health risk assessment if they are: 1) present at low concentrations (only slightly above background); and 2) toxic only at doses much higher than those which might be related to exposure at the site (USEPA, 1989). In this report, "only slightly above background" is interpreted to mean that the arithmetic mean of the site concentrations is less than two times the arithmetic mean of the background concentrations. The focus of this section of the document is the technical approach for determining that an analyte is "toxic only at doses higher than those associated with exposures at the site" and a mechanism for making that determination by employing soil and groundwater screening concentrations. The screening concentrations are used to streamline the process and to eliminate the need to calculate essential nutrient doses as part of HHCPC selection at every site. If the maximum concentration of an essential nutrient does not exceed the appropriate screening concentration shown below, the essential nutrient is considered nontoxic. Essential nutrients are not retained as HHCPCs if they are detected at concentrations that are either consistent with background or do not exceed the screening concentrations.

Currently, no published essential nutrient screening concentrations for use in risk assessment HHCPC selection are available. Therefore, ABB-ES has derived surface soil and groundwater screening concentrations of essential nutrients that, when contacted in accordance with the exposure assumptions described below, are not expected to result in adverse health effects. The screening concentrations for groundwater and surface soil are presented in Table D-2-1. The essential nutrient concentrations in surface soil and groundwater are to be compared directly to the nutrient screening concentrations for the purposes of HHCPC selection.

Table D-2-1
Essential Nutrient Screening Concentrations for Surface Soil and Groundwater

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Essential Nutrient	Surface Soil Screening Concentration (mg/kg)	Groundwater Screening Concentration (µg/ℓ)
Calcium	[1]1,000,000	1,055,398
Iron	47,824	13,267
Magnesium	460,468	118,807
Potassium	[1]1,000,000	297,016
Sodium	[1]1,000,000	396,022

[1] Actual calculated screening concentration is greater than 1,000,000 mg/kg (Table D-2-5), indicating that this essential nutrient would not be present at toxic levels in surface soil.

Note: As described below, screening concentrations for surface soil and groundwater represent conservative screening concentrations for other media. These surface soil and groundwater screening concentrations are used to screen sediment, subsurface soil, sludge, and surface water, respectively.

DOCUMENTATION OF SURFACE SOIL AND GROUNDWATER SCREENING CONCENTRATIONS

The essential nutrient toxicity screening concentrations were derived in two steps: first, a "nontoxic" dose was identified for each essential nutrient; second, the soil and groundwater concentrations associated with the "nontoxic" doses were calculated using standard residential exposure assumptions. The details of the derivation of the screening values are presented below.

Identification of non-toxic doses

The identification of doses which are not toxic is often accomplished by identifying reference doses (RfDs) which are published by USEPA. These RfDs represent doses, including a margin of safety, to which even sensitive subpopulations could be exposed for a lifetime without adverse noncarcinogenic effects. Because no RfDs for calcium, iron, magnesium, potassium, or sodium are available in the Integrated Risk Information System (IRIS) (USEPA, 1994a) or the Health Effects Assessment Summary Tables (HEAST) (USEPA, 1994b), other published nontoxic doses were sought. Recommended Dietary Allowances (RDAs) prepared by the Food and Nutrition Board (FNB) of the National Research Council (NRC, 1989) have been selected here to represent nontoxic doses.

RDAs are defined by the FNB as "the levels of intake of essential nutrients that, on the basis of scientific knowledge, are judged by the Food and Nutrition Board to be adequate to meet the known nutrient needs of practically all healthy persons." It is assumed here that, because the RDA represents a requirement for good nutrition, it also represents a dose that is nontoxic. Although some essential nutrients (arsenic, for example) have been classified as carcinogens, none of the five nutrients discussed here have been classified as carcinogens. The available RDA data for calcium, iron, magnesium, potassium and sodium are presented in Table D-2-2. From this data set, RDAs for children were preferentially selected to coincide with the child exposure scenario. RDAs were converted from units of mg/day to units of mg/kg/day by dividing the RDA by the child resident body weight of 15 kg (USEPA, 1991). Dermal RDAs were developed by adjusting the oral RDA to compensate for the oral absorption efficiency in a manner similar to that presented in Appendix A of RAGS, Volume I, Part A (USEPA, 1989), and described in Appendix J of the Draft MCLB Albany OU1/OU2 RI/RA Report (ABB-ES, 1993).

Calculation of screening concentrations

Risk-based screening concentrations for essential nutrients were derived by estimating concentrations in soil and groundwater that correspond to the RDAs for a residential exposure scenario. When the dose is equal to the RDA, the hazard quotient (HQ) for the situation would equal one. Risk calculation spreadsheets have been used to assist in the calculation of the screening concentrations. When the concentration of an essential nutrient and the associated HQ are known, only a simple calculation is needed to identify the concentration associated with an HQ of one. An arbitrary nutrient concentration has been entered into risk spreadsheets to derive associated HQ values as shown in Tables D-2-3 and D-2-4. Once that information was available, the equality shown below was used to calculate screening soil concentration with the target HQ equal to one.

$$\frac{\textit{Baseline Soil Concentration}}{\textit{Baseline H Q}} = \frac{\textit{Screening Soil Concentration}}{\textit{Target H Q}}$$

Table D-2-2
Recommended Dietary Allowances[1]

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Nutrient	RDA	Age (years)	Oral Absorption (%)	Typical Dietary Intake (mg/day)	Toxicity Threshold (mg/day)	Oral RDA (mg/kg/day) [2]	Dermal RDA (mg/kg/day) [3]
Calcium	800 (mg/day)	1-10	40	743 (average of all ages)	NA	53.3	21.2
	1,200 (mg/day)	11-24		1179	NA		
	800 (mg/day)	>24		743 (average of all ages); 530 (women ages 35-50)	>2,500		
Iron	10 (mg/day)	1-20	10-15	10-15	25-75 (NOAEL); 3,000 (lethal)	0.67	0.067
	15 (mg/day)	>20		10-15	25-75 (NOAEL); 14,000 (lethal)		
Magnesium	6 (mg/kg/day)	1-15	50	193 (age 1 through 5)	NA	6	3
	4.5 (mg/kg/day)	>15		207-329	NA		
Potassium	15-20 (mg/kg/day)	1-10	90	1,500	NA	15	13.5
	1,600-2,000 (mg/day)	>20		2,500	18,000 (hyperkalemia)		
Sodium	300 (mg/day)	2-5	90 [4]	NA	NA	20	18
	500 (mg/day)	Adult		1,800-5,000	2,400 (intake not to be exceeded)		

[1] All data are from the National Resource Council (1989).
[2] Adjusted oral recommended daily allowance (RDA) calculated by dividing the RDA milligrams per kilogram (mg/kg) by the bodyweight of a child ages 1 through 6 (15 kilograms [kg]) (USEPA, 1991); RDAs provided in milligrams per kilogram per day (mg/kg/day) were not modified.
[3] Adjusted dermal RDA calculated by multiplying the oral RDA by the oral absorption efficiency (U.S. Environmenal Protection Agency [USEPA], 1989).
[4] Oral absorption data not available; value for potassium used as a surrogate based on physio-chemical similarities.

Notes: RDA = recommended daily allowance.
% = percent.
mg/day = milligrams per day.
mg/kg/day = milligrams per kilogram per day.
NA = not applicable.
NOAEL =

Screening groundwater concentrations were calculated in a similar manner. The surface soil and groundwater risk assessment spreadsheets used to calculate the HQs for each essential nutrient are taken from the Draft MCLB Albany OU1/OU2 RI/RA (ABB-ES, 1993). The baseline soil concentration is arbitrary and is used only to establish a baseline HQ to solve the equality.

To derive screening concentrations that would be protective to the majority of the exposed population, the exposure assumptions for the most sensitive receptor evaluated in the Draft MCLB Albany OU1/OU2 RI/RA (ABB-ES, 1993) (e.g., a child resident) were used. For groundwater, screening concentrations were based on ingestion of groundwater as drinking water. For surface soil, screening concentrations were based on ingestion of surface soil and dermal contact with surface soil. Child resident exposure to surface soil and groundwater used as drinking water is usually greater than or equal to oral and dermal exposure to media treated as soil and groundwater, respectively, for exposure assessment. Therefore, screening values for surface soil represent conservative screening values for sediment, subsurface soil, and sludge, and screening values for groundwater used as drinking water represent conservative screening values for surface water. The exposure parameters for the child resident are presented in the accompanying surface soil and groundwater screening concentration spreadsheets (Tables D-2-3 and D-2-4, respectively).

The calculated essential nutrient screening concentrations for surface soil and groundwater are presented in Table D-2-5. These values represent the concentrations of individual essential nutrients in media that, if contacted in accordance with the exposure parameters used to derive the screening concentration, would theoretically result in the receptor receiving his or her recommended dietary allowance of an essential nutrient solely from the contacted media. For some nutrients, the calculated screening concentrations exceed 1,000,000 mg/kg (i.e., 100 percent). Such concentrations indicate that no concentration of nutrient in the particular medium would result in an intake that exceeds the RDA, given the exposure assumptions on which the screening value is based. Because these screening concentrations do not take into account the additivity of exposures between media (and other dietary intakes, including food), a receptor exposed to essential nutrients that are present in multiple media at the screening concentrations would, in essence, be receiving more than his or her recommended dietary allowance of nutrient. However, data provided in Table D-2-2 indicate that the toxicity threshold for most essential nutrients is several times greater than the RDA; the RDA is not a toxicity threshold value. Therefore, these screening concentrations do not represent concentrations which, if exceeded, would necessarily result in deleterious effects.

Table D-2-5
Theoretical Essential Nutrient Screening Concentrations for Surface Soil and Groundwater

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Essential Nutrient	Surface Soil Screening Concentration (mg/kg)[1]	Groundwater Screening Concentration (µg/l)[2]
Calcium	[3]4,070,824	1,055,398
Iron	47,824	13,267
Magnesium	460,468	118,807
Potassium	[3]1,160,864	297,016
Sodium	[3]1,547,819	396,022

[1]Surface soil screening concentrations calculated as described in text, using recommended daily allowances (RDAs) presented in Table D-2-2 and the exposure parameters and risk calculations presented in Table D-2-3.
[2]Surface soil screening concentrations calculated as described in text, using RDAs presented in Table D-2-2 and the exposure parameters and risk calculations presented in Table D-2-4.
[3]The calculation of a screening concentration larger than 1,000,000 milligrams per kilogram (mg/kg) indicates that no concentration results in an intake greater than the RDA, given the standard exposure parameters.

Notes: mg/kg = milligrams per kilogram.
µg/l = micrograms per liter.

REFERENCES

ABB-ES (1993). "Remedial Investigation/Risk Assessment Report: Operable Units 1 and 2; Marine Corps Logistics Base Albany; Albany, Georgia. (Draft)." Southern Division, Naval Facilities Engineering Command, North Charleston, SC.

National Research Council (NRC). (1989) "Recommended Dietary Allowances, Tenth Edition." National Research Council Subcommittee on the Tenth Edition of the RDAs, Food and Nutrition Board Commission on Life Sciences. National Academy of Sciences. National Academy Press, Washington, D.C.

USEPA (1989) "Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part A)." U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., December. EPA/540/1-89/002.

USEPA (1991) "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors." OSWER Directive 9285.6-03.

USEPA (1994a). Integrated Risk Information System (IRIS). Online. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH.

USEPA (1994b). "Health Effects Assessment Summary Tables: FY-1994 Annual". U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., March, 1994. EPA 540-R-94-020.

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL - ESSENTIAL NUTRIENTS
CHILD RESIDENT
EXAMPLE SITE

ENTER FILE NAME:	apd2tab3
DESCRIBE SCENARIO:	DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL - ESSENTIAL NUTRIENTS
DESCRIBE POPULATION:	CHILD RESIDENT
ENTER SITE:	EXAMPLE SITE
ENTER SITE LOCATION:	
ENTER TABLE #:	D-2-3
ENTER JOB #:	
DATE:	11-Jul-95
TEMPLATE UPDATE DATE:	JUNE 1994

EXPOSURE PARAMETERS

STEP 1:
Select soil or sediment
Enter exposure parameters
Indicate concentration type (e.g., average, max, 95%UCL)
Indicate source (e.g., USEPA, 1989a)

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical specific	chemical-specific	
INGESTION RATE	IR	200	mg/day	USEPA, 1991
FRACTION INGESTED	FI	100%	unitless	Assumption
ADHERENCE FACTOR	AF	1	mg/cm²-event	USEPA, 1992a
AGE-SPECIFIC SURFACE AREA	SA_i	age-specific	cm²	USEPA, 1989
ABSORPTION FRACTION	ABS_d	chemical specific	unitless	USEPA, 1992b
CONVERSION FACTOR	CF	1.00E-06	kg/mg	SEE BELOW
BODY WEIGHT	BW	15	kg	USEPA, 1991
AGE-SPECIFIC BODY WEIGHT	BW_i	age-specific	kg	USEPA, 1989
EXPOSURE FREQUENCY	EF	350	days/year *	USEPA, 1991
EXPOSURE DURATION	ED	6	years	USEPA, 1991
AGE-SPECIFIC EXPOSURE DUR	ED_i	age-specific	years	Assumption
AGE-WEIGHTED SURFACE ARE	$SA_{soil/sed}$	768	cm2-year/kg	Per USEPA, 1992a
DOSE ABSORBED PER EVENT	DA_{event}	chemical specific	mg/cm²-event	Per USEPA, 1992a
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	6	years	USEPA, 1991

EQUATIONS

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLO

HAZARD QUOTIENT = INTAKE (mg/kg-day) / RECOM
ALLOWANCE (mg/kg-day)

$$\text{INTAKE-INGESTION} = \frac{CS \times IR \times FI \times CF \times EF \times ED}{BW \times AT \times 365\ days/yr}$$

$$\text{INTAKE-DERMAL} = (DA_{event} \times EF / AT \times 365\ days/year) \times SA_{...}$$

Where:

$SA_{soil/sed}$ = SUM (SA_i x ED_i / BW_i)
DA_{event} = CS x AF x ABS_d x CF

* Units for exposure frequency are in events/year in the calculation of the dermally absorbed dose.

List titles of sources here

[1] In estimating the dermally absorbed dose for children age 1 through 6, the time-weighted, bodyweight normalized surface area exposed is calculated from surface area, exposure duration, and body weight for each of 6 age periods, age 1 through 6, per USEPA, 1992.

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.
USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
USEPA, 1992a. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January 1992 and Dermal Exposure Appendix of this document.
USEPA, 1992b. USEPA Region IV Guidance Memo February 10, 1992.
CF = 10E-09 kg/ug for organics

Note:
For noncarcinogenic effects: AT = ED

apd2tab3 | 11-Jul-95

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL – ESSENTIAL NUTRIENTS
CHILD RESIDENT
EXAMPLE SITE

CARCINOGENIC EFFECTS

STEP 2:
Beginning here, enter CA's names, conc's, CSFs, and RAFs.

If more than 12 CA's, insert necessary rows here.
If less than 12 CA's, rows may

be deleted here.

Do not delete this row or this row.

COMPOUND [1]	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day)^-1	CANCER RISK INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day)^-1	CANCER RI: DERMAL	TOTAL CANCER RISK
				SUMMARY CANCER RISK		0.0E+00				0E+00	0E+00

[1] Essential nutrients are not considered carcinogenic from exposure through the oral or dermal routes.
[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (February 10, 1992).
[3] Calculated from Oral RfDs.

apc2tab3 | 11-Jul-95

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL – ESSENTIAL NUTRIENTS
CHILD RESIDENT
EXAMPLE SITE

NONCARCINOGENIC EFFECTS

STEP 3:
Beginning here, enter NC's names, conc's, RfDs, and RAFs.

If more than 26 NC's, refer to instructions. Do not insert rows.

If less than 26 NC's, rows may be deleted here.

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RDA (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RDA [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Calcium	I	5000	mg/kg	6.4E-02	5.3E+01	1.2E-03	0.001	6.1E-04	2.1E+01	2.9E-05	1.2E-03
Iron	I	5000	mg/kg	6.4E-02	6.7E-01	9.5E-02	0.001	6.1E-04	6.7E-02	9.1E-03	1.0E-01
Magnesium	I	5000	mg/kg	6.4E-02	6.0E+00	1.1E-02	0.001	6.1E-04	3.0E+00	2.0E-04	1.1E-02
Potassium	I	5000	mg/kg	6.4E-02	1.5E+01	4.3E-03	0.001	6.1E-04	1.4E+01	4.5E-05	4.3E-03
Sodium	I	5000	mg/kg	6.4E-02	2.0E+01	3.2E-03	0.001	6.1E-04	1.9E+01	3.4E-05	3.2E-03
					SUMMARY HAZARD INDEX	1.1E-01				9E-03	1E-01

Do not delete this row or this row.

[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (February 10, 1992).
[2] Calculated from Oral RDAs.

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apc2tab3 | 11-Jul-95

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL – ESSENTIAL NUTRIENTS
CHILD RESIDENT
EXAMPLE SITE

apd2tab3	11-Jul-95

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL – ESSENTIAL NUTRIENTS
CHILD RESIDENT
EXAMPLE SITE

MACROS

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\P PRINT	{CALC}{GOTO}border~/Cnumber~ ~{EDIT}{HOME}{DEL}TABLE ~ {calc}{APP1} PCOLQLCAQ RSexposure~G {ESC}{GOTO}border~{EDIT}, continued~{APP1} PRScancer~G {APP1}PRSnoncancer~G {app1}PRCQ{beep}{esc}/RE~

MACROS

\S SAVE	{CALC}{HOME}/FS ERR
\P PRINT	{CALC}{GOTO}border~/Cnumber~ ~{EDIT}{HOME}{DEL}TABLE ~ {calc}{APP1} /PCOLQLCAQ RSexposure~G {ESC}{GOTO}border~{EDIT}, continued~{APP1} /PRScancer~G {APP1} /PRSnoncancer~G {APP1} /PRCQ{beep}{esc}/RE~

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ap02tab4	11-Jul-95

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) - ESSENTIAL NUTRIENTS - OU1/OU2
CHILD RESIDENT
EXAMPLE SITE

ENTER FILE NAME:	ap02tab4
DESCRIBE SCENARIO:	INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) - ESSENTIAL NUTRIENTS - OU1/OU2
DESCRIBE POPULATION:	CHILD RESIDENT
ENTER SITE:	EXAMPLE SITE
ENTER SITE LOCATION:	
ENTER TABLE #:	D-2-4
ENTER JOB #:	
DATE:	11-Jul-95
TEMPLATE UPDATE DATE:	July 1994

EXPOSURE PARAMETERS

STEP 1:
Enter exposure parameters
Indicate concentration type
Indicate source

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical specific	ug/liter	
INGESTION RATE	IR	0.79	liters/day	USEPA, 1989
BODY WEIGHT	BW	15	kg	USEPA, 1991
CONVERSION FACTOR	CR	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1991
EXPOSURE DURATION	ED	6	years	USEPA, 1991
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	6	years	USEPA, 1991

List titles of sources here

USEPA, 1989. Exposure Factors Handbook, Final Report, EPA/600/8-89/043, May 1989.
USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day) ^ -1

HAZARD QUOTIENT = INTAKE (mg/kg-day) / RECOMMENDED DIETARY ALLOWANCE (mg/kg-day)

$$INTAKE_{ing} = \frac{CW \times IR \times EF \times ED \times CF}{BW \times AT \times 365\ days/year}$$

NOTE:
For noncarcinogenic effects AT = ED

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) – ESSENTIAL NUTRIENTS – OU1
CHILD RESIDENT
EXAMPLE SITE

CARCINOGENIC EFFECTS

STEP 2:

COMPOUND [1]	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	CANCER SLOPE FACTOR (mg/kg-day)^-1	CANCER RISK INGESTION
				TOTAL CANCER RISK	0E+00

[1] Essential nutrients are not considered carcinogenic from exposure through the oral route.

names, conc's, CSFs, and RAFs.
this row.

sp02tab4	11-Jul-95

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) - ESSENTIAL NUTRIENTS - OU1/OU2
CHILD RESIDENT
EXAMPLE SITE

NONCARCINOGENIC EFFECTS

STEP 3:
be deleted here.

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	RECOMMENDED DIETARY ALLOWA e (mg/kg-day)	HAZARD QUOTIENT INGESTION
Calcium	5000	ug/liter	2.5E-01	5.3E+01	4.7E-03
Iron	5000	ug/liter	2.5E-01	6.7E-01	3.8E-01
Magnesium	5000	ug/liter	2.5E-01	6.0E+00	4.2E-02
Potassium	5000	ug/liter	2.5E-01	1.5E+01	1.7E-02
Sodium	5000	ug/liter	2.5E-01	2.0E+01	1.3E-02
				TOTAL HAZARD INDEX	5E-01

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sp02tab4	11-Jul-95

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) - ESSENTIAL NUTRIENTS - OU1/OU2
CHILD RESIDENT
EXAMPLE SITE

apD2tab4	11-Jul-95

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) – ESSENTIAL NUTRIENTS – OU1/OU2
CHILD RESIDENT
EXAMPLE SITE

MACROS

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apD2tab4
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\P PRINT
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{calc}{APP1}
PCOLQLCAQ
RSexposure~G
{ESC}{GOTO}border~{EDIT}, continued~{APP1}
PRScancer~G
{APP1}PRSnoncancer~G
{APP1}PRCQ{beep}{esc}/RE~
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APPENDIX D-3

HUMAN HEALTH PARAMETERS

Table D-3-1
Exposure Parameters for Surface Soil Ingestion, Inhalation, and Dermal Contact Resident (Adult and Child)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CS \times IR_{soil} \times FI \times CF \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = CS \times AF \times ABS_d \times CF$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$INTAKE_{inh} = \frac{CA \times IR_{air} \times ET \times EF \times ED}{BW \times AT \times 365\ days/year}$$

Parameter	Symbol	Child Value (Age 1-6)	Adult Value	Units	Source
Concentration in Soil	CS	Chemical-specific		Chemical-specific	
Soil Ingestion Rate	IR_{soil}	200	100	mg/day	[1]
Fraction Ingested	FI	100%	100%	unitless	Assumption
Conversion Factor					
Inorganics	CF	1×10^{-6}	1×10^{-6}	mg/kg	
Organics	CF	1×10^{-9}	1×10^{-9}	µg/kg	
Exposure Frequency	EF	350	350	days/year	[1]
Exposure Duration	ED	6	24	years	[1]
Exposure Time[1]	ET	24	24	hours/day	[1]
Averaging Time	AT				
Cancer		70	70	years	[1]
Noncancer		6	24	years	[1]
Surface Area	SA		5750	cm^2	[2]
Age-weighted Surface Area	$SA_{soil/ed}$	766		cm^2-year/kg	Appendix D-7
Dose Absorbed per Unit Area per Event	DA_{event}	Chemical-specific		mg/cm^2-event	[2]
Particulate Emission Factor	PEF	4.97×10^7	4.97×10^7	m^3/kg	Appendix D-5

See notes at end of table.

Table D-3-1 (Continued)
Exposure Parameters for Surface Soil Ingestion, Inhalation, and Dermal Contact
Resident (Adult and Child)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Parameter	Symbol	Child Value (Age 1-6)	Adult Value	Units	Source
Inhalation Rate	IR_{air}	0.833	0.833	m^3/hour	[1]
Body Weight	BW	15	70	kg	[1]
Adherence Factor	AF	1	1	mg/cm^2-event	[2]
Absorption Fraction	ABS_d	Chemical-specific		unitless	[3]
Concentration in Air	CA	Chemical-specific		mg/m^3	Appendix D-5

[1]Exposure Time is used only in the Inhalation of Particulates Scenario; see Appendix D-5.

Sources:
1 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters".
2 USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January, 1992.
3 USEPA, 1992. USEPA Region IV Guidance Memorandum; February 10, 1992.

Notes: mg/day = milligrams per day.
% = percent.
mg/kg = milligrams per kilogram.
µg/kg = micrograms per kilogram
cm^2 = square centimeters.
m^3 = cubic meter.

Table D-3-2
Exposure Parameters for Surface Soil Ingestion, Inhalation, and Dermal Contact Trespasser (Adult and Adolescent)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CS \times IR_{soil} \times FI \times CF \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = CS \times AF \times ABS_d \times CF$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$INTAKE_{inh} = \frac{CA \times IR_{air} \times ET \times EF \times ED}{BW \times AT \times 365\ days/year}$$

Parameter	Symbol	Adolescent Value (Age 6-16)	Adult Value	Units	Source
Concentration in Soil	CS	Chemical-specific		Chemical-specific	
Particulate Emission Factor	PEF	4.97×10^7	4.97×10^7	m^3/kg	Appendix D-5
Dose Absorbed per Unit Area per Event	DA_{event}	Chemical-specific		mg/m^2-event	[1]
Soil Ingestion Rate	IR_{soil}	100	100	mg/day	Assumption
Fraction Ingested	FI	100%	100%	unitless	Assumption
Conversion Factor					
Inorganics	CF	1×10^{-6}	1×10^{-6}	kg/mg	
Organics	CF	1×10^{-9}	1×10^{-9}	kg/μg	
Exposure Frequency	EF	45	45	days/year	Assumption
Exposure Duration	ED	11	19	years	Assumption
Exposure Time[1]	ET	4	4	hours/day	Assumption
Averaging Time	AT				
Cancer		70	70	years	[2]
Non-cancer		11	19	years	Assumption

See notes at end of table.

Table D-3-2 (Continued)
Exposure Parameters for Surface Soil Ingestion, Inhalation, and Dermal Contact
Trespasser (Adult and Adolescent)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Parameter	Symbol	Adolescent Value (Age 6-16)	Adult Value	Units	Source
Surface Area	SA	Site-specific	5750	cm^2	[1]
Age-weighted Surface Area	$SA_{soil/adj}$	1136		cm^2-year/kg	Appendix D-7
Inhalation Rate	IR_{air}	0.833	0.833	m^3/hour	[2]
Body Weight	BW	40	70	kg	[4]
Adherence Factor	AF	1	1	mg/cm^2-event	[1]
Absorption Fraction	ABS_d	Chemical-specific		unitless	[3]
Concentration in Air	CA	Chemical-specific		mg/m^3	Appendix D-5

[1]Exposure Time is used only in the Inhalation of Particulate Scenario; see Appendix D-5.

Sources:
1 USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January, 1992.
2 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters".
3 USEPA, 1992. USEPA Region IV Guidance Memorandum; February 10, 1992.
4 USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; July 1989.

Notes: SA = surface area.
cm^2 = square centimeters.
cm^2-year/kg = square centimeters per day per year
IR = inhalation rate.
m3/hour = cubic meter per hour.
BW = body weight.
kg = kilogram.

Table D-3-3
Exposure Parameters for Surface Soil Ingestion, Inhalation, and Dermal Contact
Site Maintenance Worker (Adult)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CS \times IR_{soil} \times FI \times CF \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$INTAKE_{inh} = \frac{CA \times IR_{air} \times ET \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = CS \times AF \times ABS_d \times CF$$

Parameter	Symbol	Adult Value	Units	Source
Concentration in Soil	CS	Chemical-specific	Chemical-specific	
Particulate Emission Factor	PEF	4.97×10^7	m^3/kg	Appendix D-5
Soil Ingestion Rate	IR_{soil}	118 [2]	mg/day	[3]
Fraction Ingested	FI	100%	unitless	Assumption
Conversion Factor				
Inorganics	CF	1×10^{-6}	kg/mg	
Organics	CF	1×10^{-9}	kg/μg	
Exposure Frequency	EF	30	days/year	Assumption
Exposure Duration	ED	25	years	[3]
Exposure Time [1]	ET	8	hours/day	Assumption
Averaging Time	AT			
Cancer		70	years	[3]
Noncancer		25	years	[3]
Surface Area	SA	5750	cm^2	[4]
Inhalation Rate	IR_{air}	2.5	m^3/hour	[3]
Body Weight	BW	70	kg	[3]

See notes at end of table.

Table D-3-3 (Continued)
Exposure Parameters for Surface Soil Ingestion, Inhalation, and Dermal Contact
Site Maintenance Worker (Adult)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Parameter	Symbol	Adult Value	Units	Source
Adherence Factor	AF	1	mg/cm^2-event	[4]
Absorption Fraction	ABS_d	Chemical-specific	unitless	[5]
Concentration in Air	CA	Chemical-specific	mg/m^3	Appendix D-5

Sources:

[1] Exposure Time is only used in the Inhalation of Particulates Scenario; see Appendix D-5.

[2] Calculated based on the following assumptions from Hawley, J.K., 1985. Assessment of Health Risk From Exposure to Contaminated Soil. Risk Analysis, 5:(4):28

-inside surface area of the hand is 14% of total surface area of the hand
surface area of hand (male) - 840 cm^2 (USEPA, 1992 [4])
inside surface area of hand (male) - 0.14 x 840 cm^2 = 118 cm^2

- adult ingests soils covering one-half of inside surface area of the hands two times per day
0.5 x 118 cm^2 x 2/day = 118 cm^2;

Use soil adherence factor of 1 mg/cm^2;
118 cm^2/day x 1 mg/cm^2 = 118 mg/day

[3] USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters."

[4] USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January, 1992.

[5] USEPA, 1992. USEPA Region IV Guidance Memorandum; February 10, 1992.

Notes: m^3/kg = cubic meters per kilogram.
% = percent.
kg/mg = kilogram per milligram.
kg/μg = kilogram per microgram.
cm^2 = square centimeter.
m^3/hour = cubic meter per hour.

Table D-3-4
Exposure Parameters for Surface and Subsurface Soil Ingestion, Inhalation, and Dermal Contact
Excavation Worker (Adult)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CS \times IR_{soil} \times FI \times CF \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$INTAKE_{inh} = \frac{CA \times IR_{air} \times ET \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = CS \times AF \times ABS_d \times CF$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED}{BW \times AT \times 365\ days/year}$$

Parameter	Symbol	Adult Value	Units	Source
Concentration in Soil	CS	Chemical-specific	Chemical-specific	
Particulate Emission Factor	PEF	4.97×10^7	m^3/kg	Appendix D-5
Soil Ingestion Rate	IR_{soil}	480	mg/day	[2]
Fraction Ingested	FI	100%	unitless	Assumption
Conversion Factor				
Inorganics	CF	1×10^{-6}	kg/mg	
Organics	CF	1×10^{-9}	kg/μg	
Exposure Frequency	EF	30	days/year	Assumption
Exposure Duration	ED	1	years	[3]
Exposure Time [1]	ET	8	hours/day	Assumption
Averaging Time	AT			
Cancer		70	years	[3]
Non-cancer		1	years	[3]
Surface Area	SA	5,750	cm^2	[4]
Inhalation Rate	IR_{air}	2.5	m^3/hour	[3]
Body Weight	BW	70	kg	[3]
Adherence Factor	AF	1	mg/cm^2-event	[4]
Absorption Fraction	ABS_d	Chemical-specific	unitless	[4]
Concentration in Air	CA	Chemical-specific	mg/m^3	Appendix D-5

See notes on following page.

Table D-3-4 (Continued)
Exposure Parameters for Surface and Subsurface Soil Ingestion, Inhalation, and Dermal Contact
Excavation Worker (Adult)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Sources:

[1] Exposure Time is only used in the Inhalation of Particulates Scenario; See Appendix D-5.

[2] USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/0-43; May 1989.

[3] USEPA, 1992. Human Health Evaluation Manual, Supplemental Guidance. "Standard Default Exposure Parameters."

[4] USEPA, 1992. USEPA Region IV Guidance Memorandum; February 10, 1992.

Notes: m^3/kg = cubic meter per kilogram.
mg/day = milligram per day.
kg/mg = kilogram per milligram.
kg/μg = kilogram per microgram.
cm^2 = sqaure centimeter.
m^3/hour = cubic meter per hour.
mg/cm^2 = milligram per square centimeter.
mg/m^3 = milligram per cubic meter.

Table D-3-5
Exposure Parameters for Surface Soil Ingestion, Inhalation, and Dermal Contact
Occupational Worker (Adult)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CS \times IR_{soil} \times FI \times CF \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$INTAKE_{inh} = \frac{CA \times IR_{air} \times ET \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = CS \times AF \times ABS_d \times CF$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED}{BW \times AT \times 365\ days/year}$$

Parameter	Symbol	Adult Value	Units	Source
Concentration in Soil	CS	Chemical-specific	Chemical-specific	
Particulate Emission Factor	PEF	4.97×10^7	m^3/kg	Appendix D-5
Soil Ingestion Rate	IR_{soil}	50	mg/day	[2]
Fraction Ingested	FI	100%	unitless	Assumption
Conversion Factor				
Inorganics	CF	1×10^{-6}	kg/mg	
Organics	CF	1×10^{-9}	kg/µg	
Exposure Frequency	EF	250	days/year	[2]
Exposure Duration	ED	25	years	[2]
Exposure Time [1]	ET	8	hours/day	Assumption
Averaging Time	AT			
Cancer		70	years	[2]
Noncancer		25	years	[2]
Surface Area	SA	2300	cm^2	[3]
Inhalation Rate	IR_{air}	2.5	m^3/hour	[2]

See notes at end of table.

Table D-3-5 (Continued)
Exposure Parameters for Surface Soil Ingestion, Inhalation, and Dermal Contact
Occupational Worker (Adult)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Parameter	Symbol	Adult Value	Units	Source
Body Weight	BW	70	kg	[2]
Concentration in Air	CA	Chemical-specific	mg/m^3	Appendix D-5
Adherence Factor	AF	1	mg/cm^2-event	[3]
Absorption Fraction	ABS_d	Chemical-specific	unitless	[4]

Sources:
[1] Exposure Time is only used in the Inhalation of Particulates Scenario; See Appendix D-5.
[2] USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters".
[3] USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January, 1992
[4] USEPA, 1992. USEPA Region IV Guidance Memorandum; February 10, 1992.

Notes: m^3/kg = cubic meter per kilogram.
mg/day = milligram per day.
kg/mg = kilogram per milligram.
$kg/\mu g$ = kilogram per microgram.
cm^2 = square centimeter.
m^3/hour = cubic meter per hour.

Table D-3-6
Exposure Parameters for Sediment Ingestion and Dermal Contact
Resident (Adult and Child)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CS \times IR_{sediment} \times FI \times CF \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = CS \times AF \times ABS_d \times CF$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED}{BW \times AT \times 365\ days/year}$$

Parameter	Symbol	Child Value (Age 1-6)	Adult Value	Units	Source
Concentration in Sediment	CS	Chemical-specific		Chemical-specific	
Sediment Ingestion Rate	$IR_{sediment}$	200	100	mg/day	[1]
Fraction Ingested	FI	100%	100%	unitless	Assumption
Conversion Factor					
Inorganics	CF	1×10^{-6}	1×10^{-6}	kg/mg	
Organics	CF	1×10^{-9}	1×10^{-9}	kg/μg	
Exposure Frequency	EF	100	100	days/year	Assumption
Exposure Duration	ED	6	24	years	[1]
Averaging Time	AT				
Cancer		70	70	years	[1]
Non-cancer		6	24	years	[1]
Surface Area	SA		5750	cm^2	[2]
Age-weighted Surface Area	$SA_{soil/sed}$	766		cm^2-year/kg	Appendix D-7
Body Weight	BW	15	70	kg	[2]
Adherence Factor	AF	1	1	mg/cm^2-event	[2]
Absorption Fraction	ABS_d	Chemical-specific		unitless	[3]

Sources:
[1] USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters."
[2] USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January, 1992.
[3] USEPA, 1992. USEPA Region IV Guidance Memorandum; February 10, 1992.

Notes: mg/day = milligrams per day.
% = percent.
kg/mg = kilogram per milligram.
cm^2 = square centimeter.
cm^2-year/kg = square centimeter per year per kilogram.

Table D-3-7
Exposure Parameters for Sediment Ingestion and Dermal Contact
Trespasser (Adult and Adolescent)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CS \times IR_{sediment} \times FI \times CF \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = CS \times AF \times ABS_d \times CF$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED}{BW \times AT \times 365\ days/year}$$

Parameter	Symbol	Adolescent Value (Age 6-16)	Adult Value	Units	Source
Concentration in Sediment	CS	Chemical-specific		Chemical-specific	
Sediment Ingestion Rate	$IR_{sediment}$	100	100	mg/day	[1]
Fraction Ingested	FI	100%	100%	unitless	Assumption
Conversion Factor					
Inorganics	CF	1×10^{-6}	1×10^{-6}	kg/mg	
Organics	CF	1×10^{-9}	1×10^{-9}	kg/µg	
Exposure Frequency	EF	45	45	days/year	Assumption
Exposure Duration	ED	11	19	years	[1]
Averaging Time	AT				
Cancer		70	70	years	[1]
Non-cancer		11	19	years	[1]
Surface Area	SA		5,750	cm^2	[2]
Age-weighted Surface Area	$SA_{soil/adj}$	1136		cm^2-year/kg	Appendix D-7
Body Weight	BW	40	70	kg	[1,4]
Adherence Factor	AF	1	1	mg/cm^2-event	[2]
Absorption Fraction	ABS_d	Chemical-specific		unitless	[3]

Sources:
[1] USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters."
[2] USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January, 1992.
[3] USEPA, 1992. USEPA Region IV Guidance Memorandum; February 10, 1992.
[4] USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; July 1989.

Notes: mg/day = milligrams per day.
% = percent.
kg/mg = kilogram per milligram.
cm^2 = sqaure centimeter.
cm^2-year/kg = sqaure centimeter per year per kilogram.

Table D-3-8
Exposure Parameters for Surface Water Ingestion and Dermal Contact
Resident (Adult and Child)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CW \times IR_{surface\ water} \times CF1 \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = PC_{event} \times CW \times CF1 \times CF2$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED \times EV}{BW \times AT \times 365\ days/year}$$

Parameter	Symbol	Child Value (Age 1-6)	Adult Value	Units	Source
Concentration in Surface Water	CW	Chemical-specific		Chemical-specific	
Surface Water Ingestion Rate	$IR_{surface\ water}$	0.13	0.13	liters/day	[1]
Conversion Factor					
	CF1	0.001	0.001	mg/µg	
	CF2	0.001	0.001	liters/cm^3	
Exposure Frequency	EF	100	100	days/year	Assumption
Exposure Duration	ED	6	24	years	Assumption
Event Frequency	EV	1	1	events/day	Assumption
Averaging Time	AT				
Cancer		70	70	years	[2]
Non-cancer		6	24	years	[2]
Surface Area	SA		5,750	cm^2	[3]
Age-weighted Surface Area	$SA_{soil/sed}$	766		cm^2-year/kg	Appendix D-7
Body Weight	BW	15	70	kg	[2]
Diffusion Depth per Event	PC_{event}	Chemical-specific		cm/event	[4]

Sources:
[1] USEPA, 1988. Superfund Exposure Assessment Manual; EPA/540//1-88/001; April 1989.
[2] USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters."
[3] USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January, 1992.
[4] Calculated per USEPA, 1992 [3]; see Appendix D-7.

Notes: mg/day = milligrams per day.
% = percent.
kg/mg = kilogram per milligram.
cm^2 = sqaure centimeter.
cm^2-year/kg = sqaure centimeter per year per kilogram.

Table D-3-9
Exposure Parameters for Surface Water Ingestion and Dermal Contact
Trespasser (Adult and Adolescent)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$INTAKE_{ing} = \frac{CW \times IR_{surface\ water} \times CF1 \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$DA_{event} = PC_{event} \times CW \times CF1 \times CF2$$

$$INTAKE_{dermal} = \frac{DA_{event} \times SA \times EF \times ED \times EV}{BW \times AT \times 365\ days/year}$$

Parameter	Symbol	Adolescent Value (Age 6-16)	Adult Value	Units	Source
Concentration in Surface Water	CS	Chemical-specific		Chemical-specific	
Surface Water Ingestion Rate	$IR_{surface\ water}$	0.13	0.13	liters/day	[1]
Fraction Ingested	FI	100%	100%	unitless	Assumption
Conversion Factor					
	CF1	0.001	0.001	mg/µg	
	CF2	0.001	0.001	liters/cm^3	
Exposure Frequency	EF	45	45	days/year	Assumption
Exposure Duration	ED	11	19	years	[2]
Event Frequency	EV	1	1	events/day	Assumption
Averaging Time	AT				
Cancer		70	70	years	[2]
Noncancer		11	19	years	[2]
Surface Area	SA		5,750	cm^2	[3]
Age-weighted Surface Area	$SA_{soil/adj}$	1136		cm^2-year/kg	Appendix D-7
Body Weight	BW	40	70	kg	[2,5]
Diffusion Depth per Event	PC_{event}	Chemical-specific		cm/event	[4]

Sources:

[1] USEPA, 1988. Superfund Exposure Assessment Manual; EPA/540/1-88/001; April 1988.
[2] USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters."
[3] USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January, 1992.
[4] Calculated per USEPA, 1992 [3]; see Appendix D-7.
[5] USEPA, 1989, Exposure Factors Handbook; EPA/600/8-89/043; May 1989.

Notes: % = percent
mg/kg = milligram per kilogram.
cm^3 = cubic centimeter.
cm^2 = square centimeter.
cm^2-year/kg = square centimeter per year per kilogram.

Table D-3-10
Exposure Parameters for Groundwater Ingestion and Inhalation
Adult Residents

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$$Intake_{ing} = \frac{CW \times IR_{groundwater} \times CF1 \times EF \times ED}{BW \times AT \times 365\ days/year}$$

$$INTAKE_{inh} = \frac{CA_{air} \times ET \times EF \times ED}{CF2 \times AT \times 356\ days/year}$$

Parameter	Symbol	Adult Value	Units	Source
Concentration in Groundwater	CW	Chemical-specific	µg/liter	
Water Ingestion Rate	IR_{water}	2	liters/day	[2]
Conversion Factor	CF1	0.001	mg/µg	
	CF2	24	hours/day	
Exposure Frequency	EF	350	days/year	[2]
Exposure Duration	ED	30	years	[2]
Averaging Time	AT			
Cancer		70	years	[2]
Non-cancer		30	years	[2]
Body Weight	BW	70	kg	[2]
Concentration Shower Air	CA_{air}	Appendix D-6	µg/m³	[3]
Exposure Time [1]	ET	0.2	hours/day	[4]

Sources:
[1] Exposure Time is only used in the inhalation of volatiles while showering scenario; see Appendix D-6.
[2] USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters".
[3] This parameter is modeled; see Appendix D-6.
[4] USEPA, 1989. Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part A) EPA/540/1-89/002; December, 1989.

Notes: µg = microgram.
mg/µg = milligram per microgram.
kg = kilogram.
µg/m³ = microgram per cubic meter.

APPENDIX D-4

TOXICITY PROFILES

Acenaphthene. Acenaphthene is a member of the polycyclic aromatic hydrocarbon (PAH) class of organic compounds. Unlike a number of PAHs, which have no known use, acenaphthene has a use in the manufacture of plastics and as an insecticide and fungicide. Toxicological data are extremely limited for acenaphthene. However, as a two-ring PAH, acenaphthene is a closer structural analog to naphthalene than it is to multiring PAHs such as benzo(a)pyrene, chrysene, or phenanthrene. Therefore, toxicities induced by acenaphthene may be similar to those induced by naphthalene. PAHs as a class of compounds are absorbed by inhalation, oral, and dermal routes, and have been associated with atherosclerosis, cancer, and reproductive effects in humans and animals. However, mutagenicity and cancer tests for acenaphthene were negative.

References:

Agency for Toxic Substances and Disease Registry (ATSDR), 1989. Toxicological Profile for Polycyclic Aromatic Hydrocarbons. U.S. Public Health Service, October.

International Agency for Research on Cancer, 1983. *Monograph on the evaluation of carcinogenic risk of chemicals to man: polynuclear aromatic hydrocarbons.* 32:33-43.

USEPA, 1981. An exposure and risk assessment for acenaphthene. USEPA Contract No. 68-01-6017. Office of Water Regulations and Standards, Washington, D.C.

Arsenic. Arsenic has been used in pesticide formulations and has industrial uses in tanneries, as well as the glass- and wine-making industries. Its toxicity depends on its chemical form. Arsenic is an irritant of the skin, mucous membranes, and gastrointestinal tract. Symptoms of acute toxicity include vomiting, diarrhea, convulsions, and a severe drop in blood pressure. Subchronic effects include hyperpigmentation, sensory-motor polyneuropathy, persistent headache, and lethargy. Chronic oral exposure has caused skin lesions, peripheral vascular disease, and peripheral neuropathy. The USEPA has classified arsenic as a Group A, human carcinogen, based on increased incidence of lung cancer in occupational studies.

References:

ATSDR, 1992. "Toxicological Profile for Arsenic;" Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, February.

Beryllium. Beryllium is a trace element that is obtained by extraction from mineral ores. Most beryllium is contributed to the environment by the burning of fossil fuels that contain beryllium ore. Beryllium is generally incorporated into alloy metals that are used in jet engine parts and electrical components. Pure beryllium metal is used in parts for aircraft brakes, nuclear weapons, nuclear reactors, and precision instruments.

Available data on beryllium suggest that it is most toxic to the lungs. Acute inhalation exposures to high concentrations of beryllium in the air can cause chemical pneumonitis, the symptoms of which include coughing, shortness of breath, and fatigue. These symptoms can persist and even worsen after exposure to beryllium has been discontinued. Chronic inhalation exposures to low concentrations of beryllium can produce chronic beryllium disease, which results in

inhibited breathing efficiency. Inhalation of beryllium has been shown to produce lung cancer in animals, and an increased incidence of lung cancer has been demonstrated in workers who are exposed to beryllium in the air. Therefore, beryllium has been classified by the USEPA as a B2, probable human carcinogen.

References:
ATSDR, 1991. "Toxicological Profile for Beryllium;" Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, February.

Bis(2-ethylhexyl)phthalate (DEHP). DEHP is used industrially as a plasticizer for resins and is found in many plastic materials, as it makes them more flexible. It is also used in manufacturing organic pump fluids in electrical capacitors. Acute exposure to DEHP has produced eye and mucous membrane irritation, nausea, and diarrhea. Chronic exposure of laboratory animals to DEHP indicates that the target organs are the liver, where it causes morphological and biochemical changes, and the testes, where it produces damage in the seminiferous tubules. DEHP has produced developmental and reproductive effects in laboratory animals, including spina bifida and reduced fertility. DEHP has been shown to cause a dose-related increase in liver tumors in mice and rats. Thus, the USEPA has designated DEHP as a B2, probable human carcinogen.

References:
ATSDR, 1991. Toxicological Profile for Di(2-ethylhexyl)phthalate. ATSDR, U.S. Public Health Service, October.

2-Butanone (Methyl Ethyl Ketone). Methyl ethyl ketone (MEK or 2-Butanone) has been used as a solvent for coatings, adhesives, and cement; and in the lacquer and varnish industries. Human exposure to MEK has produced irritation to mucous membranes and conjunctiva; prolonged exposure to high concentrations has caused CNS depression. MEK has a low toxicity following acute and chronic human exposures. Exposure studies in animals indicate that the liver and the kidney are target tissues of MEK. MEK can potentiate the neurotoxicity of other solvents such as n-hexane, methyl butyl ketone, and ethyl butyl ketone. Mild but significant developmental effects have been produced in rats by exposure to MEK. MEK has been classified by USEPA as D, not classifiable as to human carcinogenicity. Results of *in vitro* tests for genotoxicity have proved negative.

References:
Massachusetts Department of Environmental Protection (MADEP), 1992. "Risk Assessment Shortform Residential Exposure Scenario, Version 1.6;" Policy #WSC/ORS-142-92; Office of Research and Standards and the Bureau of Waste Site Cleanup, Boston, Massachusetts; September.

Calcium. Calcium is a naturally-occurring element that exists as a ubiquitous constituent of natural waters and soils. Human activities also contribute calcium ions to natural waters. Calcium or calcium-containing products are used in a wide variety of manufacturing operations and as chemical intermediates. Calcium is an essential nutrient to humans. It plays important roles in blood coagulation, maintenance of muscle tone, and excitability of nervous and muscle tissue. Because of large amounts of storage within bone tissue, calcium is the most abundant ion in the body.

Calcium levels within the body are controlled through the regulation of absorption and excretion dependent on serum calcium levels, Vitamin D, parathyroid hormone, and calcitonin levels. Excess oral intake typically does not result in toxicity since excess calcium is not absorbed in otherwise normal individuals. Minimal gastrointestinal irritation, accompanied by nausea and vomiting, may result from the presence of large amounts of unabsorbed calcium within the intestines. Abnormally high levels of calcium in the blood, a condition called hypercalcemia, may result in lethargy, weakness, anorexia, polyuria, bone pain, paresthesia, confusion, and coma. No evidence of carcinogenicity in humans or animals exists.

References:
Tortora, J.T. and Grabowski, S.R., 1993. Principles of Anatomy and Physiology, 7th edition. Harper Collins College Publishers, New York, New York, p. 910.

Carbon Disulfide. Carbon disulfide is used as a commercial fumigant and in the manufacture of soil disinfectants. It is also used as a polymerization inhibitor for vinyl chloride and as a solvent for cleaning in the metal plating industry.

Epidemiological studies in occupationally-exposed workers suggest that carbon disulfide may produce minor neurological disfunction that does not appear to result in behavioral changes. Carbon disulfide administered orally and by inhalation produced reproductive toxicity, including increased fetal resorption rate and minor malformations, in laboratory animals. No data regarding the carcinogenicity of this chemical are available.

References:
Integrated Risk Information System (IRIS), 1993. United States Environmental Protection Agency.

alpha- and gamma-Chlordane. A mixture of the alpha and gamma isomers of chlordane constitute the technical-grade chemical, a chlorinated pesticide, which was extensively used in agriculture to control insects, and as a termite proofing agent, until its registry cancellation in 1988. Chlordane may persist in soil for up to 20 years, and readily bioaccumulates in the food chain. Humans may be exposed to chlordane through contact with soil, where it was applied for pest control reasons, and through consumption of contaminated agricultural products.

Chlordane is absorbed well through all routes, and is stored in body fat, where it may persist for long periods of time. Toxic effects from chlordane exposure result from its metabolites, which can bind to cellular macromolecules causing cellular disfunction, rather than the parent compound. Chlordane induces its own metabolism to toxic metabolites and, therefore, organs containing high metabolizing enzyme activities, such as the liver, are at risk. Chlordane produces hepatotoxicity in animals and humans. Chlordane also produces nervous system toxicity, which may include dizziness, nausea, muscle tremors, and the induction of grand mal seizures. Additionally, chlordane is a developmental and reproductive toxicant in animals. Exposure to chlordane has not been positively associated with cancer in humans, and animal evidence is equivocal. However, animal data suggest that chlordane may act as a tumor promotor. For this reason, the USEPA has placed chlordane in weight-of-evidence group B2, probable human carcinogen.

References:
ATSDR, 1992. "Toxicological Profile for Chlordane"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, October.

DDD, DDE, DDT. DDT was one of the most highly used insecticides, and is now ubiquitous in the environment. It was used extensively in World War II to control lice (applied directly to human skin), and later used as an agricultural insecticide and as a public health tool to control insects that spread typhus and malaria. DDD and DDE were impurities in DDT, and are also primary metabolites of DDT, and share similar toxicological properties. DDT, DDD, and DDE are highly persistent in the environment, and thus tend to bioconcentrate in the food chain. This, combined with their toxicological properties, has been attributed to the decline in population of several predatory bird species.

DDT is absorbed to a minor extent via inhalation and dermal routes, and to a large extent by the oral route. Exposure to humans is likely greatest through ingestion of mucous that was contaminated with inhaled DDT. DDT is absorbed into the lymphatic system and distributed to fats throughout the body. In both humans and animals, DDT acts as a CNS stimulant by interfering with the movement of ions within neurons. DDT acts as an estrogenic compound in animals; and this has been attributed to numerous adverse reproductive effects observed in animals exposed to DDT. DDT also causes liver hypertrophy and hepatocyte degeneration, and induces the enzyme cytochrome P450, which can affect the metabolism of other xenobiotics. There is no conclusive evidence of DDT-induced carcinogenicity in humans. However, DDT has produced liver tumors in laboratory animals. DDD, DDE, and DDT have, therefore, been placed in USEPA's weight-of- evidence group B2, probable human carcinogen.

References:
ATSDR, 1992. "Toxicological Profile for DDD, DDE, and DDT;" Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, October.

Fluorene. Fluorene is a member of the PAH class of compounds, which contains two or more aromatic rings. PAHs are ubiquitous in nature and are also manmade. As with many other PAHs, fluorene occurs naturally in coal tar and crude oil, and is formed from incomplete combustion of organic material.

Toxicological data on fluorene as a single compound are limited. Laboratory animals orally exposed to fluorene exhibited hypoactivity, decreased red blood cell count, and increased liver, spleen, and kidney weights. Limited animal data suggest that fluorene may be capable of causing proliferative cellular changes. However, fluorene was not mutagenic in limited genotoxicity studies, and was not considered a tumor promotor in mice.

References:
MADEP, 1992. "Risk Assessment Shortform Residential Exposure Scenario, Version 1.6;" Policy #WSC/ORS-142-92; Office of Research and Standards and the Bureau of Waste Site Cleanup, Boston, Massachusetts; September.

alpha-, beta-, and delta-Hexachlorocyclohexane (HCH or BHC). Technical grade hexachlorocyclohexane, which contained a mixture of the alpha, beta, delta, and gamma isomers, was used as an insecticide that was applied to fruit until 1983, when use of technical-grade BHC as an insecticide was restricted by the USEPA.

The gamma isomer of BHC is still used as an agricultural and medicinal insecticide.

Exposure to the beta and delta isomers of BHC has generally been through exposure to technical-grade BHC. Exposure to technical-grade BHC in humans has produced neurotoxic effects, including seizures and convulsions. However, available evidence suggests that both the beta and delta isomers are neurotoxic in animals. Additionally, the beta and delta isomers have been associated with renal toxicity and reproductive toxicity in laboratory animals. Beta BHC produced liver cancer in laboratory animals, but delta BHC did not. No epidemiological studies on humans have been conducted. Based on animal data, the USEPA has placed beta-BHC in weight-of-evidence group B2, probable human carcinogen, and delta-BHC in group D, inadequate evidence for human carcinogenicity.

References:
ATSDR, 1992. "Toxicological Profile for alpha-, beta-, gamma-, and delta-Hexachlorocyclohexane"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, October.

Iron. Iron is a metal that is required for a variety of physiological functions, such as heme biosynthesis, oxidative phosphorylation, and mixed-function oxidase-mediated metabolic reactions. Only divalent forms of iron are absorbed. As absorption occurs, divalent iron is biochemically converted to trivalent iron, the biologically active form. Under normal conditions, absorbed dietary iron is complexed to hemoglobin and transported to the liver for storage until needed for physiological reactions. The balance of iron is regulated only by the amount of dietary intake and the degree of intestinal absorption. Intestinal absorption tends to be low (2 to 15 percent) except during periods of increased iron need, when absorption efficiency increases dramatically.

Acute iron toxicity has been well characterized following the accidental ingestion of iron-containing preparations by children. Shortly after ingestion, the corrosive effects of iron cause vomiting and diarrhea, often bloody. Later signs include shock, metabolic acidosis, seizures, liver and/or kidney failure, coma, and death. Chronic iron overload manifests as disturbances in liver function, diabetes mellitus, and endocrine and cardiovascular effects. Inhalation of iron-containing dust or fumes in occupational settings may result in deposition of iron particles in the lungs, leading to interstitial fibrosis. Autopsies of hematite miners noted an increase in lung cancer. However, the etiology of the lung cancer may be related to factors other than iron exposure such as cigarette smoke, silica, or PAH exposures.

References:
Aisen, P., Cohen, G. and Kang, J.O., 1990. Iron Toxicosis. Int. Rev. Exp. Pathol. 31:1-46.

Goyer, R.A., 1991. Toxic Effects of Metals. In: Casarett and Doull's Toxicology: The Basic Science of Poisons, 3rd edition. Eds. C.D. Klaassen, M.O. Amdur and J. Doull. Macmillan Publishing Co., New York.

Lead. Lead is used as a component in storage batteries and was widely used in gasoline and paints. It is the most ubiquitous toxic metal in the environment. The most serious effects of chronic exposure are encephalopathy, renal damage, and changes in the hematopoietic system, which is the most sensitive indicator of lead exposure. Peripheral nerve dysfunction is observed in adults at blood lead levels of 30 to 50 microgram per deciliter of blood (μg/dL-blood). Children's central nervous systems are reported to be affected at levels of 15 μg/dL-blood (Benignus and others, 1981). Chronic lead exposure by workers through inhalation has resulted in statistically significant increases in tumors. Oral exposures of lead salts in animals has been shown to increase tumor formation.

References:

Amdur, Mary O., John Doull, Curtis D. Klaassen, 1991. *Toxicology: The Basic Science of Poisons*, 4th edition; Pergamon Press, Inc., New York.

Benignus, V.A., Otto, D.A., Muller, K.E., Seiple, K.J., 1981. "Effects of Age and Body Lead Burden on CNS Function in Young Children. II:EEG Spectra." *Electroencephalograph. Clin. Neurophysiol.* 52:240-248.

Magnesium. Magnesium is the eighth most common element in the earth's crust. It is a divalent cation required for a variety of enzymatic reactions involving protein synthesis and carbohydrate metabolism. It is also an essential ion for proper neuromuscular function. Magnesium is used in lightweight alloys, as an electrical conductive material, and for incendiary devices such as flares. Human exposure occurs largely through the ingestion of drinking water and foods containing high levels of magnesium (e.g., nuts, cereals, seafood, and meats), and through the use of magnesium-containing antacids and cathartics.

Intoxication following oral administration of magnesium is rare, occurring largely in patients with pre-existing renal insufficiency. Large amounts of orally administered magnesium cause diarrhea that can result in major fluid and electrolyte losses. Following absorption, lethargy, weakness, and central nervous system depression are noted which may progress to hypotension, bradycardia, conduction defects, and respiratory arrest. Inhaled magnesium in industrial settings can cause metal fume fever, conjunctivitis, and coughing. No evidence of carcinogenicity in humans or animals exists.

References:

Buchanan, J.F., 1990. Magnesium. In: Poisoning and Drug Overdose. Ed. K.R. Olson. Appleton & Lange, Connecticut. 4pp. 194.

Goyer, R.A., 1991. Toxic Effects of Metals. In: Casarett and Doull's Toxicology: The Basic Science of Poisons, 3rd edition. Eds. C.D. Klaassen, M.O. Amdur and J. Doull. Macmillan Publishing Co., New York.

Speich, M. and Bousquet, B., 1991. Magnesium: Recent Data on Metabolism, Exploration, Pathology and Therapeutics. Magnesium-Bull. 13:116-121.

Manganese. Manganese is a naturally-occurring substance found in many types of rock. It does not generally occur in the environment as the pure metal; rather, it is found combined with other chemicals, such as sulfur, oxygen, and chlorine. Manganese is mixed with iron to make various types of steel. Manganese is a

component of some ceramics, pesticides, fertilizers, and in nutritional supplements. In small doses, manganese is beneficial to human health. Manganese miners and steel workers exposed to elevated concentrations of manganese have evidenced mental and emotional disturbances and slow and clumsy body movements. Target organs of manganese are the lung and central nervous system. When inhaled, manganese dust can also cause lung irritation. The USEPA has classified manganese as a D, not classifiable as to human carcinogenicity.

References:
ATSDR, 1991. "Toxicological Profile for Manganese"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, February.

2-Methylnaphthalene. 2-Methylnaphthalene is a member of the polycyclic aromatic hydrocarbon (PAH) class of organic compounds, and is used in the synthesis of chemicals such as insecticides. Toxicological data on 2-methylnaphthalene are extremely limited. However, based on its structural similarity to naphthalene, it is likely to be metabolized through a similar process, and therefore is expected to exert effects similar to those induced by naphthalene. Humans can absorb naphthalene via the inhalation, oral, and dermal routes. Evidence from human and animal studies suggests that naphthalene is metabolized by the P450 mixed function oxidase system to form metabolites that exert toxic effects. The primary target organ for naphthalene metabolites in humans is the red blood cell. Various types and severities of anemias resulting from erythrocyte hemolysis have been documented in humans and animals exposed to naphthalene. Some evidence also suggests that naphthalene metabolites can induce cataracts in humans and animals. No investigations of genotoxicity or cancer in humans were located.

References:
ATSDR, 1989. Toxicological Profile for Naphthalene and 2-Methylnaphthalene. Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, October.

Naphthalene. Naphthalene is a member of the PAH class of compounds, which contains two or more aromatic rings. PAHs are ubiquitous in nature and are also manmade. Naphthalene occurs naturally in coal tar and crude oil, and is formed from incomplete combustion of organic material. It is also product of pyrolysis in tobacco smoke. Naphthalene is used for the production of phthalic anhydride, which is used for the production of plasticizers. Naphthalene is also used in moth balls, for the production of the insecticide carbaryl, and in numerous resins, dyes, pharmaceuticals, and other organic materials.

Naphthalene is absorbed through the inhalation, oral, and dermal routes, and appears to be more toxic to humans than laboratory animals. The principal toxic effect of naphthalene in humans and animals is hemolysis of red blood cells, which can lead to anemia, decreased oxygen carrying capacity, and jaundice. Humans predisposed to anemia, such as those with G6DP enzyme deficiency, may be particularly sensitive to naphthalene toxicity. Exposure to naphthalene has also been correlated with increased risk of cataract formation. Animal studies were negative for naphthalene reproductive toxicity. Although no human epidemiological data are available to assess naphthalene carcinogenicity, animal data on naphthalene toxicity are equivocal. The USEPA has placed naphthalene in weight-of-evidence Group D, not classifiable as to human carcinogenicity.

References:
ATSDR, 1990. "Toxicological Profile for Naphthalene"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service. October.

Phenanthrene. Phenanthrene is a member of the PAH class of compounds, which contains two or more aromatic rings. PAHs are ubiquitous in nature and are also manmade. Phenanthrene occurs naturally in coal tar and crude oil, and is formed from incomplete combustion of organic material.

Phenanthrene has been shown to be a skin photosensitizer in humans. Intraperitoneal injection in rats produced liver effects. Although limited evidence exists that phenanthrene is a mutagen, the majority of tests have proved negative. Equivocal evidence exists for cancer after dermal application of phenanthrene in rats. Ingestion of 200 mg of phenanthrene produced no tumors in rats after two months.

References:
MADEP, 1992. "Risk Assessment Shortform Residential Exposure Scenario, Version 1.6"; Policy #WSC/ORS-142-92; Office of Research and Standards and the Bureau of Waste Site Cleanup, Boston, Massachusetts; September.

Phenol. Phenol is a manmade aromatic chemical that is used extensively in the production of numerous products, including a wide variety of aromatic compounds, explosives, fertilizers, paints, rubber, plastic, and textiles.

Phenol is readily absorbed through ingestion, dermal, and inhalation exposures, and is rapidly distributed to tissues. Exposure to phenol can produce adverse effects on the central nervous system, including loss of consciousness and acute respiratory failure. Phenol can also cause severe burning of the mouth and throat if swallowed. Current genotoxicity and cancer studies on phenol are inadequate or inconclusive to allow a determination of the potential carcinogenicity of this chemical at this time.

References:
MADEP, 1992. "Risk Assessment Shortform Residential Exposure Scenario, Version 1.6;" Policy #WSC/ORS-142-92; Office of Research and Standards and the Bureau of Waste Site Cleanup, Boston, Massachusetts; September.

Sodium. Sodium is a ubiquitous constituent of natural waters. Human activities also contribute sodium ions to natural waters. Sodium has been used in the manufacture of other sodium compounds, tetraethyl lead, in organic synthesis, in alloys, and as a chemical intermediate. Sodium is a naturally-occurring element and an essential nutrient to humans.

Sodium is toxic only at very high concentrations. Chronic ingestion of elevated sodium levels may result in or aggravate hypertension in humans. Hypertension has also been demonstrated in animals chronically exposed to sodium in their diets. Sodium can be an eye irritant. There is no evidence for carcinogenicity of sodium.

References:
National Academy of Sciences, 1977. "Drinking Water and Health;" Safe Drinking Water Committee, Washington, D.C.

Thallium. Thallium is a naturally-occurring soft metal that is a minor constituent in a variety of ores and is obtained as a by-product of the refining of iron, cadmium, and zinc. It is used as a catalyst, in certain alloys, jewelry, thermometers, semiconductors, dyes and pigments, and optical lenses. It has been used medically as a depilatory agent. Additionally, it is used as a rodenticide and insecticide.

Thallium is efficiently absorbed from the gastrointestinal tract. Excretion occurs primarily through urine and feces. Following absorption, distribution occurs to kidney tissue to a large extent, with lesser distribution to thyroid, intestines, testes, pancreas, skin, bone, and spleen.

Thallium is one of the more toxic metals. Acute toxicity results in gastrointestinal irritation, shock, ascending paralysis, seizures, and psychic disturbances. Signs of subacute or chronic thallium poisoning include hair loss, nail dystrophy, cataracts, peripheral muscular weakness and atrophy, chorea, peripheral neuropathy, and kidney damage. Loss of vision has been related to industrial thallium exposures. No information on the carcinogenic potential of thallium is available.

References:
Goyer, R.A., 1991. Toxic Effects of Metals. In: Casarett and Doull's Toxicology: The Basic Science of Poisons, 3rd edition. Eds. C.D. Klaassen, M.O. Amdur and J. Doull. Macmillan Publishing Co. New York.

Tweig, M., 1990. Thallium. In: Poisoning and Drug Overdose. Ed. K.R. Olson. Appleton & Lange, Connecticut, pps. 276-7.

Vanadium. Vanadium is widely, but sparsely, distributed in the earth's crust and in the environment. It is invaluable as an alloying agent with steel; ferrovanadium alloys are used in high-stress applications such as bearings, jet engines, and cutting tools.

Human and animal studies indicate that vanadium is readily absorbed from the lungs and poorly absorbed from the gastrointestinal tract. It distributes primarily to the bone and kidney.

Vanadium is a respiratory irritant. Inhalation of vanadium dust in both animals and occupationally-exposed workers induces mild to moderate respiratory irritation. The effects are reversible and subside when exposure is discontinued. No studies were located regarding cancer in humans or animals following inhalation, oral, or dermal exposures. However, vanadium has been found to induce DNA damage in human cell cultures, suggesting that vanadium may be genotoxic to humans.

References:
ATSDR, 1990. Toxicological Profile for Vanadium. ATSDR, U.S. Public Health Service, October.

APPENDIX D-5

DERIVATION OF PARTICULATE EMISSION FACTOR

INTRODUCTION

This evaluation has been conducted to estimate levels of site contaminants that would occur in ambient air as a result of wind erosion at Naval Station (NAVSTA) Mayport. To estimate atmospheric concentrations of fugitive air contaminants, a three-step modeling process was conducted. In the first step, respirable particle-phase emission rates are calculated. In the second, contaminant emission rates on a unit area basis are calculated. In the third phase, downwind ambient concentrations are estimated using air dispersion modeling. Each of these steps is discussed below. This modeling has been conducted for a theoretical site with characteristics similar to those of NAVSTA Mayport. The ambient air particulate material (PM_{10}) concentration associated with the modeled scenario is approximately 20 $\mu g/m^3$ (Table D-5-3). Calculations for the theoretical site are shown in Tables D-5-1 through D-5-3.

STEP 1: ESTIMATION OF PM_{10} EMISSIONS FROM WIND EROSION

Emission rates for particle-phase contaminants were estimated using equations developed by the USEPA for wind erosion by Cowherd et al. (1985). Airborne respirable particulate matter is defined as particles with an aerodynamic diameter less than or equal to 10 micrometers (μm) and is denoted with the symbol PM_{10}. Ambient air concentrations were then estimated using air dispersion modeling.

The equations presented in Cowherd et al. (1985) are intended to provide a methodology for rapid assessment of the inhalation exposure to respirable particulate emissions from surface contamination sites under emergency situations. Consequently, the models are based on a number of simplifying assumptions and yield order-of-magnitude estimates of atmospheric concentrations. The results of this quantitative assessment of potential inhalation exposure at this site should be reviewed with this fact in mind.

For estimating emissions from wind erosion for surface areas not completely covered by vegetation, two emission factor equations have been developed by Cowherd et al. (1985). Selection of the appropriate equation depends on whether the contaminated site's surface material is classified as having a "limited reservoir" or an "unlimited reservoir" of erodible surface particles. The critical feature of "unlimited" erosion potential is that contaminated soil is entrained at a lower wind velocity than for the "limited" case. Surface soil containing a high percentage of silt and lacking either vegetation or large non-erodible elements are assumed to contain an unlimited reservoir of surface erodible particles. This is based on the aggregate size distribution of surface particles, which is best determined with a sieve size analysis. In the absence of such an analysis at NAVSTA Mayport, an unlimited reservoir was assumed. The application of the unlimited reservoir model to this site represents a conservative case as the surface soil is unlikely to contain a large percentage of silt because of the geological age of the soil (i.e., the majority of the silt has already been eroded).

A conservative estimate of the PM_{10} emission rate (E_{10}) for the contaminated surface with "unlimited" erosion potential was calculated using an emission factor derived by Gillette (1981) based on field measurements of highly erodible soil. The following equation was used:

$$E_{10} = 1x10^{-5} (1-V) \left(\frac{[u]}{u_t}\right)^3 F(x)$$

where:

E_{10} = PM_{10} emission factor for wind erosion (g/m^2-sec)

$1x10^{-5}$ = empirical constant (g/m^2-sec)

V = fraction of the contaminated surface area with continuous vegetative cover

[u] = mean annual wind speed (m/s)

u_t = threshold value of wind speed at 7 m (m/s)

F(x) = function to estimate unlimited erosion

x = unitless ratio = 0.886 $u_t/[u]$.

and:

$$u_t = \frac{1}{0.4} \times \ln\frac{z}{z_o} \times u^*$$

where:

u^* = friction velocity

z = height above surface (m)

z_0 = roughness height (m)

For values of x greater then 2:

$$F(x)=0.18 (8 x^3 + 12 x) e^{-x^2}$$

All parameters in the above equation were calculated from site-specific data where possible. The values used in estimating the emission factor for wind erosion are given in Table D-5-1. The PM_{10} emission rate estimated for the wind erosion of the excavation scenario can be found in Table D-5-2.

STEP 2. ESTIMATION OF CONTAMINANT EMISSION RATES

Contaminant-specific emission rates were estimated from (1) the PM_{10} emission rates, (2) the hypothetical mass fraction of each contaminant in surface soil, and (3) the exposed surface area of the contaminated soil. Contaminant emission rates of respirable particles were determined using the following equation:

$$Q_{10} = 1 \times f \times E_{10} \times A$$

where:

Q_{10} = contaminant emission rate as PM_{10} (μg/sec)

f = mass fraction of contaminant in PM_{10} emissions (mg contaminant/kg PM_{10})

E_{10} = PM_{10} emission rate (g PM_{10}/m^2-sec)

A = contaminated surface area (m^2)
1 = conversion factor (1000 μg contaminant/mg contaminant)*(kg PM_{10}/1000 g PM_{10})

The values for f were estimated by assuming that the mass fraction of the contaminant in the inhalable particles emitted (PM_{10}) is equal to the mass fraction of the contaminant in the soil. The surface area available for wind erosion was assumed to be the area of the site (see Assumption column in Table D-5-2). The value of Q_{10} calculated for each scenario can be found in Table D-5-3.

STEP 3. AIRBORNE CONTAMINANT CONCENTRATION

Air dispersion modeling is used to predict off-site contaminant air concentrations based on the PM_{10} emission rate. Many different forms of dispersion models exist for a variety of applications. For this situation, the box model was selected because it is most appropriate to use when receptors are less than 100 meters from the edge of an area source. The model overpredicts concentrations by a factor of approximately four to six when compared with the Gaussian dispersion model, ISCST, for the "downwind distances" to exposure points of interest in this assessment (McCarthy and Burbank, 1990). The box model is a good screening model for a public health risk assessment because the concentrations estimated with the box model are protective of public health. If no risk is indicated using box model concentrations, the potential for adverse impacts to public health are considered negligible.

The box model is a basic analytical and physical model representing diffusion and convection from an area source. The box encloses the area source and is bounded by the ground as its base and the mixing height (H) of the mean vertical displacement of emissions, which is a function of atmospheric stability and downwind distance to the point of exposure. Within the box, mixing is assumed to be complete. The box has a width (W) equal to the width of the area source and the box is aligned so that its length lies in the direction of the wind, which passes through its end with a constant velocity (U). The ventilation rate, defined as the volume of air passing through the box, is equal to U x H x W. The downwind mixing height (H) of the box is determined from the following equation presented by Pasquill (1975) for neutral stability:

$$X = 6.25 \times z_0 \left[\left(\frac{H}{z_0}\right) \ln\left(\frac{H}{z_0}\right) - 1.58 \left(\frac{H}{z_0}\right) + 1.58\right]$$

where:

X = downwind distance from the leading edge of the area source to the receptor (m)
H = downwind mixing height (m)
z_0 = roughness height (m)

The roughness height, z_0, was selected to be 0.02 meter based on the roughness height of grassland provided by Cowherd et al. (1985). This roughness height provides a more conservative estimate of emissions than assuming nonvegetated conditions. The downwind distance to the receptor is measured to the closest exposure points for potentially exposed populations. For the purposes of this

evaluation, a distance of 1 meter was assumed (the receptor is at the source). The ambient 24-hour contaminant concentration (C_{10}) was estimated by the following box model equation:

$$C_{10} = \frac{Q_{10} \times a}{U \times H \times W}$$

where:

C_{10} = concentration of contaminant at distance X ($\mu g/m^3$)
Q_{10} = particle-phase emission rate from wind erosion ($\mu g/sec$)
a = fraction of 24 hours during which emissions occur
U = average wind speed (m/sec)
H = downwind mixing height (m)
W = width of area perpendicular to wind (m)

The input values for this equation are shown in Step 3 (Table D-5-3). This results in a conservative estimate of the 24-hour average concentration of contaminants to which an individual may be exposed at the contaminant source on days in which wind erosion occurs. This concentration, the downwind contaminant concentration resulting from wind erosion, per unit of contaminant soil concentration (C_{10}) is multiplied by the concentration of each human health contaminant of potential concern (HHCPC) to obtain downwind contaminant concentrations. The estimated airborne contaminant concentrations resulting from wind erosion for the HHCPCs in the exposure scenario are presented in Step 3 (Table D-5-3).

The particulate emission factor (PEF) relates the contaminant concentration in soil with the concentration of respirable particles (PM_{10}) in the air due to fugitive dust emissions from surface contamination. The PEF is site-specific and independent of the type of contaminants present at the site. The PEF is calculated by dividing the soil contaminant concentration ($\mu g/kg$) by the concentration in the air ($\mu g/m^3$) to give the PEF (m^3/kg). This PEF is applied to chemical-specific soil concentrations to estimate dust-related chemical concentrations in air for the risk calculation spreadsheets.

This PEF is associated with a PM_{10} concentration of roughly 20 $\mu g/m^3$.

REFERENCES

Cowherd, C., G.E. Muleski, P.J. Englehart, and D.A. Gillette 1985, "Rapid Assessment of Exposure to Particulate Emissions from Surface Contamination Sites," prepared for USEPA Office of Health and Environmental Assessment, Washington, D.C.; EPA/600/8-85/002.

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McCarthy, S.M., and Burbank, B., 1990, Assessment of Fenceline Air Concentrations Associated with Construction Activities at Sites with Contaminated Soils, presented at American Waste Management Association - New England Section Conference, Wakefield, MA, February.

Pasquill, F., 1975, The Dispersion of Materials in the Atmospheric Boundary Layer - The Basis for Generalization, in *Lectures on Air Pollution and Environmental Impact Analysis*, American Meteorological Society, Boston.

USEPA, 1988, Supplement B to Compilation of Air Pollutant Emissions Factors, Volume I: Stationary Point and Area Sources, USEPA Office of Air Quality Planning and Standards, AP-42, September.

Table D-5-1
Step 1: Calculate PM_{10} Emissions from Wind Erosion (unlimited erosion potential)

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

$E_{10} = (1x10^{-6}) \times (1-V) \times ([u]/u_t)^3 \times F(x)$ — Cowherd, Equation 4-4

where:

E_{10}	=	PM_{10} emission factor (g/m^2-s)
$1x10^{-6}$	=	empirical constant
V	=	fraction of the contaminated surface area with continuous vegetative cover
[u]	=	mean annual wind speed (m/s)
u_t	=	threshold value of wind speed at 7 m (m/s)
F(x)	=	function plotted in Cowherd, Figure 4-3
x	=	unitless ratio = $0.886\ u_t/[u]$

$u_t = (1/0.4)\ \ln(z/z_0)\ u^*$ — Cowherd, Equation 4-3

where:

z	=	height above surface (m)
z_0	=	roughness height (m)
u^*	=	friction velocity (m/s)

For $x > 2$:

$F(x) = 8\ (8x^3 + 12x)\exp(-x^2)$ — Cowherd, Appendix B

VARIABLE	VALUE	UNITS	SOURCE
z	7.00	m	Cowherd
z_0	0.02	m	Cowherd, Figure 3-6
u^*	0.63	m/s	assumption
u_t	9.14	m/s	calculated here
[u]	3.8	m/s	Cowherd, Table 4-1, Jacksonville, Florida
x	2.13		calculated here
F(x)	0.20		calculated here or Cowherd, Figure 4-3
V	0.6	fraction	assumption based on site visit
E_{10}	$5.68x10^{-9}$	g/m^2-s	calculated here

Table D-5-2
Step 2: Calculate Contaminant Emission Rate

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Mayport, Florida

$Q_{10} = f \times E_{10} \times A$ — Cowherd Equation

where:

Q_{10}	=	contaminant emission rate (μg contaminant/s)
f	=	fraction of PM_{10} with contaminant (mg contaminant/kg PM_{10}) (assumed to equal soil concentration in mg contaminant/kg soil)
E_{10}	=	PM_{10} emission rate (g PM_{10}/m^2-s)
A	=	area (m^2)
1	=	conversion (1000 μg contaminant/mg contaminant) x (kg PM_{10}/1000 g PM_{10})

VARIABLE	VALUE	UNITS	SOURCE
f	1	mg/kg	assumption
A	33,600	m^2	assumption
E_{10}	5.68×10^{-8}	g/m^2-s	calculated in Step 1 (Table D-5-1)
Q_{10}	1.91×10^{-3}	μg/s	calculated here

Table D-5-3
Step 3: Calculate Airborne Contaminant Concentration

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U.S. Naval Station
Mayport, Florida

$C_{10} = \frac{Q_{10} \times a}{\text{Ventilation Rate}}$

$= \frac{Q_{10} \times a}{U \times H \times W}$

where:

C_{10} = airborne contaminant concentration ($\mu g/m^3$)
Q_{10} = contaminant emission rate ($\mu g/s$)
U = wind speed (same as [u] from Step 1) (m/s)
W = width of area perpendicular to wind (m)
H = downwind mixing height (m)
a = fraction of 24 hours during which activity occurs (unitless)

H is calculated in iterations based on the desired value of X from the following equation:

$X = 6.25(z_o)[(H/z_o)\ln(H/z_o) - 1.58(H/z_o) + 1.58]$ Pasquill, 1975

where:

X = downwind distance from leading edge of source area to receptor (m)
H = downwind mixing height (m)
z_o = roughness height (same as in Step 1) (m)

VARIABLE	VALUE	UNITS	SOURCE
Q_{10}	1.91×10^{-3}	$\mu g/s$	calculated in Step 2
a	1	unitless	assumption
U	2.45	m/s	Cowherd, Table 4-1, Jacksonville, Florida
W	140	m	assumption
H	0.276	m	calculated here
z_o	0.02	m	Cowherd, Figure 3-6
X	1	m	calculated in Step 2 or Cowherd, Figure 4-3
C_{10}	2.02×10^{-5}	$\mu g/m^3$ per mg/kg	calculated here

CHEMICAL	SOIL CONCENTRATION (mg/kg)	C_{10} WIND EROSION ($\mu g/m^3$)	PEF (m^3/kg)
Chemical X	5	1.01×10^{-4}	4.96×10^{7}
Chemical Y	22	4.44×10^{-4}	4.96×10^{7}
Chemical Z	312	6.29×10^{-3}	4.96×10^{7}

APPENDIX D-6

CALCULATION OF AIR CONCENTRATIONS USING THE SHOWER MODEL

INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES) calculated concentrations of volatile organic compounds (VOCs) in groundwater that could volatilize during a shower. After reviewing the literature, the model selected by ABB-ES to predict indoor (bathroom) concentrations is that presented by Foster and Chrostowski (1987). This theoretical approach is based on the experimental work of Andelman (1985). Andelman measured air concentrations of trichloroethylene and chloroform in a bench-scale shower assembly. Foster and Chrostowski (1987) developed a model from these experimental data. ABB-ES modified the input parameters from the bench-scale design to be representative of a typical bathroom.

CALCULATIONS

Parameter values used in the following equations can be found in Table D-6-1.

The equation used to calculate air concentrations in the bathroom is shown below:

Where

$$C(VOC) = \frac{S}{R} \times (e^{RD_s} - 1) \times e^{-Rt}$$

VOC in bathroom ($\mu g/m^3$)

- S = VOC generation rate ($\mu g/m^3$-min)
- R = air exchange rate (min^{-1})
- D_s = duration of shower (min)
- t = time at which concentration is being calculated (min)

R, the air exchange rate, is calculated as the volumetric flowrate through the bathroom (m^3/min) divided by the volume of the bathroom (m^3).

S, the VOC source generation rate, is calculated based on the concentration of the contaminant in the water, emission of compound from a droplet, flowrate of water, and volume of room for dilution. S is calculated from the following series of equations:

Table D-6-1
Empirical Constants for the Shower Model

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Constant	Symbol	Value	Unit	Source
Liquid-film mass transfer for CO_2	$K_l(CO_2)$	20	cm/hr	Calculated
Gas-film mass transfer for H_2O	$K_g(H_2O)$	3000	cm/hr	Calculated
Molar gas constant x temperature	RT	0.024	atm-m^3/mole	
Reference temperature	T_1	293	K	
Temperature of shower water	T_s	318	K	Assumption
Viscosity of water at shower temperature	u_s	0.6178	cp	Calculated
Viscosity of water at reference temperature	u_1	0.65	cp	Calculated
Shower droplet free-fall time	t_s	1.5	sec	Assumption
Droplet diameter	d	1	mm	Foster and Chrostowski, 1987
Flow rate in shower	FR	20	ℓ/min	Assumption
Volume of shower area	SV	12	m^3	Assumption
Air exchange rate	R	0.03	min^{-1}	Calculated
Time in shower	D_s	12	min	USEPA, 1989
Time at which concentration is being calculated	t	12	min	Assumption

Source: Foster, S.A. and Chrostowski, P.C., 1987. Inhalation Exposures to Volatile Organic Contaminants in the Shower.

where:

$$S = \frac{C_{wd} \times FR}{SV}$$

C_{wd} = concentration in water droplet ($\mu g/\ell$)
FR = flow rate in shower (1/min)
SV = shower volume (m^3)

C_{wd} is calculated as follows:

$$C_{wd} = C_{wo} \times [1 - e^{(\frac{-K_{al} \times t_s}{60d})}]$$

where:
C_{wo} = concentration in groundwater ($\mu g/\ell$)
K_{al} = temperature correction of the mass transfer coefficient, K_L ((cm/hr)
t_s = shower water droplet free-fall time (sec)
d = droplet diameter (mm)

The term $K_{al}/60d$ combines both the rate of transfer and the available interfacial area across which volatilization can occur. The value 1/60d equals the specific interfacial area, 6/d, for a spherical shower droplet of diameter d multiplied by conversion factors (hr/3600 sec and 10 mm/cm).

K_{al} is calculated according to:

$$K_{al} = K_L \times [\frac{T_1 \times u_s}{T_s \times u_1}]^{-0.5}$$

Where
K_L = mass-transfer coefficient (cm/hr)
T_1 = reference temperature (K)
u_s = viscosity of water at reference temperature (cp)

T_s = temperature of shower water (K)
u_1 = viscosity of water at shower temperature (cp)

K_L is calculated according to:

$$K_L(voc) = \frac{1}{\frac{1}{k_1(voc)} + \frac{RT}{H \times k_g(voc)}}$$

where:
k_1(voc) = chemical-specific liquid mass-transfer coefficient (cm/hr)
k_g(voc) = chemical-specific gas mass-transfer coefficient (cm/hr)
RT = molecular gas constant (R) x temperature (T) (atm-m^3/mole)
H = Henry's Law Constant (atm-m^3/mole)

The input values of k_1 and k_g are based on the mass transfer coefficients of CO_2 and water. They are calculated for the particular compound of interest according to the following equations:

$$k_1(voc) = k_1(CO_2) \times \left[\frac{44}{MW(voc)}\right]^{0.5}$$

$$k_g(voc) = k_g(H_2O) \times \left[\frac{18}{MW(voc)}\right]^{0.5}$$

where:
$k_1(CO_2)$ = liquid mass-transfer coefficient for carbon dioxide (cm/hr)
$k_g(H_2O)$ = gas mass-transfer coefficient for water (cm/hr)
MW(voc) = molecular weight of VOC

ASSUMPTIONS

Several assumptions were made to complete this modeling effort. The more important ones involve the volume of the bathroom and the air exchange rate (see Equations 1 and 2). A bathroom volume of 12 m^3 was assumed. For the purposes of this model, it was also assumed that the air between the shower area and the rest of the bathroom was well mixed. The volumetric flowrate through the bathroom was assumed to be 0.4 m^3/min, which gives an effective air exchange rate of 1.8 air changes/hour. Few measurements have been done on ventilation rate in bathrooms. ABB-ES considers this value to be a conservative estimate given that most homes have air exchange rates of 0.5 to 2.0 changes/hour. Bathrooms may have higher ventilation rates than the entire house due to the effect of local exhaust fans, if present, or the opening of windows.

Another assumption is implicit in the use of Equation 1. This equation calculates VOC concentrations at time (t), which is assumed to equal the duration of shower use (D_S). Thus, the resulting concentrations represent maximum concentrations at the end of the shower. In reality, an individual would experience an integrated exposure that would gradually increase during shower usage and decrease again after the water was turned off. ABB-ES made the simplifying assumption that the peak concentrations would persist for the duration of exposure. This is a conservative assumption that is protective of public health.

REFERENCES

Andelman, J.B., 1985, Inhalation Exposure in the Home to Volatile Organic Contaminants in Drinking Water; *Sci. Total Environ.*; Vol. 47, pp. 443-460.

Foster, S.A. and Chrostowski, P.C., 1987, Inhalation Exposures to Volatile Organic Contaminants in the Shower; paper presented at the 80th Annual Meeting of the Air Pollution Control Association; New York, New York; June 1987.

USEPA, 1989, Exposure Factors Handbook; EPA/600/8-89/043; July 1989.

APPENDIX D-7

DERMAL GUIDANCE SUMMARY

ABSORBED DOSE CALCULATION - DERMAL EXPOSURE TO WATER

The absorbed dose is calculated per the USEPA *Dermal Exposure Assessment: Principles and Applications*, Interim Report, January 1992. The permeability constant approach is used for dermal exposures to contaminants in water.

The steady state approach for inorganics is used here. The dose absorbed per unit area per event is:

$$DA_{event} = PC_{event} \times C_w \times CF_1 \times CF_2$$

where:

DA_{event} = Dose absorbed per unit area per event (mg/cm^2-event)

$$PC_{event} = K_{pw} \times t_{event}$$

PC_{event} = Diffusion depth per event (cm/event)
K_{pw} = Permeability constant from water (cm/hr)
C_w = Concentration of chemical in water ($\mu g/\ell$)
t_{event} = Duration of a single event (hr/event)
CF_1 = Units conversion factor (liter/ 10^3 cm^3)
CF_2 = Units conversion factor (mg/ 10^3 μg)

The "unsteady-state approach for organics" is used here. The dose absorbed per unit area per event is:

$$DA_{event} = PC_{event} \times C_w \times CF_3 \times CF_4$$

$$PC_{event} = 2 \times K_p \times (6\tau t_{event} / \pi)^{0.5}$$

where:

$t < t^*$

and

$$DA_{event} = PC_{event} \times C_w \times CF_5 \times CF_6$$

$$PC_{event} = K_p \times ((t_{event} / (1 + B)) + 2\tau ((1 + 3B) / (1 + B))$$

where:

$t > t^*$

and

K_p	=	Permeability constant from water (cm/hr)
C_w	=	Concentration of chemical in water ($\mu g/\ell$)
τ	=	l_{sc}^2 / 6 D_{sc} (hr)
l_{sc}	=	Thickness of stratum corneum (10 μm)
D_{sc}	=	Stratum corneum diffusion coefficient (cm^2/hr)
t_{event}	=	Duration of a single event (hr/event)
π	=	Pi (dimensionless)
t*	=	Time to reach steady state (hr)
B	=	Octanol water partition coefficient divided by 10^4 (dimensionless)
CF_3	=	Units conversion factor (mg/10^3 μg)
CF_4	=	Units conversion factor (liter/10^3 cm^3)
CF_5	=	Units conversion factor (mg/10^3 μg)
CF_6	=	Units conversion factor (liter/10^3 cm^3)

For a given compound, the values for B, K_p, τ, and t^* can be found in Table 5-8 of the dermal guidance document (USEPA, 1992).

Once the dose per event (DA_{event}) is calculated, the dermally absorbed dose (DAD) for use in risk calculations can be derived as follows:

Dermally absorbed dose for use in risk calculations is derived generally (for adults who are no longer growing) as follows:

$$DAD_{adult} = DA_{event} \times EV \times EF \times ED \times SA \;/\; BW \times AT$$

For children, to account for changing surface areas and bodyweights, the dermally absorbed dose is calculated as follows:

$$DAD_{child} = (DA_{event} \times EV \times EF \;/\; AT) \sum_{i=m}^{n} (SA_i \times ED_i \;/\; BW_i)$$

where:

EV	=	Event frequency (events/day)
EF	=	Exposure frequency (days/year)
AT	=	Averaging time (days). For noncarcinogenic effects, AT = ED, and for carcinogenic effects AT = 70 years or 25,550 days.
SA_i	=	Surface area exposed at age i (cm^2)
ED_i	=	Exposure duration at age i (years)
BW_i	=	Bodyweight at age i (kg)

Bathing or Swimming Exposure. For bathing and swimming, USEPA recommends that whole body surface area be used to represent skin surface area available for contact with water. For adults, using 50th and 95th percentile whole body SA values, the default SA values are 20,000 cm^2 and 23,000 cm^2 (Table D-7-1). For children, the default values for each age group would be equal to the 50th percentile and 95th percentile whole body SA values. Estimated bodyweights are the average of the 50th percentile female and male weights (Table D-7-1).

Values of:
for commonly used age ranges are presented in Table D-7-2.

$$\sum_{i=m}^{n} (SA_i \times ED_i / BW_i)$$

Wading Exposure. For wading, it is assumed that the entire surface area of the feet, lower legs, and hands is exposed to the surface water during the entire exposure event. This assumption is for shallow water situations. Averaging surface areas over the 6 childhood years yields the following: hands represent 5.5 percent of total body surface area, lower leg represents 12.8 percent of total body surface area, and the feet represent 7 percent of total body surface area. Therefore, the feet, lower legs and hands represent approximately 25 percent of total body surface area for children ages 1 through 6 (Table D-7-3). This value is the same value which USEPA identifies as the percentage of total body surface area which is available for soil contact (USEPA, 1992). This value, 25 percent of total body surface area is used here to represent surface area available for waders of all ages. Table D-7-4 presents the wading information for typically evaluated age groups.

ABSORBED DOSE CALCULATION - DERMAL EXPOSURE TO SOIL

The absorbed dose is calculated per the USEPA *Dermal Exposure Assessment: Principles and Applications*, Interim Report, January 1992. The calculation of the estimated dermally absorbed dose per unit area per event is:

$$DA_{event} = C_{soil} \times AF \times ABS \times CF$$

where:

DA_{event}	=	Dose absorbed per unit area per event (mg/cm^2-event)
C_{soil}	=	Contaminant concentration in soil (mg/kg)
AF	=	Adherence factor of soil to skin (mg/cm^2-event)
ABS	=	Absorption fraction (dimensionless)
CF	=	Units conversion factor (10^{-6} kg/mg)

Dermally absorbed dose for use in risk calculations is derived generally (for adults who are no longer growing) as follows:

$$DA_{adult} = DA_{event} \times EF \times ED \times SA / BW \times AT$$

For children, to account for changing surface areas and bodyweights, the dermally absorbed dose is calculated as follows:

$$DA_{child} = (DA_{event} \times EF / AT) \sum_{i=m}^{n} (SA_i \times ED_i / BW_i)$$

Table D-7-1
Exposure Parameters for Dermal Contact With Water

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Age	Total Surface Area (cm^2)				Body Weight (kg)			Derivation of DA event (dose absorbed/unit area/event)			
	Bathing and Swimming		Wading (25% Total Surface Area)								
	Male 50th Percentile[1]	Male 95th Percentile[1]	Male 50th Percentile	Male 95th Percentile	Male 50th Percentile[2]	Female 50th Percentile[2]	Average of Male and Female	Swimmer 50th Percentile	Swimmer 95th Percentile	Wader 50th Percentile	Wader 50th Percentile
1<23	5398	6104	1350	1526	11.5	10.5	11	490.7	554.9	122.7	138.7
2<3	6030	6820	1508	1705	13.4	12.6	13	463.8	524.6	116.0	131.2
3<4	6640	7640	1660	1910	15.3	14.6	14.95	444.1	511.0	111.0	127.8
4<5	7310	8450	1828	2112.5	17.4	16.4	16.9	432.5	500.0	108.1	125.0
5<6	7930	9180	1983	2295	19.3	18.8	19.05	416.3	481.9	104.1	120.5
6<7	8660	10600	2165	2650	21.9	21	21.45	403.7	494.2	100.9	123.5
7<8	9360	11100	2340	2775	24.4	23.5	23.95	390.8	463.5	97.7	115.9
8<9	10000	12400	2500	3100	27.3	27.3	27.3	366.3	454.2	91.6	113.6
9<10	10700	12900	2675	3225	29.7	29.6	29.65	360.9	435.1	90.2	108.8
10<11	11800	14800	2950	3700	34.5	34.3	34.4	343.0	430.2	85.8	107.6
11<12	12300	16000	3075	4000	36.4	40	38.2	322.0	418.8	80.5	104.7
12<13	13400	17600	3350	4400	42.1	45.2	43.65	307.0	403.2	76.7	100.8
13<14	14700	18100	3675	4525	47.7	48.6	48.15	305.3	375.9	76.3	94.0
14<15	16100	19100	4025	4775	55.5	52.8	54.15	297.3	352.7	74.3	88.2
15<16	17000	20200	4250	5050	60.2	53.9	57.05	298.0	354.1	74.5	88.5
16<17	17600	21600	4400	5400	63.6	55.3	59.45	296.0	363.3	74.0	90.8
17<18	18000	20900	4500	5225	65.7	58.3	62.	290.3	337.1	72.6	84.3
18<75	20000	23000	5000	5750	75.9	61.5	68.7	291.1	334.8	72.8	83.7
							Child - 6 years old (Sum ages 1<7)	2651.3	30066.6	662.8	766.7
							Child from 2 to 8 years (Sum ages 2<8)	2551.4	2975.2	637.8	743.8
							Child from 6 to 16 years (Sum ages 6<17)	3690.4	4545.3	922.6	1136.3
							Adult - 24 years old (18<75 multiplied by 24)	6986.9	8034.9	1746.7	2008.7
							Adult - 30 years old (Sum Child+ Adult)	9638.2	11101.6	2409.5	2775.4

[1] USEPA, 1989. Exposure Factors Handbook. EPA/600/8-89/043 (Table 4B-3).
[2] USEPA, 1989. Exposure Factors Handbook. EPA/600/8-89/043 (Table 5A-3).
[3] SAs based on equation SA = K x BW(2/3). K calculated from age 2<3 data.

Table D-7-2
Summary of Age Adjusted, Bodyweight-Normalized Surface Area Exposed While Bathing or Swimming[1]

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Age Range	Duration of Exposure to Water (Bathing or Swimming)	Sum of Terms for Average Case (50th Percentile) (area x duration/bodyweight) (cm^2-yr/kg)	Sum of Terms for Reasonable Maximum Exposure (95th Percentile) (area x duration/bodyweight) (cm^2-yr/kg)
1 through 6	6 years	2,651.3	3,066.6
2 through 8	6 years	2,551.4	2,975.2
6 through 16	11 years	3,690.4	4,545.3
18 through 41	24 years	6,986.9	8,034.9
1 through 30	30 years	9,638.2	1,1101.6

[1] See Table D-7-1.

Table D-7-3
Surface Area Exposed to Surface Water for Waders (Children)

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Mayport, Florida

Age	Mean Percentage (%) of Whole Body Surface Area			95th Percentile Whole Body Surface Area[3] (cm^2)	Estimated Surface Area (cm^2) (Mean % Whole Body SA x Whole Body SA)			Estimated SA for Hands, Lower Legs, and Feet Ages 1 through 6 (cm^2)
	Hands[1]	Lower Legs[2]	Feet[1]		Hands[1]	Lower Legs[2]	Feet[1]	
1<2	5.68	12.8	6.27	46,104	346.7	781.3	382.7	1,510.7
2<3	5.3	12.8	7.07	6,820	361.5	873.0	482.2	1,716.6
3<4	6.07	12.8	7.21	7,640	463.7	977.9	550.8	1,992.5
4<5	5.7	12.8	7.29	8,450	481.7	1,081.6	616.0	2,179.3
5<6	5.7	12.8	7.29	9,180	523.3	1,175.0	669.2	2,367.5
6<7	4.71	12.8	6.9	10,600	499.3	1,356.8	731.4	2,587.5
Mean (Age 1 through 6)	5.5	12.8	7.0	8,132	449.4	1,040.9	569.6	2,060.0

[1] USEPA, 1989. Exposure Factors Handbook. EPA/600/8-89/043 (Table 4-3).
[2] USEPA, 1989. Exposure Factors Handbook. EPA/600/8-89/043 (Table 4-2). The percent of whole body surface area for the lower legs is taken from table 4-2 (adults) because no value for children is reported.
[3] USEPA, 1989. Exposure Factors Handbook. EPA/600/8-89/043 (Table 4B-3).

Table D-7-4
Summary of Age Adjusted, Bodyweight-Normalized Surface Area Exposed While Wading[1]

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Age Range	Duration of Exposure to Water (Wading)	Sum of terms for Average Case (50th Percentile) (area x duration/bodyweight) (cm^2-yr/kg)	Sum of Terms for Reasonable Maximum Exposure (95th Percentile) (area x duration/bodyweight) (cm^2-yr/kg)
1 through 6	6 years	662.8	766.7
2 through 8	6 years	637.8	743.8
6 through 16	11 years	922.6	1,136.3
18 through 41	24 years	1,746.7	2,008.7
1 through 30	30 years	2,409.5	2,775.4

[1] See Table D-7-1.

where:

EF = Exposure frequency (events/year)
AT = Averaging time (days). For noncarcinogenic effects, AT = ED, and for carcinogenic effects AT = 70 years or 25,550 days.
SA_i = Surface area exposed at age i (cm^2)
ED_i = Exposure duration at age i (years)
BW_i = Bodyweight at age i (kg)

For the typical case, USEPA recommends SA for head and hands only and for the "reasonable worst case," the SA of the head, hands, forearms, and lower legs as the SA available for contact with soil. USEPA simplifies these assumptions by saying that 25 percent of the total body surface area would be available for soil contact. For adults, using 50th and 95th percentile whole body SA values, the default SA values are 5,000 cm^2 and 5,800 cm^2 (Table D-7-5). For children, the default values for each age group would be equal to 25 percent of the 50th percentile and 95th percentile whole body SA values. Estimated bodyweights are the average of the 50th percentile female and male weights (Table D-7-5).

Values of

$$\sum_{i=n}^{n} (SA_i \times ED_i / BW_i)$$

for commonly used age ranges are presented in Table D-7-6.

Table D-7-5
Exposure Parameters for Dermal Contact With Soil

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Age	Total Surface Area (cm^2)		SA Available for Soil Contact (cm^2) (.25 x Total Surface Area)		Body Weight (kg)			Derivation of DAevent (Dose absorbed/unit area/ event)	
	Male 50th Percentile[1]	Male 95th Percentile[1]	Male 50th Percentile	Male 95th Percentile	Male 50th Percentile[2]	Female 50th Percentile[2]	Average of Male and Female	50th Percentile	95th Percentile
1<23	5,398	6,104	1,350	1,526	11.5	10.5	11	122.7	138.7
2<3	6,030	6,820	1,508	1,705	13.4	12.6	13	116.0	131.2
3<4	6,640	7,640	1,660	1,910	15.3	14.6	14.95	111.0	127.8
4<5	7,310	8,450	1,828	2,113	17.4	16.4	16.9	108.1	125.0
5<6	7,930	9,180	1,983	2,295	19.3	18.8	19.05	104.1	120.5
6<7	8,660	10,600	2,165	2,650	21.9	21	21.45	100.9	123.5
7<8	9,360	11,100	2,340	2,775	24.4	23.5	23.95	97.7	115.9
8<9	10,000	12,400	2,500	3,100	27.3	27.3	27.3	91.6	113.6
9<10	10,700	12,900	2,675	3,225	29.7	29.6	29.65	90.2	108.8
10<11	11,800	14,800	2,950	3,700	34.5	34.3	34.4	85.8	107.6
11<12	12,300	16,000	3,075	4,000	36.4	40	38.2	80.5	104.7
12<13	13,400	17,600	3,350	4,400	42.1	45.2	43.65	76.7	100.8
13<14	14,700	18,100	3,675	4,525	47.7	48.6	48.15	76.3	94.0
14<15	16,100	19,100	4,025	4,775	55.5	52.8	54.15	74.3	88.2
15<16	17,000	20,200	4,250	5,050	60.2	53.9	57.05	74.5	88.5
16<17	17,600	21,600	4,400	5,400	63.6	55.3	59.45	74.0	90.8
17<18	18,000	20,900	4,500	5,225	65.7	58.3	62	72.6	84.3
18<75	20,000	23,000	5,000	5,750	75.9	61.5	68.7	72.8	83.7
							Child - 6 years old (Sum ages 1<7)	662.8	766.7
							Child from 2 to 8 years (Sum ages 2<8)	637.8	743.8
							Child from 6 to 16 years (Sum ages 6<17)	922.6	1,136.3
							Adult - 24 years old (18<75 multiplied by 24)	1,746.7	2,008.7
							Adult - 30 years old (Sum Child+ Adult)	2,409.5	2,775.4

[1] USEPA, 1989. Exposure Factors Handbook. EPA/600/8-89/043 (Table 4B-3)
[2] USEPA, 1989. Exposure Factors Handbook. EPA/600/8-89/043 (Table 5A-3)
[3] SAs based on equation SA = K x BW(2/3).
K calculated from age 2<3 data.

Table D-7-6
Summary of Age Adjusted, Bodyweight-Normalized Surface Area Exposed to Soil[1]

RCRA Corrective Action Program, General Information Report
U.S. Naval Station
Mayport, Florida

Age Range	Duration of Exposure to Soil	Sum of terms for Average Case (50th Percentile) (area x duration/bodyweight) (cm^2-yr/kg)	Sum of Terms for Reasonable Maximum Exposure (95th Percentile) (area x duration/bodyweight) (cm^2-yr/kg)
1 through 6	6 years	662.8	766.7
2 through 8	6 years	637.8	743.8
6 through 16	11 years	922.6	1,136.3
18 through 41	24 years	1,746.7	2,008.7
1 through 30	30 years	2,409.5	2,775.4

[1] See Table D-7-5.

REFERENCES

USEPA, 1989, Exposure Factors Handbook; Office of Health and Environmental Assessment, Washington, DC; EPA/600/8-89/043.

USEPA, 1992, Dermal Exposure Assessment: Principles and Applications; Office of Health and Environmental Assessment, Washington, DC; EPA/600/8-91/011F.

USEPA, 1994, Supplemental Guidance to RAGS: Region IV Bulletin (Draft), Bulletin Vol. 1 No. 1; March 1994.

APPENDIX E

ECOLOGICAL SUPPORTING INFORMATION

APPENDIX E-1

TERRESTRIAL AND AQUATIC PLANT SPECIES INVENTORY OF NAVSTA MAYPORT

Appendix E-1
Terrestrial and Aquatic Plant Species Inventory of NAVSTA, Mayport

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

Common Name	Scientific Name	Plant Community Types													
		CB	EUS	TM	MF	DF	SH	D	P	OF	MFi	MH	PH	CG	WF
Trees															
Hackberry	*Celtis laevigata*						X								
Red Cedar	*Juniperus silicicola*				X	X	X		X						
Sweetbay	*Magnolia virginiana*														X
Mulberry	*Morus rubra*					X	X								
Red Bay	*Persea borbonia*				X	X						X			
Slash Pine	*Pinus elliottii*				X	X									X
Pond Pine	*Pinus serotina*														X
Cherry Laurel	*Prunus carolinlana*				X	X									
Black Cherry	*Prunus serotina*				X										
Live Oak	*Quercus virginiana*				X	X	X					X	X		
Laurel Oak	*Quercus laurifolia*				X	X									
Dwarf Palmetto	*Sabal minor*												X		
Cabbage Palm	*Sabal palmetto*				X	X	X		X	X		X	X		
Willow	*Salix caroliniana*							X							
Hercules Club	*Zanthoxylum clava-herculis*					X	X								
Shrubs															
Salt Bush	*Baccharis helimifolia*	X			X	X	X	X	X	X					
Tough Bumelia	*Bumelia tenax*				X				X						
Beauty Berry	*Callicarpa americana*				X										
Florida Privet	*Forestiera segregata*	X			X	X									

See notes at end of table.

Appendix E-1 (Continued)
Terrestrial and Aquatic Plant Species Inventory of NAVSTA, Mayport

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

		Plant Community Types													
Common Name	Scientific Name	CB	EUS	TM	MF	DF	SH	D	P	OF	MFi	MH	PH	CG	WF
Yaupon	*Ilex vomitoria*			X	X	X	X								
Marsh Elder	*Iva frutescens*	X		X				X							
Shrub Verbena	*Lantana camara*	X			X	X		X		X					
Wax Myrtle	*Myrica cerifera*			X	X	X	X	X	X	X			X	X	
Date Palm	*Phoenix hybrid*				X										
Elderberry	*Sambucus canadensis*				X		X	X							
Saw Palmetto	*Serenoa repens*				X								X		X
Herbs															
Alligatorweed	*Alternanthera philoxeroides*							X							
Ragweed	*Ambrosia artemisifolia*					X				X					
Blue Maidencane	*Amphicarpum muhlenbergianum*									X					
Broomsedge	*Andropogon virginicus*	X			X	X				X				X	X
Bushy Beardgrass	*Andropogon glomeratus*				X			X						X	X
Marsh Aster	*Aster tenuifolius*			X											
Seabeach Orach	*Atriplex pentandra*	X													
Carpet Grass	*Axonopus affinis*									X	X				
Hyssop	*Bacopa monnieri*			X											
Beggers-tick	*Bidens alba*	X			X	X			X	X	X				
Sea Oxeye	*Borichia frutescens*			X											
Sea Rockets	*Cakile lanceolata*	X													
Southern Sandspur	*Cenchrus echinatus*									X					
Coast Sand Spur	*Cenchrus incertus*	X				X			X	X	X			X	
Dune Sand Spur	*Cenchrus tribuloides*									X					

See notes at end of table.

Appendix E-1 (Continued)
Terrestrial and Aquatic Plant Species Inventory of NAVSTA, Mayport

RCRA Corrective Action Program, General Investigation Report
Naval Station
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		Plant Community Types													
Common Name	Scientific Name	CB	EUS	TM	MF	DF	SH	D	P	OF	MFi	MH	PH	CG	WF
Spurge	*Chamaesyce sp.*	X				X				X	X				
Purple Thistle	*Cirsium horridulum*			X	X	X									
Nuttall's Thistle	*Cirsium nuttallii*									X					
Tread-softly	*Cnidoscolus stimulosus*				X										
Dayflower	*Commelina diffusa*				X	X			X	X					
Pampas Grass	*Cortaderia selloana*									X					
Bermuda Grass	*Cynodon dactylon*	X			X	X			X	X	X				
Galingale	*Cyperus surinamensis*							X							
Galingale	*Cyperus sp.*							X							
Crowfoot Grass	*Dactyloctenium aegyptium*	X							X	X	X			X	
Descurainia	*Descurainia pinnata*								X	X	X				
Desmodium	*Desmodium triflorum*										X				X
Pony-foot	*Dichondra carolinensis*			X											
Salt Grass	*Distichlis spicata*			X											
Spikerush	*Eleocharis sp.*							X							
Goose Grass	*Eleusine indica*			X											
Love Grass	*Eragrostis spectabilis*				X	X				X				X	
Southern Fleabane	*Erigeron quercifolius*							X		X					
Dog Fennel	*Eupatorium capillifolium*				X	X				X					
Finger Grass	*Eustachys glauca*								X	X					
Bushy Goldenrod	*Euthamia minor*				X					X					
Flat-topped Goldenrod	*Euthamia tenuifolia*									X					
Fringe Rush	*Fimbristylis spathacea*				X										
Blanket Flower	*Gaillardia pulchella*	X				X			X	X	X				

See notes at end of table.

Appendix E-1 (Continued)
Terrestrial and Aquatic Plant Species Inventory of NAVSTA, Mayport

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

		Plant Community Types													
Common Name	Scientific Name	CB	EUS	TM	MF	DF	SH	D	P	OF	MFi	MH	PH	CG	WF
Bedstraw	*Galium tinctorium*	X													
Southern Gaura	*Gaura angustifolia*									X					
Cranesbill	*Geranium carolinianum*			X		X			X	X	X				
Rabbit Tobacco	*Gnaphalium obtusifolium*				X					X					
Hedyotis	*Heldyotis uniflora*				X										
Helianthemum	*Helianthemum carolinianum*				X										
Camphorweed	*Heterotheca subaxilaris*	X			X	X			X	X	X				
Water Pennywort	*Hydrocotyle bonariensis*	X			X	X		X	X	X	X			X	
Musky Mint	*Hyptis verticellata*					X									
Hairy Indigo	*Indigofera hirsuta*					X				X					
Sharp-pod Morning-glory	*Ipomoea cordatotriloba*									X					
Rush	*Juncus megacephalus*							X							
Black Rush	*Juncus romerianus*							X							
Wild Lettuce	*Lactuca graminifolia*					X									
Trailing Lantana	*Lantana montevidensis*					X									
Pinweed	*Lechea divaricata*				X										
Duckweed	*Lemna sp.*							X							
Sea Lavender	*Limonium carolinianum*			X											
Christmas Berry	*Lycium carolinianum*			X											
Black Medic	*Medicago lupulina*	X				X			X	X	X				
Chinaberry	*Melia azedarach*									X					
White Clover	*Melilotus alba*					X				X					
Hair Awn Muhly	*Muhlenbergia capillaris*				X					X				X	
Prickley-pear Cactus	*Opuntia stricta*	X							X	X				X	

See notes at end of table.

Appendix E-1 (Continued)
Terrestrial and Aquatic Plant Species Inventory of NAVSTA, Mayport

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

		Plant Community Types													
Common Name	Scientific Name	CB	EUS	TM	MF	DF	SH	D	P	OF	MFi	MH	PH	CG	WF
Yellow Wood Sorrel	*Oxalis stricta*				X	X			X	X	X				
Switchgrass	*Panicum virgatum*				X									X	
Beachgrass	*Panicum amarum*	X												X	
Fall Panicum	*Panicum dichotomiflorum*									X					
Parietaria	*Parietaria floridana*				X	X									
Virginia Creeper	*Parthenocissus quinquefolia*									X					
Bahia Grass	*Paspalum notatum*					X			X	X	X				
Seashore Paspalum	*Paspalum distichum*	X						X	X						
Vasey Grass	*Paspalum urvillei*									X					
Maypop	*Passiflora incarnata*									X					
Frog Fruit	*Phyla nodiflora*	X			X	X			X	X	X				
Phyllanthus	*Phyllanthus sp.*	X							X	X	X				
Ground Cherry	*Physalis walteri*	X							X	X	X			X	
Pokeweed	*Phytolacca americana*					X				X					
Annual Bluegrass	*Poa annua*										X				
Painted-leaf	*Poinsettia cyathophora*									X					
Rustweed	*Polypremum procumbens*				X	X				X	X				
Pink Purslane	*Portulaca pilosa*									X	X				
False dandelion	*Pyrrhopappus carolinianus*								X		X				
Red Natal Grass	*Rhynchelytrum repens*	X								X					
Southern Dewberry	*Rubus trivialis*									X					
Perennial Glasswort	*Salicornia virginica*			X										X	
Blue Salvia	*Salvia lyrata*						X								
Bladderpod	*Sesbania punicea*									X					

See notes at end of table.

Appendix E-1 (Continued)
Terrestrial and Aquatic Plant Species Inventory of NAVSTA, Mayport

RCRA Corrective Action Program, General Investigation Report
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		Plant Community Types													
Common Name	Scientific Name	CB	EUS	TM	MF	DF	SH	D	P	OF	MFi	MH	PH	CG	WF
Beguila	*Sesbania emerus*									X					
Foxtail Grass	*Setaria geniculata*				X	X				X					
Sida	*Sida rhombifolia*				X	X				X	X				
Greenbrier	*Smilax sp.*														X
Seashore Goldenrod	*Solidago sempervirens*	X													
Spiny-leaved Sowthistle	*Sonchus asper*									X					
Common Sowthistle	*Sonchus oleraceus*					X	X			X					
Saltmarsh Cordgrass	*Spartina alterniflora*							X						X	
Sand Cordgrass	*Spartina bakeri*						X	X						X	
Marsh Hay Cordgrass	*Spartina patens*	X												X	
Seashore Dropseed	*Sporobolus virginicus*	X		X				X						X	
Smutgrass	*Sporobolus indicus*									X	X			X	
Hedge Nettle	*Stachys floridana*					X									
Chickweed	*Stellaria media*							X		X	X				
St. Augustine Grass	*Stenotaphrum secundatum*									X	X				
Common Dandelion	*Taraxacum officinale*										X				
Spiderwort	*Tradescantia ohiensis*									X					
Forked Blue-curls	*Trichostema dichotomum*				X										
Southern Cattail	*Typha domingensis*							X							
Sea Oats	*Uniola paniculata*	X													
Harsh Verbena	*Verbena braziliensis*					X									
Scuppernong	*Vitis rotundifolia*									X					
Adam's Needle	*Yucca filamentosa*				X										
Spanish Bayonet	*Yucca aloifolia*	X													
Zeuxine Orchid	*Zeuxine strateumatica*										X				

See notes at end of table.

Appendix E-1 (Continued)
Terrestrial and Aquatic Plant Species Inventory of NAVSTA, Mayport

RCRA Corrective Action Program, General Investigation Report
Naval Station
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Common Name	Scientific Name	Plant Community Types													
		CB	EUS	TM	MF	DF	SH	D	P	OF	MFi	MH	PH	CG	WF
Vines															
Climbing Hempvine	*Mikania scandens*							X							
Virginia Creeper	*Parthenocissus quinquefolia*				X	X				X					
Dewberry	*Rubus trivialis*	X			X	X				X					
Catbrier	*Smilax bona-nox*	X			X	X	X			X					
Grape	*Vitis munsoniana*				X	X									
Macroalgae															
	Ulva sp.		X												
	Enteromorpha sp.		X												

Source: Modified from ECT, 1993 and KBN, 1992

Notes
CB = Coastal Berm
EUS = Estuarine Unconsolidated Substrate
TM = Tidal Marsh
MF = Mesic Flatwoods
DF = Disturbed Mesic Flatwoods
SH = Second Growth Hardwoods
D = Ditches
P = Tidally Influenced Containment Ponds
OF = Overgrown Field
MFi = Maintained Field
MH = Maritime Hammock
PH = Prairie Hammock
CG = Coastal Grassland
WF = Wet Flatwoods

APPENDIX E-2

AQUATIC SPECIES COLLECTED FROM THE TIDAL DITCHES SURROUNDING THE GROUP I SWMUs

ZOOPLANKTON DATA

'Zooplankton' remaining on 40µ mesh cloth (#/liter).

category	MPT-2 BIO-2	MPT-2 BIO-4	MPT-2 BIO-5	MPT-2 BIO-6	MPT-2 BIO-8	MPT-2 BIO-9
Protozoa						
ciliates						
misc.[1]	20	12312	718	580	648	104
tintinnid 1	40	430	104	18	124	84
tintinnid 2					1096	78
vorticellids				4		
Rotifera						
misc.-no ID	172	646[2]	114	126	144	232
Keratella		2	2	2	4	
Polyarthra		2	4			
Brachionus						
spp			6			
cf plicatilis				6		
cf havanaensis						
angularis						
cf Notholoca						2
Lepadella						
Euchlanis						
nematodes	220	4	12	12		34
Crustaceans						
nauplii[3]	60	90	54	12	8	144
copepodids	4		4	2		14
calanoids		2			4	4
cyclopoids						
misc. no ID						
cladocerans						
Daphnia						
ostracods						14

'Zooplankton' remaining on 40µ mesh cloth (#/liter).

category	MPT-13 BIO-1	MPT-13 BIO-2	MPT-13 BIO-3	MPT-B BIO-1	MPT-B BIO-2	MPT-B BIO-3
Protozoa						
ciliates						
misc.[1]	257	1454	24	3990	96	1114
tintinnid 1	60	96	4	1590	4	352
tintinnid 2	4					
vorticellids						20
Rotifera						
misc.-no ID	144	202	112	298	520	116
Keratella			4		102	12
Polyarthra		2		8	10	4
Brachionus						
spp						
plicatilis						
havanaensis					2	
angularis					2	
cf Notholoca		20	8			
Lepadella					4	
Euchlanis					2	
nematodes	8	6	8	6	2	62
Crustaceans						
nauplii[3]	52	16	36	72	20	40
copepodids						2
calanoids						
cyclopoids					4	
misc. no ID	4		4			2
cladocerans			8			
Daphnia					2	
ostracods						2

Footnotes:

[1] primarily from Order Oligotrichida, which includes Strombidium and Halteria.

[2] some Conochiloides. These were not enumerated separately as most were in such a contractile state that a confident identification could not be made.

[3] Penaeid shrimp nauplii are very similar to copepod nauplii. Separation of the two would require time intensive detail work. I would conjecture that most, if not all, were copepod nauplii due to the presence of copepodids and adult copepods.

PHYTOPLANKTON DATA

MPTB-BIO-1

Species	Division	Cell Count Cells/ml
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	19319.8
Anabaena #2	Cyanobacteria	2023.4 *
Cryptophyte, 5-15 microns	Cryptophyte	1389.2 *
Microcystis, 1-2 microns	Cyanobacteria	498.3
Merismopedia tenuissima	Cyanobacteria	483.2
Centric Diatom, 10 micron	Diatom	407.7 *
Crucigenia tetrapedia	Green	302.0
Raphidiopsis	Cyanobacteria	226.5
Ankistrodesmus convolutus	Green	166.1
Anabaenopsis	Cyanobacteria	120.8
Ankistrodesmus nannoselene	Green	90.6
Navicula	Diatom	75.5
Melosira c.f. nummuloides	Diatom	60.4
Scenedesmus #1	Green	60.4
Tetrastrum heteracanthum	Green	60.4
Green #1	Green	60.4
Scenedesmus bicaudata	Green	60.4
Tetrastrum	Green	60.4
Lyngbya limnetica	Cyanobacteria	45.3
Centric Diatom, 5 micron	Diatom	45.3
Centric Diatom, 15 micron	Diatom	45.3
Scenedesmus quadricata	Green	30.2
Chlamydomonas	Green	30.2
Oscillatoria	Cyanobacteria	15.1
Nitzschia closterium	Diatom	15.1
Chaetocerous	Diatom	15.1
Naviculodes staurineis	Diatom	15.1
Tetraedron minimum	Green	15.1
Golenkinia	Green	15.1
Ankistrodesmus falcatus	Green	15.1
Coelastrum reticulatum	Green	0.8
Mougeotia	Diatom	0.8
Pleurosigma/Gyrosigma	Diatom	0.3
Euglena	Euglena	0.2
Centric Diatom, 30 micron	Diatom	0.1
	TOTAL	25769.7

MPTB-BIO-2

Species	Division	Cell Count Cells/ml
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	28298.4
Merismopedia tenuissima	Cyanobacteria	18844.8
Microcystis, 1-2 microns	Cyanobacteria	16332.1
Raphidiopsis	Cyanobacteria	5662.5
Lyngbya limnetica	Cyanobacteria	1072.1
Centric Diatom, 10 micron	Diatom	286.9 *
Ankistrodesmus convolutus	Green	271.8
Cryptophyte, 5-10 microns	Cryptophyte	211.4 *
Tetraedron minimum	Green	196.3
Scenedesmus quadricata	Green	181.2
Pennate Diatom, 25-75 microns	Diatom	135.9 *
Crucigenia tetrapedia	Green	120.8
Ankistrodesmus nannosolene	Green	105.7
Chlorogonium	Green	105.7
Merismopedia, 2 micron	Cyanobacteria	90.6
Centric Diatom, 5 micron	Diatom	90.6
Melosira c.f. nummuloides	Diatom	90.6
Ankistrodesmus falcatus	Green	90.6
Schroederia	Green	90.6
Cryptophyte, >15 microns	Cryptophyte	60.4 *
Dictyosphaerium ehrenbergianum	Green	60.4
Scenedesmus abundans	Green	60.4
Scenedesmus bicaudata	Green	60.4
Crucigenia crucifera	Green	60.4
Planktomyces	Bacteria	30.2
Oscillatoria #1	Cyanobacteria	30.2
Centric Diatom, 15 micron	Diatom	30.2
Pennate Diatom, 10-25 microns	Diatom	30.2
Treubaria setigerum	Green	30.2
Chlamydomonas	Green	30.2
Oscillatoria #1	Cyanobacteria	15.1
Dinoflagellates, armoured	Dinoflagellate	15.1
Golenkinia	Green	15.1
Tetraedron lunula	Green	15.1
Tetraedron muticum	Green	15.1
Euglena	Euglena	10.4
Anabaenopsis	Cyanobacteria	1.2
Nitzschia	Diatom	0.9
Pediastrum duplex no var.	Green	0.8
Pennate Diatom, >150 microns	Diatom	0.4
Pleurosigma/Gyrosigma	Diatom	0.1
Centric Diatom, 50 micron	Diatom	0.1
Ceratium	Dinoflagellate	0.1
Closterium	Green	0.1
	TOTAL	72851.4

MPTB-BIO-3

Species	Division	Cell Count Cells/ml	
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	37459.1	
Cryptophyte, 5-15 microns	Cryptophyte	1326.0	*
Microcystis, 1-2 microns	Cyanobacteria	1092.0	
Thalassiosira	Diatom	546.0	
Lyngbya limnetica	Cyanobacteria	507.0	
Scenedesmus quadricata	Green	182.0	
Merismopedia tenuissima	Cyanobacteria	104.0	
Melosira	Diatom	104.0	
Crucigenia tetrapedia	Green	104.0	
Scenedesmus quadricada var alternans	Green	104.0	
Raphidiopsis	Cyanobacteria	78.0	
Centric Diatom, 10 micron	Diatom	78.0	*
Pennate Diatom, 10-25 microns	Diatom	65.0	*
Ankistrodesmus convolutus	Green	65.0	
Centric Diatom, stacked, 10-15 microns	Diatom	52.0	*
Scenedesmus bijuga	Green	52.0	
Chlamydomonas	Green	52.0	
Tetrastrum heteracanthum	Green	52.0	
Lyngbya contorta	Cyanobacteria	26.0	
Navicula	Diatom	26.0	
Diploneis	Diatom	26.0	
Scenedesmus bicaudata	Green	26.0	
Schroederia	Green	26.0	
Cryptophyte, >15 microns	Cryptophyte	13.0	
Oscillatoria #2	Cyanobacteria	13.0	
Nitzchia c.f. closterium	Diatom	13.0	
Pennate Diatom, <10 microns	Diatom	13.0	
Chodatella	Green	13.0	
Ankistrodesmus nannoselene	Green	13.0	
Nitzschia	Diatom	1.5	
Pleurosigma/Gyrosigma	Diatom	0.2	
Centric, 50 micron	Diatom	0.1	
Surirella	Diatom	0.1	
Closterium	Green	0.1	
	TOTAL	42232.1	

MPT2-BIO-2

Species	Division	Cell Count Cells/ml	
Single Celled Cyanobacteria	Cyanobacteria	26847.2	
Chlorella c.f.	Green	7320.5	*
Centric Diatom, 10 micron	Diatom	4575.3	*
Ankistrodesmus nannoselene	Green	3050.2	
Euglena	Euglena	2567.0	*
Cryptophyte, 5-15 microns	Cryptophyte	694.6	*
Chaetocerous	Diatom	573.8	
Lyngbya limnetica	Cyanobacteria	483.2	
Naviculodes staurineis	Diatom	483.2	
Pennate Diatom, 25-75	Diatom	422.8	*
Nitzschia closterium	Diatom	211.4	
Ankistrodesmus convolutus	Green	181.2	
Cryptophyte, >15 microns	Cryptophyte	151.0	*
Amphora c.f.	Diatom	151.0	
Amphora, 25 micron	Diatom	151.0	*
Centric Diatom, stacked, 5-15 microns	Diatom	120.8	*
Centric Diatom, 15 micron	Diatom	90.6	*
Navicula, <50 microns	Diatom	90.6	*
Oscillatoria #1	Cyanobacteria	90.6	
Pennate Diatom, 10-25 microns	Diatom	60.4	*
Centric Diatom, 5 micron	Diatom	60.4	
Diploneis	Diatom	30.2	
Amphora, >25 microns	Diatom	30.2	
Oscillatoria #2	Green	30.2	
Navicula, >50 microns	Diatom	14.8	
Oscillatoria, >100 microns	Green	13.0	*
Closterium	Green	1.2	
Pennate, 75-150 microns	Diatom	0.4	
Pleurosigma/Gyrosigma	Diatom	0.2	
Closterium	Green	0.2	
	TOTAL	48497.2	

MPT2-BIO-4

Species	Division	Cell Count cells/ml	
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	28117.0	
Anabaena #2	Cyanobacteria	6085.3	*
Cryptophyte, 5-15 microns	Cryptophyte	2292.7	*
Scenedesmus quadricata	Green	1162.7	
Ankistrodesmus nannoselene	Green	694.6	
Centric Diatom, 10 micron	Diatom	649.3	*
Raphidiopsis	Cyanobacteria	498.3	
Merismopedia tenuissima	Cyanobacteria	241.6	
Pediastrum tetras	Green	241.6	
Cryptophyte, >15 microns	Cryptophyte	211.4	*
Scenedesmus bijuga	Green	181.2	
Chlorella	Green	181.2	
Chlamydomonas	Green	135.9	
Anabaenopsis	Cyanobacteria	120.8	
Crucigenia tetrapedia	Green	120.8	
Ankistrodesmus convolutus	Green	105.7	
Centric Diatom, 5 micron	Diatom	90.6	
Navicula, <50 microns	Diatom	75.5	*
Pennate Diatom, 25-75 microns	Diatom	45.3	*
Oscillatoria #2	Cyanobacteria	30.2	
Naviculodes staurineis	Diatom	30.2	
Scenedesmus acuminatus	Green	30.2	
Tetraedron minimum	Green	30.2	
Diploneis	Diatom	15.1	
Chaetocerous	Diatom	15.1	
Centric Diatom, 15 micron	Diatom	15.1	
Nitzschia	Diatom	15.1	
Rhizosolenia	Diatom	15.1	
Golenkinia	Green	15.1	
Pediastrum simplex no var	Green	1.6	
Pleurosigma/Gyrosigma	Diatom	1.2	
Pennate Diatom, stacked	Diatom	0.4	
Scenedesmus quad var maxima	Green	0.4	
Euglena	Euglena	0.3	
Nitzschia c.f. closterium	Diatom	0.2	
Pennate Diatom, >150 microns	Diatom	0.2	
Amphora	Diatom	0.2	
Navicula, > 50 microns	Diatom	0.1	
Closterium	Green	0.1	
	TOTAL	41467.6	

MPT2-BIO-5

Species	Division	Cell Count	
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	9614.2	
Anabaena#2	Cyanobacteria	4696.1	*
Cryptophyte, 5-15 microns	Cryptophyte	1972.9	*
Centric Diatom, 10 micron	Diatom	755.0	*
Lyngbya limnetica	Cyanobacteria	649.3	
Merismopedia tenuissima	Cyanobacteria	241.6	
Ankistrodesmus nannoselene	Green	211.4	
Crucigenia tetrapedia	Green	181.2	
Navicula, <50 microns	Diatom	135.9	*
Nitzschia	Diatom	60.4	
Scenedesmus acuminatus	Green	60.4	
Scenedesmus bicaudata	Green	60.4	
Ankistrodesmus convolutus	Green	45.3	
Chlamydomonas	Green	45.3	
Tetraedron minimum	Green	45.3	
Cryptophyte, >15 microns	Cryptophyte	30.2	
Raphidiopsis	Cyanobacteria	30.2	
Pennate Diatom, 25-75 microns	Diatom	30.2	*
Centric Diatom, 5 micron	Diatom	30.2	
Chaetocerous	Diatom	30.2	
Naviculodes staurineis	Diatom	30.2	
Scenedesmus bijuga	Green	30.2	
Nitzschia closterium	Diatom	15.1	
Amphiprora	Diatom	15.1	
Dinoflagellates armoured	Dinoflagellate	15.1	
Ankistrodesmus falcatus	Green	15.1	
Euglena	Euglena	2.6	
Synedra	Diatom	2.1	
Pediastrum simplex var duo	Green	1.6	
Pediastrum boryanum	Green	0.8	
Nitzschia c.f. closterium	Diatom	0.6	
Navicula, >50 microns	Diatom	0.2	
Mastigloia	Diatom	0.2	
Pennate Diatom, >150 microns	Diatom	0.1	
Diploneis c.f. didyma	Diatom	0.1	
Surirella	Diatom	0.1	
Pleurosigma/Gyrosigma	Diatom	0.1	
Amphora	Diatom	0.1	
Closterium	Green	0.1	
	TOTAL	19055.2	

MPT2-BIO-6

Species	Division	Cell Counts Cells/ml	
Cryptophyte, 5-15 microns	Cryptophyte	1365.0	
Anabaena #2	Cyanobacteria	520.0	*
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	338.0	
Microcystis, 1-2 micron	Cyanobacteria	130.0	
Lyngbya limnetica	Cyanobacteria	104.0	
Cryptophyte, >15 microns	Cryptophyte	91.0	*
Chlamydomonas	Green	52.0	
Naviculodes staurineis	Diatom	39.0	
Nitzschia closterium	Diatom	39.0	
Navicula, <50 microns	Diatom	39.0	*
Ankistrodesmus nannoselene	Green	39.0	
Centric Diatom, 10 micron	Diatom	26.0	
Pennate Diatom, 10-25 microns	Diatom	26.0	*
Scenedesmus bijuga	Green	26.0	
Oscillatoria #1	Cyanobacteria	13.0	
Cocconeis	Diatom	13.0	
Pennate Diatom, 25-75 microns	Diatom	13.0	*
Hantzschia sp.	Diatom	13.0	
Dinoflagellate, armoured	Dinoflagellate	13.0	
Green #2	Green	13.0	
Pleurosigma/Gyrosigma	Diatom	4.0	
Bacillaria paradoxa	Diatom	1.5	
Pennate Diatom, >150 microns	Diatom	0.8	
Diploneis c.f. didyma	Diatom	0.7	
Synedra	Diatom	0.5	
Navicula, >50 microns	Diatom	0.4	
Closterium	Green	0.4	
Mastigloia	Diatom	0.2	
Oscillatoria #3	Cyanobacteria	0.1	
Euglena	Euglena	0.1	
	TOTAL	2920.7	

MPT2-BIO-8

Species	Division	Cell Count Cells/ml	
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	45793.4	
Cryptophyte, 5-15 microns	Cryptophyte	9342.1	*
Lyngbya limnetica	Cyanobacteria	3099.6	
Ankistrodesmus nannoselene	Green	2116.8	
Centric Diatom, 10 micron	Diatom	907.2	*
Centric Diatom, 5 micron	Diatom	604.8	
Nitzschia c.f. closterium	Diatom	529.2	
Amphora	Diatom	302.4	
Navicula, <50 microns	Diatoms	226.8	*
Ankistrodesmus convolutus	Green	151.2	
Pennate Diatom, 25-75 microns	Diatom	75.6	*
Chaetocerous	Diatom	75.6	
Pleurosigma/Gyrosigma	Diatom	5.0	
Pennate Diatom, >150 microns	Diatoms	1.2	
Nastigloia	Diatom	1.0	
Euglena	Euglena	1.0	
	TOTAL	63232.9	

MPT2-BIO-9

Species	Division	Cell Count Cells/ml	
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	23763.4	
Centric Diatom, 10 micron	Diatom	14239.9	*
Ankistrodesmus nannoselene	Green	2687.8	
Cryptophyte, 5-15 microns	Cryptophyte	1963.0	*
Lyngbya limnetica	Cyanobacteria	1298.6	
Chlorella	Green	1208.0	
Euglena	Euglena	819.2	*
Nitzschia closterium	Diatom	392.6	
Chaetocerous	Diatom	181.2	
Centric Diatom, 5 micron	Diatom	181.2	
Scenedesmus bijuga	Green	120.8	
Centric Diatom, stacked, 5-15 microns	Diatom	90.6	*
Oscillatoria #1	Cyanobacteria	60.4	
Centric Diatom, 15 micron	Diatom	60.4	
Pennate Diatoms, 75-150 microns	Diatom	60.4	*
Cryptophyte, >15 microns	Cryptophyte	30.2	
Raphidiopsis	Cyanobacteria	30.2	
Centric Diatom, 20 microns	Diatom	30.2	
Pennate Diatoms, 25-75 microns	Diatom	30.2	*
Navicula, >50 microns	Diatom	5.2	
Oscillatoria #3	Cyanobacteria	1.4	
Pennate Diatoms, >150 microns	Diatom	1.4	
Pleurosigma/Gyrosigma	Diatom	0.6	
Centric Diatom, 50 micron	Diatom	0.2	
Amphora	Diatom	0.2	
	TOTAL	47257.3	

MPT13-BIO-1

Species	Division	Cell Count Cells/ml	
Single-celled Cyanobacteria, <3 microns	Cyanobacteria	50792.0	
Anabaena#2	Cyanobacteria	33431.4	*
Cryptophyte, 5-15 microns	Cryptophyte	2899.2	*
Centric Diatom 10m	Diatom	2265.0	*
Ankistrodesmus nannoselene	Green	1238.2	
Microcystis, 1-2 microns	Cyanobacteria	1087.2	
Scenedesmus quadricata	Green	543.6	
Lyngbya limnetica	Cyanobacteria	241.6	
Crucigenia tetrapedia	Green	181.2	
Chaetocerous	Diatom	151.0	
Navicula, <50 microns	Diatom	120.8	*
Scenedesmus bijuga	Green	120.8	
Scenedesmus quadricada var alternans	Green	120.8	
Oocystis	Green	120.8	
Nitzschia closterium	Diatom	90.6	
Anabaenopsis	Cyanobacteria	60.4	
Chodatella	Green	60.4	
Tetraedron minimum	Green	60.4	
Cryptophyte, >15 microns	Cryptophyte	30.2	
Raphidiopsis	Cyanobacteria	30.2	
Naviculodes staurineis	Diatom	30.2	
Pennate Diatoms, 10-25 microns	Diatom	30.2	
Centric Diatom, 30 micron	Diatom	30.2	*
Pennate Diatoms, 25-75 microns	Diatom	30.2	*
Tetraedron lunula	Green	30.2	
Ankistrodesmus convolutus	Green	30.2	
Tetraedron regulare	Green	30.2	
Golenkinia	Green	30.2	
Ankistrodesmus falcatus	Green	30.2	
Tetraedron muticum	Green	30.2	
Pleurosigma/Gyrosigma	Diatom	3.2	
Euglena	Euglena	2.6	
Pennate Diatoms, >150 microns	Diatom	1.8	
Navicula, >50 microns	Diatom	1.2	
Amphora	Diatom	0.8	
Surirella	Diatom	0.4	
	TOTAL	93957.8	

MPT13-BIO-2

Species	Division	Cell Count Cells/ml	
Single Celled Cyanobacteria	Cyanobacteria	46619.8	
Anabaena#2	Cyanobacteria	13016.2	*
Cryptophyte,5-15 microns	Cryptophyte	3080.4	*
Ankistrodesmus nannoselene	Green	2144.2	
Centric Diatom, 10 micron	Diatom	573.8	*
Merismopedia, 2 micron	Green	483.2	
Lyngbya limnetica	Cyanobacteria	453.0	
Anabaenopsis	Cyanobacteria	241.6	
Scenedesmus quadricata	Green	241.6	
Navicula, <50 microns	Diatom	151.0	
Centric Diatom, 5 micron	Diatom	151.0	
Crucigenia tetrapedia	Green	120.8	
Tetrastrum heteracanthum	Green	120.8	
Chaetocerous	Diatom	60.4	
Pennate Diatom, 25-75 microns	Diatom	60.4	*
Naviculodes staurineis	Diatom	60.4	
Pennate Diatom, 10-25 microns	Diatom	60.4	
Tetraedron minimum	Green	60.4	
Scenedesmus bijuga	Green	60.4	
Nitzschia closterium	Diatom	30.2	
Centric Diatom, 15 micron	Diatom	30.2	
Achnanthes	Diatom	30.2	
Ankistrodesmus convolutus	Green	30.2	
Euglena	Euglena	10.4	
Pleurosigma/Gyrosigma	Diatom	2.6	
Pediastrum simplex var duo	Green	1.6	
Pediastrum simplex no var	Green	1.6	
Amphora	Diatom	0.8	
Pennate Diatom, >150 microns	Diatom	0.8	
Scenedesmus quad var maxima	Green	0.8	
Nitzschia c.f. closterium	Diatom	0.6	
Centric Diatom, 30 microns	Diatom	0.4	
Surirella	Diatom	0.2	
Synedra	Diatom	0.2	
Navicula, >50 microns	Diatom	0.2	
Amphiprora	Diatom	0.2	
	TOTAL	67901	

MPT13-BIO-3

Species	Division	Cell Count	
Anabaena #2	Cyanobacteria	69007.0	
Single-Celled Cyanobacteria	Cyanobacteria	29931.0	
Ankistrodesmus nannoselene	Green	5843.7	
Cryptophyte, 5-15 microns	Cryptophyte	3080.4	*
Centric Diatom, 10 micron	Diatom	1691.2	*
Microcystis, 1-2 microns	Cyanobacteria	1570.4	
Anabaenopsis	Cyanobacteria	996.6	
Crucigenia tetrapedia	Green	845.6	
Merismopedia tenuissima	Green	483.2	
Kirchneriella contorta	Green	483.2	
Scenedesmus quadricata	Green	422.8	
Lyngbya limnetica	Cyanobacteria	211.4	
Scenedesmus bijuga	Green	181.4	
Chaetocerous	Diatom	181.2	
Scenedesmus dimorphus	Green	181.2	
Pennate Diatom, 10-25 microns	Diatom	151.0	*
Centric Diatoms, stacked, 5-15 microns	Diatom	120.8	*
Tetraedron muticum	Green	120.8	
Scenedesmus quadricada var alternans	Green	120.8	
Raphidiopsis	Cyanobacteria	90.6	
Ankistrodesmus falcatus	Green	90.6	
Centric Diatom, 5 micron	Diatom	60.4	
Chodatella	Green	60.4	
Euglena	Euglena	59.2	
Cosmarium	Green	30.2	
Cryptophyte, >15 microns	Cryptophyte	30.2	
Nitzschia closterium	Diatom	30.2	
Pennate Diatom, 25-75 microns	Diatom	30.2	*
Chlorogonium	Green	30.2	
Oscillatoria #1	Green	30.2	
Pediastrum simplex no var	Green	4.8	
Pediastrum duplex var duo	Green	4.4	
Pediastrum boryanum	Green	3.2	
Pediastrum simplex var duo	Green	1.9	
Scenedesmus quad var maxima	Green	1.6	
Synedra	Diatom	0.2	
Pleurosigma/Gyrosigma	Diatom	0.2	
	TOTAL	116182.4	

MACROINVERTEBRATE RAW DATA

BIOLOGICAL COMMUNITY PARAMETERS

KBN - MAYPORT
Sample Type: MACROFAUNA

Sample Date (YY/MM/DD) 92/01/20
Sample Area (sq. m.): 0.0230

NAVISTA ID NUMBER	LAB STATION NUMBER	TOTAL TAXA	MEAN TAXA PER REPL.	TOTAL NO. INDIVIDUALS	MEAN DENSITY	STANDARD DEVIATION	H'	J'	D	$\bar{d}$	e
MPT-2-BIO-2	001	15	7.0	93	1348	883	2.03	0.75	3.09	2.93	0.73
MPT-2-BIO-4	002	32	16.7	418	6058	8164	2.45	0.71	5.14	3.54	0.53
MPT-2-BIO-5	003	14	6.3	59	855	954	1.98	0.75	3.19	2.86	0.79
MPT-2-BIO-6	004	15	8.0	76	1101	708	2.28	0.84	3.23	3.28	0.93
MPT-2-BIO-8	005	11	5.3	62	899	1011	1.73	0.72	2.42	2.49	0.73
MPT-2-BIO-9	006	9	4.3	75	1087	428	1.82	0.83	1.85	2.62	1.00
MPT-B-BIO-1	007	24	14.3	1514	21942	22330	1.00	0.31	3.14	1.44	0.17
MPT-B-BIO-2	008	22	12.7	135	1957	415	2.42	0.78	4.28	3.49	0.77
MPT-B-BIO-3	009	24	12.7	454	6580	8785	1.97	0.62	3.76	2.84	0.42

Taxonomic Species List 03/06/92
KBN - Mayport -- Collected January 1992

ANNELIDA
- HIRUDINEA
  - HIRUDINEA (LPIL)
- OLIGOCHAETA
  - OLIGOCHAETA (LPIL)
  - LUMBRICULIDAE
    - LUMBRICULIDAE (LPIL)
  - NAIDIDAE
    - NAIDIDAE (LPIL)
  - TUBIFICIDAE
    - TUBIFICIDAE (LPIL)
    - TUBIFICOIDES HETEROCHAETUS
- POLYCHAETA
  - AMPHARETIDAE
    - HOBSONIA FLORIDA
  - CAPITELLIDAE
    - CAPITELLA CAPITATA
    - CAPITELLIDAE (LPIL)
  - HESIONIDAE
    - HESIONIDAE (LPIL)
  - MALDANIDAE
    - MALDANIDAE (LPIL)
  - NEREIDAE
    - LAEONEREIS CULVERI
    - NEREIDAE (LPIL)
  - SPIONIDAE
    - POLYDORA CORNUTA
    - POLYDORA SOCIALIS
    - STREBLOSPIO BENEDICTI
  - TRICHOBRANCHIDAE
    - TRICHOBRANCHIDAE (LPIL)

ARTHROPODA (ARACHNIDA)
- ACARINA
  - ACARINA (LPIL)
- HYDRACARINA
  - HYDRACARINA (LPIL)

ARTHROPODA (CRUSTACEA)
- AMPHIPODA
  - AORIDAE
    - GRANDIDIERELLA BONNIEROIDES
  - COROPHIIDAE
    - COROPHIIDAE (LPIL)
    - COROPHIUM (LPIL)
    - COROPHIUM LACUSTRE
  - GAMMARIDAE
    - GAMMARIDAE (LPIL)
    - GAMMARUS (LPIL)
    - GAMMARUS PALUSTRIS
  - MELITIDAE
    - MELITA (LPIL)

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                        MELITA INTERMEDIA
                        MELITIDAE (LPIL)
                    TALITRIDAE
                        ORCHESTIA GRILLUS
                        ORCHESTIA SP.B
                        TALITRIDAE (LPIL)
            DECAPODA (NATANTIA)
                    PALAEMONIDAE
                        PALAEMONETES PUGIO
            DECAPODA (REPTANTIA)
                    PORTUNIDAE
                        CALLINECTES SAPIDUS
            ISOPODA
                    ANTHURIDAE
                        ANTHURIDAE (LPIL)
                        CYATHURA (LPIL)
                        CYATHURA POLITA
                    LIGIIDAE
                        VANDELOSCIA SP.A
                    SPHAEROMATIDAE
                        CASSIDINIDEA OVALIS
                        SPHAEROMATIDAE (LPIL)
            OSTRACODA
                        OSTRACODA (LPIL)
                    CANDONIDAE
                        CANDONIDAE GENUS A
                    CYTHERIDEIDAE
                        CYTHERIDEIDAE (LPIL)
                        HAPLOCYTHERIDEA SP.A
            TANAIDACEA
                    PARATANAIDAE
                        HARGERIA (LPIL)
                        HARGERIA RAPAX
                        PARATANAIDAE (LPIL)
ARTHROPODA (INSECTA)
            COLEOPTERA
                    CHRYSOMELIDAE
                        AGASICLES HYGROPHILA
            COLLEMBOLA
                    ISOTOMIDAE
                        ISOTOMURUS PALUSTRIS
            DIPTERA
                    CHIRONOMIDAE
                        CHIRONOMIDAE GENUS AI
                        CHIRONOMUS SP.A
                        DICROTENDIPES (LPIL)
                        GOELDICHIRONOMUS HOLOPRASINUS
                        POLYPEDILUM SCALAENUM

                    EPHYDRIDAE
                        EPHYDRA (LPIL)
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                    MUSCIDAE
                        MUSCIDAE (LPIL)
                    PSYCHODIDAE
                        TELMATOSCOPUS SUPERBUS
                    STRATIOMYIDAE
                        STRATIOMYS (LPIL)
                    TIPULIDAE
                        ORMOSIA SP.A
                        TIPULIDAE (LPIL)
          HEMIPTERA
                    CORIXIDAE
                        HESPEROCORIXA MINOR
          LEPIDOPTERA
                    PYRALIDAE
                        VOGTIA (LPIL)
          ODONATA
                    COENAGRIONIDAE
                        ENALLAGMA (LPIL)
MOLLUSCA
          GASTROPODA
                        GASTROPODA (LPIL)
                    HYDROBIIDAE
                        HYDROBIIDAE (LPIL)
                    MELAMPIDAE
                        MELAMPUS BIDENTATUS
          PELECYPODA
                        PELECYPODA (LPIL)
                    MYTILIDAE
                        AMYGDALUM SAGITTATUM
RHYNCHOCOELA
                        RHYNCHOCOELA (LPIL)
```

Sample Date 92/01/21
Sample Size 0.0230 SQ. M

Station: 001
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-2

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ANNELIDA					
OLIGOCHAETA					
OLIGOCHAETA (LPIL)	0	0	23	23	24.73
NAIDIDAE					
NAIDIDAE (LPIL)	0	1	9	10	10.75
TUBIFICIDAE					
TUBIFICIDAE (LPIL)	8	3	0	11	11.83
** MOLLUSCA					
GASTROPODA					
HYDROBIIDAE					
HYDROBIIDAE (LPIL)	0	0	1	1	1.07
** ARTHROPODA (CRUSTACEA)					
ISOPODA					
LIGIIDAE					
VANDELOSCIA SP.A	0	0	1	1	1.07
OSTRACODA					
CANDONIDAE					
CANDONIDAE GENUS A	0	1	0	1	1.07
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
CHIRONOMUS SP.A	10	3	7	20	21.50
GOELDICHIRONOMUS HOLOPRASINUS	6	3	8	17	18.28
TIPULIDAE					
TIPULIDAE (LPIL)	0	0	1	1	1.07
EPHYDRIDAE					
EPHYDRA (LPIL)	0	1	0	1	1.07
STRATIOMYIDAE					
STRATIOMYS (LPIL)	0	1	0	1	1.07
ODONATA					
COENAGRIONIDAE					
ENALLAGMA (LPIL)	0	0	1	1	1.07

----------Report Continued on Next Page----------

Sample Date 92/01/21
Sample Size 0.0230 SQ. M

Station: 001
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-2

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ARTHROPODA (INSECTA)					
COLLEMBOLA					
ISOTOMIDAE					
ISOTOMURUS PALUSTRIS	0	0	1	1	1.07
HEMIPTERA					
CORIXIDAE					
HESPEROCORIXA MINOR	3	0	0	3	3.23
COLEOPTERA					
CHRYSOMELIDAE					
AGASICLES HYGROPHILA	0	0	1	1	1.07

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Sample Date 92/01/21
Sample Size 0.0230 SQ. M

Station: 001
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-2

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
27 13 53
Total Taxa per replicate:
4 7 10

Total number of taxa for this station = 15

Total number of individuals for this station = 93

Mean Number Individuals per square meter = 1348

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	3	20.0	44	47.3
MOLLUSCA	1	6.6	1	1.0
ARTHROPODA	11	73.3	48	51.6
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	0	.0	0	.0

----------Report Continued on Next Page----------

Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 002
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-4

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ANNELIDA					
POLYCHAETA					
AMPHARETIDAE					
HOBSONIA FLORIDA	4	1	8	13	3.11
CAPITELLIDAE					
CAPITELLIDAE (LPIL)	0	0	1	1	0.24
CAPITELLA CAPITATA	6	1	27	34	8.13
HESIONIDAE					
HESIONIDAE (LPIL)	0	1	2	3	0.72
MALDANIDAE					
MALDANIDAE (LPIL)	0	0	1	1	0.24
NEREIDAE					
NEREIDAE (LPIL)	0	0	2	2	0.48
LAEONEREIS CULVERI	0	0	7	7	1.68
SPIONIDAE					
POLYDORA SOCIALIS	0	0	4	4	0.96
POLYDORA CORNUTA	0	1	1	2	0.48
STREBLOSPIO BENEDICTI	10	2	45	57	13.64
TRICHOBRANCHIDAE					
TRICHOBRANCHIDAE (LPIL)	1	0	0	1	0.24
OLIGOCHAETA					
OLIGOCHAETA (LPIL)	0	3	39	42	10.05
NAIDIDAE					
NAIDIDAE (LPIL)	2	0	0	2	0.48
TUBIFICIDAE					
TUBIFICIDAE (LPIL)	6	3	62	71	16.99
TUBIFICOIDES HETEROCHAETUS	0	1	11	12	2.87
LUMBRICULIDAE					
LUMBRICULIDAE (LPIL)	0	0	99	99	23.68
** MOLLUSCA					
PELECYPODA					
PELECYPODA (LPIL)	1	0	0	1	0.24
MYTILIDAE					
AMYGDALUM SAGITTATUM	0	0	1	1	0.24

----------Report Continued on Next Page----------

Sample Date 92/01/22 Station: 002
Sample Size 0.0230 SQ. M Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-4

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** MOLLUSCA					
GASTROPODA					
HYDROBIIDAE					
HYDROBIIDAE (LPIL)	1	0	0	1	0.24
** ARTHROPODA (CRUSTACEA)					
ISOPODA					
ANTHURIDAE					
CYATHURA POLITA	1	0	0	1	0.24
SPHAEROMATIDAE					
CASSIDINIDEA OVALIS	0	1	12	13	3.11
AMPHIPODA					
GAMMARIDAE					
GAMMARUS PALUSTRIS	2	0	2	4	0.96
GAMMARUS (LPIL)	0	0	1	1	0.24
TALITRIDAE					
ORCHESTIA GRILLUS	0	1	0	1	0.24
ORCHESTIA SP.B	0	0	1	1	0.24
TANAIDACEA					
PARATANAIDAE					
HARGERIA (LPIL)	1	0	5	6	1.44
DECAPODA (NATANTIA)					
PALAEMONIDAE					
PALAEMONETES PUGIO	0	0	1	1	0.24
DECAPODA (REPTANTIA)					
PORTUNIDAE					
CALLINECTES SAPIDUS	0	0	1	1	0.24
** ARTHROPODA (ARACHNIDA)					
ACARINA					
ACARINA (LPIL)	1	0	0	1	0.24
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
CHIRONOMUS SP.A	8	1	5	14	3.35

----------Report Continued on Next Page----------

Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 002
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-4

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
DICROTENDIPES (LPIL)	2	0	17	19	4.54
COLLEMBOLA					
ISOTOMIDAE					
ISOTOMURUS PALUSTRIS	0	0	1	1	0.24

----------Report Continued on Next Page----------

Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 002
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-4

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
46 16 356
Total Taxa per replicate:
14 11 25

Total number of taxa for this station = 32

Total number of individuals for this station = 418

Mean Number Individuals per square meter = 6058

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	16	50.0	351	83.9
MOLLUSCA	3	9.3	3	.7
ARTHROPODA	13	40.6	64	15.3
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	0	.0	0	.0

----------Report Continued on Next Page----------

Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 003
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-5

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ANNELIDA					
POLYCHAETA					
HESIONIDAE					
HESIONIDAE (LPIL)	0	0	1	1	1.70
OLIGOCHAETA					
OLIGOCHAETA (LPIL)	5	0	0	5	8.47
TUBIFICIDAE					
TUBIFICIDAE (LPIL)	1	4	0	5	8.47
TUBIFICOIDES HETEROCHAETUS	1	1	0	2	3.39
** MOLLUSCA					
PELECYPODA					
PELECYPODA (LPIL)	0	1	0	1	1.70
GASTROPODA					
HYDROBIIDAE					
HYDROBIIDAE (LPIL)	0	4	0	4	6.78
** ARTHROPODA (CRUSTACEA)					
ISOPODA					
SPHAEROMATIDAE					
CASSIDINIDEA OVALIS	0	1	0	1	1.70
AMPHIPODA					
GAMMARIDAE					
GAMMARUS (LPIL)	0	1	0	1	1.70
OSTRACODA					
CYTHERIDEIDAE					
HAPLOCYTHERIDEA SP.A	0	1	0	1	1.70
** ARTHROPODA (ARACHNIDA)					
HYDRACARINA					
HYDRACARINA (LPIL)	0	1	0	1	1.70

----------Report Continued on Next Page----------

Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 003
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-5

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
CHIRONOMUS SP.A	0	1	1	2	3.39
DICROTENDIPES (LPIL)	0	20	4	24	40.68
GOELDICHIRONOMUS HOLOPRASINUS	0	9	1	10	16.95
MUSCIDAE					
MUSCIDAE (LPIL)	0	1	0	1	1.70

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Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 003
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-5

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
7 45 7
Total Taxa per replicate:
3 12 4

*Total number of taxa for this station = 14

Total number of individuals for this station = 59

Mean Number Individuals per square meter = 855

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	4	28.5	13	22.0
MOLLUSCA	2	14.2	5	8.4
ARTHROPODA	8	57.1	41	69.4
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	0	.0	0	.0

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Sample Date 92/01/22 Station: 004
Sample Size 0.0230 SQ. M Sample Type: MACROFAUNA

Comments: Station MPT-2-810-6

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ANNELIDA					
POLYCHAETA					
AMPHARETIDAE					
HOBSONIA FLORIDA	3	2	4	9	11.84
HESIONIDAE					
HESIONIDAE (LPIL)	1	0	18	19	25.00
TRICHOBRANCHIDAE					
TRICHOBRANCHIDAE (LPIL)	1	0	1	2	2.63
OLIGOCHAETA					
OLIGOCHAETA (LPIL)	0	0	2	2	2.63
TUBIFICIDAE					
TUBIFICIDAE (LPIL)	0	7	3	10	13.16
HIRUDINEA					
HIRUDINEA (LPIL)	1	0	0	1	1.32
** MOLLUSCA					
PELECYPODA					
PELECYPODA (LPIL)	2	1	0	3	3.95
GASTROPODA					
GASTROPODA (LPIL)	0	0	1	1	1.32
HYDROBIIDAE					
HYDROBIIDAE (LPIL)	4	3	4	11	14.47
MELAMPIDAE					
MELAMPUS BIDENTATUS	0	0	1	1	1.32
** ARTHROPODA (CRUSTACEA)					
AMPHIPODA					
GAMMARIDAE					
GAMMARIDAE (LPIL)	0	0	1	1	1.32
OSTRACODA					
CYTHERIDEIDAE					
HAPLOCYTHERIDEA SP.A	0	1	0	1	1.32

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Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 004
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-6

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
CHIRONOMUS SP.A	3	0	4	7	9.21
DICROTENDIPES (LPIL)	3	0	0	3	3.95
GOELDICHIRONOMUS HOLOPRASINUS	0	0	5	5	6.58

----------Report Continued on Next Page----------

Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 004
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-6

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
18 14 44
Total Taxa per replicate:
8 5 11

Total number of taxa for this station = 15

Total number of individuals for this station = 76

Mean Number Individuals per square meter = 1101

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	6	40.0	43	56.5
MOLLUSCA	4	26.6	16	21.0
ARTHROPODA	5	33.3	17	22.3
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	0	.0	0	.0

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Sample Date 92/01/21
Sample Size 0.0230 SQ. M

Station: 005
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-8

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ANNELIDA					
OLIGOCHAETA					
LUMBRICULIDAE					
LUMBRICULIDAE (LPIL)	0	1	0	1	1.61
** MOLLUSCA					
GASTROPODA					
GASTROPODA (LPIL)	0	1	0	1	1.61
HYDROBIIDAE					
HYDROBIIDAE (LPIL)	0	1	3	4	6.45
** ARTHROPODA (CRUSTACEA)					
ISOPODA					
SPHAEROMATIDAE					
CASSIDINIDEA OVALIS	1	3	1	5	8.06
OSTRACODA					
CYTHERIDEIDAE					
CYTHERIDEIDAE (LPIL)	0	0	2	2	3.23
HAPLOCYTHERIDEA SP.A	0	0	24	24	38.71
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
CHIRONOMUS SP.A	0	4	0	4	6.45
DICROTENDIPES (LPIL)	0	1	0	1	1.61
CHIRONOMIDAE GENUS AI	1	0	0	1	1.61
GOELDICHIRONOMUS HOLOPRASINUS	1	1	16	18	29.03
COLLEMBOLA					
ISOTOMIDAE					
ISOTOMURUS PALUSTRIS	0	0	1	1	1.61

----------Report Continued on Next Page----------

Sample Date 92/01/21
Sample Size 0.0230 SQ. M

Station: 005
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-8

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
3 12 47
Total Taxa per replicate:
3 7 6

Total number of taxa for this station = 11

Total number of individuals for this station = 62

Mean Number Individuals per square meter = 899

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	1	9.0	1	1.6
MOLLUSCA	2	18.1	5	8.0
ARTHROPODA	8	72.7	56	90.3
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	0	.0	0	.0

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Sample Date 92/01/21
Sample Size 0.0230 SQ. M

Station: 006
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-9

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ANNELIDA					
OLIGOCHAETA					
OLIGOCHAETA (LPIL)	17	0	0	17	22.67
NAIDIDAE					
NAIDIDAE (LPIL)	0	1	0	1	1.33
TUBIFICIDAE					
TUBIFICIDAE (LPIL)	0	5	2	7	9.33
** ARTHROPODA (CRUSTACEA)					
OSTRACODA					
CANDONIDAE					
CANDONIDAE GENUS A	2	0	0	2	2.67
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
CHIRONOMUS SP.A	7	0	4	11	14.67
GOELDICHIRONOMUS HOLOPRASINUS	0	7	12	19	25.33
TIPULIDAE					
ORMOSIA SP.A	0	0	2	2	2.67
PSYCHODIDAE					
TELMATOSCOPUS SUPERBUS	2	0	13	15	20.00
LEPIDOPTERA					
PYRALIDAE					
VOGTIA (LPIL)	0	1	0	1	1.33

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Sample Date 92/01/21
Sample Size 0.0230 SQ. M

Station: 006
Sample Type: MACROFAUNA

Comments: Station MPT-2-BIO-9

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
28 14 33
Total Taxa per replicate:
4 4 5

Total number of taxa for this station = 9

Total number of individuals for this station = 75

Mean Number Individuals per square meter = 1087

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	3	33.3	25	33.3
MOLLUSCA	0	.0	0	.0
ARTHROPODA	6	66.6	50	66.6
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	0	.0	0	.0

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Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 007
Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-1

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ANNELIDA					
POLYCHAETA					
AMPHARETIDAE					
HOBSONIA FLORIDA	0	1	1	2	0.13
CAPITELLIDAE					
CAPITELLA CAPITATA	20	5	1	26	1.72
NEREIDAE					
NEREIDAE (LPIL)	0	2	1	3	0.20
LAEONEREIS CULVERI	40	2	9	51	3.37
SPIONIDAE					
POLYDORA SOCIALIS	0	1	0	1	0.07
POLYDORA CORNUTA	0	4	3	7	0.46
STREBLOSPIO BENEDICTI	31	72	8	111	7.33
OLIGOCHAETA					
OLIGOCHAETA (LPIL)	48	7	5	60	3.96
TUBIFICIDAE					
TUBIFICOIDES HETEROCHAETUS	5	15	1	21	1.39
LUMBRICULIDAE					
LUMBRICULIDAE (LPIL)	902	276	1	1179	77.87
** MOLLUSCA					
PELECYPODA					
PELECYPODA (LPIL)	0	0	2	2	0.13
GASTROPODA					
GASTROPODA (LPIL)	0	1	0	1	0.07
** ARTHROPODA (CRUSTACEA)					
ISOPODA					
ANTHURIDAE					
ANTHURIDAE (LPIL)	0	0	1	1	0.07
CYATHURA POLITA	0	1	0	1	0.07
SPHAEROMATIDAE					
CASSIDINIDEA OVALIS	1	1	0	2	0.13

----------Report Continued on Next Page----------

Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 007
Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-1

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ARTHROPODA (CRUSTACEA)					
AMPHIPODA					
COROPHIIDAE					
COROPHIUM (LPIL)	0	1	1	2	0.13
GAMMARIDAE					
GAMMARIDAE (LPIL)	0	1	0	1	0.07
GAMMARUS PALUSTRIS	0	2	0	2	0.13
GAMMARUS (LPIL)	0	1	0	1	0.07
TALITRIDAE					
TALITRIDAE (LPIL)	1	0	0	1	0.07
TANAIDACEA					
PARATANAIDAE					
HARGERIA (LPIL)	0	1	0	1	0.07
OSTRACODA					
CYTHERIDEIDAE					
HAPLOCYTHERIDEA SP.A	6	0	9	15	0.99
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
CHIRONOMUS SP.A	5	0	2	7	0.46
DICROTENDIPES (LPIL)	0	16	0	16	1.06

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Sample Date 92/01/22
Sample Size 0.0230 SQ. M

Station: 007
Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-1

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
1059 410 45
Total Taxa per replicate:
10 19 14

Total number of taxa for this station = 24

Total number of individuals for this station = 1514

Mean Number Individuals per square meter = 21942

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	10	41.6	1461	96.5
MOLLUSCA	2	8.3	3	.2
ARTHROPODA	12	50.0	50	3.3
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	0	.0	0	.0

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Sample Date 92/01/20
Sample Size 0.0230 SQ. M

Station: 008
Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-2

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ANNELIDA					
POLYCHAETA					
AMPHARETIDAE					
HOBSONIA FLORIDA	2	4	0	6	4.44
HESIONIDAE					
HESIONIDAE (LPIL)	1	0	0	1	0.74
NEREIDAE					
LAEONEREIS CULVERI	2	14	1	17	12.59
SPIONIDAE					
POLYDORA SOCIALIS	1	0	0	1	0.74
OLIGOCHAETA					
OLIGOCHAETA (LPIL)	10	0	1	11	8.15
TUBIFICIDAE					
TUBIFICIDAE (LPIL)	1	0	0	1	0.74
** MOLLUSCA					
GASTROPODA					
GASTROPODA (LPIL)	1	1	0	2	1.48
HYDROBIIDAE					
HYDROBIIDAE (LPIL)	0	1	0	1	0.74
MELAMPIDAE					
MELAMPUS BIDENTATUS	0	1	0	1	0.74
** ARTHROPODA (CRUSTACEA)					
ISOPODA					
ANTHURIDAE					
CYATHURA POLITA	3	8	1	12	8.89
CYATHURA (LPIL)	0	0	1	1	0.74
SPHAEROMATIDAE					
SPHAEROMATIDAE (LPIL)	1	0	0	1	0.74
CASSIDINIDEA OVALIS	12	4	22	38	28.15
AMPHIPODA					
MELITIDAE					
MELITIDAE (LPIL)	2	0	0	2	1.48

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Sample Date 92/01/20
Sample Size 0.0230 SQ. M

Station: 006
Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-2

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ARTHROPODA (CRUSTACEA)					
AMPHIPODA					
MELITIDAE					
MELITA (LPIL)	4	0	0	4	2.96
TALITRIDAE					
TALITRIDAE (LPIL)	1	0	0	1	0.74
TANAIDACEA					
PARATANAIDAE					
PARATANAIDAE (LPIL)	0	1	1	2	1.48
HARGERIA (LPIL)	5	2	1	8	5.93
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
CHIRONOMUS SP.A	7	8	1	16	11.85
POLYPEDILUM SCALAENUM	0	0	1	1	0.74
DICROTENDIPES (LPIL)	1	0	4	5	3.70
GOELDICHIRONOMUS HOLOPRASINUS	1	0	2	3	2.22

----------Report Continued on Next Page----------

Sample Date 92/01/20
Sample Size 0.0230 SQ. M

Station: 008
Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-2

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
55 44 36
Total Taxa per replicate:
17 10 11

Total number of taxa for this station = 22

Total number of individuals for this station = 135

Mean Number Individuals per square meter = 1957

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	6	27.2	37	27.4
MOLLUSCA	3	13.6	4	2.9
ARTHROPODA	13	59.0	94	69.6
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	0	.0	0	.0

----------Report Continued on Next Page----------

Sample Date 92/01/20
Sample Size 0.0230 SQ. M

Station: 009
Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-3

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** RHYNCHOCOELA					
RHYNCHOCOELA (LPIL)	0	1	0	1	0.22
** ANNELIDA					
POLYCHAETA					
CAPITELLIDAE					
CAPITELLIDAE (LPIL)	0	2	0	2	0.44
HESIONIDAE					
HESIONIDAE (LPIL)	2	0	6	8	1.76
NEREIDAE					
NEREIDAE (LPIL)	0	4	0	4	0.88
LAEONEREIS CULVERI	0	8	3	11	2.42
SPIONIDAE					
POLYDORA SOCIALIS	0	2	0	2	0.44
POLYDORA CORNUTA	0	3	2	5	1.10
STREBLOSPIO BENEDICTI	0	13	3	16	3.52
OLIGOCHAETA					
OLIGOCHAETA (LPIL)	0	11	0	11	2.42
** ARTHROPODA (CRUSTACEA)					
ISOPODA					
ANTHURIDAE					
CYATHURA POLITA	0	4	0	4	0.88
SPHAEROMATIDAE					
CASSIDINIDEA OVALIS	0	17	0	17	3.74
AMPHIPODA					
COROPHIIDAE					
COROPHIIDAE (LPIL)	0	11	1	12	2.64
COROPHIUM LACUSTRE	12	194	24	230	50.66
COROPHIUM (LPIL)	2	31	3	36	7.93
AORIDAE					
GRANDIDIERELLA BONNIEROIDES	0	4	0	4	0.88
MELITIDAE					
MELITIDAE (LPIL)	0	4	1	5	1.10
MELITA INTERMEDIA	2	1	0	3	0.66

----------Report Continued on Next Page----------

Sample Date 92/01/20 Station: 009
Sample Size 0.0230 SQ. M Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-3

TAXON	REPA	REPB	REPC	TOTAL	PERCENT
** ARTHROPODA (CRUSTACEA)					
AMPHIPODA					
MELITIDAE					
MELITA (LPIL)	2	29	3	34	7.49
TANAIDACEA					
PARATANAIDAE					
PARATANAIDAE (LPIL)	0	2	0	2	0.44
HARGERIA RAPAX	0	1	0	1	0.22
HARGERIA (LPIL)	0	36	4	40	8.81
OSTRACODA					
OSTRACODA (LPIL)	0	1	0	1	0.22
** ARTHROPODA (INSECTA)					
DIPTERA					
CHIRONOMIDAE					
POLYPEDILUM SCALAENUM	0	1	0	1	0.22
DICROTENDIPES (LPIL)	0	4	0	4	0.88

----------Report Continued on Next Page----------

Sample Date 92/01/20
Sample Size 0.0230 SQ. M

Station: 009
Sample Type: MACROFAUNA

Comments: Station MPT-B-BIO-3

NOTE:
LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

REPA REPB REPC
Total Individuals per Replicate:
20 384 50
Total Taxa per replicate:
5 23 10

Total number of taxa for this station = 24

Total number of individuals for this station = 454

Mean Number Individuals per square meter = 6580

PHYLUM	TOTAL # TAXA	% TAXA	TOTAL # INDIVIDUALS	% INDIVIDUALS
ANNELIDA	8	33.3	59	13.0
MOLLUSCA	0	.0	0	.0
ARTHROPODA	15	62.5	394	86.7
ECHINODERMATA	0	.0	0	.0
MISCELLANEOUS	1	4.1	1	.2

----------Report Continued on Next Page----------

APPENDIX E-3

AQUATIC SPECIES EXPECTED TO INHABIT, BE TRANSIENT WITHIN, OR SEASONALLY MIGRATE THROUGH THE LOWER ST. JOHNS RIVER

Appendix E-3
Aquatic Species Expected to Inhabit, be Transient within, or Seasonally Migrate through the Lower St. Johns River

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

Family	Common Name	Scientific Name
Invertebrates		
Rhizostomae	Canonball Jellyfish	*Stomolophus meleagris*
Mytilidae	Mussel	*Mytilus edulis*
	Mussel	*Amygdalum sagittum*
Corbiculidae	Asiatic Clam	*Corbicula fluminea*
Ostereiidae	American Oyster	*Crassostrea virginica*
Mactridae	Common Rangia	*Rangia cuneata*
Melongenidae	Crown Conch	*Melongena corona*
Donacidae	Coquina	*Donax variabilis*
Veneridae	Northern Quahog	*Mercenaria campechiensis*
	Southern Quahog	*Mercenaria mercenaria*
Tubificidae	Oligochaete	*Tubificoides heterochaetus*
Ampharetidae	Polychaete	*Hobsonia florida*
Capitelidae	Polychaete	*Capitella capitata*
Nereidae	Polychaete	*Laeonereis culveri*
Chaetopteridae	Polychaete	*Chaetopturus sp.*
Spionidae	Polychaete	*Polydora cornuta*
		Polydora socialis
		Streblospio benedicti
Chthamalidae	Little Gray Barnacle	*Chthamalus fragilis*
Corophiidae	Amphipod	*Corophium lacustre*
Melitidae	Amphipod	*Melita intermedia*
Ligiidae		*Vandeloscia sp.*
Sphaeromidae	Isopods	
Cytheridae	Ostracods	
Penaeidae	Brown Shrimp	*Penaeus aztecus*
	Pink Shrimp	*Penaeus duorarum*
	White Shrimp	*Penaeus setiferus*
Paleomonidae	Sea-bob	*Xiphopenaeus kroyeri*
	Grass Shrimp	*Paleomonetes pugio*
Portunidae	Blue Crab	*Calinectes sapidus*

Appendix E-3 (Continued)
Aquatic Species Expected to Inhabit, be Transient within, or Seasonally Migrate through the Lower St. Johns River

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

Family	Common Name	*Scientific Name*
Xanthidae	Stone Crab	*Menippe mercenaria*
	Mud Crab	*Neopanope texana texana*
Grapsidae	Marsh Crab	*Sesarma reticulatum*
Ocypodidae	Fiddler Crab	*Uca sp.*
Fishes		
Myxinidae	Sea Lamprey	*Petromyzon marinus*
Sphyrnidae	Scalloped Hammerhead	*Sphyrna lewini*
Dasyatidae	Southern Stingray	*Dasyatis americana*
	Atlantic Stingray	*Dasyatis sabina*
Acipenseridae	Shortnose Sturgeon	*Acipenser brevirostrum*
	Atlantic Sturgeon	*Acipenser oxyrhynchus*
Lepisosteidae	Florida Gar	*Lepisosteus platyrhincus*
	Longnose Gar	*Lepisosteus osseus*
Ammidae	Bowfin	*Amia calva*
Elopidae	Ladyfish	*Elops saurus*
	Tarpon	*Megalops atlantica*
Clupeidae	Blueback Herring	*Alosa aestivalis*
	American Shad	*Alosa sapidissima*
	Yellowfin Menhaden	*Brevoortia smithi*
	Atlantic Menhaden	*Brevoortia tyrannus*
	Gizzard Shad	*Dorosoma cepedianum*
	Threadfin Shad	*Dorosoma petenense*
	Atlantic Thread Herring	*Opisthonema oglinum*
Engraulidae	Striped Anchovy	*Anchoa hepsetus*
	Bay Anchovy	*Anchoa mitchilli*
Synodontidae	Inshore Lizardfish	*Synodus foetens*
Ariidae	Gafftopsail Catfish	*Bagre marinus*
	Sea Catfish	*Galeichthys felis*
Anguillidae	American Eel	*Anguilla rostrata*
Belonidae	Atlantic Needlefish	*Strogylura marina*
Cyprinidae	Golden Shiner	*Notemigonus crysoleucas*
	Taillight Shiner	*Notropis maculatus*
Ictaluridae	White Catfish	*Ictalurus catus*
	Yellow Bullhead	*Ictalurus natalis*
	Brown Bullhead	*Ictalurus nebulosus*
	Channel Catfish	*Ictalurus punctatus*
Cyprinodontidae	Sheepshead Minnow	*Cyprinodon variegatus*
	Mummichog	*Fundulus heteroclitus*
	Striped Killifish	*Fundulus majalis*

Appendix E-3 (Continued)
Aquatic Species Expected to Inhabit, be Transient within, or Seasonally Migrate through the Lower St. Johns River

RCRA Corrective Action Program, General Investigation Report
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Family	Common Name	*Scientific Name*
	Seminole Killifish	*Fundulus seminolis*
	Longnose Killifish	*Fundulus similis*
	Rainwater Killifish	*Lucania parva*
	Sailfin Molly	*Poecilia latipinna*
Gadidae	Southern Hake	*Urophycis floridanus*
	Spotted Hake	*Urophycis regius*
Syngnathidae	Spotted Seahorse	*Hippocampus erectus*
	Opossum Pipefish	*Oostethus lineatus*
	Northern Pipefish	*Syngnathus fuscus*
	Chain Pipefish	*Syngnathus louisianae*
	Gulf Pipefish	*Syngnathu scovelli*
Serranidae	Rock Sea Bass	*Centropristes philadelphicus*
	Black Sea Bass	*Centropristes striata*
	Sand Perch	*Diplectrum formosum*
	Gag	*Mycteroperca microlepis*
	Striped Bass	*Roccus saxitilis*
Centrarchidae	Redbreast Sunfish	*Lepomis auritus*
	Warmouth	*Lepomis gulosus*
	Bluegill	*Lepomis macrochirus*
	Redear Sunfish	*Lepomis microlophus*
	Largemouth Bass	*Micropterus salmoides*
	Black Crappie	*Poxomis nigromaculatus*
Pomatomidae	Bluefish	*Pomatomus saltatrix*
Lutjanidae	Mutton Snapper	*Lutjanus analis*
	Gray Snapper	*Lutjanus griseus*
Carangidae	Crevalle Jack	*Caranx hippos*
	Bumper	*Chloroscombrus chrysurus*
	Leatherjacket	*Oligoplites saurus*
	Lookdown	*Selene vomer*
	Permit	*Trachinotus falcatus*
	Atlantic Moonfish	*Vomer setapinnnis*
Gerridae	Irish Pompano	*Diapterus olisthostomus*
	Striped Mojarra	*Diapterus plumieri*
	Spotfin Mojarra	*Eucinostomus argenteus*
	Silver Jenny	*Eucinostomus gula*
Pomadasyidae	Pigfish	*Orthopristis chrysopterus*
Sciaenidae	Silver Perch	*Bairdiella chrysura*
	Spotted Seatrout	*Cynoscion nebulosus*
	Weakfish	*Cynoscion regalis*
	Spot	*Leiostomus xanthurus*

Appendix E-3 (Continued)
Aquatic Species Expected to Inhabit, be Transient within, or Seasonally Migrate through the Lower St. Johns River

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

Family	Common Name	*Scientific Name*
	Southern Kingfish	*Menticirrhus americanus*
	Atlantic Croaker	*Micropogonias undulatus*
	Black Drum	*Pogonias cromis*
	Red Drum	*Sciaenops ocellata*
	Star Drum	*Stellifer lanceolatus*
Sparidae	Sheepshead	*Archosargus probatocephalus*
	Pinfish	*Lagodon rhomboides*
Ephippidae	Atlantic Spadefish	*Chaetodipterus faber*
Trichiuridae	Atlantic Cutlassfish	*Trichiurus lepturus*
Cichlidae	Blue Tilapia	*Tilapia aurea*
Scombridae	Spanish Mackerel	*Scomberomorus maculatus*
Eleotridae	Fat Sleeper	*Dormitator maculatus*
	Spotted Sleeper	*Eleotris picta*
Gobiidae	Violet Goby	*Gobioides broussonneti*
	Darter Goby	*Gobionellus boleosoma*
Triglidae	Leopard Searobin	*Prionotus scitulus*
	Bighead Searobin	*Prionotus tribulus*
Uranoscopidae	Southern Stargazer	*Astrocopus y-graecum*
Blenniidae	Striped Blenny	*Chasmodes bosquianus*
	Feather Blenny	*Hypsoblennius hentzi*
	Freckled Blenny	*Hyposblennius ionthas*
Ophidiidae	Cested Cusk-eel	*Ophidion welshi*
Stromateidae	Southern Harvestfish	*Peprilus alepidotus*
Sphyraenidae	Great Barracuda	*Sphyraena barracuda*
Mugilidae	Striped Mullet	*Mugil cephalus*
	White Mullet	*Mugil curema*
Atherinidae	Rough Silverside	*Membras martinica*
	Tidewater Silverside	*Menidia beryllina*
	Atlantic Silverside	*Menidia menidia*
Bothidae	Ocellated Flounder	*Ancylopsetta quadrocellata*
	Bay Whiff	*Citharichthys spilopterus*
	Fringed Flounder	*Etropus crossotus*
	Gulf Flounder	*Paralichthys albigutta*
	Summer Flounder	*Paralichthys dentatus*
	Southern Flounder	*Paralichthys lethostigma*
Soleidae	Lined Sole	*Achirus lineatus*
	Hogchoker	*Trinectes maculatus*
Cynoglossidae	Blackcheek Tonguefish	*Symphurus plagiusa*
Gobiesocidae	Skilletfish	*Gobiesox strumosus*
Balistidae	Planehead Filefish	*Stephanolepis hispidus*

Appendix E-3 (Continued)
Aquatic Species Expected to Inhabit, be Transient within, or Seasonally Migrate through the Lower St. Johns River

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

Family	Common Name	*Scientific Name*
Tetraodontidae	Northern Puffer	*Sphaeriodes maculatus*
Diodontidae	Striped Burrfish	*Chilomycterus schoepfi*
Batrachoididae	Oyster Toadfish	*Opsanus tau*
Ogcocephalidae	Shortnose Batfish	*Ogcocephalus cubifrons*
Amphibians		
Ranidae	River Frog	*Rana heckscheri*
Reptiles		
Chelonidae	Loggerhead	*Caretta caretta*
	Atlantic Green Turtle	*Chelonia mydas*
	Atlantic Ridley Turtle	*Lepidochelys kempii*
Dermochelyidae	Leatherback Turtle	*Dermochelys coriacea*
Mammals		
Delphinidae	Common Dolphin	*Delphinus delphis*
Balaenidae	Right Whale	*Eubalaena glacialis*
Trichechidae	West Indian Manatee	*Trichechus manatus*

Source: ECT, 1993.

APPENDIX E-4

TERRESTRIAL WILDLIFE SPECIES OBSERVED OR POTENTIALLY OCCURRING IN THE VICINITY OF THE GROUPS I, II AND/OR III SWMUs

Appendix E-4

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

RCRA Corrective Action Program, General Investigation Report
Naval Station
Mayport, Florida

Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Amphibians and Reptiles			
Florida cricket frog	*Acris gryllus dorsalis*		4, 8
Florida cottonmouth	*Agkistrodon piscivorus conanti*		4, 8
American alligator	*Alligator mississippiensis*		8
Mole salamander	*Ambystoma talpoideum*		5, 6, 7
Eastern tiger salamander	*Ambystoma tigrinum tigrinum*		5, 6, 7
Flatwoods salamander	*Ambystoma cingulatum*		5, 6, 7, 8
Marbled salamander	*Ambystoma opacum*		5, 6, 7
Two-toed amphiuma	*Amphiuma means*		8
Green anole	*Anolis carolinensis carolinensis*	5, 12	5, 6, 7
Oak toad	*Bufo quercicus*		5, 6, 7, 16
Southern toad	*Bufo terrestris*		5, 6, 7
Snapping turtle	*Chelydra serpentina*	2, 4	
Yellow-bellied turtle	*Chrysemys scripta scripta*		2, 8
Florida cooter	*Chrysemys floridana floridana*		2, 8
Spottled turtle	*Clemmys guttata*		7, 8
Six-lined racerunner	*Cnemidophorus sexlineatus*		5, 6, 7, 10
Southern black racer	*Coluber constrictor priapus*		5, 6, 7, 10
Eastern diamondback rattlesnake	*Crotalus adamanteus*		5, 6, 7, 10, 16
Chicken turtle	*Deirochelys reticularia*		8
Southern dusky salamander	*Desmognathus auriculatus*		8
Southern ringneck snake	*Diadophis punctatus punctatus*		10, 14
Eastern indigo snake	*Drymarchon corais couperi*		
Yellow rat snake	*Elaphe obsoleta quadrivittata*		5, 6, 7, 10, 14, 16
Corn snake	*Elaphe guttata guttata*		5, 6, 7, 10
Southeastern five-lined skink	*Eumeces inexpectatus*		5, 6, 7, 10, 13
Broad-headed skink	*Eumeces laticeps*		5, 6, 7
Northern mole skink	*Eumeces egregius similis*		2, 3, 7
Dwarf salamander	*Eurycea quadridgitata*		4, 5, 6
Mud snake	*Farancia abacura*		8
Eastern narrow-mouth toad	*Gastrophryne carolinensis*		8, 9
Gopher tortoise	*Gopherus polyphemus*		5, 10
Eastern hognose snake	*Heterodon platyrhinos*		5, 10
Southern hognose snake	*Heterodon simus*		5, 6, 10
Squirrel treefrog	*Hyla squirella*		4, 5, 6, 7, 8, 14
Green treefrog	*Hyla cinerea*		5, 6, 7, 8, 9
Gray treefrog	*Hyla versicolor*		5, 6, 7, 8, 9
Barking treefrog	*Hyla gratiosa*		5, 6, 7
Spring peeper	*Hyla crucifer*		5, 6
Florida mud turtle	*Kinosternon subrubrum steindachneri*		4, 8

Appendix E-4 (Continued)

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

RCRA Corrective Action Program, General Information Report
Naval Station Mayport, Mayport, Florida

Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Striped mud turtle	*Kinosternon bauri*		8
Eastern kingsnake	*Lampropeltis getulus getulus*		2, 4, 5, 6, 7
Scarlet kingsnake	*Lampropeltis triangulum elapsoides*		4, 5, 6, 7
Mole snake	*Lampropeltis calligaster rhombomaculata*		5, 6, 7, 10
Little grass frog	*Limnaoedus ocularis*		8, 9
Diamondback terrapin	*Malaclemys terrapin*		1, 2, 4
Eastern coachwhip	*Masticophis flagellum flagellum*		5, 6, 10
Coral snake	*Micrurus fulvius*		5, 6, 7
Florida green water snake	*Nerodia cyclopion floridana*		1, 2, 4, 8
Florida water snake	*Nerodia fasciata pictiventris*		1, 2, 4, 8
Brown water snake	*Nerodia taxispilota*		1, 8
Glossy water snake	*Nerodia rigida rigida*		4
Red-bellied water snake	*Nerodia erythrogaster*		8
Striped newt	*Notophthalmus perstriatus*		5, 6, 8
Central newt	*Notophthalmus viridescens louisianensis*		4, 5
Rough green snake	*Opheodrys aestivus*		5, 6, 7
Island glass lizard	*Ophisaurus compressus*		3, 10
Eastern glass lizard	*Ophisaurus ventralis*		5, 6, 7, 10
Slender glass lizard	*Ophisaurus attenuatus*		5, 6, 7, 10
Pine woods snake	*Rhadinaea flavilata*		5, 6, 7
Pine snake	*Pituophis melanoleucus*		5, 6
Slimy salamander	*Plethodon glutinosus glutinosus*		5, 6, 7
Florida chorus frog	*Pseudacris nigrita verrucosa*		5, 6, 7, 16
Narrow-striped dwarf siren	*Pseudobranchus striatus avanthus*		8
Rusty mud salamander	*Pseudotriton montanus floridanus*		5, 6, 7
Bronze frog	*Rana clamitans clamitans*		5, 6, 7
Southern leopard frog	*Rana sphenocephala*		4, 8
Pig frog	*Rana grylio*		4, 8
Bullfrog	*Rana catesbeiana*		4, 8
Florida gopher frog	*Rana areolata aesopus*		5, 6
Striped crayfish snake	*Regina alleni*		8
Spadefoot toad	*Scaphiopus holbrooki*		5, 6, 7, 10
Eastern fence lizard	*Sceloporus undulatus*		5, 6, 7, 10
Ground skink	*Scincella lateralis*		5, 6, 7
North Florida black swamp snake	*Seminatrix pygaea pygaea*		8
Greater siren	*Siren lacertina*		8
Lesser siren	*Siren intermedia*		8
Dusky pygmy rattlesnake	*Sistrurus miliarius barbouri*		5, 6, 7, 16
Stinkpot	*Sternotherus odoratus*		8
Florida brown snake	*Storeria dekayi victa*		4, 5, 6, 7, 10, 11
Florida red-bellied snake	*Storeria occipitomaculata obscura*		5, 6, 7
Box turtle	*Terrapene carolina*		5, 6, 7, 13

Appendix E-4 (Continued)

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

RCRA Corrective Action Program, General Information Report
Naval Station Mayport, Mayport, Florida

Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Cricket frog	*Tantilla sp.*		16
Eastern garter snake	*Thamnophis sirtalis*		5, 6, 7, 8
Peninsula ribbon snake	*Thamnophis sauritus sackeni*		4, 10
Smooth earth snake	*Virginia valeriae*		7
Rough earth snake	*Virginia striatula*		5, 6, 7
Birds			
Cooper's hawk	*Accipiter cooperii*		5, 6, 7
Sharp-shinned hawk	*Accipiter striatus*		5, 6, 7, 10
Spotted sandpiper	*Actitus macularia*		2
Red-winged blackbird	*Agelaius phoeniceus*	4	3, 4, 10, 15
Bachman's sparrow	*Aimophila aestivalis*		5, 6, 7, 10
Wood duck	*Aix sponsa*		1, 5, 6, 7
Seaside sparrow	*Ammodramus maritima*		4
Sharp-tailed sparrow	*Ammodramus caudacuta*		4
Blue-winged teal	*Anas discors*		9
American widgeon	*Anas americana*		4, 10
Green-winged teal	*Anas crecca*		1, 4
Gadwall	*Anas strepera*		4, 9
Black duck	*Anas rubripes*		1, 4
Mallard	*Anas platyrhynchos*		1, 4
Shoveller	*Anas clypeata*	12	1, 4
Pintail	*Anas acuta*		1, 4
Anhinga	*Anhinga anhinga*		1
Water pipit	*Anthus spinoletta*		2
Ruby-throated hummingbird	*Archilochus colubris*		5, 6, 7
Great blue heron	*Ardea herodias*	12	1, 2, 4
Ruddy turnstone	*Arenaria interpres*	1	2, 3
Redhead	*Aythya americana*		1
Greater scaup	*Aythya marila*		1
Canvasback	*Aythya valisineria*		1
Ring-necked duck	*Aythya collaris*		1
Lesser scaup	*Aythya affinis*	12	1
Cedar waxwing	*Bombycilla cedrorum*		5, 6, 7
American bittern	*Botaurus lentiginosus*		4
Great horned owl	*Bubo virginianus*	5	5, 6, 7, 10
Cattle egret	*Bubulcus ibis*	11	4, 8, 9, 10, 11
Bufflehead	*Bucephala albeola*		1
Common goldeneye	*Bucephala clangula*	12	1
Red-shouldered hawk	*Buteo lineatus*		5, 6, 7, 16
Red-tailed hawk	*Buteo jamaicensis*		5, 6, 7, 10

Appendix E-4 (Continued)

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

RCRA Corrective Action Program, General Information Report
Naval Station Mayport, Mayport, Florida

Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Green heron	*Butorides striatus*		4
White-rumped sandpiper	*Calidris fuscicollis*		2, 15
Knot	*Calidris canutus*		2, 15
Western sandpiper	*Calidris mauri*		2, 15
Least sandpiper	*Calidris minutilla*		2, 4, 15
Sanderling	*Calidris alba*	1, 2, 12	2, 15
Dunlin	*Calidris alpina*		2, 15
Pectoral sandpiper	*Calidris melanotos*		2, 4, 15
Semipalmated sandpiper	*Calidris pusilla*		2, 15
Common snipe	*Capella gallinago*		4
Whip-poor-will	*Caprimulgus vociferus*		7
Chuck-will's-widow	*Caprimulgus carolinensis*		5, 6, 7
Cardinal	*Cardinalis cardinalis*	5, 6, 7	5, 6, 7, 10
Pine siskin	*Carduelis pinus*		5, 6, 7, 10
American goldfinch	*Carduelis tristis*		5, 6, 7, 10
Purple finch	*Carpodacus purpureus*		5, 6, 7
Great egret	*Casmerodius albus*	12	2, 4
Turkey vulture	*Cathartes aura*	12	10
Gray-cheeked thrush	*Catharus minimus*		5, 6, 7
Hermit thrush	*Catharus guttatus*		5, 6, 7, 10
Swainson's thrush	*Catharus ustulatus*		5, 6, 7
Veery	*Catharus fuscescens*		7
Willet	*Catoptrophorus semipalmatus*	12	2, 4
Brown creeper	*Certhia familiaris*		5, 6, 7
Semipalmated plover	*Charadrius semipalmatus*		2, 15
Piping plover	*Charadrius melodus*		2, 15
Killdeer	*Charadrius vociferus*	1, 9, 10, 11	2, 10, 11, 15
Wilson's plover	*Charadrius wilsonia*		2, 15
Black tern	*Chlidonias niger*		1, 2
Lark sparrow	*Chondestes grammacus*		10
Common nighthawk	*Chordeiles minor*		5, 6, 10
Marsh hawk	*Circus cyaneus*		4, 10
Long-billed marsh wren	*Cistothorus palustris*		4
Short-billed marsh wren	*Cistothorus platensis*		4
Yellow-billed cuckoo	*Coccyzus americanus*		5, 6, 7
Common flicker	*Colaptes auratus*		5, 6, 7, 10
Bobwhite	*Colinus virginianus*		10, 16
Rock dove	*Columbia livia*		10, 11
Ground dove	*Columbina passerina*	10	5, 6, 7, 10, 11
Eastern wood pewee	*Contopus virens*		5, 6, 7
Black vulture	*Coragyps atratus*	12	10
Fish crow	*Corvus ossifragus*		2, 4, 5, 6, 7

Appendix E-4 (Continued)

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

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Naval Station Mayport, Mayport, Florida

Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Common crow	*Corvus brachyrhynchos*	5, 6, 7	2, 5, 6, 7, 10
Blue jay	*Cyanocitta cristata*	5	5, 6, 7
Prairie warbler	*Dendroica discolor*		6, 10
Palm warbler	*Dendroica palmarum*		10
Pine warbler	*Dendroica pinus*		5, 6
Cape May warbler	*Dendroica tigrina*		5, 6, 7
Black-throated blue warbler	*Dendroica caerulescens*		7
Blackpoll warbler	*Dendroica striata*		5, 6, 7
Yellow-rumped warbler	*Dendroica coronata*	6, 9	5, 6, 7, 10
Yellow-throated warbler	*Dendroica dominica*		5, 6, 7, 10
Yellow-warbler	*Dendroica petechia*		10
Bobolink	*Dolichonyx oryzivorous*		4, 10
Pileated woodpecker	*Dryocopus pileatus*		5, 6, 7
Gray catbird	*Dumetella carolinensis*	6	5, 6, 7, 10
Little blue heron	*Egretta caerulea*	12	2, 4
Snowy egret	*Egretta thula*	12	2, 4
Tricolored heron	*Egretta tricolor*		2, 4
White ibis	*Eudocimus albus*	11	2, 4, 10, 11
American kestrel	*Falco sparverius*		5, 6, 7, 10
Merlin	*Falco columbarius*		4, 5, 6, 7
Peregrine falcon	*Falco peregrinus*		10
American coot	*Fulica americana*		4, 10
Common galinule	*Gallinula chloropus*		8
Red-throated loon	*Gavia stellata*		1
Common loon	*Gavia immer*	1 (dead)	1
Gull-billed tern	*Gelochelidon nilotica*		1, 2, 4
Common yellowthroat	*Geothlypis trichas*		4
American oystercatcher	*Haemotopus palliatus*		2, 15
Bald eagle	*Haliaeetus leucocephalus*		1, 2
Worm-eating warbler	*Helmitheros vermivorous*		5, 6, 7, 10
Black-necked stilt	*Himantopus mexicanus*		2, 4
Barn swallow	*Hirundo rustica*		4, 10
Orchard oriole	*Icterus spurius*		5, 6, 7
Northern oriole	*Icterus galbula*		5, 6, 7
Tree swallow	*Iridoprocne bicolor*		5, 6, 10
Dark-eyed junco	*Junco hyemalis*		5, 6, 7
Loggerhead shrike	*Lanius ludovicianus*	10	5, 6, 7, 10
Bonaparte's gull	*Larus philadelphia*		1, 2, 15
Great black-backed gull	*Larus marinus*		1, 2, 15
Laughing gull	*Larus atricilla*	1, 12	1, 2, 4, 15
Ring-billed gull	*Larus delawarensis*	1, 2, 12	1, 2, 11, 15
Herring gull	*Larus argentatus*		1, 2, 15

Appendix E-4 (Continued)

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

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Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Short-billed dowitcher	*Limnodromus griseus*		2, 4
Hooded merganser	*Lophodytes cucullatus*		1
Belted kingfisher	*Megaceryle alcyon*		1, 2, 3
Red-headed woodpecker	*Melanerpes erythrocephalus*		5, 6, 7
Song sparrow	*Melospiza melodia*		10
Lincoln's sparrow	*Melospiza lincolnii*		10
Red-breasted merganser	*Mergus serrator*		1
Stilt sandpiper	*Micropalama himantopus*		2, 4
Mockingbird	*Mimus polyglottos*	5, 6, 7, 9, 10	4, 5, 6, 7, 10
Black-and-white warbler	*Mniotilta varia*		5, 6, 7
Brown-headed cowbird	*Molothrus ater*		5, 6, 7, 10
Gannet	*Morus bassanus*	1 (dead)	1, 2
Wood stork	*Mycteria americana*	12	4, 8
Great crested flycatcher	*Myiarchus crinitus*		5, 6, 7
Whimbrel	*Numenius phaeopus*		2, 4
Black-crowned night heron	*Nycticorax nycticorax*		2, 4
Yellow-crowned night heron	*Nyctanassa violacea*		2, 4
Screech owl	*Otus asio*		5, 6, 7
Ruddy duck	*Oxyura jamaicensis*	12	1
Osprey	*Pandion haliaetus*	1	1
Northern parula	*Parula americana*		5, 6, 7
Carolina chickadee	*Parus carolinensis*		5, 6, 7
Tufted titmouse	*Parus bicolor*	5	5, 6, 7
House sparrow	*Passer domesticus*		10
Savannah sparrow	*Passerculus sandwichensis*		3, 4, 15
Fox sparrow	*Passerella iliaca*		5, 6, 7, 10
Painted bunting	*Passerina ciris*		5, 6, 7, 10
Indigo bunting	*Passerina cyanea*		5, 6, 7, 10
Brown pelican	*Pelecanus occidentalis*	1	1, 2
White pelican	*Pelecanus erythrorhynchos*		1, 2, 4
Double-crested cormorant	*Phalacrocorax auritus*	1, 12	1, 2
American woodcock	*Philohela minor*		7, 10
Downy woodpecker	*Picoides pubescens*		5, 6, 7
Hairy woodpecker	*Picoides villosus*		5, 6, 7
Rufous-sided towhee	*Pipilo erythrophthalmus*	6	5, 6, 7, 10
Summer tanager	*Piranga rubra*		5, 6, 7
Glossy ibis	*Plegadis falcinellus*		4
Black-bellied plover	*Pluvialis squatarola*		2, 4
Horned grebe	*Podiceps auritus*		1
Pied-billed grebe	*Podilymbus podiceps*		1, 4
Blue-gray gnatcatcher	*Polioptila caerulea*		5, 6, 7, 10
Vesper sparrow	*Pooecetes gramineus*		10

Appendix E-4 (Continued)

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

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Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Sora	*Porzana carolina*		4
Purple martin	*Progne subis*		10
Boat-tailed grackle	*Quiscalus major*	11	2, 4, 10, 11
Common grackle	*Quiscalus quiscula*	11	10
King rail	*Rallus elegans*		4
Clapper rail	*Rallus longirostris*		4
Virginia rail	*Rallus limicola*		4
American avocet	*Recurvirostra americana*		2
Golden-crowned kinglet	*Regulus satrapa*		5, 6, 7
Ruby-crowned kinglet	*Regulus calendula*		5, 6, 7
Black skimmer	*Rhyncops niger*		1, 2
Eastern phoebe	*Sayornis phoebe*		10
Ovenbird	*Seiurus aurocapillus*		7, 10
Northern waterthrush	*Seiurus noveboracensis*		10
American redstart	*Setophaga ruticilla*		7
Eastern bluebird	*Sialia sialis*		10
Red-breasted nuthatch	*Sitta canadensis*		5, 6, 7
Brown-headed nuthatch	*Sitta pusilla*		5, 6
Yellow-bellied sapsucker	*Sphyrapicus varius*		5, 6, 7
Chipping sparrow	*Spizella passerina*	7	5, 6, 7
Field sparrow	*Spizella pusilla*	10	10
Common tern	*Sterna hirundo*	1	1, 2, 15
Forster's tern	*Sterna forsteri*		1, 2, 4, 15
Least tern	*Sterna albifrons*		1, 2, 15
Caspian tern	*Sterna caspia*		1, 2, 15
Royal tern	*Sterna maxima*		1, 2, 15
Barred owl	*Strix varia*		5, 6, 7
Eastern meadowlark	*Sturnella magna*	10	10
European starling	*Sturnus vulgaris*	10	10
Carolina wren	*Thryothorus ludovicianus*		10
Brown thrasher	*Toxostoma rufum*		10
Lesser yellowlegs	*Tringa flavipes*		2, 4
Greater yellowlegs	*Tringa melanoleuca*		2, 4
House wren	*Troglodytes aedon*		5, 6, 7, 10
American robin	*Turdus migratorius*	11	5, 6, 7, 10
Eastern kingbird	*Tyrannus tyrannus*		5, 6, 7, 10
Barn owl	*Tyto alba*		5, 6, 7, 10
Tennessee warbler	*Vermivora peregrina*		7, 10
Orange-crowned warbler	*Vermivora celata*		10
White-eyed vireo	*Vireo griseus*		5, 6, 7, 10
Red-eyed vireo	*Vireo olivaceus*		5, 6, 7
Solitary vireo	*Vireo solitarius*		5, 6, 7

Appendix E-4 (Continued)

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

RCRA Corrective Action Program, General Information Report
Naval Station Mayport, Mayport, Florida

Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Yellow-throated vireo	*Vireo flavifrons*		7
Mourning dove	*Zenaida macroura*	5, 6, 7	5, 6, 7, 10
White-throated sparrow	*Zonotrichia albicollis*		5, 6, 7, 10
Mammals			
	Southern shorttail shrew	Blarina carolinensis	5, 6, 7, 10, 13
Least shrew	*Cryptotis parva*		4, 10, 13
Nine-banded armadillo	*Dasypus novemcinctus*		5, 6, 7, 10
Virginia opossum	*Didelphis virginiana*		5, 6, 7, 10, 16
Big brown bat	*Eptesicus fuscus*		5, 6, 7
Southeastern pocket gopher	*Geomys pinetus*		5, 6, 10
Southern flying squirrel	*Glaucomys volans*		5, 6, 7
Hoary bat	*Lasiurus cinereus*		5, 6, 7
Red bat	*Lasiurus borealis*		5, 6, 7
Seminole bat	*Lasiurus seminolus*		5, 6, 7
River otter	*Lutra canadensis*		8
Bobcat	*Lynx rufus*		5, 6, 7, 10, 16
Striped skunk	*Mephitis mephitis*		5, 6, 7, 10, 16
Pine vole	*Pitymys pinetorum*		5, 6
House mouse	*Mus musculus*		10
Mink	*Mustela vison*		2, 8
Longtail weasel	*Mustela frenata*		2, 3, 4, 5, 6, 7, 8, 9, 10
Nutria	*Myocastor coypus*		4
Southeastern myotis	*Myotis austroriparius*		5, 6, 7
Florida water rat	*Neofiber alleni*		4
Eastern woodrat	*Neotoma floridana*	7	5, 6, 7, 13
Evening bat	*Nycticeius humeralis*		5, 6, 7
Golden mouse	*Ochrotomys nuttalli*		4, 5, 6
White-tailed deer	*Odocoileus virginianus*		5, 6, 7, 10, 16
Rice rat	*Oryzomys palustris*		4
Old field mouse	*Peromyscus polionotus*		10, 13
Cotton mouse	*Peromyscus gossypinus*		5, 6, 7, 10, 13
Eastern pipistrel	*Pipistrellus subflavus*		5, 6, 7
Eastern big-eared bat	*Plecotus rafinesquii*		5, 6, 7
Raccoon	*Procyon lotor*	4	4, 5, 6, 7, 16
Norway rat	*Rattus norvegicus*		10
Black rat	*Rattus rattus*		10
Eastern harvest mouse	*Reithrodontomys humulis*		4, 10
Eastern mole	*Scalopus aquaticus*		10
Eastern fox squirrel	*Sciurus niger*		5, 6, 7
Eastern gray squirrel	*Sciurus carolinensis*		5, 6, 7, 14

Appendix E-4 (Continued)

Terrestrial Wildlife Species Observed or Potentially Occurring in the Vicinity of NAVSTA Mayport*

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Common Name	Scientific Name	Habitat Observed In	Habitat Expected In
Hispid cotton rat	*Sigmodon hispidus*		4, 10, 16
Southeastern shrew	*Sorex longirostris*		5, 6, 7, 10
Marsh rabbit	*Sylvilagus palustris*	4	7, 10
Eastern cottontail	*Sylvilagus floridanus*		5, 6, 7, 10, 16
Florida freetail bat	*Tadarida brasiliensis*		5, 6, 7
West Indian manatee	*Trichechus manatus*		1, 2
Gray fox	*Urocyon cinereoargenteus*		5, 6, 7, 10

1 Species listed as expected in the following habitats may not actually occur at NAVSTA Mayport. The list applies to species expected to occur in undisturbed habitats, and may therefore not be fully applicable at the urbanized study area.

2Species observed or expected in the following habitat types during the biological field investigations:

1 Estuarine
2 Estuarine unconsolidated substrate
3 Coastal berm
4 Tidal marsh
5 Mesic flatwoods
6 Disturbed mesic flatwoods
7 Second growth hardwoods
8 Ditches
9 Containment ponds
10 Overgrown field
11 Maintained field/lawn
12 Observed offsite
13 Prairie hammock
14 Maritime hammock
15 Coastal Grassland
16 Wet flatwoods

Source: Modified from ECT, 1993.

APPENDIX E-5

SUPPLEMENTAL INFORMATION REGARDING RARE, ENDANGERED, AND THREATENED SPECIES IN DUVAL COUNTY

Protected Vegetation and Wildlife Reportedly Occurring in Duval County, Florida, but not Observed or Expected to Occur at NAVSTA, Mayport

PLANTS

The following flora were not reported in the field surveys at NAVSTA Mayport, and, due to the lack of undisturbed natural communities, they are not expected to occur.

Incised Grove Bur. The incised grove bur (*Agrimonia incisa*) grows in sandhills and in upland pond and hardwood forests, primarily in the northern peninsula of Florida. This rare yellow flowering herb in the rose family is currently under review for federal listing by the United States Fish and Wildlife Service (USFWS) (Wood, 1994), and is listed by Florida Natural Areas Inventory (FNAI, 1990) as imperiled.

Southern Milkweed. The southern milkweed (*Asclepias virdula*), also known as the Apalachicola or green milkweed, is listed as threatened by the Florida Department of Agriculture and Consumer Services (FDACS) and is a candidate for Federal listing. There is some evidence of vulnerability, although there are not enough data to support listing (Wood, 1994). FNAI (1994) categorizes this plant as imperiled. This rare milkweed occurs in mesic flatwoods, wet prairies, and seepage slopes in north Florida.

Curtis' Sandgrass. Curtis' sandgrass (*Calamovilfa curtissi*) is listed as endangered by FDACS and is a candidate for Federal listing; there is some evidence of vulnerability, although there are not enough data to support listing (Wood, 1994). This rare perennial grass occurs in mesic and wet flatwoods, wet prairies, and marshy depressions in north and northeastern central Florida. It has been reported in Duval County, but may have been incorrectly identified (FNAI, 1990). Curtis' sandgrass is most conspicuous when flowering after a fire.

Southern Lip Fern. The southern lip fern (*Cheilanthes microphylla*) occurs sporadically throughout the Florida peninsula. Southern lip fern is considered rare by the Florida Committee on Endangered Plants and Animals (FCREPA) (Ward, 1978) and endangered by FDACS (Wood, 1994). This rare fern occurs in Duval County on islands at the mouth of the St. Johns River (Ward, 1978). FNAI (1994) considers this species globally secure, but rare or restricted in range within Florida.

Lakeside Sunflower. Lakeside sunflower (*Helianthus carnosus*) is listed as endangered by FDACS and is a candidate for Federal listing (Wood, 1994). FNAI (1994) lists it as imperiled, perhaps critically. This rare sunflower inhabits seepage slopes and wet flatwoods in north Florida.

Southern Red Lily. Southern red lily (*Lilium catesbaei*) is listed by FDACS as threatened (Wood, 1994). This beautiful lily occurs in mesic flatwoods, wet prairies, wet flatwoods, and on seepage slopes, usually with grasses. It is considered globally secure, but rare or restricted in range within Florida (FNAI, 1990).

Florida Spiny-pod. Florida spiny-pod (*Matela floridana*) is currently under review by the USFWS, considered endangered by FDACS (Wood, 1994), and imperiled (FNAI,

1990). This Floridan endemic occurs on bluffs and in pine-oak-hickory woods within north Florida.

Florida Peperomia. Florida peperomia (*Peperomia obtusifolia*) is listed as endangered by FDACS (Wood, 1994). This rare herb is epiphytic on trees and logs within rockland hammocks and cypress domes and strands. Florida peperomia is distributed along the eastern coastal counties of Florida.

Bartram's Ixia. Bartram's ixia (*Salpingostylis coelestina*) is a perennial herb endemic to a small area in northeastern Florida. Favored habitat of bartram's ixia is wet, grassy flatwoods dominated by wiregrass with an open pine canopy. Bartam's ixia is listed as threatened by FCREPA (Ward, 1978) and as endangered by the FDACS (Wood, 1994).

Chaffseed. Chaffseed (*Schwalbea americana*) is listed as an endangered species by FDACS and USFWS (Wood, 1994), and is considered imperiled, perhaps critically, by FNAI (1994). This rare figwort occurs in scrub, sandhills, mesic flatwoods and wet prairie in northern and central Florida.

Gulf Spikemoss. Gulf spikemoss (*Selaginella ludoviciana*) is listed as threatened by FDACS (Wood, 1994). This spikemoss inhabits the banks, slopes and floodplains of mixed forests in north and central Florida.

Green Ladies'-tresses. Green ladies'-tresses (*Spiranthes polyantha*) grows in hammocks, often on soils overlying limestone. This rare terrestrial orchid is considered endangered by FDACS and is under review for Federal listing (Wood, 1994).

Variable-leaf Crownbeard. Variable-leaf crownbeard (*Verbesina heterophylla*) is a candidate for Federal listing with USFWS (Wood, 1994). This north Florida composite plant flowers after a fire in sandhill and mesic flatwood communities (Ward, 1978; Wood, 1994).

AMPHIBIANS

Flatwoods Salamander. The flatwoods salamander (*Ambystoma cingulatum*) is currently a candidate for listing by USFWS (Wood, 1994). There is disagreement in the literature regarding the range of this species. FNAI (1994) indicates this salamander is a confirmed resident of Duval County (FNAI, 1990), which is near the southern limit of its range (Behler, J.L. and F.W. King, 1979). However, Mohler (1992) does not include Duval County in the range of this species. This species is found in pine flatwoods-wire grass communities with adjoining cypress heads and naturally occurring ponds (Mohler, 1992). Suitable habitat is not present at NAVSTA Mayport.

REPTILES

Atlantic Green Turtle. The Atlantic green turtle (*Chelonia midas*) is classified as endangered by the USFWS and the FGFWFC (Wood, 1994). This sea turtle has been reported in Duval County (FNAI, 1990), but within Florida, nesting occurs from Volusia to Dade County (Mohler, 1992). This extremely rare species feeds well offshore and is not known to nest in the vicinity of NAVSTA Mayport.

Florida Pine Snake. The Florida pine snake (*Pituophis melanoleucus mugitis*) is a candidate for listing by the USFWS and is listed as a species of special concern

by FGFWFC (Wood, 1994). This pine snake is a reported resident of Duval County (FNAI, 1990), is adapted to life in open sandy habitats and occupies xeric sites. No Florida pine snakes were observed at NAVSTA Mayport, and it is unlikely that it would occur there.

BIRDS

Cooper's Hawk. Cooper's hawk (*Accipiter cooperii*) is listed as a species of special concern by FCREPA (Kale, 1928) and is considered very rare (FNAI, 1990). This hawk has been reported from Duval County (FNAI, 1990), where it breeds in mixed hardwood swamps, pine flatwoods, and upland forest (Kale, 1928). Due to its acceptance of different habitat types, this species may occur as a transient near the SWMUs. However, no Cooper's hawks were observed during the field survey, and very little suitable breeding habitat exists on the property at NAVSTA Mayport.

Bachman's Sparrow. Bachman's sparrow (*Aimophila aestivalis*) is a candidate for listing by USFWS (Wood, 1994) and has been a reported resident in Duval County (FNAI, 1990). This small, shy sparrow was not observed during the field inspections. Bachman's sparrow utilizes shrubby pastures and palmetto scrub. Neither of these habitats is abundant in the area of the SWMUs at NAVSTA Mayport.

Limpkin. The limpkin (*Aramus guarauna*) is listed as a species of special concern by FGFWFC (Wood, 1994) and has been reported from Duval County (FNAI, 1990), which is near the northern limit of its normal range (southeastern Georgia; Kale, 1928). No limpkins were observed during the field survey. Since they prefer lakes, slow moving rivers and streams, and have not been reported from estuarine habitats (Kale, 1928; FNAI, 1990), they are unlikely to be found at NAVSTA Mayport.

Florida Burrowing Owl. The burrowing owl (*Athene cunicularia*) is listed as a species of special concern by FCREPA (Kale, 1928) and FGFWFC (Wood, 1994). It is a confirmed resident of Duval County (FNAI, 1990), where it inhabits generally sandy areas with sparse plant growth, such as prairies, sandhills, pastures, and areas adjacent to airport runways (Kale, 1928). Because it is a burrowing species, the burrowing owl uses land that is fairly well drained. No burrowing owls or their burrows were observed on the property of NAVSTA Mayport during ground surveys of potential suitable habitat.

Red-cockaded Woodpecker. The red-cockaded woodpecker (*Picoides borealis*) is listed as threatened by FGFWFC and endangered by USFWS (Wood, 1994). This species is a reported resident of Duval County (FNAI, 1990). The red-cockaded woodpecker nests by excavating cavities in large, old-growth pine trees infected with red-heart disease (Kale, 1928). The trees within and near the SWMUs are second-growth pines planted on land which was previously cleared. Existing trees within the study area at NAVSTA Mayport are not large enough for the red-cockaded woodpecker. Suitable trees (i.e., 8 to 10" diameter at breast height) encountered during the field survey were closely examined. No red-cockaded woodpeckers, nest cavities, nor cavity-start trees were observed. The red-cockaded woodpecker is not expected to inhabit or use the property at NAVSTA Mayport.

Southeastern Big-eared Bat. The Southeastern big-eared bat (*Plecotus rafinesquii*) is a candidate for listing by USFWS (Wood, 1994) and has been reported in Duval County (FNAI, 1990). This medium-sized bat roosts in heavily forested areas, is known to frequent dilapidated, abandoned buildings within these forests, and can occasionally be observed during the day, roosting in dimly lit areas (Humphrey, 1992). Southeastern big-eared bats were not observed during the field survey, and their presence within an active military base is unlikely.

Sherman's Fox Squirrel. Sherman's fox squirrel (*Sciurus niger shermani*) is designated as threatened by FCREPA (Humphrey, 1992), a species of special concern by FGFWFC, and is under review for listing by USFWS (Wood, 1994). This squirrel has been reported from Duval County (FNAI, 1990), where it may inhabit suitable habitat such as the longleaf pine-turkey oak sandhill community. Since appropriate habitat does not exist on or adjacent to the property at NAVSTA Mayport, the probability for occurrence of Sherman's fox squirrel is very low.

Florida Black Bear. The Florida black bear (*Ursus americana floridanus*) is a candidate for listing by USFWS and is listed as threatened (except within the Apalachicola National Forest) by FGFWFC (Wood, 1994). This bear is a confirmed resident of Duval County (FNAI, 1990). It inhabits densely forested areas during the day, and ranges about and feeds during the evening (Layne, 1978). During the field survey, neither bear tracks nor any other bear signs were observed at NAVSTA Mayport. Sightings or signs of Florida black bears have not been reported for areas on or near this facility.

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Sensitive Flora and Fauna of Duval County That Are Not Currently Protected by State or Federal Statutes and May Occur at NAVSTA Mayport

Reptiles.

Spotted Turtle. The spotted turtle (*Clemmys guttata*) is classified as rare by the Florida Committee on Rare and Endangered Plants and Animals (FCREPA) (Mohler, 1992). This turtle is a confirmed resident of Duval County (FNAI, 1990), where it inhabits slow-moving, soft-bottomed fresh and brackish water sloughs in wooded areas (Moler, 1992). Suitable habitat for this species is not present at NAVSTA Mayport.

Birds.

Great Egret. The great egret (*Casmerodius albus*) is considered a species of special concern by FCREPA (Kale, 1978). This large wading bird is a confirmed resident of Duval County (FNAI, 1990), and has been observed in nearby nesting colonies (ECT, 1993). This species feeds in a variety of habitats (Wiese and Crawford, 1974, as cited in ECT, 1993) and has a varied diet (Bent, 1926, as cited in ECT, 1993). The great egret was observed feeding in salt marshes and ditches adjacent to SWMUs 2, 4, 5, 22, 26 and 50, and may occur on estuarine unconsolidated substrate (near SWMUs 1, 12 and 14) and around containment ponds (SWMUs 1, 6, and 7).

Least Bittern. The least bittern (*Ixobrychus exilis*) is classified as a species of special concern by the FCREPA (Kale, 1978, as cited in ECT, 1993). This wading bird is a confirmed resident of Duval County (FNAI, 1990), where it inhabits densely vegetated freshwater or salt marshes and feeds on a variety of small, locally abundant prey. Suitable feeding habitat for the least bittern occurs near SWMUs 2, 3, 5, and 50.

Yellow-Crowned Night Heron and Black-Crowned Night Heron. The yellow-crowned (*Nyctanassa violacea*) and black-crowned night heron (*Nycticorax nycticorax*) are classified as species of special concern by the FCREPA (Kale, 1978, as cited in ECT, 1993) and of possible concern in Florida by FNAI (1994). These similar birds have been reported from Duval County (FNAI, 1990), where they use a great variety of aquatic habitats. These species are known to feed and nest in highly urbanized aquatic environments (Kale, 1928, as cited in ECT, 1993). Although neither yellow-crowned nor black-crowned night herons were observed during the field surveys, these species may use marshy areas (near SWMUs 2, 3, 5 and 50) and areas around containment ponds (SWMUs 1, 6, and 7).

Hairy Woodpecker. The hairy woodpecker (*Picoides villosus*) is listed by FCREPA as a species of special concern (Kale, 1978, as cited in ECT, 1993). This species has been reported from Duval County (FNAI, 1990). It occurs primarily within flatwood and rangeland habitats, but also uses other habitat types such as forested old fields, grasslands, rights-of-way, and agricultural lands. Habitat features that are valuable to the hairy woodpecker are relatively open stands of trees and shrubs, which provide roosting, nesting, and feeding resources. Although hairy woodpeckers were not observed during field surveys, they may occur as transient feeders. At NAVSTA Mayport appropriate habitats include the mesic flatwoods near SWMUs 2, 3, 4, 5, 6, 14, 15 and 45.

Glossy Ibis. The glossy ibis (*Plegadis falcinellus*) is classified as a species of special concern by the FCREPA (Kale, 1978, as cited in ECT, 1993). This

species has been reported from Duval County (FNAI, 1990), where it may nest colonially in the aquatic preserve and feed in a wide variety of fresh or saltwater habitats (Kale, 1928, as cited in ECT, 1993). As a feeder on a mixed diet in varied habitats, this species may be present on estuarine consolidated substrate near SWMUs 1, 12, and 14, or in the tidal marsh.

Royal Tern and Sandwich Tern. The royal tern (*Sterna maxima*) and sandwich tern (*S. sandvicensis*) are classified as species of special concern by the FCREPA (Kale, 1928, as cited in ECT, 1993). These shore birds are known to nest in Duval County (Ogden, 1970, as cited in ECT, 1993; Kale, 1928, as cited in ECT, 1993), where they inhabit spoil islands, harbors, river mouths, estuaries and sand shoals (Kale, 1928, as cited in ECT, 1993). These terns feed inshore on small fish. Neither royal nor sandwich terns were observed during field surveys, but they are likely to occur along the shoreline adjacent to SWMUs 1, 12, and 14.

Mammals.

Southeastern Weasel. The southeastern weasel (*Mustela frenata olivacea*) is listed as rare by FCREPA (Humphrey, 1992). It has been reported in Duval County (FNAI, 1990), but was not seen during field surveys. The very rare southeastern weasel is primarily terrestrial, and occupies varied habitats, including sand pine scrub, sandhill, cypress swamps and tropical hammocks (Humphrey, 1992). It may occur within or adjacent to the hammocks at NAVSTA Mayport.

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Flora and Fauna of Duval County That Are Listed As Rare (FCREPA) or Imperiled (FNAI) But Are Not Protected by State or Federal Statutes and Are Not Expected to Occur at NAVSTA Mayport

FLORA

Florida Threeawn

The Florida threeawn (*Aristida rhizomorpha*) is a rare perennial grass that occurs in north-central, north and southeastern Florida. Florida threeawn commonly occurs in wet flatwoods, marshy depressions, and seepage slopes. Florida threeawn is most conspicuous when it flowers after a fire. Currently, this species of wiregrass is listed by FNAI (1994) as imperiled.

Florida Toothachegrass

Florida toothachegrass (*Ctenium floridanum*) is listed only by FNAI (1994), and they consider it imperiled. This perennial grass inhabits scrubby, mesic, and wet flatwoods as well as marshy depressions in north and north-central Florida.

Chapman's Skeletongrass

Chapman's skeletongrass (*Gymnopogon chapmanianus*) is listed only by FNAI (1994) and considered imperiled. This perennial grass occurs in scrub, sandhill, mesic flatwoods and dry prairies throughout north-central and southwestern Florida.

Yellow Hibiscus

Yellow hibiscus (*Pavonia spinifex*) is listed only by FNAI (1994) and considered rare to imperiled within the state. This rare hibiscus occurs in upland hardwood forests and hydric hammocks in north and central Florida.

Spoon-flower

Spoon-flower (*Peltandra sagittifolia*) is a perennial herb which grows in a variety of wetland areas, from ditches to floodplain swamps. This rare arum ranges throughout the northern half of the Floridan peninsula through the Coastal Plain to North Carolina. Spoon-flower is listed as rare by the Florida Committee on Endangered Plants and Animals (FCREPA) (Ward, 1978; FNAI, 1990).

Terrestrial Peperomia

Terrestrial peperomia (*Peperomia humilus*) is listed as imperiled within Florida (FNAI, 1990). It occurs in maritime hammocks, upland hardwood forests, sloughs, hydric hammocks, marine and estuarine tidal swamps. It is rarely epiphytic, but may occur on thin humus over calcareous substrate.

Florida Mountain-mint

Florida mountain-mint (*Pycnanthemum floridanum*) grows in hammocks and wet pinelands. It is not listed by FCREPA, FDACS, or USFWS. Recent information indicates it is more abundant than previously believed (FNAI, 1990).

Brown-haired Snoutbean

Brown-haired snoutbean (*Rhynochosia cinerea*) is listed only by FNAI (1994) as rare or restricted in range. The Federal status (as reported in FNAI, 1990) is that the plant is more abundant or widespread than was previously believed; it inhabits pine rocklands, scrub, sandhill, mesic flatwoods, roadsides, fields, and beach dunes widely throughout Florida.

Meadow Spikemoss

Meadow spikemoss (*Selaginella apoda*) is listed as threatened by FDACS (Wood, 1994). This primitive species occurs on moist rocks, along stream banks, and within hydric hammocks located throughout Florida.

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FAUNA

Amphibians

Striped Newt. The striped newt (*Notophthalmus perstriatus*) is listed as rare by the FCREPA (Mohler, 1992), and FNAI (1994) considers it imperiled. This confirmed resident of Duval County (FNAI, 1990) inhabits flatwood and sinkhole ponds as an adult, whereas juveniles can be found beneath debris in well-drained sand (Mohler, 1992). No truly appropriate freshwater habitats exist for the striped newt within or adjacent to the SWMUs at NAVSTA Mayport.

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