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SAMPLING AND ANALYSIS PLAN SOLID WASTE MANAGEMENT UNITS 10 AND 11
(SWMU10) (SWMU11) NS MAYPORT FL
11/16/2006
TETRA TECH



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Project Number 112G00436

Naval Facilities Engineering Command
Southeast
ATTN: Adrienne Wilson (Code EV4)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN IV Contract Number N62467-04-D-0055
Contract Task Order Number 0033

Subject: Sampling and Analysis Plan
Solid Waste Management Units 10 and 11
Naval Station Mayport, Mayport, Florida

Dear Ms. Wilson:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit the Sampling and Analysis Plan (SAP) for Solid Waste Management Units (SWMUs) 10 and 11, the Hazardous Waste Storage Area and the Fuel Spill Area, respectively. This SAP was prepared for the United States Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE) under Contract Task Order (CTO) 0033 for the Comprehensive Long-term Environmental Action Navy (CLEAN) IV Contract Number N62467-04-D-0055. This SAP outlines the supplemental soil and groundwater sampling requirements for SWMUs 10 and 11. The objectives of the field activities outlined in this SAP are as follows:

- Determine if groundwater near SWMU 10 is contaminated.
- If contaminated groundwater is identified, delineate the extent of groundwater contamination present in excess of Groundwater Cleanup Target Levels (GCTLs).
- Determine if contaminated soil and groundwater are present within and around SWMU 11.
- If contaminated soil and groundwater are identified at SWMU 11, delineate the extent of soil and groundwater contamination present in excess of Soil Cleanup Target Levels (SCTLs) and GCTLs, respectively.

The data collected during field activities outlined in this SAP will be incorporated into the Corrective Measures Study (CMS) for SWMUs 8, 9, 10, 11, and 51.

SITE BACKGROUND

SWMUs 10 and 11 are located within the northern part of Naval Station (NAVSTA) Mayport near the southern shore of the St. John's River (Figure 1). SWMU 10, the Hazardous Waste Storage Area, is located southeast of SWMU 8, the Oily Waste Treatment Plant (OWTP) Percolation Pond. SWMU 11, the Fuel Spill Area, is located approximately 200 feet northeast of SWMU 9, the OWTP (Figure 2). The sections below describe the site characteristics of SWMUs 10 and 11 and provide a summary of the



previous investigations and results. Additional historical information from previous investigations is presented in Attachment A.

SWMU 10 – Hazardous Waste Storage Area

SWMU 10 consists of a Resource Conservation and Recovery Act (RCRA)-regulated hazardous waste storage building and a less-than-90-day hazardous waste storage area constructed in approximately 1984.

The hazardous waste storage building (B-1602) operated under Florida Hazardous Waste Storage Facility permit number H016-118598, issued by the Florida Department of Environmental Regulation. The facility was authorized to store a maximum of 480 55-gallon drums holding no more than 26,400 gallons of hazardous waste. The building, which is located approximately 700 feet south of the St. Johns River, covers an area of approximately 8,100 square feet (ft²) and has sheet-metal outer walls. The floor consists of a concrete base coated with synthetic epoxy, and the building is divided into seven storage bays. Each storage bay is surrounded on three sides by a 12-inch concrete curb. Grated isolated containment basins are located in the center of the building. The storage bay floors are sloped from the outside edge of the bay toward the containment basins. The building is no longer used to store hazardous waste and currently serves as a storage area for non-hazardous waste.

The less-than-90-day storage area contains waste stored on pallets. In the northwestern part of the storage area, there is a grassy area that was used to store polychlorinated biphenyl (PCB)-containing waste at the time of the RCRA Facility Investigation (RFI) in January 1996.

A chain link fence surrounds both the hazardous waste storage building and the less-than-90-day storage area. The fenced area is approximately 96,250 ft² and consists mostly of soil covered with a layer of crushed lime rock. No releases have been reported at either the hazardous waste storage building or the less-than-90-day storage area. Several stained areas were observed near the entrance to the fenced area. The RCRA Facility Assessment visual site inspection indicated that these stained areas were not large or deep enough to warrant concern.

RFI field activities were conducted at the OWTP area (SWMUs 6, 7, 8, 9, 10, and 11) by ABB Environmental Services, Inc., (ABB-ES) in 1993 and 1994 (Figures 4-3 and 4-4 in Attachment A). However, environmental samples were not collected specifically for SWMU 10 during the RFI field investigation because there was no documented release from the facility to surrounding media. Additionally, no field investigations had been conducted at SWMU 10 prior to the RFI field activities. Per Florida Department of Environmental Protection (FDEP) comments (Attachment B), additional groundwater monitoring is required to adequately address contamination in the OWTP area.

In 2002, TtNUS performed two decontamination events at B-1602 to facilitate closure of the hazardous waste storage facility. These decontamination activities included the application of wash water and rinse water. Confirmatory samples were collected from both the wash and rinse water to verify that the interior of the building had been sufficiently cleaned and to determine disposal characteristics of all water used in the decontamination process.

In August 2002, TtNUS collected four surface soil samples and four subsurface soil samples from locations around the perimeter of B-1602 (Figure A-1, Table 4, and Table 7 in Attachment A). Analytical results for these surface and subsurface soil samples concluded that concentrations of chemicals of concern (COCs) at these locations were less than FDEP SCTLs. The clean closure of B-1602 was conducted on the building without groundwater sampling required by post-closure regulations. The FDEP determined that since B-1602 was a SWMU and the groundwater was already to be addressed by the investigation for SWMUs 6, 7, 8, 9, 10, and 11, groundwater sampling was to be conducted per the HSWA program (Attachment C).



SWMU 11 – Fuel Spill Area

SWMU 11 is located southwest of Tank 2401 in the Fleet Industrial Supply Center. According to the Initial Assessment Study completed by Environmental Science and Engineering, Inc. in 1986, soil borings completed for road construction activities contained a fuel odor, and the fuel spill area at SWMU 11 was subsequently identified. The source of the fuel (thought to be JP-4, JP-5, or diesel marine fuel) was likely to have originated from the waste oil pit or the fuel farm area.

In 1987, an Expanded Site Investigation (ESI) was performed at SWMU 11. Soil and groundwater samples were collected upon the installation of three monitoring wells. The groundwater samples displayed elevated concentrations of naphthalene; the pesticides aldrin and 4,4-dichlorodiphenyldichloroethene; and the inorganics lead and mercury. One soil sample was found to contain methylene chloride. The results of the 1987 soil and groundwater sampling events are presented in Figure 3-11 from the ESI (Attachment A).

In 1993 and 1994, ABB-ES conducted RFI field activities at the OWTP area. RFI field activities included the collection of subsurface soil samples and groundwater samples from the fuel spill area at SWMU 11 (Table 4-10 and Figure 4-5 in Attachment A). The field screening performed on the soil samples provides insufficient data to delineate the extent of soil impacts at SWMU 11.

Per FDEP comments (Attachment B), additional groundwater sampling is required to adequately address contamination in the OWTP area. No additional environmental samples pertinent to SWMU 11 have been collected since the RFI Report was completed in 1996.

SAMPLING PROGRAM OBJECTIVES

The objectives of the sampling program detailed in this plan are as follows:

1. Delineate surface and subsurface soil contamination within and around the SWMUs in excess of FDEP residential direct exposure SCTLs. The data may be used to determine appropriate land use control boundaries at the respective SWMUs.
2. Evaluate the potential presence of groundwater contamination.

To accomplish this, TtNUS will perform the following proposed sampling activities.

PROPOSED SITE ACTIVITIES

To support site assessment activities at SWMUs 10 and 11, TtNUS will collect soil and groundwater samples using the techniques discussed below. Samples will be submitted to a fixed-base laboratory for select analysis. Soil samples will be collected with a direct push technology (DPT) rig at eight locations at SWMU 11. Soil sample locations are shown on Figure 3. TtNUS will install two monitoring wells (one at SWMU 10 and one at SWMU 11). Following monitoring well development, groundwater samples will be collected from one existing and two new monitoring wells (monitoring well MPT-10-MW01S at SWMU 10 and monitoring wells MPT-08-MW12S and MPT-11-MW05S at SWMU 11). Groundwater sample locations are shown on Figures 4 and 5. Field activities will be conducted during an approximate eight day sampling event. If required, a second field sampling event may be conducted to complete the delineation of soil and groundwater contamination. Prior to the field activities, mobilization activities will be conducted. Tasks associated with mobilization include the following:

- Field Coordination (i.e., coordinating for site access, obtaining field equipment and consumables, etc.)
- Subcontractor Procurement and Coordination (DPT subcontractor and fixed-base laboratory)



- Utility Clearance
- Project “Kick-off” and Health and Safety Daily “Tailgate” Meetings

Health and Safety

Field activities will be completed in accordance with the Health and Safety Plan (HASP) for SWMUs 2, 3, 4, 5, 8, 9, 10, 11, 22, 44, 45, and 51 (dated August 2006). A copy of the HASP will be kept on site at all times during field activities. Additional copies are available upon request for both TtNUS field personnel and subcontractors.

Monitoring Well Installation

TtNUS will supervise the installation of two monitoring wells. One of these wells will be installed at SWMU 10 and one will be installed at SWMU 11. The monitoring wells will be installed using DPT or hollow stem auger methods at the locations depicted on Figures 4 and 5. The monitoring wells to be installed will be completed to approximate depths of 15 feet below land surface (bls) as determined in the field. Two-inch-diameter, Schedule 40 polyvinyl chloride (PVC), flush-threaded casing with 10 feet of 0.01-in. factory-slotted PVC screen will be used. The well screens will be placed such that the screens bracket the water table. Once the screen and riser pipe are in place, the annulus of the boring will be backfilled with clean, 20/30, silica sand from the bottom of the borehole to 2 feet above the top of the screen. A fine-sand seal at least 2 feet thick will be installed on top of the 20/30 silica sand. The remainder of the annulus of the borehole will be grouted by pumping a cement/bentonite slurry through a tremie pipe up to 2 feet bls. Soil material will be containerized and managed as investigative derived waste (IDW).

Well Surface Completion

Each monitoring well surface completion will be flush mount. The riser pipe will be cut to approximately 3 inches bls using an inside pipe cutter and a v-notch will be cut into the north edge of the top of casing for surveying purposes. A protective steel casing will be flush-mount installed around each monitoring well. The flush-mount covers shall be a minimum 8-inch round security vault provided with sealing gasket to reduce the amount of water infiltration. Each well will be fitted with a J-Plug and stainless steel lock. A 2-foot by 2-foot by 6-inch thick concrete pad will be constructed around each flush mount monitoring well. The flush mounted casings shall be completed 1 inch above existing grade and the apron tapered to be flush with existing grade at the edges such that water will run off of the apron. The protective casing shall be completed with a metal identification tag indicating the corresponding well identifier.

The tag specifications include:

- 4-inch x 4-inch x 0.032-inch stainless steel or aluminum
- 3/16-inch lettering
- 1/8-inch diameter mounting holes
- Black printed or stamped lettering

Top of well casings will be permanently marked or notched by the Field Operations Leader (FOL) at the point where measurements are taken to assure consistency from one field event to the next. The reference (measuring) points will be subsequently surveyed for location and elevation. Surveying of permanent monitoring wells will be performed by a licensed professional surveyor.



Well Development

The two proposed monitoring wells will be developed in accordance with FDEP Standard Operating Procedure (SOP) 001/01 FS2200 to remove fine-grained sediments. The preferred method of development will be surging alternated with over pumping. Development equipment will be decontaminated before being placed in the well. Throughout the development procedure, discharge water color and volume shall be documented. Wells will be developed until the following criteria are achieved:

- Stabilization of the following parameters occurs:
 - Temperature is constant for three consecutive readings
 - pH plus or minus 0.1 unit
 - Electrical conductivity plus or minus 10 percent of scale
 - Turbidity is below 10 Nephelometric Turbidity Units
- A minimum of 5 well volumes is removed from the monitoring well
- Accumulated sediment is removed from the well

The well development process will begin no sooner than 24 hours after well installation. Detergents, bleaches, soaps, or other such items will not be used to develop a well. Following development and after the water levels have been allowed to stabilize a minimum of 24 hours, the static water level will be measured and recorded. Data related to well development, including alternate development methodologies and their justification, will be written on the well development sheet (Attachment D) and in the field logbook. Development water will be containerized and disposed of according to the NAVSTA Mayport SOPs for IDW (Attachment E).

Groundwater Monitoring Well Sampling

Prior to collecting groundwater samples from the proposed monitoring wells, groundwater elevations will be measured and recorded on a groundwater level measurement sheet (Attachment D). Expansive plugs from each monitoring well will be removed and each well will be allowed a minimum of 15 minutes to equilibrate prior to obtaining the measurement. Depth to potentiometric surface will be measured from the north side of the top of well casing to the nearest 0.01 foot with an oil/water interface probe. Free product thickness, if present, will also be recorded.

Groundwater samples will be collected from three monitoring wells (MPT-10-MW01S, MPT-08-MW12S, and MPT-11-MW05S). See Figures 4 and 5 for monitoring well locations. Groundwater sampling will be conducted in strict accordance with FDEP SOP 001/01 FS2200. During monitoring well purging field measurements of pH, temperature, specific conductance, and dissolved oxygen will be recorded using a YSI 556 water quality multimeter, or equivalent, for each purge volume. Turbidity will be measured using a Lamotte 2020 Turbidimeter or equivalent. Stabilization protocol, as defined in FDEP SOP 001/01 FS2200, will be conducted for each parameter prior to sample collection. Teflon[®] and surgical-grade silicon tubing will be used for sample collection.

The groundwater sample at SWMU 10 will be analyzed for volatile organic compounds (VOCs) and will be collected using the "straw method" and discharged into the appropriate sample bottles for analysis. Groundwater samples will be submitted to a certified laboratory for analyses of VOCs [United States Environmental Protection Agency (USEPA) Method 8260B], semivolatile organic compounds (SVOCs) (USEPA Method 8270C), metals (USEPA Method 6010B), sulfide (USEPA Method 376.2), cyanide (USEPA Method ILM04.1), and PCBs (USEPA Method 8082).



Groundwater samples at SWMU 11 will be analyzed for VOCs and will be collected using the “straw method” and discharged into the appropriate sample bottles for analysis. Groundwater samples will be submitted to a certified laboratory for analyses of Priority Pollutant (PPL) VOCs (plus TIC with GC/MC Peaks greater than 10 ug/L) (EPA 8260B); PPL SVOCs (EPA 8270C); arsenic, cadmium, chromium, and lead (EPA 6010B); PCBs (EPA 8082); polycyclic aromatic hydrocarbons (PAHs) plus 1-methyl and 2-methylnaphthalene (EPA 8270C or 8310); and TRPH [Florida Petroleum Range Organics (FL-PRO)]

Sampling data for each well will be recorded on the appropriate FDEP groundwater sample log sheet (included in Attachment D) and the field logbook. Groundwater sampling activities are summarized on Table 1. Purge water collected during the investigation will be containerized in 55-gallon drums and properly labeled.

DPT Soil Sampling

Soil samples will be collected from the eight locations depicted on Figure 3. The first 4 feet of each boring will be hand augured or post-holed by the DPT subcontractor to clear for underground utilities. Subsurface soil will be collected using a stainless steel Macro-Core[®] soil sampler (4-foot section) beginning at 4 feet bls and continuing in 4-foot vertical intervals until the water table is encountered. A closed-piston sampling method will be used to avoid cross contamination between collection intervals. Samples will be collected every 2 feet (2, 4, 6, 8, etc.) until the water table is reached. Each sample will be screened for the presence of hydrocarbon contamination using an organic vapor analyzer (OVA) equipped with a flame ionization detector (FID). FID screening will be performed for each sample interval in a manner similar to that performed at Florida petroleum sites. The Macro-Core[®] soil sampler will be decontaminated in between each sample collection. Decontamination will be conducted in accordance to FDEP SOP FC1000. If no evidence of contamination is observed, an unsaturated soil sample will be collected directly above the water table.

Soil sampling procedures will be conducted in accordance with FDEP SOPs 001/01: FS3000: Soil Sampling and FS1000: General Sampling Procedures. Equipment rinsate and/or field blank samples will also be collected. A summary of soil sampling activities is provided in Table 1. A copy of the soil boring and soil sampling logs are provided in Attachment D. Soil displaced during each boring will be backfilled back in the boring from which it was collected or containerized in 55-gallon drums for disposal.

Each DPT soil sample location will be surveyed with a Trimble global positioning system (GPS) unit (or equivalent) that is capable of achieving an accuracy of less than 1 meter. It is anticipated that a Trimble GPS unit will be kept on site for the duration of the project. Horizontal datum should be surveyed in feet relative to the Florida State Plane Coordinate System, Florida State Plane North (North American Datum 1983). Following completion of the field sampling event, survey data should be entered into the Environmental Geographic Information System database for NAVSTA Mayport.

Additional Soil and Groundwater Delineation

If laboratory results indicate that additional samples are required to complete the delineation of the extent of soil and/or groundwater contamination, a second field sampling event will be conducted. The media (soil or groundwater), number, and locations of samples will be determined after reviewing the first event results. Any additional sampling will follow the protocol outlined in this work plan.

Sample Handling

Sample handling includes the selection of sample containers, preservatives, allowable holding times, and the analyses requested. Sample handling procedures will be in accordance with FDEP SOP 001/01 FS1000 and FS2200.



Soil Sampling Identification System

Each sample will be assigned a unique codified sample identification number. The unique nomenclature established for this sampling event is as follows:

1		2		3		4
MPTXX	-	EEXX	-	XX	-	MMDDYY

Sample Nomenclature for soil samples:

- MPTXX = NS Mayport, SWMU 10 (MPT10) or SWMU 11 (MPT11)
- EEXX = Surface soil sample beginning with SS01 and subsurface soil sample beginning with SB01
- XX = Depth of the top of interval at which sample was collected (feet bls)
- MMDDYY = Month, day, and year of sample collection

Examples of the above are:

A soil sample collected on October 21, 2006 from SB05 at SWMU 11 at 8 feet bls would be represented by MPT11-SB05-08-082106.

Groundwater Sampling Identification System

Each sample will be assigned a unique codified sample identification number. The unique nomenclature established for this sampling event is as follows:

1		2		3		4
MPTXX	-	GW	-	MWXXX	-	MMDDYY

DPT Sample Nomenclature for soil samples:

- MPTXX = NS Mayport, SWMU 10 (MPT10) or SWMU 11 (MPT11)
- GW = Represents a groundwater sample
- MWXX = Monitoring well sample was collected from
- MMDDYY = Month, day, and year of sample collection

Examples of the above are:

A groundwater sample collected from monitoring well MW05S at SWMU 11 on August 21, 2006, would be represented by MPT11-GW-MW05S-082106 (no sample depth required).

Sample Custody, Packaging, and Shipping

Custody of samples must be maintained and documented at all times. Chain-of-custody begins with the collection of the samples in the field. FDEP SOP 001/01 FS 1000 and TtNUS SOP SA-6.3 provide a description of the chain-of-custody procedures to be followed.



Samples will be packaged and shipped in accordance with FDEP SOP 001/01 FS1000: General Sampling and applicable sections of FS2200 and FS3000. The FOL will be responsible for completion of the following forms when samples are collected for shipping:

1. Sample labels
2. Chain-of-custody labels
3. Appropriate labels applied to shipping coolers
4. Chain-of Custody forms
5. Federal Express air bills

FS1000 also addresses the topics of containers, holding times, and sample preservations.

Quality Control Samples

Quality control samples will be collected during the soil and groundwater assessment event in general accordance to FDEP SOP 001/01 FQ1000: Field Quality Control Requirements. In general, rinsate blanks will be collected on any sampling equipment (hand auger, DPT soil sampler, and vacuum trap bottles, etc.) that is brought to the field and is not certified clean or that is field cleaned between samples. This will be done to document that they were clean when brought to the site and that no cross contamination is occurring between samples. At a minimum, blanks will be collected at 5 percent for each analysis to be performed. In addition, one trip blank sample will accompany each cooler containing VOC samples.

Equipment Calibration

The field instruments including the OVA-FID, YSI 556 Water Quality Multimeter, and Lamotte 2020 Turbidity Meter will be calibrated daily in accordance with FDEP SOPs FT1000: General Field Testing and Measurement. Specific FDEP SOPs to be consulted for each parameter are provided in Table 2.

Calibration will be documented on an Equipment Calibration Log. During calibration, an appropriate maintenance check will be performed on each piece of equipment. If damaged or defective parts are identified during the maintenance check and it is determined that the damage could have an impact on the instrument's performance, the instrument will be removed from service until defective parts are repaired or replaced. A copy of the Equipment Calibration Log is included in Attachment D.

Record Keeping

In addition to chain-of-custody records associated with sample handling, packaging, and shipping, certain standard forms will be completed for sample description and documentation. These shall include sample log sheets (for soil and groundwater samples), daily activities record, and logbooks.

The FOL will maintain a bound/weatherproof field notebook. The FOL, or designee, will record pertinent information related to sampling or field activities. This information may include sampling time, weather conditions, unusual events (e.g., well tampering), field measurements, site visitors, descriptions of photographs, etc. At the completion of field activities, the FOL shall submit to the TtNUS Task Order Manager field records, data, field notebooks, logbooks, chain-of-custody receipts, sample log sheets, daily logs, etc.

IDW Management

IDW generated during RFI field activities will be containerized in drums and stored on site until analysis of the media has been reviewed and appropriate decisions for the disposal of the waste can be made by the base environmental coordinator. Purge water, decontamination water, and soil cuttings will be collected and containerized in Department of Transportation-approved (Specification 17C) 55-gallon drums. Each drum will be sealed, labeled, and transported to a pre-designated staging area (behind Building 1613)



located within NAVSTA Mayport pending groundwater analytical results. Soil remaining from DPT borings will be backfilled into the borehole from which it was collected. A temporary waste staging area will be established at the site to temporarily store IDW generated during the sampling activities until it can be transported to Building 1613. IDW generated from field activities at SWMUs 10 and 11 will be managed in accordance with procedures described in the NAVSTA Mayport SOP for IDW Waste (Attachment E).

Weekly IDW inspections will occur for IDW temporarily stored on site to ensure that IDW is properly secured and labeled, that IDW drums are not compromised, and that IDW is removed from the site in a timely manner. A Weekly Investigative Derived Waste Checklist for NAVSTA Mayport (Attachment E) will be completed during these IDW inspections and submitted to Diane Racine (NAVSTA Mayport Environmental Department). It is intended that the field events for SWMUs 10 and 11 will take place concurrently with field events at other locations (SWMUs 6 and 7; and SWMUs 8, 9, and 51), therefore, the IDW from field events will be stored in a centralized location. Once the field events are completed and analytical results obtained, the IDW will be transported and disposed of off site by a subcontractor. Appropriate IDW documentation will be maintained in the project field log book.

Decontamination

The equipment involved in field sampling activities will be decontaminated prior to and during sampling activities in accordance to FDEP SOP FC1000: Cleaning/Field Decontamination Procedures. Non-disposable equipment used for collecting samples will be decontaminated prior to beginning field sampling and between sample locations.

Reporting

Information obtained from field activities detailed in this SAP will be incorporated into the CMS for SWMUs 8, 9, 10, 11, and 51.

If you have any questions with regard to this submittal, please contact me at (904) 636-6125 or via e-mail at Shina.Ballard@ttnus.com.

Sincerely,

Shina A. Ballard
Task Order Manager

SB/jf

Enclosures (12)

- c: Mr. J. Cason P.G., FDEP (2 copies, CD)
- Mr. C. Benedikt, USEPA (CD only)
- Ms. D. Racine, NAVSTA Mayport (hardcopy, CD)
- Mr. M. Halil P.E., CH2M Hill (CD only)
- Ms. D. Humbert, TtNUS (cover letter only)
- Mr. M. Perry, TtNUS (unbound copy)
- Ms. S. Ballard, TtNUS
- CTO 0033 Project File
- NAVSTA Mayport AR File

PROFESSIONAL CERTIFICATION

Sampling and Analysis Plan
Solid Waste Management Units 10 and 11
Naval Station Mayport, Florida

This Sampling and Analysis Plan was prepared under the direct supervision of the undersigned geologist using geologic and hydrogeologic principles standard to the profession at the time the report was prepared in general conformance with the State of Florida Standard Operating Procedures. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of additional information on the assessment described in this report. This report was developed specifically for the referenced site and should not be construed to apply to any other site.



Mark Peterson, P.G.
Florida License Number PG-1852
November 16, 2006

TABLES

**TABLE 1
SUMMARY OF SAMPLING ACTIVITIES
SWMU 10**

Sample Type	Aqueous Samples	Soil Samples	Trip Blanks ¹	Rinsate Blanks ²	Field Blanks	Total Soil Samples	Total Aqueous Samples	Parameter	Analysis Method
Groundwater Samples (Monitoring Wells)	1	--	3	2	1	--	7	Appendix IX VOC	SW-846 8260B
			--	2	1	--	4	Appendix IX SVOC	SW-846 8270C
			--	2	1	--	4	Appendix IX Metals	SW-846 6010B
			--	2	1	--	4	Sulfide	USEPA 376.2
			--	2	1	--	4	Cyanide	ILM04.1
			--	2	1	--	4	PCBs	SW-846 8082

1 = One trip blank will be included with each cooler containing VOCs.

2 = A pre- and post-equipment rinsate blank will be collected. In accordance with FDEP SOP FQ 1000, FQ1230, pre-cleaned and field-cleaned rinsate blanks will be collected for any equipment used in the collection of samples that is not certified pre-cleaned.

**TABLE 2
SUMMARY OF SAMPLING ACTIVITIES
SWMU 11**

Sample Type	Aqueous Samples	Soil Samples	Trip Blanks ¹	Rinsate Blanks ^{2,3}	Field Blanks	Total Soil Samples	Total Aqueous Samples	Parameter	Analysis Method
Soil Samples	--	8	3	0	1	9	--	PPL Volatile Organics (plus TIC with GC/MC Peaks greater than 10 ug/L)	SW-846 8260B
			--	0	1	9	--	PPL Semivolatiles (plus TIC with GC/MC Peaks greater than 10 ug/L)	SW-846 8270C
			--	0	1	9	--	Arsenic, Cadmium, Chromium, and Lead	SW-846 6010B
			--	0	1	9	--	PAHs (plus 1-methyl and 2-methylnaphthalene)	SW-846 8270C or 8310
			--	0	1	9	--	TRPHs	FDEP FL-PRO
			--	0	1	9	--	PCBs	SW-846 8082
Groundwater Samples (Monitoring Wells)	2	--	3	2	1	--	8	PPL Volatile Organics (plus TIC with GC/MC Peaks greater than 10 ug/L)	SW-846 8260B
			--	2	1	--	5	PPL Semivolatiles	SW-846 8270C
			--	2	1	--	5	Arsenic, Cadmium, Chromium, and Lead	SW-846 6010B
			--	2	1	--	5	PAHs (plus 1-methyl and 2-methylnaphthalene)	SW-846 8270C or 8310
			--	2	1	--	5	TRPHs	FDEP FL-PRO
			--	2	1	--	5	PCBs	SW-846 8082

1 = One trip blank will be included with each cooler containing VOCs. Trip blanks for the VOCs are included in the total number of aqueous samples.

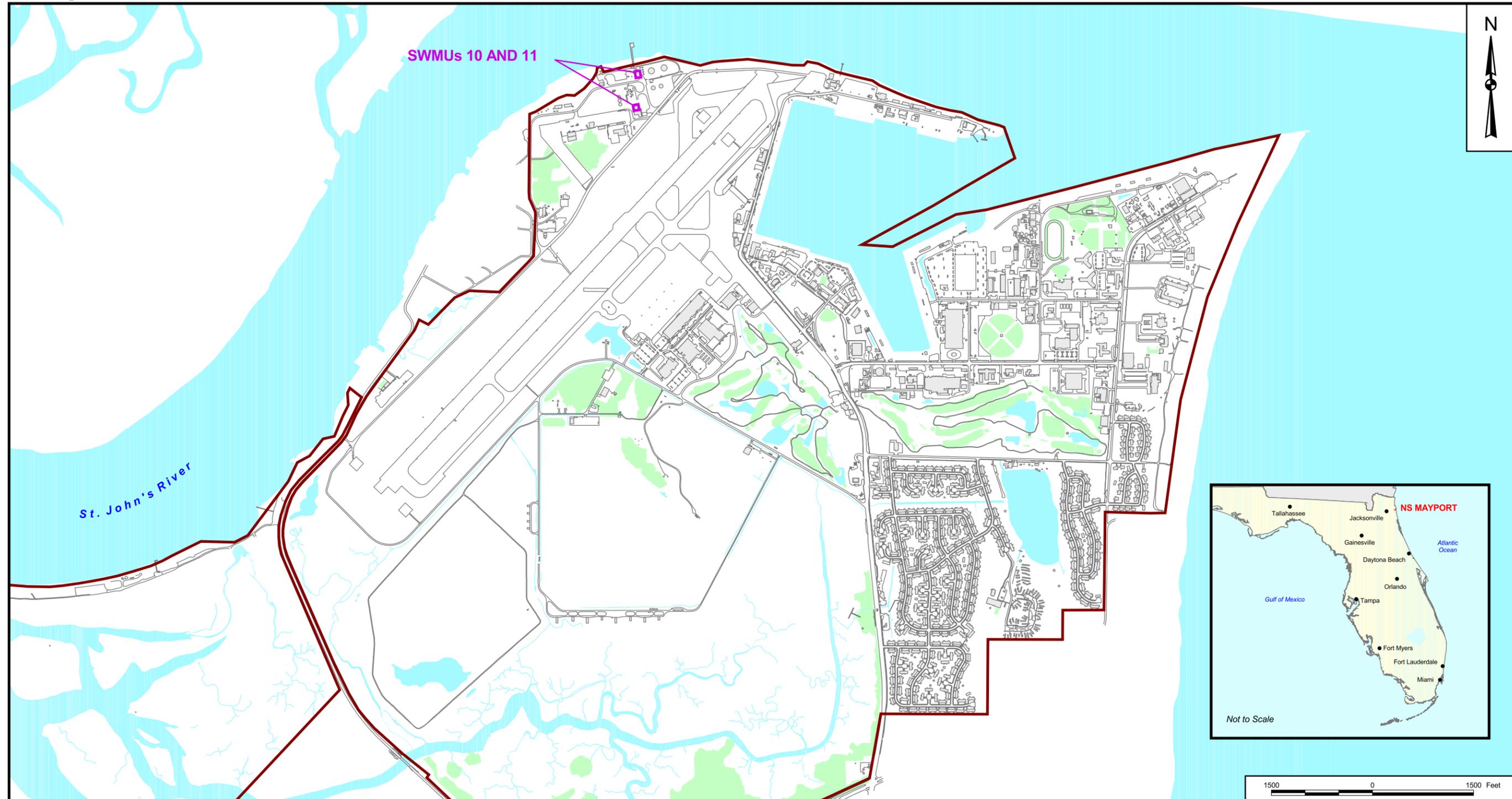
2 = Pre- and post-equipment rinsate blanks will be collected. In accordance with FDEP SOP FQ 1000, FQ1230, pre-cleaned and field-cleaned rinsate blanks will be collected for any equipment used in the collection of samples that is not certified pre-cleaned (i.e., 5% of the reported test matrix combination).

3 = The two rinsate blanks listed will be aqueous samples collected for soil and groundwater samples at SWMU 11.

TABLE 3
SOP REFERENCES FOR SELECT FIELD PARAMETERS

Parameter	FDEP SOP Title	FDEP SOP Number
pH	Field Measurement of Hydrogen Ion Activity (pH)	FT1100
Specific Conductance	Field Measurement of Specific Conductance	FT1200
Temperature	Field Measurement of Temperature	FT1400
Dissolved Oxygen	Field Measurement of Dissolved Oxygen	FT1500
Turbidity	Field Measurement of Turbidity	FT1600

FIGURES



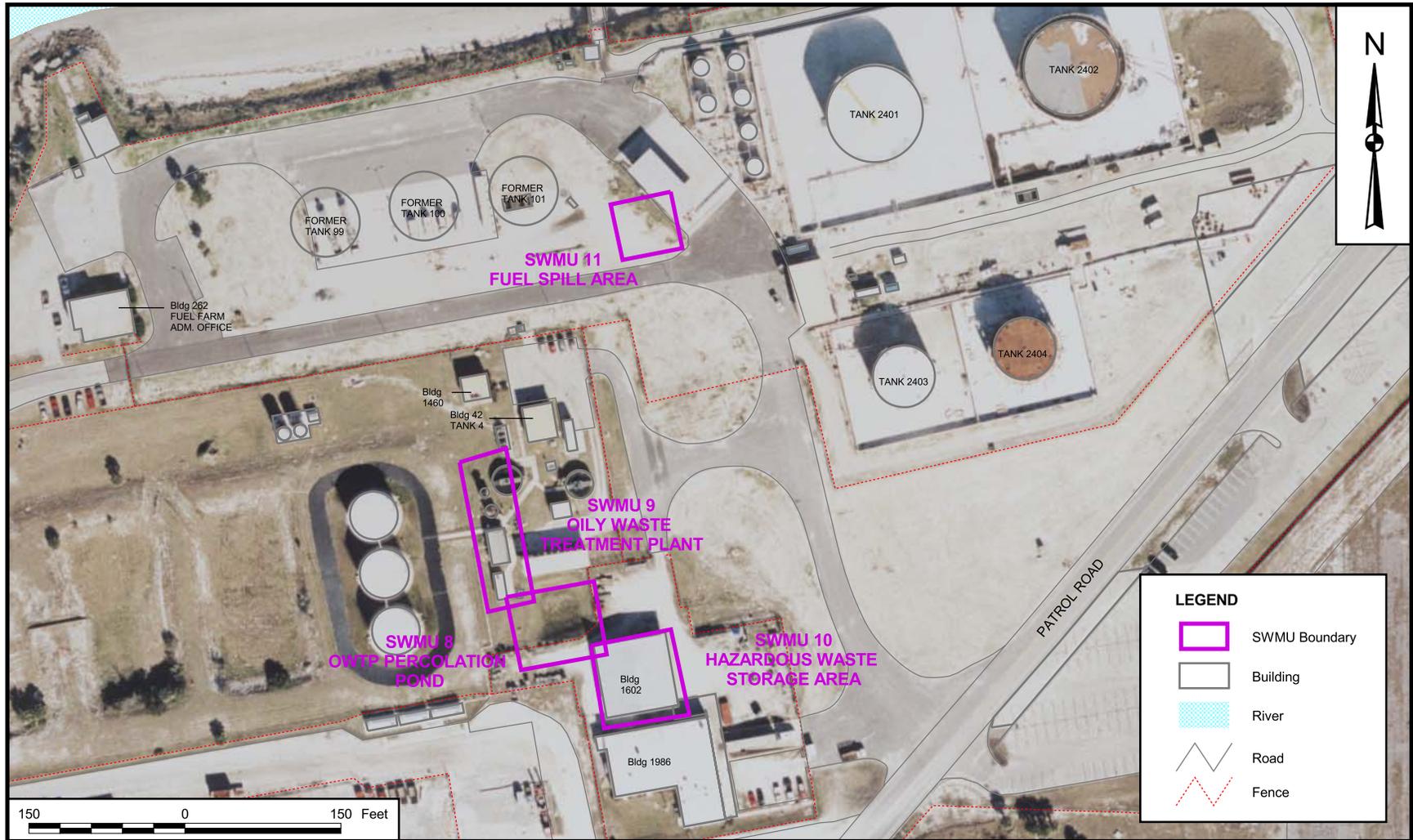
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY S. PAXTON	DATE 7/27/06
CHECKED BY J. FOSTER	DATE 7/27/06
COST/SCHED-AREA	
SCALE AS NOTED	



SITE VICINITY MAP
SWMUs 10 AND 11
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO. CTO 0033	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. Figure 1	REV. 0

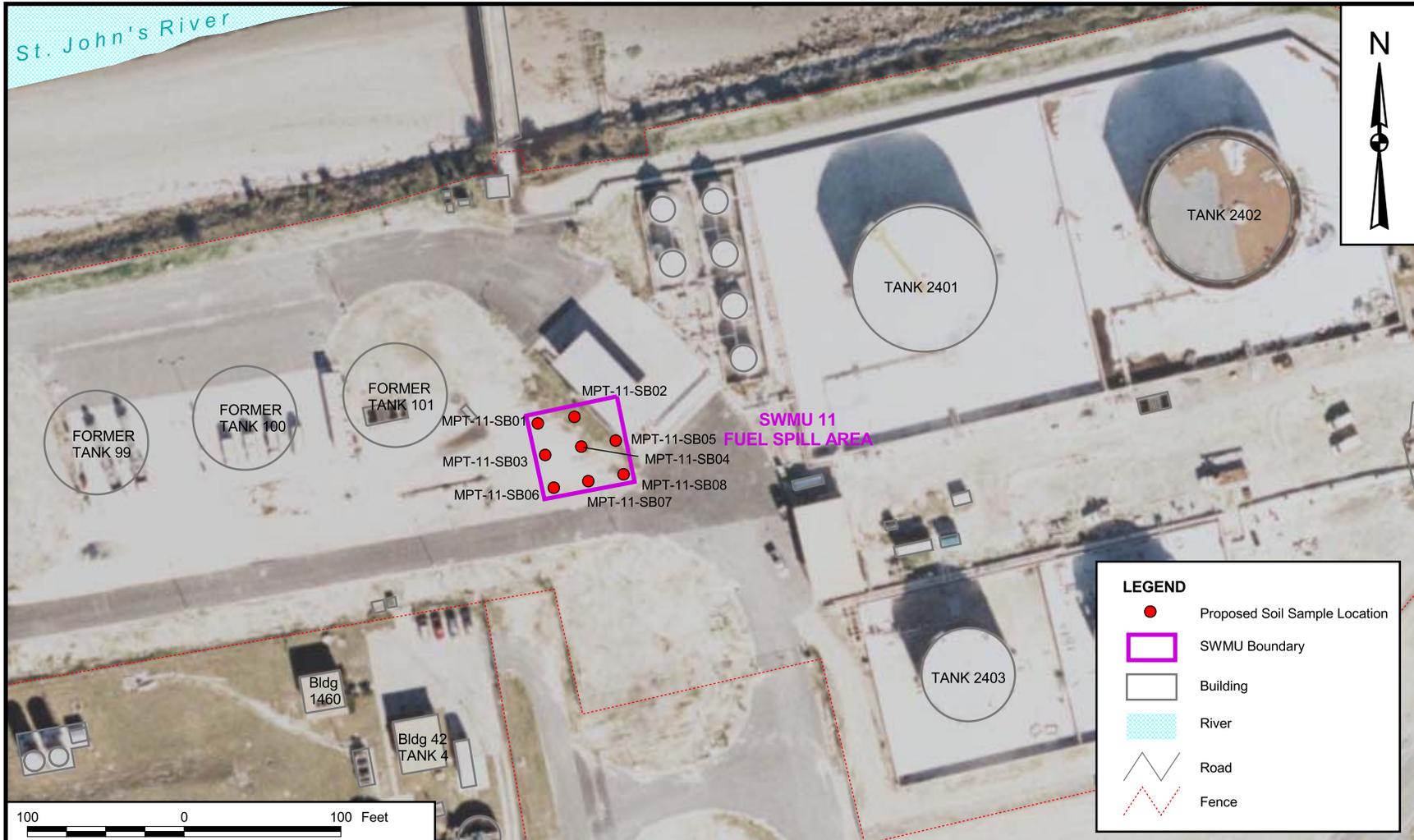


DRAWN BY	DATE
S. PAXTON	7/27/06
CHECKED BY	DATE
J. FOSTER	8/22/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SITE PLAN
 SWMUs 10 AND 11
 NAVAL STATION MAYPORT
 MAYPORT, FLORIDA

CONTRACT NUMBER CTO 0033	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO	REV
Figure 2	0



DRAWN BY S. PAXTON	DATE 8/22/06
CHECKED BY J. FOSTER	DATE 9/21/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	



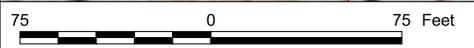
PROPOSED SOIL SAMPLE LOCATION MAP
 SWMU 11
 NAVAL STATION MAYPORT
 MAYPORT, FLORIDA

CONTRACT NUMBER CTO 0033	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. Figure 3	REV 0



LEGEND

-  Proposed Monitoring Well Location
-  SWMU Boundary
-  Building
-  Road
-  Fence

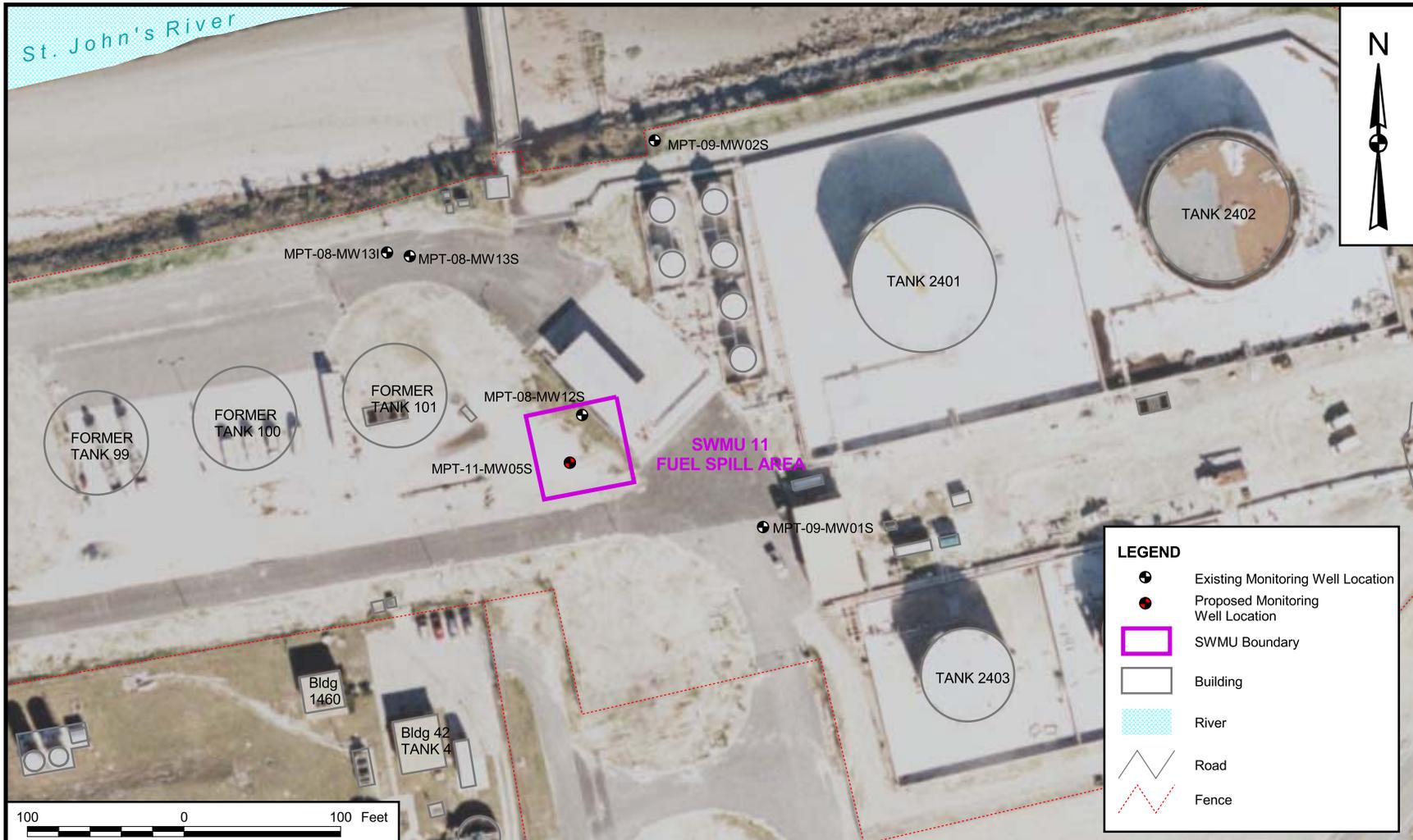


DRAWN BY	DATE
S. PAXTON	8/08/06
CHECKED BY	DATE
J. FOSTER	8/08/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	



PROPOSED MONITORING WELL LOCATION
 SWMU 10
 NAVAL STATION MAYPORT
 MAYPORT, FLORIDA

CONTRACT NUMBER CTO 0033	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. Figure 4	REV 0



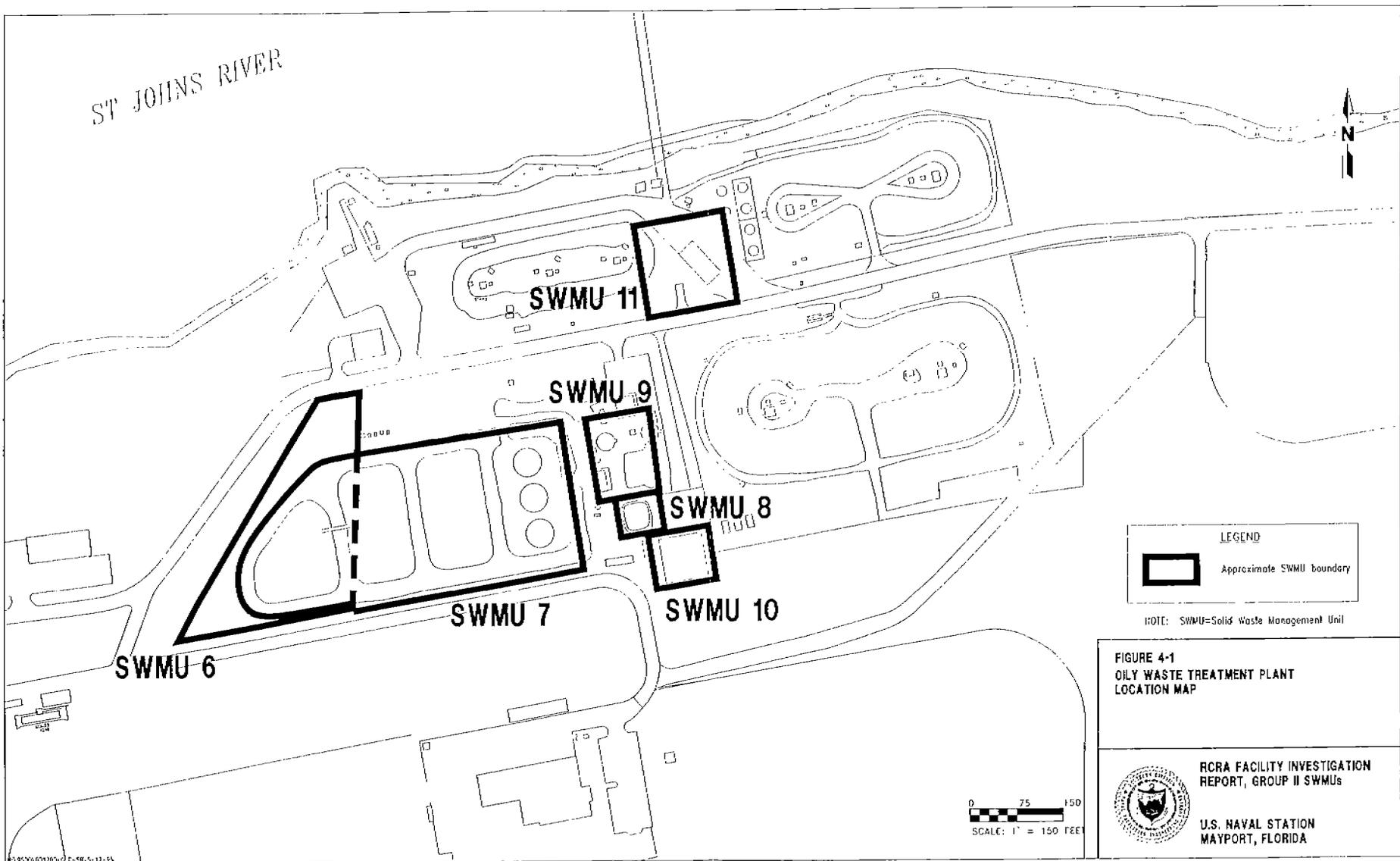
DRAWN BY	DATE
S. PAXTON	8/22/06
CHECKED BY	DATE
J. FOSTER	9/21/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	



PROPOSED MONITORING WELL LOCATIONS
SWMU 11
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NUMBER CTO 0033	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 5	REV 0

ATTACHMENT A
HISTORICAL INFORMATION



ST JOHNS RIVER

SWMU 11

SWMU 9

SWMU 8

SWMU 7

SWMU 10

SWMU 6

LEGEND

 Approximate SWMU boundary

NOTE: SWMU=Solid Waste Management Unit

FIGURE 4-1
OILY WASTE TREATMENT PLANT
LOCATION MAP



RCRA FACILITY INVESTIGATION
REPORT, GROUP II SWMUs

U.S. NAVAL STATION
MAYPORT, FLORIDA

0 75 150
SCALE: 1" = 150 FEET

TABLE 4

**SUMMARY OF ORGANIC AND INORGANIC COMPOUNDS DETECTED - BLDG 1602
NAVAL STATION MAYPORT, MAYPORT FLORIDA**

	Sample Number		MPT-1602-SB01-05	MPT-1602-SB02-05	MPT-1602-SB02-05-D	MPT-1602-SB03-05	MPT-1602-SB04-05		
	Sample Location								
	DE1	DE2	LEGW	MDL Range (Min - Max)					
Metals, mg/kg									
BARIUM	110	/□ 87000	/ 1600	/ 0.021-0.022	4.7	5.7 I	10.1 I	3.6	5.7
CADMIUM	75	/□ 1300	/ 8	/ 0.031-0.033	0.07	0.05	0.06	0.04 U	0.05
NICKEL	110	/ 28000	/ 130	/ 0.14-0.15	1.0	0.46	0.57	0.62	0.50
Pesticides/PCBs, µg/kg									
4,4'-DDE	3.30	/□ 13	/ 18	/ 0.14	0.0019 U	0.00079 I	0.0019	0.0019 U	0.00036 I
4,4'-DDT	3.30	/□ 13	/ 11	/ 0.15-0.16	0.0019 U	0.0012 I	0.0027	0.0019 U	0.00092 I
ENDRIN ALDEHYDE	NA	/□ NA	/ NA	/ 0.15-0.16	0.0019 U	0.0018 U	0.00041 I	0.0019 U	0.0018 U
SVOCs, µg/kg									
DIETHYL PHTHALATE	54000	/□ 920000	/ 86	/ 29-34	0.170 J	0.180 J	0.300	0.380 U	0.160 J
PENTACHLOROETHANE	NA	/□ NA	/ NA	/ 18-20	0.023 I	0.047 I	0.029 I	0.055 I	0.048 I
VOCs, µg/kg									
2-BUTANONE	3100	/□ 21000	/ 17	/ 0.60-0.81	0.0014 I	0.016 U	0.018 U	0.015 U	0.001 I
ACETONE	780	/□ 5500	/ 2.80	/ 3.5-4.6	0.0075 I	0.0065 I	0.0094 I	0.0065 I	0.0055 I

Notes: **Bold** indicates an exceedance of limits. **Bold** indicates which limit has been exceeded.

DE1 / DE2 = Direct Exposure Residential / Industrial Limit from Chapter 62-777, FAC.

LEGW = Groundwater Leachability Limit from Chapter 62-777, FAC.

MDL Range = Method Detection Limit as reported by the laboratory performing the analysis (Value varies based on weight and percent moisture of sample aliquot).

mg/kg = Milligrams per kilogram

I = Indicates the presence of a chemical at an estimated concentration

U = Compound not detected

PCBs = Polychlorinated biphenyls

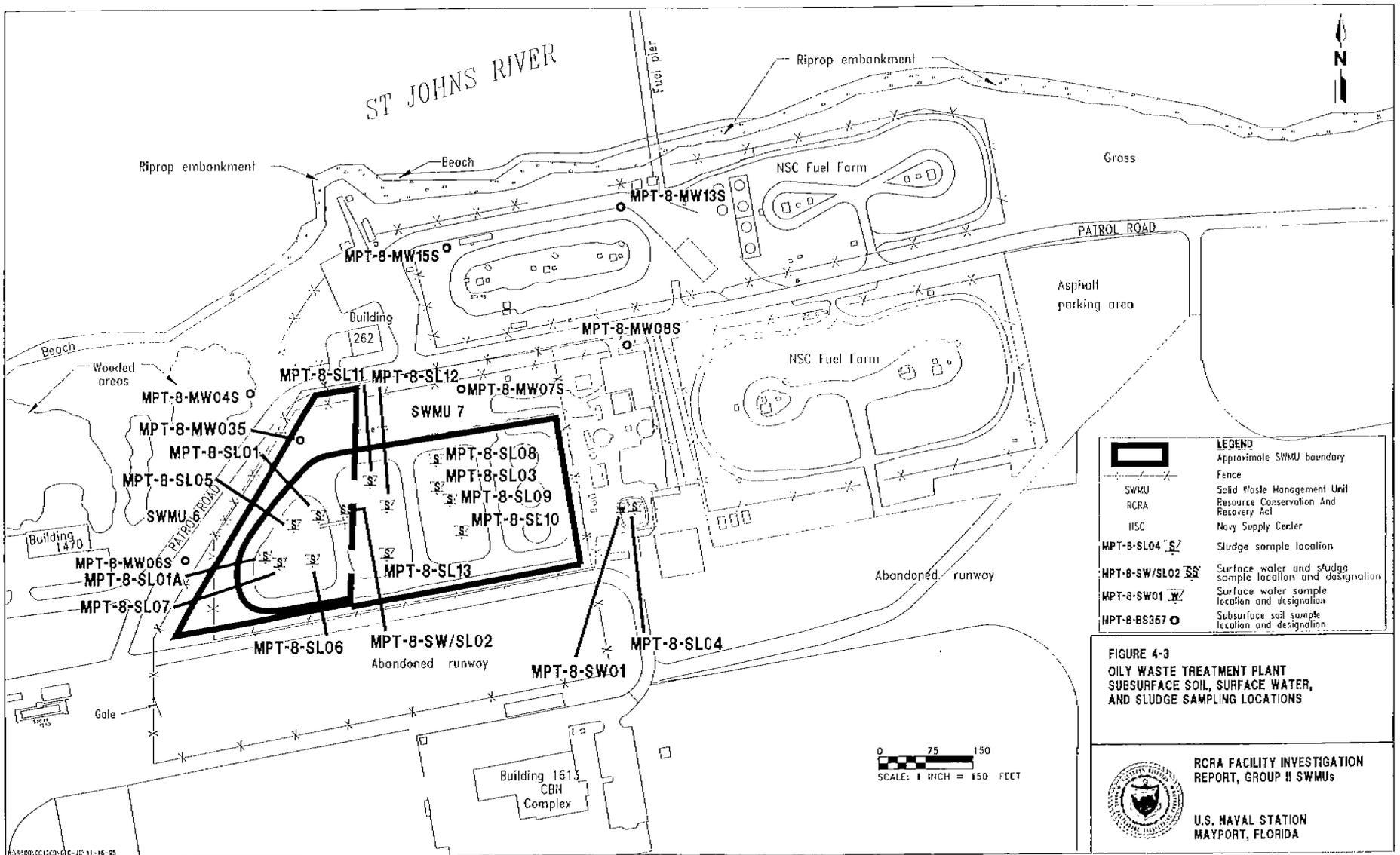
SVOCs = Semivolatile organic compounds

µg/kg = Micrograms per kilogram

NA = Not applicable

VOCs = Volatile organic compounds

FAC = Florida Administrative Code



LEGEND	
	Approximate SWMU boundary
	Fence
	SWMU
	RCRA
	IISC
	MPT-8-SLO4 S Sludge sample location
	MPT-8-SW/SLO2 SS Surface water and sludge sample location and designation
	MPT-8-SW01 W Surface water sample location and designation
	MPT-8-BS357 O Subsurface soil sample location and designation

FIGURE 4-3
OILY WASTE TREATMENT PLANT
SUBSURFACE SOIL, SURFACE WATER,
AND SLUDGE SAMPLING LOCATIONS

 **RCRA FACILITY INVESTIGATION**
REPORT, GROUP II SWMUs
U.S. NAVAL STATION
MAYPORT, FLORIDA

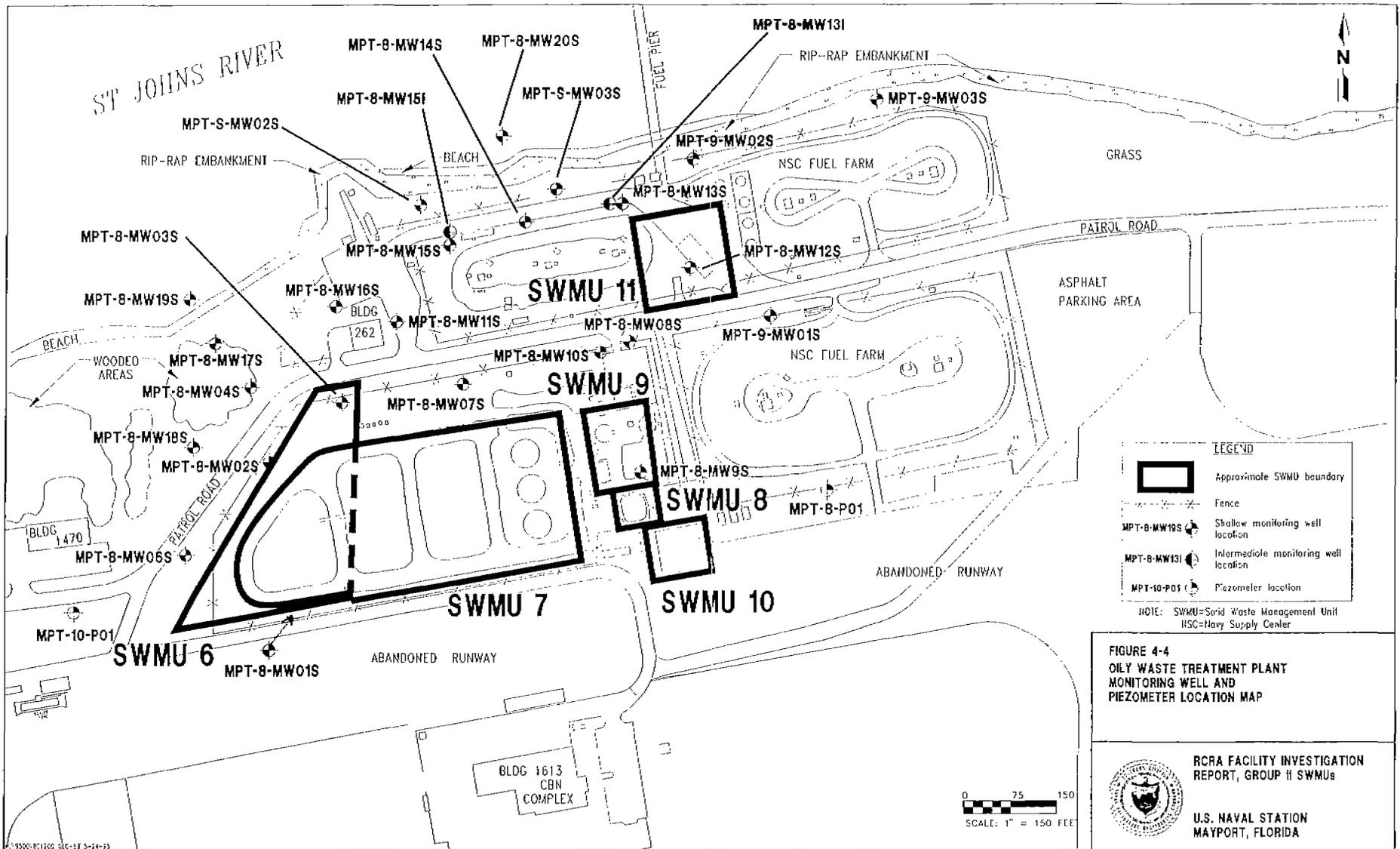


Table 4-11
Organic Analytes Detected in Subsurface Soil Samples at
Solid Waste Management Units (SWMU) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	2382	2382-2882	3488	3488	34901
Sample Matrix:	Soil	Soil	Soil	Soil	Soil
Sample Location:	MPT-8-MW03S	MPT-8-MW04S	MPT-8-MW04S	MPT-8-MW05D	MPT-8-MW06S
Sample No.:	MPT8BS357	MPT8MS4S2	MPT8MS4S8	2BS85DD79	MPT8MS6S2
Sample Date:	15-JAN-93	14-JAN-93	14-JAN-93	13-JAN-93	15-JAN-93
Sample Depth (ft bls):	5 to 7	1 to 2	7 to 8	8 to 9	1 TO 2
<u>Volatile Analytes (µg/kg)</u>					
Trichloroethene	150 J	--	--	--	--
Acetone	160 J	61	--	--	--
Benzene	160 J	3 J	--	--	--
Toluene	170 J	3 J	--	--	--
Ethylbenzene	1,500	--	470 J	--	--
Xylenes (total)	--	--	1,600	--	--
Acetonitrile	--	--	--	--	--
Acrolein	--	18 J	--	--	--
<u>Semivolatile Analytes (µg/kg)</u>					
Benzoic acid	--	--	--	65 J	--
Butylbenzylphthalate	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	--	--	--	--	57 J
Di-n-octylphthalate	--	--	--	--	--
Naphthalene	--	39,000 J	22,000 J	--	--
2-Methylnaphthalene	--	170,000	83,000 J	--	--
Acenaphthene	--	23,000 J	6,300 J	--	--
Fluorene	--	31,000 J	13,000 J	--	--
N-Nitrosodiphenylamine (1)	--	22,000 J	8,000 J	--	--
Phenanthrene	--	42,000 J	19,000 J	--	--
Pyrene	--	--	--	--	--
<u>Pesticides/PCBs</u>					
4,4'-DDE	--	12	--	--	--
4,4'-DDT	--	21	--	--	--
See notes at end of table.					

Table 4-11 (Continued)
Organic Analytes Detected in Subsurface Soil Samples at
Solid Waste Management Units (SWMU) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	2388	2388	3491	3491	M778
Sample Matrix:	Soil	Soil	Soil	Soil	Soil
Sample Location:	MPT-8-MW07S	MPT-8-MW07S	MPT-8-MW08S	MPT-8-MW08S	MPT-8-MW13S
Sample No.:	MPT8MS7S2	MPT8MS7S9	MPTMS8S2	MPT8MS8S9	08BS01316
Sample Date:	18-JAN-93	18-JAN-93	18-JAN-93	18-JAN-93	26-AUG-94
Sample Depth (ft bis):	1 to 2	8 to 9	1 to 2	8 to 9	15 to 16
<u>Volatile Analytes (µg/kg)</u>					
Trichloroethene	-	-	-	-	-
Acetone	-	-	-	-	-
Benzene	-	-	-	-	-
Toluene	-	-	-	-	-
Ethylbenzene	-	130 J	-	-	-
Xylenes (total)	-	-	-	-	-
Acetonitrile	-	-	-	4 J	-
Acrolein	-	-	-	4 J	-
<u>Semivolatile Analytes (µg/kg)</u>					
Benzoic acid	-	-	-	-	-
Butylbenzylphthalate	-	-	170 J	-	-
bis(2-Ethylhexyl)phthalate	-	-	880	-	-
Di-n-octylphthalate	-	-	4,000	-	-
Naphthalene	-	-	-	27,000 J	600 ¹
1-Methylnaphthalene	-	NA	-	NA	1,300 ¹
2-Methylnaphthalene	-	-	-	99,000	2,100 ¹
Acenaphthene	-	-	-	11,000 J	-
Fluorene	-	-	-	17,000 J	-
N-Nitrosodiphenylamine (1)	-	-	-	10,000 J	-
Phenanthrene	-	-	-	23,000 J	-
Pyrene	-	-	-	3,300 J	-
<u>Pesticides/PCBs</u>					
4,4'-DDE	18	-	63	-	-
4,4'-DDT	1.8	-	62	-	-

¹ Analysis by U.S. Environmental Protection Agency methods 8100 and 8020.

Notes: RCRA = Resource Conservation and Recovery Act.

J = estimated value.

µg/kg = micrograms per kilogram.

NA = not analyzed.

mg/kg = milligram per kilogram.

- = not sampled.

ft bis = feet below land surface.

PCBs = polychlorinated biphenyls.

Table 4-12
Inorganic Analytes Detected in Subsurface Soil Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	3488	3488	3490	3491	3491
Sample Matrix:	Soil	Soil	Soil	Soil	Soil
Sample Location:	MPT-8MW04S	MPT-8-MW05S	MPT-8-MW06S	MPT-8-MW07S	MPT-8-MW08S
Sample No.:	MPT8MS4S2	2BS85S02	MPT8MS6S2	MPT8MS7S2	MPT8MS8S2
Date Sampled:	14-JAN-93	13-JAN-93	15-JAN-93	18-JAN-93	18-JAN-93
Sample Depth (ft bls):	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2
<u>Inorganic Analytes (mg/kg)</u>					
Antimony	--	3.2 J	--	--	--
Arsenic	0.82 J	0.68 J	0.19 J	0.56 J	0.23 J
Barium	5.2 J	6 J	7.1 J	11 J	4.5 J
Beryllium	--	--	--	0.13 J	--
Chromium	1.5 J	--	--	4.7 J	2.2 J
Copper	1.8 J	0.72 J	3.5 J	8.5	1.5 J
Lead	0.88	0.25 J	0.26 J	11.4	9.5
Mercury	0.03 J	0.03 J	0.06 J	--	0.04 J
Nickel	--	--	--	2.5 J	--
Selenium	--	--	--	--	0.17 J
Thallium	0.19 J	--	--	--	--
Vanadium	3.2 J	1.9 J	1.8 J	7.8 J	2.4 J
Zinc	3.9 J	2.9 J	2.5 J	32.6 J	4.9 J
See notes at end of table.					

Table 4-12 (Continued)
Inorganic Analytes Detected in Subsurface Soil Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	3490	3488	3488	3490	3491	3491
Sample Matrix:	Soil	Soil	Soil	Soil	Soil	Soil
Sample Location:	MPT-8-MW03S	MPT-8-MW04S	MPT-8-MW05D	MPT-8-MW06S	MPT-8-MS07S	MPT-8-MW08S
Sample No.:	MPT8BS3S7	MPT8MS4S8	MPT2BS85DD79	MPT8MS6S7	MPT8MS7S9	MPT8MS8S9
Date Sampled:	15-JAN-93	14-JAN-93	13-JAN-93	15-JAN-93	18-JAN-93	18-JAN-93
Sample Depth (ft bls):	6 to 7	7 to 8	8 to 9	6 to 7	8 to 9	8 to 9
<u>Inorganic Analytes (mg/kg)</u>						
Arsenic	0.32 J	--	1.1 J	0.91 J	0.29 J	0.36 J
Barium	3.1 J	43.9 J	3.6 J	3.4 J	3.7 J	4.8 J
Beryllium	--	0.23 J	--	--	--	--
Cadmium	--	1.8 J	--	--	--	--
Chromium	--	14.2 J	2 J	3.3 J	1.3 J	--
Cobalt	--	1.7 J	--	--	--	--
Copper	6.2	5.9	0.99 J	3.7 J	1.7 J	1.2 J
Lead	0.28 J	0.25 J	1.4	0.71 J	0.36 J	0.52 J
Mercury	0.1 J	0.04 J	0.06 J	0.06 J	--	0.05 J
Nickel	--	8.6 J	--	--	--	--
Thallium	--	0.16 J	0.22 J	--	--	--
Vanadium	1.2 J	27.4 J	1.5 J	2.8 J	1.7 J	2 J
Zinc	3.5 J	21.8 J	3.4 J	5.7 J	2.9 J	3 J
Notes: RCRA = Resource Conservation and Recovery Act. J = estimated value. ft bls = feet below land surface. -- = not sampled. mg/kg = milligram per kilogram.						

Table 4-13
Summary of Chemicals Detected in OWTP Subsurface Soil

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection ¹	Minimum Concentration ²	Maximum Concentration ²	Mean of Detected Concentrations ³	Range of Reporting Limits for Nondetects	Sample with Maximum Concentration
<u>Volatile Analytes (µg/kg)</u>						
Acetone	1/9	61	61	61	11 - 2,500	MPT8MS4S2
Acetonitrile	1/9	4	4	4	110 - 14,000	MPT8MS8S9
Acrolein	1/9	18	18	18	110 - 14,000	MPT8MS4S2
Benzene	2/9	3	160	82	5 - 690	MPT8BS3S7
Ethylbenzene	3/9	130	1,500	700	5 - 6	MPT8BS3S7
Toluene	2/9	3	170	87	5 - 690	MPT8BS3S7
Trichloroethene	1/9	150	150	150	5 - 690	MPT8BS3S7
Xylenes (total)	1/8	1,600	1,600	1,600	5 - 30	MPT8MS4S8
<u>Semivolatile Analytes (µg/kg)</u>						
1-Methylnaphthalene	1/2	1,300	1,300	1,300	58 - 58	08BS01316
2-Methylnaphthalene	4/11	2,100	170,000	88,525	58 - 760	MPT8BS3S7
Acenaphthene	3/11	6,300	23,000	13,433	58 - 760	MPT8BS3S7
Butylbenzylphthalate	1/9	170	170	170	350 - 76,000	MPT8MS8S2
Di-n-octylphthalate	1/9	4,000	4,000	4,000	350 - 76,000	MPT8MS8S2
Fluorene	3/11	13,000	31,000	20,333	58 - 760	MPT8BS3S7
N-Nitrosodiphenylamine (1)	3/9	8,000	22,000	13,333	350 - 760	MPT8BS3S7
Naphthalene	4/11	600	39,000	22,150	58 - 760	MPT8BS3S7
Phenanthrene	3/11	19,000	42,000	28,000	58 - 760	MPT8BS3S7
Pyrene	1/11	3,300	3,300	3,300	58 - 76,000	MPT8MS7S9
bis(2-Ethylhexyl)phthalate	2/9	57	880	469	350 - 76,000	MPT8MS8S2
<u>Pesticides/PCBs (µg/kg)</u>						
4,4'-DDE	3/9	12	63	31	0.73 - 7.6	MPT8MS8S2
4,4'-DDT	3/9	1.8	62	28.3	1.4 - 15	MPT8MS8S2
<u>Inorganic Analytes (mg/kg)</u>						
Arsenic	8/9	0.19	0.91	0.46	0.16 - 0.16	MPT8MS6S7
See notes at end of table.						

Table 4-13 (Continued)
Summary of Chemicals Detected in OWTP Subsurface Soil

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection ¹	Minimum Concentration ²	Maximum Concentration ²	Mean of Detected Concentrations ³	Range of Reporting Limits for Nondetects	Sample with Maximum Concentration
Barium	9/9	3.1	43.9	9.6	N/A	MPT8MS4S8
Beryllium	2/9	0.13	0.23	0.18	0.11 - 0.13	MPT8MS4S8
Cadmium	1/9	1.8	1.8	1.8	0.26 - 0.3	MPT8MS4S8
Chromium	6/9	1.3	14.2	4.5	0.79 - 0.85	MPT8MS4S8
Cobalt	1/9	1.7	1.7	1.7	1.2 - 1.5	MPT8MS4S8
Copper	9/9	1.2	8.5	3.8	N/A	MPT8MS7S2
Lead	9/9	0.25	11.4	2.68	N/A	MPT8MS7S2
Mercury	7/9	0.03	0.1	0.05	0.03 - 0.03	MPT8BS3S7
Nickel	2/9	2.5	8.6	5.6	1.6 - 2	MPT8MS4S8
Selenium	1/9	0.17	0.17	0.17	0.11 - 0.13	MPT8MS8S2
Thallium	2/9	0.16	0.19	0.18	0.15 - 0.18	MPT8MS4S2
Vanadium	9/9	1.2	27.4	5.6	N/A	MPT8MS4S8
Zinc	9/9	2.5	32.6	9	N/A	MPT8MS7S2

¹ Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed.

² A value indicated by an asterisk is the average of the detected concentrations in a sample and its duplicate. For nondetected values, one-half the 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.

Notes: OWTP = oily waste treatment plant.
SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
 $\mu\text{g}/\text{kg}$ = micrograms per kilogram.
PCBs = polychlorinated biphenyls.

4,4'-DDE = dichlorodiphenyldichloroethene.
4,4'-DDT = dichlorodiphenyltrichloroethane.
mg/kg = milligram per kilogram.
NA = not applicable.
CRQL/CRDL = contract-required quantitation limit/contract-required detection limit.

Table 4-14
Comparison of Analytes Detected in Oily Waste Treatment Plant (OWTP)
Subsurface Soil to Background Screening and Benchmark Concentrations

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analyte	Maximum Concentration ¹	Background Screening Concentration ²	Frequency Above Background Screening Concentration	Florida Soil Cleanup Goal ³	Frequency Above Florida Soil Cleanup Goal	Risk-Based Screening Concentration ⁴	Frequency Above Risk-Based Screening Concentration
Volatile Organic Compounds (µg/kg)							
Acetone	61	NSC	N/A	890,000	0/9	20,000,000	0/9
Acetonitrile	4	NSC	N/A	NSC	N/A	1,200,000	0/9
Acrolein	18	NSC	N/A	1,300	0/9	4,100,000	0/9
Benzene	160	NSC	N/A	1,100	0/9	200,000	0/9
Ethylbenzene	1,500	NSC	N/A	5,500,000	0/9	20,000,000	0/9
Toluene	170	NSC	N/A	1,800,000	0/9	41,000,000	0/9
Trichloroethene	150	NSC	N/A	4,800	0/9	520,000	0/9
Xylenes (total)	1,600	NSC	N/A	44,000,000	0/8	16,000,000	0/8
Semivolatile Analytes (µg/kg)							
1-Methylnaphthalene	1,300	NSC	N/A	1,500,000	0/2	NSC	N/A
2-Methylnaphthalene	170,000	NSC	N/A	5,800,000	0/11	NSC	N/A
Acenaphthene	23,000	NSC	N/A	19,000,000	0/11	12,000,000	0/11
Butylbenzylphthalate	170	NSC	N/A	300,000,000	0/9	41,000,000	0/9
Di-n-octylphthalate	4,000	NSC	N/A	32,000,000	0/9	4,100,000	0/9
Fluorene	31,000	NSC	N/A	21,000,000	0/11	8,200,000	0/11
N-Nitrosodiphenylamine (1)	22,000	NSC	N/A	69,000	0/9	1,200,000	0/9
Naphthalene	39,000	NSC	N/A	6,800,000	0/11	8,200,000	0/11
Phenanthrene	42,000	NSC	N/A	11,000,000	0/11	NSC	N/A
Pyrene	3,300	NSC	N/A	37,000,000	0/11	6,100,000	0/11
bis(2-Ethylhexyl)phthalate	880	NSC	N/A	100,000	0/9	410,000	0/9
Pesticides/PCBs (µg/kg)							
4,4'-DDE	63	3.5	3/9	9,900	0/9	17,000	0/9
4,4'-DDT	62	NSC	N/A	12,000	0/9	17,000	0/9
See notes at end of table.							

Table 4-14 (Continued)
Comparison of Analytes Detected in Oily Waste Treatment Plant (OWTP)
Subsurface Soil to Background Screening and Benchmark Concentrations

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analyte	Maximum Concentration ¹	Background Screening Concentration ²	Frequency Above Background Screening Concentration	Florida Soil Cleanup Goal ³	Frequency Above Florida Soil Cleanup Goal	Risk-Based Screening Concentration ⁴	Frequency Above Risk-Based Screening Concentration
Inorganic Analytes (mg/kg)							
Arsenic	0.91	0.9	1/9	3	0/9	3.3	0/9
Barium	43.9	7.2	2/9	74,000	0/9	14,000	0/9
Beryllium	0.23	0.14	1/9	0.2	1/9	1.3	0/9
Cadmium	1.8	NSC	N/A	600	0/9	100	0/9
Chromium	14.2	3.4	2/9	220	0/9	1,000	0/9
Cobalt	1.7	1.04	1/9	110,000	0/9	12,000	0/9
Copper	8.5	3.6	4/9	72,000	0/9	7,600	0/9
Lead	11.4	2.8	2/9	1,000	0/9	400	0/9
Mercury	0.1	0.06	1/9	480	0/9	61	0/9
Nickel	8.6	NSC	N/A	11,000	0/9	4,100	0/9
Selenium	0.17	NSC	N/A	9,900	0/9	1,000	0/9
Thallium	0.19	NSC	N/A	NSC	N/A	16	0/9
Vanadium	27.4	3.2	2/9	4,800	0/9	1,400	0/9
Zinc	32.6	4.8	4/9	550,000	0/9	61,000	0/9

¹ A value indicated by an asterisk is the average of the detected concentrations in a sample and its duplicate. For nondetected values, one half the CRQL/CRDL is used as a surrogate.

² The background screening concentration is twice the mean of detected concentrations for inorganic analytes.

³ Florida Cleanup Goals (April 5, 1995).

⁴ U.S. Environmental Protection Agency Region III risk-based screening concentrations (February 9, 1995). Concentrations for noncarcinogenic risks are adjusted to a hazard index of 0.1.

Notes: SWMU = solid waste management unit.
 RCRA = Resource Conservation and Recovery Act.
 µg/kg = micrograms per kilogram.
 4,4'-DDT = dichlorodiphenyltrichloroethane.
 PCBs = polychlorinated biphenyls.

N/A - not applicable.
 4,4'-DDE = dichlorodiphenyldichloroethene.
 mg/kg = milligrams per kilogram.
 NSC - no screening concentration.
 CRQL/CRDL = contract-required quantitation limit/contract-required detection limit.

Table 4-16

**Volatile and Semivolatile Analytes Detected in Groundwater Samples at the Oily Waste Treatment Plant
Area Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11**

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analytical Batch No.:	2391	2391	R862	2388	3507	M749	2391	2391	R862	R861
Sample Matrix:	Groundwater									
Sample Location:	MPT-8-MW01S	MPT-8-MW04S	MPT-8-MW04S	MPT-8-MW08S	MPT-8-MW08S	MPT-8-MW06	MPT-8-MW07S	MPT-8-MW08S	MPT-8-MW09S	MPT-8-MW12S
Sample No.:	8MW1	8MW4	08MW004S	8MW6	8MW6Dup	08MW006SD	8MW7	8MW8	08MW009S	08MW012S
Date Sampled:	01-FEB-93	01-FEB-93	26-AUG-94	28-JAN-93	28-JAN-93	10-JUL-94	01-FEB-93	01-FEB-93	26-AUG-94	25-AUG-94
Volatile Analytes ($\mu\text{g}/\text{l}$)										
Methylene chloride	5 J	--	--	5 J	--	--	--	4 J	--	--
Acetone	--	--	--	6 J	--	9 J	--	--	330 J	--
Carbon disulfide	--	--	--	--	--	--	2 J	--	4 J	--
Chloroform	--	--	--	--	--	--	--	--	--	--
2-Butanone	--	--	--	--	1 J	--	--	--	230 J	--
Benzene	--	--	--	--	--	--	2 J	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	--	1 J	--	--	--	--	--
Toluene	--	--	--	--	--	--	--	--	3 J	--
Ethylbenzene	--	--	--	--	--	--	21	--	--	--
Semivolatile Analytes ($\mu\text{g}/\text{l}$)										
2-Methylphenol	--	--	--	--	NA	--	--	--	180	--
Nitrobenzene	--	--	--	--	NA	--	--	--	--	--
2,4-Dimethylphenol	--	--	--	--	NA	--	--	--	180	--
Benzoic acid	--	--	--	--	NA	--	--	--	--	8 J
Naphthalene	--	85	94	--	NA	--	130	--	--	--
2-Methylnaphthalene	--	56	140	--	NA	--	120	--	--	--
Dimethylphthalate	--	--	--	--	NA	--	--	--	--	--
Acenaphthene	--	--	9 J	--	NA	--	--	--	--	--
Dibenzofuran	--	--	5 J	--	NA	--	--	--	--	--
Diethylphthalate	--	--	4 J	--	NA	--	--	--	20 J	3 J
Fluorene	--	3 J	14 J	--	NA	--	5 J	--	--	--
Phenanthrene	--	--	12 J	--	NA	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	5 J	--	--	--	NA	--	--	--	--	--
3- and 4-Methylphenol (2)	--	--	--	--	NA	--	--	--	480	--
4-Chloro-3-Methylphenol	--	--	--	--	--	--	--	--	--	--

See notes at end of table.

Table 4-16 (Continued)

Volatile and Semivolatile Analytes Detected in Groundwater Samples at the Oily Waste Treatment Plant Area Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analytical Batch No.:	R861	R878	R861	2390	M750	2390
Sample Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Location:	MPT-8-MW013S	MPT-8-MW013I	MPT-8-MW014S	MT-9-MW02S	MPT-9-MW02S	MPT-9-MW03S
Sample No.:	08MW013S	08MW013I	08MW014S	9MW2	09MW002S	9MW3
Date Sampled:	25-AUG-94	22-SEP-94	25-AUG-94	29-JAN-93	11-JUL-94	29-JAN-93
<u>Volatile Analytes (µg/l)</u>						
Methylene chloride	--	--	--	--	--	2 J
Acetone	--	16	--	5 J	--	5 J
Carbon disulfide	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--
2-Butanone	--	--	--	--	--	--
Benzene	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	--	--	--
Toluene	--	--	--	--	--	--
Ethylbenzene	--	--	--	--	--	--
<u>Semivolatile Analytes (µg/l)</u>						
2-Methylphenol	--	--	--	--	--	--
Nitrobenzene	--	--	3 J	--	--	--
2,4-Dimethylphenol	--	--	--	--	--	--
Benzoic acid	--	--	17 J	--	--	--
Naphthalene	--	--	170	110	140	--
2-Methylnaphthalene	--	--	110	44	53	--
Dimethylphthalate	--	--	17	--	--	--
Acenaphthene	--	--	5 J	--	--	--
Dibenzofuran	--	--	3 J	--	--	--
Diethylphthalate	2 J	--	--	--	--	--
Fluorene	--	--	7 J	--	--	--
Phenanthrene	--	--	5 J	--	--	--
bis(2-Ethylhexyl)phthalate	--	--	--	--	--	--
3- and 4-Methylphenol (2)	--	--	--	--	--	--
4-chloro-3-Methylphenol	--	--	--	--	--	--
See notes at end of table.						

Table 4-16 (Continued)
Volatile and Semivolatile Analytes Detected in Groundwater Samples at the
Oily Waste Treatment Plant Area Solid Waste Management Units (SWMUs)
6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	R9036	R9036
Sample Matrix:	Groundwater	Groundwater
Sample Location:	MPT-8-MW20S	MPT-8-MW020S
Sample No.:	08MW0S0S	08MW0S0SD
Date Sampled:	11-AUG-94	11-AUG-94
<u>Volatile Analytes (µg/l)</u>		
Methylene chloride	--	--
Acetone	--	--
Carbon disulfide	--	--
Chloroform	--	--
2-Butanone	--	--
Benzene	--	--
1,1,2,2-Tetrachloroethane	--	--
Toluene	--	--
Ethylbenzene	--	--
<u>Semivolatile Analytes (µg/l)</u>		
2-Methylphenol	--	--
Nitrobenzene	--	--
2,4-Dimethylphenol	--	--
Benzoic acid	--	--
Naphthalene	--	--
2-Methylnaphthalene	--	--
Dimethylphthalate	4 J	4 J
Acenaphthene	--	--
Dibenzofuran	--	--
Diethylphthalate	--	--
Fluorene	--	--
Phenanthrene	--	--
bis(2-Ethylhexyl)phthalate	--	--
3- and 4-Methylphenol (2)	--	--
4-chloro-3-Methylphenol	--	--
See notes at end of table.		

Table 4-16 (Continued)
Volatile and Semivolatile Analytes Detected in Groundwater Samples at the Oily Waste Treatment Plant (OWTP) Area Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Notes: MPT-8-MW02S and MPT-8-MW03S were not sampled in 1993 due to the presence of floating product in the monitoring well. MPT-8-MW02S, MPT-8-MW03S, MPT-8-MW07S, MPT-8-MW11S, and MPT-8-MW15S were not sampled in 1994 due to the presence of floating product in the monitoring well. MPT-8-MW05S, MPT-8-MW05I, and MPT-8-MW05D are listed in the NAVSTA Mayport RFI General Information Report, Vol. I, 1995.

RCRA = Resource Conservation and Recovery Act.

-- = analyte not detected.

Dup = duplicate.

NA = not applicable.

$\mu\text{g}/\ell$ = micrograms per liter.

RFI = RCRA Facility Investigation.

J = estimated value.

Table 4-17
Inorganic Analytes Detected in Groundwater Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 10, and 11

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analytical Batch No.:	2391	M750	2391	R862	2388	2394	2388	2388	M749
Sample Matrix:	Water	Water	Water	Water	Water	Water	Water	Water	Water
Sample Location:	MPT-8-MW01S	MPT-8-MW01S	MPT-8-MW04S	MPT-8-MW04S	MPT-8-MW05S	MPT-8-MW05S	MPT-8-MW06	MPT-8-MW06	MPT-8-MW06S
Sample No.:	8MW1	08MW001S	8MW4	08MW004S	8MW5S	8MW5DDup	8MW6	8MW6Dup	08MW006S
Date Sampled:	01-FEB-93	11-JUL-94	01-FEB-93	26-AUG-94	27-JAN-93	02-FEB-93	28-JAN-93	28-JAN-93	10-JUL-94
Inorganic Analytes (µg/l)									
Arsenic	3.2 J	1.1 J	11.7	1.7 J	2.9 J	--	2.5 J	2.8 J	2.1 J
Barium	9.7 J	3.9 J	12.1 J	4.9 J	6.5 J	45.3 J	5.9 J	6.6 J	--
Beryllium	--	--	--	--	--	--	--	--	--
Cadmium	3 J	--	--	--	--	--	--	--	--
Calcium	NA	57,900	NA	146,000	89,500	158,000	62,200	62,300	56,700
Chromium	4.5 J	--	5.7 J	--	6.6 J	--	4.2 J	6.7 J	--
Cobalt	--	--	--	--	--	3.2 J	--	--	--
Copper	--	--	--	--	--	--	5.8 J	14.5 J	--
Iron	NA	710 J	NA	15,000	2,760 J	182	2,340 J	2,750 J	57.1 J
Lead	--	--	--	0.8 J	--	--	--	--	--
Magnesium	NA	6,180	NA	15,400	15,400	314,000	13,300	12,400	8,300
Manganese	NA	43.6 J	NA	280	39.9	101	36.1	36.8	21.5
Mercury	--	--	--	--	--	--	--	--	0.08 J
Nickel	--	--	--	--	--	--	--	--	--
Selenium	--	--	--	--	--	--	--	--	--
Silver	--	--	--	--	--	3.7 J	--	--	--
Sodium	NA	4,980 J	NA	35,600	NA	NA	NA	NA	5,690
Thallium	--	1.5 J	--	--	--	--	--	--	--
Tin	13.2 J	--	--	--	--	--	34.9 J	--	--
Vanadium	6.3 J	--	8 J	2 J	7.2 J	2.8 J	5.7 J	8.3 J	--
Zinc	31	--	34.5	2.5 J	23.9 J	15.6 J	97.5 J	35.1 J	--
Cyanide	--	--	5.5	--	--	--	--	--	1.1 J

See notes at end of table.

Table 4-17 (Continued)
Inorganic Analytes Detected in Groundwater Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	M749	2391	2391	M749	R862	R871	R871	R861	R861
Sample Matrix:	Water								
Sample Location:	MPT-8-MW06S	MPT-8-MW07S	MPT-8-MW08S	MPT-8-MW08S	MPT-8-MW09S	MPT-8-MW10S	MPT-8-MW10S	MPT-8-MW12S	MPT-8-MW13S
Sample No.:	08MW006SD	8MW7	8MW8	08MW008S	08MW009S	08MW010S	08MW010SDup	08MW012S	08MW013S
Date Sampled:	10-JUL-94	01-FEB-93	01-FEB-93	09-JUL-94	26-AUG-94	09-SEP-94	09-SEP-94	25-AUG-94	25-AUG-94
Inorganic Analytes (µg/l)									
Arsenic	2.1 J	41.2	20.7	5.6 J	0.6 J	1.8 J	1.1 J	--	1.4 J
Barium	--	67.6 J	28.1 J	8.4 J	112 J	6.2 J	6.3 J	11 J	9.9 J
Beryllium	--	1.6 J	0.98 J	--	--	--	--	--	--
Cadmium	--	--	--	--	--	--	--	--	--
Calcium	56,700	NA	NA	33,800	1,830,000	79,600	77,100	138,000	98,200
Chromium	--	40.9	36.8	--	--	--	--	--	--
Cobalt	--	11.7 J	7.1 J	--	--	--	--	--	--
Copper	--	15.4 J	3.4 J	--	--	--	--	--	--
Iron	69.2 J	NA	NA	88 J	4,820	--	--	3,890	38 J
Lead	--	45.9	10.4	--	--	--	--	2.5 J	1.9 J
Magnesium	8,050	NA	NA	28,100	401,000	17,100	16,500	8,300	5,480
Manganese	21	NA	NA	12 J	2,260	21.5	19.2	135	3.4 J
Mercury	0.08 J	0.29	--	--	--	--	--	--	--
Nickel	--	19.9 J	--	--	--	--	--	--	--
Selenium	--	--	--	--	--	1.9 J	1.2 J	--	--
Silver	--	2.1 J	--	--	--	--	--	--	--
Sodium	5,530	NA	NA	675,000	1,810,000	24,100	23,100	12,300	8,070
Thallium	--	--	--	--	--	--	--	--	--
Tin	--	--	--	--	--	--	--	--	--
Vanadium	--	60.3	48 J	--	8.3 J	3 J	2 J	2.1 J	4.9 J
Zinc	--	127	52.2	--	16.5 J	--	--	--	--
Cyanide	--	12.8	NA	--	--	--	--	--	--

See notes at end of table.

Table 4-17 (Continued)
Inorganic Analytes Detected in Groundwater Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analytical Batch No.:	R878	R861	2390	M749	2390	M750	2390	M750	2390	M749
Sample Matrix:	Water									
Sample Location:	MPT-8-MW13I	MPT-8-MW14S	MPT-9-MW01S	MPT-9-MW01S	MPT-9-MW02S	MPT-9-MW02S	MPT-9-MW03S	MPT-9-MW03S	MPT-S-MW02S	MPT-S-MW02S
Sample No.:	08MW013I	08MW014S	9MW1	09MW001S	9MW2	09MW002S	9MW3	09MW003S	S-2	0SMW002S
Date Sampled:	22-SEP-94	25-AUG-94	29-JAN-93	09-JUL-94	29-JAN-93	11-JUL-94	29-JAN-93	11-JUL-94	29-JAN-93	09-JUL-94
Inorganic Analytes (µg/l)										
Arsenic	8.9 J	1.3 J	11.4	2.8 J	--	1.4 J	6.7 J	3.8 J	2.6 J	3.3 J
Barium	21.4 J	16.3 J	32.8 J	7.6 J	7.1 J	5.4 J	13.9 J	--	13.2 J	18.1 J
Beryllium	--	--	0.37 J	--	--	--	--	--	--	--
Cadmium	--	1.1 J	--	--	--	--	--	--	--	--
Calcium	47,700	201,000	145,000	103,000	168,000	170,000	130,000	118,000	162,000	185,000
Chromium	--	--	16.4	--	--	--	11	--	--	--
Cobalt	--	--	2.8 J	--	2.7 J	--	--	--	--	--
Copper	--	--	--	--	--	--	3.1 J	--	--	--
Iron	167	34,500	12,200 J	--	9,350 J	7,710 J	8,240 J	86.4 J	753 J	238
Lead	0.8 J	--	--	--	--	--	--	--	--	--
Magnesium	28,200	20,500	23,000	19,000	11,900	10,100	12,500	10,900	260,000	351,000
Manganese	83.5	734	386	4.7 J	285	236 J	142	7.5 J	25.3	20.8
Mercury	--	--	--	0.08 J	--	--	--	--	--	--
Nickel	--	--	--	--	--	--	--	--	--	--
Selenium	--	--	--	--	--	--	--	--	--	--
Silver	--	--	--	--	2.3 J	--	--	--	2.2 J	--
Sodium	357,000	18,700	NA	13,700	NA	37,200 J	NA	11,200 J	NA	3,030,000
Thallium	--	--	--	--	--	--	--	--	--	1.7 J
Tin	--	--	--	--	--	--	--	--	--	--
Vanadium	3.8 J	3.9 J	21.2 J	3.8 J	--	--	14.7 J	--	6.2 J	4.4 J
Zinc	--	--	86.4 J	--	15 J	--	31.6 J	--	25.6 J	--
Cyanide	--	--	--	0.82 J	--	--	--	--	--	1.3 J

See notes at end of table.

Table 4-17 (Continued)
Inorganic Analytes Detected in Groundwater Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	2390	M750	R860	M750	M750	M750
Sample Matrix:	Water	Water	Water	Water	Water	Water
Sample Location:	MPT-S-MW03S	MPT-S-MW03S	MPT-10-P01S	MPT-8-MW01S	MPT-9-MW03S	MPT-S-MW03S
Sample No.:	S-3	0SMW003S	10OP001	08MW001SF	09MW003SF	0SMW003S
Date Sampled:	28-JAN-93	11-JUL-94	24-AUG-94	11-JUL-94	11-JUL-94	11-JUL-94
Inorganic Analytes (µg/l)						
Arsenic	12.5	2.9 J	1.4 J	0.95 J	2.9 J	3.2 J
Barium	7 J	3.8 J	4.7 J	--	--	3.5 J
Beryllium	--	--	--	--	--	--
Cadmium	--	--	--	--	--	--
Calcium	99,100	142,000	77,900	58,800	119,000	140,000
Chromium	--	--	--	--	--	--
Cobalt	--	--	--	--	--	--
Copper	--	--	--	--	--	--
Iron	11,200 J	96.2 J	46.7 J	450	24.6 J	--
Lead	--	--	--	--	--	--
Magnesium	7,440	9,500	11,400	5,730	11,100	9,250
Manganese	67.5	1.4 J	4.5 J	39.3 J	7 J	0.84 J
Mercury	--	--	--	--	--	--
Nickel	--	--	--	--	--	--
Selenium	--	--	--	--	--	--
Silver	2.8 J	--	--	--	--	--
Sodium	NA	11,000 J	8,910	4,940 J	11,200 J	10,900
Thallium	--	--	--	1.5 J	1.6 J	--
Tin	--	--	--	--	--	--
Vanadium	10.8 J	2.3 J	4.4 J	--	2.2 J	3.2 J
Zinc	26.2 J	--	3.6 J	--	--	--
Cyanide	--	--	3.6 J	--	--	--
See notes at end of table.						

Table 4-17 (Continued)
Inorganic Analytes Detected in Groundwater Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	R8784	R8628	R8628	R8628	R8628	R8784
Sample Matrix:	Water	Water	Water	Water	Water	Water
Sample Location:	MPT-8-MW15I	MPT-8-MW16S	MPT-8-MW16S	MPT-8-MW17S	MPT-8-MW18S	MPT-8-MW19S
Sample No.:	08MW015I	08MW016S	08MW016SD	08MW017S	08MW018S	08MW019S
Date Sampled:	22-SEP-95	26-AUG-94	26-AUG-94	26-AUG-94	26-AUG-94	22-SEP-94

Inorganic Analytes (µg/l)						
Arsenic	--	24.1	23.5	1.6 J	2.3 J	--
Barium	86.3 J	11 J	11 J	5.3 J	3.7 J	8 J
Beryllium	--	--	--	--	--	--
Cadmium	--	--	2.9 J	--	--	--
Calcium	70,400	145,000	143,000	130,000	41,500	166,000
Chromium	--	--	--	--	--	--
Cobalt	--	--	--	--	--	--
Copper	--	--	--	--	--	--
Iron	--	14,300	13,900	2,810	221	--
Lead	0.9 J	--	--	--	--	9 J
Magnesium	90,200	10,100	9,790	7,010	17,800	390,000
Manganese	215	343	338	95.1	35.5	23.3
Mercury	--	--	--	--	--	--
Nickel	6.3 J	--	--	--	--	--
Selenium	--	--	--	--	--	--
Silver	--	--	--	--	--	--
Sodium	683,000	12,700	12,500	14,800	176,000	3,510,000
Thallium	--	--	--	--	--	--
Tin	--	--	--	--	--	--
Vanadium	3.6 J	2.3 J	2.5 J	2.3 J	3.2 J	3.4 J
Zinc	16.8 J	6.3 J	11.7 J	3.1 J	2.0 J	--
Cyanide	--	--	--	--	--	--

See notes at end of table.

Table 4-17 (Continued)
Inorganic Analytes Detected in Groundwater Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	R8784	R9037	R9037
Sample Matrix:	Water	Water	Water
Sample Location:	MPT-8-19S	MPT-8-MW20S	MPT-8-MW20S
Sample No.:	08MW019S	08MW020S	08MW020SD
Date Sampled:	22-SEP-94	11-AUG-	11-AUG-94
<u>Inorganic Analytes (µg/l)</u>			
Arsenic	--	--	--
Barium	6.5 J	5.4 J	5.3 J
Beryllium	--	--	--
Cadmium	--	--	--
Calcium	155,000	186,000	187,000
Chromium	--	--	--
Cobalt	--	--	--
Copper	--	--	--
Iron	--	333	322
Lead	8 J	--	--
Magnesium	359,000	357,000	361,000
Manganese	23.8	24.2	23.5
Mercury	--	--	--
Nickel	--	--	--
Selenium	--	--	--
Silver	--	--	--
Sodium	344,000	2,970,000	2,990,000
Thallium	--	--	--
Tin	--	--	--
Vanadium	3 J	3.8 J	3.4 J
Zinc	--	--	--
Cyanide	--	--	--
See notes at end of table.			

Table 4-17 (Continued)
Inorganic Analytes Detected in Groundwater Samples at
Solid Waste Management Units (SWMUs) 6, 7, 8, 9, 10, and 11

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analytical Batch No.:	2390	M750	R860	M750	M750	M750
Sample Matrix:	Water	Water	Water	Water	Water	Water
Sample Location:	MPT-S-MW03S	MPT-S-MW03S	MPT-10-P01S	MPT-8-MW01S	MPT-9-MW03S	MPT-S-MW03S
Sample No.:	S-3	0SMW003S	10OP001	08MW001SF	09MW003SF	0SMW003S
Date Sampled:	28-JAN-93	11-JUL-94	24-AUG-94	11-JUL-94	11-JUL-94	11-JUL-94
Notes: RCRA = Resource Conservation and Recovery Act. DUP = duplicate. $\mu\text{g}/\text{l}$ = milligrams per liter. -- = analyte not detected. J = estimated value. NA = not analyzed.						

Table 4-18
Summary of Chemicals Detected in Oily Waste Treatment Plant Area Groundwater

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection ¹	Minimum Concentration ²	Maximum Concentration ²	Mean of Detected Concentrations ³	Range of Reporting Limits for Nondetects	Sample with Maximum Concentration
Water Quality Parameters (mg/l)						
Alkalinity as CaCO ₃	18/18	150	3,390	550	N/A	08MW009S
Ammonia-N	13/18	0.3	7.6	2.5	0.3 - 0.3	08MW009S
Chloride	18/18	5.6	13,600	1,455	N/A	08MW019S
Color	18/18	10	140	53	N/A	08MW013I
Hardness as CaCO ₃	18/18	180	7,180	969	N/A	08MW009S
Nitrate/Nitrite-N	13/18	0.14	3.69	0.59	0.05 - 0.1	08MW010S
Oil and Grease	3/18	19	1,480	517	5 - 10	8MW7
Phosphorous-P, Total	18/18	0.21	28	2.75	N/A	08MW009S
Sulfate	16/18	2.1	1,950	214.2	10 - 100	08MW019S
Sulfide	8/18	1.2	33	10.1	1 - 10	08MW015I
Total Dissolved Solids	18/18	341	14,500	2,649	N/A	08MW009S
Total Kjeldahl Nitrogen	17/18	0.3	15.2	4.6	0.3 - 0.3	08MW009S
Total Organic Carbon	18/18	3	3,990	246.1	N/A	08MW009S
Total Petroleum Hydrocarbons	9/19	0.045	132	18.56	0.05 - 0.06	08MW004S
pH	18/18	6.2	8	7.15	N/A	09MW001S
Volatile Analytes (µg/l)						
2-Butanone	1/18	230	230	230	10 - 20	08MW009S
Acetone	5/23	7	330	79	10 - 20	08MW009S
Benzene	1/23	2	2	2	5 - 10	8MW7
Carbon disulfide	4/23	2	4	3	5 - 10	08MW009S
Chloroform	1/23	7	7	7	5 - 10	08MW015I
Ethylbenzene	1/23	21	21	21	5 - 10	8MW7
Methylene chloride	1/23	2	2	2	5 - 10	08MW015I
Toluene	1/23	3	3	3	5 - 10	08MW009S
Semivolatile Analytes (µg/l)						
2,4-Dimethylphenol	1/23	180	180	180	10 - 20	08MW009S
See notes at end of table.						

Table 4-18 (Continued)
Summary of Chemicals Detected in Oily Waste Treatment Plant Area Groundwater

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analyte	Frequency of Detection ¹	Minimum Concentration ²	Maximum Concentration ²	Mean of Detected Concentrations ³	Range of Reporting Limits for Nondetects	Sample with Maximum Concentration
2-Methylnaphthalene	5/23	42.5*	140	93	10 - 80	08MW004S
2-Methylphenol	1/23	180	180	180	10 - 20	08MW009S
3- and 4-Methylphenol	1/23	480	480	480	10 - 20	08MW009S
4-Chloro-3-methylphenol	1/23	4*	4*	4	10 - 80	08MW020SD
Acenaphthene	3/23	2*	9	5	10 - 80	08MW004S
Benzoic acid	2/19	8	17	13	50 - 400	08MW014S
Dibenzofuran	2/23	3	5	4	10 - 80	08MW004S
Diethylphthalate	4/23	2	20	7	10 - 20	08MW009S
Dimethylphthalate	3/23	4*	17	8	10 - 80	08MW014S
Diphenylamine	1/1	0	0	0	N/A	8MW7
Fluorene	4/23	4*	14	8	10 - 80	08MW004S
Naphthalene	5/23	78.5*	170	123	10 - 80	08MW014S
Nitrobenzene	1/23	3	3	3	10 - 80	08MW014S
Phenanthrene	3/23	4*	12	7	10 - 80	08MW004S
bis(2-Ethylhexyl)phthalate	1/23	4*	4*	4	10 - 80	08MW019S
<u>Pesticides/PCBs (µg/l)</u>						
Endrin aldehyde	1/23	0.052	0.052	0.052	0.04 - 0.2	08MW004S
Endrin ketone	1/23	0.048	0.048	0.048	0.04 - 0.2	08MW004S
<u>Inorganics Analytes (µg/l)</u>						
Arsenic	19/23	0.6	41.2	5.7	0.6 - 4.5	8MW7
Barium	21/23	3.7	112	20	200 - 200	08MW009S
Beryllium	1/23	1.6	1.6	1.6	0.3 - 5	8MW7
Cadmium	2/23	1.1	1.7*	1.4	1 - 5	08MW016SD
Calcium	22/22	33,800	1,830,000	191,657	N/A	08MW009S
Chromium	1/23	40.9	40.9	40.9	2.6 - 10	8MW7
Cobalt	1/23	11.7	11.7	11.7	3.1 - 50	8MW7

See notes at end of table.

Table 4-18 (Continued)
Summary of Chemicals Detected in Oily Waste Treatment Plant Area Groundwater

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection ¹	Minimum Concentration ²	Maximum Concentration ²	Mean of Detected Concentrations ³	Range of Reporting Limits for Nondetects	Sample with Maximum Concentration
Copper	1/23	15.4	15.4	15.4	0.9 - 25	8MW7
Iron	18/22	38	34,500	4,717.3	9.1 - 100	08MW014S
Lead	7/23	0.8	45.9	8.8	0.6 - 6	8MW7
Magnesium	22/22	5,480	401,000	82,204	N/A	08MW009S
Manganese	22/22	1.4	2,260	209.2	N/A	08MW009S
Mercury	3/23	0.08*	0.29	0.15	0.1 - 0.5	8MW7
Nickel	2/23	6.3	19.9	13.1	5.9 - 40	8MW7
Selenium	1/23	1.55*	1.55*	1.5	0.6 - 30	08MW010S
Silver	1/23	2.1	2.1	2.1	2.1 - 10	8MW7
Sodium	22/22	4,980	3,475,000*	609,285	N/A	08MW019S
Thallium	2/23	1.5	1.7	1.6	0.6 - 10	08MW002S
Vanadium	18/23	2	60.3	6.7	50 - 50	8MW7
Zinc	8/23	2	127	22.6	1 - 20	8MW7
Cyanide	5/23	0.82	12.8	4.31	2.7 - 10	8MW7

¹ Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed.

² A value indicated by an asterisk is the average of the detected concentrations in a sample and its duplicate. For nondetected values, one-half the 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.

Notes: SWMU = solid waste management unit.
RCRA = Resource Conservation and Recovery Act.
mg/l = milligrams per liter.
µg/l = micrograms per liter.
N/A = not applicable.

CACO₃ = calcium carbonate.
PCBs = polychlorinated biphenyls.
CRQL/CRDL = contract-required quantitation limit/contract-required detection limit.

Table 4-19
Comparison of Analytes Detected in Oily Waste Treatment Plant Area
Groundwater to Background Screening and Benchmark Concentrations

RCRA Facility Investigation, Group II SWMUs
U.S. Naval Station
Mayport, Florida

Analyte	Maximum Concentration ¹	Background Screening Concentration ²	Frequency Above Background Screening Concentration	Florida Guidance Concentration ³	Frequency Above Florida Guidance Concentration	Risk-Based Screening Concentration ⁴	Frequency Above Risk-Based Screening Concentration
<u>Volatile Analytes (µg/l)</u>							
2-Butanone	230	NSC	N/A	4,200	0/18	190	1/18
Acetone	330	16	3/23	700	0/23	370	0/23
Benzene	2	NSC	N/A	1	1/23	0.36	1/23
Carbon disulfide	4	1	4/23	700	0/23	2.1	2/23
Chloroform	7	2.5	1/23	6	1/23	0.15	1/23
Ethylbenzene	21	NSC	N/A	30	0/23	130	0/23
Methylene chloride	2	NSC	N/A	5	0/23	4.1	0/23
Toluene	3	NSC	N/A	40	0/23	75	0/23
<u>Semivolatile Analytes (µg/l)</u>							
2,4-Dimethylphenol	180	NSC	N/A	400	0/23	73	1/23
2-Methylnaphthalene	140	NSC	N/A	NSC	N/A	NSC	N/A
2-Methylphenol	180	NSC	N/A	350	0/23	180	0/23
3- and 4-Methylphenol	480	29	1/23	35	1/23	18	1/23
4-Chloro-3-methylphenol	4*	NSC	N/A	3,000	0/23	NSC	N/A
Acenaphthene	9	NSC	N/A	20	0/23	220	0/23
Benzoic acid	17	NSC	N/A	28,000	0/19	15,000	0/19
Dibenzofuran	5	NSC	N/A	NSC	N/A	15	0/23
Diethylphthalate	20	NSC	N/A	5,600	0/23	2,900	0/23
Dimethylphthalate	17	NSC	N/A	70,000	0/23	37,000	0/23
Diphenylamine	0	NSC	N/A	175	0/1	91	0/1
Fluorene	14	NSC	N/A	280	0/23	150	0/23
Naphthalene	170	NSC	N/A	6.8	5/23	150	1/23
Nitrobenzene	3	NSC	N/A	9.5	0/23	0.34	1/23
See notes at end of table.							

Table 4-19 (Continued)
Comparison of Analytes Detected in Oily Waste Treatment Plant
Groundwater to Background Screening and Benchmark Concentrations

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analyte	Maximum Concentration ¹	Background Screening Concentration ²	Frequency Above Background Screening Concentration	Florida Guidance Concentration ³	Frequency Above Florida Guidance Concentration	Risk-Based Screening Concentration ⁴	Frequency Above Risk-Based Screening Concentration
Phenanthrene	12	NSC	N/A	10	1/23	NSC	N/A
bis(2-Ethylhexyl)phthalate	4*	6.2	1/23	NSC	N/A	4.8	1/23
<u>Pesticides/PCBs (µg/l)</u>							
Endrin aldehyde	0.052	NSC	N/A	0.1	0/23	NSC	N/A
Endrin ketone	0.048	NSC	N/A	NSC	N/A	NSC	N/A
<u>Inorganics (µg/l)</u>							
Arsenic	41.2	9.8	2/23	50	0/23	0.038	19/23
Barium	112	39	3/23	2,000	0/23	260	0/23
Beryllium	1.6	NSC	N/A	4	0/23	0.016	1/23
Cadmium	1.7*	NSC	N/A	5	0/23	1.8	1/23
Calcium	1,830,000	207,466	1/22	NSC	N/A	1,055,398	1/22
Chromium	40.9	10.4	1/23	100	0/23	18	1/23
Cobalt	11.7	NSC	N/A	NSC	N/A	220	0/23
Copper	15.4	2.8	1/23	1,000	0/23	140	0/23
Iron	34,500	1,728	7/22	300	9/22	13,267	3/22
Lead	45.9	3.6	2/23	15	1/23	15	1/23
Magnesium	401,000	153,984	4/22	NSC	N/A	118,807	4/22
Manganese	2,260	210	6/22	50	9/22	18	16/22
Mercury	0.29	0.16	1/23	2	0/23	1.1	0/23
Nickel	19.9	NSC	N/A	100	0/23	73	0/23
Selenium	1.55*	11.8	0/23	50	0/23	18	0/23
Silver	2.1	NSC	N/A	100	0/23	18	0/23
Sodium	3,475,000*	1,519,016	4/22	160,000	8/22	396,022	6/22
Thallium	1.7	NSC	N/A	2	0/23	0.29	2/23

See notes at end of table.

Table 4-19 (Continued)
Comparison of Analytes Detected in Oily Waste Treatment Plant Area
Groundwater to Background Screening and Benchmark Concentrations

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Analyte	Maximum Concentration ¹	Background Screening Concentration ²	Frequency Above Background Screening Concentration	Florida Guidance Concentration ³	Frequency Above Florida Guidance Concentration	Risk-Based Screening Concentration ⁴	Frequency Above Risk-Based Screening Concentration
Vanadium	60.3	9.2	1/23	49	1/23	26	1/23
Zinc	127	41.6	1/23	5,000	0/23	1,100	0/23
Cyanide	12.8	1.9	2/23	200	0/23	73	0/23

¹ A value indicated by an asterisk is the average of the detected concentrations in a sample and its duplicate. For nondetected values, one-half the CRQL/CRDL is used as a surrogate.

² The background screening concentration is twice the mean of detected concentrations for inorganic analytes.

³ Florida Guidance Concentrations, June 1994.

⁴ U.S. Environmental Protection Agency Region III risk-based screening concentrations (February 9, 1995). Concentrations for noncarcinogenic risks are adjusted to a hazard index of 0.1.

Notes: SWMU = solid waste management unit.

RCRA = Resource Conservation and Recovery Act.

µg/l = micrograms per liter.

PCBs = polychlorinated biphenyls.

N/A = not applicable.

NSC = no screening concentration.

CRQL/CRDL = contract-required quantitation limits/contract-required detection limits.

TABLE 7
SUMMARY OF ORGANIC AND INORGANIC COMPOUNDS DETECTED - BLDG 1602
NAVAL STATION MAYPORT, MAYPORT FLORIDA
PAGE 1 OF 2

	Sample Number				MPT-1602-SS01-01	MPT-1602-SS02-01	MPT-1602-SS03-01	MPT-1602-SS04-01
	Sample Location							
	Date				8/5/2002	8/5/2002	8/5/2002	8/5/2002
	DE1	DE2	LEGW	MDL Range (Min - Max)				
<u>Metals, mg/kg</u>								
BARIUM	110	87000	1600	0.020-0.021	12.5	17.6	6.0	8.6
CADMIUM	75	1300	8	0.031-0.033	0.24	0.22	0.04	0.11
CHROMIUM	NA	NA	NA	0.061-0.062	6.4	3.4	2.6 U	2.2 U
NICKEL	110	28000	130	0.14-0.15	1.0	1.2	0.78	0.71
<u>Pesticides/PCBs, µg/kg</u>								
4,4'-DDD	4.60	18	4	0.43	0.00083 I	0.0013 I	0.0018 U	0.0012 I
4,4'-DDE	3.30	13	18	0.13	0.00034 I	0.0044	0.0018 U	0.0011 I
4,4'-DDT	3.30	13	11	0.15	0.0014 I	0.0097	0.00033	0.0068
ALPHA-CHLORDANE	NA	NA	NA	0.23	0.00027 I	0.0018 U	0.0018 U	0.0018 U
AROCLOR-1260	NA	NA	NA	5.7-5.8	0.035 U	0.011 I	0.035 U	0.010 I
DIELDRIN	0.07	0.30	0	0.13	0.0041	0.0018 U	0.0018 U	0.0018 U
ENDOSULFAN II	NA	NA	NA	0.17	0.00054 I	0.0018 U	0.0018 U	0.0018 U
ENDRIN ALDEHYDE	NA	NA	NA	0.14	0.0018 U	0.0018 U	0.0018 U	0.00034 I

Notes: **Bold** indicates an exceedance of limits. **Bold** indicates which regulatory limit has been exceeded.

DE1 / DE2 = Direct Exposure Residential / Industrial Limit from Chapter 62-777, FAC.

LEGW = Groundwater Leachability Limit from Chapter 62-777, FAC.

MDL Range = Method Detection Limit as reported by the laboratory performing the analysis (Value varies based on weight and percent moisture of sample aliquot).

µg/kg = Micrograms per kilogram

NA = Not applicable

U = Compound not detected

PCBs = Polychlorinated biphenyls

I = Indicates the presence of a chemical at an estimated concentration

FAC = Florida Administrative Code

TABLE 7
SUMMARY OF ORGANIC AND INORGANIC COMPOUNDS DETECTED - BLDG 1602
NAVAL STATION MAYPORT, MAYPORT FLORIDA
PAGE 2 OF 2

	Sample Number				MPT-1602-SS01-01	MPT-1602-SS02-01	MPT-1602-SS03-01	MPT-1602-SS04-01
	Sample Location							
	Date				8/5/2002	8/5/2002	8/5/2002	8/5/2002
	DE1	DE2	LEGW	MDL Range (Min - Max)				
<u>SVOCs, µg/kg</u>								
BENZO(B)FLUORANTHENE	1.40	4.80	10	47	0.350 U	0.350 U	0.350 U	0.048 I
BENZO(K)FLUORANTHENE	15	52	25	45	0.350 U	0.045 I	0.350 U	0.350 U
CHRYSENE	140	450	77	34	0.350 U	0.036 I	0.350 U	0.043 I
DIETHYL PHTHALATE	54000	920000	86	28-34	0.110 I	0.350 U	0.350 U	0.088 I
PENTACHLOROETHANE	NA	NA	NA	18-24	1.700 U	0.053 I	0.038 I	0.039 I
<u>TPH, mg/kg</u>								
TPH	340	2500	340	14.3-14.5	0.204	0.0351 U	0.0573 U	0.035 U
<u>VOCs, µg/kg</u>								
2-BUTANONE	3100	21000	17	0.64-0.66	0.0016 I	0.015 U	0.015 U	0.00091 I
ACETONE	780	5500	2.80	3.7-3.8	0.0059 I	0.0048 I	0.0052 I	0.0046 I

Notes: **Bold** indicates an exceedance of limits. **Bold** indicates which regulatory limit has been exceeded.

DE1 / DE2 = Direct Exposure Residential / Industrial Limit from Chapter 62-777, FAC.

LEGW = Groundwater Leachability Limit from Chapter 62-777, F.A.C.

MDL Range = Method Detection Limit as reported by the laboratory performing the analysis (Value varies based on weight and percent moisture of sample aliquot).

µg/kg = Micrograms per kilogram

U = Compound not detected

I = Indicates the presence of a chemical at an estimated concentration

NA = Not applicable

SVOCs = Semivolatile organic compounds

TPH = Total petroleum hydrocarbons

VOCs = Volatile organic compounds

FAC = Florida Administrative Code



LEGEND

- Monitoring Well Location
- Piezometer Location
- Soil Location
- Surface Soil Location
- Surface Water Location
- SWMU Boundary
- Building
- Road
- Fence



DRAWN BY S. PAXTON	DATE 7/31/06
CHECKED BY J. FOSTER	DATE 7/31/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	



EXISTING SAMPLE LOCATIONS
SWMU 10
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NUMBER CTO 0033	
APPROVED BY —	DATE —
APPROVED BY —	DATE —
DRAWING NO. —	REV 0

TABLE 3-9
SUMMARY OF CHEMICAL ANALYSES SITE 9
EXPANDED SITE INVESTIGATION
NAVAL STATION MAYPORT, FL

MEDIA	PARAMETER	MPT-9-1	MPT-9-2	MPT-9-3
SOIL	VOLATILE ORGANICS			

	Methylene Chloride	BDL	BDL	186 ug/kg
	SEMIVOLATILE ORGANICS	BDL	BDL	BDL

SOIL	PESTICIDES & PCB's	BDL	BDL	BDL

	TOTAL METALS	BDL	BDL	BDL

	GROUNDWATER	VOLATILE ORGANICS	BDL	BDL
GROUNDWATER	-----			
	SEMIVOLATILE ORGANICS			

	Naphthalene	BDL	120 ug/L	BDL

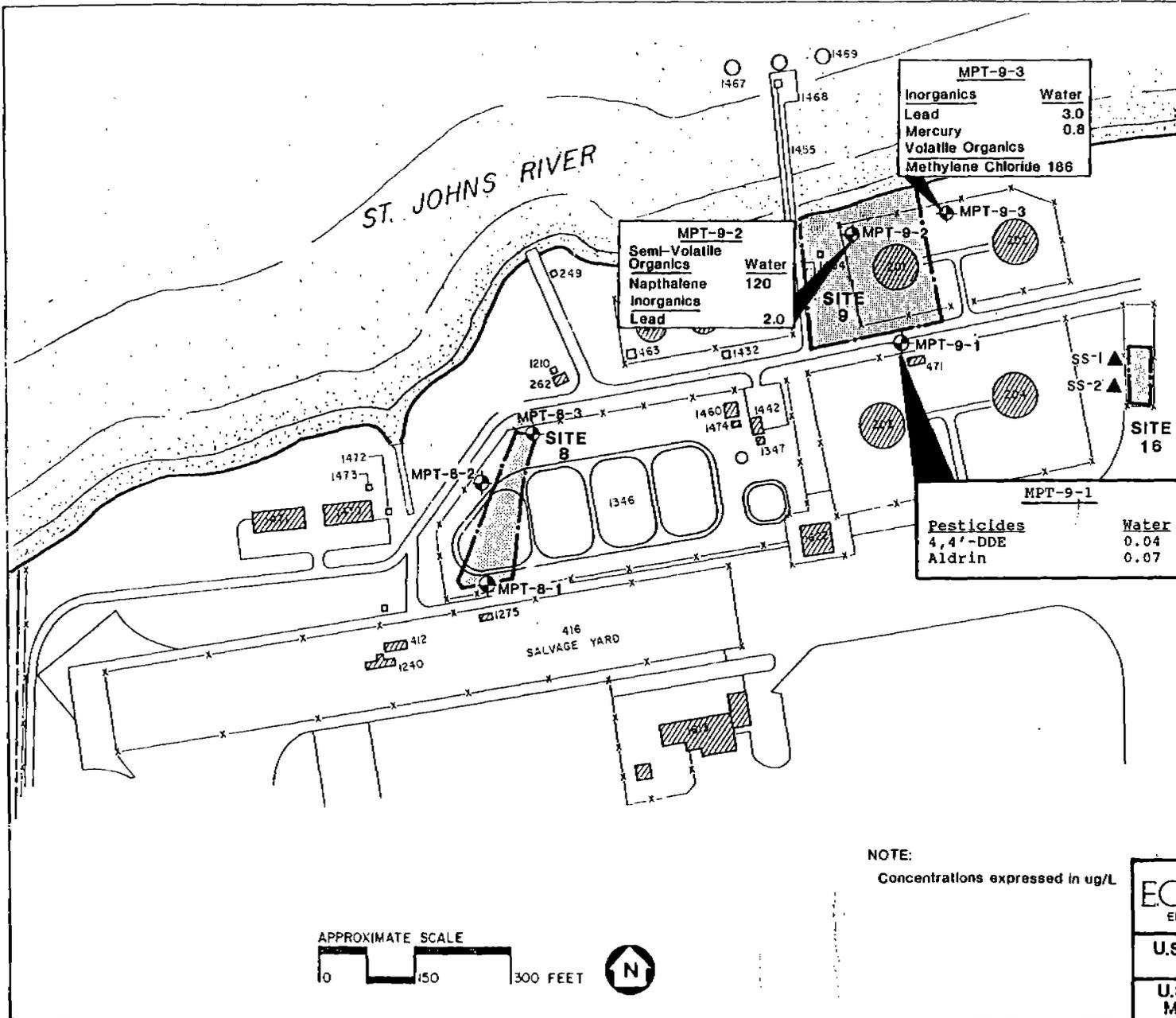
GROUNDWATER	PESTICIDES & PCB's			

	Aldrin	0.07 ug/L	BDL	BDL
	4,4'-DDE	0.04 ug/L	BDL	BDL

GROUNDWATER	TOTAL METALS			

	Lead	BDL	2 ug/L	3 ug/L
	Mercury	BDL	BDL	0.8 ug/L

NOTE: BDL - BELOW DETECTION LIMIT (DETECTION LIMITS PRESENTED IN APPENDIX A-9)



EC JORDAN CO. ENGINEERS & SCIENTISTS	CHEMICAL DISTRIBUTION SITE 19
U.S. DEPARTMENT OF THE NAVY	NIRP EXPANDED SITE INVESTIGATION
U.S. NAVAL STATION MAYPORT, FLORIDA	5097-06 FIGURE 3-11

Table 4-10
1994 Total Recoverable Petroleum Hydrocarbons (TRPH) Screening Results

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Sample Location	Soil Screening Results (mg/kg)					Groundwater (mg/ℓ)
	4 to 6 feet bls	6 to 8 feet bls	8 to 10 feet bls	10 to 12 feet bls	12 to 14 feet bls	
MPT-8-T01	--	--	70	--	8,122	--
MPT-8-T02	--	--	30,726	--	13,894	--
MPT-8-T03	--	175	--	39,081	--	--
MPT-8-T04	--	--	4,924	--	47,766	2.8
MPT-8-T05	--	--	ND	--	30,556	--
MPT-8-T06	--	--	--	ND	88	ND
MPT-8-T07	--	--	--	ND	6	ND
MPT-8-T08	--	--	ND	--	--	--
MPT-8-T09	--	--	27,803	15,755	--	0.9
MPT-8-T10	--	--	--	40,317	--	--
MPT-8-T11	--	--	--	--	--	ND
MPT-8-T12	--	--	6,783	ND	--	0.9
MPT-8-T13	--	--	--	663	--	--
MPT-8-T14	--	--	ND	--	--	ND
MPT-8-T15	--	3,723	--	74,394	--	--
MPT-8-T16	--	ND	--	49,646	--	5.8
MPT-8-T17	--	ND	--	21,706	--	--
MPT-8-T18	--	--	ND	ND	--	4.3
MPT-8-T19	--	--	1,163	18,459	--	4.2
MPT-8-T20	--	--	--	8,172	--	5.2
MPT-8-T21	--	--	--	4,422	--	2
MPT-8-T22	--	--	ND	12,903	--	0.3
MPT-8-T23	--	--	ND	ND	--	ND
MPT-8-T24	--	--	3,390	--	--	3.9
MPT-8-T25	--	--	ND	ND	--	ND
MPT-8-T26	--	ND	ND	--	--	ND
MPT-8-T27	--	ND	222	--	--	1.5
MPT-8-T28	--	--	ND	ND	--	ND
MPT-8-T29	--	--	ND	--	--	ND
MPT-8-T30	--	ND	--	--	--	ND
MPT-8-T31	--	--	--	--	--	ND
MPT-8-T32	--	--	--	--	--	ND
MPT-8-T33	672	--	--	--	--	ND
MPT-8-T1/-1.5	ND	7,833	--	--	--	--
MPT-8-T4/-1.5	ND	38,582	--	--	--	--
MPT-8-T7/-03	ND	12,856	--	--	--	--
MPT-8-T9/00	ND	12,715	--	--	--	--

See notes at end of table.

Table 4-10 (Continued)
1994 Total Recoverable Petroleum Hydrocarbons (TRPH) Screening Results

RCRA Facility Investigation, Group II SWMUs
 U.S. Naval Station
 Mayport, Florida

Sample Location	Soil Screening Results (mg/kg)					Groundwater (mg/l)
	4 to 6 feet bis	6 to 8 feet bis	8 to 10 feet bis	10 to 12 feet bis	12 to 14 feet bis	
MPT-8-T9/-05	10,484	12,195	-	-	-	-
MPT-8-T0.5/0.5	ND	9,238	35,051	-	-	-
MPT-8-T11/-02	ND	15,806	-	-	-	-
MPT-8-T12/-07	25,857	13,549	-	-	-	-
MPT-8-T14/-04	25	14,000	-	-	-	-
MPT-8-T14/-08	18,280	14,504	-	-	-	-
MPT-8-T16/-09	10,210	15,149	-	-	-	-
MPT-8-T17/-06	ND	13,454	-	-	-	-
MPT-8-T2.0/0.5	ND	20,513	-	-	-	-
MPT-8-T3.5/0.5	ND	32,106	-	-	-	-
MPT-8-T4.5/0.0	ND	39,779	-	-	-	-
MPT-8-T6.0/0.5	ND	33,253	-	-	-	-

Notes: RCRA = Resource Conservation and Recovery Act.
 bis = below land surface.
 ND = not detected.
 - = no sample collected.
 SWMU = solid waste management unit.
 mg/kg = milligrams per kilogram.
 mg/l = milligrams per liter.

ATTACHMENT B
REGULATOR COMMENTS

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

May 15, 1996

Mr. David Driggers
Department of the Navy; Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, PO Box 190010
North Charleston, SC. 29419-9010

file: gp_2cms.doc

RE: Final Corrective Measures Study for Group II Solid Waste Management
Units, NAVSTA Mayport

Dear David:

Mr. Greg Brown, P.E., and I have reviewed the above document dated January 1996 (received January 18, 1996). Mr. Brown's comments are attached. Both Greg and I are concerned that the CMS does not adequately address ground water contamination at SWMUs 6 and 7. I recognize that a proposed IM consisting of treatment by low temperature thermal desorption of the excessively contaminated soils at the site is presently under review and that the LNAPL removal facility at the site has been in operation since late last year; however, the CMS should more fully address the ground water situation. Since the current LNAPL removal project that is presently underway may take several years to complete, I am concerned that the issue of contaminated ground water has not received the attention it warrants given the close proximity of the St. Johns River. I know that the ground water situation may change as the two present Intermediate Measures proceed to completion; however, ground water data from monitoring well sampling and DPT screening data are presently available in the Group II RFI, presently under review. Please address the ground water contamination at SWMUs 6 and 7.

Thank you for the opportunity to review this document. Our comments should be adequately addressed before final approval can be considered for the document. If you have questions or require further clarification, please contact me at (904) 921-9994.

Sincerely,


James H. Cason, P.G.
Remedial Project Manager

Mr. David Driggers
May 15, 1996
Page two

cc: Cheryl Mitchell, NAVSTA Mayport
Martha Berry, EPA Region IV, Atlanta
Pat Kingcade, OGC/Trustee File
Terry Hansen, ABB Environmental Services, Tallahassee
Satish Kastury, FDEP Tallahassee
Brian Cheary, FDEP Northeast District, Jacksonville

Enclosure (1)

TB 12 JJC JE ESN

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

May 16, 1996

Mr. David Driggers
Department of the Navy
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, PO Box 190010
North Charleston, SC 29419-9010

file: g2rfi_fi.doc

RE: Final RFI for Group II SWMUs, Volumes I and II, Naval Station Mayport

Dear David:

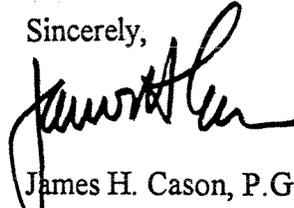
I have reviewed the subject document dated January 1996 (received February 2, 1996). The responses to our previous comments are adequate and the document is approved; however, there are a number of points that I would like to discuss further and offer for your additional consideration:

1. As a statement of clarification and in a similar manner that I have previously commented concerning the Corrective Measures Study for Group II SWMUs (as have others in the review of this document), I am concerned that the Navy has not adequately addressed ground water contamination at the Oily Wastewater Treatment Plant (OWTP) area. To its credit, the Navy has instituted or proposed two Intermediate Measures which address the excessively contaminated soils and the LNAPL at the site. In my previous comments on the CMS, I asked the Navy to address the ground water situation at the OWTP area. This RFI also discusses the need for additional monitoring of the groundwater at the OWTP. No changes are necessary in the RFI; I merely wanted to restate my position concerning the ground water at the OWTP area and remind the Navy of the need to keep this as a priority while the soils and LNAPL are being addressed at the OWTP site.
2. In the Executive Summary, the cancer risk should be corrected to be attributed only to arsenic, not to arsenic and lead. This was previously commented on but the change was not made.

Thank you for the opportunity to review this document. These concerns may be addressed by furnishing corrected pages and I will insert them into the existing document. If you have questions or require further clarification, please feel free to contact me at (904) 921-4230.

Mr. David Driggers
May 16, 1996
Page two

Sincerely,



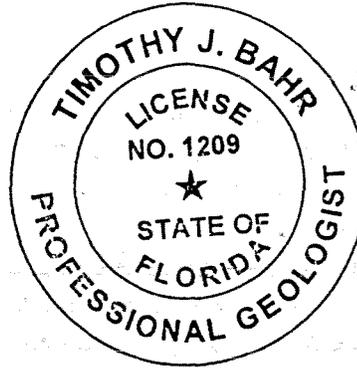
James H. Cason, P.G.
Remedial Project Manager

cc: Cheryl Mitchell, NAVSTA Mayport
Martha Berry, EPA Region IV, Atlanta
Terry Hansen, ABB Environmental Services, Tallahassee
Satish Kastury, FDEP, Tallahassee
Brian Cheary, FDEP Northeast District, Jacksonville

Reviewed by:



Timothy J. Bahr, P.G.
Professional Geologist Supervisor
Bureau of Waste Cleanup



5/17/96

Date

JJC  ESN ESN

ATTACHMENT C
FDEP – 1602 CLOSURE LETTER



Department of Environmental Protection

Jeb Bush
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

David B. Struhs
Secretary

June 4, 2003

Capt. Matthew Shellhorn
U.S. Naval Station - Mayport
Post Office Box 280067
Mayport, Florida 32228-0067

Attn: Capt. Shellhorn:

U.S. Naval Station - Mayport
5090.12; Ser N4E4/3826; 11 Dec 02
FL9 170 024 260
— Permit # HO16-270813
Duval County - Hazardous Waste

The Department has completed review of the Hazardous Waste Storage Facility Closure Certification report, dated March 26, 2003, for closure of Building 1602, at U.S. Naval Station - Mayport. Based on the review of the report, the Department agrees with your determination that the soil and groundwater contamination at and around the general area of Building 1602 is not related to the operation of the hazardous waste container storage facility. Therefore, the Department further agrees with the Navy's proposal that this soil and groundwater contamination should be addressed by the HSWA permit. Please note that all future planned investigation and remediation for this unit must assure that further remediation will meet both CERCLA and RCRA requirements for final closure of this unit.

Therefore, the Department hereby accepts the closure certification for physical closure of the permitted container storage unit, Building 1602.

This determination constitutes final agency action within the meaning of Chapter 120, Florida Statutes. Persons whose substantial interests are affected by this Order have the rights outlined in the Notice of Rights which is enclosed and incorporated as Exhibit 1.

Capt. Matthew Shellhorn
June 4, 2003 letter
Page 2

The Department recommends that you publish, at your own expense, the enclosed Notice of Agency Action by the Department (Exhibit II). The Notice should be published in the legal section of a major newspaper of general circulation in Duval County.

If you have any questions regarding this letter, please contact Christopher Bodin at the letterhead address or telephone (904) 807-3370.

Sincerely,



Michael J. Fitzsimmons
Waste Program Administrator

MRD
MJF:cb

Enclosure

cc: Cheryl Mitchell
Doug Outlaw/Satish Kastury
Tod Dailey
Narendar Kumar

ATTACHMENT D
FIELD DATA SHEETS

ATTACHMENT E
NAVSTA MAYPORT IDW SOP

Standard Operating Procedure for Investigative Derived Waste

1. At Naval Station Mayport (NAVSTA), Investigative Derived Waste is defined as soil or water that is generated from the remedial investigation of contaminated sites. IDW can include, but not be limited to, drill cuttings, purge water, soil, sediment or decontamination water. Operations usually associated with IDW include soil and groundwater sampling, monitoring well installation and decontamination of equipment used for sampling and installation.
2. IDW will be containerized when generated and kept at the site of generation as coordinated with the tenant occupying the area. Drums can be moved to other locations in the general area to accommodate NAVSTA personnel movement or requirements within reason. A central location can be identified prior to the sampling event if in the best interest of the government.
3. IDW drums shall be clearly identified with "Awaiting Analytical" sticker visible containing contractor name and phone number, generation location, date of generation, NAVSTA point of contact, and contents of drum. A drum log using the format of Enclosure (1) shall be completed for each drum and provided to the NAVSTA point of contact when drum is generated. Drums shall be inspected weekly until disposal using Enclosure (2) and inspection form shall be faxed to NAVSTA Environmental Department. When sample results have been received, the analytical shall be provided to the NAVSTA point of contact for waste and disposal determination. The contractor shall be responsible for disposal of all IDW. IDW with analytical results less than Cleanup Target Levels identified in 62-777 Florida Administrative Code may be disposed onsite if sufficient soil is at location. IDW may not be disposed in storm drain or on an impervious surface. In certain conditions, non-hazardous IDW may be disposed through a sewer lift station to the Wastewater Treatment Plant with prior written approval by the Utility Engineer at Public Works Center Jacksonville.
4. If the IDW is identified as hazardous waste, the contractor shall manage drums per the NAVSTA Hazardous Waste Management Plan (SOPA(ADMIN) MYPTINST 5090.1F) and shall be disposed through the NAVSTA Hazardous Waste Storage Facility with the contractor paying disposal cost to PWC (2005 cost approximately \$1.75/pound). IDW that is not hazardous waste but does not meet the Target Levels to be disposed onsite, the contractor shall arrange for the IDW to be legally transported and disposed at an approved facility. The contractor will coordinate with NAVSTA personnel to sign the non-hazardous manifest as generator.

Naval Station Mayport Investigative Derived Waste Drum Log

Contractor Company Name: _____

Individual Name: _____

Location Name: _____
(i.e. SWMU number, Bldg number)

Date of generation: _____

Expected date of results: _____

Drum Number: _____
(Use site # and unique drum number)

<u>Type of Waste</u> (i.e. drill cuttings, purge water)	<u>Quantity of Waste</u> (gals/lbs)	<u>Date</u>	<u>Individual's Initials/ Name</u>

Enclosure (1)

WEEKLY INVESTIGATIVE DERIVED WASTE INSPECTION CHECKLIST
NAVAL STATION MAYPORT

This form is to be completed legibly by the contractor when conducting weekly inspections of IDW drums.

All discrepancies shall be corrected immediately. Failure to correct discrepancy(s) shall result in contractual action.

Date: _____

Inspector: _____

Company Name: _____

		YES	NO
1.	Are all containers properly labeled/dated?		
2.	Are containers compatible with contents?		
3.	Are all containers in good condition?		
4.	Are containers closed?		
5.	Are lids/caps/bolts/rings tight?		
6.	Are any containers dated longer than 60 days?		
7.	Number of containers inspected. _____		
Comments:			
Date/nature of repairs or remedial actions:			
Copy to: NAVSTA Mayport N4E FAX: 270-7398 (EACH FRIDAY)			

Enclosure (2)