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DRAFT FINAL WORK PLAN ADDENDUM INVESTIGATION AT U S NAVY PROPERTIES
ADJACENT TO ATLANTIC WOOD INDUSTRIES SUPERFUND SITE NSY
2/1/2000
CDM FEDERAL PROGRAMS CORPORATION

**Miscellaneous Military/Civil HTRW Projects
For U.S. Army Corps of Engineers Baltimore District**

**Draft Final
Work Plan Addendum**

**Investigation at U.S. Navy Properties
Adjacent to Atlantic Wood Industries, Inc.
Superfund Site, Portsmouth, Virginia**

**Contract No. DACA31-96-D-0014
Delivery Order No. 006**

**Prepared for:
U.S. Army Corps of Engineers
Baltimore District**

1 February 2000

Prepared by:

CDM Federal Programs Corporation
A subsidiary of Camp Dresser & McKee Inc.

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FOR
U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT

**DRAFT FINAL
FIELD SAMPLING PLAN ADDENDUM**

**INVESTIGATION AT U.S. NAVY PROPERTIES ADJACENT TO
ATLANTIC WOOD INDUSTRIES, INC. SUPERFUND SITE
PORTSMOUTH, VIRGINIA**

CONTRACT NO. DACA31-96-D-0014
DELIVERY ORDER NO. 006

1 February 2000

Prepared for:

U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT

Prepared by:

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INTRODUCTION

CDM Federal Programs Corporation (CDM Federal) has been contracted by the U.S. Army Corps of Engineers (USACE), Baltimore District under Prime Contract No. DACA31-96-D-0014, to conduct Pre-Remedial Design Investigation (PRDI) activities at the Atlantic Wood Industries (AWI) Superfund site in Portsmouth, Virginia. The work is described in *Final Work Plan, Pre-Remedial Design Investigation, Atlantic Wood Industries, Inc. Superfund Site, Portsmouth Virginia*, dated 27 January 2000.

This Work Plan Addendum has been prepared to supplement the aforementioned AWI Final PRDI Work Plan, and to address preliminary sampling that is to occur on properties adjacent to the AWI facility which are controlled by the U.S. Navy (on the south, west, and north sides of the AWI property). A separate Work Plan Addendum, under a separate cover, has been prepared which addresses sampling that is to occur on additional properties adjacent to the AWI facility which are controlled by the Board of Education of Portsmouth, Virginia (south of the AWI property on the western side of the site), Southeastern Public Service Authority (triangular property at the northwest corner of the AWI property), Beltline Railroad (runs north-to-south through the middle of the AWI property), and the City of Chesapeake (on the northeast corner of the AWI property).

This Addendum is not meant to replace information in the 27 January Work Plan but to augment the original Work Plan. In order to aid the reader, the structure of the Addendum is such that each section corresponds to the relevant section in the 27 January Work Plan.

1.0 PROJECT DESCRIPTION

The purpose of this preliminary investigation of Navy properties adjacent to the AWI site is to investigate the possible existence of mobile dense non-aqueous phase liquid (DNAPL) below the water table on Navy properties adjacent to the AWI site. This investigation will be conducted only in areas where similar DNAPL is found under adjacent AWI property. This information will be used to evaluate the need for additional investigations of AWI DNAPL contamination beneath adjacent Navy properties.

Specific activities to be performed during this investigation of adjacent Navy properties include utility clearance, ordnance avoidance (as warranted), subsurface investigation to map subsurface stratigraphy and delineation of DNAPLs using a Site Characterization and Analysis Penetrometer System (SCAPS), and soil sampling for verification of SCAPS data.

1.1 SITE HISTORY AND CONTAMINANTS

Site 3, Sanitary Landfill and Associated Sites 4, 6, and 7

Site 3 consists of a former landfill of approximately 70 acres bordered by Paradise Creek to the west. This site was used as the base landfill from 1954 through 1983. Base records indicate that nearly all Norfolk Navy Ship Yard (NNSY) waste was placed at this site, with the exception of incinerated material. In addition to hydraulic fill, wastes reportedly disposed in the sanitary landfill include abrasive blast grit, paint residues, sanitary wastes, solvents, and other industrial residues. Sites 4, 6, and 7 comprise a total of 4 acres where waste chemicals were accumulated in retention ponds and are located completely within the boundaries of Site 3. Site 4 contained five chemical waste pits, which received waste from 1963 to 1978. According to recorded disposals, a total of 7.8 million gallons of waste chemicals were placed in Site 4. The five pits were covered with soil in 1981. Site 6 also contained chemical waste pits, which were utilized when the chemical waste pits at Site 4 were full. Site 6 was used between the mid 1960s to

1977, and received approximately 4.7 million gallons of waste chemicals. Site 7 is a bermed area approximately 1 acre in size and was used as a chemical dump. The site was reported used from the late 1950s to the early 1970s, and received calcium hydroxide sludge, or lime. No additional information is available on the composition of the chemicals or volume disposed at Site 7.

Site 9

Site 9 is a semi-aboveground, bermed impoundment built in 1942 on the east side of NNSY, where waste calcium hydroxide sludge, or lime was temporarily placed before disposal at Site 7 and other locations. Calcium hydroxide is a waste product resulting from the manufacture of acetylene gas from calcium carbide. After acetylene gas production was discontinued in 1971, an estimated 1,300 cubic feet of dry calcium hydroxide remained at the site. It is anticipated that much of the calcium hydroxide has naturally weathered to calcium carbonate.

It is believed that previously low-lying areas on adjacent Navy properties to the south and west of AWI may have been filled by the Navy during World War II. The possible existence of unearthed buried ordnance-like items, similar to those found on AWI property in the past, must be considered.

1.2 SUMMARY OF EXISTING SITE DATA

Previous investigations on Navy property adjacent to AWI include the Interim Remedial Investigation from 1986 through 1988 and a Remedial Investigation, Risk Assessment, and Feasibility Study (RI/RA/FS) conducted in 1992. Groundwater, surface water, sediment, and soil samples were collected during each of the investigations. The reports addressed 7 sites: Site 2 - the Scott Center; Site 3 - the Sanitary Landfill (which also encompasses Sites 4, 6, and 7); Site 9 - the Waste Lime Impoundment; and Site 17 - the Plating Shop, Building 195, and vicinity. Figures 1-1 and 1-2 show the locations of the previously investigated sites. Site 3 (with

associated Sites 4, 6, and 7) and Site 9 are located adjacent to AWI property. For the purposes of this report, only these five sites will be discussed.

Sites 3, 4, 6, and 7

The soil analytical results for Sites 3, 4, 6, and 7 from the Interim Remedial Investigation, 1986 through 1988, detected both organic and inorganic analytes. The organic compounds detected in the soil samples include the following:

- Total xylenes in one location at 53 parts per billion (ppb)
- Total semi-volatile organic compounds ranging from 1,500 ppb to 18,500 ppb
- Pesticides in two locations at 120 ppb and 3,000 ppb
- PCB Aroclor-1254 in two locations at 2,100 ppb and 2,700 ppb
- PCB Aroclor-1260 in two locations at 1,000 ppb and 3,700 ppb.

The inorganic compounds detected included antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. The concentrations ranged from 0.49 milligrams per kilogram (mg/kg) for mercury to 23,000 mg/kg for lead.

The analytical results from the 1992 RI/RA/FS detected both organic and inorganic analytes in the soil. Twelve volatile organic compounds (VOCs) were detected in the soil samples and total VOC concentrations ranged from 240 ug/kg to 278,300 ug/kg. A total of 28 semi-volatile organic compounds (SVOCs) were detected in the soil samples, with total SVOC concentrations ranging from 12 ug/kg to 175,030 ug/kg. Nine pesticides and 2 PCB aroclors were detected in the soil samples. A total of 22 inorganic compounds were detected in the soil samples.

Site 9

The soil analytical results for Site 9 from the Interim Remedial Investigation, 1986 through 1988, detected both organic and inorganic analytes. Acetone, which ranged from 1,300 micrograms per kilogram (ug/kg) to 34,000 ug/kg, was the only organic compound detected in the soil samples. The inorganic analytical results include cadmium, chromium, copper, lead, mercury, nickel, and zinc. The concentrations ranged from 0.6 mg/kg for mercury to 9,100 mg/kg for zinc.

The analytical results from the 1992 RI/RA/FS detected both organic and inorganic analytes in the soil. Four VOCs, including acetone, chloroform, 2-butanone, and toluene, were detected, with total VOC concentrations ranging from below detection limits to 251 ug/kg. A total of 26 SVOCs were detected in the soil samples, with total SVOC concentrations ranging from 2,687 ug/kg to 100,830 ug/kg. Seven pesticides and 2 PCB aroclors were detected in the soil samples. A total of 21 inorganic compounds were detected in the soil samples.

DATA GAPS

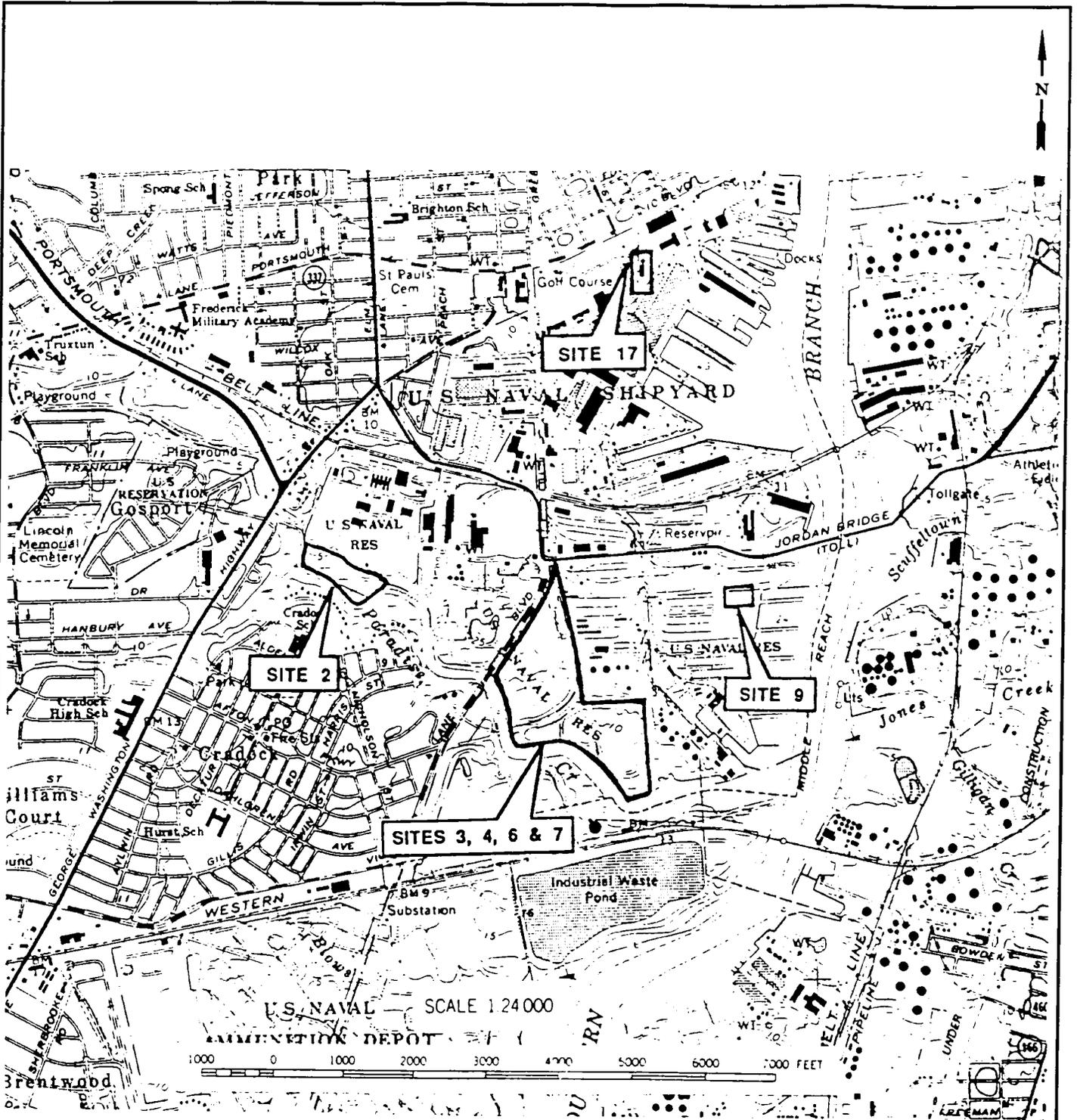
Further investigation is required to determine whether wood preserving-related DNAPL contamination exists beneath the boundaries of Navy properties adjacent to the AWI site.

1.3 SITE-SPECIFIC SAMPLING AND ANALYSIS PROBLEMS

Documentation of the location of potentially buried ordnance-like items is not available. Therefore, the Navy property (south and west of the AWI site) will be considered to contain potentially live ordnance-like items.

Metal slag has been unearthed in the fill from the Navy leased area on the AWI site, which may hinder or damage sampling equipment. Similar materials may be buried on other adjacent Navy properties previously filled by the Navy. Therefore, portions of the adjacent property study area

will be pre-drilled with a direct push rig (with a contingency for a hollow stem auger rig) to prevent damage to the SCAPS probe.

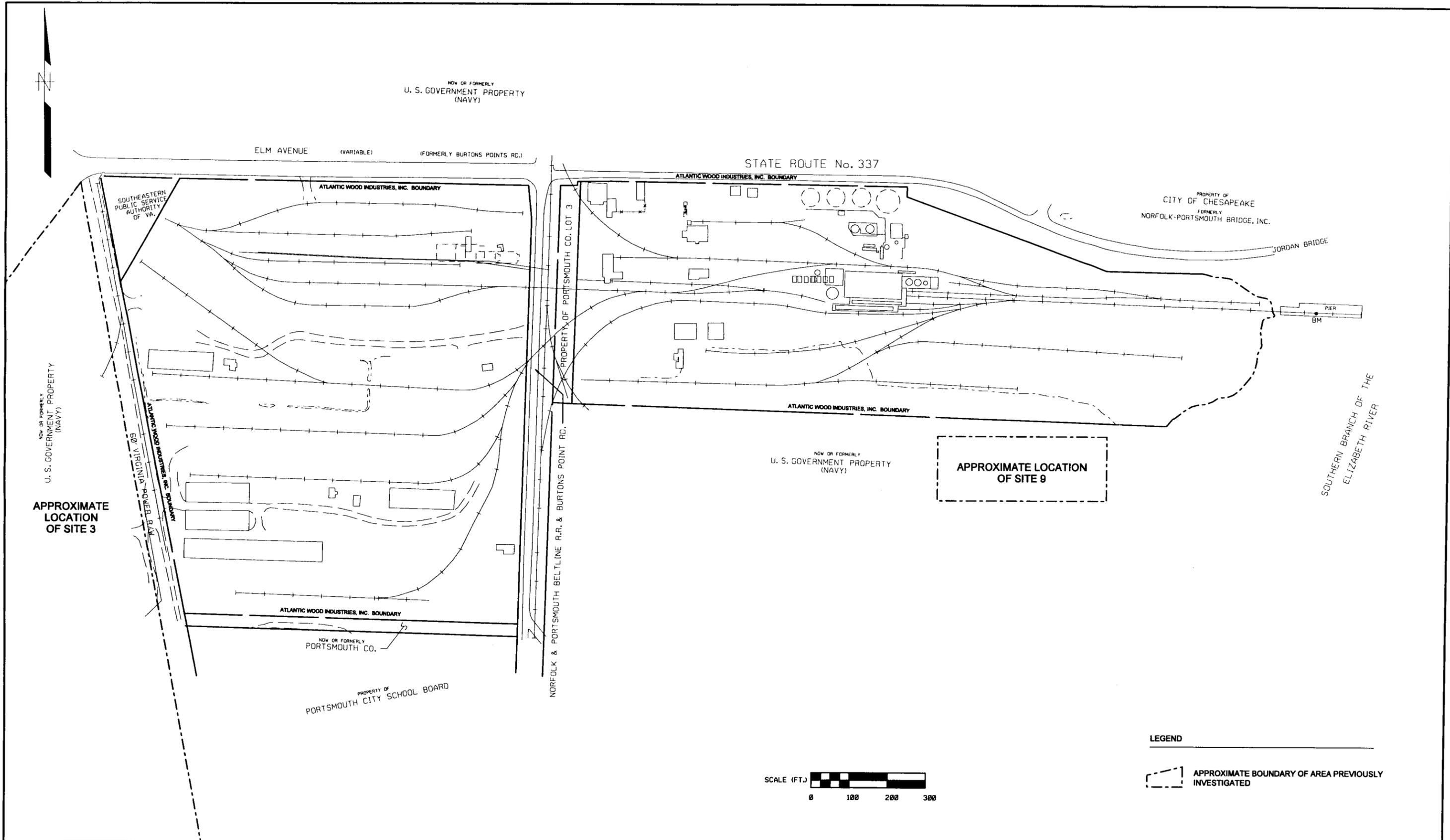


SOURCE: FOSTER WHEELER ENTERPRISE, INC., MAY, 1992

CDM Federal Programs Corporation

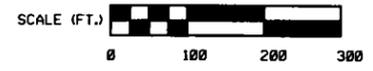
SITE LOCATION MAP
 NORFOLK NAVAL SHIPYARD
 PORTSMOUTH, VIRGINIA

FIGURE
 1-1



LEGEND

--- APPROXIMATE BOUNDARY OF AREA PREVIOUSLY INVESTIGATED



2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The project team for this preliminary investigation of adjacent Navy properties will be the same as the team for the AWI PRDI. No additional information is warranted.

3.0 SCOPE AND OBJECTIVES

The purpose of this preliminary investigation of Navy properties adjacent to the AWI site is to investigate the possible existence of DNAPL (related to AWI wood preserving operations) below the water table on Navy properties adjacent to the AWI site. Initially, this investigation will be limited to areas where similar DNAPL is found under adjacent AWI property.

The specific objectives of this preliminary investigation of Navy properties adjacent to the AWI site are to identify:

- The possible existence and location of mobile wood preserving-related DNAPLs below the water table (within the areas to be investigated).
- Soil characteristics below the water table and the extent of the Yorktown clay confining unit (within the areas to be investigated).

Several investigation field activities will be performed during the preliminary investigation of Navy properties adjacent to the AWI site. Listed below is a summary of these activities:

- Utility Clearance (to be performed by the Navy Public Works Center (PWC))
 - Ordnance Avoidance (as warranted)
 - SCAPS Investigation and Verification Sampling
 - IDW Management and Disposal
- ↳ EPA/AUCOE ~~FIELD~~ FUNDED CONTROLLED

The need and responsibility for additional investigations of AWI DNAPL contamination beneath adjacent Navy properties will be evaluated based upon the results of the investigation described in this Work Plan Addendum.

4.0 FIELD ACTIVITIES

Field activities described in this Addendum have been planned to investigate the possible existence of DNAPL (related to AWI wood preserving operations) below the water table on Navy properties adjacent to the AWI site. Provided below is a list of field activities and associated sections of the FSP:

<u>Activity</u>	<u>Section</u>
Surface Geophysics (for Utility Clearance, to be performed by the Navy PWC)	4.1
Ordnance Avoidance	4.3 & 4.4
SCAPS Investigation & Verification Sampling	4.3

This section presents additional details about the methods and procedures for performing field activities described in this Addendum at adjacent Navy properties. Section 4 of the AWI PRDI Work Plan describes all methods and procedures in greater depth. Appendix B of the AWI PRDI Work Plan contains the following CDM Federal Standard Operating Procedures (SOPs) which will be followed during performance of this preliminary investigation at adjacent Navy properties:

<u>SOP Number</u>	<u>SOP Title</u>
1-1	Surface Water and Sediment/Sludge Sampling
1-2	Sample Custody
1-3	Surface Soil Sampling
1-4	Subsurface Soil Sampling
1-6	Water Level Measurement
1-10	Field Measurement of Organic Vapors
2-5	Packaging and Shipping Environmental Samples
2-6	Guide to Handling Investigation-Derived Waste

3-1	GeoProbe Sampling
3-3	Magnetometer Survey
3-5	Lithologic Logging
4-1	Field Logbook Content and Control
4-2	Photographic Documentation of Field Activities
4-5	Field Decontamination at Nonradioactive Sites

Additional information specific to performance of activities described in this Addendum follows:

Access Agreements

U.S. EPA Region III is negotiating site access with the U.S. Navy. The Navy has a list of requirements for performing work on Navy properties. These procedures, which include the following, will be followed:

1. Two weeks prior to requiring access to Navy property, EPA or USACE shall provide to Norfolk Naval Shipyard (NNSY) the following information for workers who will require access to Navy property:
 - Employee Name
 - SSN
 - Date of Birth
 - Place of birth
 - Company
 - All workers must be US Citizens
2. The possession or use of photographic/video or audio equipment on shipyard property is prohibited without written permission from NNSY Security and Fire Department (Code 1120). Personnel who will be required to take photographic images will be required to receive a brief from Code 1120 personnel and carry a shipyard photographers permit at all times.
3. Material/equipment are prohibited within 10 feet of the Controlled Industrial Area (CIA) fence. No sampling which requires digging is allowed within the confines of the CIA clear zone without written permission of NNSY Code 1120.

4. USACE/contractors will provide notice to NNSY personnel three days prior to seeking access to Navy property. USACE/contractors will also provide the shipyard with a map/diagram detailing sampling locations on shipyard property in the investigation work plan.
5. NNSY will provide utility drawings for areas to be investigated by the USACE. USACE will request desired drawings at least two weeks before seeking access to the site.
6. NNSY will provide an escort, if necessary, during the performance of the PRDI work.
7. USACE/contractors will return the site to the same condition in which it was found and repair damage, if any, caused by their actions. For example, holes made in the ground will be refilled with dirt; if asphalt is drilled through, the hole will be refilled with asphalt.
8. USACE/contractors will be responsible for storing, removing, characterizing and disposing of any Investigation Derived Waste (IDW) generated during their activities. Code 106.32 must be notified at least two working days in advance of removal of any wastes.
9. Unexpected conditions or difficulties encountered in the field will be reported to NNSY Point of contact, Jay Boisseau (396-7231 ext. 162), upon discovery.
(Source: E-mail, November 23, 1999, from Tim Riordan of Norfolk Naval Shipyard, to Ron Davis, EPA Region III)

All site access issues will be resolved prior to initiation of field activities.

Utility Clearance

CDM Federal will work with Navy PWC staff to facilitate the Navy's utility clearance of Navy property. Utility clearance on a particular property will be completed prior to the initiation of the field effort at that property.

See the AWI PRDI FSP, Section 4.1 for details regarding this activity.

Unexploded Ordnance (UXO) Avoidance

Along with UXO avoidance for the western portion of the AWI site, UXO avoidance will have to be performed for some of the investigation areas on adjacent Navy properties. At a minimum, the Navy properties to the south and west of AWI are planned for UXO avoidance. However, as more information becomes available, it may be necessary to conduct UXO avoidance on other Navy properties. A meeting with Navy representatives is recommended to discuss this issue.

See the AWI PRDI FSP, Section 4.3.2.1.1 for details regarding this activity.

Surveying

Due to the uncertainties of how far the investigation may extend into each adjacent property, survey grid locations will be limited to 100-foot intervals along the entire AWI property boundary.

SCAPS Investigation and Verification Sampling

SCAPS investigation will occur on an adjacent property if there is evidence of DNAPL contamination that appears at the respective boundary of the AWI property. A 100-foot grid pattern is planned for adjacent Navy properties, and the grid will be investigated using the SCAPS rig as is planned for the AWI site. For sampling on the Navy properties, EPA, USACE, and Navy representatives will be consulted in the case that LIF-detections from the first row of the grid are not clean. The need and responsibility for additional DNAPL investigation on Navy property will then be decided. The potential initial row(s) of SCAPS investigation locations (on 100-foot centers) for each adjacent property are shown in Figure 4-1.

SCAPS verification samples will also be collected for the offsite sampling locations.

Verification samples will be collected at 10 % of the SCAPS locations with a minimum of one

per property and a total minimum of four (in the proportion of 75% at 25-foot depth and 25% at 50-foot depth). The locations will be spaced among the adjacent Navy properties being investigated. Additional locations may be added, as appropriate, depending on the extent of the SCAPS investigation conducted.

Soil samples will be collected from four depth at each SCAPS verification sampling location. These samples will be sent for offsite analysis of polynuclear aromatic hydrocarbons (PAHs) and pentachlorophenol (PCP) (EPA 8270C) and total petroleum hydrocarbons (TPH) (EPA 8015 Modified, diesel and gasoline range) to verify SCAPS screening measurements. Select samples will also be analyzed for soil classification by American Society for Testing and Materials (ASTM) Method D2487. Quality Assurance/Quality Control (QA/QC) and blank samples will be collected at the same frequencies as describe in section 4.3 of the FSP. Each different property will have its own QA/QC samples, as appropriate.

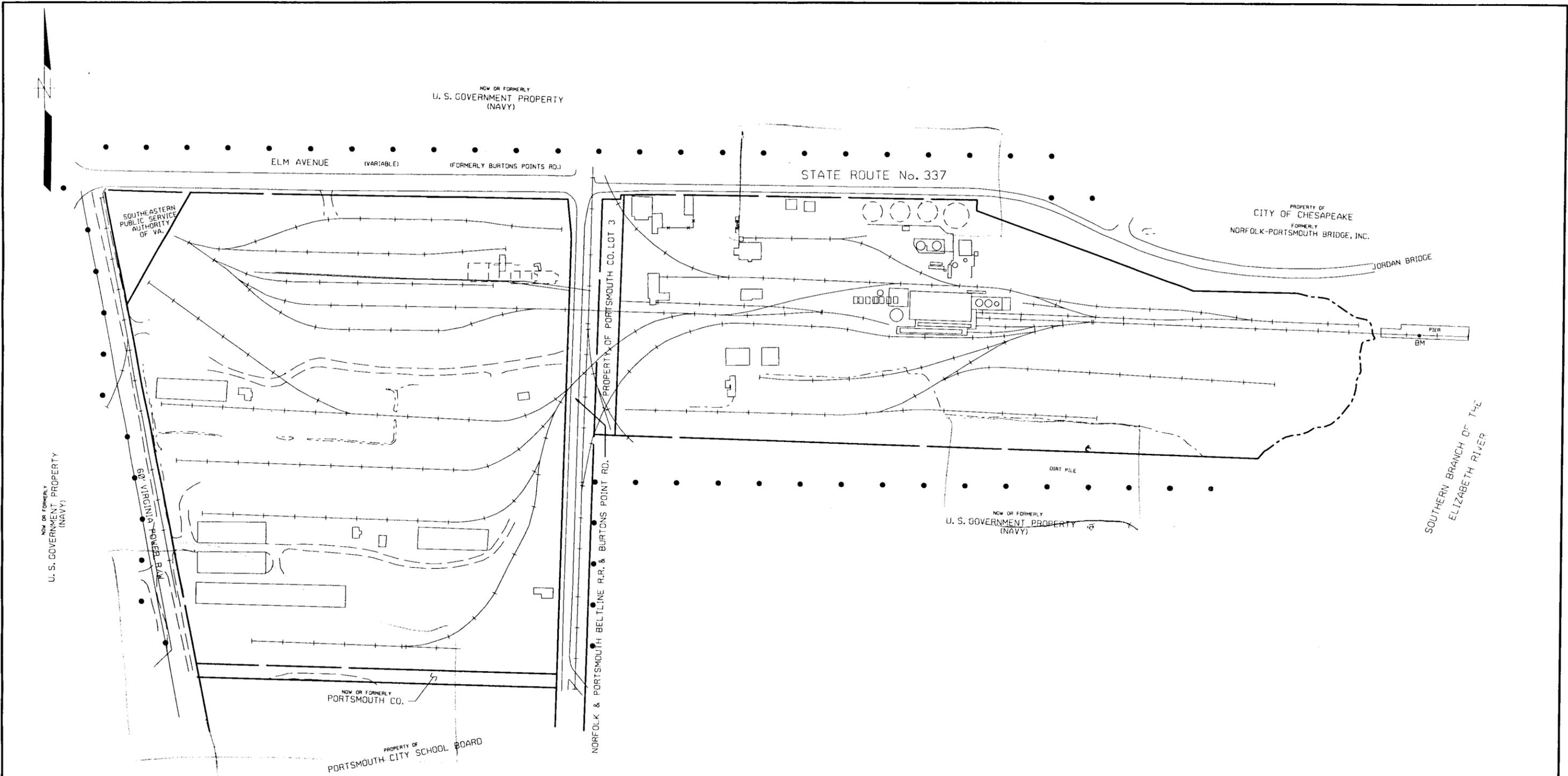
Procedures for selecting sample depths and drilling and sampling procedures will follow those detailed for SCAPS verification samples in the AWI PRDI FSP. See the AWI PRDI FSP, Section 4.3 for details regarding this activity.

Investigation Derived Wastes (IDW)

IDW generated at each individual adjacent property will be managed on that respective property in conformance with state and federal requirements. The Navy will be consulted to coordinate IDW handling procedures for IDW generated on Navy property.

Note that the quantity of IDW generated is not expected to be significant, given the nature of the SCAPS and the GeoProbe rigs.

See the AWI PRDI FSP, Section 7 for details regarding this activity.



LEGEND

- PROPOSED SAMPLING LOCATIONS ON 100 FOOT CENTERS

NOTE: SAMPLING LOCATIONS MAY BE ADJUSTED ONCE A CLEARER DEFINITION OF PROPERTY BOUNDARIES IS ESTABLISHED AND DUE TO ACCESS/CLEARANCE ISSUES, TO BE ADDRESSED ONSITE

5.0 SAMPLE CHAIN-OF-CUSTODY/DOCUMENTATION

Procedures specified in the PRDI Work Plan will be followed. The only additional information required is the consideration that separate logbooks will be maintained for each of the adjacent Navy properties to be sampled.

As stated in Section 5.3 of the AWI PRDI FSP, a separate two-letter designation will be used in the data base to identify each site. Individual codes will be developed for adjacent Navy properties, as necessary.

6.0 SAMPLE PACKAGING AND SHIPPING

Procedures specified in the PRDI Work Plan will be followed. No additional information is warranted.

7.0 INVESTIGATION-DERIVED WASTES (IDW)

Procedures specified in the PRDI Work Plan will be followed. IDW will be managed separately for each Navy property on that respective property. Additional Navy procedures for IDW generated on Navy property will be determined in meetings with Navy staff.

9.0 DAILY CHEMICAL QUALITY CONTROL REPORTS (DCQCR)

Procedures specified in the PRDI Work Plan will be followed. No additional information is warranted.

10.0 CORRECTIVE ACTION

Procedures specified in the PRDI Work Plan will be followed. No additional information is warranted.

11.0 PROJECT SCHEDULE

The schedule for this activity will be contingent upon the initiation date and progress made performing the AWI PRDI. Activities will not occur at a particular adjacent property until SCAPS activities have been completed on the AWI side of that property line and DNAPL is determined to be present. Schedule updates will be developed as more information becomes available.

ATTACHMENT A

REFERENCES

REFERENCES

Baker Environmental, Inc. (Baker), Final Remedial Investigation/Risk Assessment/Feasibility Study Report, Norfolk Naval Shipyard, Portsmouth, Virginia, 24 March 1995.

Baker, Final Summary Memorandum, Supplemental Data Collection and Evaluation, Site 3 and Site 9, Norfolk Naval Shipyard, Portsmouth, Virginia, October 1995.

Baker, Nature and Extent Verification Report, Southgate Annex, Norfolk Naval Shipyard, Portsmouth, Virginia, December 1996.

MISCELLANEOUS MILITARY/CIVIL HTRW PROJECTS
FOR
U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT

DRAFT FINAL
QUALITY ASSURANCE PROJECT PLAN ADDENDUM
INVESTIGATION AT U.S. NAVY PROPERTIES ADJACENT TO
ATLANTIC WOOD INDUSTRIES, INC. SUPERFUND SITE
PORTSMOUTH, VIRGINIA

CONTRACT NO. DACA31-96-D-0014
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1 February 2000

Prepared for:

U.S. ARMY CORPS OF ENGINEERS
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LIST OF ABBREVIATIONS AND ACRONYMS

ASTM	American Society for Testing and Materials
AWI	Atlantic Wood Industries
BaPEq	Benzo(a)pyrene equivalents
CDM Federal	CDM Federal Programs Corporation
CLP	Contract Laboratory Program
COC	Chain-of-custody
CQCR	Contractor Quality Control Report
DNAPL	Dense Non-Aqueous Phase Liquid
DCQCR	Daily Chemical Quality Control Report
DQO	Data Quality Objective
EPA	U.S. Environmental Protection Agency
FSP	Field Sampling Plan
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
LCS/LCSD	Laboratory Control Spike/Laboratory Control Spike Duplicate
LIF	Laser Induced Fluorescence
LIMS	Laboratory Information Management System
mg/kg	milligrams per kilogram
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MS/MSD	Matrix Spike/Matrix Spike Duplicate
ng/L	nanograms per liter
NIST	National Institute of Standards and Technology
PAH	Polynuclear Aromatic Hydrocarbons
PARCC	Precision, Accuracy, Representativeness, Completeness, and Comparability
PCP	Pentachlorophenol
PID	Photoionization Detector
PRDI	Pre-Remedial Design Investigation
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
%R	Percent Recovery
ROD	Record of Decision
RPD	Relative Percent Difference
RRU	Remedial Response Unit
SCAPS	Site Characterization and Analysis Penetrometer System
SOP	Standard Operating Procedure
TAL	Target Analyte List
TCL	Target Compound List
TPH	Total Petroleum Hydrocarbons

LIST OF ABBREVIATIONS AND ACRONYMS (continued)

ug/kg	micrograms per kilogram
ug/L	micrograms per liter
USACE	U.S. Army Corps of Engineers
VOCs	Volatile Organic Compounds
°C	degrees Centigrade

1.0 PROJECT DESCRIPTION

This Quality Assurance Project Plan (QAPP) Addendum has been prepared for the preliminary investigation of Navy properties adjacent to the Atlantic Wood Industry, Inc., (AWI) site. The purpose of the investigation is to determine the possible existence of mobile dense non-aqueous phase liquid (DNAPL) (related to AWI wood preserving operations) below the water table on Navy properties adjacent to the AWI site. This investigation will be conducted only in areas where similar DNAPL is found under adjacent AWI property. This information will be used to evaluate the need for additional investigations of AWI DNAPL contamination beneath adjacent Navy properties.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

Procedures specified in the Pre-Remedial Design Investigation (PRDI) Work Plan will be followed. No additional information is warranted.

3.0 DATA QUALITY OBJECTIVES

3.1 BACKGROUND

The primary goal of the preliminary investigation at Navy properties adjacent to the AWI site is to determine the possible existence of mobile DNAPL (related to AWI wood preserving operations) below the water table on Navy properties adjacent to the AWI site. The general tasks involved in this effort include:

- Preparing a Work Plan Addendum (which includes a Field Sampling Plan (FSP), QAPP, and Site Safety and Health Plan) that describes Addendum activities.
- Performing the preliminary investigation at Navy properties adjacent to AWI, which includes utility clearance, ordnance avoidance (as warranted), and Site Characterization and Analysis Penetrometer System (SCAPS) investigation and verification soil sampling.
- Performing IDW management and disposal.
- Preparing an Investigation Report summarizing findings.

The qualitative data quality objectives of this project are to:

Objective No.	Qualitative Objective
1	Perform utility clearance (to be performed by the Navy Public Works Center) of subsurface areas to locate underground utilities to be avoided.
2	Conduct ordnance avoidance for each subsurface sampling location on Navy property to the south and west of AWI.
3	Conduct subsurface testing and onsite screening of DNAPL using the SCAPS laser induced fluorescence (LIF) probe to determine the extent of mobile DNAPL below the water table, and the SCAPS rig to identify the extent and thickness of the Yorktown clay confining unit.
4	Conduct limited offsite laboratory analysis for PAHs, PCP, and TPH in direct push verification soil samples to evaluate the effects of interference from petroleum compounds to SCAPS LIF readings. These soil samples will also be visually logged to verify SCAPS stratigraphic data.
5	Conduct offsite laboratory analysis of soil classification parameters in select soil samples.

Objective No.	Qualitative Objective
6	Develop an analytical database, import laboratory data and other field data, accommodate third party data validation results, and evaluate the data for report preparation.
7	Summarize findings in an Investigation Report.

See the AWI PRDI QAPP, Section 3, for additional information regarding quantitative data quality objectives for this Addendum.

4.0 SAMPLING LOCATIONS AND PROCEDURES

Sampling locations for the SCAPS testing will be placed on 100-foot centers along the boundaries of Navy properties adjacent to the AWI site boundaries where DNAPL is present. These locations will be determined in the field once data is available from the AWI PRDI. Additional testing locations may be selected in the interior of adjacent Navy properties where results from previous sampling grid rows indicate the presence of DNAPL.

Procedures for activities to be conducted during performance of the Work Plan Addendum are presented in Section 4.0 of the FSP.

5.0 SAMPLE CUSTODY AND HOLDING TIMES

Procedures specified in the AWI PRDI FSP and QAPP will be followed. No additional information is warranted.

6.0 ANALYTICAL PROCEDURES

6.1 ONSITE SCAPS SCREENING

Sampling locations on adjacent Navy properties will be screened for the presence of DNAPL by the U.S. Army Corp of Engineers (USACE) using the SCAPS rig laser induced fluorescence probe. The screening detection limit and the actual number of samples collected will be determined in the field. Details on the procedures for SCAPS sample collection and analysis are presented in Section 4.3 of the FSP and FSP Addendum.

6.2 OFFSITE LABORATORY ANALYSIS

Verification samples will be collected at a limited number of SCAPS soil sampling locations at selected depths. These samples will be sent for offsite analysis of polynuclear aromatic hydrocarbons (PAHs) and pentachlorophenol (PCP) (EPA 8270C) and total petroleum hydrocarbons (TPH) (EPA 8015 Modified, diesel and gasoline range) to verify SCAPS screening measurements. Select samples will also be analyzed for soil classification by American Society for Testing and Materials (ASTM) Method D2487. The quality assurance (QA) manuals for any analytical laboratory used for this project will be available to CDM Federal and USACE personnel.

The actual number of verification samples to be collected will be determined during the course of the offsite investigation. The total number of Quality Assurance/Quality Control (QA/QC) samples collected for the offsite investigation will depend on the duration of the offsite investigation and the number of verification samples collected. The following guidelines will be used to for the collection of QA/QC samples:

1. Each different property with verification soil samples will have its own QA/QC samples, as appropriate.

2. Daily rinsate blank analyses will correspond with the daily soil sample analyses.
3. Source Water Blanks will be a tap water sample collected 1 per month, and ASTM Type II water sample collected 1 per batch (estimate 2 batches).
4. Trip Blanks will be one per cooler containing TPH (gasoline range organics) samples (estimate 1 per week during SCAPS verification).
5. Duplicates will be analyzed at 5% of environmental samples and will be submitted to a separate laboratory.
6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) will be analyzed at 5% of environmental samples from each matrix and distributed throughout the sampling time period.
7. SCAPS verification samples will be collected at 10 % of the SCAPS location with a minimum of one per property and a total minimum of four. The exact number and locations of the verification samples will be determined during the investigation.

The analytical procedures and method numbers can be found in Section 6 of the PRDI QAPP.

7.0 CALIBRATION PROCEDURES AND FREQUENCY

Procedures specified in the PRDI Work Plan and QAPP will be followed. No additional information is warranted.

8.0 INTERNAL QC CHECKS

Procedures specified in the PRDI Work Plan and QAPP will be followed. No additional information is warranted.

9.0 CALCULATION OF DATA QUALITY INDICATORS

Procedures specified in the PRDI Work Plan and QAPP will be followed. No additional information is warranted.

10.0 CORRECTIVE ACTIONS

Procedures specified in the PRDI Work Plan and QAPP will be followed. No additional information is warranted.

11.0 DATA REDUCTION, VALIDATION, AND REPORTING

Procedures specified in the PRDI Work Plan and QAPP will be followed. No additional information is warranted.

12.0 PREVENTIVE MAINTENANCE

Procedures specified in the PRDI Work Plan and QAPP will be followed. No additional information is warranted.

13.0 PERFORMANCE AND SYSTEM AUDITS

Procedures specified in the PRDI Work Plan and QAPP will be followed. No additional field audits are planned for the investigation activities at adjacent Navy properties beyond two field audits planned for the AWI PRDI. No additional information is warranted.

14.0 QA/QC REPORTS TO MANAGEMENT

Procedures specified in the PRDI Work Plan and QAPP will be followed. No additional information is warranted.

REFERENCES

American Society for Testing and Materials (ASTM), Annual Book of Standards, Current Edition.

CDM Federal Programs Corporation (CDM Federal), Quality Assurance Manual, Revision 9, 29 October 1999.

CDM Federal, Final Work Plan, Pre-Remedial Design Investigation, Atlantic Wood Industries, Inc. Superfund Site, Portsmouth, Virginia, 27 January 2000

U.S. Army Corps of Engineers (USACE), Requirements for the Preparation of Sampling and Analysis Plans, EM 200-1-3, September 1994.

USACE, Chemical Quality Assurance for HTRW Projects, EM 200-1-6, 10 October 1997.

USACE, Shell for Analytical Chemistry Requirements, Version 1.0, 2 November 1998.

U.S. Environmental Protection Agency (EPA), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Current Edition.

MISCELLANEOUS MILITARY/CIVIL HTRW PROJECTS
FOR
U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT

**DRAFT FINAL
SITE SAFETY AND HEALTH PLAN ADDENDUM**

**INVESTIGATION AT U.S. NAVY PROPERTIES ADJACENT TO
ATLANTIC WOOD INDUSTRIES, INC. SUPERFUND SITE
PORTSMOUTH, VIRGINIA**

CONTRACT NO. DACA31-96-D-0014
DELIVERY ORDER NO. 006

1 February 2000

Prepared for:

U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT

Prepared by:

CDM FEDERAL PROGRAMS CORPORATION
13135 Lee Jackson Memorial Highway, Suite 200
Fairfax, Virginia 22033

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APPENDICES

- APPENDIX A - Drilling Safety Management
- APPENDIX B - Heat and Cold Stress Management
- APPENDIX C - Radiation Screening Program
- APPENDIX D - USACE Accident Investigation Report Form (ENG 3394)
- APPENDIX E - Material Safety Data Sheets
- APPENDIX F - Snake and Other Bites and Poisonous Plants

INTRODUCTION

This Site Safety and Health Plan (SSHP), in combination with the CDM Federal Programs Corporation (CDM Federal) Corporate Health and Safety Program Manual, adheres to the requirements of U.S. Army Corps of Engineer (USACE) documents: EM-385-1-1, *Safety and Health Requirements Manual* and ER 385-1-92, Appendix B, *Safety and Health Elements for HTRW and OEW Documents*. Portions of the requirements in the USACE documents that are contained in the CDM Federal Corporate Health and Safety Program Manual include the following:

- Section 2 - Health and Safety Organization
- Section 3 - Health and Safety Training (addresses staff training and qualifications)
- Section 4 - Medical Surveillance Program
- Section 5 - Injury and Illness Prevention (addresses accident prevention plans)
- Section 8 - Confined Space Entry Guidelines (not required for this project)
- Section 11 - Relevant Construction Industry Standards and Standard Site Procedures (addresses standard safety operating procedures and engineering controls)

Radiation protection will not be required for this project at this point, however a radiation screening program (Appendix C) will be implemented. In addition, OSHA Form 200 which provides a record of accidents will be maintained at CDM Federal's Fairfax, Virginia office.

The purpose of this preliminary investigation of Navy properties adjacent to the AWI site is to investigate the possible existence of mobile dense non-aqueous phase liquid (DNAPL) below the water table on Navy properties adjacent to the Atlantic Wood Industry, Inc., (AWI) site. This investigation will be conducted only in areas where similar DNAPL is found under adjacent AWI property. This information will be used to evaluate the need for additional investigations of AWI DNAPL contamination beneath adjacent Navy properties.

Specific activities to be performed during this investigation of adjacent Navy properties include utility clearance (to be performed by the Navy Public Works Center), ordinance avoidance (as warranted), subsurface investigation to map subsurface stratigraphy and delineation of DNAPLs using a Site Characterization and Analysis Penetrometer System (SCAPS), and soil sampling for verification of SCAPS data.

HEALTH AND SAFETY ROLES AND RESPONSIBILITIES

Refer to the AWI Pre-Remedial Design Investigation (PRDI) Site Safety and Health Plan for discussions of Health and Safety Roles and Responsibilities.

DECONTAMINATION APPROACH

Refer to the AWI PRDI Site Safety and Health Plan for discussions of the Decontamination Approach.

REFERENCES

Refer to the AWI PRDI Site Safety and Health Plan for discussions of References.

SITE SAFETY AND HEALTH PLAN FORM

CDM FEDERAL PROGRAMS CORPORATION

PROJECT NAME: Atlantic Wood Industries, Inc. Pre-Remedial Design Investigation

CONTRACT NO. DACA31-96-D-0014

JOB SITE ADDRESS: Elm Avenue

CLIENT: USACE, Baltimore District

Portsmouth, VA

DELIVERY ORDER NO. 006

SITE CONTACT: Ross Worsham

CLIENT CONTACT: Ed Yakuchev

PHONE NO.: 1-912-964-1234

PHONE NO.: 1-410-962-6727

(√) AMENDMENT NO. 1 TO EXISTING APPROVED HSP - DATE EXISTING APPROVED HSP 8 October 1999

OBJECTIVES OF FIELD WORK:

The purpose of this preliminary investigation of Navy properties adjacent to the AWI site is to investigate the possible existence of mobile dense non-aqueous phase liquid (DNAPL) below the water table on Navy properties adjacent to the AWI site. This investigation will be conducted only in areas where similar DNAPL is found under adjacent AWI property. This information will be used to evaluate the need for additional investigations of AWI DNAPL contamination beneath adjacent Navy properties.

TYPE: Check as many as applicable

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Active | <input checked="" type="checkbox"/> Landfill | <input type="checkbox"/> Unknown |
| <input type="checkbox"/> Inactive | <input type="checkbox"/> Uncontrolled | <input checked="" type="checkbox"/> Military (former) |
| <input type="checkbox"/> Secure | <input checked="" type="checkbox"/> Industrial | <input type="checkbox"/> Other specify: |
| <input checked="" type="checkbox"/> Unsecure | <input type="checkbox"/> Recovery | |
| <input type="checkbox"/> Enclosed space | <input type="checkbox"/> Well Field | |

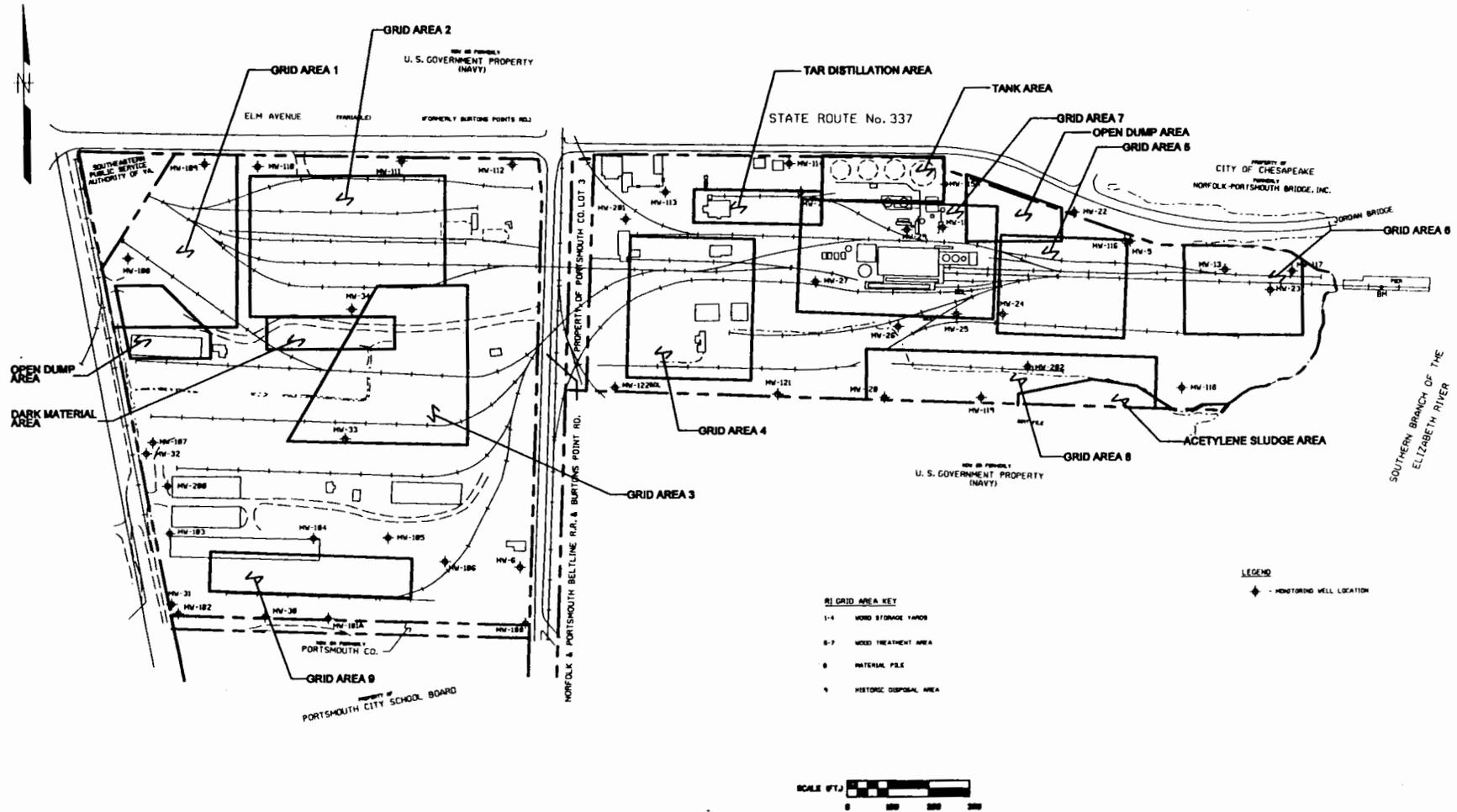
DESCRIPTION AND FEATURES: Summarize below. Include principal operations and unusual features (containers, buildings, dikes, power lines, hills, slopes, river)

AWI is an inactive wood processing plant occupying approximately 47.5 acres. The original plant was constructed in 1926. The historic shoreline of the west bank of the Southern Branch of the Elizabeth River has been filled over the years. Between 1978 and 1986, a significant amount of fill material was added to this general area. Wood preserving operations ceased in the 1990's. The western portion of the site is currently used for manufacturing post tension concrete materials. The terrain is relatively flat with small-growth flora (i.e., grass, shrubs, etc.). Most of the processing buildings and structures are still present onsite. Rail tracks are also still present on site.

Navy operations on the southern edge of the eastern half of the AWI property involved land disposal of acetylene sludge (also referred to as waste lime), which appears to have flowed onto AWI property. Low lying areas on the western portion of the site were filled by the Navy with fill materials of unknown origin during World War II. Several ordnance-like materials have been unearthed from this area. Areas of Navy property to the south and west of AWI may also have been filled by the Navy during World War II. Any military activities occurring on adjacent Navy properties will be avoided during the SCAPS investigation.

SURROUNDING POPULATION: Residential Industrial Rural Urban OTHER: Military

SITE MAP (Exclusion, Contamination Reduction, and Support Zones to be identified during mobilization phase. Evacuation and reassembly points will be discussed at daily H&S briefings.)



SITE SAFETY AND HEALTH PLAN FORM

CDM FEDERAL PROGRAMS CORPORATION

HISTORY: Summarize below. In addition to history, include complaints from public, previous agency actions, known exposures or injuries, etc.

A significant portion of the western half of the AWI property was leased to the Navy during World War II. The Navy is reported to have filled low lying areas of the property with fill material of unknown composition in order to use the property as a storage area. Several ordnance-like materials have been unearthed from this area. Wood preserving operations ceased in the 1990's, and most of the processing buildings and structures are still present onsite. The western portion of the site is currently used for manufacturing post tension concrete materials.

Areas of Navy property to the south and west of AWI may also have been filled by the Navy during World War II. Military activities occurring on adjacent Navy properties will be avoided during the SCAPS investigation.

WASTE TYPES: Liquid Solid Sludge Gas Unknown Other **specify:** (potential ordnance)

WASTE CHARACTERISTICS: Check as many as applicable.

- Corrosive Flammable Radioactive (potential)
- Toxic Volatile Reactive
- Inert Gas Unknown Other **specify:** Caustic materials and potential explosive ordnance

WORK ZONES: Describe the Exclusion, Contamination Reduction, and Support Zones in terms onsite personnel will recognize.

Work zones will be established around all SCAPS and DPT activities. Other work zones will be established as deemed necessary by the site health and safety officer.

HAZARDS OF CONCERN:

- Heat Stress attach guidelines Noise
- Cold Stress attach guidelines Inorganic Chemicals
- Explosive/Flammable Organic Chemicals
- Oxygen Deficient Motorized Traffic
- Radiological Heavy Machinery
- Biological Slips, Trips & Falls
- Other **specify:** Caustic and unstable (waste lime area)
Potential explosive ordnance

PRINCIPAL DISPOSAL METHODS AND PRACTICES: Summarize below:

Navy operations on the southern edge of the eastern half of the AWI property involved land disposal of acetylene sludge (also referred to as waste lime), which appears to have flowed onto AWI property. A significant portion of the western half of the AWI property was leased to the Navy during World War II. The Navy is reported to have filled low-lying areas with fill material. Recent investigation of the fill has unearthed buried ordnance-like objects. All ordnance-like objects found, however, have been determined to be inactive.

Areas of Navy property to the south and west of AWI may also have been filled by the Navy during World War II.

No known disposal areas will be investigated on adjacent Navy properties.

SITE SAFETY AND HEALTH PLAN FORM

CDM FEDERAL PROGRAMS CORPORATION

HAZARDOUS MATERIAL SUMMARY: Bold waste type and estimate amounts by category

CHEMICALS Amounts/Units:	SOLIDS Amounts/Units:	SLUDGES Amounts/Units:	SOLVENTS Amounts/Units:	OILS Amounts/Units:	OTHER Amounts/Units:
Acids	Flyash	Paint	Halogenated (chloro, bromo) Solvents	Oily Wastes	Laboratory
Pickling Liquors	Asbestos	Pigments	Hydrocarbons	Gasoline	Pharmaceutical
Caustics	Milling/Mine Tailings	Metal Sludges	Alcohols	Diesel Oil	Hospital
Pesticides	Ferrous Smelter	POTW Sludge	Ketones	Lubricants	Radiological (potential)
Dyes/Inks	Non-ferrous Smelter	Aluminum	Esters	PCBs	Municipal
Cyanides	Metals	Distillation Bottoms	Ethers	Polynuclear Aromatics	Construction
Phenols	Other	Other	Other	Other	Munitions (potential)
Halogens	Specify:	Specify: Waste Lime Sludge (caustic and unstable)	Specify:	Specify:	Other
Dioxins	Acetylene Sludge (caustic and unstable)				Specify:
Other					
Specify:					

OVERALL HAZARD EVALUATION: () High (x) Medium () Low () Unknown (Where tasks have different hazards, evaluate each. Attach additional sheets if necessary)
 JUSTIFICATION: No records of any highly toxic or hazardous materials being used onsite were identified.

FIRE/EXPLOSION POTENTIAL: () High () Medium (x) Low () Unknown

BACKGROUND REVIEW: (x) COMPLETE () INCOMPLETE

SITE SAFETY AND HEALTH PLAN FORM

CDM FEDERAL PROGRAMS CORPORATION

KNOWN CONTAMINANTS	HIGHEST OBSERVED CONCENTRATION	PEL/TLV ppm or mg/m ³	IDLH ppm or mg/m ³	WARNING CONCENTRATION	SYMPTOMS/EFFECTS OF ACUTE EXPOSURE	PHOTOIONIZATION POTENTIAL
Ethylbenzene	0.77 mg/kg (Soil)	100 ppm	800 ppm	--	Irritated eyes, skin	8.76
Xylenes (total)	3.7 mg/kg (Soil)	100 ppm	900 ppm	--	Irritated eyes, nose, throat	8.56
PAHs (total) [Naphthalene]	73,448 mg/kg (Soil)	10 ppm	250 ppm	--	Irritated eyes, confusion, drowsiness	8.12
Pentachlorophenol	970 mg/kg (Soil)	0.5 mg/m ³	2.5 mg/m ³	--	Irritated eyes, nose, throat, sneezing	--
Arsenic	1000 mg/kg (Soil)	0.010	5	--	Irritated skin, respiratory distress	--
Chromium	73 mg/kg (Soil)	1	100	--	Irritated eyes, skin	--
Copper	9780 mg/kg (Soil)	1	100	--	Irritated eyes, skin, metallic taste	--
Zinc	20,400 mg/kg (Soil)	5	500	--	Irritated eyes, skin, nose, throat	--
Dioxins (TCDD equivalents)	11.64 µg/kg (Soil)	--	--	--	Irritated eyes, allergic dermatitis	--

NA=Not Available NE=None Established U=Unknown
 S=Soil SW=Surface Water T=Tailings W=Waste TK=Tanks SD=Sediment
 A=Air GW=Groundwater SL=Sludge D=Drums L=Lagoon OFF=Offsite

SITE SAFETY AND HEALTH PLAN FORM

CDM FEDERAL PROGRAMS CORPORATION

FIELD ACTIVITIES COVERED UNDER THIS PLAN				HAZARD		
TASK DESCRIPTION/SPECIFIC TECHNIQUE-STANDARD OPERATING PROCEDURES/SITE LOCATION(Attach additional sheets as necessary)	Type	Primary	Contingency	SCHEDULE		
1 Utility clearance	Intrusive	A B C D	A B C D	Hi	Med	Low
	Non-intrusive	Modified	Exit Area			
2 SCAPS investigation	Intrusive	A B C D	A B C D	Hi	Med	Low
	Non-intrusive	Modified	Exit Area			
3 SCAPS verification sampling	Intrusive	A B C D	A B C D	Hi	Med	Low
	Non-intrusive	Modified	Exit Area			
4	Intrusive	A B C D	A B C D	Hi	Med	Low
	Non-intrusive	Modified	Exit Area			
5	Intrusive	A B C D	A B C D	Hi	Med	Low
	Non-intrusive	Modified	Exit Area			

PERSONNEL* AND RESPONSIBILITIES (Include subcontractors)

NAME	FIRM	CDM Federal HEALTH CLEARANCE	RESPONSIBILITIES	ONSITE?
Richard Doucette	CDM Federal	B	Site Coordinator	1 - 2 - 3 - 4
Dean Costello	CDM Federal	B	Site Health & Safety Officer	1 - 2 - 3 - 4
Todd Stribley	CDM Federal	B	Alternate Site Health & Safety Officer	1 - 2 - 3 - 4
Lisa Campbell	CDM Federal	B	Staff	1 - 2 - 3 - 4
John Bambrick	CDM Federal	B	Staff	1 - 2 - 3 - 4

SITE SAFETY AND HEALTH PLAN FORM

CDM FEDERAL PROGRAMS CORPORATION

PROTECTIVE EQUIPMENT: Specify by task. Indicate type and/or material as necessary. Use copies of this sheet if needed.

BLOCK A **TASKS: 1 & 2** (x) Primary
 LEVEL: **A - B - C - D - Modified** () Contingency

BLOCK B TASKS: 1 & 2 () Primary
 LEVEL: **A - B - C - D - Modified** (x) Contingency

Respiratory: (x) Not Needed
 () SCBA, Airline:
 () APR:
 () Cartridge:
 () Escape Mask:
 () Other:

Prot. Clothing: (x) Not Needed
 () Encapsulated Suit:
 () Splash Suit:
 () Apron
 () Tyvek Coverall:
 () Saranex Coverall:
 () Cloth Coverall:
 () Other:

Head and Eye: (x) Not Needed
 () Safety Glasses:
 () Face Shield:
 () Goggles:
 () Hard Hat:
 () Other:

Boots: () Not Needed
 (x) Boots: Leather steel-toed work boots
 (x) Overboots (Acetylene Sludge Area):
 () Rubber:

Gloves: () Not Needed
 (x) Undergloves: Latex Surgical
 (x) Gloves: Nitrite
 () Overgloves:
 () Other - specify below:

Respiratory: () Not Needed
 () SCBA, Airline:
 (x) APR:
 (x) Cartridge: GMC-H
 () Escape Mask:
 () Other:

Prot. Clothing: () Not Needed
 () Encapsulated Suit:
 () Splash Suit:
 () Apron
 (x) Tyvek Coverall:
 () Saranex Coverall:
 () Cloth Coverall:
 () Other:

Head and Eye: () Not Needed
 (x) Safety Glasses:
 () Face Shield:
 () Goggles:
 (x) Hard Hat:
 () Other:

Boots: () Not Needed
 (x) Boots: Leather steel-toed work boots
 (x) Overboots (Acetylene Sludge Area):
 () Rubber:

Gloves: () Not Needed
 (x) Undergloves: Latex Surgical
 (x) Gloves: Nitrite
 () Overgloves:
 () Other - specify below:

BLOCK C TASKS: 3 (x) Primary
 LEVEL: **A - B - C - D - Modified** () Contingency

BLOCK D **TASKS: 3** () Primary
 LEVEL: **A - B - C - D - Modified** (x) Contingency

Respiratory: (x) Not Needed
 () SCBA, Airline:
 () APR:
 () Cartridge:
 () Escape Mask:
 () Other:

Prot. Clothing: (x) Not Needed
 () Encapsulated Suit:
 () Splash Suit:
 () Apron
 () Tyvek Coverall:
 () Saranex Coverall:
 () Cloth Coverall:
 () Other:

Head and Eye: () Not Needed
 (x) Safety Glasses:
 () Face Shield:
 () Goggles:
 (x) Hard Hat:
 () Other:

Boots: () Not Needed
 (x) Boots: Leather steel-toed work boots
 (x) Overboots (Acetylene Sludge Area):
 () Rubber:

Gloves: () Not Needed
 (x) Undergloves: Latex Surgical
 (x) Gloves: Nitrite
 () Overgloves:
 () Other - specify below:

Respiratory: () Not Needed
 () SCBA, Airline:
 (x) APR:
 (x) Cartridge:
 () Escape Mask:
 () Other:

Prot. Clothing: () Not Needed
 () Encapsulated Suit:
 () Splash Suit:
 () Apron
 (x) Tyvek Coverall:
 () Saranex Coverall:
 () Cloth Coverall:
 () Other:

Head and Eye: () Not Needed
 (x) Safety Glasses:
 () Face Shield:
 () Goggles:
 (x) Hard Hat:
 () Other:

Boots: () Not Needed
 (x) Boots: Leather steel-toed work boots
 (x) Overboots (Acetylene Sludge Area):
 () Rubber:

Gloves: () Not Needed
 (x) Undergloves: Latex Surgical
 (x) Gloves: Nitrite
 () Overgloves:
 (X) Other - specify below:

SITE SAFETY AND HEALTH PLAN FORM

CDM FEDERAL PROGRAMS CORPORATION

MONITORING EQUIPMENT: Specify by task. Indicate type as necessary. Attach additional sheets as necessary.

INSTRUMENT	TASK	ACTION GUIDELINES	COMMENTS (Includes schedules of use)	
Explosimeter/Oxygen Meter	3	0-10% LEL 10-25% LEL >25% LEL 21.0% O ₂ <21.0% O ₂ <19.5% O ₂	No explosion hazard Potential explosion hazard; notify SHSC. Explosion hazard; interrupt task/evacuate Oxygen normal Oxygen deficient; notify SHSC Interrupt task/evacuate	() Not Needed
Radiation Survey Meter	3	20% above Background >2x Background	Notify SHSC Interrupt task/evacuate, contact HP	() Not Needed Radiation meters (alpha scintillation probe with scaler/rate meter and a pancake G-M probe with scaler/rate meter) will be used on gloves, boots, and sample bottles as they are removed from the contaminated zone.
Photoionization Detector Type <u>OVM</u>	3	Specify: * 0 - 10.0 ppm * 10.0 - 25.0 ppm * >25.0 ppm	Level D Level C - contingency PPE Exit site & contact SHSC * Above background sustained in breathing zone for 5 minutes.	() Not Needed
Detector Tubes/Monitox Type _____ Type _____		Specify:	(x) Not Needed	
Respirable Dust Monitor Type _____ Type _____		Specify:	(x) Not Needed	
Other Specify		Specify:		

DECONTAMINATION PROCEDURES

Personalized Decontamination

Summarize below and/or attach diagram; discuss use of work zones.

Respirators will be selected, used, decontaminated, and stored in accordance with one CDM HASM as based on OSHA 1910.134

The personal decontamination station will move from location to location based on work site.

Wash hands and face if necessary with soap and water upon doffing personal protective equipment.

Wash well before hand-to-mouth contact is made. Workers will remove protective clothing in this order:

- equipment drop
- hard hat
- boot covers
- outer gloves
- Tyvek
- respirator (if used)
- inner gloves
- face and hand wash

WASH HANDS AND FACE PRIOR TO ANY INGESTION OF FOOD OR LIQUIDS.

() Not Needed

Sampling Equipment Decontamination

Summarize below and/or attach diagram; discuss use of work zones.

All sampling equipment will be thoroughly decontaminated between samples with liquinox, water, and rinsing.

These tools are decontaminated between use at each sampling location by a six step cleaning process. These steps are:

1. Phosphate-free detergent wash.
2. Rinse with clean, potable water.
3. Rinse with ultra-pure 10% nitric acid (when sampling for metals analysis).
4. Rinse with ASTM Type II water.
5. Rinse with isopropanol.
4. Rinse with ASTM Type II distilled water.
6. Air dry.

() Not Needed

Heavy Equipment Decontamination

Summarize below and/or attach diagram; discuss use of work zones.

All down-hole equipment and tool parts that contact soil are constructed of heavy gauge steel and have no natural or synthetic components that could absorb and retain soil-borne organic contaminants.

All drilling equipment (downhole) and any other large equipment in the construction zone will be washed with a high pressure hot water cleaner prior to first use, between mobilization to each new borehole, and prior to leaving the site after the final borehole is drilled.

() Not Needed

Containment and Disposal Method

Personal protective equipment will be doubled-bagged and placed in a dumpster for disposal in a minimum technology Subtitle D disposal facility.

Containment and Disposal Method

Disposable sampling equipment and sampling derived wastes will be containerized and disposed of off-site in accordance with the IDW section of the project Work Plan.

Containment and Disposal Method

Decontamination derived wastes will be containerized and disposed of off-site in accordance with the IDW section of the project Work Plan.

SITE SAFETY AND HEALTH PLAN FORM

CDM FEDERAL PROGRAMS CORPORATION

EMERGENCY CONTACTS			EMERGENCY CONTACTS	NAME	PHONE		
Site Telephone	To be determined		Health and Safety Manager	Chuck Myers	1-703-968-0900		
EPA Release Report No.	1-215-814-9016		Project Manager	Joan Knapp	1-703-968-0900		
CDM 24-Hour Emergency	1-703-754-0700	Chuck Myers (home)	Health & Safety Coordinator	Dean Costello	1-703-968-0900		
Facility Management (AWI)	To be determined		Client Contact	Ed Yakuchev	1-410-962-6267		
Subcontractors	To be determined	(Geophysical Survey)	Other (specify)				
	To be determined	(Ordnance Avoidance)	Environmental Agency	EPA Region III	1-215-814-5000		
	To be determined	(Direct Push)	State Spill Number	VA Release Office	1-800-468-8892		
Other (specify)			Fire Department	Shipyards Fire Dept.	1-757-396-3335		
			Police Department	Shipyards Security Office	1-757-396-5111		
<p>CONTINGENCY PLANS Summarize below:</p> <p>Evacuate site if any unexpected hazardous conditions are encountered. The "buddy system" will be employed for all work being done. Site staff, if evacuated, will congregate upwind of the site in a predesignated area (to be announced at the daily health and safety meeting). If a work team observes hazards for which they have not been prepared, they will withdraw from the area and call the CDM Federal CHSM or the local Health and Safety Coordinator for guidance. Solo CDM Federal representatives will not enter or remain in a work area unless accompanied by subcontractor or facility personnel. Without regard to monitoring instrument reading, CDM Federal personnel will leave site and upgrade their level of protection if they experience any physical symptoms listed in the Health and Safety Plan.</p>			State Police	VA State Police	1-757-494-2434		
			Health Department	Chesapeake Health Dept.	1-757-382-8600		
			Poison Control Center	VA Poison Center	1-800-552-6337		
			Occupational Physician	Dr. Thomas Winters	1-800-350-4511		
			MEDICAL EMERGENCY			Hospital Name: Maryview Hospital	1-757-398-2200
						Hospital Address: 36 High Street, Portsmouth	
HEALTH AND SAFETY PLAN APPROVALS			Name of Contact at Hospital:				
Prepared by: <i>Daniel Kelly</i>	Date: <i>10/8/99</i>		Name of 24-Hour Ambulance: Shipyards Emergency	1-757-396-3333			
HSM Signature: <i>Joan Knapp for Charles Myers</i>	Date: <i>10/8/99</i>		Route to Hospital (Attach map with route to hospital)				
			From office parking lot, turn left onto Elm Ave. Turn left onto Portsmouth Blvd. Take right onto Frederick Blvd., and continue on Frederick until it dead-ends. Make a left onto High St., the hospital is on the right at the first light.				
			Distance to Hospital: Approximately 5 miles	Page 10 of 12			

THIS PAGE RESERVED FOR HOSPITAL ROUTE MAP

